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Part E

REGULATION OF PRODUCTS

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Chapter 15

Introduction to Products Regulation*

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*By Stanley H. Abramson.

§ 15:1 In general

The pollution control statutes that are the subject of most of this treatise are not the only means that are available to federal and state officials whose job it is to protect human health and the environment. In some cases the end-products of the processes that generate pollutants can themselves harm humans and the environment. In past years, a number of commercial chemicals—perfluoro chemicals, PCBs, DDT, and asbestos to name a few—were discovered to be human and animal toxins, and the list continues to grow. These products, as much as, or even more than, the pollutants they generate, must be controlled if the environment is to be protected in any meaningful way.

The statutes that regulate commercial products on the basis of their environmental and health impacts are the subject of this and the following chapters. While the ultimate purpose of such statutes is the same as that of the pollution control statutes—to control undesirable side effects of human activities—the focus of the two kinds of statutes is quite different. Pollution control statutes limit substances that for the most part are unwanted and without value. By contrast, product control statutes focus on materials that are desired and—at least to those who purchase, use or otherwise benefit from them—valuable. In addition, while both types of statutes provide authority to address existing risks, product control statutes also authorize regulators to review new industrial, agricultural and consumer products before they enter commerce in order to prevent or minimize the potential for future risks. As such, product control statutes have provided a mechanism for pollution prevention years before that term became popular.

§ 15:2 Product control statutes: distinctions between environment-based and health-based regulation

A number of federal statutes regulate commercial products on the basis of potential health effects, environmental impacts or both. Among them are the Consumer Product Safety Act (CPSA),¹ the Virus-Serum-Toxin Act (VSTA),² the Federal Food, Drug, and Cosmetic Act (FFDCA),³ the Safe Drinking Water Act (SDWA),⁴ the Toxic Substances Control Act (TSCA),⁵ and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).⁶

The following chapters treat the two statutes from the list that are most securely within the ambit of environmental protection law—TSCA and FIFRA. The purposes for which the two statutes were enacted include protecting the environment, and the statutes explicitly include risk to the environment as a basis for regulatory action.

In contrast, health-based product control statutes like the FFDCA, VSTA, and the Public Water Systems provisions of the SDWA were enacted without mention of the environment and focus almost exclusively on the direct effects of products on human and animal health. On that basis these statutes would appear to be outside the scope of a treatise on environmental protection law.

[Section 15:2]

¹15 U.S.C.A. §§ 2051 to 2089.

²21 U.S.C.A. §§ 151 to 159. *See* § 19:13.

³21 U.S.C.A. §§ 301 to 399f. *See* §§ 16:1, 18:3.

⁴42 U.S.C.A. §§ 300f to 300j-26.

⁵15 U.S.C.A. §§ 2601 to 2697. *See generally* §§ 16:1 et seq. (TSCA generally); § 19:21 (TSCA as applied to biotechnology).

⁶7 U.S.C.A. §§ 135 to 136y. *See generally* §§ 17:1 et seq. (FIFRA generally); § 19:17 (FIFRA as applied to biotechnology).

But purely health-based statutes, like the FFDCA and the Public Water Systems provisions of the SDWA, while distinguishable from environmental protection statutes in terms of their purpose and focus, nonetheless have much in common with environment-based product control statutes like TSCA and FIFRA. This is because the protection of human health is a major focus and in some cases the primary focus of the environment-based product control statutes.⁷ Thus, issues like risk assessment, the relationship between the costs and benefits of regulation, and the impact of procedure on the regulatory process arise across the spectrum of product regulation legislation.

§ 15:3 Regulation of biotechnology, nanotechnology and synthetic biology

Having acknowledged that several additional product regulation statutes could have been included in the following chapters, we must further admit that one of the following chapters—the chapter on biotechnology¹—might reasonably have been placed elsewhere. As it turns out, a chapter on the law of a new technology does not fit easily anywhere in the treatise. This is because, in the past, technologies as technologies have not been subject to separate consideration under environmental protection law. The decision to provide a separate treatment of biotechnology in this treatise was made because it is as a technology that government policymakers have been confronted with the biotechnology issue. The chapter was placed in this portion of the treatise because TSCA, FIFRA and the Plant Protection Act are three of the major statutory vehicles being used to regulate the new technology.²

The future appropriateness of this placement of the chapter could depend on the future course of the technology. Now certainly well beyond the research stage, biotechnology has not presented any truly unique risks. For the most part, the technology has been integrated into existing industries, and its products, along with its wastes and pollutants, are being governed by existing statutes. Accordingly, the need for discussion of biotechnology as a distinct regulatory subject may disappear.

Nanotechnology and synthetic biology might also have been given their own chapters in this treatise. Like biotechnology, products of these emerging technologies will still be subject to regulation based upon their intended use. For the moment, however, the primary response of the regulatory system relies upon the Toxic Substances Control Act. Nanoscale and synthetic biological materials may or may not present unique risks that call for their regulation apart from their more conventional counterpart materials.³

§ 15:4 TSCA and FIFRA

As mentioned above, TSCA and FIFRA are clearly within the ambit of environmental protection law. TSCA was originally enacted and FIFRA was completely overhauled in response to the string of environmental crises that marked the 1970s. Despite the similarity of their origins, however, these two progeny of Rachel Carson's *Silent Spring* are addressed to different subsets of the chemical universe and are dissimilar in a number of important structural respects. Below is a brief comparison of the central features of these two statutes.

⁷See § 5:2 (discussing the moral basis of pollution control laws) and § 15:5 (discussing the SDWA).

[Section 15:3]

¹Ch 19.

²See § 19:8 (discussing the various responses to biotechnology under preexisting statutes).

³See generally Bergeson & Hester, *Nanotechnology Deskbook* (2008). The Project on Emerging Nanotechnologies, Woodrow Wilson International Center for Scholars and the Pew Charitable Trusts, <http://www.nanotechproject.org/>; and The Synthetic Biology Project, Woodrow Wilson International Center for Scholars, <http://www.synbioproject.org/topics/synbio101/>.

Both FIFRA and TSCA regulate primarily commercially produced chemicals.¹ FIFRA covers products intended for a single use—pesticides—although even within that category products as diverse as insect repellants, weed killers, disinfectants, swimming pool chemicals and any other substance designed to prevent, destroy, repel or reduce pests of any sort are included. TSCA, by contrast, has an open-ended jurisdiction over commercially produced “chemical substances” from which pesticides, along with foods, drugs, cosmetics, tobacco, nuclear material and munitions, are specifically excluded. Once a potential risk to health or the environment is identified for a chemical substance, however, TSCA provides discretion for regulatory action to be taken with respect to distinct categories of products that contain that chemical substance. In a few instances, Congress has actually identified specific products for regulation, such as PCBs and lead-based paint and formaldehyde-containing composite wood products.

In underlying policy, both statutes reflect congressional judgment that as a general matter the benefits of chemicals outweigh the risks chemicals present to health or the environment. Neither recommends a flat prohibition, or even severe curtailment, of overall chemical manufacture or use. Moreover, both have adopted risk/benefit formulae as the standards for regulatory decisions.

TSCA’s regulatory regime applies to chemical substances and to mixtures of chemical substances. There are more than 84,000 commercially-produced chemical substances (not necessarily single chemicals) currently identified under TSCA with new substances being added to the list each year. Over 39,000 new chemical submissions have been made since 1979, of which approximately 10% have resulted in various restrictions, additional testing requirements, and notices withdrawn in the face of regulation.²

In contrast, FIFRA’s regime, strictly speaking, applies to products, not chemical substances. As the EPA pesticide program is organized, however, it is the so-called active ingredients of pesticides that receive the bulk of attention in the risk assessment process. Over 500 active ingredients are currently registered under FIFRA, with new active ingredients being introduced each year. Over time, a single active ingredient can be used in dozens or even hundreds of different pesticide products, with the result that there are approximately 12,000 pesticide products currently registered in the U.S.³

FIFRA and TSCA impose two different regulatory schemes on regulated products. FIFRA embodies a classical licensing scheme under which each pesticide is required to obtain a government license in the form of a registration of the product and its label.⁴ Unregistered pesticides may not be sold and with few exceptions, registered pesticides may only be used for the uses indicated on the EPA-approved label. Under FIFRA, each pesticide active ingredient and each new use of an active ingredient receives a thorough review of health and environmental impacts based on extensive data submissions from pesticide manufacturers. These reviews take as much time as EPA believes necessary—in some cases, up to 10 years. For food use pesticides, EPA also uses its authority under the FFDCA to review the safety of any

[Section 15:4]

¹Compare § 16:1 (scope of TSCA) with § 17:3 (defining “pesticide” by reference to use).

²See USEPA, Statistics for the New Chemicals Review Program under TSCA, available at: <http://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review>.

³See generally Purdue University, the National Pesticide Information Retrieval System (NPIRS), available at: <http://npirspublic.ceris.purdue.edu/public.html>.

⁴See §§ 17:2 to 17:31 (pesticide registration and data collection).

pesticide residues in food that may result from the proposed uses.⁵ Existing pesticide registrations must be reviewed by EPA every 15 years.⁶

TSCA's regulatory scheme is, in one sense, more complicated than FIFRA's.⁷ New-chemical review under TSCA does not constitute a FIFRA-like licensing scheme under which all new chemicals are subject to safety reviews based on extensive data submissions. Instead, it establishes a scheme that permits, indeed forces, EPA to subject chemicals to varying levels of scrutiny based on varying amounts of data. The essential elements of this scheme are two: first, EPA is provided notice of intent to manufacture new chemicals and a brief period during which it has an opportunity, but not an obligation, to review them; second, no specific data are required to be generated by manufacturers, although any existing health and environmental data that the party submitting the notice of intent is aware of must also be submitted to EPA. The scheme also builds in incentives for the voluntary generation and submission of data. The intended and actual result of TSCA premanufacturing review is a compromise scheme that is arguably less protective of public health and the environment than a FIFRA-type licensing scheme, but also less costly to government and less burdensome on industry.

Finally, like pollution control statutes, both FIFRA and TSCA defer in some way to the *status quo* and can result in older products remaining on the market even though they may not be as safe as newer entrants. As a practical matter, depending on the degree to which industry agrees with EPA's risk assessments and proposed risk mitigation measures, the procedural hurdles under both statutes may make it more difficult for EPA to remove a product from the market or require changes in the labeling or usage of an existing product.

§ 15:5 Drinking water¹

The Safe Drinking Water Act (SDWA) regulates one product we are all exposed to, intimately, on a daily basis, as long as we are alive. Because it is intended for direct consumption and is used to prepare food and drink, tap water must be healthful. Consumers are dependent on the availability of a safe water supply, and significant hardships arise almost immediately when water quality is impaired.

The SDWA Public Water System provisions address drinking water quality and authorize federal drinking water standards and programs to enforce those standards. Only public water systems—a defined subset of all water systems—must meet drinking water standards. The regulatory scheme involves federal maximum contaminant levels or treatment techniques that are based on health goals and feasible control technology. These standards must be met unless a variance or exemption is issued. Violations of the standards or variances and exemption conditions may be enjoined or penalized by the federal government or by the state. Emergency actions to protect against imminent endangerment also are authorized.

Long ignored as a poor relative in the family of environmental laws, the drinking water law began receiving increased attention in the 1980s. In 1986, the SDWA was substantially amended and its enforcement provisions strengthened. As amended, the SDWA requires more national drinking water standards, more treatment techniques, additional monitoring for regulated and unregulated contaminants, and increased public notification. Toxic tort lawsuits have also focused attention on

⁵FFDCA § 408, 21 U.S.C.A. § 346a; *see infra* §§ 18:7 and 19:18.

⁶FIFRA § 3(g), 7 U.S.C.A. § 136a(g).

⁷*See* §§ 16:3 to 16:36 (data collection, risk reporting and test rules, and other forms of premanufacture review).

[Section 15:5]

¹By **Kenneth Fairbanks Gray** and **Jonathan T. Ryan**.

drinking water quality and SDWA health standards. The regulatory efforts of the EPA and the generally heightened concern for health will continue to underline the importance of the SDWA.

In addition to imposing requirements on the quality of water flowing through consumer taps, the SDWA requires the states to prohibit the use of lead pipe, solder, or flux in the installation or repair of any public water system or plumbing system in a residential or nonresidential facility. The SDWA also prohibits, under certain circumstances, the manufacture and sale of any pipe, plumbing fixture, solder, or flux that is not lead-free.² Amendments to the SDWA in 1996 made it unlawful for any person to introduce into commerce after August 6, 1998, any pipe, plumbing fixture, or fitting that is not lead-free.³ EPA has established a voluntary standard, NSF International's ANSI/NSF Standard 61, § 9, as the performance-based standard for lead leaching from such components.⁴ Also in 1996, a pair of amendments to the SDWA and FFDCA directed EPA to coordinate its investigation and regulation of certain estrogenic substances, also referred to as "endocrine disruptors," under the SDWA, FIFRA, FFDCA, TSCA and any other statute available to the agency.⁵

Bottled water, as distinguished from water flowing through the consumer's tap, also is subject to comprehensive regulation. Unlike tap water, which is regulated by EPA, bottled water is regulated by the Food and Drug Administration (FDA).⁶

²SDWA § 1417, 42 U.S.C.A. § 300g-6.

³SDWA § 1417(a)(3), 42 U.S.C.A. § 300g-6(a)(3).

⁴62 Fed. Reg. 44684 (Aug. 22, 1997).

⁵SDWA § 1457, 42 U.S.C.A. § 300j-17; FFDCA § 408(p), 21 U.S.C.A. § 346a(p).

⁶21 C.F.R. § 165.110. In 1996, Congress amended the bottled water provisions of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C.A. § 349; § 305 of the SDWA Amendments of 1996, Pub. L. No. 104-182 (1996), 110 Stat. 1613. The 1996 SDWA Amendments require FDA, through delegation from the Secretary of Health and Human Services, to develop standards for bottled water that are no less than protective than the standards set forth by EPA for tap water.

Chapter 16

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*By Lawrence E. Culleen and L. Margaret Barry.

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Research References

Westlaw Databases

Law of Chemical Regulation & Hazardous Waste (LCHEMRHW)

Westlaw Search Query

adv: "TOXIC SUBSTANCES CONTROL ACT"

Primary Authority

Toxic Substances Control Act, 15 U.S.C.A. § 2601

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I. INTRODUCTION

§ 16:1 History

In 1971, the newly established Council on Environmental Quality identified a need for comprehensive legislation to address potentially dangerous uses of chemicals that other statutes did not adequately regulate.¹ However, the push for legislation to address the entire life cycle of chemicals faced resistance until particular environmental concerns—polychlorinated biphenyl contamination in the Hudson River and other water bodies, polybrominated biphenyl contamination of produce in Michigan, and depletion of the ozone layer by chlorofluorocarbon emissions, among others—created an impetus for enactment of the original Toxic Substances Control Act (TSCA).

In October 1976, President Gerald Ford signed the Toxic Substances Control Act (TSCA). The statute reflects compromises reached on the eve of the national election that seemed likely to allow the Democrats to continue their control over the Senate

[Section 16:1]

¹Congressional Research Service, The Toxic Substances Control Act (TSCA): A Summary of the Act and Its Major Requirements 2 (Sept. 14, 2015), <https://crsreports.congress.gov/product/pdf/RL/RL31905>.

and the House and put Democrat Jimmy Carter in the White House. TSCA gave the United States Environmental Protection Agency (EPA or the Agency) authority to gather information regarding chemical substances and to impose regulatory restrictions on chemical substances before and following their introduction in commerce.

Four decades later, on June 22, 2016, President Obama signed into law the Frank R. Lautenberg Chemical Safety for the 21st Century Act (2016 amendments), bipartisan legislation that overhauled TSCA's core provisions.² The 2016 amendments to TSCA were intended to update and reinvigorate the 40-year-old cornerstone of federal chemical control law. They were the culmination of more than 10 years of legislative efforts to amend TSCA. Senator Frank Lautenberg, a New Jersey Democrat, had introduced TSCA reform legislation in every congressional session since 2005.³

The Government Accountability Office (previously the General Accounting Office) (GAO) had described the need for improvements in EPA's implementation of TSCA as early as 1980, when a GAO report found that "EPA had made limited progress in identifying and controlling existing chemicals and in developing a program to control new chemicals."⁴ Among other issues, the report noted that EPA had taken action to control only three existing chemicals. By at least 1994, the GAO was suggesting broad legislative changes that could strengthen EPA's ability to regulate chemicals, including by establishing a "less burdensome" framework for EPA action, allowing regulation under TSCA in preference to other laws, and increasing EPA authority to obtain information on chemicals from industry.⁵ In 2005, a GAO report recommended that TSCA be amended to grant EPA additional powers to assess environmental and health risks presented by chemicals, by increasing EPA authority to require companies to conduct testing.⁶ The 2005 report presented a range of additional options to reduce EPA's evidentiary burden for taking action (which had proven to be a hurdle when the Agency lost a challenge to its 1989 regulations prohibiting numerous uses of asbestos), to require systematic testing of existing chemicals, and to expand regulatory control options.⁷ On the same day that the GAO publicly released its 2005 report, Senator Lautenberg introduced his first bill to overhaul TSCA, which included features recommended in the GAO report.⁸ Neither this bill nor a bill introduced by Lautenberg in May 2008 moved out of the Committee on Environment and Public Works.⁹

Following the 2008 election, chemical regulation reform was at the forefront of the Obama administration's environmental agenda. Early on, EPA Administrator Lisa Jackson remarked that Americans had "lost faith" in the government's ability

²Pub. L. No. 114-182, 130 Stat. 448 (2016).

³See, e.g., Safe Chemicals Act of 2010, S. 3209, 111th Cong. (2010); Safe Chemicals Act of 2011, S. 847, 112th Cong. (2011).

⁴U.S. Gen. Accounting Office (GAO), EPA's Efforts To Identify and Control Harmful Chemicals in Use, GAO/RCED-84-100, at 8 (June 13, 1984) (citing GAO, EPA Is Slow to Carry Out Its Responsibility to Control Harmful Chemicals, CED-81-1 (Oct. 28, 1980)), <https://www.gao.gov/assets/150/141813.pdf>.

⁵GAO, Toxic Substances Control Act: Legislative Changes Could Make the Act More Effective, GAO/RCED-94-103, at 5 (Sept. 1994), <https://www.gao.gov/assets/160/154723.pdf>.

⁶U.S. Gov't Accountability Office, Chemical Regulation: Options Exist to Improve EPA's Ability to Assess Health Risks and Manage Its Chemical Review Program, GAO-05-458, at 36-37 (June 2005), <https://www.gao.gov/assets/250/246667.pdf>.

⁷U.S. Gov't Accountability Office, Chemical Regulation: Options Exist to Improve EPA's Ability to Assess Health Risks and Manage Its Chemical Review Program, GAO-05-458, app. III (June 2005), <https://www.gao.gov/assets/250/246667.pdf>.

⁸Child, Worker and Consumer Safe Chemicals Act of 2005 (Kid Safe Chemicals Act), S. 1391, 109th Cong. (2005).

⁹See Kid-Safe Chemicals Act of 2008, S. 3040, 110th Cong. (2008).

to regulate chemical substances. Eight months into President Obama's first term, Jackson announced a set of principles for reforming TSCA.¹⁰ EPA also announced a new approach to its implementation efforts under the agency's existing TSCA authority. This included plans to require companies to provide additional information about chemical substances' risks, and increasing to increase public access to such information.

Congress also appeared poised to act on TSCA reform. The Senate and House held hearings on TSCA in 2009 and 2010, and in 2010 Senator Lautenberg and Congressman Bobby Rush (D-Ill.) each introduced far-reaching bills to amend TSCA.¹¹ Senator Lautenberg made another attempt, introducing a new bill in 2011.¹² The 2011 bill was reported out of the Environment and Public Works Committee on party lines in December 2012.

In April 2013, Senator Lautenberg—who had made clear that chemical regulation reform was one of his priorities before he retired from the Senate in 2014—once again introduced a bill to overhaul TSCA after the GAO had issued yet another report; this one addressed EPA's progress on its new plans for TSCA implementation.¹³ After its introduction, representatives of the chemical industry indicated that they had little to say about the bill itself, which was identical to the 2012 bill that they had opposed, but that they were waiting for a competing bill expected to be introduced by Senator David Vitter, a Republican from Louisiana. In an unexpected twist, however, Senator Lautenberg and Senator Vitter joined forces in May 2013 to introduce their Chemical Safety Improvement Act. The bill embodied significant compromises from both sides, including on preemption of state regulation of chemicals.

Just a month later, in June 2013, Senator Lautenberg passed away. Senator Tom Udall (D-N.M.) stepped in to take on the task of negotiating the bipartisan bill on the Democratic side. After more than a year of further negotiations, Senator Barbara Boxer (D-Cal.), then chair of the Environment and Public Works Committee, blocked the Chemical Safety Improvement Act due to concerns that included the bill's broad preemption provisions, which would have restricted states' ability to regulate chemicals.¹⁴ However, the potential for a federal framework for chemical regulation to replace a patchwork of state regulation was one of the main factors motivating industry to support TSCA reform.

After the Republicans took control of the Senate in 2015, a new bill from Senators Udall and Vitter proceeded through the Senate after the Environment and Public Works Committee approved it in April 2015, with amendments that responded to some of Senator Boxer's concerns about preemption, as well as to calls to accelerate

¹⁰Aaron Lovell, *EPA Toxics Agenda Could Strengthen Bid For TSCA Legislative Reform*, Inside EPA (Sept. 30, 2009).

¹¹Safe Chemicals Act of 2010, S. 3209, 111th Cong. (2010); Toxic Chemicals Safety Act of 2010, H.R. 5820, 111th Cong. (2011); see Arnold & Porter LLP, *TSCA-Reform Legislation: Lessons from 2010 for the Next Congress* (Oct. 2010), available at <http://www.arnoldporter.com/resources/documents/Advisory-With-Legislation-Pending-in-Both-the-House-and-the-Senate-100710.pdf>.

¹²Safe Chemicals Act of 2011, S. 847, 112th Cong. (2011).

¹³Safe Chemicals Act of 2013, S. 696, 113th Cong. (2013); see GAO, *Toxic Substances: EPA Has Increased Efforts to Assess and Control Chemicals but Could Strengthen Its Approach*, GAO-13-249 (Mar. 2013), <http://www.gao.gov/assets/660/653276.pdf>.

¹⁴See Pat Rizzuto, *Senate TSCA Modernization Talks Collapse; Reform Supporters Look to Next Congress*, Bloomberg Env't & Energy Rep. (Sept. 19, 2014); see also David LaRoss, *Senators Eye Preemption In TSCA Reform Bill Over California's Objections*, Inside EPA (Mar. 6, 2015); Bridget DiCosmo, *Seeing 'Opportunity,' ACC Seeks House Vote On TSCA Reform Bill*, Inside EPA (Dec. 10, 2013).

assessments of persistent, bioaccumulative, and toxic chemicals.¹⁵ Meanwhile, in June 2015, the House of Representatives passed a bill, the TSCA Modernization Act, by a 398-1 vote.¹⁶ In December 2015, the Senate passed the Udall-Vitter bill. Negotiations to harmonize the bills took place over the course of several months; an aide reportedly “sprinted” to submit the final version of the bill by a House deadline in May 2016.¹⁷ On June 22, 2016, President Obama signed the amendments into law.

§ 16:2 Overview and definitions

The core provisions of TSCA and its implementing regulations can be split into the following five categories; a more detailed section-by-section breakdown is presented at the beginning of this chapter. A section-by-section breakdown of the the statute that highlights key differences between the original TSCA and the 2016 amendments is in Appendix 16B.

- (1) EPA authority to require testing of chemical substances and mixtures
- (2) Requirements that notice be given to EPA prior to commencing manufacture of new chemical substances, and authorization for EPA to regulate new chemicals *and* significant new uses of chemical substances
- (3) Requirements for EPA to prioritize existing chemical substances for risk evaluation; to conduct such evaluations; and to issue rules regulating existing chemical substances that present an unreasonable risk
- (4) Reporting and recordkeeping requirements
- (5) Documentation requirements concerning import and export of chemical substances.

EPA also is authorized to enforce the statute, including by assessment of civil penalties and criminal sanctions for violations. EPA may assess fees to offset the costs of administering the statute, and the Agency is required to use the best available science when reaching determinations and taking actions to assess and control risks. The 2016 TSCA amendments more clearly separate the concepts of risk assessment and risk management (and when and how economic factors should be taken into account) and require EPA to give particular consideration to “potentially exposed or susceptible subpopulations.” The 2016 amendments define this phrase to refer to a group of individuals within the general population “who, due to either greater susceptibility or greater exposure, may be at greater risk than the general population of adverse health effects from exposure to a chemical substance or mixture, such as infants, children, pregnant women, workers, or the elderly.”¹

Although TSCA’s requirements generally apply to “persons who manufacture or process chemical substances or mixtures,” with manufacture defined to include import, some requirements also apply to persons who “distribute” chemical substances or mixtures. The statute and implementing regulations define the key terms that establish the scope of EPA’s jurisdiction. These terms are broadly defined and

¹⁵S. 697, 114th Cong. (2015) (Frank R. Lautenberg Chemical Safety for the 21st Century Act); Pat Rizzuto, *Revised TSCA-Reform Bill Approved With Bipartisan Vote by Senate Committee*, Bloomberg Env’t & Energy Rep. (Apr. 29, 2015). Senator Boxer and Senator Ed Markey introduced a competing bill, the Alan Reinstein and Trevor Schaefer Toxic Chemical Protection Act, that did not proceed. S. 725, 114th Cong. (2015).

¹⁶H.R. 2576, 114th Cong. (2016); Pat Rizzuto, *TSCA Modernization Act Sails Through House With 398 to 1 Vote*, Bloomberg Env’t & Energy Rep. (June 24, 2015).

¹⁷Anthony Adragna, *The Inside Story of Congress’ Battle for Chemical Reform*, Bloomberg Env’t & Energy Rep. (June 22, 2016).

[Section 16:2]

¹TSCA § 3(12), 15 U.S.C.A. § 2602(12).

provide EPA the authority to reach activities carried out by persons who manufacture (including import), process, use, distribute, and dispose of chemical substances and mixtures.

“Chemical substance” is defined in Section 3(2) of TSCA as any organic or inorganic substance of a particular molecular identity, including (i) any combination of such substances occurring in whole or in part as a result of a chemical reaction or occurring in nature and (ii) any element or uncombined radical.²

The definition excludes any “mixture,” which is separately defined to mean any combination of two or more chemical substances.³ Thus, each component of a mixture is subject to the TSCA requirements that apply to chemical substances.⁴ EPA interprets the definition of chemical substance to include microorganisms, and TSCA has become the primary statutory vehicle for regulating the microbial products of biotechnology used for non-agricultural and non-pesticidal purposes.⁵

To avoid overlap with other statutes, certain substances are excluded from the definition of chemical substance, including pesticides, tobacco and tobacco products, nuclear materials, foods, food additives, drugs, medical devices, and cosmetics.⁶

The terms “manufacture,” “process,” and “distribute” are broadly defined, thereby bringing many companies otherwise outside the traditional chemical “manufacturing” industry within TSCA’s scope.⁷ Thus, any manufacturing process that involves a chemical reaction is interpreted to be the manufacture of a chemical substance. Moreover, because the definition of “manufacture” encompasses import, entities that act solely as chemical products importers find themselves subject to all the TSCA requirements that apply to manufacturers.⁸ Manufactured “articles”; are generally considered by EPA to contain chemical substances. Thus, manufacturers and importers of articles are subject to some TSCA requirements. The statute does not define “article,” but the TSCA regulations define the term as a *manufactured item*, which:

- (1) is formed to a specific shape or design during manufacture;
- (2) has end use function(s) dependent in whole or in part upon its shape or design during end use; and
- (3) has either no change of chemical composition during its end use *or* only those changes of composition which have no commercial purpose separate from that of the article, and that result from a chemical reaction that occurs upon end use of other chemical substances, mixtures, or articles; except that fluids and particles are not considered articles regardless of shape or design.⁹

The term “process” generally includes activities—such as blending, formulating, and even repackaging—that are carried out in the course of preparing a chemical substance or mixture for distribution in commerce.

Consequently, TSCA regulations can apply not only to traditional chemical

²TSCA § 3(2)(A), 15 U.S.C.A. § 2602(2)(A).

³TSCA § 3(10), 15 U.S.C.A. § 2602(10).

⁴Nevertheless, various TSCA provisions discussed further below permit EPA to issue regulations and administrative orders concerning mixtures as well as individual chemicals.

⁵See § 16:25, *infra*.

⁶TSCA § 3(2)(B), 15 U.S.C.A. § 2602(2)(B). Other statutes regulate these substances, including the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C.A. §§ 136–136y; the Atomic Energy Act of 1954, 42 U.S.C.A. §§ 2011–2297h-13; and the Federal Food, Drug, and Cosmetic Act, 21 U.S.C.A. §§ 301–399i. Chapter 17 of this treatise addresses the regulation of pesticides.

⁷TSCA § 3(5), (9), (13), 15 U.S.C.A. § 2602(5), (9), (13). The interpretation of these terms is complex and rich in regulatory history. Decisions affecting compliance should be based on close analysis of the section-specific regulations and EPA guidance documents.

⁸TSCA § 3(9), 15 U.S.C.A. § 2602(9).

⁹40 C.F.R. § 704.3; *see also* 40 C.F.R. § 720.3(b).

manufacturers, but also to producers of formulated products and even to manufacturers and importers of durable goods that incorporate chemical products. Thus, after focusing on the chemical industry during the early years of TSCA's implementation, TSCA regulations now affect diverse companies, including those engaged in manufacturing everything from chemicals and formulated products to microorganisms, appliances, and furniture, as well as complex equipment such as consumer electronics.

II. TEST RULES, ORDERS, AND CONSENT AGREEMENTS

§ 16:3 In general

One purpose of TSCA is to provide authority for EPA to gather data on chemical substances necessary to assess risks and make a determination whether regulation is needed to mitigate risks. Thus, Section 4 of TSCA authorizes EPA to issue rules and orders and to enter into consent agreements that require manufacturers (including importers) and processors of chemical substances or mixtures to test their products to determine their toxicity, chemical fate, or physicochemical properties, provided that certain conditions are met.

§ 16:4 Authority to issue testing rules

EPA Section 4 Authorities to Require Testing			
Mechanism	Circumstances When EPA May Require Testing	Statutory Provision	Original TSCA or 2016 Amendments
By rule only	Where EPA makes an "exposure-based" finding for a chemical substance or mixture	TSCA § 4(a)(1)(A)(ii), 15 U.S.C.A. § 2603(a)(1)(A)(ii)	Original TSCA
	Where EPA finds that a mixture's effects "may not be reasonably and more efficiently determined or predicted by testing the chemical substances which comprise the mixture"	TSCA § 4(a)(1)(B), 15 U.S.C.A. § 2603(a)(1)(B)	Original TSCA

EPA Section 4 Authorities to Require Testing			
Mechanism	Circumstances When EPA May Require Testing	Statutory Provision	Original TSCA or 2016 Amendments
By rule, administrative order, or consent agreement	Where EPA makes a “risk-based finding” for a chemical substance or mixture	TSCA § 4(a)(1)(A)(i), 15 U.S.C.A. § 2603(a)(1)(A)(i)	Original TSCA—for requiring by rule. 2016 amendments—for requiring by administrative order or consent agreement
	To review premanufacture and significant new use notices under Section 5 or to perform risk evaluations under Section 6(b)	TSCA § 4(a)(2)(A)(i), 15 U.S.C.A. § 2603(a)(2)(A)(i)	2016 amendments
	To implement risk management requirements imposed under Section 5(e), 5(f), or 6(a)	TSCA § 4(a)(2)(A)(ii), 15 U.S.C.A. § 2603(a)(2)(A)(ii)	2016 amendments
	At the request of a federal implementing authority, to meet regulatory testing needs regarding toxicity and exposure under another federal law	TSCA § 4(a)(2)(A)(iii), 15 U.S.C.A. § 2603(a)(2)(A)(iii)	2016 amendments
	To determine whether a chemical substance, mixture, or article intended solely for export presents an unreasonable risk of injury to health or the environment within the United States	TSCA § 4(a)(2)(A)(iv), 15 U.S.C.A. § 2603(a)(2)(A)(iv)	2016 amendments
	To establish the priority of an existing chemical substance for risk evaluation	TSCA § 4(a)(2)(B), 15 U.S.C.A. § 2603(a)(2)(B)	2016 amendments

The 1976 legislation empowered EPA to issue regulations requiring a manufacturer or processor of a chemical substance to generate new test data. EPA must first make one of two alternative findings to issue such a rule.

First, EPA may find that the manufacture, processing, distribution in commerce, use, or disposal of the substance “may present an unreasonable risk” of injury to health or the environment (a “risk-based finding”).¹ Pursuant to a 1988 holding of the D.C. Circuit Court of Appeals, EPA has taken the position that it can rely on inference to establish a hazard finding, provided that the available evidence indicates that the probability of exposure is more than just theoretical.²

[Section 16:4]

¹TSCA § 4(a)(1)(A)(i), 15 U.S.C.A. § 2603(a)(1)(A)(i).

²Chemical Mfrs. Ass’n v. U.S. E.P.A., 859 F.2d 977, 28, 28 Env’t. Rep. Cas. (BNA) 1510, 19 Env’tl. L. Rep. 20001 (D.C. Cir. 1988). Rejecting an industry challenge to a test rule requiring toxicological testing to determine the health effects of 2-ethylhexanoic acid, the court stated:

We hold . . . that EPA can establish the existence and amount of human exposure on the basis of inferences drawn from the circumstances under which the substance is manufactured and used. EPA must rebut industry-supplied evidence attacking those inferences only if the industry evidence succeeds in rendering the probability of exposure in the amount found by EPA no more than theoretical or speculative. The probability of infrequent or even one-time exposure to individuals can warrant a test rule, so long as there is a more-than-theoretical basis for determining that exposure in such doses presents an “unreasonable risk of injury to health.”

Id. at 979.

Alternatively, the Agency may make an “exposure-based finding.”³ The criteria for an exposure-based finding require first that “substantial” production occurs (which EPA interprets as production or importation of at least one million pounds of the substance or mixture). Additionally, as a matter of regulatory interpretation, EPA has followed certain practices which require that at least one of the following must occur to support the exposure-based finding: the substance or mixture enters or may reasonably be anticipated to enter the environment in “substantial” quantities (at least one million pounds or 10% of production/importation, whichever is lower), or there is or may be “substantial” human exposure (1,000 workers or 10,000 consumers or 100,000 members of the general population) or there is or could be “significant” human exposure (as determined on a case-by-case basis).⁴

In conjunction with either a “risk-based finding” or an “exposure-based finding,” EPA also must find that there is insufficient information and experience from which health and environmental effects can be determined, and that testing is necessary to develop the needed information. In making the required findings, EPA relies on publicly available information as well as information submitted to the Agency under TSCA. As of this writing, well over 200 chemical substances and mixtures have been the subject of testing requirements under TSCA Section 4.⁵

For mixtures, EPA also may require testing by rule when the health or environmental effects of the mixture cannot be reasonably and more efficiently determined or predicted by testing the chemical substances comprising the mixture.⁶

§ 16:5 Additional authority to require testing

The 2016 amendments to TSCA granted EPA additional authority to require testing not only by rule, but also by administrative order and by entering into consent agreements.¹ Specifically, EPA may now require the development of new information by rule, order, and consent agreement if the Agency makes a risk-based finding and the related findings regarding insufficiency and the necessity of testing.² In addition, and without the need for a risk- or exposure-based finding, EPA may require development of new information by rule, order, and consent agreement for a substance or mixture if the information is necessary:

- (1) to review premanufacture and significant new use notices under Section 5 or to perform risk evaluations under Section 6(b);
- (2) to implement risk management requirements imposed under Section 5(e), 5(f), or 6(a);
- (3) to meet regulatory testing needs regarding toxicity and exposure under another federal law; or
- (4) to determine whether a chemical substance, mixture, or article intended

³TSCA § 4(a)(1)(A)(ii), 15 U.S.C.A. § 2603(a)(1)(A)(ii).

⁴58 Fed. Reg. 28736 (May 14, 1993). EPA published this numerical threshold after the Fifth Circuit Court of Appeals instructed the Agency to “articulate the standards or criteria on the basis of which it found the quantities of [a chemical substance] entering the environment . . . to be ‘substantial’ and the human exposure potentially resulting to be ‘substantial.’” *Chemical Mfrs. Ass’n v. E.P.A.*, 899 F.2d 344, 360, 31 Env’t. Rep. Cas. (BNA) 1321, 20 Env’tl. L. Rep. 20837 (5th Cir. 1990).

⁵A complete list is available at *Sunset dates of chemicals subject to final TSCA section 4: test requirements and related section 12(b) actions*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/sunset-dates-chemicals-subject-final-tsca-section-4-test> (modified Nov. 30, 2018).

⁶TSCA § 4(a)(1)(B), 15 U.S.C.A. § 2603(a)(1)(B).

[Section 16:5]

¹TSCA § 4(a)(2), 15 U.S.C.A. § 2603(a)(2). However, EPA entered into and codified a number of negotiated testing agreements long before the 2016 amendments. 40 C.F.R. Pt. 790.

²TSCA § 4(a)(1), 15 U.S.C.A. § 2603(a)(1).

solely for export presents an unreasonable risk of injury to health or the environment within the United States.³

In 2020, EPA used this additional authority for the first time when the Agency determined new information was necessary to finalize the risk evaluation for C.I. Pigment Violet 29 (PV29)—one of the first 10 chemical substances undergoing a Section 6(b) risk evaluation after the 2016 amendments.⁴ EPA issued two administrative testing orders to two manufacturers of PV29, requiring them to generate and submit certain physical-chemical properties information concerning PV29's solubility and occupational worker inhalation exposure.

In addition, the Agency now possesses a limited ability to require development of new information for purposes of prioritizing existing chemical substances for risk evaluations, pursuant to Section 6(b).⁵ EPA may only require development of new information in this situation if the information is necessary to establish the priority of a substance. When EPA requires information for the purposes of prioritizing a chemical substance, the Agency may not require information for purposes of establishing or implementing “a minimum information requirement of broader applicability.”⁶ In addition, EPA must designate the chemical substance as high-priority or low-priority within 90 days of receiving the information.⁷ Moreover, the amended Section 4 does not authorize EPA to issue administrative orders or to enter into consent agreements to require testing if the Agency only can make an exposure-based finding. The Agency is limited to requiring testing by rule in such instances.⁸

When requiring development of new information pursuant to these additional authorities created by the 2016 amendments, EPA must identify the need for the new information, describe how reasonably available information was used to inform the decision to require new information, and explain the basis for any decision that requires the use of vertebrate animals.⁹ Furthermore, if the Agency chooses to require the development of new information by issuing an administrative order, rather than a test rule or a negotiated testing agreement, EPA must explain why issuing an order was warranted.

The 2016 amendments instituted a “tiered testing” process for the development of new information. EPA is required to use the results of screening-level tests and assessments of available information to determine whether additional testing is necessary. In some cases, however, EPA may determine that available information justifies proceeding immediately to more advanced testing of potential health or environmental effects or potential exposure.¹⁰

§ 16:6 Vertebrate testing

The 2016 amendments include provisions intended to reduce the use of vertebrate animals in testing “to the extent practicable, scientifically justified, and consistent

³TSCA § 4(a)(2)(A)(i)–(iv), 15 U.S.C.A. § 2603(a)(2)(A)(i)–(iv).

⁴See C.I. Pigment Violet 29 (Anthra[2,1,9-def:6,5,10-d'e'f]diisoquinoline-1,3,8,10(2H,9H)-tetrone) TSCA Section 4 Test Order, Regulations.gov, <https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2020-0070>.

⁵TSCA § 4(a)(2)(B), 15 U.S.C.A. § 2603(a)(2)(B).

⁶TSCA § 4(a)(2)(B)(ii), 15 U.S.C.A. § 2603(a)(2)(B)(ii).

⁷TSCA § 4(a)(2)(B)(i), 15 U.S.C.A. § 2603(a)(2)(B)(i).

⁸TSCA § 4(a)(1), 15 U.S.C.A. § 2603(a)(1).

⁹TSCA § 4(a)(3), 15 U.S.C.A. § 2603(a)(3).

¹⁰TSCA § 4(a)(4), 15 U.S.C.A. § 2603(a)(4).

with the policies of [TSCA].”¹ Before EPA can request or require testing using vertebrate animals under Section 4, it must consider, “as appropriate and to the extent practicable and scientifically justified,” reasonably available existing information.² EPA must also encourage and facilitate the use of alternative scientifically valid test methods for Section 4 testing, as well as the grouping of chemical substances where appropriate and joint testing conducted by industrial consortia to avoid unnecessary duplication of vertebrate testing.³ The 2016 amendments also required EPA to take steps to promote the development of alternative testing methods, including by preparing a strategic plan within two years of the amendments’ enactment to promote the development and implementation of alternative test methods.⁴ In addition, the amendments require that development of information even for voluntary submission to EPA under TSCA involve consideration of alternative testing methods or strategies identified by EPA.⁵

In June 2018, EPA issued its strategic plan for developing and adopting alternatives to vertebrate testing—referred to as “new approach methodologies” or “NAMs”—for integration into TSCA decision-making processes for new and existing substances.⁶ The strategic plan described NAMs as any technology, methodology, approach, or combination thereof that avoids the use of intact animals and that can be used to provide information on chemical hazard and risk assessment. The strategic plan had three components: (1) identifying, developing, and integrating NAMs for TSCA decisions; (2) building confidence that the NAMs are scientifically reliable and relevant for TSCA decisions; and (3) implementing the reliable and relevant NAMs for TSCA decisions. For the first three years, EPA planned to focus on eight near-term needs and activities, including maintenance and updating of a list of NAMs. EPA published the first list of NAMs in June 2018 and released the first update in December 2019. The Agency also planned to propose a process for selecting NAMs for the list. Other near-term activities were related to identifying and cataloging existing information about NAMs, improving information technology platforms for integrating information from multiple databases, and collaborating with outside stakeholders.⁷ The strategic plan set five intermediate-term objectives for 2021 to 2024 (three to five years after issuance of the plan). The intermediate-term objectives focus on the further assessment of NAM research needs for TSCA purposes and increasing the use of NAMs to screen chemicals for prioritization, to prioritize chemicals for risk evaluation, to conduct risk evaluation, and to make other risk-based decisions under TSCA. The strategic plan’s long-term objective is to reduce and eventually eliminate vertebrate animal testing, but the plan does not set a timeframe for achieving this overall objective.

§ 16:7 Roles of Section 4 testing

EPA’s Section 4 testing authority proved an important tool for developing data

[Section 16:6]

¹TSCA § 4(h), 15 U.S.C.A. § 2603(h).

²TSCA § 4(h)(1)(A), 15 U.S.C.A. § 2603(h)(1)(A).

³TSCA § 4(h)(1)(B), 15 U.S.C.A. § 2603(h)(1)(B).

⁴TSCA § 4(h)(2), 15 U.S.C.A. § 2603(h)(2).

⁵TSCA § 4(h)(3), 15 U.S.C.A. § 2603(h)(3).

⁶EPA, Strategic Plan to Promote the Development and Implementation of Alternative Test Methods Within the TSCA Program, EPA Doc. No. EPA-740-R1-8004 (June 22, 2018).

⁷Another near-term activity was launching a website for NAMs. EPA maintains a NAMs page on the EPA website; the page provides information on EPA’s implementation of the strategic plan. See *Alternative Test Methods and Strategies to Reduce Vertebrate Animal Testing*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/alternative-test-methods-and-strategies-reduce> (last updated May 28, 2020).

needed for programs the Agency administers under other environmental statutes. For example, in the 1990s, EPA proposed regulations to require testing by manufacturers and processors of more than 20 hazardous air pollutants in order to gather data to support regulatory decisions mandated under the Clean Air Act.¹ EPA did not finalize the proposed testing rule, but entered into enforceable consent agreements with some manufacturers pursuant to which the manufacturers conducted testing.²

Section 4 test rules also have been leveraged to assist other agencies, such as the Occupational Safety and Health Administration (OSHA), that may need data regarding a substance's health and environmental effects.³ To ensure that the testing performed under TSCA is responsive to the needs of other agencies, the original TSCA established the 10-member Interagency Testing Committee (ITC) to recommend chemical substances for priority consideration for such testing.⁴

The 2016 amendments to Section 4 introduced to TSCA a stronger action-forcing provision that requires EPA to initiate regulatory action upon receiving information that indicates “that there may be a reasonable basis to conclude that a chemical substance or mixture presents a significant risk of serious or widespread harm to human beings.”⁵ Within 180 days of receiving such information, EPA must initiate action under Section 5 (for new chemical substances or uses), 6 (for existing chemical substances), or 7 (for imminently hazardous chemical substances) “to prevent or reduce to a sufficient extent such risk.”⁶ Alternatively, EPA may publish a finding, “made without consideration of costs or other nonrisk factors,” that the risk is not unreasonable. The publication of a finding that a risk is not unreasonable is a final agency action for purposes of judicial review.

§ 16:8 Procedures and requirements for test rules, orders, and consent agreements

A test rule identifies the substance or mixture to be tested and sets deadlines for completion of the testing,¹ which is performed according to established test

[Section 16:7]

¹61 Fed. Reg. 33178 (June 26, 1996); *see also* 62 Fed. Reg. 67466 (Dec. 24, 1997); 63 Fed. Reg. 19694 (Apr. 21, 1998).

²68 Fed. Reg. 33125 (June 3, 2003) (final enforceable consent agreement and testing consent order for 1,2-ethylene dichloride); 64 Fed. Reg. 20298 (Apr. 26, 1999) (final enforceable consent agreement and testing consent order for methyl isobutyl ketone).

³*See* In Vitro Dermal Absorption Rate Testing of Certain Chemicals of Interest to the Occupational Safety and Health Administration, 69 Fed. Reg. 22402 (Apr. 26, 2004).

⁴TSCA § 4(e)(1), 15 U.S.C.A. § 2603(e)(1). TSCA requires the ITC to update its list of recommended chemical substances and mixtures every six months. The Committee also can designate from this list up to 50 chemical substances and mixtures for the priority testing list for which a testing or information-gathering rulemaking should be initiated within one year. TSCA § 4(e)(1)(A), 15 U.S.C.A. § 2603(e)(1)(A).

⁵TSCA § 4(f), 15 U.S.C.A. § 2603(f). At the time TSCA was enacted, Congress was particularly concerned about chemical substances that presented risks from cancer, gene mutations, or birth defects. Prior to passage of the 2016 amendments, Section 4's action-forcing provision was narrower in scope and required EPA to take appropriate regulatory action only if the “significant risk of serious or widespread harm to human beings” was from cancer, gene mutation, or birth defects.

⁶EPA may extend this 180-day period by up to 90 days if it publishes a notice of the extension with an explanation of the need for more time. TSCA § 4(f), 15 U.S.C.A. § 2603(f).

[Section 16:8]

¹The rules governing issuance of test rules, exemptions, and testing consent agreements are codified at 40 C.F.R. §§ 790.1 to 790.99.

standards.² A test rule will specify that it applies to manufacturers, to processors, or to both.³ The rule also will identify which entities will initially be required to submit letters of intent to conduct testing.⁴ This will depend on which activities are associated with the risks being evaluated (*e.g.*, manufacturing or processing).⁵ Thus, when promulgating a test rule, EPA often will identify two “Tiers” of entities subject to the test rule. While legally subject to a test rule, persons in the second Tier need not comply with the requirements of the test rule unless directed to do so in a subsequent notice. Frequently, manufacturers of a chemical substance subject to a test rule are placed in Tier 1, while processors of the substance are placed in Tier 2.⁶ However, persons in Tier 2 may be subject to claims for reimbursement by a manufacturer who actually performs the test.⁷

Entities subject to the test rule may seek an exemption if they can demonstrate that testing would be redundant.⁸ Exempted persons must, if asked by those who conducted a test, reimburse those persons for a share of the testing cost. If the parties cannot agree on a reimbursement schedule among themselves, EPA may impose one.⁹

EPA’s implementation of the test rules program was hindered in the early years by the time and resources needed to build a record to support each rule. EPA determined that case-by-case rulemaking was too burdensome and resource-intensive. The Agency therefore developed an alternative practice of negotiating consent agreements with chemical manufacturers and processors who agreed to fund or perform the needed testing. Such testing agreements can be negotiated more quickly and efficiently than a rule can be developed.¹⁰

Procedures for negotiating testing agreements had been integrated into the regulations for development and promulgation of test rules long before the 2016 amendments.¹¹ The procedures afford manufacturers, processors, and other interested parties up to six months to negotiate an agreement with EPA, though

²EPA has developed generic test guidelines on which chemical-specific test standards in TSCA Section 4 test rules and consent agreements are based. 50 Fed. Reg. 39252 (Sept. 27, 1985) (codified at 40 C.F.R. Pts. 796 to 798). In addition, EPA may base test standards on certain internationally agreed-upon test guidelines developed by the Organisation for Economic Co-operation and Development (OECD). 50 Fed. Reg. 39472 (Sept. 27, 1985) (codified at 40 C.F.R. Pt. 796). These standards are periodically reviewed and revised to keep them current. *See, e.g.*, 62 Fed. Reg. 43820 (Aug. 15, 1997) (codified at 40 C.F.R. Pt. 799, Subpt. H) (establishing 11 new health effects testing guidelines for TSCA Section 4 test rules); 65 Fed. Reg. 78746 (Dec. 15, 2000) (codified at 40 C.F.R. Pt. 799, Subpt. E) (establishing 15 new health effects testing guidelines). EPA has also prescribed good laboratory practices for conducting tests under Section 4. 40 C.F.R. §§ 792.1 to 792.195.

³40 C.F.R. § 790.42.

⁴40 C.F.R. § 790.42.

⁵40 C.F.R. § 790.42.

⁶*See, e.g.*, 40 C.F.R. § 799.5085 (chemical testing requirements for first group of high production volume chemicals).

⁷*See* 40 C.F.R. Pt. 791.

⁸TSCA § 4(c), 15 U.S.C.A. § 2603(c); 40 C.F.R. §§ 790.80 to 790.99. EPA will conditionally approve a request for an exemption if the Agency has received a letter of intent to conduct the testing from another party; if the chemical substance or mixture is equivalent to another substance or mixture for which data have been, or are being, submitted under a test rule; or if submission of required test data concerning that chemical substance or mixture would be duplicative of data that have been, or are being, submitted to EPA in accordance with a test rule. 40 C.F.R. § 790.87.

⁹TSCA § 4(c)(3)(A), 15 U.S.C.A. § 2603(c)(3)(A); 40 C.F.R. Pt. 791.

¹⁰*See, e.g.*, 47 Fed. Reg. 335 to 336 (Jan. 5, 1982); 46 Fed. Reg. 53775 (Oct. 30, 1981) (preliminary and final decisions not to propose a test rule for alkyl phthalates or benzyl butyl phthalate).

¹¹*See* Procedures Governing Testing Consent Agreements and Test Rules, 40 C.F.R. Pt. 790. EPA reviewed its testing consent order and test rule development process and expected to propose efficiency-enhancing amendments to these procedures by late 1998. *See* 63 Fed. Reg. 22690, 22694 (Apr. 27,

EPA may extend negotiations at its discretion if it seems likely that the parties can reach a final agreement. If an agreement cannot be reached, EPA will proceed to develop a test rule. If an agreement is reached, it will be implemented as a consent order specifying the required tests and a schedule for performing them, and requiring signatory manufacturers and processors to comply with other TSCA requirements that are triggered by test rules. Signatory parties also must acknowledge that they are subject to the TSCA enforcement provisions that apply to test rules.¹² EPA has posted testing results obtained using its Section 4 testing authority and voluntary testing agreements in ChemView, the Agency's publicly accessible online database for regulatory and health and safety information about chemical substances.¹³

Although the 2016 amendments to TSCA specifically contemplate negotiated testing agreements (a feature that was included in the amendments to acknowledge EPA's prior practices in this regard), as of this writing, the Agency has not entered into any negotiated Section 4 testing agreements.

§ 16:9 Voluntary testing initiatives prior to the 2016 amendments

Beginning in the late 1990s, the Agency launched several initiatives aimed at fulfilling its priority data needs through programs that encourage voluntary testing by the U.S. chemical industry. These initiatives focused primarily on (1) organic high production volume (HPV) chemical substances and (2) chemical substances of particular potential concern to children (the Voluntary Children's Chemical Evaluation Program, or VCCEP).¹ Following the HPV program's inception in 1998, chemical manufacturers and importers "sponsored," i.e., developed and submitted basic hazard data for, more than 2,200 chemical substances.² To address chemical substances that were eligible for sponsorship but were not sponsored, the first HPV test rule concerning 17 "orphan" chemical substances was published on March 16, 2006.³ EPA also utilized its authority under TSCA Section 8(a) and (d) to issue rules to gather production volume and exposure information in addition to existing health and safety data on orphan HPV chemical substances.⁴

The Chemical Assessment and Management Program (ChAMP) was a subsequent effort announced by the Agency in March 2008, intended to encourage voluntary

1998). The Agency did eventually amend its procedures, but not until a decade later. *See* 75 Fed. Reg. 56472 (Sept. 16, 2010).

¹²40 C.F.R. § 790.60(a)(13).

¹³*Data Development and Information Collection to Assess Risks*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/data-development-and-information-collection-assess-risks>.

[Section 16:9]

¹Chemical substances produced in annual volumes of at least one million pounds are considered HPV chemicals. *See* Data Collection and Development on High Production Volume (HPV) Chemicals, 65 Fed. Reg. 81686, 81688 (Dec. 26, 2000). On December 26, 2000, EPA launched the VCCEP Pilot by asking companies that manufactured or imported one or more of the 23 chemical substances selected for the program to volunteer to sponsor their chemical substances and provide information on health effects, exposure, risk, and data needs. *See* Voluntary Children's Chemical Evaluation Program, 65 Fed. Reg. 81700 (Dec. 26, 2000). Thirty-five companies and 10 consortia responded, volunteering to sponsor 20 chemical substances. In July 2011, the EPA Office of the Inspector General released a report that criticized the VCCEP for failing to achieve children's health protection goals. EPA, EPA's Voluntary Chemical Evaluation Program Did Not Achieve Children's Health Protection Goals (July 21, 2011), <https://www.epa.gov/sites/production/files/2015-10/documents/20110721-11-p-0379.pdf>. The VCCEP is no longer active.

²*See* Charles M. Auer, *Old TSCA, New TSCA, and Chemical Testing*, 158 Daily Env't Rep. (BNA Bloomberg) B-1 (Aug. 16, 2016).

³*See* Testing of Certain High Production Volume Chemicals, 71 Fed. Reg. 13708 (Mar. 16, 2006).

⁴71 Fed. Reg. 47122 (Aug. 16, 2006); 71 Fed. Reg. 47130 (Aug. 16, 2006).

testing by the U.S. chemical industry.⁵ ChAMP was a voluntary program created to implement commitments that the United States made at the Security and Prosperity Partnership of North America Leaders Summit in August 2007. The United States agreed to complete screening-level hazard, exposure, and risk characterizations on an estimated 6,750 chemical substances, including HPV chemical substances and Moderate Production Volume (MPV) chemical substances.⁶ Based on these assessments, the Agency planned to prioritize the substances to indicate whether additional data or control measures were needed to address potential hazards and risks. The ChAMP effort built on EPA's prior work under the HPV Challenge Program and the data collected under the 2006 Inventory Update Rule.⁷

Following the 2008 election, the Obama administration suspended the ChAMP program, concluding that the categorization of thousands of chemicals would take years and would be based on incomplete information in the absence of mandatory data submission or testing requirements.⁸ As discussed in Section 16:29, the Obama administration instead announced a new approach to assessing existing chemical substances.

III. PREVENTION OF UNREASONABLE RISK: REGULATION OF NEW CHEMICAL SUBSTANCES

§ 16:10 Introduction

A major theme of TSCA is the anticipation and prevention of new and unreasonable risks from exposure to chemical substances and mixtures. A new risk may arise in two ways: through the manufacture of a new chemical substance or through the use of an existing chemical substance in a new way that involves increased human exposure or release to the environment. Thus, to the extent TSCA was crafted to enable EPA to gather and review test data and related information about chemical substances, the cornerstone provision of the 1976 legislation arguably was Section 5—which permits EPA to assess and take measures to prevent new risks through (1) premanufacture review and regulation of new chemical substances and (2) promulgation of “significant new use rules” or “SNURs.”

Premanufacture review permits EPA to identify and take steps to regulate and gather data concerning chemical substances for which concerns might exist before they enter the stream of commerce. SNURs identify chemical substances or categories of substances of potential concern to EPA and require notice to EPA before such substances may be used in a manner not specifically permitted by the SNUR. Section 5 was the first piece of U.S. environmental legislation to incorporate principles that would later be dubbed “pollution prevention.”

As discussed in Section 16:13, the 2016 amendments enhanced EPA's role as a gatekeeper by incorporating a requirement into Section 5 that EPA make an affirmative determination (before a new substance may be manufactured) regarding whether a substance presents or is not likely to present an unreasonable risk to

⁵Jeff Kinney, *North American Agreement Said to Provide Targeted Approach for Testing, Regulation*, 53 Daily Env't Rep. (Bloomberg BNA) A-8 (Mar. 19, 2008).

⁶HPV chemicals are those substances that are reported under the 2006 Inventory Update Reporting rule (IUR), now known as the Chemical Data Reporting rule, as being produced or imported in quantities greater than or equal to one million pounds a year. MPV chemicals are those substances that are reported under the 2006 IUR as being produced or imported in quantities greater than or equal to 25,000 and less than one million pounds per year.

⁷See 70 Fed. Reg. 75059, 75068 (Dec. 19, 2005).

⁸Maria Hegstad, *Industry Attacks EPA Chemical 'Action Plans' In Advance of TSCA Reform*, Inside EPA (Nov. 24, 2009); Pat Rizzuto, *Chemical Assessment, Management Program Officially Superseded by New EPA Approach*, 189 Daily Env't Rep. (Bloomberg BNA) A-13 (Oct. 2, 2009).

health or the environment.

§ 16:11 Premanufacture review of new chemical substances—The role of the TSCA Chemical Substance Inventory

Section 5 of TSCA creates notification requirements that must be satisfied before a company may lawfully manufacture or import a “new chemical substance.” A new chemical substance is one that is subject to TSCA but does not already appear on the TSCA Chemical Substance Inventory (TSCA Inventory or the Inventory).¹ The Inventory is inclusive of all chemical substances that are manufactured or imported for industrial uses as well as substances that are used in formulating virtually every commercial and consumer product distributed in U.S. commerce and in products exported to other countries. Listed on the Inventory are organics and inorganic chemical substances; polymers; and chemical substances of unknown or variable composition, complex reaction products, and biological materials (sometimes referred to as UVCBs). Thus, the TSCA Inventory functionally constitutes a comprehensive listing of all “existing” chemical substances. The TSCA Inventory was created and is maintained pursuant to Section 8(b), which requires EPA to compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States.²

The Inventory was created shortly after enactment of the original statute and therefore comprises all chemical substances manufactured in or imported to the United States for commercial purposes since January 1, 1975. EPA compiled the initial TSCA Inventory in 1979 based on information collected from manufacturers and importers through EPA’s initial Inventory reporting regulations.³ Naturally occurring substances are considered to have been automatically included on the Inventory.⁴

Today, more than 86,000 chemical substances are listed on the TSCA Inventory.⁵ As discussed in Section 16:35, the 2016 amendments to TSCA Section 8 required that the Inventory be updated to reflect which chemical substances are currently “active” and which are “inactive.” Following a rulemaking and exercise requiring reporting to EPA by chemical manufacturers, importers, and processors, EPA completed the process for making these designations in 2019.⁶ It is unlawful to manufacture, process, or use for commercial purposes a substance which is listed as “inactive” on the Inventory. Nevertheless, substances that are designated as “inactive” on the Inventory are not subject to the full Section 5 notification requirements for “new chemicals.” Instead, any entity that wishes to “reactivate” a substance because it intends to manufacture, import, or process it in the U.S. may do so by submitting to EPA a simplified notice, known as a Notice of Activity (NOA) Form B.⁷

An entirely new substance is added to the Inventory only when EPA receives a notice of commencement (NOC) of manufacture of the new substance following its successful completion of the Section 5 premanufacture review process, discussed in

[Section 16:11]

¹TSCA § 3(9), 15 U.S.C.A. § 2602(9).

²TSCA § 8(b)(1), 15 U.S.C.A. § 2607(b)(1).

³40 C.F.R. §§ 710.1 to 710.4.

⁴40 C.F.R. § 710.4(b).

⁵*About the TSCA Chemical Substance Inventory*, EPA, <https://www.epa.gov/tsca-inventory/about-tsca-chemical-substance-inventory>.

⁶See 84 Fed. Reg. 21772 (May 15, 2019).

⁷See discussion *infra* in Section 16:35.

detail below.⁸ EPA also updates and refines information it maintains concerning substances listed on the Inventory through its “Chemical Data Reporting” (CDR) rule, which requires manufacturers (including importers) to periodically submit information on the chemical substances they produce domestically or import into the United States.⁹ EPA also has issued guidance under which manufacturers and importers may request corrections to the Inventory, but in practice such corrections now are rarely sought or allowed, given how long it has been since the original Inventory was established.¹⁰

Prior to importing or manufacturing a chemical substance, an importer or manufacturer must ascertain whether the substance appears on the TSCA Inventory. There are two portions of the TSCA Inventory: a non-confidential portion, which is available to the public, and a confidential portion, which lists chemical substances whose identities have been claimed as confidential by their manufacturers and which may be reviewed only by EPA.¹¹ In conjunction with its efforts to modernize the Inventory so that it more accurately conveys the identities of chemical substances currently in commerce, the 2016 amendments require EPA to undertake a plan to systematically review existing confidentiality claims for Inventory-listed substances that are “active” in commerce (i.e., those which have been produced or processed during the preceding 10-year period).¹² The 2016 amendments also required EPA to develop a system to assign a unique identifier to each specific chemical identity that is protected from disclosure (because it is treated as confidential business information or “CBI”) and to publish a list (to be updated each year) of the unique identifiers.¹³ The TSCA Inventory posted in September 2019 was the first to include this unique identifier information. Confidential chemical identities also are represented to the general public using generic names that are intended to be as descriptive as possible while still masking the portion of the chemical’s identity that is the important trade secret.

To determine whether a substance is on the non-confidential portion of the TSCA Inventory, it is advisable to search the frequently updated electronic version of the TSCA Inventory.¹⁴ EPA will search the confidential portion of the TSCA Inventory on behalf of any person who demonstrates a *bona fide* intent to manufacture or import a chemical substance for commercial purposes.¹⁵

In some cases, potential manufacturers may intend to use reactants whose specific chemical identities are held confidential by their suppliers. Similarly, a potential importer may intend to bring into the United States a substance whose identity is known only to its foreign manufacturer. In these instances, the domestic or foreign manufacturer of the confidential substance can provide a letter of support, including specific chemical identity information, directly to EPA. Manufacturers and importers of such chemical substances should take steps to ensure that they are promptly apprised of any changes in the chemical composition of the substances they obtain to avoid inadvertently producing or importing a different substance than the one

⁸See § 16:13, *infra*.

⁹See § 16:35, *infra*. The regulations governing updates and refinements to the Inventory were formerly known as the “Inventory Update Reporting” rule. See 76 Fed. Reg. 50816 (Aug. 16, 2011).

¹⁰45 Fed. Reg. 50544 (July 29, 1980). Requests for correction must address inadvertent errors in describing the chemical identity of manufactured and imported substances.

¹¹Confidential substances are also identified on the non-confidential portion of the Inventory by generic name.

¹²See discussion *infra* § 16:35.

¹³TSCA § 14(g)(4), 15 U.S.C.A. § 2613(g)(4); see also 83 Fed. Reg. 30168 (June 27, 2018).

¹⁴Access to the TSCA Inventory and related information is available at <https://www.epa.gov/tsca-inventory>.

¹⁵40 C.F.R. § 720.25(b).

authorized.

Determining whether a substance is on the Inventory can involve complex issues of chemical nomenclature. Many potential violations of Section 5 arise from errors in determining chemical identity or in understanding chemical nomenclature conventions used by EPA, which may lead manufacturers mistakenly to believe that a substance is listed on the TSCA Inventory. EPA has developed numerous policy statements and guidance documents on how to identify certain chemical substances for the purpose of assigning unique and unambiguous descriptions for each substance listed on the TSCA Inventory.¹⁶ To ensure the 2016 amendments were not misinterpreted by EPA officials as a mandate to “undo” or “clean up” certain Inventory listings that have presented challenges to EPA and the regulated community alike, the legislation provided instruction to EPA regarding nomenclature. The 2016 amendments require that EPA maintain the long-established use of Class 2 chemical nomenclature and the Soap and Detergent Association Nomenclature System, and also that individual members of categories of “statutory mixtures” identified by EPA be treated as included on the Inventory.¹⁷ EPA is also given discretion to recognize multiple Inventory listings as a single chemical substance if a manufacturer or processor demonstrates that a chemical substance appears multiple times under different names.¹⁸

Polymers meeting certain criteria may be subject to a specific exemption to the Section 5 notification procedures. This can substantially simplify the ordinary requirements for new substances subject to premanufacture notification. In general, polymers are characterized as substances having a sequence of one or more types of repeating monomer units bonded to two or more other molecules and having a molecular weight distribution among the molecules present in the chemical substance that is primarily attributable to differences in the number of monomer units contained in the substance.¹⁹ Although many polymers are produced in accordance with this exemption to the premanufacture notification (PMN) requirement (discussed in more detail later) that permits them not to be identified on the Inventory, nonexempt polymers and others that manufacturers have elected to submit through the PMN process are listed. In such cases, polymers are identified on the Inventory based on their starting materials. Under the so-called “two percent rule,” all monomers and other reactants used at greater than 2% by weight in the manufacture of the polymer (based on the dry weight of the polymer manufactured) must be listed; monomers and other reactants used at 2% or less are listed only if the manufacturer so requests.²⁰

EPA revised the 2% rule in 1995 to allow alternative methods for determining the level of reactant or monomer in a polymer. The weight percentage may be based on

¹⁶See *EPA’s Review Process for New Chemicals: Policies and Guidance*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/epas-review-process-new-chemicals#policies>.

¹⁷TSCA § 8(b)(3)(A), 15 U.S.C.A. § 2607(b)(3)(A).

¹⁸TSCA § 8(b)(3)(B), 15 U.S.C.A. § 2607(b)(3)(B).

¹⁹EPA, *Toxic Substances Control Act: Inventory Representation for Polymeric Substances* (not dated), <https://19january2017snapshot.epa.gov/sites/production/files/2015-05/documents/polymers.pdf>.

²⁰40 C.F.R. § 720.45(a)(2); see also EPA, *Instruction Manual for Reporting under the TSCA § 5 New Chemicals Program* (2015), https://www.epa.gov/sites/production/files/2015-06/documents/instruction_manual_2015_5-26-2015.pdf. The decision whether to list reactants used at less than 2% affects the manufacturer’s ability to vary the formulation of the polymer. The quantities of each reactant listed on the Inventory as part of a polymer may be varied without submission of a premanufacture notice. The polymer will be considered a new chemical substance, however, if (1) any reactant included in the name listed on the Inventory is eliminated or (2) any reactant not included in the name listed on the Inventory is used at a level above 2%. See 48 Fed. Reg. 41132, 41134 (Sept. 13, 1983); 60 Fed. Reg. 16298, 16304 to 16305 (Mar. 29, 1995).

either (1) the weight of monomer or other reactant actually “charged,” or added, to the reaction vessel (which was formerly the only permissible methodology); or (2) the minimum weight of monomer or other reactant required in theory to account for the actual weight of monomer or other reactant chemically “incorporated,” or combined, in the polymer.²¹

§ 16:12 Premanufacture review of new chemical substances—The premanufacture notice (PMN) requirement

A person who intends to manufacture or import a chemical substance that does not appear on the TSCA Inventory must satisfy TSCA’s PMN requirements. Section 5(a), as amended in 2016, requires such persons to notify EPA at least 90 days before manufacturing or importing a new chemical substance for commercial purposes and to await a risk determination by EPA.¹ The PMN must be submitted electronically using software available from EPA and must contain all information specified in the form, to the extent it is known to or reasonably ascertainable by the submitter.² The required information includes the chemical name and molecular formula and structure of the chemical substance to be manufactured; categories or proposed categories of use; estimates of total amounts to be manufactured or processed for each use; a description of byproducts resulting from manufacture, processing, use, or disposal; estimates of employee exposure; and the method to be used to dispose of the substance.³

The PMN submitter is generally not required to develop any new health or safety information or test data before submitting the PMN (although EPA has authority to order the development of new information if the Agency determines the information is necessary to review the PMN).⁴ However, the submitter must provide all data in the submitter’s possession, or information known to or reasonably ascertainable by him or her, concerning the health or environmental effects of the chemical substance.⁵ Even if development of toxicity data for the purposes of PMN submission is not required, manufacturers may nonetheless wish to develop and submit such data with the PMN under certain circumstances. EPA has published informal guidance, which is available from the EPA Office of Pollution Prevention and Toxics, identifying categories of chemical substances for which the Agency is likely to

²¹60 Fed. Reg. 16304 to 16305, 16310 to 16311. The amendment, according to EPA, provides a better indicator of polymer properties while at the same time allowing manufacturers greater flexibility in commercial innovation; reducing the number of premanufacture notices, *see* § 16:12, *infra*, representing only slight variations in polymer composition; and providing greater consistency with international reporting policies. EPA warned, however, that use of the “incorporation” method could have regulatory consequences, *e.g.*, where the percentage of chemical incorporation increases from 2% or less to greater than 2% due to a modification in the manufacturing process, even though no change occurs in the amounts and identities of the reactants actually charged. *See* 60 Fed. Reg. 16304; 58 Fed. Reg. 7661, 7664 to 7665 (Feb. 8, 1993). For additional guidance, consult EPA’s Polymer Exemption Guidance Manual, EPA 744-B-97-001 (June 1997), <https://www.epa.gov/sites/production/files/2015-03/documents/polyguid.pdf>.

[Section 16:12]

¹TSCA § 5(a)(1), 15 U.S.C.A. § 2604(a)(1). As previously explained, although the PMN provision refers only to “manufacture,” this term is defined under TSCA to include importation. TSCA § 3(7), 15 U.S.C.A. § 2602(7). Thus, both manufacturers and importers are subject to the PMN requirements. *See, e.g.*, 40 C.F.R. § 720.57.

²40 C.F.R. §§ 720.40, 720.45.

³40 C.F.R. § 720.45. EPA amended the PMN rules in 1995 to require that submitters provide the currently correct Chemical Abstracts Index Name or Chemical Abstracts Preferred Name for each chemical substance included in the notice. *See* 60 Fed. Reg. 16298 to 16302.

⁴TSCA § 4(a)(2)(A)(i), 15 U.S.C.A. § 2605(a)(2)(A)(i).

⁵*See* 40 C.F.R. § 720.50.

initiate regulatory action to obtain toxicity data during the PMN review process. To avoid delays in PMN review, many companies provide the specified data with the PMN.⁶

§ 16:13 Premanufacture review of new chemical substances—EPA risk determination is required

The 2016 amendments to TSCA made modifications to the Section 5 provisions to require that EPA reviewers make an affirmative determination on all PMNs before manufacture may commence.¹ Previously, if EPA took no regulatory action on a PMN submission, the person who submitted the PMN could begin to manufacture or import the chemical substance 90 days after the PMN filing. EPA may extend this 90-day review period up to an additional 90 days “for good cause.”² If EPA does not render a determination within the 90-day review period (or extension period), the agency must refund the review fees required to be submitted with the PMN.³

If EPA issues a determination authorizing manufacture, the person who submitted the PMN may begin to manufacture or import the chemical substance. That person must submit a notice of commencement of manufacture (NOC) on a standard electronic reporting form to EPA on, or within 30 calendar days after, the first day of manufacture or importation for a nonexempt⁴ commercial purpose.⁵ The chemical substance is added to the TSCA Inventory and becomes an existing chemical substance as soon as EPA receives a complete NOC; thereafter, others may manufacture or import the substance without filing a PMN. Thus, the TSCA Inventory has the potential to change daily; EPA has been able to provide updates to the public portion periodically during recent years. Notwithstanding the investment of time and resources required to prepare and submit new chemical notifications to EPA, the Agency receives NOCs for only a fraction of the PMNs received. Between the date the amended statute went into effect and the beginning of August 2020, the rate of NOCs received represented approximately one-third of the submissions EPA received and reviewed in the new chemicals review program.⁶ Notices received by EPA for certain exemptions do not result in the chemical substance notified being listed on the Inventory; thus, substances subject to such exemptions remain “new chemicals” for purposes of the Inventory and the new chemical notification requirements.

It bears emphasis that the NOC may be filed only by the PMN submitter and only *after* nonexempt commercial manufacture begins. The first *nonexempt manufacture*—and not the first *commercial sale*—triggers the NOC requirement. An NOC should not be filed if, for example, following completion of PMN review, a company sells

⁶A comprehensive set of interpretive guidance documents on the PMN requirements is available on EPA’s website at *EPA’s Review Process for New Chemicals: Policies and Guidance*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/epas-review-process-new-chemicals#policies>.

[Section 16:13]

¹TSCA § 5(a)(1)(B)(ii), 15 U.S.C.A. § 2604(a)(1)(B)(ii).

²TSCA § 5(c), 15 U.S.C.A. § 2604(c).

³TSCA § 5(a)(4)(A), 15 U.S.C.A. § 2604(a)(4)(A).

⁴A nonexempt purpose would include the initial commercial-scale (e.g., non-R&D) quantity that is produced in or imported for domestic use. Sections 16:15 through 16:20 discuss other exempt purposes.

⁵40 C.F.R. § 720.102. See *About the TSCA Chemical Substance Inventory: How are chemicals added to the Inventory?*, EPA, <https://www.epa.gov/tsca-inventory/about-tsca-chemical-substance-inventory#howare>.

⁶*Statistics for the New Chemicals Review Program under TSCA*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review#noc> (last updated Aug. 5, 2020).

excess stocks of a chemical substance manufactured under the R&D exemption.⁷

§ 16:14 Premanufacture review of new chemical substances—EPA review and regulatory responses

After a PMN is submitted, EPA evaluates the information in the PMN, and other information available to the Agency, to make a regulatory determination. TSCA, as amended in 2016, establishes three categories of such determinations. First, EPA may determine that a new chemical substance “presents an unreasonable risk” to health or the environment.¹ If EPA makes such a finding, it must take certain regulatory actions; these include either issuing a Section 6 rule, which takes effect upon publication, or issuing an administrative order under Section 5(f), which would take effect at the end of the PMN review period. Such action would limit or prohibit the manufacture and use of the substances.² To date, no Section 5(f) or Section 6 actions have been taken in the PMN context by EPA during the period following the 2016 amendments to TSCA.³

The second category of risk determinations permits EPA to find:

- (1) that insufficient information is available “to permit a reasoned evaluation of the health and environmental effects” of the new chemical substance;
- (2) that in the absence of sufficient information to evaluate health and environmental risks, the substance “may present an unreasonable risk” to health or the environment; or
- (3) that the substance is or will be produced in “substantial quantities” and either that it may be anticipated to enter the environment in substantial quantities or that there is or may be “significant or substantial human exposure to the substance.”⁴

If EPA makes one or more of the findings in this second category of determinations—an “insufficient information” determination, a “may present an unreasonable risk” determination, or a “substantial quantities” (an “exposure-based”) determination—the Agency must issue an administrative order under Section 5(e) that prohibits or limits the manufacture, processing, distribution in commerce, use, or disposal of the substance to the extent necessary to protect against an unreasonable risk of injury to health or the environment.⁵ The order takes effect on the expiration of the applicable review period. Such Section 5(e) orders are issued “pending the development of additional information.” In such cases, the PMN submitter may commence manufacture but must comply with the order’s terms and might generate additional data intended to provide EPA with sufficient data to undertake a more thorough evaluation and perhaps amend or revoke the administrative order (or some of its restrictions). Adversarial orders under Section 5(e) can be administratively difficult for EPA. Consequently, during the PMN review process, EPA might engage actively in discussions and negotiations with the PMN submitter. Such discussions often result in the notice submitter agreeing to withdraw its notice or to voluntarily “suspend” the notice review for a period sufficient to gather information

⁷See 51 Fed. Reg. 15096, 15101 (Apr. 22, 1986).

[Section 16:14]

¹TSCA § 5(a)(3)(A), 15 U.S.C.A. § 2604(a)(3)(A).

²TSCA § 5(f)(2)–(3), 15 U.S.C.A. § 2604(f)(2)–(3).

³*Statistics for the New Chemicals Review Program under TSCA*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review#stats> (last updated Aug. 5, 2020).

⁴TSCA § 5(a)(3)(B), 15 U.S.C.A. § 2604(a)(3)(B).

⁵TSCA § 5(e)(1)(A), 15 U.S.C.A. § 2604(e)(1)(A).

that might alter EPA's initial findings, or to consider entering into a negotiated agreement. Thus, both prior to, and following, the 2016 amendments to TSCA, the use of negotiated Section 5(e) consent orders is a practice that continues to be the predominant mechanism for restricting uses and requiring the submission of test data on new chemical substances. Nearly 600 of the approximately 3,000 substances reviewed since the 2016 amendments have become the subject of consent orders with restrictions on manufacture.⁶

The third determination EPA may make is to conclude that the new chemical substance "is not likely to present an unreasonable risk" to health or the environment; in such instance, no regulatory action would be taken.⁷ If EPA advises the PMN submitter that the new chemical substance is not likely to present an unreasonable risk to health or the environment, the PMN submitter may commence manufacturing immediately.⁸ Although EPA also must publish its finding in the Federal Register "as soon as practicable before the expiration" of the applicable review period, Federal Register publication is not a prerequisite for the commencement of manufacturing.⁹ As of August 2020, the Agency had made a "not likely to present an unreasonable risk" determination for more than 500 of approximately 3,000 substances reviewed since the 2016 amendments.¹⁰

EPA must make these Section 5 determinations "without consideration of costs or other nonrisk factors," and must give consideration to whether there will be "an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant by the Administrator under the conditions of use."¹¹ "Potentially exposed or susceptible subpopulations" is a term that reappears throughout the 2016 amendments to TSCA. The amended Section 3 definitions specify that the phrase refers to "a group of individuals within the general population identified by the [EPA] Administrator who, due to either greater susceptibility or greater exposure, may be at greater risk than the general population of adverse health effects from exposure to a chemical substance or mixture, such as infants, children, pregnant women, workers, or the elderly."¹²

The PMN review process consists of four distinct, successive technical phases: the chemistry review phase, the hazard (toxicity) evaluation phase, the exposure evaluation phase, and the risk assessment/risk management phase. These phases are structured to permit EPA staff to reach a determination within 90 days of receipt of the PMN. EPA has illustrated the process in the following flowchart.

⁶*Statistics for the New Chemicals Review Program under TSCA*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review#stats> (last updated Aug. 5, 2020).

⁷TSCA § 5(a)(3)(C), 15 U.S.C.A. § 2604(a)(3)(C).

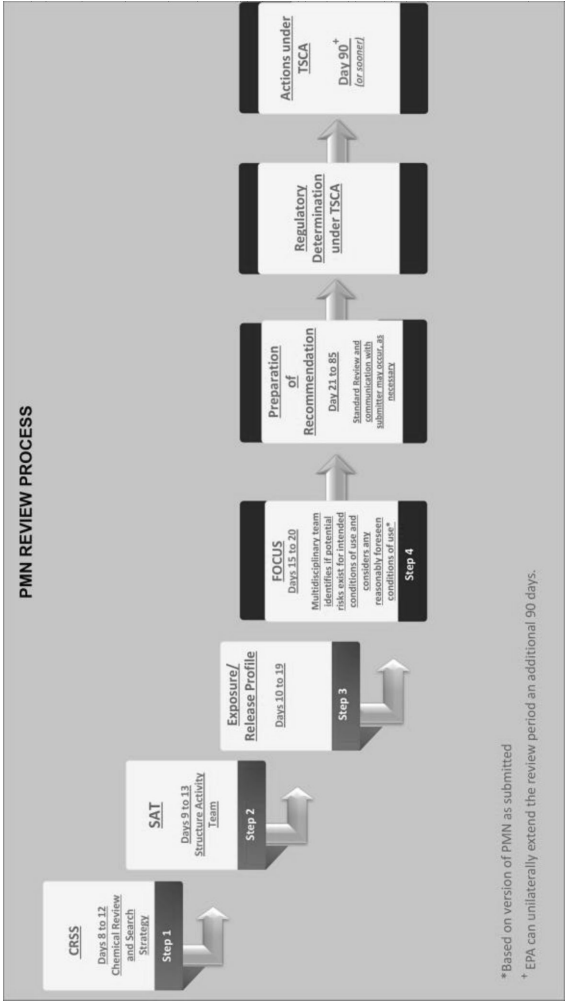
⁸TSCA § 5(g), 15 U.S.C.A. § 2604(g).

⁹TSCA § 5(g), 15 U.S.C.A. § 2604(g).

¹⁰*See Statistics for the New Chemicals Review Program under TSCA*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last updated Aug. 5, 2020).

¹¹TSCA § 5(a)(3)(A), (C), 15 U.S.C.A. § 2604(a)(3)(A), (C).

¹²TSCA § 3(12), 15 U.S.C.A. § 2602(12).



Source: *PMN Review Process*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/pmn-review-process-0> (last updated Sept. 17, 2019).¹³

¹³Prior to the 2016 amendments, the majority of PMN chemical substances were eliminated from further technical review early in the process. EPA has established on its website summaries of PMN determinations reached following enactment of the 2016 amendments. *Premature Notices (PMNs) and Significant New Use Notices (SNUNs) Table*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/premanufacture-notices-pmnns-and> (last updated June 16, 2020).

Most PMNs historically have contained little or no toxicity test data;¹⁴ for this reason, much of the toxicity evaluation has rested on structural similarity to analogous chemical substances about which more is known.¹⁵ EPA also considers the extent of human exposure to the substance or its byproducts that might occur during manufacture, processing, use, and disposal of the PMN chemical substance, as well as the likelihood and magnitude of such releases.¹⁶ Agency reviewers further evaluate the likelihood that the chemical substance may be manufactured in larger volumes or manufactured or used in ways other than those disclosed in the PMN.¹⁷ EPA staff frequently must communicate informally with the submitter to clarify information in the PMN and to obtain additional information. Such requests for information and additional data often prompt the PMN submitter to request a “voluntary” suspension of the PMN review period to gather and submit the information requested.¹⁸

The basis for this practice of EPA granting “voluntary” suspensions and engaging in negotiations during the PMN review period has been a staple of Agency practice in the new chemicals program almost since its inception and its origins can be explained as follows. The threat of issuing an adversarial “Section 5(e)” or “5(f)” Order (and the concerns that such an adversarial order might generate bad publicity for a PMN submitter) has given EPA substantial leverage over manufacturers of new chemical substances. In an effort to remain in good standing with EPA, to be responsive to information requests and hopefully ensure eventual market entry (and to simultaneously avoid being cast in an unfavorable light), most submitters try to address potential concerns about risk by providing information that addressed data gaps identified by EPA and by “agreeing” to enter negotiated “Consent” Orders as a condition of market entry. Still others elect to withdraw their PMNs voluntarily. Approximately 300 such withdrawals have occurred since the 2016 amendments and, as of mid-2020, it appears that as many as 1,000 notices might remain in suspension—perhaps with data gathering efforts or negotiations with EPA personnel ongoing.¹⁹

EPA has used Section 5(e) Consent Orders creatively to implement a variety of regulatory goals in the context of the new chemical program. This includes OSHA-like programs, such as requiring the PMN submitter to implement employee protection procedures and personal protective equipment and safety training. Consent Orders often specify the methods of disposal of production wastes and byproducts. Through an agreement with the original PMN submitter, EPA can leverage its contract manufacturers, and even impose restrictions on sales to persons who do not agree to use the same manufacturing, process, and use limitations as the manufacturer. The Agency has used Consent Orders to restrict domestic manufac-

¹⁴A 1983 study of the information content of PMNs found that 47% of PMNs contained no toxicity data at all, while those that contained at least one element of data seldom reflected more than simple acute toxicity tests. Office of Technology Assessment, *The Information Content of Premanufacture Notices* 15, 50–51 (1983), <https://www.princeton.edu/~ota/disk3/1983/8313/8313.PDF>.

¹⁵Office of Technology Assessment, *The Information Content of Premanufacture Notices* 15, 19, 51 (1983), <https://www.princeton.edu/~ota/disk3/1983/8313/8313.PDF>.

¹⁶TSCA § 5(b)(4)(A), 15 U.S.C.A. § 2604(b)(4)(A); Office of Technology Assessment, *The Information Content of Premanufacture Notices* 15, 33–37 (1983).

¹⁷Office of Technology Assessment, *The Information Content of Premanufacture Notices* 15, 78–79 (1983).

¹⁸Before EPA prohibits or restricts the manufacture, processing, distribution in commerce, use, or disposal of a new chemical substance to address workplace exposures, the Agency must consult “[t]o the extent practicable” with the Occupational Health and Safety Administration. TSCA § 5(f)(5), 15 U.S.C.A. § 2604(f)(5).

¹⁹*Statistics for the New Chemicals Review Program under TSCA*, EPA, <https://www.epa.gov/review-ing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review#stats>.

ture of imported substances and to require that certain substances are only manufactured or processed in certain physical forms or within specific equipment or manufacturing plants.²⁰ EPA has also been adept at tailoring the use of Consent Orders to impose testing requirements on high-volume chemicals²¹ and to impose restrictions on substances that appear to be persistent and bioaccumulative chemicals.²² The 2016 amendments to TSCA have served to increase, rather than lessen, the percentage of chemical substances that undergo Section 5 reviews for which restrictions are being imposed through such “agreements.”

The 2016 amendments to the new chemical review process ultimately resulted in a backlog of PMNs, which EPA pledged to reduce.²³ In November 2017, EPA issued an initial document outlining its “Working Approach” to making determinations regarding new chemicals under Section 5 of TSCA.²⁴ In December 2019, EPA published an updated Working Approach document.²⁵ The Working Approach document describes EPA’s guiding principles and concepts as well as the decision-making logic and process for the Agency’s review of Section 5 notices, including PMNs. The document includes a flowchart showing three questions on which EPA focuses during new chemical reviews. The three questions involve: (1) identifying the intended, known, and reasonably foreseen conditions of use; (2) considering whether there is sufficient information to perform a reasoned evaluation; and (3) evaluating whether a SNUR can adequately address concerns regarding a reasonably foreseen use.

²⁰See generally EPA, Toxic Substances Control Act (TSCA) Report to Congress for Fiscal Year 1984, at 7–12 (1985); EPA, Toxic Substances Control Act (TSCA) Report to Congress for Fiscal Year 1985, at 11–18 (1986).

²¹See Exposure-Based Policy under Section 5 of TSCA, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/exposure-based-policy-under-section>.

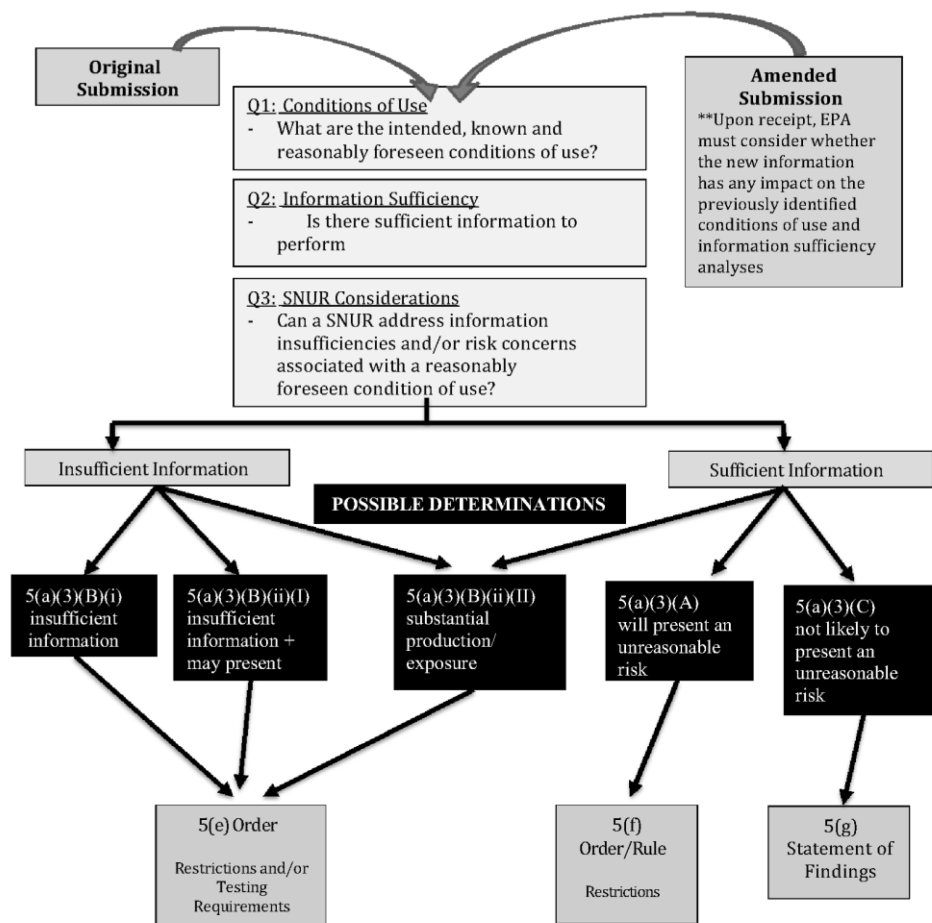
²²See Policy Statement on a New Chemicals Category for Persistent, Bioaccumulative, and Toxic (PBT) Chemicals, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/policy-statement-new-chemicals>.

²³Tiffany Stecker & Pat Rizzuto, *EPA Pledges Long-Term Elimination of New Chemicals Backlog*, Bloomberg Law (June 13, 2017).

²⁴EPA, New Chemicals Decision-Making Framework: Working Approach to Making Determinations Under Section 5 of TSCA (Nov. 6, 2017).

²⁵EPA, TSCA New Chemical Determinations: A Working Approach for Making Determinations under TSCA Section 5 (Dec. 2019), available at <https://www.regulations.gov/document?D=EPA-HQ-OP-PT-2019-0684-0002>.

Figure 1: TSCA Section 5(a)(3) Determination Pathways.



Source: EPA, TSCA New Chemical Determinations: A Working Approach for Making Determinations Under TSCA Section 5, at 11 (Dec. 2019), https://www.epa.gov/sites/production/files/2019-12/documents/new_chems_working_approach_-_12.20.19_final.pdf.

§ 16:15 Premanufacture review of new chemical substances—Exemptions from the PMN requirement

Pursuant to its authority under Section 5(h) to exempt certain substances from the PMN requirements, EPA has promulgated regulations that exempt several categories of chemical substances from all or some of the PMN notice requirements. These categories include chemical substances produced in low volumes; chemical substances used solely for research and development; chemical substances expected to have low release and low exposure; chemical substances manufactured for test marketing purposes; and certain polymers. These exempted chemical substances are not added to the TSCA Inventory.

§ 16:16 Premanufacture review of new chemical substances—Exemptions from the PMN requirement—Research and development exemption

A company that manufactures or imports a new chemical substance in small quantities solely for purposes of research and development (R&D) need not submit a PMN, provided that certain requirements are satisfied.¹ First, the chemical substance must be used by, or directly under the supervision of, a technically qualified individual.² Second, the manufacturer or importer must review and evaluate information in its possession regarding health effects associated with the chemical substance and notify all employees involved in the R&D work, as well as others to whom the chemical substance is directly distributed, of any health risks.³ Manufacturers of chemical substances used solely in laboratories operating according to “prudent laboratory practices” are exempt from this requirement.⁴ Third, the manufacturer or importer must notify in writing all nonemployees to whom the chemical substance is distributed that the substance is to be used only for R&D purposes.⁵ Finally, the manufacturer or importer must create and keep for five years specific records that document its handling of the R&D chemical substance.⁶

§ 16:17 Premanufacture review of new chemical substances—Exemptions from the PMN requirement—Low volume exemption

Under EPA’s PMN regulations, new chemical substances manufactured or imported in quantities of 10,000 kilograms or less per year are eligible for a low vol-

[Section 16:16]

¹The R&D exemption was created by Section 5(h)(3), which exempts manufacturers and processors from the significant new use and PMN provisions of Section 5(a) if they manufacture or process the substance “only in small quantities (as defined by the Administrator by rule) solely for purposes of (A) scientific experimentation or analysis, or (B) chemical research on, or analysis of such substance or another substance, including such research or analysis for the development of a product.” TSCA § 5(h)(3), 15 U.S.C.A. § 2604(h)(3). EPA has published guidance on the research and development exemption. *See, e.g.*, EPA, New Chemical Information Bulletin: Exemptions for Research and Development (Nov. 1986), <https://www.epa.gov/sites/production/files/2015-08/documents/tmeranddbulletin.pdf>; 51 Fed. Reg. 15096 (Apr. 22, 1986); 49 Fed. Reg. 50201 (Dec. 27, 1984).

²40 C.F.R. § 720.36(a)(3).

³40 C.F.R. § 720.36(a)(2). The statute requires that all persons engaged in experimentation, research, or analysis for a manufacturer or processor must be notified of any health risks that may be associated with such substances. TSCA § 5(h)(3), 15 U.S.C.A. § 2604(h)(3).

⁴40 C.F.R. § 720.36(b)(2).

⁵40 C.F.R. § 720.36(c)(2).

⁶40 C.F.R. § 720.78(b).

ume exemption (LVE) from full PMN review.¹ Manufacture or import of qualifying low volume chemical substances may commence 30 days after submission of an exemption notice, unless EPA denies the exemption request.² Certain conditions described in the exemption application submission must be maintained throughout the duration of the exemption, including the chemical substance's use, site of manufacture, production volume, and exposure and release controls. If these conditions will change, the manufacturer must submit a new exemption notice at least 30 days in advance of the change or submit a PMN for the full 90-day review process (e.g., if the 10,000 kg/yr limit might be exceeded).³

EPA will deny any exemption application if it is unable to determine that the manufacture, processing, distribution in commerce, use, or disposal of the chemical substance at issue will not present an unreasonable risk of injury to human health or the environment under the circumstances described in the application.⁴ As noted, the manufacturer will be required not to exceed the maximum annual production volume of 10,000 kilograms per year. EPA will perform its risk assessment at a lower annual production volume level stipulated in the application if the applicant also agrees to remain under the lower production ceiling and to abide by all of the conditions and terms described in the application, including those related to limits on workplace exposures and environmental releases.⁵ The regulations permit multiple exemption holders for the same substance, provided that EPA can determine that the potential human exposure to, and environmental release of, the new substance at the higher aggregate production level will not present an unreasonable risk of injury to human health or the environment.⁶

§ 16:18 Premanufacture review of new chemical substances—Exemptions from the PMN requirement—Low release and exposure exemption

The low release and exposure (LoREX) exemption is intended to encourage companies to develop manufacturing, processing, use, and disposal techniques that minimize exposures to workers, consumers, the public, and the environment.¹ Under this exemption, new chemical substances that meet certain environmental release and human exposure criteria during their manufacture, distribution in commerce, processing, use, and disposal, regardless of their production volume, may also be eligible for an expedited, 30-day PMN review period. The uses of qualifying chemical substances are restricted to those approved in the exemption notice, and submitters must maintain any exposure or release controls throughout the period of the exemption.²

§ 16:19 Premanufacture review of new chemical substances—Exemptions from the PMN requirement—Test marketing exemption

Section 5(h)(1) of TSCA authorizes EPA to consider case-by-case applications to

[Section 16:17]

¹40 C.F.R. § 723.50(a), (c).

²40 C.F.R. § 723.50(e).

³40 C.F.R. § 723.50(h)(2)(v).

⁴40 C.F.R. § 723.50(d).

⁵40 C.F.R. § 723.50(e)(2)(vi)(A).

⁶40 C.F.R. § 723.50(f).

[Section 16:18]

¹60 Fed. Reg. 16336, 16337 (Mar. 29, 1995).

²40 C.F.R. § 723.50(a), (c).

test market a chemical substance without prior submission of a PMN.¹ Test marketing is the distribution, during a predetermined testing period, of a limited amount of a chemical substance, or of a mixture or article containing the chemical substance, to a defined number of potential customers for the purpose of exploring market capability before general distribution.² The TSCA regulations set forth the requirements for applying for a test marketing exemption (TME). The applicant must submit all existing data regarding the health and environmental effects of the chemical substance, describe the proposed test marketing activity, and specify the quantity of the substance to be manufactured and the number of people who may be exposed to the substance.³ The TME may be granted, following a 45-day review period, if it is demonstrated that test marketing of the chemical substance “will not present an unreasonable risk to health or the environment.”⁴

EPA has expressed concern that the simultaneous submission of a TME and a PMN for the same substance might represent an effort by the manufacturer to obtain PMN review of a chemical substance in 45 days, rather than the 90 days ordinarily provided for by the statute. To discourage such an approach, EPA closely examines simultaneous submissions to determine if genuine test marketing activity is involved. If it is not, the Agency will deny the application.⁵

§ 16:20 Premanufacture review of new chemical substances—Exemptions from the PMN requirement—Polymer exemption

Certain polymers are eligible for a full exemption from PMN review.¹ To qualify for this exemption, a polymer generally must contain, as an integral part of its composition, at least two of the atomic elements of carbon, hydrogen, nitrogen, oxygen, silicon, and sulfur, and must have a molecular weight greater than or equal to 1,000 daltons (with certain restrictions on low molecular weight species and certain reactive functional groups). Polyesters made from a specified list of reactants may also be exempt. The polymer exemption does not apply to cationic polymers; polymers that contain reactive functional groups, specifically listed elements, or reactants not already included on the TSCA Inventory; polymers that can reasonably be anticipated to substantially degrade, decompose, or depolymerize; water-absorbing polymers with a molecular weight greater than or equal to 10,000 daltons; or polymers containing as an integral part of their composition, except as impurities, certain perfluoroalkyl moieties consisting of a CF₃- or longer chain length.

A person who wishes to manufacture a new polymer that qualifies for the exemption does not need to submit an exemption notice. However, the person must maintain specific records and submit a one-time-only report to EPA notifying the Agency of the polymers subject to the exemption that were imported or manufactured during the preceding year.

[Section 16:19]

¹TSCA § 5(h)(1), 15 U.S.C.A. § 2604(h)(1).

²40 C.F.R. § 720.3(gg).

³40 C.F.R. § 720.38(b).

⁴40 C.F.R. § 720.38(a).

⁵See *Test Marketing Exemption (TME) for New Chemical Review under TSCA*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/test-marketing-exemption-tme-new>.

[Section 16:20]

¹40 C.F.R. § 723.250; see also EPA, Polymer Exemption Guidance Manual, EPA 744-B-97-001 (June 1997), <https://www.epa.gov/sites/production/files/2015-03/documents/polyguid.pdf>.

§ 16:21 Premanufacture review of new chemical substances—Exclusions from the PMN requirement

In addition to the foregoing *exemptions*, various categories of chemical substances are *excluded* from PMN reporting under certain conditions: substances manufactured solely for export; certain substances unintentionally manufactured; and mixtures.

§ 16:22 Premanufacture review of new chemical substances—Exclusions from the PMN requirement—Substances manufactured solely for export

Chemical substances manufactured or imported solely for export are excluded from PMN requirements. This exclusion is subject to the condition that, when distributed in commerce, the substance bears a stamp or label stating that the substance is intended for export, and the manufacturer knows that the person to whom the substance is being distributed intends to export it or process it solely for export, as defined in 40 C.F.R. § 721.3.¹

§ 16:23 Premanufacture review of new chemical substances—Exclusions from the PMN requirement—Substances not manufactured for commercial distribution as chemical substances per se

The TSCA regulations exclude from regulation under Section 5 several categories of chemical substances that, although technically created through commercial manufacture, are not manufactured for distribution in commerce per se and have no independent commercial purpose. These include impurities; byproducts that are not used for commercial purposes; chemical substances created incidentally as a result of exposure of another chemical substance to environmental factors (such as air or moisture); chemical substances created from certain specific end uses of other chemical substances (including paints, metal finishing compounds, stabilizers, and the like); and non-isolated intermediates.¹ These exclusions are highly technical and fact-dependent, and they have been the subject of considerable interpretation and discussion. Practitioners therefore should consult and carefully scrutinize the applicable regulations and EPA's interpretive guidance.

§ 16:24 Premanufacture review of new chemical substances—Exclusions from the PMN requirement—Mixtures

Mixtures are not themselves subject to the notification requirements of Section 5. Thus, a person who mixes two or more existing chemical substances (that do not undergo a chemical reaction) need not submit a PMN. However, each new chemical substance that is manufactured or imported as part of a mixture is subject to the PMN requirement.¹ The difference between what constitutes a mixture rather than a complex reaction product that EPA considers to be a chemical substance may not be readily apparent. EPA has issued guidance to assist in such situations.²

§ 16:25 Regulation of microbial products of biotechnology

[Section 16:22]

¹40 C.F.R. § 720.30(e); *see also* TSCA § 12(a)(1)(B), 15 U.S.C.A. § 2611(a)(1)(B).

[Section 16:23]

¹*See* 40 C.F.R. § 720.30(h). The terms “impurity,” “byproduct,” and “nonisolated intermediate” are defined at 40 C.F.R. § 720.3.

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¹40 C.F.R. § 720.30(b).

²*See* Toxic Substances Control Act Inventory Representation for Chemical Substances of Un-

EPA's regulatory authority under TSCA extends to microorganisms, and TSCA has become the primary statutory vehicle for regulating the microbial products of biotechnology. As a matter of policy,¹ implemented by detailed regulations,² the Agency utilizes review procedures for new microbial products of biotechnology that are comparable to the procedures used for traditional chemical substances—but tailored to address the specific characteristics of the microorganisms.

Only “new” microorganisms manufactured or imported for commercial purposes are subject to premanufacture reporting requirements under TSCA. The applicable regulations define “new” microorganisms as those microorganisms formed by combining genetic material from organisms in different taxonomic genera (intergeneric).³ Thus, potentially regulated entities are persons manufacturing or importing intergeneric microorganisms for a commercial purpose. Processors who engage in significant new uses of intergeneric microorganisms also are subject to notification requirements.

Subject to limited exceptions, prior to commencing manufacture or a significant new use of certain microorganisms, a Microbial Commercial Activity Notice (MCAN) must be submitted to EPA. The MCAN review program incorporates many of the notification and review procedures developed for PMNs and the traditional chemical substances framework, with minor modifications necessary to accommodate the specific characteristics of microorganisms.⁴ EPA has 90 days to review the MCAN submission to determine whether the activities involving manufacturing, processing, and use of the subject organism may present an unreasonable risk to human health or the environment.⁵

As with the PMN procedure for traditional chemical substances, the Agency must make a specific finding in the context of its review of the MCAN; thus, commercial production or import may not commence until EPA has advised of the “not likely to present” an unreasonable risk finding or the Agency has issued an Order pursuant to Section 5(e) or 5(f). The manufacturer or importer must submit an NOC within 30 calendar days following the first day of manufacture for a nonexempt commercial purpose.⁶ Following submission of the NOC, EPA will add the new microorganism to the TSCA Inventory, and others may manufacture or import the microorganism without filing an MCAN.⁷

EPA has established two exemptions (Tier I and Tier II) from MCAN submission

known or Variable Composition, Complex Reaction Products and Biological Materials: UVCB Substances on the TSCA Inventory (not dated), <https://www.epa.gov/sites/production/files/2015-05/documents/uvcb.pdf>.

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¹Historically, EPA has regulated microorganisms pursuant to EPA's Statement of Policy: Microbial Products Subject to the Federal Insecticide, Fungicide, and Rodenticide Act and Toxic Substances Control Act, 51 Fed. Reg. 23311 (June 26, 1986), as part of the Coordinated Framework for Regulation of Biotechnology; Announcement of Policy and Notice for Public Comment, 51 Fed. Reg. 23302 (June 26, 1986).

²62 Fed. Reg. 17910 (Apr. 11, 1997) (codified at 40 C.F.R. Pt. 725).

³See 40 C.F.R. § 725.3. Consistent with TSCA's regulation of chemical substances, all microbial products of biotechnology subject to TSCA are required to be listed on the TSCA Chemical Substances Inventory (TSCA Inventory). See § 16:11, *supra*. Microorganisms found in nature, i.e., those that occur without human intervention, are not considered new, and such naturally occurring microorganisms are automatically listed on the TSCA Inventory. Thus, “new” microorganisms are those intergeneric microorganisms that do not appear on the TSCA Inventory.

⁴See 40 C.F.R. §§ 725.100 to 725.190.

⁵See 40 C.F.R. § 725.170(a). For a discussion of EPA's review procedure in the context of traditional chemicals, see § 16:14, *supra*.

⁶40 C.F.R. § 725.190.

⁷For a more detailed discussion of NOC requirements, see § 16:13, *supra*.

requirements for new microorganisms manufactured for introduction into commerce. Requirements for the Tier I exemption are less stringent than those for Tier II.

To qualify for the Tier I exemption, a manufacturer must: (1) implement specific physical containment and control technologies; (2) ensure that DNA introduced into the recipient microorganism is well characterized, limited in size to the material required to perform the intended function, poorly mobilizable, and free of certain toxin-encoding nucleotide sequences; and (3) use one of the recipient organisms listed in the regulations.⁸ Manufacturers that do qualify for the Tier I exemption need only notify EPA that they are manufacturing an exempt microorganism 10 days before commencing manufacture and keep certain records; manufacturers need not wait for EPA approval before commencing manufacture.⁹ Notably, EPA considers it unlikely that transportation of live genetically modified microorganisms to or from a site can be accomplished under the physical containment and control restrictions required to qualify for the Tier I exemption.¹⁰

The Tier II exemption applies to manufacturers that otherwise meet the requirements for the Tier I exemption but wish to modify the specified containment requirements.¹¹ In this circumstance, the manufacturer must submit an abbreviated notice describing the modified containment, which EPA then has 45 days to review.¹² The manufacturer may not proceed until EPA approves the Tier II exemption.¹³

The R&D exemption from Section 5 requirements for traditional chemical substances does not apply to intergeneric microorganisms. Thus, persons conducting commercial R&D activities involving intergeneric microorganisms that are not physically contained are not exempt from notification requirements.¹⁴ Examples of regulated activities include the commercial use of intergeneric microorganisms for biofertilizers, biosensors, production of industrial enzymes, biobased fuels, and waste treatment.¹⁵ Although the general R&D exemption does not apply,¹⁶ persons conducting such activities are not necessarily required to comply with the stringent notice requirements applicable to manufacturers of new microorganisms. Rather than filing an MCAN, eligible researchers testing new microorganisms in the environment may file a TSCA Experimental Release Application (TERA), a reporting vehicle designed to provide more flexibility and a shorter review period (60 days) than the MCAN process.¹⁷ The researcher may not proceed with the test until EPA approves the TERA, even if the review period expires, and EPA's approval is limited

⁸See 40 C.F.R. § 725.424. The characteristics of the introduced genetic material referred to in (3) above are specifically defined and/or identified within the regulations. See 40 C.F.R. § 725.421.

⁹See 40 C.F.R. § 725.424(a)(4).

¹⁰See EPA, Microbial Products of Biotechnology: Summary of Regulations under the Toxic Substances Control Act (Sept. 2012), https://www.epa.gov/sites/production/files/2015-08/documents/biot_ech_fact_sheet.pdf.

¹¹See 40 C.F.R. § 725.428.

¹²See 40 C.F.R. §§ 725.450, 725.470.

¹³40 C.F.R. § 725.470(g).

¹⁴See 40 C.F.R. § 725.105. EPA has defined manufacture or process for commercial purposes as “manufacture or process for purposes of obtaining an immediate or eventual commercial advantage.” 40 C.F.R. § 725.3. EPA interprets research and development activities to be undertaken for commercial purposes, and thus subject to reporting, if tests are directly funded in whole or in part by a commercial entity, or when the researcher considers there to be an immediate or eventual commercial advantage. 40 C.F.R. § 725.205.

¹⁵See, e.g., EPA, Microbial Products of Biotechnology: Summary of Regulations under the Toxic Substances Control Act (Sept. 2012), https://www.epa.gov/sites/production/files/2015-08/documents/biot_ech_fact_sheet.pdf.

¹⁶See 62 Fed. Reg. 17910, 17921 to 17922, 17934 (Apr. 11, 1997).

¹⁷See 40 C.F.R. §§ 725.200(b), 725.250 to 725.260.

to the conditions outlined in the TERA notice or approval.¹⁸ In addition to the potentially less stringent reporting requirements, certain R&D activities conducted solely within a contained structure may qualify for exemption from some or all reporting requirements under TSCA.¹⁹

Like the exemption for test marketing of conventional new chemical substances, a limited exemption from the MCAN requirements has been established for test marketing activities involving microorganisms. The procedures provide for an abbreviated review period for notifications that must be provided to the Agency not later than 45 days before the proposed activity can be undertaken.²⁰

§ 16:26 Regulation of products of nanotechnology

Manufacturers and importers of nanoscale materials (i.e., materials having dimensions of one to 100 nanometers) that meet the definition of “chemical substances” under TSCA, but which do not appear on the TSCA Inventory, must satisfy TSCA’s PMN requirements.¹ EPA also has authority,² under Section 5(a)(2) of TSCA, to issue regulations providing for the notification and review of significant new uses of nanoscale chemical substances already on the TSCA Inventory.³ As of November 2017, EPA had received and reviewed more than 160 PNMs under TSCA for nanoscale materials, including carbon nanotubes. The Agency expected the number to increase in the future.⁴ A significant percentage of the PMNs received by EPA for nanoscale chemicals have been followed by Section 5(e) Consent Orders and certain follow-on rules.

EPA determines whether a substance, including a nanoscale substance, is on the

¹⁸See 40 C.F.R. § 725.270.

¹⁹Researchers who are in mandatory compliance with the National Institutes of Health (NIH) Guidelines for Research Involving Recombinant DNA Molecules may conduct contained research exempt from all TSCA reporting requirements. 40 C.F.R. §§ 725.234, 725.235. Other researchers seeking exemption from reporting requirements for contained testing must document to EPA that they voluntarily comply with NIH guidelines or meet other EPA-established eligibility requirements. 40 C.F.R. § 725.238.

²⁰See 40 C.F.R. § 725.300.

[Section 16:26]

¹EPA’s general position on the Inventory status of nanoscale chemical substances is set forth in a white paper posted on EPA’s website: <https://www.epa.gov/sites/production/files/2015-10/documents/nm-sp-inventorypaper2008.pdf>.

²Despite possessing statutory authority over nanoscale materials, EPA was slow to assert its authority to regulate the new technology. The lack of regulation for nanoscale materials has been criticized by both environmental organizations and industry. The Natural Resources Defense Council accused the federal government in May 2007 of a “gross failure to use its authority to protect citizens from the potentially dangerous effects of nano-scale chemistry.” Press Release, Natural Resources Defense Council, NRDC Advances Regulation of Nanotechnology to Protect Human Health (May 15, 2007). In 2006, the managing counsel for the Dow Chemical Company called on EPA to provide “effective regulatory oversight” of nanoscale materials before the public rejected the technology as inherently unsafe. See Mark Duvall, *Regulating Nanomaterials Under Section 5 of the Toxic Substances Control Act*, Chem. Reg. Rep. (BNA), Oct. 30, 2006. In November 2006, EPA invoked its authority under FIFRA to regulate consumer products containing nanoscale silver. See Rick Weiss, *EPA to Regulate Nanoproductions Sold as Germ-Killing*, Wash. Post, Nov. 23, 2006, at A1.

³See EPA, Office of the Science Advisor, EPA 100/B-07/001, Final Nanotechnology White Paper 65 (Feb. 2007), available at <https://www.epa.gov/sites/production/files/2015-01/documents/nanotechnology-whitepaper.pdf>; see also § 16:27, *infra* (discussing significant new use rules under TSCA Section 5(a)(2)).

⁴*Control of Nanoscale Materials under the Toxic Substances Control Act*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/control-nanoscale-materials-under-pmn>.

TSCA Inventory based on its molecular identity.⁵ If there is already a substance on the Inventory with the same molecular identity, the chemical substance is not a new chemical substance. The Agency has clarified that it has not and will not use particle size as a basis for establishing molecular identities for nanoscale or any other materials. EPA has identified multiple molecular properties that it does consider in differentiating molecules, including certain structural and compositional features. For example, allotropes (i.e., different crystalline structures) of the same element are considered to be different substances.

Notably, the Agency generally considers carbon nanotubes to be chemical substances distinct from graphite or other allotropes of carbon listed on the TSCA Inventory.⁶ Therefore, many carbon nanotubes may be new chemical substances that require a PMN, unless they are already listed on the TSCA Inventory. To eliminate any uncertainty, EPA recommends that carbon nanotube producers and importers consider submitting a bona fide intent to manufacture, which triggers an Agency assessment of a chemical substance's Inventory status. The Agency concluded in 2008 that there was likely ongoing commercial manufacturing involving carbon nanotubes that was potentially subject to Section 5. Consequently, EPA stated that it anticipated "focusing its compliance monitoring efforts to determine if companies are complying with TSCA section 5 requirements for carbon nanotubes."⁷

In an effort to address environmental health and safety data gaps, and to prevent potential risks that may be posed by nanoscale materials, EPA over the years has professed to being prepared to take a number of regulatory actions under Sections, 4, 5, and 8(a) of TSCA.⁸ Although the 2016 TSCA amendments did not specifically address nanoscale chemicals, it is possible that some number of the efforts EPA has previously said are under development could be pursued; however, the demands of putting in place the mechanisms required by the 2016 amendments significantly constrained resources, and a more modest approach ensued.⁹

In the wake of the 2016 amendments to TSCA, EPA decided to issue a rule under its Section 8(a) authority to require the submission of basic information concerning new and existing substances that are manufactured, imported, and processed on a nanoscale. In 2015, as part of the Agency's effort to acquire better information on

⁵On January 23, 2008, EPA released a paper summarizing the Agency's position on the regulation of nanoscale materials, or, more specifically, when nanomaterials are or are not new substances requiring PMNs. See EPA, TSCA Inventory Status of Nanoscale Substances—General Approach (Jan. 23, 2008), available at <https://www.epa.gov/sites/production/files/2015-10/documents/nmsp-inventorypaper2008.pdf>.

⁶73 Fed. Reg. 64946 (Oct. 31, 2008).

⁷73 Fed. Reg. 64947.

⁸EPA's prior efforts in this regard include a Nanoscale Materials Stewardship Program, launched in 2006. See 73 Fed. Reg. 4861 (Jan. 28, 2008). Participants in the basic program voluntarily submitted data on the nanoscale substances that they manufactured, imported, processed, or used. The types of data submitted included material characterization, hazard, use, potential exposures, and risk management practices. Over two dozen companies participated in the basic program, providing data on 123 different nanoscale materials. However, only four companies committed to participate in the in-depth program, which entailed the development of data over a longer time period. Based on the limited response, EPA discontinued the program in December 2009.

⁹For example, EPA previously expressed an interest in using its authority under Section 5(a)(2) to develop a Significant New Use Rule (SNUR) to ensure that any new nanoscale version of an Inventory-listed substance receives appropriate regulatory review under Section 5. EPA also contemplated Section 4 testing initiatives for nanoscale versions of Inventory-listed chemicals. However, the Agency's interest in issuing such initiatives has diminished in the period following the 2016 amendments, and EPA has not pursued them. See *Control of Nanoscale Materials under the Toxic Substances Control Act*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/control-nanoscale-materials-under> (last updated Nov. 30, 2017) (describing current TSCA initiatives concerning nanoscale materials).

nanoscale materials in commerce, EPA proposed one-time-only reporting and recordkeeping requirements under TSCA Section 8(a).¹⁰ Following the 2016 presidential election and just prior to the inauguration, EPA issued the final version of its Section 8(a) rule to require companies that manufacture certain chemical substances already on the Inventory to provide basic manufacturing processing and use information if the substance is being produced on a nanoscale. The rule became effective in August 2017. Initial reports were due in August 2018.¹¹ In August 2017, EPA published guidance on complying with the reporting rule.¹² The rule requires notice to the Agency in advance of commencing manufacture of a new nanoscale substance (i.e., a substance not yet listed on the TSCA Inventory). Persons subject to the rule must provide EPA with information including production volume, methods of manufacture and processing, exposure and release information, and available health and safety data. EPA intends to use the information gathered through this reporting rule to determine whether further actions under TSCA, including additional information collection or testing requirements, might be needed.¹³

At this time, EPA also continues to review and to take actions under its Section 5 authorities on a substance-by-substance basis under the PMN and SNUR requirements for specific new nanomaterials.

§ 16:27 Significant new use rules (SNURs)

Under Section 5(a)(2), EPA may issue a Significant New Use Rule (SNUR) to require manufacturers, importers, and processors of a chemical substance identified in the rule to notify EPA at least 90 days before engaging in a “significant new use” of the chemical substance. Substances on the TSCA Inventory that are subject to SNUR requirements are designated as such by an “S” flag in the Inventory listing.¹

Under a SNUR, a person intending to manufacture, import, or process a chemical substance for a significant new use (as defined in a SNUR) must submit to EPA a notice, similar to a PMN, known as a Significant New Use Notice (SNUN).² Section 5(a)(2) provides the Agency with considerable discretion when defining the parameters of significant new uses. These parameters include: increases in production volume; changes in use that increase the type, form, magnitude, or duration of human exposure or environmental release; and the reasonably anticipated manner or method of manufacture, processing, distribution in commerce, use, and disposal of the substance.³ The 2016 amendments to TSCA specifically addressed what had been a growing EPA practice of issuing SNURs to require notification before the

¹⁰80 Fed. Reg. 18330 (Apr. 6, 2015).

¹¹82 Fed. Reg. 3641 (Jan. 12, 2017); *see also* 82 Fed. Reg. 22088 (May 12, 2017) (extending effective date to August 14, 2017).

¹²EPA, Working Guidance on EPA’s Section 8(a) Information Gathering Rule on Nanomaterials in Commerce (Aug. 2017), https://www.epa.gov/sites/production/files/2017-08/documents/august_2017guidance.8-7-2017_002.pdf.

¹³*See* Fact Sheet: Nanoscale Materials, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/fact-sheet-nanoscale-materials>.

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¹*Regulatory Actions under TSCA Section 5: Is My Chemical Subject to a SNUR?*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/regulatory-actions-under-tsca#how>.

²TSCA § 5(a)(1), (2), 15 U.S.C.A. § 2604(a)(1), (2). For submission procedures, *see Filing a Significant New Use Notice (SNUN) under TSCA*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/filing-significant-new-use-notice>.

³TSCA § 5(a)(2), 15 U.S.C.A. § 2604(a)(2). For applicable regulations, *see generally* 40 C.F.R. §§ 721.1 to 721.10924. EPA also incorporated SNUR procedures into its regulations governing microbial

import or processing of a chemical substance as part of an “article” or category of articles. As discussed in Section 16:2 above, an article is a manufactured item for which the end use is dependent on a specific shape or design and for which the chemical composition generally does not change during its end use.⁴ The 2016 amendments limit EPA’s authority to ensure the Agency issues a SNUR only when it can make an affirmative finding that “the reasonable potential for exposure to the chemical substance through the article or category of articles” justifies the notification requirement.⁵ As of June 2020, EPA had made this finding and issued SNURs that encompass certain articles containing three substances or categories of substances (asbestos and certain long-chain perfluoroalkyl carboxylate substances and perfluoroalkyl sulfonate chemicals).⁶

EPA often uses its SNUR authority to monitor new chemical substances that do not warrant regulation under conditions of manufacture and use described in the PMN for the chemical substance, but that might present an unreasonable risk if these conditions change. SNURs thus serve to close a potential loophole in Section 5. Prior to the enactment of the 2016 amendments, if a PMN was submitted for a chemical substance that was considered potentially harmful to humans or to environmental species, but did not present an unreasonable risk under the intended conditions of use described in the PMN, EPA might choose to take no regulatory action on the PMN, and the chemical substance would be “dropped” from further review. Once the NOC was filed and the substance was added to the TSCA Inventory, meaning the substance was no longer “new,” other entities could then manufacture or import the substance under potentially more hazardous conditions of use or in volumes greatly exceeding the estimates in the PMN or for uses leading to high exposure. The SNUR authority provided a helpful mechanism for EPA to ensure there would be notice and review of significant new conditions of use that were not considered by EPA at the time the initial PMN was submitted.⁷ Following the 2016 amendments to TSCA, which required an affirmative determination by EPA before manufacture may commence, the Agency discontinued making outright determinations that a substance had been “dropped” from further review. However, since the 2016 amendments, EPA has gradually become more comfortable relying on SNURs as part of the basis for a determination that a substance is “not likely to present” an unreasonable risk under its intended conditions of use. Increasingly, EPA has been issuing SNURs in conjunction with a “not likely to present” determination for a PMN. This enables EPA to use the SNUR reporting requirement to require that notice be given to EPA prior to the PMN submitter (or another company) undertaking manufacturing or processing activities that represent reasonably foreseen conditions of use not described in the original PMN.⁸

EPA similarly uses SNURs to close another potential loophole in TSCA. EPA interprets its Section 5(e) Orders issued for new chemical substances in response to PMNs to be enforceable only against the original PMN submitter. EPA uses SNURs to impose the conditions included in a Section 5(e) Consent Order on other

products of biotechnology. *See* 40 C.F.R. §§ 725.900 to 725.984.

⁴40 C.F.R. § 720.3(c).

⁵TSCA § 5(a)(5), 15 U.S.C.A. § 2604(a)(5).

⁶*See* 85 Fed. Reg. 45109 (July 27, 2020) (long-chain perfluoroalkyl carboxylate and perfluoroalkyl sulfonate chemical substances); 84 Fed. Reg. 17345 (Apr. 25, 2019) (asbestos).

⁷*See generally* General Accounting Office, Assessment of New Chemical Regulation Under the Toxic Substances Control Act (GAO/RCED-84-84) (1984), available at <http://www.gao.gov/assets/150/141819.pdf>.

⁸*See Chemicals Determined Not Likely to Present an Unreasonable Risk Following Pre-Manufacture Notification Review*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/chemicals-determined-not-likely> (last updated June 3, 2020).

manufacturers (and processors) who might enter the market, or who identify new uses for the same substance. For example, if EPA is persuaded that the PMN submitter can manufacture the reported chemical substance safely, a Section 5(e) Consent Order can specify the particular practices EPA expects to be employed. A companion (or “follow-up”) SNUR can define manufacture by any other person or under any other conditions to be a significant new use. A second manufacturer must then either comply with the conditions of the Section 5(e) Order affecting the first manufacturer or submit a significant new use notice (SNUN) to EPA 90 days before engaging in the new use. SNUNs undergo the same review process (and possibility of being subject to a 5(e) Order) as do PMNs.

The 2016 amendments require EPA to determine, within 90 days of issuing a Section 5(e) Order, whether to issue such a SNUR that would require submission of a SNUN by prospective manufacturers or other entities that plan to manufacture, process, use, distribute, or dispose of a substance in a way that does not conform to the Section 5(e) Order’s restrictions.⁹ If EPA does not issue a SNUR applying a Section 5(e) Order’s restrictions to future market entrants, it must publish a statement explaining why it has not done so.¹⁰ The requirement that EPA determine whether to issue a SNUR for a new chemical substance also applies when EPA takes regulatory action either by an immediately effective rule or through a Section 5(f) Order after determining that the substance “presents” an unreasonable risk to health or the environment.

EPA has promulgated a “generic” SNUR rule to streamline the process for issuing SNURs.¹¹ The rule sets forth the process for issuing “follow-up” SNURs on new chemical substances for which EPA has issued Orders under Section 5(e) and for other new chemical substances which may present hazards to human health or the environment if exposures or releases are significantly different from those described in the initial PMNs that led to a particular substance’s inclusion in the Inventory. The generic rule defines a series of significant new use “triggers,” based on: mechanisms for protection in the workplace; hazard communication; industrial, commercial, and consumer activities; methods of disposal; and releases into water. In 2016, the Obama administration proposed changes to the generic rule provisions to align the regulations with current occupational respiratory protection requirements and with updates to the Occupational Health and Safety Administration’s Hazard Communication Standard.¹² EPA never finalized these proposed amendments.

It is important to note that EPA can use its SNUR authority to regulate substances already listed on the Inventory; the Agency is not limited to using SNURs to impose restrictions on or monitor new chemical substances after they have passed through the PMN review process. EPA can define any use of a chemical substance that is not “ongoing” at the time of a proposed SNUR to constitute a significant new use of the chemical substance (or class of substance), including a chemical substance already listed on the TSCA Inventory. This assures that EPA is notified of such uses, and can undertake a risk evaluation before the new use can occur on a commercial scale. Thus, EPA also has used SNURs to ensure that, once a chemical substance has been voluntarily phased out or taken off the market for certain uses, no company will be able to resume manufacturing or processing the chemical substance for that use without prior notice to the Agency. These regulations are

⁹TSCA § 5(f)(4), 15 U.S.C.A. § 2604(f)(4).

¹⁰TSCA § 5(f)(4), 15 U.S.C.A. § 2604(f)(4).

¹¹54 Fed. Reg. 31298 (July 27, 1989) (codified at 40 C.F.R. §§ 721.50 to 721.91).

¹²81 Fed. Reg. 49598 (July 28, 2016). Unrelated provisions in the proposed rule also would affect how EPA responds to bona fide intent to manufacture notices.

sometimes referred to as “dead chemical SNURs.” This action can prevent older chemical substances—regarded as hazardous—from returning to the market after other companies have voluntarily replaced them with substances that are regarded as less hazardous.

IV. REGULATION OF RISKS FROM EXISTING CHEMICAL SUBSTANCES

§ 16:28 In general

EPA’s authority to regulate existing chemical substances primarily relies on procedures and rulemaking authorities set forth in Section 6 of TSCA.

Historically, EPA did not make extensive use of this regulatory power. The pre-2016 Section 6 did authorize EPA to impose prohibitions and other types of restrictions and requirements on the manufacture and processing of existing substances. However, the original Section 6 also established criteria that circumscribed this authority. This included requirements that any risk management rules impose “the least burdensome requirements” and limits on EPA’s discretion to regulate under TSCA when a chemical substance’s risks to health or the environment could be addressed under another federal law.

Consequently, a primary purpose of the 2016 amendments was to establish a framework for evaluating the risks of existing chemical substances *without* consideration of costs. Related goals were to impose an action-forcing timetable for EPA to undertake such risk evaluations and, depending on the outcomes of the evaluations, to promulgate risk management requirements. The 2016 amendments also removed some of the major constraints on EPA authority to craft risk management requirements. The amendments eliminated the “least burdensome” requirement and struck the requirement that EPA make certain findings to support its decision to take action under TSCA instead of under another statute.

As discussed in more detail in Sections 16:30 to 16:32—and as illustrated in the figure below—the framework that the 2016 amendments established for existing substances includes three basic steps: (1) prioritization; (2) risk evaluation; and (3) risk management. First, EPA must undertake a process to “prioritize” existing chemical substances for “risk evaluation.”¹ Second, EPA must conduct a risk evaluation for each substance designated as a “high-priority” substance as a result of the prioritization process. If EPA finds, based on a risk evaluation, that the manufacture, distribution in commerce, use, or disposal of the substance “presents an unreasonable risk” of injury to health or the environment, EPA must then issue a rule imposing requirements “to the extent necessary so that the chemical substance no longer presents such risk.”²

The 2016 amendments further mandate EPA take certain expedited actions that circumvent one or two of these steps. For example, the amendments require that EPA promulgate risk management rules without undertaking the prioritization and risk evaluation processes for certain substances. These are substances that the Agency has a reasonable basis to conclude are toxic and have been determined to be persistent and bioaccumulative, and that meet other exposure criteria.³ The amendments also directed EPA to identify an initial 10 substances for which the Agency would conduct risk evaluations without the need to navigate a prioritization process.⁴

How EPA Evaluates the Safety of Existing Chemicals Under Section 6

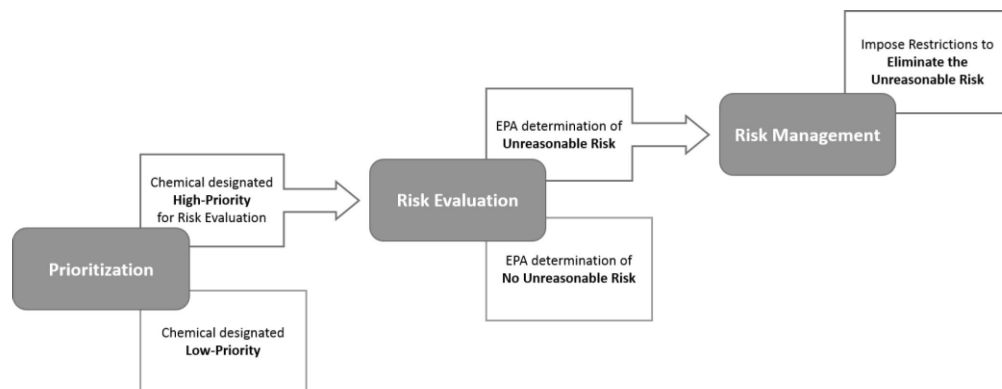
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¹TSCA § 6(b), 15 U.S.C.A. § 2605(b).

²TSCA § 6(a), 15 U.S.C.A. § 2605(a).

³TSCA § 6(h)(1), 15 U.S.C.A. § 2605(h)(1).

⁴TSCA § 6(b)(2)(A), 15 U.S.C.A. § 2605(b)(2)(A).



Source: *How EPA Evaluates the Safety of Existing Chemicals*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/how-epa-evaluates-safety-existing-chemicals> (last updated June 19, 2020).

§ 16:29 EPA rulemaking and other activity under Section 6 prior to the 2016 amendments

Prior to enactment of the 2016 amendments, EPA never successfully used its Section 6 authority to completely ban a chemical substance; only a handful of final Section 6 regulations were promulgated. These regulations, which illustrate the diverse types of requirements it is possible for EPA to impose under TSCA, included: prohibiting use of chlorofluorocarbons as aerosol propellants (to protect atmospheric ozone from degradation);¹ requiring schools to inspect for asbestos-containing building materials, to conduct response actions if necessary, and to develop and implement asbestos management plans;² and prohibiting the addition of certain substances to metalworking fluids to prevent the formation of cancer-causing compounds during machining operations.³

EPA's most ambitious rulemaking under Section 6 prior to the 2016 amendments involved promulgating a final rule to phase out, over a seven-year period, the use of asbestos in almost all products.⁴ In proceedings that began in 1979 and extended over 10 years, EPA undertook a comprehensive review of health effects studies of asbestos and performed a quantitative cancer risk assessment based on various pathways of exposure. EPA also estimated the costs of substitutes for the asbestos-containing products. Based on these analyses, EPA estimated that the rule would prevent the occurrence of 148 to 202 cases of cancer, at a cost of approximately

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¹EPA has revoked its regulations concerning chlorofluorocarbons, as because chlorofluorocarbons are now regulated under Section 610 of the Clean Air Act. See 60 Fed. Reg. 31917, 31919 (June 19, 1995). The TSCA regulations were formerly codified at 40 C.F.R. §§ 762.1 to 762.70.

²40 C.F.R. §§ 763.80 to 763.99. EPA eliminated the regulations pertaining specifically to friable asbestos-containing materials in schools, 40 C.F.R. §§ 763.100 to 763.119, inasmuch as they were superseded by §§ 763.80 to 763.99. These regulatory provisions address both friable and nonfriable asbestos-containing materials. See 60 Fed. Reg. 31917, 31919 (June 19, 1995). Although the regulations cite to Section 6, among other authorities, the Agency's rulemaking implemented certain requirements, established under a separate title of TSCA enacted as the Asbestos Hazard Emergency Response Act (AHERA) in 1986 as subchapter II of TSCA. AHERA provides EPA with rulemaking authority independent of Section 6 of subchapter I of TSCA.

³40 C.F.R. §§ 747.115 to 747.200. These regulations were promulgated as immediately effective proposed rules under TSCA §§ 5(f), 6, 15 U.S.C.A. §§ 2604(f), 2605.

⁴54 Fed. Reg. 29460 (July 12, 1989).

\$450–800 million.⁵ EPA concluded that the quantifiable and unquantifiable risk reductions outweighed the costs to consumers, producers, and users, and that the proposed regulation was justified because current asbestos uses “present an unreasonable risk to human health.”⁶

The asbestos phase-out rules were vacated almost in their entirety by the U.S. Court of Appeals for the Fifth Circuit in *Corrosion Proof Fittings v. EPA*.⁷ The court found that EPA had presented insufficient evidence to justify the asbestos ban because the Agency had failed to satisfy its statutory obligation to evaluate and consider less burdensome regulatory alternatives; to analyze the availability of, and risks associated with, substitutes for the banned products; and to balance the costs of the regulations against their benefits.⁸ Citing EPA’s own estimates of the cost of each statistical life to be saved through asbestos product bans, the court observed that EPA, “in its zeal to ban any and all asbestos products, basically ignored the cost side of the TSCA equation.”⁹ The court left in place only those portions of the regulations banning products that were not being produced in the United States at the time the rule became effective.¹⁰

For many years after the *Corrosion Proof Fittings* decision, EPA did not use its regulatory authority under Section 6.¹¹ Following the presidential election in 2008, and especially during the years leading up to the 2016 amendments’ overhaul of Section 6, the Agency demonstrated renewed interest in the provision. In September 2009, EPA announced that it had adopted a new, comprehensive approach to

⁵54 Fed. Reg. at 29468.

⁶51 Fed. Reg. 3738, 3751 (Jan. 29, 1986); see also 54 Fed. Reg. 29467.

⁷*Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991). The court applied the standard of review set forth in Section 19 of TSCA, which requires that a rule promulgated under Section 6 be set aside if it is “not supported by substantial evidence in the rulemaking record . . . taken as a whole.” *Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 1213–14, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 20042, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991) (citing TSCA § 19(c)(1)(B)(i), 15 U.S.C.A. § 2618(c)(1)(B)(i)).

⁸*Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 1220–23, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 20045–47, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991). With regard to the analysis of the costs of regulation, the court stated:

While Congress did not dictate that the EPA engage in an exhaustive, full-scale cost-benefit analysis, it did require the EPA to consider both sides of the regulatory equation, and it rejected the notion that the EPA should pursue the reduction of work-place risk at any cost. *Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 1222, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 20046, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991).

⁹*Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 1223, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 20046, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991).

¹⁰*Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 1228–30, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 20049–50, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991). EPA subsequently amended the asbestos ban rule to clarify that the prohibitions apply only to asbestos-containing flooring felt, commercial paper, corrugated paper, rollboard, and specialty paper, and to new uses of asbestos. 59 Fed. Reg. 33208 (June 28, 1994).

¹¹In 1991, EPA proposed to ban the manufacture and use of acrylamide-based sewer grouts. EPA withdrew the proposal in 2002 due to the development of affordable and effective personal protective equipment for workers. See 67 Fed. Reg. 71524 (Dec. 2, 2002). If adopted, the rule would have been the first attempt by EPA to ban an industrial chemical using its authority in TSCA Section 6 since the *Corrosion Proof Fittings* decision. See Sara Thurin Rollin, EPA Readies Rule Banning Substance; Drops TSCA Subpoena on Grout Material, *Daily Env’t. Rep.* (BNA), July 30, 1998, at A-8.

enhancing the Agency's current chemicals management program.¹² Two and a half years later, in March 2012, EPA issued a TSCA Work Plan for Chemical Assessments and announced the Agency had identified 83 chemical substances for further assessment. In October 2014, EPA published an update to the TSCA Work Plan that contained 90 chemical substances.¹³ The 2016 amendments reference the Work Plan list, which continues to provide a (still) lengthy menu of options for chemical substances from which EPA is expected to select when undertaking new risk evaluations.

In December 2016 and January 2017, EPA proposed Section 6 rules for three of the substances that had been included in the 2014 update to the TSCA Work Plan. Two of the proposed rules targeted the industrial solvent trichloroethylene to address its use as a spotting agent in dry cleaning and in consumer aerosol spray degreasers and as a vapor degreasing agent. The third proposed Section 6 rule targeted NMP and methylene chloride to address risks associated with commercial and consumer paint and varnish stripping uses.¹⁴ The risk assessments for these chemical substances had been completed prior to the enactment of the 2016 amendments. The amendments—which, as discussed in the following sections, established a framework for prioritizing, evaluating, and managing the risk of existing chemicals—also permitted EPA to regulate such chemical substances under Section 6 in a manner consistent with risk assessments conducted before enactment of the 2016 amendments so long as the regulations were consistent with other applicable Section 6 requirements.¹⁵ Ultimately, EPA did not proceed with a final rule for trichloroethylene or NMP. For methylene chloride, EPA promulgated a final rule in 2019 that prohibited the manufacture, import, processing, and distribution of methylene chloride in paint removers for consumer use,¹⁶ but did not finalize a rule for the commercial uses. As discussed below, all three substances were included on EPA's initial list of 10 chemical substances for which it would perform full-fledged risk evaluations under the amended TSCA.

§ 16:30 Prioritization and identification of existing chemical substances for risk evaluation

The 2016 amendments created three means by which chemical substances are selected for risk evaluations: (1) selection of an initial 10 substances from EPA's 2014 update to its TSCA Work Plan for Chemical Assessments; (2) identification

¹²See Lisa Jackson, Administrator, EPA, Remarks to the Commonwealth Club of San Francisco (Sept. 29, 2009).

¹³EPA, TSCA Work Plan for Chemical Assessments: 2014 Update (Oct. 2014), https://www.epa.gov/sites/production/files/2015-01/documents/tsca_work_plan_chemicals_2014_update-final.pdf. Fifteen chemical substances contained in the 2012 version were removed, one chemical substance was consolidated, and 23 chemical substances were added. As of September 2016, the Agency had completed risk assessments for five TSCA Work Plan chemical substances; released both a draft assessment for one Work Plan chemical and problem formulation and initial assessments for six Work Plan chemicals; and had initiated assessments for three others. *Assessments for TSCA Work Plan Chemicals*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/assessments-tsca-work-plan-chemicals>.

¹⁴See 82 Fed. Reg. 7464 (Jan. 19, 2017); 82 Fed. Reg. 4825 (Jan. 17, 2017); 81 Fed. Reg. 91592 (Dec. 16, 2016).

¹⁵TSCA § 26(l)(4), 15 U.S.C.A. § 2625(l)(4). Some questions were raised about the extent to which the three proposed Section 6 rules complied with all applicable requirements of the amended Section 6. See Maria Hegstad, *Industry 'Hopeful' Trump Administration Will Drop TSCA Section 6 Rules*, Inside EPA (Nov. 18, 2016); W. Caffey Norman, *Implementation of TSCA Section 6: EPA Moving in the Wrong Direction?*, 155 Daily Env't Rep. (Bloomberg BNA) BB-1 (Aug. 11, 2016).

¹⁶84 Fed. Reg. 11420 (Mar. 27, 2019). As of June 2020, challenges to this final rule were pending in the Second Circuit. *Labor Council for Latin Am. Advancement v. EPA*, No. 19-1042 (2d Cir.).

through a “prioritization” process for designation of “high-priority” chemical substances that “may present” an unreasonable risk to health or the environment; and (3) manufacturer requests for EPA to conduct a risk evaluation.

First, the 2016 amendments required EPA to formally initiate risk evaluations for 10 chemical substances drawn from the Agency’s 2014 update of the TSCA Work Plan for Chemical Assessments by December 19, 2016 (180 days after of the 2016 amendments’ enactment).¹ As discussed above, the 2014 update contained 90 chemical substances. On November 29, 2016, EPA announced the 10 substances that would be its initial focus: 1,4-dioxane; 1-bromopropane; asbestos; carbon tetrachloride; cyclic aliphatic bromide cluster; methylene chloride; n-methylpyrrolidone (NMP); pigment violet 29 (PV29); tetrachloroethylene, also known as perchloroethylene; and trichloroethylene.²

Second, the 2016 amendments required EPA to establish, within one year of enactment (i.e., by June 22, 2017), a “risk-based screening” or “prioritization” process for identifying other existing chemical substances—or categories of chemical substances—for risk evaluation. Thus, the Act required EPA to establish a procedure and the criteria it would use for designating chemical substances as either “high-priority” substances slated for risk evaluations or “low-priority” substances for which risk evaluations were not currently warranted. The screening process was required to involve consideration of a chemical substance’s hazard and exposure potential, including consideration of persistence and bioaccumulation, potentially exposed or susceptible subpopulations and storage near significant sources of drinking water; conditions of use or significant changes in the conditions of use; and the volume or significant changes in the volume of the chemical substance manufactured or processed.³

In January 2017, EPA issued proposed procedures for prioritization of chemicals for risk evaluation.⁴ In June 2017, EPA issued a final rule (the “Prioritization Rule”).⁵ As required by the statute, the priority designation process established by the Prioritization Rule must extend between nine months and one year, measured from a notice of initiation of the prioritization process to the final priority designation. In the Federal Register notice commencing the prioritization process, but prior to proposing a priority designation, EPA requests relevant information on

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¹TSCA § 6(b)(2)(A), 15 U.S.C.A. § 2605(b)(2)(A).

²81 Fed. Reg. 91927 (Dec. 19, 2016); see discussion *infra* § 16:31 (regarding the status of these risk evaluations).

³TSCA § 6(b)(1)(A), 15 U.S.C.A. § 2605(b)(1)(A).

⁴82 Fed. Reg. 4825 (Jan. 17, 2017).

⁵82 Fed. Reg. 33753 (July 20, 2017) (final rule). Environmental and public health groups filed challenges to the Prioritization Rule in three circuit courts of appeal shortly after EPA published the final regulations. *Env’tl. Def. Fund v. EPA*, No. 17-2464 (2d Cir.); *Alliance of Nurses for Healthy Env’ts v. EPA*, No. 17-1926 (4th Cir.); *Safer Chems. Healthy Families v. EPA*, No. 17-72259 (9th Cir.). These lawsuits were consolidated in the Ninth Circuit to be heard with lawsuits challenging the Risk Evaluation Rule, discussed in Section 16:31. In November 2019, the Ninth Circuit issued an opinion that primarily addressed the Risk Evaluation Rule, including whether EPA could exclude some conditions of use from the scope of an evaluation. *Safer Chemicals, Healthy Families v. U.S. Environmental Protection Agency*, 943 F.3d 397 (9th Cir. 2019), for additional opinion, see, 791 Fed. Appx. 653 (9th Cir. 2019). The decision, which is discussed in greater detail in Section 16:31, appeared to suggest that EPA might not be able to exclude intended, known, or reasonably foreseen conditions of use from consideration in risk evaluations. The decision also indicated that related challenges to the Prioritization Rule were “entirely encompassed” within challenges to the Risk Evaluation Rule; this suggests the potential limits on EPA’s discretion to exclude conditions of use are also relevant to the scope of uses to be considered in the prioritization process. In a separate unpublished decision, the Ninth Circuit rejected other challenges to the Prioritization Rule. *Safer Chems., Safer Chemicals, Healthy Families v. U.S. Environmental Protection Agency*, 791 Fed. Appx. 653 (9th Cir. 2019).

a chemical substance and allows 90 days for submission.⁶ EPA may extend this period by up to three additional months in order to receive or evaluate information received under the related Section 4 authority created by the 2016 amendments that permits EPA to require development of information in order to prioritize a chemical substance.⁷ After conducting a screening process, EPA proposes to designate the chemical substance as high-priority or low-priority.⁸ The proposed designation is subject to a 90-day public comment period.⁹

Based on this process, EPA identifies “high-priority” chemical substances that it concludes—without consideration of costs or other nonrisk factors—“may present an unreasonable risk of injury to health or the environment because of a potential hazard and a potential route of exposure under the conditions of use, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant by [EPA].”¹⁰

Chemical substances that EPA concludes, “based on information to establish, without consideration of costs or other nonrisk factors,” do not meet the “high-priority” standard will be designated as low-priority.¹¹ EPA’s designations are based on its conclusion that a chemical substance does or does not meet the high-priority threshold “under one or more activities that the Agency determines constitute conditions of use.”¹² EPA stated it would identify the circumstances that constitute each substance’s “conditions of use” early in the prioritization process.¹³ If EPA lacks sufficient information to finalize a proposed low-priority designation for a chemical substance, EPA will propose designating the substance as high-priority.¹⁴ A low-priority designation does not preclude EPA from revising the designation in the future.¹⁵

The prioritization process must give preference to certain chemical substances—those listed in the 2014 update to the TSCA Work Plan for Chemical Assessments as having a Persistence and Bioaccumulation Score of 3, and those included in the 2014 update that are human carcinogens and have high acute and chronic toxicity.¹⁶ The 2016 amendments also directed EPA to use the Framework for Metals Assessment of the Office of the Science Advisor, Risk Assessment Forum, to identify priorities for metals and metal compounds.¹⁷

The 2016 amendments imposed initial deadlines for the prioritization and risk evaluation process, requiring that risk evaluations be ongoing for at least 20 high-priority substances within three and one half years of enactment (i.e., by December 2019). In addition, at least 20 chemical substances were required to have been designated as low-priority by that time.

In September 2018, EPA published a working approach document that was

⁶40 C.F.R. § 702.7(d).

⁷40 C.F.R. § 702.7(e) (allowing EPA to “extend the public comment period . . . for up to three months in order to receive or evaluate information submitted under 15 U.S.C. 2603(a)(2)(B)”). Section 16:5 discusses new authority that the 2016 amendments granted to EPA to require testing.

⁸*See* 40 C.F.R. § 702.9.

⁹40 C.F.R. § 702.9(g).

¹⁰TSCA § 6(b)(1)(B)(i), 15 U.S.C.A. § 2605(b)(1)(B)(i).

¹¹TSCA § 6(b)(1)(B)(ii), 15 U.S.C.A. § 2605(b)(1)(B)(ii).

¹²40 C.F.R. § 702.9(f).

¹³82 Fed. Reg. 33753, 33755 (July 20, 2017). The Ninth Circuit has suggested there could be limits on EPA’s discretion to exclude conditions of use. *See* discussion *supra* note 5.

¹⁴TSCA § 6(b)(1)(C)(iii), 15 U.S.C.A. § 2605(b)(1)(C)(iii); 40 C.F.R. § 702.9(e).

¹⁵40 C.F.R. § 702.15.

¹⁶TSCA § 6(b)(2)(D), 15 U.S.C.A. § 2605(b)(2)(D).

¹⁷TSCA § 6(b)(2)(E), 15 U.S.C.A. § 2605(b)(2)(E).

intended to guide not only the initial prioritization of 20 high-priority substances but also a longer-term approach that EPA would use to “bin” active chemical substances on the Inventory.¹⁸ This meant that “EPA would loosely group chemicals on the Inventory into pools that could inform potential prioritization based on risk-based data and information availability.”¹⁹ EPA stated the binning process would incorporate information related to human hazard relative to exposure, ecological hazard, genotoxicity, persistence, and bioaccumulation to calculate “binning scores.”²⁰

EPA’s approach to the initial 20 high-priority substances was to refer primarily to the 2014 Work Plan and to select chemicals based on three factors: “overarching Agency priorities”; quantity and quality of information; and work load (e.g., selecting chemicals to take advantage of existing expertise). EPA indicated it might look beyond the 2014 Work Plan where other agencies, the public, or the EPA administrator identified chemicals as “particularly suitable.”²¹ In regards to the initial 20 low-priority substances, EPA added that the Agency might identify substances from particular existing resources, such as: EPA’s Safer Chemical Ingredients List (SCIL); EPA’s Chemical Assessment Management Program (ChAMP); and Organisation for Economic Co-operation and Development (OECD) Screening Information Data Sets (SIDS) assessment documents.²²

In December 2019, EPA published notice of its designation of the first 20 high-priority substances, marking the initiation of their risk evaluations.²³ In February 2020, EPA finalized designation of the first 20 low-priority substances, all of which were taken from SCIL.²⁴

After the designation of the first 20 high-priority substances, the amended TSCA requires that EPA continue to designate priority substances and conduct risk evaluations “at a pace consistent with the ability of [EPA] to complete risk evaluations” in accordance with the deadlines specified in the statute.²⁵ EPA must designate at least one high-priority substance for risk evaluation whenever it completes a risk evaluation.²⁶

The third way by which a chemical substance may be selected for a risk evalua-

¹⁸EPA, A Working Approach for Identifying Potential Candidate Chemicals for Prioritization (Sept. 27, 2018).

¹⁹EPA, A Working Approach for Identifying Potential Candidate Chemicals for Prioritization 1 (Sept. 27, 2018).

²⁰EPA, A Working Approach for Identifying Potential Candidate Chemicals for Prioritization 28 (Sept. 27, 2018). EPA described additional steps it intended to take as it developed the binning approach, including opening of a docket to accept comments on the approach, release of a white paper, and public meetings. *Id.* at 17. Simultaneously with the publication of its working approach document, EPA opened dockets to accept information on use, hazard, and exposure for the remaining chemicals on the 2014 Work Plan (i.e., the 73 substances that were not among the 10 selected for the first risk evaluations and that were not PBT substances being addressed either under Section 6(h) or through a manufacturer-requested risk evaluation), as well as a general docket for submitting such information for other chemicals. *Submitting Information on TSCA Work Plan Chemicals to Inform Prioritization and Risk Evaluation*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/submitting-information-tsca-work-plan-chemicals-inform> (last visited Apr. 3, 2020).

²¹EPA, A Working Approach for Identifying Potential Candidate Chemicals for Prioritization 7 (Sept. 27, 2018).

²²EPA, A Working Approach for Identifying Potential Candidate Chemicals for Prioritization 15 (Sept. 27, 2018).

²³84 Fed. Reg. 71924 (Dec. 30, 2019); *see also* 84 Fed. Reg. 10491 (Mar. 21, 2019) (notice of initiation of the prioritization process).

²⁴85 Fed. Reg. 11069 (Feb. 26, 2020).

²⁵TSCA § 6(b)(2)(C), 15 U.S.C.A. § 2605(b)(2)(C).

²⁶TSCA § 6(b)(3)(C), 15 U.S.C.A. § 2605(b)(3)(C). This requirement does not apply to the completion of risk evaluations for chemical substances being evaluated at the request of a manufacturer.

tion is by request of a manufacturer. In considering manufacturer requests, EPA must give preference to requests where the Agency determines that state-level restrictions on the chemical substance have the potential to have a significant impact on interstate commerce, or on health or the environment.²⁷ The number of manufacturer-requested risk evaluations must equal at least 25% (if sufficient manufacturer requests are received, but not more than 50% of the number of risk evaluations EPA is conducting for the first 10 chemical substances identified by EPA from the 2014 update and for chemical substances identified through the prioritization process).²⁸ Manufacturer-requested risk evaluations for chemical substances listed in the 2014 Work Plan update do not count towards the 50% maximum.²⁹ A manufacturer must pay fees to cover the costs of the Agency's evaluation if EPA grants the request.³⁰ The percentage of costs the manufacturer must pay is 50% for chemical substances listed on the 2014 update to the TSCA Work Plan for Chemical Assessments and 100% for other substances.³¹

As of July 2020, EPA had granted manufacturer requests for risk evaluations of diisodecyl phthalate (DIDP) and diisononyl phthalate (DINP). There was a pending manufacturer request for a risk evaluation of octamethylcyclotetra- siloxane (D4).³²

§ 16:31 Risk evaluation for existing chemical substances

The previous section noted that the amended TSCA requires EPA to conduct risk evaluations: (1) for the 10 substances the Agency initially selected from the 2014 update to the TSCA Work Plan for Chemical Assessments; (2) for substances designated as high-priority through EPA's prioritization process; and (3) for substances for which EPA grants a manufacturer's request for evaluation.¹ EPA conducts risk evaluations in accordance with a framework rule (the Risk Evaluation Rule) that it issued in June 2017, as required by the 2016 amendments.²

Consistent with the statute,³ the risk evaluation process must incorporate the following elements:

1. Integrate and assess available information on hazards and exposures for the chemical substance's conditions of use, including information relevant to specific risks of injury to health or the environment and information on potentially exposed or susceptible subpopulations identified as relevant by EPA
2. Describe whether aggregate or sentinel exposures to a chemical substance under the conditions of use were considered, and the basis for that consideration
3. *Not* consider costs or other nonrisk factors in the context of the risk evalua-

²⁷TSCA § 6(b)(4)(E)(iii), 15 U.S.C.A. § 2605(b)(4)(E)(iii). The procedures for submission and review of manufacturer requests, which includes public notice and comment, are set forth at 40 C.F.R. § 702.37.

²⁸TSCA § 6(b)(4)(E)(i), 15 U.S.C.A. § 2605(b)(4)(E)(i).

²⁹TSCA § 6(b)(4)(E)(iv)(II), 15 U.S.C.A. § 2605(b)(4)(E)(iv)(II).

³⁰TSCA § 26(b)(4)(D), 15 U.S.C.A. § 2625(b)(4)(D); *see* 40 C.F.R. § 702.37. Fees requirements are discussed in Section 16:51, *infra*.

³¹TSCA § 26(b)(4)(D), 15 U.S.C.A. § 2625(b)(4)(D).

³²*See List of Manufacturer-Requested Risk Evaluations Under TSCA Section 6*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/list-manufacturer-requested-risk-evaluations-under-tsca>.

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¹TSCA § 6(b)(4)(C), 15 U.S.C.A. § 2605(b)(4)(C).

²82 Fed. Reg. 33726 (July 20, 2017); *see also* 82 Fed. Reg. 7562 (Jan. 19, 2017) (proposed rule).

³*See* TSCA § 6(b)(4)(F), 15 U.S.C.A. § 2605(b)(4)(F).

tion phase

4. Take into account the likely duration, intensity, frequency, and number of exposures under the conditions of use, as relevant
5. Describe the weight of the scientific evidence for the identified hazard and exposure

EPA's Risk Evaluation Rule incorporated these statutory requirements into a process that includes issuing draft and final scoping documents and draft and final risk evaluations, all of which the statute requires to be completed within three years, with the possibility of a six-month extension.⁴

A final risk evaluation includes five components: scope, hazard assessment, exposure assessment, risk characterization, and risk determination.

The scope identifies the chemical substance's conditions of use, as well as potentially exposed or susceptible subpopulations, ecological receptors, and hazards to human health and the environment that EPA plans to consider and evaluate.⁵ Other components of the scope include: a description of the reasonably available information and science approaches EPA plans to use; a conceptual model to describe actual or predicted relationships between the chemical substance and receptors; an analysis plan that, among other items, identifies a strategy for using information, accepted science policies, models, and screening methodologies, and describes hypotheses about the relationships identified in the conceptual model; and a peer review plan.⁶ EPA issues a scoping document within six months of a substance being prioritized for risk evaluation.⁷ During that six-month period, EPA publishes a draft scope and makes it available for at least 45 days of public comment.⁸ No fewer than 12 months may elapse between the initiation of the prioritization process for a chemical substance eventually designated as high-priority and the publication of the final scope.⁹ This takes into account the public comment process for prioritization and the period designated for preparing the initial risk evaluation scoping document.

EPA then proceeds with development of a draft risk evaluation within the scope's parameters. The evaluation includes the other four components. The hazard assessment identifies the types of hazards to health and the environment posed by the chemical substance under the conditions of use, while the exposure assessment involves consideration of the likely duration, intensity, frequency, and number of exposures to the chemical substance under the conditions of use.¹⁰ The risk characterization integrates the hazard and exposure assessments into quantitative or qualitative estimates of risk and results in a summary of considerations addressed throughout the evaluation, including consideration of uncertainty and variability, data quality, plausible alternative interpretations where appropriate and relevant, and factors specific to environmental risk evaluations—such as spatial and temporal patterns of effects and implications at individual, species, population, and community level.¹¹

The risk evaluation culminates in a final determination of “whether a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other nonrisk factors, including an unreasonable

⁴See 40 C.F.R. § 702.41 to 702.49; *see also* TSCA § 6(b)(4)(G), 15 U.S.C.A. § 2605(b)(4)(G).

⁵40 C.F.R. § 702.41(c)(2).

⁶40 C.F.R. § 702.41(c)(3) to (6).

⁷TSCA § 6(b)(4)(D), 15 U.S.C.A. § 2605(b)(4)(D); 40 C.F.R. § 702.41(c)(8)(i).

⁸40 C.F.R. § 702.41(c)(7)(i) to (iii).

⁹TSCA § 6(b)(4)(D), 15 U.S.C.A. § 2605(b)(4)(D).

¹⁰40 C.F.R. § 702.41(d) to (e).

¹¹40 C.F.R. § 702.43.

risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator, under the conditions of use.”¹² The Risk Evaluation Rule requires EPA to provide at least 60 days for public comment on a draft evaluation.¹³

The 2016 amendments required EPA to develop guidance to assist interested outside parties in developing and submitting draft risk evaluations for consideration by EPA.¹⁴ EPA’s guidance, published on June 22, 2017,¹⁵ generally indicates that such evaluations must be of the same quality and adhere to the same substantive and procedural requirements as evaluations prepared by EPA. Although the amended TSCA required the guidance, the Risk Evaluation Rule does not itself provide for the submission of risk evaluations prepared by outside parties.

As discussed in the following section, the 2016 amendments authorized EPA to forgo conducting risk evaluations for certain substances identified as persistent, bioaccumulative, and toxic chemical substances. The Agency is required to propose Section 6(a) risk management rules for these substances within three years of the enactment of the 2016 amendments.¹⁶

Lawsuits challenging the final Risk Evaluation Rule were filed in three separate courts of appeals.¹⁷ The lawsuits initially were consolidated in the Fourth Circuit but were subsequently transferred to the Ninth Circuit to be heard with the lawsuits challenging the Prioritization Rule, discussed above.¹⁸ In November 2019, the Ninth Circuit vacated portions of the Risk Evaluation Rule that excluded “legacy uses” and “associated disposals” from the conditions of use required to be considered in a risk evaluation.¹⁹ However, the Ninth Circuit found that EPA properly excluded “legacy disposal” from the conditions of use, concluding that “TSCA unambiguously does not require past disposals to be considered conditions of use.”²⁰ This ruling led EPA, which had already commenced a risk evaluation of asbestos that excluded legacy uses from its scope, to indicate its intent to undertake a supplemental risk evaluation to consider legacy uses and associated uses.²¹

The Ninth Circuit dismissed or denied two other challenges to the Risk Evaluation Rule, though the court’s decision could leave room for additional challenges to individual risk evaluations based on these issues. First, the court concluded that an argument that EPA intended to make risk determinations for individual uses rather than holistically was not justiciable because the petitioners’ interpretation of EPA’s intent was too speculative.²² Second, the Ninth Circuit rejected an argument that the rule contravened EPA’s purported obligation under TSCA to consider all of a chemical’s conditions of use. The court stated that text in the preamble suggesting EPA would exclude conditions of use was not binding and that “[e]ven assuming

¹²TSCA § 6(b)(4)(A), 15 U.S.C.A. § 2605(b)(4)(A).

¹³40 C.F.R. § 702.49(a). The statute requires at least 30 days of public comment on the draft evaluation. TSCA § 6(b)(4)(H), 15 U.S.C.A. § 2605(b)(4)(H).

¹⁴TSCA § 6(l)(5), 15 U.S.C.A. § 2605(l)(5).

¹⁵EPA, EPA 740-R17-001, Guidance to Assist Interested Persons in Developing and Submitting Draft Risk Evaluations Under the Toxic Substances Control Act (June 2017).

¹⁶TSCA § 6(h)(2), 15 U.S.C.A. § 2605(h)(2).

¹⁷*See* *Env’tl. Def. Fund v. EPA*, No. 17-2464 (2d Cir.); *Alliance of Nurses for Healthy Env’ts v. EPA*, No. 17-1926 (4th Cir.); *Safer Chemicals Healthy Families v. EPA*, No. 17-72259 (9th Cir.).

¹⁸*See* *Alliance of Nurses for Healthy Env’ts v. EPA*, No. 17-1926 (4th Cir. Dec. 11, 2017).

¹⁹*Safer Chemicals, Healthy Families v. U.S. Environmental Protection Agency*, 943 F.3d 397, 425 (9th Cir. 2019), for additional opinion, *see*, 791 Fed. Appx. 653 (9th Cir. 2019).

²⁰943 F.3d at 425.

²¹85 Fed. Reg. 18954 (Apr. 3, 2020).

²²943 F.3d at 411.

TSCA requires EPA to consider all conditions of use within the scope of a chemical substance's risk evaluation, the provisions of the Risk Evaluation Rule that Petitioners challenge do not evince any contrary intent on the part of EPA.”²³ These two arguments will be revisited in litigation (discussed further below) recently filed, as of time of publication, in the Ninth Circuit. These suits challenge EPA's first final risk evaluation (for methylene chloride, one of the initial 10 risk evaluations EPA undertook following the 2016 amendments).²⁴

The 2016 amendments required swift work on risk evaluations, and EPA was out of the gate quickly. In June 2017, the Agency released draft scoping documents for the first 10 substances, and in June 2018, EPA published problem formulation documents for public comment.²⁵ Beginning in November 2018, EPA began to release draft risk evaluations for the 10 substances, starting with PV29. As the June 2020 deadline for completion of the first 10 evaluations approached, however, it became apparent that the Agency would not be able to complete the evaluations on time. The Agency issued its tenth draft risk evaluation—for perchloroethylene—in April 2020, only two months before the deadline for final risk evaluations.²⁶ In addition, the Science Advisory Committee on Chemicals raised numerous concerns regarding the draft evaluations, and EPA continued to receive new information on at least two of the chemicals: in July 2020, EPA announced it had received information about the solubility of PV29 in response to a Section 4 testing order and added that the Agency had received additional studies on NMP that were similar to a study that provided the basis for an element of the NMP draft risk evaluation.²⁷

As of the time this chapter was drafted, EPA had issued only one final risk evaluation—for methylene chloride—by the statutory deadline. EPA had also recently closed the comment periods on the draft scoping documents for its risk evaluations of the first 20 high-priority substances.²⁸

EPA's evaluation for methylene chloride risk identified no unreasonable risk to the environment from any condition of use, but the Agency did find unreasonable risk to human health arising from 47 of the 53 conditions of use considered and stated EPA would initiate risk management actions on those 47 conditions of use.²⁹ The risk evaluation set forth separate detailed findings for each condition of use. EPA considered its findings of no unreasonable risk for six conditions of use as final agency action.³⁰ In July 2020, environmental groups filed a petition for review in the Ninth Circuit challenging the final risk evaluation.³¹ Their petition asserted that EPA had “declin[ed] to consider certain uses and pathways through which members of Petitioners are exposed and face risks of exposure to methylene chloride.” The results of this litigation—and of the challenges that surely will follow issuance of other final risk evaluations that include “no unreasonable risk” findings—will shape the evolution of EPA's assessment and management of existing chemicals. It could

²³943 F.3d at 418–20.

²⁴*Neighbors for Env'tl. Justice v. EPA*, No. 20-72091 (9th Cir. July 16, 2020).

²⁵For the initial 10 substances, EPA referred to the final scoping documents as problem formulation documents.

²⁶85 Fed. Reg. 37942 (June 24, 2020).

²⁷Letter from Acting Dir., Risk Assessment Div., Office of Pollution Prevention & Toxics, EPA, to Executive Sec'y, FIFRA Scientific Advisory Panel Staff, Office of Sci. Coordination & Policy, regarding Transmission of NMP Producers Group Studies from November 1999 and December 1999 Submitted in Support of the Draft Risk Evaluation for n-Methylpyrrolidone (2-Pyrrolidinone, 1 Methyl-) (NMP) (July 16, 2020).

²⁸85 Fed. Reg. 22733 (Apr. 23, 2020); 85 Fed. Reg. 19941 (Apr. 9, 2020).

²⁹See 85 Fed. Reg. 37942 (June 24, 2020).

³⁰See 85 Fed. Reg. at 37943.

³¹*Neighbors for Env'tl. Justice v. EPA*, No. 20-72091 (9th Cir. July 16, 2020).

require certain draft risk evaluations for the first 10 chemicals be reexamined, and potentially delay development of risk management regulations for those and other substances that undergo review.

§ 16:32 Risk management for existing chemical substances

If a risk evaluation results in a determination that a chemical substance presents an unreasonable risk of injury to health or the environment, EPA must issue regulations requiring risk management actions “to the extent necessary so that the chemical substance no longer presents” the unreasonable risk to health or the environment.¹ This standard replaced the original TSCA’s directive that risk management requirements be applied “to the extent necessary to protect adequately against such risk using the least burdensome requirements.” Section 6 specifies the types of risk management actions that EPA may require, and the types of limitations identified can be combined in the same regulation. The Agency may limit risk management requirements to specified geographic areas.²

Risk Management Actions for Chemical Substances & Mixtures Under TSCA Section 6³

- *Prohibitions/restrictions on **manufacture/processing/distribution***
- *Prohibitions/limitations on **amount** manufactured/processed/distributed*
- *Prohibitions/restrictions on manufacture/processing/distribution for a **particular use** (or particular use exceeding a specified amount and/or concentration)*
- *Requirements for “**clear and adequate minimum warnings and instructions**” (including for articles)*
- ***Recordkeeping, monitoring, or testing requirements** that are “reasonable and necessary to assure compliance” with other risk management rules*
- *Prohibition or other regulation of **particular manners or methods** of commercial use*
- *Prohibition or other regulation of **particular manners or methods of disposal***
- ***Notice requirements** and **requirements to replace or repurchase** the chemical substance or mixture*

These parameters for risk management actions are largely the same as they were under the original TSCA. The 2016 amendments did, however, add a limitation on risk management rules for articles and categories of articles. The amendments specified that EPA may impose prohibitions or other restrictions on articles only “to the extent necessary to address the identified risks from exposure to the chemical substance or mixture from the article or category of articles so that the chemical substance or mixture does not present an unreasonable risk of injury to health or the environment identified in the risk evaluation.”⁴

Although EPA may not consider economic and other nonrisk factors during the prioritization and risk evaluation processes, the Agency must undertake an analysis of the risks, benefits, and costs of regulating the substance when issuing a risk management rule under Section 6(a). Section 6(c) requires the Administrator to

[Section 16:32]

¹TSCA § 6(a), 15 U.S.C.A. § 2605(a).

²TSCA § 6(a), 15 U.S.C.A. § 2605(a).

³TSCA § 6(a)(1)–(a)(7), 15 U.S.C.A. § 2605(a)(1)–(a)(7).

⁴TSCA § 6(c)(2)(E), 15 U.S.C.A. § 2605(c)(2)(E).

publish a statement based on reasonably available information regarding the magnitude of exposure and effects on health and the environment, the benefits of the substance for various uses, and “the reasonably ascertainable economic consequences of the rule.” This last item includes the likely effect on the national economy, small business, technological innovation, the environment, and public health; the costs and benefits of the proposed action and of the primary alternative actions considered by EPA; and the cost effectiveness of the proposed action and of the primary alternative actions considered by EPA.⁵ Consideration of available substitutes is required when EPA is deciding whether to impose prohibitions or restrictions in a manner that “substantially prevents” a specific condition of use of a chemical substance or mixture. Such consideration is also required when the Agency is deciding upon an appropriate transition period for phasing in such a prohibition or restriction. EPA must consider, to the extent practicable, whether there will be reasonably available technically and economically feasible alternatives that benefit health or the environment, when compared to the use proposed to be prohibited or restricted.⁶

Prior to enactment of the 2016 amendments, Section 6(c) of TSCA discouraged EPA from issuing regulations under Section 6 if other laws administered by the Agency applied. If the Administrator determined that a chemical risk could be controlled adequately by other laws administered by EPA, then the Agency could not issue a risk management rule under Section 6(a) unless the Administrator determined that it was “in the public interest” to do so.⁷ In making this determination, the Administrator was required to compare the relative costs and efficiency of proceeding under other available laws.⁸ The 2016 amendments eliminated this requirement.

EPA can grant temporary exemptions from Section 6 rules for specific conditions of use of a chemical substance or mixture if one of three criteria is met:

- (1) the use is “critical or essential” and there are no technically or economically feasible safer alternatives available, taking into consideration hazard and exposure;
- (2) compliance with the Section 6 requirement would “significantly disrupt the national economy, national security, or critical infrastructure”; or
- (3) the use provides a “substantial benefit” to health, the environment, or public safety as compared to reasonably available alternatives.⁹

Initially, EPA must set a reasonable time limit for any exemption it grants, and can subsequently extend, modify, or eliminate an exemption.¹⁰ EPA must impose conditions on the exemption to the extent necessary to protect health and the environment while achieving the exemption’s purposes. The conditions might include recordkeeping, monitoring, and reporting requirements.¹¹

TSCA also exempts replacement parts for “complex durable goods” and “complex consumer goods” (both of which are defined terms in the statute) designed prior to a final risk management rule unless the Agency finds, based on the risk evaluation,

⁵TSCA § 6(c)(2)(A), 15 U.S.C.A. § 2605(c)(2)(A).

⁶TSCA § 6(c)(2)(C), 15 U.S.C.A. § 2605(c)(2)(C).

⁷TSCA § 6(c)(1), 15 U.S.C.A. § 2605(c)(1); *see also* TSCA § 9(b), 15 U.S.C.A. § 2608(b) (containing similar language).

⁸TSCA § 6(c)(1), 15 U.S.C.A. § 2605(c)(1).

⁹TSCA § 6(g)(1), 15 U.S.C.A. § 2605(g)(1).

¹⁰TSCA § 6(g)(3), 15 U.S.C.A. § 2605(g)(3).

¹¹TSCA § 6(g)(4), 15 U.S.C.A. § 2605(g)(4).

that the replacement parts contribute significantly to the risk.¹²

The 2016 amendments impose deadlines on EPA for taking risk management actions. Thus, EPA must propose a risk management rule under Section 6(a) within one year of the publication of the final risk evaluation for a chemical substance. The Agency must publish a final rule within two years of publication of the final risk evaluation. EPA can extend these deadlines for not more than an aggregate of two years (including the period of time already consumed by any extension granted for generating the risk evaluation). Additional justification is required for EPA to extend these deadlines for chemical substances on the 2014 update to the TSCA Work Plan or for persistent, bioaccumulative, and toxic (PBT) chemical substances that meet certain criteria.¹³

In addition to the requirements imposed for rulemaking by the Administrative Procedure Act,¹⁴ EPA must publish a notice of proposed rulemaking that states “with particularity” the reason for the proposed action. The Agency must allow interested persons to submit written data, views, and arguments, all of which it must make available to the public.¹⁵

The 2016 amendments eliminated a requirement that a public hearing be held for Section 6 risk management rules. In late 2016, EPA removed regulations that specified procedural requirements for risk management rules, finding that they were “particularly outdated and no longer designed for effective implementation of section 6” and that TSCA itself, along with the Administrative Procedure Act, would provide the necessary procedural framework.¹⁶ Although the 2016 amendments required EPA to develop framework rules for prioritization and risk evaluation, it did not include such a requirement for risk management. In 2020, as EPA prepared to undertake its first Section 6(a) rulemakings under the amended statute, a handful of trade groups petitioned for EPA to initiate a proceeding to develop a risk management procedural rule, contending that “[p]rocedural guardrails” were needed to ensure that risk management “is consistently applied and appropriately tailored.”¹⁷

In addition to reshaping the general framework for regulating substances under Section 6(a), the 2016 amendments added a new Section 6(h) to TSCA requiring EPA to take accelerated action to regulate PBT chemical substances. Section 6(h) required the Agency to propose risk management rules under Section 6(a) by June 2019 for certain PBT chemical substances in the 2014 update to the TSCA Work Plan that were likely to cause exposure, under the conditions of use, to the general population, to a potentially exposed or susceptible subpopulation identified by EPA, or to the environment.¹⁸ No risk evaluation was required to precede the promulgation of risk management rules for these substances.¹⁹ The risk management rules for such substances must target the risks to health or the environment that EPA determines are presented and must “reduce exposure to the chemical substance to

¹²TSCA § 6(c)(2)(D), 15 U.S.C.A. § 2605(c)(2)(D).

¹³TSCA § 6(c)(1), 15 U.S.C.A. § 2605(c)(1).

¹⁴See 5 U.S.C.A. § 553.

¹⁵TSCA § 6(c)(3), 15 U.S.C.A. § 2605(c)(3).

¹⁶81 Fed. Reg. 93633 (Dec. 21, 2016).

¹⁷Jeremy Bernstein, *Industry Petition Seeks to Codify ‘Tailored’ TSCA Approach EPA Has Pledged*, Inside TSCA (July 7, 2020), <https://insideepa.com/tsca-news/industry-petition-seeks-codify-%E2%80%98tailored%E2%80%99-tsca-approach-epa-has-pledged>.

¹⁸TSCA § 6(h)(1), 15 U.S.C.A. § 2605(h)(1).

¹⁹TSCA § 6(h)(2), 15 U.S.C.A. § 2605(h)(2).

the extent practicable.”²⁰ Manufacturers could remove a PBT chemical substance listed on the 2014 Work Plan from consideration for the expedited risk management process by requesting that EPA conduct a risk evaluation for the substance. Such requests were made for two substances used in fragrance mixtures.²¹

In June 2019, EPA issued a proposed risk management rule covering the five PBT substances that the Agency had determined met Section 6(h)’s criteria: decabromodiphenyl ether (decaBDE); hexachlorobutadiene (HCBd); pentachlorothiophenol (PCTP); phenol, isopropylated, phosphate (3:1) (PIP (3:1)); and 2,4,6-tris(tert-butyl) phenol.²² For many uses of four of the five substances, EPA proposed restrictions and prohibitions on manufacture, processing, and distribution. The proposed rule also included recordkeeping requirements for these four substances and a ban on downstream releases to water for PIP (3:1), as well as a requirement to notify downstream users of the PIP (3:1) restrictions. For HCBd, EPA proposed no action based on a determination that the potential for exposure from uses of HCBd was already addressed by actions taken under other federal and state statutes and that further measures were not practicable. EPA rejected the alternative of prohibiting the manufacture of HCBd because doing so also would effectively prohibit manufacture of three widely used solvents: perchloroethylene, trichloroethylene, and carbon tetrachloride (all three of which are among the initial 10 substances for which EPA was conducting risk evaluations).

At the time this chapter was being drafted, the Agency had begun to submit final Section 6 rules for the four substances to the Office of Management and Budget for interagency review to meet the December 2020 statutory deadline.²³

Section 7 steps in when a chemical substance or mixture is likely to result in widespread and serious injury *before* a rule can be promulgated under Section 6. Section 7 authorizes actions in federal district court for seizure and other relief against “imminently hazardous” chemical substances.²⁴ The relief may include notification to purchasers and public notice of risk, recall of products containing the hazardous substance, and repurchase or replacement of such products.²⁵

Regulation of Polychlorinated Biphenyls (PCBs) Under TSCA

Polychlorinated biphenyls (PCBs) were one of the two substances directly regulated by the original TSCA (the other was elemental mercury). Due to their high boiling point and low electrical conductivity, PCBs were used for many years as transformer cooling liquids and capacitor dielectric fluids. Because of their low solubility in water, high solubility in fat, and high degree of chemical stability, PCBs can remain in the environment for decades and bioconcentrate in fatty tissues. They are highly toxic to animals.

²⁰TSCA § 6(h)(5), 15 U.S.C.A. § 2605(h)(5).

²¹See Press Release, EPA, EPA Acts on New Chemical Law to Fast-Track Five Chemicals (Oct. 11, 2016). The substances are ethanone, 1-(1,2,3,4,5,6,7,8-octahydro-2,3,5,5-tetramethyl-2-naphthalenyl) and ethanone, 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthalenyl).

²²84 Fed. Reg. 36728 (July 29, 2019).

²³TSCA § 6(h)(3), 15 U.S.C.A. § 2605(h)(3).

²⁴TSCA § 7, 15 U.S.C.A. § 2606. The 2016 amendments did not significantly change Section 7.

²⁵TSCA § 7(b)(2), 15 U.S.C.A. § 2606(b)(2).

Section 6(e) of TSCA prohibited the manufacture, processing, distribution in commerce, use, or disposal of PCBs except “in a totally enclosed manner.”²⁶ The 1976 statute also required EPA to promulgate rules governing disposal of PCBs and requiring labeling of PCBs with clear and adequate warnings and instructions.²⁷ The statute permitted EPA to authorize the manufacture, processing, distribution in commerce, or use of PCBs other than in a totally enclosed manner if the Administrator found that such activities “will not present an unreasonable risk of injury to health and the environment.”²⁸

EPA’s regulations implementing the PCB provisions of TSCA are codified at 40 C.F.R. § 761. The regulations—which are detailed and technical—cover the following areas:

- **Prohibitions, exceptions, authorized activities, and storage for reuse.** Subpart B implements Section 6(e)’s PCB prohibition, but also sets forth a number of significant exceptions to the prohibition, including use of “excluded PCB products,” which contain less than 50 parts per million (ppm) PCBs. Subpart B also authorizes specific “non-totally enclosed PCB activities.”
- **Labeling.** Subpart C prescribes the format for warning labels that must be placed on certain items containing PCBs.
- **Disposal and storage for disposal.** Subpart D regulates PCB disposal, which includes accidental as well as intentional removal of PCBs from service. The subpart also addresses storage for disposal. The applicable disposal requirements vary according to the nature and PCB concentration of the waste.
- **Spill cleanup.** Subpart G contains EPA’s PCB Spill Cleanup Policy, including reporting requirements. Compliance with the Spill Cleanup Policy creates a presumption against an enforcement action for penalties or further cleanup. The Spill Policy is applicable only to spills that occur after May 4, 1987; this is based on EPA’s view that older spills of PCBs are likely to be more pervasive and difficult to clean up than fresh spills.
- **Recordkeeping.** Subpart J establishes recordkeeping requirements for certain handlers of PCB wastes.

Other subparts of the PCB regulations set forth requirements for waste disposal records and establish methodologies for sampling, analysis, and decontamination. EPA also has published extensive guidance on the use, cleanup, and disposal of PCBs.²⁹ These regulations remain relevant today, because equipment containing PCBs remains in use in the U.S. and PCB-containing materials and soils are still present in sites in the U.S. Such materials often contain PCBs present at such levels that they must be handled in accordance with the standards and procedures established in EPA’s TSCA regulations.

V. REPORTING AND RECORDKEEPING REQUIREMENTS

§ 16:33 In general

Section 8 of TSCA includes a number of provisions requiring regulated entities,

²⁶TSCA § 6(e)(2)(A), 15 U.S.C.A. § 2605(e)(2)(A). The 2016 amendments did not affect TSCA’s PCB-related provisions.

²⁷TSCA § 6(e)(1), 15 U.S.C.A. § 2605(e)(1).

²⁸TSCA § 6(e)(2)(B), 15 U.S.C.A. § 2605(e)(2)(B).

²⁹See *Policy and Guidance for Polychlorinated Biphenyl (PCBs)*, EPA, <https://www.epa.gov/pcbs/policy-and-guidance-polychlorinated-biphenyl-pcbs> (last updated July 27, 2020).

such as manufacturers, importers, processors, and distributors, to maintain and report information relating to chemical toxicity and exposure. Some reporting requirements pertain to particular chemical substances targeted by the Agency for information-gathering. Other recordkeeping and reporting requirements—such as the Chemical Data Reporting rule—apply generally to all chemical substances on the Inventory. The 2016 amendments to TSCA made limited modifications to Section 8 intended to permit EPA to update the TSCA Inventory in order to make several improvements. Examples include: to better reflect which substances are active in commerce; ensure certain nomenclature conventions used for Inventory listings are not modified; and encourage EPA to work collaboratively with industry to address nagging issues—concerning treatment of recycled chemicals and byproducts—that had arisen in the context of the periodic reporting conducted pursuant to the Chemical Data Reporting rule. The 2016 amendments also required EPA to collect information to aid in identifying and tracking mercury and mercury compounds in the U.S. marketplace and to use this information to prepare mercury inventories every three years. The following sections discuss Section 8 reporting obligations in greater detail.

§ 16:34 Section 8(a) reporting: Preliminary Assessment Information Rule (PAIR)

TSCA Section 8(a) grants EPA the authority to “promulgate rules under which . . . each person . . . who manufactures or processes or proposes to manufacture or process a chemical substance . . . shall maintain such records, and shall submit to the Administrator such reports as the Administrator may reasonably require.”¹ Employing the rulemaking authority in Section 8(a)(2), the Administrator may require recordkeeping and reporting of a wide variety of information, including the:

- Identity and molecular structure of chemical substances
- Categories or proposed categories of use
- Quantities manufactured or processed
- Byproducts resulting from manufacture, processing, use, or disposal
- All existing information concerning environmental and health effects
- Estimates of employee exposure
- Manner or method of disposal

In short, the Administrator can leverage Section 8(a) to obtain comprehensive information about the movement of a particular chemical substance or category of chemical substances through the chain of commerce, as well as available information about toxicity and exposure.

To implement Section 8(a), EPA has promulgated a “generic” reporting rule—the Preliminary Assessment Information Rule (PAIR).² Although focus on the PAIR requirements declined in the years preceding the 2016 amendments, EPA uses

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¹TSCA § 8(a)(1)(A), 15 U.S.C.A. § 2607(a)(1)(A).

²40 C.F.R. §§ 712.20 to 712.30. EPA also promulgated a Comprehensive Assessment Information Rule, known as CAIR. CAIR was designed to gather more detailed information on the manufacture, importation, and processing of chemical substances and mixtures, which could be used to support risk assessment of designated chemicals. However, after CAIR was promulgated in December 1988, several industry groups challenged the rule before EPA and in court, arguing, among other things, that it would require disclosure of confidential information. In response to these complaints, EPA in April 1989 temporarily stayed application of certain provisions of the rule. Notice of Temporary Administrative Relief, 54 Fed. Reg. 14324 (Apr. 10, 1989). Although EPA issued proposed amendments to the rule in 1993, 58 Fed. Reg. 63134 (Nov. 30, 1993), the rulemaking was never completed, and the Agency ultimately decided to delete the rule in its entirety given the ineffectiveness of the existing provisions

PAIR listings to obtain general production, use, and exposure information on chemical substances.³ Thus, persons who manufacture or import a chemical substance subject to the reporting requirement must submit a form for each substance and for each plant site that manufactures or imports the substance. The initial PAIR required reporting on about 250 chemical substances, and other substances have been added from time to time—for example, chemical substances recommended for testing under Section 4(e) by the Interagency Testing Committee (ITC).⁴

EPA's authority to require reporting under Section 8(a) is limited in a number of ways. First, small manufacturers and processors (as defined by rule) are exempted from reporting; Section 8(a) provides, however, that they may be made subject to recordkeeping or reporting rules for chemical substances regulated or proposed to be regulated under several sections of TSCA.⁵ Second, persons who manufacture or process a chemical substance in small quantities solely for scientific experimentation, analysis, or chemical research may be subject to a Section 8(a) rule only if the Administrator determines that “the maintenance of records or submission of reports, or both, is necessary for the effective enforcement” of TSCA.⁶ Similarly, the Administrator may not require maintenance of records or submission of reports with respect to changes in the proportion of components in a mixture without making a finding of necessity.⁷ Finally, the Administrator is directed, “[t]o the extent feasible,” to avoid unnecessary or duplicative reporting requirements, to minimize costs to small manufacturers and processors, and to apply reporting obligations to persons likely to have relevant information.⁸

In November 2017, EPA issued a final determination that the size standards for small manufacturers and processors, which had been in place since the 1980s, were “clearly outdated” and that revision was warranted.⁹ In May 2020, EPA finalized amendments to the definition of “small manufacturer” that increased thresholds for annual sales to account for inflation.¹⁰

The 2016 amendments required EPA to develop regulations through negotiated rulemaking to limit the reporting requirements for manufacturers of any inorganic

and the inactive status of the proposed revisions. 60 Fed. Reg. 31917, 31918 (June 19, 1995).

³See 40 C.F.R. § 712.30 (listing of chemicals subject to the rule). As part of the Clinton administration's “streamlining” government initiatives, EPA decided to delete from the Code of Federal Regulations all listed chemicals with a pre-1990 reporting date. See 60 Fed. Reg. 31917, 31919 (June 19, 1995). EPA has gathered information on approximately 800 chemical substances under PAIR.

⁴ITC-listed substances automatically become subject to PAIR reporting 30 days after EPA issues a regulation listing the substances for inclusion. 40 C.F.R. § 712.30(c). The required information form must be submitted 60 days thereafter. 40 C.F.R. § 712.30(c).

⁵TSCA § 8(a)(1)(A), (3)(A), 15 U.S.C.A. § 2607(a)(1)(A), (3)(A). “Small manufacturer” is defined for purposes of Section 8(a) at 40 C.F.R. § 704.3. See 40 C.F.R. § 712.25(c).

⁶TSCA § 8(a)(1)(B), 15 U.S.C.A. § 2607(a)(1)(B).

⁷TSCA § 8(a), 15 U.S.C.A. § 2607(a).

⁸TSCA § 8(a)(5), 15 U.S.C.A. § 2607(a)(5).

⁹82 Fed. Reg. 56824 (Nov. 30, 2017). The 2016 amendments required EPA to make this determination as to whether the size standards should be revised. See TSCA § 8(a)(3), 15 U.S.C.A. § 2607(a)(3).

¹⁰85 Fed. Reg. 31986 (May 28, 2020). The revised definition retained a “two-standard” structure. The first standard defines a manufacturer (including an importer) as small if its total annual sales combined with those of its parent company are less than \$120 million, but if annual production or importation volume of a particular substance at an individual site exceeds 100,000 pounds, the manufacturer or importer will not qualify for the small manufacturer exemption for purposes of that substance at that site (unless the manufacturer also meets the second standard). The second standard defines a manufacturer (including importer) as small if its total annual sales combined with those of its parent company are less than \$12 million, regardless of the quantity of a chemical substance produced or imported.

byproducts if the byproducts are subsequently recycled, reused, or reprocessed.¹¹ EPA announced in October 2017 that the negotiated rulemaking committee had determined that it could not reach consensus and concluded the negotiations.¹² EPA sought public input about approaches to reporting that would reduce the burden of reporting and maintain EPA's ability to receive information about exposure. The amendments to the Chemical Data Reporting rule incorporate changes intended to address this issue.¹³

The Agency announced in 2020 that EPA is considering a rulemaking, using its Section 8(a) authority, to gather available information on the substances which were identified in the 2014 list of Work Plan chemicals. The announcement noted EPA would seek information concerning the potential hazards and exposure pathways related to the Work Plan chemicals (in particular occupational, environmental, and consumer exposure information) to better inform EPA's prioritization and risk evaluation activities.¹⁴

§ 16:35 Inventory reporting and active and inactive substances

As discussed in Section 16:11, Section 8(b) of TSCA requires EPA to compile, keep current, and publish a list of chemical substances manufactured in the United States.¹ Initially created by EPA in 1979, the Inventory was compiled based on information collected from manufacturers and importers through EPA's reporting regulations for the initial Inventory.² To refine and update its understanding of the commercial practices involving Inventory-listed substances, EPA has relied on information collected pursuant to the Chemical Data Reporting (CDR) rule. CDR requires manufacturers and importers to report every four years on the volume of chemical substances they import or manufacture, provided that the reportable substances are manufactured or imported in quantities at or above certain thresholds.³ For the 2020 CDR, determining whether to report was based on whether, for *any* calendar year since the preceding principal reporting year, a chemical substance was manufactured (or imported) at a site in production volumes of *25,000 pounds* or greater. Manufacturers (including importers) were required to report the production volume for each of the years since the last principal reporting year, as well as certain manufacturing, processing, and use information for the most recent reporting year. A significantly lower threshold (2,500 pounds/year) was established for chemical substances subject to Section 4 orders or to proposed or final regulations or

¹¹TSCA § 8(a)(6), 15 U.S.C.A. § 2607(a)(6).

¹²See 82 Fed. Reg. 47423 (Oct. 12, 2017).

¹³See 85 Fed. Reg. 20138 (Apr. 9, 2020).

¹⁴See Reporting and Recordkeeping for Certain Chemicals Under Section 8(a) of the Toxic Substances Control Act (TSCA), Reginfo.gov (Spring 2020), <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202004&RIN=2070-AK62>.

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¹TSCA § 8(b)(1), 15 U.S.C.A. § 2607(b)(1).

²40 C.F.R. §§ 710.1 to 710.4.

³76 Fed. Reg. 50816 (Aug. 16, 2011) (codified at 40 C.F.R. Pt. 711). Prior to 2011, the CDR was known as the "Inventory Update Reporting" rule (IUR). The CDR/IUR has been significantly amended since it was first promulgated in 1986. See 51 Fed. Reg. 21438 (June 12, 1986); 68 Fed. Reg. 848, 890 (Jan. 7, 2003); 70 Fed. Reg. 75059, 75068 (Dec. 19, 2005); 85 Fed. Reg. 20148 (Apr. 9, 2020). Today, the rule gathers basic site and manufacturing information on chemicals manufactured (including imported) in amounts of 25,000 pounds or greater at a single site. 40 C.F.R. §§ 711.8, 711.15. This information facilitates the periodic updating of the TSCA Inventory database and supports activities associated with implementing TSCA. EPA expects that the processing and use information will help it, other federal agencies, and the general public to readily screen and categorize chemicals when investigating effects on human health and the environment. Inorganic chemical substances were first subject to CDR/IUR reporting in 2006. See 70 Fed. Reg. at 75068.

orders issued under Section 5 or 6, or for which relief had been granted under TSCA Section 7.⁴

As of 2016, the Inventory included approximately 85,000 chemical substances, but EPA believed that many of these substances were no longer produced, imported, or processed in the U.S. The 2016 amendments required EPA to issue a rule, by June 2017, requiring manufacturers, and potentially processors, to notify EPA of each chemical substance on the TSCA Inventory that the manufacturer or processor manufactured or processed for a nonexempt commercial purpose during the 10-year period preceding the 2016 amendments' enactment on June 22, 2016. Substances manufactured or processed during that period were to be designated as "active substances" on the Inventory; substances that had not been manufactured or processed were to be designated as "inactive substances."⁵

Based on EPA's framework rule for "TSCA Inventory Notification (Active-Inactive) Requirements,"⁶ manufacturers and importers filed a "retrospective" notification (known as a Notice of Activity (NOA) Form A) with EPA by February 7, 2018, if they produced or imported an Inventory-listed substance during the 10-year lookback period ending on June 21, 2016.⁷ After EPA published a draft Inventory showing active designations,⁸ processors then had an opportunity to review the designations and to submit notifications for other Inventory-listed substances they processed during the lookback period.⁹ The deadline for processors to submit the retrospective notifications was October 5, 2018.¹⁰

In February 2019, EPA published the first version of the TSCA Inventory that included active and inactive designations.¹¹ The inactive designations became final on August 5, 2019.¹² Since that date, entities are required to submit a "forward-looking" notification (known as a Notice of Activity Form B) to EPA before they manufacture or process an inactive chemical substance for a nonexempt commercial

⁴40 C.F.R. § 711.8(b).

⁵TSCA § 8(b)(4)(A), 15 U.S.C.A. § 2607(b)(4)(A). Designation as "inactive" does not result in the removal of a substance from the Inventory. TSCA § 8(b)(4)(A)(iv), 15 U.S.C.A. § 2607(b)(4)(A)(iv). The 2016 amendments' provisions regarding the establishment of active and inactive categories on the Inventory followed EPA's consideration of regulatory initiatives to "clean up" the Inventory. In late 2008, EPA introduced plans to initiate an "Inventory Reset Program" but later discontinued the program. See Pat Rizzuto, *EPA Releases 'Background' Documents for Public Meeting on Chemical Inventories*, 229 Daily Env't Rep. (Bloomberg BNA) A-7 (Nov. 28, 2008). This initiative was part of EPA's ChAMP program described at § 16:9, *supra*. EPA envisioned inviting persons to certify—online via a secure EPA Web site—that they have manufactured a chemical listed on the Inventory within a specified timeframe. At the close of the certification period, EPA proposed to process the certifications and develop a new, interim reset TSCA Inventory containing only those chemical substances that had been certified. A public version of the interim reset TSCA Inventory would have been made available online. Its availability would have been announced in the Federal Register, and persons would have had a time-limited opportunity to make corrections to the interim reset TSCA Inventory.

⁶82 Fed. Reg. 37520 (Aug. 11, 2017) (final rule); 82 Fed. Reg. 4255 (Jan. 13, 2017) (proposed rule); see Lawrence E. Culleen & Eric A. Rey, *10 Key Revisions to EPA's Final TSCA Inventory Reset Rule: Trump Administration Provides Some Regulatory Relief* (June 30, 2017), <https://perma.cc/H6HS-AY58>. The D.C. Circuit largely rejected challenges to the framework rule, except for a provision related to substantiation of confidentiality claims for chemical identity information. See *Environmental Defense Fund v. Environmental Protection Agency*, 922 F.3d 446 (D.C. Cir. 2019).

⁷40 C.F.R. § 710.25(a).

⁸See 40 C.F.R. § 710.30(a)(1); 82 Fed. Reg. 37520, 37524 (Aug. 11, 2017).

⁹40 C.F.R. § 710.30(a)(2).

¹⁰40 C.F.R. § 710.30(a)(2).

¹¹See 84 Fed. Reg. 21772 (May 15, 2019).

¹²See 84 Fed. Reg. 21772 (May 15, 2019).

purpose.¹³ The NOA Form B must be submitted not more than 90 days before the anticipated date of commencement of the manufacturing or processing of the inactive substance.¹⁴

The regulations exempt certain activities from triggering the notification requirements: manufacturing or processing a chemical substance in small quantities solely for research or development; importing or processing a chemical substance as part of an article; manufacturing or processing a chemical substance as described in 40 C.F.R. § 702.30(g) or (h); manufacturing or processing chemical substances solely for export (except where EPA has made an unreasonable risk finding pursuant to TSCA Section 12(a)(2));¹⁵ manufacturing or processing chemical substances solely for test marketing purposes;¹⁶ manufacturing a naturally-occurring chemical substance—so long as the manufacture meets criteria described in 40 C.F.R. § 710.4(b); and processing of a naturally occurring chemical substance only by manual, mechanical, or gravitational means; by dissolution in water; by flotation; or by heating solely to remove water.¹⁷

In addition, three categories of substances were exempted from the retrospective (NOA Form A) reporting requirements because EPA had received an equivalent notice: chemical substances reported to EPA in 2012 or 2016 under the CDR rule, chemical substances added to the Inventory during the 10-year lookback period, and chemical substances for which a manufacturer has evidence (i.e., a CDX receipt) documenting EPA's receipt of a retrospective notification from another manufacturer.¹⁸

Provisions designed to substantiate the ongoing need to keep information about chemical identity confidential were incorporated into the 2016 amendments' requirements for updating the Inventory. First, the 2016 amendments required that manufacturers and processors request the maintenance of confidential status for active substances that were on the confidential portion of the Inventory and also required EPA to undertake a review of all claims to shield specific chemical identities of chemical substances from disclosure.¹⁹ In addition, when a person seeks to manufacture or process an inactive substance, the entity must substantiate any claim being made for continuing the confidential status of the specific chemical identity.²⁰ The 2016 amendments also bar entities from asserting new claims for confidential treatment of active or inactive substances that were not previously on

¹³See 40 C.F.R. § 710.25(c); *see also* TSCA § 8(b)(4)(A)(iv), (5)(B), 15 U.S.C.A. § 2607(b)(4)(A)(iv), (5)(B) (inactive substances are not removed from the Inventory and are not subject to Premanufacture Notice requirements).

¹⁴40 C.F.R. § 710.30(b)(1).

¹⁵Exempting byproducts for which the only commercial purpose is burning as a fuel, disposing as a waste, or extracting component chemical substances from it for commercial purposes, and specified categories of chemical substances that, while manufactured for commercial purposes, are not manufactured for distribution in commerce as chemical substances per se and have no commercial purpose separate from the substance, mixture, or article of which they are a part.

¹⁶40 C.F.R. § 710.27(a).

¹⁷40 C.F.R. § 710.27(b).

¹⁸40 C.F.R. §§ 710.23 (definition of interim active substance), 710.25(a) (exception for manufacturers in possession of evidence of EPA receipt of notification from another person); *see also* 82 Fed. Reg. 37520, 37523 (Aug. 11, 2017). Note that reliance on evidence that another entity submitted the notification ran the risk that the other entity would withdraw the report and the substance would be moved to the inactive list.

¹⁹TSCA § 8(b)(4)(B)–(E), 15 U.S.C.A. § 2607(b)(4)(B)–(E); *see also* 40 C.F.R. § 710.55(b).

²⁰TSCA § 8(b)(5)(B)(ii), 15 U.S.C.A. § 2607(b)(5)(B)(ii). The requirements for substantiation are set out in Section 14 of TSCA. TSCA § 14(c), 15 U.S.C.A. § 2613(c). *See discussion infra* § 16:41.

the confidential portion of the Inventory.²¹ If EPA approves a confidentiality claim, the specific chemical identity generally will be protected from disclosure for 10 years from the date on which the confidentiality claim was first asserted after June 22, 2016, though manufacturers and processors can request and resubstantiate—and EPA can grant, if the request satisfies all requirements—an unlimited number of extensions of the confidential treatment.²² In 2020, EPA announced that it had determined that the specific chemical identity of 2,812 active chemical substances on the Inventory could no longer be claimed as confidential, either because no request had been received to maintain the claim or because the claim was denied (e.g., because the substance’s chemical identity had previously been reported as non-confidential).²³

In March 2020, EPA finalized procedures for reviewing confidentiality claims for specific chemical identities of active substances that manufacturers and processors asserted during the retrospective reporting.²⁴ The statutory target completion date for EPA to finish its review of the claims is February 19, 2024—or five years after EPA compiled the initial list of active substances.²⁵ EPA stated it would post at the beginning of each year annual goals for reviews and report on the number of reviews completed in the prior year, starting in 2021 and until its review is completed.

The 2016 amendments required a separate inventory for mercury supply, use, and trade, as well as recommended actions to reduce mercury use.²⁶ Congress required the initial updated edition of the mercury inventory be published by April 1, 2017, and that the inventory subsequently be published every three years. The inventory must identify products and manufacturing processes that intentionally add mercury. EPA published the initial inventory by the deadline,²⁷ and, as required by the 2016 amendments, adopted a rule to assist the Agency in gathering information needed to prepare the inventory. The rule requires manufacturers (including importers) of mercury or mercury-added products and other persons who intentionally use mercury in manufacturing processes to submit triennial reports.²⁸ In general, the reports include information about quantities of mercury associated with applicable activities; specific compounds, categories and subcategories of products, manufacturing processes, and uses in manufacturing processes; and “contextual” information (e.g., countries of origin and destination, North American Industry Classification System, or NAICS codes).²⁹ The rule exempts certain persons from reporting, including persons not involved in the initial introduction of mercury to the market; persons who only generate, handle, or manage mercury-containing waste;

²¹TSCA § 8(b)(8), 15 U.S.C.A. § 2607(b)(8).

²²TSCA §§ 8(b)(4)(D)(ii)(III), 14(e)(2), 15 U.S.C.A. §§ 2607(b)(4)(D)(ii)(III), 14(e)(2); *see also* 40 C.F.R. § 710.37(a).

²³*Upcoming Updates to TSCA Inventory*, EPA, <https://www.epa.gov/tsca-cbi/cbi-information-2020-chemical-data-reporting-submission-period#inventory> (last updated July 17, 2020).

²⁴85 Fed. Reg. 13062 (Mar. 6, 2020).

²⁵TSCA § 8(b)(4)(E), 15 U.S.C.A. § 2607(b)(4)(E).

²⁶TSCA § 8(b)(10), 15 U.S.C.A. § 2607(b)(10).

²⁷82 Fed. Reg. 15522 (Mar. 29, 2017). EPA must also publish a list of mercury compounds that are prohibited from export, which it did in August 2016. *See* TSCA § 12(c)(7)(B), 15 U.S.C.A. § 2611(c)(7)(B); 81 Fed. Reg. 58926 (Aug. 26, 2016). Effective January 1, 2020, the statute prohibits export of: mercury (I) chloride or calomel; mercury (II) oxide; mercury (II) sulfate; mercury (II) nitrate; and cinnabar or mercury sulphide, unless those mercury compounds are exported to member countries of the Organisation for Economic Co-operation and Development for environmentally sound disposal, on the condition that no mercury or mercury compounds so exported are to be recovered, recycled, or reclaimed for use, or directly reused, after such export. TSCA § 12(c)(7)(D), 15 U.S.C.A. § 2611(c)(7)(D).

²⁸83 Fed. Reg. 30054 (June 27, 2018) (codified at 40 C.F.R. §§ 713.1–713.21); 82 Fed. Reg. 49564 (Oct. 26, 2017) (proposed rule).

²⁹40 C.F.R. §§ 713.9, 713.11, 713.13, 713.15.

manufacturers of mercury as an impurity; manufacturers of articles that contain a mercury-added component; and persons engaged in activities involving mercury not with the purpose of obtaining an immediate or eventual commercial advantage.³⁰ The rule originally exempted importers of assembled products containing mercury-added components, but the Second Circuit vacated this exemption, finding that EPA had not provided a reasoned explanation for it.³¹ The Second Circuit concluded that reporting by importers of products with mercury-added components would not be duplicative since no other entity would be required to report the mercury in the component. The court was not persuaded by either of EPA's rationales for exempting article importers, which were based on congressional intent and the "undue burden" that reporting would place on importers. In March 2020, EPA published the first mercury inventory based on data collected under the reporting rule.³²

§ 16:36 Records of allegations

Section 8(c) requires chemical manufacturers (including importers), processors, and distributors to keep "records of significant adverse reactions to health or the environment, as determined by the Administrator by rule, alleged to have been caused" by the chemical substance.¹ The requirement applies both to chemical substances and to mixtures manufactured for commercial purposes, including byproducts and impurities.

EPA has by rule defined "significant adverse reactions," for purposes of Section 8(c) reporting, as "reactions that may indicate a substantial impairment of normal activities, or long-lasting or irreversible damage to health or the environment."² Examples of significant adverse reactions include long-lasting or irreversible damage to human health and gradual or sudden changes to animal or plant life in a given geographic area.³ A significant adverse health reaction need not be recorded if it is a "known human effect" as defined by the rule,⁴ or if it pertains to environmental effects directly attributable to an incident of environmental contamination that has already been reported to the U.S. government under any applicable authority.⁵

Allegations that must be recorded may come from a variety of sources, including employees, fenceline neighbors, customer complaints, private or company health professionals, and product liability suits. No formal proof or evidence supporting the validity of the allegations is required.⁶ Allegations that meet Section 8(c) criteria must be recorded, even if a responsible official (e.g., a company physician) believes that the chemical substance is not the source of the alleged effect. In such cases, a clarifying note can be included in the file.

³⁰40 C.F.R. § 713.7; 83 Fed. Reg. at 30056, 30067.

³¹Natural Resources Defense Council, Inc. v. United States Environmental Protection Agency, 961 F.3d 160 (2d Cir. 2020).

³²See 85 Fed. Reg. 18574 (Apr. 2, 2020).

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¹TSCA § 8(c), 15 U.S.C.A. § 2607(c); 40 C.F.R. § 717.1. Although Section 8(c) applies to "any person," including distributors of chemicals in commerce, the implementing regulation exempts from reporting retailers and other companies who solely distribute chemical substances. 40 C.F.R. § 717.7(c), (d).

²40 C.F.R. § 717.3(i).

³40 C.F.R. § 717.12(c).

⁴40 C.F.R. § 717.12(b) (citing 40 C.F.R. § 717.3(c)).

⁵40 C.F.R. § 717.12(d).

⁶EPA defines an allegation as "a statement, made without formal proof or regard for evidence, that a chemical substance or mixture has caused a significant adverse reaction to health or the environment." 40 C.F.R. § 717.3(a).

The record must contain the following information: the original allegation as received; an abstract of the allegation; the results of any self-initiated investigation regarding the allegation; and copies of any further required information regarding the allegation (e.g., copies of any reports required to be made to OSHA).⁷ The file of allegations must be maintained at the highest level of the company with responsibility for its chemical operations (generally corporate headquarters).⁸ The files must be organized so that the data are accessible by the alleged cause of the adverse reaction (e.g., chemical name; type of process; or site emissions, effluent, or other discharge).⁹

Allegations of significant adverse reactions to the health of employees must be retained for 30 years,¹⁰ and all other records of allegations for five years. Records of allegations need not be submitted routinely to EPA; however, an allegation required to be recorded under Section 8(c) may constitute information indicating a substantial risk, which must be reported under Section 8(e).¹¹ EPA may inspect these records of allegations and require submission of copies of them at any time.

§ 16:37 Unpublished health and safety studies

Under Section 8(d) of TSCA, EPA may require reporting of unpublished health and safety studies of chemical substances and mixtures in the possession of chemical manufacturers (including importers) and distributors.¹ Section 8(d) requirements apply only to chemical substances and mixtures identified by the Administrator by rule.² EPA has promulgated a model Section 8(d) reporting rule that defines key terms and establishes procedures for reporting health and safety studies.³

Persons who must report under the TSCA Section 8(d) rule include current manufacturers and importers; prospective manufacturers and importers; and persons who, in the 10 years preceding the effective date that a substance or mixture is added to the rule, either had manufactured or imported, or had proposed to manufacture or import, the substance or mixture. In addition, the rule may specify that processors in each of these categories (current, prospective, and past) are required to report.

“Reporting” may constitute submission of the study itself, or simply listing the study in the submission to the Agency. Generally, copies of studies possessed at the

⁷40 C.F.R. § 717.15(b).

⁸40 C.F.R. § 717.15(a).

⁹40 C.F.R. § 717.15(c).

¹⁰40 C.F.R. § 717.15(d).

¹¹See § 16:38, *infra*.

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¹TSCA § 8(d), 15 U.S.C.A. § 2607(d). EPA may require submission of studies in a company's possession even if the company does not manufacture, process, or distribute in commerce the chemical substance that is the subject of the study. See *Dow Chemical Co. v. U.S. E.P.A.*, 605 F.2d 673, 687–89, 9 Env'tl. L. Rep. 20640, 20647–48 (3d Cir. 1979).

²The 2016 amendments did not amend Section 8(d), and the regulatory framework discussed here remains in place.

³40 C.F.R. §§ 716.1 to 716.65. Chemical substances and mixtures may become subject to the rule by one of two mechanisms. First, all chemical substances selected for priority consideration for testing under Section 4(a) by the Interagency Testing Committee are automatically added to the list of chemical substances subject to the Section 8(d) reporting rule, 30 days after a notice to that effect is published in the Federal Register. Second, EPA may list other substances and mixtures after public notice and the opportunity for comment. Unless otherwise specified, the reporting requirements expire 60 days after the effective date of the rule that added a chemical substance or mixture to the Section 8(d) list. In no case may reporting obligations terminate later than two years after the effective date of the listing.

time a person becomes subject to the rule must be submitted. The following categories of studies need only be listed: (1) studies ongoing as of the date a person becomes subject to the rule; (2) studies initiated after the date a person becomes subject to the rule; (3) studies that are known as of the date a person becomes subject to the TSCA Section 8(d) rule, but not in possession; and (4) studies previously sent to U.S. government agencies without confidentiality claims. Copies of ongoing studies and later-initiated studies must be submitted once complete.⁴

The term “health and safety study” has been defined to include any information on the effects of a chemical substance or mixture on health or the environment, including toxicological and epidemiological studies, clinical and ecological effects studies, studies of occupational exposure, studies based on environmental monitoring data, data on physical and chemical properties, bioconcentration or bioaccumulation tests, and other data that bear on the effects of a chemical substance on health or the environment.⁵ Such information and data need not be part of a formal, disciplined study to be subject to the rule. However, each rulemaking proceeding adding substances to the list of chemical substances subject to the rule will specify the types of health and environmental effects studies that must be reported and the chemical grade or purity requirements that must be met or exceeded in individual studies—thus limiting the scope of the requirement.⁶ Section 8(d) reporting requirements apply to ongoing studies and studies initiated after a chemical substance becomes subject to Section 8(d), as well as to studies in existence at the time a chemical substance is listed in the rule.

Persons subject to a Section 8(d) rule⁷ must search their files for studies required to be reported.⁸ The search requirement is limited to records in which the company ordinarily keeps health and safety information and to the records of employees whose assigned duty is to advise the company of the health and environmental effects of the chemicals it handles.⁹ Persons are not required to search for reportable information dated before January 1, 1977, unless specifically required to do so in a

⁴40 C.F.R. § 716.60(b)(2); *see also* 40 C.F.R. Pt. 716.

⁵40 C.F.R. § 716.3.

⁶The revised rule limits the initiated studies that must be reported to those studies initiated within the 60-day period. 40 C.F.R. § 716.65.

⁷Under the prior rule, the Section 8(d) reporting requirements applied to all manufacturers, importers, and processors of chemical substances or mixtures listed under 40 C.F.R. § 716.120. The revised rule limits application of the reporting requirements to manufacturers and importers falling within two specific categories—Subsector 325 (chemical manufacturing and allied products) or Industry Group 32411 (petroleum refineries)—of the North American Industry Classification System, who manufactured or imported or proposed to manufacture or import a covered substance or mixture at any time during or after the 10 years preceding the effective date on which the chemical is added to the 8(d) list. 40 C.F.R. § 716.5(a). In response to industry concerns that the definition of “processor” may require routine reporting from a far broader audience than originally intended, EPA has exempted all processors of listed chemicals from the general reporting requirements. 40 C.F.R. § 716.5(c). EPA retains the right to require in a specific rule reporting by any entity not covered by the general provisions. 40 C.F.R. § 716.5(b). The terms “manufacture” and “process” are defined for purposes of Section 8 as manufacture or process “for commercial purposes.” TSCA § 8(f), 15 U.S.C.A. § 2607(f); *see also* 40 C.F.R. § 716.3. The courts have held that for purposes of Section 8(d), EPA may require listing and submission of studies on chemical substances that are manufactured in small quantities solely for the purpose of research, without an established intent to sell the chemical. *Dow Chemical Co. v. U.S. E.P.A.*, 605 F.2d 673, 682–86, 9 Env’tl. L. Rep. 20640, 20644–47 (3d Cir. 1979). Though the issue before the *Dow* court reached only reporting under Section 8(d), the interpretation of these definitions would appear to apply as well to the other reporting authorities in Section 8.

⁸40 C.F.R. § 716.25.

⁹40 C.F.R. § 716.25.

rule.¹⁰ Certain studies are exempt from reporting; for example, studies that have been published in the literature or previously reported to EPA are exempt.¹¹ Other studies previously submitted to federal agencies (with no claims of confidentiality) are exempt only from the copy submission requirement; a list of such studies must be submitted to EPA.¹²

Initially, EPA used Section 8(d) only to obtain unpublished studies on chemical substances of interest to the Agency's Office of Pollution Prevention and Toxics, which is responsible for TSCA implementation. Subsequently, the Agency began using its Section 8(d) reporting authority to obtain information needed by other EPA programs. For example, EPA published a rule requiring manufacturers, importers, and processors of listed chemical substances to report information needed to develop health-based standards for implementation of the Hazardous and Solid Waste Amendments of 1984.¹³

§ 16:38 Reporting substantial risk information

Section 8(e) requires chemical manufacturers (including importers), processors, and distributors who obtain information that "reasonably supports the conclusion" that a chemical substance or mixture presents a substantial risk of injury to health or the environment to inform the Administrator of such information, unless the person who obtains the information has actual knowledge that the Administrator has already been adequately informed of the risk.¹ The 2016 amendments did not modify this longstanding requirement that EPA considers to have been "self-implementing." Although EPA has never issued regulations implementing this requirement, it has published detailed guidance interpreting this requirement and establishing reporting procedures.²

The requirement to report applies to individuals and business entities that obtain reportable information.³ Substantial risk information generally must be received in writing by EPA within 30 calendar days after the information was first obtained.⁴ Individual employees of a company may be personally liable for failure to report

¹⁰40 C.F.R. § 716.25.

¹¹40 C.F.R. § 716.20.

¹²40 C.F.R. § 716.20.

¹³40 C.F.R. § 716.120. Pub. L. No. 98-616, 98 Stat. 3221 (1984) (codified at 42 U.S.C.A. §§ 6901 to 6992k).

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¹TSCA § 8(e), 15 U.S.C.A. § 2607(e).

²See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33137 (June 3, 2003). With the publication of the Revised Statement of Interpretation in 2003, EPA addressed industry's longstanding complaints about the inadequacy of EPA's Section 8(e) guidance and implemented revisions that were first proposed by the Agency in 1993 and 1995. See 68 Fed. Reg. 33131 to 33137. The Revised Statement of Interpretation superseded the Agency's policy statement that had been in place since 1978. See Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 43 Fed. Reg. 11110 (Mar. 16, 1978). EPA made slight corrections to the Revised Statement of Interpretation in 2005. See Notice of Correction to TSCA Section 8(e) Reporting Guidance, 70 Fed. Reg. 2162 (Jan. 12, 2005).

³A business organization is considered to have "obtained" any information that any officer or employee capable of appreciating the significance of the information has obtained. Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33137 (June 3, 2003).

⁴Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33138 (June 3, 2003). A person is deemed to have first obtained substantial-risk information at the time he first comes into possession of or knows of such information, including information of which a prudent person similarly situated could reasonably be expected to possess or have knowledge. 68 Fed. Reg. 33137.

substantial risk information to EPA. However, if a company establishes, internally publicizes, and affirmatively implements adequate procedures to collect substantial risk information from employees and report that information to EPA,⁵ then the internal submission of pertinent information by employees will relieve them of their statutory reporting obligation.

According to EPA's guidance, whether a chemical substance presents a "substantial risk of injury to health or the environment" that must be reported depends on the type and seriousness of the effects involved and the levels of exposure to the substance.⁶ For example, where a chemical substance causes certain human health effects, the mere fact that the substance is in commerce constitutes sufficient evidence of exposure and therefore triggers the duty to report.⁷ In contrast, where exposure to a chemical substance causes environmental effects, substantial risk information need not be reported to EPA unless the level of exposure, or potential level of exposure, is significant.⁸

For information to be reportable under Section 8(e), it need not conclusively indicate a substantial risk, but rather must "reliably ascribe the effect to the chemical."⁹ Designed, controlled studies, as well as reports and studies of uncontrolled, undesigned circumstances, may be reportable as evidence that a chemical substance causes a certain effect.¹⁰ EPA has stressed that companies should not discount the significance of risk information based upon a "weight-of-the-evidence" risk assessment.¹¹

Certain types of information that are otherwise available to EPA need not be reported. For example, substantial risk information that need not be reported to

⁵At a minimum, these procedures must: "(1) [s]pecify the information that officers and employees must submit; (2) indicate how such submissions are to be prepared and the company official to whom they are to be submitted; (3) note the Federal penalties for failing to report; and (4) provide a mechanism for promptly advising officers and employees in writing of the company's disposition of the report, including whether or not the report was submitted to EPA" (and if the report was not submitted, informing employees of their right to report the information to EPA). Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33137 (June 3, 2003).

⁶Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33138 (June 3, 2003).

⁷See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33138 (June 3, 2003). Human health effects for which substantial risk information should be reported include any instance of, or evidence suggesting the possibility of, cancer, birth defects mutagenicity, death, or serious or prolonged incapacitation. 68 Fed. Reg. 33138.

⁸See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33138 (June 3, 2003). The policy guidance specifies that significant levels of exposure to a chemical substance known to cause the following environmental effects must be reported using normal procedures: pronounced bioaccumulation; any non-trivial adverse effect associated with a chemical substance known to have bioaccumulated to a pronounced degree or to be widespread in environmental media; ecologically significant changes in species' interrelationships; and facile degradation or transformation of certain chemicals known to present unacceptable risks. 68 Fed. Reg. 33138. However, if the amount of environmental contamination by a chemical is so great that it seriously threatens humans with cancer, birth defects, mutation, death, or prolonged incapacitation, or threatens non-human species with large-scale population destruction, then the contamination incident must be reported to EPA by telephone as soon as possible. 68 Fed. Reg. 33138.

⁹68 Fed. Reg. 33139.

¹⁰See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33139 (June 3, 2003). The Revised Statement of Interpretation lists a variety of study and report types that may form the basis of reportable information, including preliminary results of toxicity tests, epidemiological studies, occupational health surveys, patterns of complaints received by medical departments, and direct observations of environmental effects (e.g., changes in animal or plant populations). 68 Fed. Reg. 33139.

¹¹See 56 Fed. Reg. 4128 (Feb. 1, 1991).

EPA under Section 8(e) includes data that corroborate information already known about the adverse effects of a substance.¹² In 2015, the Environmental Appeals Board (EAB) set aside a \$2.5-million penalty that an administrative law judge had imposed on a producer of hexavalent chromium chemicals for failure to submit information to EPA under Section 8(e). The EAB stated that a study linking hexavalent chromium exposure to lung cancer was reportable information, but that the study was exempt from reporting under the exemption for corroborative information because a “consistent theme” of the Agency’s own guidance on this exemption was that information was non-corroborative only when it showed that the effects of a chemical substance or mixture were “of a more serious degree or a different kind” than previously known. In this case, “more serious” would have required either that the new study show adverse effects occurring at lower dose levels or in a shorter timeframe than an earlier study.¹³ The EAB made a point of noting that it would have affirmed the administrative law judge’s decision if it were solely guided by the text of TSCA Section 8(e), but added that the EPA guidance had constrained the statute’s “broad reach.” The EAB’s decision was also notable for its conclusion that the enforcement action was not time-barred, because the failure to comply with the reporting obligation was a continuing violation.

EPA may respond to a Section 8(e) “substantial risk” notice in a number of ways. EPA may require the submission of additional information about the chemical substance under other TSCA authority to help in assessing the risks identified in the notice. The Agency may also refer the substantial risk notice to other federal agencies that have an interest in the substance. Of course, the chemical substance also may be considered for regulation under Section 6 of the amended statute.

EPA tries to ensure public access to substantial risk information. Nonconfidential versions of Section 8(e) submissions are placed in EPA’s ChemView database.¹⁴ EPA also prepares and makes available to the public a summary of each submission. The summaries contain a brief narrative of the facts of a submission, but do not contain any Agency analysis.

Many companies submit “For Your Information” (FYI) notices, transmitting information that they believe would be of interest to the Agency, but which, in their view, does not meet the criteria for submission under Section 8(e). Although EPA historically has routinely accepted and processed FYI notices, EPA has stated that

¹²See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33139 (June 3, 2003). In addition, substantial risk information that need not be reported to EPA under Section 8(e) includes information that is obtained from one of the following sources: (1) an EPA study or report; (2) official publications of other Federal agencies; (3) scientific publications available electronically or in hard copy; (4) scientific databases; (5) radio or television news broadcasts; (6) recorded public scientific conferences held in the United States; or (7) public scientific conferences sponsored or co-sponsored by EPA. See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33139 (June 3, 2003). Nor need substantial risk information be reported to EPA under Section 8(e) if the same information will be reported to the Agency or a State within 90 calendar days (or fewer, depending on the situation) pursuant to a mandatory reporting requirement under another Federal statute. 68 Fed. Reg. 33139.

¹³In re Elementis Chromium, Inc., TSCA Appeal No. 13-03 (Final Decision and Order Mar. 13, 2015).

¹⁴*Introduction to ChemView*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsc/introduction-chemview> (last updated May 19, 2016). EPA will disclose to the public health and safety data submitted in a Section 8(e) notice of substantial risk that is claimed as confidential, but only to the extent allowed under EPA’s regulations concerning management of confidential business information. See Revised Statement of Interpretation and Enforcement Policy: Notification of Substantial Risk, 68 Fed. Reg. 33129, 33139 (June 3, 2003); see also 40 C.F.R. §§ 2.201 to 2.215, 2.306 (EPA regulations concerning management of confidential business information).

FYI notices do not satisfy Section 8(e).¹⁵

VI. IMPORT AND EXPORT

§ 16:39 Import certification

Persons who import chemical substances in bulk must comply with certification requirements, set forth in regulations promulgated under TSCA Section 13, but which are generally implemented and enforced by the U.S. Customs and Border Protection Service.¹

The import certification rule provides that any person who imports a chemical substance in bulk or as part of a mixture must certify that all of the chemical substances in the shipment are either: (1) subject to TSCA and comply with the applicable rules and orders thereunder (a “positive certification”); or (2) not subject to TSCA (a “negative certification”).² In effect, a positive certification is a statement that the chemical substance (or the components of a mixture) may be lawfully imported because it is listed on the TSCA Inventory (or exempt from the requirements for PMN reporting), and that the imported substance (or any component of the mixture) is in compliance with any applicable SNURs or regulations issued under Sections 6 and 7.³ A negative certification means that the substance is specifically excluded from the definition of “chemical substance” under TSCA, and is therefore exempt from TSCA regulation.⁴

The import certification rule sets forth specific language for each type of certification, which must appear on the import documentation and be signed by an employee or authorized agent of the importer. Importers of repeat shipments of the same products from the same suppliers may file a “blanket certification” with the U.S. Customs and Border Protection Service. This certification will cover all shipments of those products for one year. The import documentation for those shipments must contain a statement referencing the blanket certification, but need not be signed.⁵ As a policy matter, to date, EPA has not required certifications for imported manufactured articles, although it has the authority to do so.⁶

The 2016 amendments to TSCA did not modify Section 13 requirements. However, during 2016, U.S. Customs and Border Protection adopted amendments to the import certification rules to provide an electronic option for submission of TSCA

¹⁵TSCA 8(e) Reporting Guide (June 1991), available at <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/tsca-section-8e-reporting-guide>.

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¹The pertinent U.S. Customs and Border Protection Service regulations are set forth at 19 C.F.R. §§ 12.118 to 12.127. EPA has published an import certification policy that appears at 40 C.F.R. § 707.20.

²19 C.F.R. § 12.121(a).

³The certification does not address chemical substances subject to Section 4 test rules *per se*.

⁴These substances, which are excluded because they are regulated by other laws, include any pesticides imported for use as a pesticide; any food, food additive, drug, cosmetic, or device, as defined by the Federal Food, Drug, and Cosmetic Act; any source material, spent nuclear material, or byproduct material, as defined by the Atomic Energy Act of 1954; and firearms and ammunitions. TSCA § 3(2)(B), 15 U.S.C.A. § 2602(2)(B). Tobacco and tobacco products are special cases. Although they are exempt from TSCA, they do not require any certification, positive or negative, because there are controls on the importation of those items under other statutes.

⁵See 19 C.F.R. § 12.121(a)(2)(ii).

⁶See 19 C.F.R. §§ 12.120(a), 12.121(b). An “article” is an item manufactured to a specific shape or design for a particular end use. EPA does not consider metal ingots to be articles, because they are manufactured in a particular shape “for the purpose of shipping convenience” and their shape “has no function in the end use.” EPA, Toxic Substances Control Act: A Guide for Chemical Importers/Exporters; An Overview 17 (Apr. 1991).

import certifications.⁷

§ 16:40 Export notification

Section 12(b) of TSCA requires notification to the EPA Administrator by persons who intend to export a chemical substance or mixture for which: (1) the submission of information is required under TSCA Section 4 or 5(b); (2) an order has been issued under Section 5; (3) a rule has been proposed or promulgated under Section 5 or 6; or (4) relief has been granted under Section 5 or 7.¹ Notice is also required for exports of PCBs or PCB articles.² After receiving notice from an exporter, EPA is required to notify the importing country's government of the chemical substance's regulatory status.³

For most covered substances, the exporter need only submit a one-time notice in connection with the first export or intended export of the chemical substance to a particular country. The notice must be postmarked within seven days of forming the intent to export or actual export, whichever is earlier.⁴ A notice of intent to export must be based on a definite contractual agreement to export the regulated chemical substance, or an equivalent intracompany agreement.⁵

EPA amended its rules in 1993, and again in 2006, to streamline the notification process.⁶ Initially, annual notification to EPA was required for all covered chemical substances or mixtures. Today, one-time notification is allowed for shipments of chemical substances or mixtures subject to Section 12(b), except those triggered by actions under Section 5(f), 6, or 7. EPA's 2006 rule also adopted *de minimis* concentration levels below which notification is not required.⁷

The 2016 amendments updated and expanded provisions added previously to Section 12(c) by the Mercury Export Ban Act. Pursuant to the 2016 amendments, EPA must create and maintain a list of certain mercury compounds for which export will be prohibited and publish the initial list of mercury compounds prohibited from export by mid-September 2016.⁸ Effective January 1, 2020, the amended statute prohibits export of: mercury (I) chloride or calomel; mercury (II) oxide; mercury (II) sulfate; mercury (II) nitrate; and cinnabar or mercury sulphide. An exception exists for mercury compounds exported to member countries of the Organisation for Economic Co-operation and Development for environmentally sound disposal, on the condition that no mercury or mercury compounds so exported are to be recovered, recycled, or reclaimed for use, or directly reused, after such export.⁹

VII. PROTECTING CONFIDENTIAL BUSINESS INFORMATION

§ 16:41 In general

As discussed in Part V, TSCA gives the EPA Administrator extremely broad

⁷See 81 Fed. Reg. 94980 (Dec. 27, 2016); 81 Fed. Reg. 59157 (Aug. 29, 2016) (proposed rule).

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¹TSCA § 12(b), 15 U.S.C.A. § 2611(b); 40 C.F.R. § 707.60(a).

²40 C.F.R. § 707.60(d).

³40 C.F.R. § 707.70.

⁴40 C.F.R. § 707.65(a)(3).

⁵40 C.F.R. § 707.65(a)(3).

⁶58 Fed. Reg. 40238 (July 27, 1993) (codified at 40 C.F.R. § 707.65(a)(2)(ii)); 71 Fed. Reg. 66234 (Nov. 14, 2006).

⁷See 40 C.F.R. § 707.60(c).

⁸TSCA § 12(c)(7)(B), 15 U.S.C.A. § 2611(c)(7)(B). EPA published this list in August 2016. See 81 Fed. Reg. 58926 (Aug. 26, 2016).

⁹TSCA § 12(c)(7)(A)(i)–(iv), 15 U.S.C.A. § 2611(c)(7)(A)(i)–(v).

authority to require development, compilation, retention, and submission of information related to chemical risk. During the legislative debates that preceded TSCA's enactment, the chemical industry raised its concern that the extensive information-gathering powers created by the new law would threaten industrial trade secrets, to the detriment of business competition, research, and development of new chemicals. On the other hand, public interest organizations argued for broad disclosure of information related to chemical safety.

Congress responded to these concerns by providing that, except under limited circumstances discussed below, the Administrator may not publicly disclose information obtained under TSCA that the Freedom of Information Act exempts from disclosure as confidential commercial, financial, or trade secret information. Implementation of the confidential business information (CBI) provision was controversial. Much of the information submitted under some TSCA programs was claimed to be confidential. Public interest organizations charged that many of the claims appeared to be spurious, although industry representatives defended their practices as necessary to ensure their competitive position.¹

EPA by regulation established criteria for determining when information designated as confidential by a submitter is entitled to protection.² These criteria involve consideration of measures taken by the submitter to protect the information, a satisfactory showing that competitive harm would result from disclosure, and a finding that the information is not obtainable by other persons by legitimate means. EPA also established, for each of TSCA's information-gathering provisions, specific procedures for asserting business confidentiality claims.³

The 2016 amendments substantially revised TSCA's provisions concerning

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¹See generally Toxic Substances Control Act Oversight: Hearings Before the Subcomm. on Toxic Substances and Env'tl. Oversight of the Senate Comm. on Env't and Pub. Works, 98th Cong. (1983). Beginning in 2009, EPA undertook a reform effort to reduce the number of inappropriate confidentiality claims. The reforms were intended to support a general effort by the Agency to make information gathered under TSCA available to the public in useful form. In connection with this effort, the Agency systematically reviewed confidentiality claims in certain programs and stated it would generally deny confidentiality claims for health and safety studies which it determined were unnecessary to protect proprietary information. See 75 Fed. Reg. 29754 (May 27, 2010). The Agency subsequently issued guidance and rules revising the procedures for asserting confidentiality claims to require more up-front substantiation of claims, see, e.g., 76 Fed. Reg. 50816, 50830 (Aug. 16, 2011) (explaining change to regulations that requires submitters who assert a confidentiality claim for chemical identity also to provide substantiation for the claim at time of filing), and "challenged" industry to voluntarily declassify prior confidentiality claims. See, e.g., EPA Letter to the Fragrance Materials Association (June 4, 2010), available at https://www.epa.gov/sites/production/files/2015-07/documents/declassify_cbi1.pdf. EPA also made non-confidential and "declassified" confidential material more readily available to the public. The Agency's Chemical Data Access Tool contains significant amounts of health and safety data submitted by manufacturers under TSCA Sections 4, 5, 8(d), and 8(e), and includes many documents previously classified as confidential. Chemical Data Access Tool (CDAT), EPA, http://java.epa.gov/oppt_chemical_search.

²See 40 C.F.R. § 2.208. The Agency has discretion to update its regulations and may do so as it continues to implement the 2016 amendments.

³See, e.g., 40 C.F.R. §§ 704.7 (General Reporting and Recordkeeping Provisions for Section 8(a) Information-Gathering Rules), 707.75 (Section 12(b) export notices), 711.30 (Chemical Data Reporting), 712.15 (procedures for chemical manufacturers and processors to report production, use, and exposure-related information on listed chemical substances), 716.55 (health and safety data information), 717.19 (records of significant adverse reactions to health or the environment), 720.80 to 720.95 (premanufacture notifications), and 725.80 to 725.90 (reporting requirements and review processes for microorganisms). These procedures continue to apply after enactment of the 2016 amendments. EPA has also issued a manual, to supplement its confidentiality rules, setting forth the procedures for EPA employees, other federal employees, contractors, and contractors' employees to follow in handling information claimed as confidential under TSCA. EPA, TSCA Confidential Business Information Security Manual (Apr. 1995). The manual was revised by EPA in 2004. See 69 Fed. Reg. 20007 (Apr. 15, 2004).

confidential business information. The 2016 amendments made the process for shielding such information from disclosure more arduous, including by generally requiring that substantiation and certification be provided to EPA for new claims seeking to protect information from disclosure.⁴ The confidentiality claims will generally lapse unless the claims are re-substantiated every 10 years.⁵ In addition—as noted above in the discussion of the TSCA Inventory in Section 16:35—the 2016 amendments required that manufacturers or processors of chemical substances currently listed on the confidential portion of the Inventory provide notice to EPA if they wished to continue to shield the specific chemical identity of active substances from disclosure; EPA must review such claims.⁶ EPA must additionally screen all new claims seeking to protect the specific chemical identity of chemical substances from disclosure, as well as a “representative subset” of at least 25% of other new confidentiality claims.⁷

The 2016 amendments further specify certain types of information that are not protected from disclosure. As under the original TSCA, protection from disclosure generally does not extend to health and safety studies, except that information revealed in the context of a health and safety study should not disclose “any information, including formulas (including molecular structures) of a chemical substance or mixture, that discloses processes used in the manufacturing or processing of a chemical substance or mixture or, in the case of a mixture, the release of data disclosing the portion of the mixture comprised by any of the chemical substances in the mixture.”⁸

In addition, general information about manufacturing volumes and general descriptions of manufacturing processes or functions and uses of a substance, mixture, or article are not shielded from disclosure.⁹ For the most part, information about chemical substances or mixtures that EPA has decided to ban or phase out is no longer protected from disclosure, though requests for exceptions or delays in such disclosures can be made.¹⁰ EPA may grant such requests only if the Agency determines that a requestor has rebutted the presumption that “the public interest in the disclosure of the information outweighs the public or proprietary interest in maintaining the protection for all or a portion of the information.”¹¹

A company must assert a claim to protect information from disclosure concurrent with submission of the information to EPA.¹² To assert the claim, a company must substantiate the claim¹³ and include a statement that the company has:

1. Taken reasonable measures to protect the confidentiality of the information;
2. Determined that the information is not required to be disclosed or otherwise made available to the public under another federal law;
3. A reasonable basis to conclude that the information’s disclosure is likely to cause substantial harm to the company’s competitive position; and
4. A reasonable basis to believe that the information is not readily discoverable

⁴TSCA § 14(a), (c), 15 U.S.C.A. § 2613(a), (c).

⁵TSCA § 14(e)(1)(B)(i), 15 U.S.C.A. § 2613(e)(1)(B)(i).

⁶TSCA § 8(b)(4)(B)–(E), 15 U.S.C.A. § 2607(b)(4)(B)–(E).

⁷TSCA § 14(g)(1)(C), 15 U.S.C.A. § 2613(g)(1)(C).

⁸TSCA § 14(b)(2), 15 U.S.C.A. § 2613(b)(2).

⁹TSCA § 14(b)(3), 15 U.S.C.A. § 2613(b)(3).

¹⁰TSCA § 14(b)(4), 15 U.S.C.A. § 2613(b)(4).

¹¹TSCA § 14(g)(1)(E), 15 U.S.C.A. § 2613(g)(1)(E).

¹²TSCA § 14(c)(1)(A), 15 U.S.C.A. § 2613(c)(1)(A).

¹³TSCA § 14(c)(3), 15 U.S.C.A. § 2613(c)(3).

through reverse engineering.¹⁴

An authorized official of the company must certify that this required four-part statement and any information provided to substantiate the claim are true and correct.¹⁵

For information that was not already subject to up-front substantiation requirements prior to the 2016 amendments, EPA recommends that companies look to the following generally applicable substantiation questions set forth in the Agency's confidentiality regulations.¹⁶

Substantiation Questions¹⁷

- The portions of the information which are alleged to be entitled to confidential treatment;
- The period of time for which confidential treatment is desired by the business (e.g., until a certain date, until the occurrence of a specified event, or permanently);
- The purpose for which the information was furnished to EPA and the approximate date of submission, if known;
- Whether a business confidentiality claim accompanied the information when it was received by EPA;
- Measures taken by the business to guard against undesired disclosure of the information to others;
- The extent to which the information has been disclosed to others, and the precautions taken in connection therewith;
- Pertinent confidentiality determinations, if any, by EPA or other Federal agencies, and a copy of any such determination, or reference to it, if available;
- Whether the business asserts that disclosure of the information would be likely to result in substantial harmful effects on the business' competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial, and an explanation of the causal relationship between disclosure and such harmful effects; and
- Whether the business asserts that the information is voluntarily submitted information as defined in § 2.201(i), and if so, whether and why disclosure of the information would tend to lessen the availability to EPA of similar information in the future.

EPA indicates that the answers to these substantiation questions typically form the basis of EPA final confidentiality determinations.¹⁸

The amended TSCA also requires that a claim to protect a specific chemical identity from disclosure include a structurally descriptive generic name for the chemical substance that may be disclosed.¹⁹ The generic name can protect the confidentiality of features of the chemical structure but must describe the chemical

¹⁴TSCA § 14(c)(1)(B), 15 U.S.C.A. § 2613(c)(1)(B).

¹⁵TSCA § 14(c)(5), 15 U.S.C.A. § 2613(c)(5).

¹⁶See 82 Fed. Reg. 6522, 6524 (Jan. 9, 2017) (referring to 40 C.F.R. § 2.204(e)).

¹⁷40 C.F.R. § 2.204(e)(4).

¹⁸82 Fed. Reg. at 6524. EPA indicates it is in the process of developing TSCA-specific substantiation questions that submitters could elect to use in support of CBI claims. See *What to Include in CBI Substantiations—General Substantiation Questions*, EPA, <https://www.epa.gov/tsc-cbi/what-include-cbi-substantiations#general> (last updated June 16, 2020).

¹⁹TSCA § 14(c)(1)(C), 15 U.S.C.A. § 2613(c)(1)(C).

structure “as specifically as practicable.”²⁰ The 2016 amendments required EPA to issue guidance for development of generic names. EPA issued the guidance in 2018.²¹

Information Generally Not Subject to Substantiation Requirements²²

- Specific information describing the processes used in manufacture or processing of a chemical substance, mixture, or article
- Marketing and sales information
- Information identifying a supplier or customer
- Details of the full composition of a mixture and the respective percentages of constituents
- Specific information regarding the use, function, or application of a chemical substance or mixture in a process, mixture, or article
- Specific production or import volumes
- Prior to the date on which a chemical substance is first offered for commercial distribution, the specific chemical identity of the chemical substance, including the chemical name, molecular formula, Chemical Abstracts Service number, and other information that would identify the specific chemical substance, if the specific chemical identity was claimed as confidential at the time it was submitted in a notice under Section 5

EPA must approve, deny, or approve in part and deny in part a confidentiality claim within 90 days of receipt of the claim.²³ If EPA denies a claim, the Agency must provide a written statement of reasons.²⁴ EPA cannot disclose information until 30 days after a company receives notification of EPA’s intent to disclose the information.²⁵

If EPA approves a claim, information not subject to substantiation requirements is protected until the person that asserted the confidentiality claim withdraws it or EPA becomes aware that the information does not qualify for protection.²⁶ Information subject to substantiation requirements is protected for a 10-year period from the date a confidentiality claim was asserted.²⁷

Failure to comply with the procedures established by EPA may result in waiver of the confidentiality claim. In 2019, EPA announced that, as of August 15, 2019, it would no longer send notices of deficiency when TSCA submissions do not satisfy EPA requirements—including substantiation requirements—for asserting a confidentiality claim.²⁸ EPA had followed the practice of issuing notices of deficiency and allowing 30 days for correction of the deficiencies since March 2017, in the early days of the implementation of the 2016 amendments’ enhanced requirements for confidentiality claims. In its announcement of the change in policy, EPA said the 2016 amendments’ requirements, including the requirement for up-front substantiation, were no longer new and that regulated parties had “ample notice” of these

²⁰TSCA § 14(c)(1)(C), 15 U.S.C.A. § 2613(c)(1)(C).

²¹See 83 Fed. Reg. 30173 (June 27, 2018).

²²TSCA § 14(c)(2), 15 U.S.C.A. § 2613(c)(2).

²³TSCA § 14(g)(1)(A), 15 U.S.C.A. § 2613(g)(1)(A).

²⁴TSCA § 14(g)(1)(B), 15 U.S.C.A. § 2613(g)(1)(B).

²⁵TSCA § 14(g)(2)(A)–(B), 15 U.S.C.A. § 2613(g)(2)(A)–(B).

²⁶TSCA § 14(e)(1)(A), 15 U.S.C.A. § 2613(e)(1)(A).

²⁷TSCA § 14(e)(1)(B)(i), 15 U.S.C.A. § 2613(e)(1)(B)(i). A person can withdraw the confidentiality claim before the end of the 10-year period, or EPA may become aware that the information does not qualify for protection and take action to require reassertion and substantiation or to disclose the information. TSCA § 14(e)(1)(B)(ii), 15 U.S.C.A. § 2613(e)(1)(B)(ii).

²⁸84 Fed. Reg. 33939 (July 16, 2019).

obligations.

If EPA has approved a claim to protect information from disclosure, the Agency must notify the person who asserted the claim 60 days prior to the expiration of the 10-year confidentiality period.²⁹ The person then has an opportunity to request an extension. EPA may grant an unlimited number of 10-year extensions so long as the requestor establishes that extensions are needed and all EPA requirements are met.³⁰

EPA may, at its discretion, require the reassertion and substantiation of confidentiality claims in three situations:

1. After a chemical substance is designated as a high-priority substance under Section 6(b)³¹
2. For inactive substances “reactivated” as active substances on the Inventory under Section 8(b)³²
3. If EPA determines that disclosure of certain currently confidential information would be important to assist the Agency in conducting risk evaluations or promulgating rules under Section 6.³³

There are also three situations in which EPA *must* review confidentiality claims and require reassertion and substantiation or resubstantiation:

1. The Agency has received a FOIA request and review is “necessary to determine whether the information qualifies for an exemption from disclosure”³⁴
2. The Agency has a reasonable basis to believe that the information does not qualify for protection from disclosure under Section 14
3. The Agency determines that a chemical substance presents an unreasonable risk of injury to health or the environment under Section 6(b).³⁵

If EPA determines in these situations that the confidentiality claim is still valid, the information is protected for 10 years from the date of EPA’s determination, though EPA may impose subsequent requirements for resubstantiation within the 10-year period if the statutory criteria are met.³⁶

TSCA has always permitted confidential information to be disclosed to certain people and in certain situations. The 2016 amendments amended and expanded these exceptions. Although EPA generally may not disclose information claimed as confidential until 30 days after providing notice to the person who asserted the claim,³⁷ TSCA provides for exceptions to the 30-day notice requirement, including in circumstances that constitute exceptions to protection from disclosure. The following table sets forth exceptions to protection from disclosure and the notification requirement associated with the exception.

²⁹TSCA § 14(e)(2)(A), 15 U.S.C.A. § 2613(e)(2)(A).

³⁰TSCA § 14(e)(2)(B)–(C), 15 U.S.C.A. § 2613(e)(2)(B)–(C).

³¹TSCA § 14(f)(1)(A), 15 U.S.C.A. § 2613(f)(1)(A).

³²TSCA § 14(f)(1)(B), 15 U.S.C.A. § 2613(f)(1)(B). Claims for protection of the specific chemical identity of a chemical substance must be reasserted when a person intends to manufacture or process a chemical substance designated as inactive. TSCA § 8(b)(5)(B)(ii), 15 U.S.C.A. § 2607(b)(5)(B)(ii).

³³TSCA § 14(f)(1)(C), 15 U.S.C.A. § 2613(f)(1)(C).

³⁴TSCA § 14(f)(2)(A), 15 U.S.C.A. § 2613(f)(2)(A).

³⁵TSCA § 14(f)(2)(B)–(C), 15 U.S.C.A. § 2613(f)(2)(B)–(C).

³⁶TSCA § 14(f)(3), 15 U.S.C.A. § 2613(f)(3).

³⁷TSCA § 14(g)(2), 15 U.S.C.A. § 2613(g)(2).

Exceptions to Protection from Disclosure and Applicable Notice Requirements		
Notice Requirement	Reason for Disclosure³⁸	Statutory Provision
15 days	Disclosure is necessary to protect health or the environment against an unreasonable risk	TSCA § 14(d)(3), (g)(2)(C)(i), 15 U.S.C.A. § 2613(d)(3), (g)(2)(C)(i)
	Disclosure to a state, local, or tribal entity that has an agreement with EPA to ensure that the entity will take appropriate measures to protect confidentiality	TSCA § 14(d)(4), (g)(2)(C)(i), 15 U.S.C.A. § 2613(d)(4), (g)(2)(C)(i)
	Disclosure to a federal, state, or tribal health or environmental professional or a treating physician or nurse in a nonemergency situation where individuals are exposed to or there has been an environmental release of or exposure to a substance, for purposes of diagnosis or treatment or response to an environmental release or exposure	TSCA § 14(d)(5), (g)(2)(C)(i), 15 U.S.C.A. § 2613(d)(5), (g)(2)(C)(i)
	Disclosure in response to a request from a congressional committee	TSCA § 14(g)(2)(C)(i), (j), 15 U.S.C.A. § 2613(g)(2)(C)(i), (j)
“As soon as practicable after disclosure of the information”	Disclosure in the event of an emergency to a treating or responding physician, nurse, agent of a poison control center, public health or environmental official of a state, local, or tribal government, or first responder if other criteria are met	TSCA § 14(d)(6), (g)(2)(C)(ii), 15 U.S.C.A. § 2613(d)(6), (g)(2)(C)(ii)
No notice	Disclosure is necessary to protect health or the environment against an imminent and substantial harm to health or the environment	TSCA § 14(d)(3), (g)(2)(C)(i), 15 U.S.C.A. § 2613(d)(3), (g)(2)(C)(i)
	Disclosure to a federal officer or employee in connection with that person’s official duties under a federal law for protection of health or the environment or for a specific federal law enforcement purpose	TSCA § 14(d)(1), (g)(2)(C)(iii)(I), 15 U.S.C.A. § 2613(d)(1), (g)(2)(C)(iii)(I)
	Disclosure to a federal contractor and the contractor’s employees where necessary for the contractor’s satisfactory performance of the contract	TSCA § 14(d)(2), (g)(2)(C)(iii)(I), 15 U.S.C.A. § 2613(d)(2), (g)(2)(C)(iii)(I)
	Disclosure relevant to a proceeding under TSCA	TSCA § 14(d)(7), (g)(2)(C)(iii)(I), 15 U.S.C.A. § 2613(d)(7), (g)(2)(C)(iii)(I)
	Disclosure as required by another federal law	TSCA § 14(d)(8), (g)(2)(C)(iii)(I), 15 U.S.C.A. § 2613(d)(8), (g)(2)(C)(iii)(I)
Not specified in TSCA	Disclosure as required pursuant to discovery, subpoena, other court order, or any other judicial process under federal or state law	TSCA § 14(d)(9), 15 U.S.C.A. § 2613(d)(9)

TSCA provides for criminal penalties against individuals who obtain protected information pursuant to Section 14 and willfully disclose the information to anyone not entitled to receive it.³⁹

VIII. ENFORCEMENT AND JUDICIAL REVIEW

§ 16:42 Prohibited conduct

Section 15 of TSCA, which defines the conduct prohibited by the statute, makes it

³⁸For disclosure requirements to apply, Section 14 in some cases specifies other criteria beyond those described in this table.

³⁹TSCA § 14(h)(1), 15 U.S.C.A. § 2613(h)(1).

unlawful to fail to comply with any requirement of TSCA's core statutory provisions, as well as to fail to comply with any rule promulgated, order issued, or consent agreement entered into under the core provisions, or with any requirement of or rule promulgated or order issued under the Asbestos Hazard Emergency Response Act (Title II of TSCA).¹ Failure to maintain, submit, or permit inspection of required records, reports, notices, or other information, and refusal to permit entry for inspection, also constitute violations.² The enforcement provision similarly makes it unlawful "to use for commercial purposes" any chemical substance while knowing, or having reason to know, that the substance was manufactured, processed, or distributed in commerce in violation of Section 5 or 6 of TSCA or a rule or order issued under Section 5 or 6, or in violation of an order issued in a judicial action brought under Section 5 or 7.³

§ 16:43 Civil and criminal enforcement

Administrative civil penalty assessments are EPA's primary tools for enforcing TSCA. Civil penalties of up to \$40,500 per day,¹ for each violation, may be levied by administrative order.² Civil penalty proceedings, which are governed by EPA's Consolidated Rules of Practice,³ are initiated by service of a complaint. The respondent may, in the answer, demand a hearing before an administrative law judge (ALJ). The respondent may also request a settlement conference. Orders assessing civil penalties are enforceable by federal district courts and are reviewable by the federal courts of appeals.⁴ Most civil penalty proceedings are resolved without hearings, by entry of consent orders.

A knowing or willful violation of TSCA constitutes a criminal offense, punishable by a fine of up to \$50,000 per day for each day of the violation, a term of imprisonment of one year, or both.⁵ In practice, criminal sanctions are normally reserved for the worst cases of misconduct, considering the violator's intent, the impact of the violation on human health or the environment, the effect on EPA's regulatory functions, and the violator's compliance record.⁶ The 2016 amendments created a new category of sanctions for knowing and willful TSCA violations where the person "knows at the time of the violation that the violation places an individual in im-

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¹TSCA § 15(1), 15 U.S.C.A. § 2614(1). A separate provision makes it unlawful to fail to comply with any requirement relating to lead. TSCA § 409, 15 U.S.C.A. § 2689.

²TSCA § 15(3) to (4), 15 U.S.C.A. § 2614(3) to (4).

³TSCA § 15(2), 15 U.S.C.A. § 2614(2).

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¹The Federal Civil Penalties Inflation Adjustment Act of 1990, Pub. L. No. 101-410, 28 U.S.C.A. § 2461, permits adjustment of civil penalty parameters to account for inflation. The values expressed in this chapter reflect those announced by EPA in January 2020. 85 Fed. Reg. 1751 (Jan. 13, 2020).

²TSCA § 16(a)(1)–(2), 15 U.S.C.A. § 2615(a)(1)–(2). The U.S. Court of Appeals for the District of Columbia Circuit has ruled that a five-year statute of limitations applies to administrative proceedings seeking to impose civil penalties under TSCA. 3M Co. (Minnesota Min. and Mfg.) v. Browner, 17 F.3d 1453, 38 Env't. Rep. Cas. (BNA) 1259, 24 Env'tl. L. Rep. 20544 (D.C. Cir. 1994). The limitations period begins to run on the date on which the violation occurs, and not the date on which EPA discovers the violation.

³40 C.F.R. § 22.1(a)(5).

⁴TSCA § 16(a)(3)–(4), 15 U.S.C.A. § 2615(a)(3)–(4).

⁵TSCA § 16(b)(1), 15 U.S.C.A. § 2615(b)(1).

⁶Criminal cases under TSCA have been rare; however, at least one PMN violation was prosecuted criminally and other examples of criminal cases have focused on lead and asbestos abatement projects that have been improperly performed, resulting in potential risks to human health and the environment.

minent danger of death or serious bodily injury.”⁷ Such violations are punishable by a fine of up to \$250,000, imprisonment for up to 15 years, or both. Organizations convicted of such violations can be penalized up to \$1,000,000 per violation.

The EPA Administrator may seek injunctive relief from ongoing violations of TSCA. Federal district courts are authorized to restrain violations and to compel persons, who manufacture chemical substances or mixtures in violation of TSCA, to notify chemical distributors and other persons, to give public notice of risk of injury, and to replace or repurchase their products.⁸ The court also may order seizure of such substances and mixtures.⁹

§ 16:44 Civil penalty calculation

The vast majority of TSCA cases are resolved through civil penalty proceedings. In imposing civil penalties, EPA is required by statute to consider the nature, circumstances, extent, and gravity of the violation, as well as the violator’s ability to pay, the effect of the penalty on the violator’s ability to do business, any history of prior similar violations, the degree of culpability, and “such other matters as justice may require.”¹ To implement this provision, EPA has issued general penalty assessment guidelines,² as well as specific enforcement response policies for certain sections of TSCA, which it uses to calculate the penalties it will seek in a civil administrative complaint.³ In negotiating settlements with EPA, it is advantageous to justify the reductions sought based on specific provisions of the policy. It is important to understand, however, that in a contested enforcement proceeding, the ALJ is not bound by EPA’s penalty calculations or its penalty policy.⁴

The enforcement policies provide specific rules for determining a “gravity-based penalty,” which varies according to the circumstances and extent of the violation, as defined by the enforcement policy. The gravity-based penalty for a single violation of TSCA can range from a notice of warning to a high of \$45,500 for significant offenses. The enforcement policies also specify how the gravity-based penalty will be multiplied for violations that persist beyond one day.

Once determined, the gravity-based penalty, may be reduced substantially based on a number of other factors. Many of these adjustments depend on the company’s actions after discovering the violation. If a company voluntarily discloses a violation to EPA, it may receive a reduction of the assessed penalty of 25%. Immediate disclosure of the violation (i.e., within 30 days of discovery) earns an additional 25% reduction in penalties. A further reduction of 15% may be granted if the company takes steps to mitigate the violation—for example, by immediately ceasing

⁷TSCA § 16(b)(2), 15 U.S.C.A. § 2615(b)(2).

⁸TSCA § 17(a)(1)(D), 15 U.S.C.A. § 2616(a)(1)(D).

⁹TSCA § 17(b), 15 U.S.C.A. § 2616(b).

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¹TSCA § 16(a)(2)(B), 15 U.S.C.A. § 2615(a)(2)(B).

²See Guidelines for Assessment of Civil Penalties Under Section 16 of TSCA, 45 Fed. Reg. 59770 (Sept. 10, 1980).

³See EPA, Enforcement Response Policy for Reporting and Recordkeeping Rules and Requirements: TSCA Sections 8, 12 and 13 (Mar. 31, 1999); EPA, Amended TSCA Section 5 Enforcement Response Policy (June 8, 1989), as amended by EPA, Amended TSCA Section 5 Enforcement Response Policy—Penalty Limit For Untimely NOC Submissions (July 1, 1993); EPA, Polychlorinated Biphenyls (PCB) Penalty Policy (Apr. 9, 1990); EPA, Enforcement Response Policy for TSCA Section 4 Test Rules (May 28, 1986).

⁴See, e.g., In the Matter of Caschem, Inc., Docket No. TSCA-PMN-89-0106 (EPA Oct. 30, 1992), at 8 (“[ALJs] have not uncommonly departed from provisions in penalty policies . . . where the need to do so appeared clear[.]”).

manufacture and distribution and quarantining existing stocks of chemical substances manufactured in violation of Section 5. Finally, further penalty reductions may be made depending on the company's attitude, culpability, prior compliance history, and ability to pay.⁵ Beyond the reductions for voluntary disclosure, EPA generally will not further reduce penalties when the entity involved received an economic benefit from the violation.

§ 16:45 EPA's investigatory power

Section 11 of TSCA gives the Administrator broad authority to inspect any facility or conveyance in which chemical substances, mixtures, or products subject to TSCA are manufactured, processed, stored, or transported.¹ The inspector must first present appropriate credentials and a written notice. The inspection may extend to all records, processes, and facilities relating to compliance with TSCA. Financial, sales, pricing, and personnel and research data not required by TSCA may be inspected only if described with specificity in the written notice.² Refusal to permit entry for inspection is a violation of TSCA.

The Administrator also may issue subpoenas requiring the attendance of witnesses and the production of reports, papers, documents, answers to questions, "and other information that the Administrator deems necessary."³ The recipient of a subpoena issued under Section 11 may refrain from complying with it, without penalty, until directed otherwise by a federal court order obtained by the Administrator.⁴ The potential breadth of EPA's subpoena power under Section 11 is illustrated by the 1994 issuance of subpoenas to 95 U.S. firms operating manufacturing plants along the border between the United States and Mexico. These subpoenas demanded that the firms submit comprehensive chemical release data.⁵

More recently, EPA used its Section 11 subpoena authority to gather information from producers of chlorinated paraffins (resulting in an enforcement case settled for \$1.4 million), and in the same year sought information from Halliburton concerning chemical substances used in hydraulic fracturing.⁶

§ 16:46 Petitions for rulemaking

Under Section 21 of TSCA, private parties may petition the Administrator to is-

⁵EPA may also increase the penalty by up to 15% if the violator displays an unsatisfactory attitude.

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¹TSCA § 11(a), 15 U.S.C.A. § 2610(a).

²TSCA § 11(b), 15 U.S.C.A. § 2610(b).

³TSCA § 11(c), 15 U.S.C.A. § 2610(c).

⁴See TSCA § 11(c), 15 U.S.C.A. § 2610(c); see also *U.S. E.P.A. v. Alyeska Pipeline Service Co.*, 836 F.2d 443, 446, 26 Env't. Rep. Cas. (BNA) 2129, 18 Env'tl. L. Rep. 20491, 20492 (9th Cir. 1988) (abrogated by, *McLane Co., Inc. v. E.E.O.C.*, 137 S. Ct. 1159, 197 L. Ed. 2d 500, 129 Fair Empl. Prac. Cas. (BNA) 1825, 101 Empl. Prac. Dec. (CCH) P 45765 (2017)).

⁵See *Daily Env't Rep. (BNA)*, at 28 (Feb. 12, 1996). The subpoenas were issued in response to petitions for rulemaking filed by U.S. and Mexican environmental justice groups concerned about pollution of the New River. EPA issued the subpoenas to the U.S. parent companies of the companies that operated the plants in Mexico. See Note, *Who's Singing the Mexicali Blues: How Far Can the EPA Travel Under the Toxic Substances Control Act?*, 50 Wash. U.J. Urb. & Contemp. L. 265, 268-69 (1996). The subpoenas sought information about the identities of chemical substances likely released to the water as well as information about how the chemicals were used. *Id.* at 269 n.18, 290 n.193. The companies that received the subpoenas raised questions about the subpoenas' legality, but it appears that at least one company provided the information after accepting an EPA offer to withdraw the subpoena in exchange for voluntary responses to the questions. See *id.* at 269 & n.21, 290 & n.195.

⁶IHS Chemweek, EPA Subpoenas Halliburton for Hydraulic Fracturing Data (Nov. 9, 2010), available at http://www.chemweek.com/home/top_of_the_news/30812.html.

sue, amend, or repeal any rule under TSCA. If the Administrator denies the petition or fails to act on it within 90 days, the petitioner may commence a civil action in federal district court to compel the Administrator to initiate the requested rulemaking proceeding.¹ EPA has issued guidance on preparing citizens' petitions under this provision.²

Section 21 rulemaking petitions have been filed by a variety of interested parties, ranging from environmental groups seeking to control the sale of lead fishing sinkers, to labor unions requesting testing of chemical substances to which workers are exposed, to members of the regulated community seeking relaxation of rules that apply to them.³ For example, a coalition of environmental justice groups, as well as a county board of supervisors, filed a series of rulemaking petitions attempting, through novel uses of TSCA, to address pollution along the border between the United States and Mexico. Although each of the petitions was denied or withdrawn, EPA nonetheless agreed to help fund monitoring efforts and to seek chemical release information from area industries under TSCA Section 11.⁴

Recent Section 21 petitions include those asking the Agency to prohibit fluoridation of drinking water,⁵ and to bar oil refineries from using hydrofluoric acid in manufacturing processes.⁶ Other petitions requested that EPA address risks associated with cadmium in consumer products,⁷ formaldehyde emissions from composite wood,⁸ lead in fishing tackle,⁹ ingredients used in household air fresheners,¹⁰ substances used in oil and gas exploration and hydraulic fracturing,¹¹ anthropogenic emissions of carbon dioxide,¹² and mercury, mercury compounds, and mercury-added products.¹³ EPA maintains an online database of the Section 21 petitions it has received.¹⁴

If EPA denies a petition or does not grant or deny a petition within 90 days, the petitioner may file a lawsuit to compel EPA to initiate a rulemaking proceeding.¹⁵ If the action sought in the petition is a rulemaking proceeding under Section 4, 6, or 8 or a Section 4 or 5(e) order, the petitioner “shall be provided an opportunity to have such petition considered by the court in a de novo proceeding” where the petitioner must demonstrate by a preponderance of the evidence—which may include expert

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¹TSCA § 21, 15 U.S.C.A. § 2620.

²50 Fed. Reg. 46825 (Nov. 13, 1985).

³*See, e.g.*, 59 Fed. Reg. 18535 (Apr. 19, 1994); 59 Fed. Reg. 11122 (Mar. 9, 1994); 56 Fed. Reg. 23534 (May 22, 1991).

⁴*See* 59 Fed. Reg. 13721 (Mar. 23, 1994); 59 Fed. Reg. 13321 (Mar. 21, 1994); 18 Chem. Reg. Rep. (BNA) 340 (June 24, 1994); 18 Chem. Reg. Rep. (BNA) 252 (June 3, 1994).

⁵82 Fed. Reg. 11878 (Feb. 27, 2017).

⁶84 Fed. Reg. 60986 (Nov. 12, 2019).

⁷*See* 77 Fed. Reg. 76819 (Dec. 28, 2012).

⁸73 Fed. Reg. 36504 (June 27, 2008).

⁹*See, e.g.*, 77 Fed. Reg. 10451 (Feb. 22, 2012).

¹⁰*See* 72 Fed. Reg. 72886 (Dec. 21, 2007).

¹¹*See* 79 Fed. Reg. 28664 (May 14, 2014).

¹²80 Fed. Reg. 60577 (Oct. 7, 2015).

¹³80 Fed. Reg. 60584 (Oct. 7, 2015).

¹⁴*See generally* *Section 21 Petitions Filed with EPA Since September 2007*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/tsca-section-21>.

¹⁵TSCA § 21(b)(4)(A), 15 U.S.C.A. § 2620(b)(4)(A).

witness testimony—that the standard for taking the requested action is met.¹⁶ De novo review is not available where a petition seeks modifications to an existing rule.¹⁷ The court may allow EPA to defer initiating the requested action if “the extent of the risk to health or the environment alleged by the petitioner is less than the extent of risks to health or the environment with respect to which the Administrator is taking action under [TSCA] and there are insufficient resources available . . . to take the action requested by the petitioner.”¹⁸

Courts may award fees for attorneys and expert witnesses in these lawsuits.¹⁹

§ 16:47 Citizen suits

TSCA’s citizen suit provision empowers a private party to bring an action to restrain an ongoing violation of TSCA, or to compel performance of a nondiscretionary duty by EPA.¹ The court has discretion to award the costs of the suit and reasonable attorneys and expert witness fees to either party.² However, civil penalties may not be applied against the defendant in a citizen suit.³ The citizen suit provision has rarely been used, potentially due to this lack of monetary relief.

§ 16:48 Judicial review of EPA rulemaking

Section 19 of TSCA creates exclusive jurisdiction in the federal courts of appeals for judicial review of EPA TSCA rulemaking and for review of testing orders under Section 4, orders imposing risk management requirements for new chemical substances under Section 5(e) or 5(f), and orders designating chemical substances as low-priority pursuant to Section 6.¹ A petitioner must file its request for review within 60 days after promulgation of the challenged rule. Venue is proper in the District of Columbia Circuit or in the circuit in which the petitioner resides or has a principal place of business, although actions challenging a low-priority designation under Section 6(b)(1)(B)(ii) may be brought only in the D.C. Circuit.²

The statute specifies the standard of review applicable to TSCA rulemaking. Test rules promulgated under Section 4, significant new use rules issued under Section 5, and rules regulating chemical substances under Section 6 (including rules regulating PCBs) must be set aside “if the court finds that the rule is not supported by substantial evidence in the rulemaking record taken as a whole.”³ The “substantial evidence” standard also applies to judicial review of testing orders under Section 4,

¹⁶TSCA § 21(b)(4)(B), 15 U.S.C.A. § 2620(b)(4)(B); *see* Food & Water Watch, Inc. v. United States Environmental Protection Agency, 302 F. Supp. 3d 1058, 85 Env’t. Rep. Cas. (BNA) 2526 (N.D. Cal. 2018) (in action challenging EPA’s denial of a petition requesting that EPA prohibit fluoridation of drinking water, denying EPA’s motion to limit review to the administrative record); *see also* Food & Water Watch, Inc. v. United States Environmental Protection Agency, 291 F. Supp. 3d 1033, 85 Env’t. Rep. Cas. (BNA) 2349 (N.D. Cal. 2017) (rejecting EPA’s arguments regarding inadequacies of Section 21 petition seeking prohibition of fluoridation of drinking water and denying EPA’s motion to dismiss).

¹⁷*See* Asbestos Disease Awareness Organization v. Wheeler, 2019 WL 6050752 (N.D. Cal. 2019).

¹⁸TSCA § 21(b)(4)(B), 15 U.S.C.A. § 2620(b)(4)(B).

¹⁹TSCA § 21(b)(4)(C), 15 U.S.C.A. § 2620(b)(4)(C).

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¹TSCA § 20, 15 U.S.C.A. § 2619.

²TSCA § 20(a)(1), (2), (c)(2), 15 U.S.C.A. § 2619(a)(1), (2), (c)(2).

³*See* Brewer v. Ravan, 680 F. Supp. 1176, 1183, 27 Env’t. Rep. Cas. (BNA) 1352, 18 Env’tl. L. Rep. 20799, 20802 (M.D. Tenn. 1988).

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¹TSCA § 19(a)(1)(A), 15 U.S.C.A. § 2618(a)(1)(A).

²TSCA § 19(a)(1)(A), 15 U.S.C.A. § 2618(a)(1)(A).

³TSCA § 19(c)(1)(B)(i)(I), 15 U.S.C.A. § 2618(c)(1)(B)(i)(I).

orders imposing risk management requirements for new chemical substances under Section 5(e) or 5(f), and orders designating chemical substances as low-priority pursuant to Section 6.⁴ This standard is “generally considered to be more rigorous” than the arbitrary and capricious standard typically applied to review of agency action.⁵ All other rulemaking and orders under TSCA are subject to the standard of review set forth in the Administrative Procedure Act.⁶

IX. RELATIONSHIP TO OTHER LAWS

§ 16:49 Coordination with other federal laws

Congress was well aware that the broad reach of TSCA’s regulatory jurisdiction would overlap with other statutes that could be used to control chemical risk, including laws administered by agencies other than EPA. Reflecting an effort to avoid confusing and duplicative rulemaking, Section 9(a) of TSCA defines procedures for coordinating action with other agencies. When EPA identifies a risk that can (in the Administrator’s discretion) be controlled by another agency, the Agency must issue a report to the other agency detailing the risk and asking the other agency to determine if the described risk can be regulated under the other agency’s statutes.¹ If the receiving agency issues an order rejecting EPA’s finding of risk, or initiates action to control the risk within 90 days, EPA may not take action under Section 6(a) or 7 to mitigate the risk.²

This provision has been controversial. EPA has sometimes interpreted it to require deferral of regulatory matters to other agencies, while at other times EPA policy has been to retain regulatory authority when it has determined that rulemaking under TSCA would be more efficient than “piecemeal” rulemaking under other statutes.³

The 2016 amendments to TSCA mandate EPA take appropriate or applicable action under Section 6(a) or 7 if the receiving agency does not either issue a timely (i.e., within a timeframe specified by EPA) order rejecting EPA’s risk finding or timely respond to EPA’s report and initiate action to protect against the risk.⁴ The 2016 amendments also attempt to clarify that EPA’s referral of an identified risk to another agency does not relieve EPA of its obligation to take actions to address risks not identified in EPA’s report to the other agency.⁵

EPA has executed Memoranda of Understanding with both OSHA and the Consumer Product Safety Commission (CPSC) that define the administrative procedures to be used in coordinating the respective agencies’ duties under Section

⁴TSCA § 19(c)(1)(B)(i)(II), 15 U.S.C.A. § 2618(c)(1)(B)(i)(II).

⁵*Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201, 1214, 33 Env’t. Rep. Cas. (BNA) 1961, 1992 O.S.H. Dec. (CCH) P 29558, 22 Env’tl. L. Rep. 20037, 20042, 22 Env’tl. L. Rep. 20304 (5th Cir. 1991), opinion clarified, (Nov. 15, 1991), quoting *Environmental Defense Fund, Inc. v. Environmental Protection Agency*, 636 F.2d 1267, 1277, 15 Env’t. Rep. Cas. (BNA) 1081, 10 Env’tl. L. Rep. 20972 (D.C. Cir. 1980).

⁶TSCA § 19(c)(1)(B), 15 U.S.C.A. § 2618(c)(1)(B).

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¹TSCA § 9(a)(1), 15 U.S.C.A. § 2608(a)(1).

²TSCA § 9(a)(2), 15 U.S.C.A. § 2608(a)(2).

³*See generally* House Comm. on Energy and Commerce, 99th Cong., 1st Sess., *EPA’s Asbestos Regulations: Report on a Case Study on OMB Interference in Agency Rulemaking* (Comm. Print 1985) (describing reversals of Agency interpretation of Section 9(a)).

⁴TSCA § 9(a)(3)–(4), 15 U.S.C.A. § 2608(a)(3)–(4).

⁵TSCA § 9(a)(5), 15 U.S.C.A. § 2608(a)(5).

9.⁶ The memoranda call for EPA to semiannually issue written notices that identify chemical substances undergoing risk assessment that may later be referred to the other agency. Actual Section 9 referral of a particular chemical substance by EPA will be preceded by informal notice and exchange of information, as will the subsequent formal response by the other agency. The agreements aim to ensure better coordination of the regulatory agendas.

In 2008, Congress passed the Consumer Product Safety Improvement Act (CPSIA), which overlaps with TSCA's regulation of lead. The CPSIA generally classifies children's products with more than 600 parts per million of lead as banned hazardous substances under the Federal Hazardous Substances Act.⁷ Under the CPSIA, children's products were required to contain less than 300 parts per million of lead by August of 2009. That limit dropped to 100 parts per million in August of 2011. The CPSIA additionally required CPSC to lower the permissible level of lead in lead-based paint from .06% to .009% by August of 2009.⁸ These new requirements have resulted in indirect controls on the use of a substance that is also regulated under TSCA.

TSCA also addresses coordination of EPA actions under TSCA with actions taken under other statutes administered by EPA.⁹ Where health and environmental risks associated with a chemical substance or mixture can be eliminated or sufficiently reduced with actions taken under other federal laws, EPA is instructed to use those authorities unless the Agency determines that it is in the public interest to take action under TSCA.¹⁰ The 2016 amendments specify that the "public interest" determination must be based on consideration of "all relevant aspects of the risk" and "a comparison of the estimated costs and efficiencies of the actions to be taken."¹¹

§ 16:50 Preemption of state law

The 2016 amendments to TSCA expanded its preemptive effect on state laws but left openings for state action. In general, final EPA regulatory actions on chemical substances will preempt state regulation of such substances, as well as regulation by political subdivisions of states such as counties and cities. Yet this preemptive effect is subject to various exceptions and opportunities for state requests for waivers.¹

In particular, TSCA now prohibits states from establishing or continuing to enforce statutes, regulations, and other administrative actions that prohibit or restrict a chemical substance after EPA has determined that the substance does not present an unreasonable risk or after EPA issues a final risk management rule to address the substance's risks.² In addition, states cannot require development of information about a chemical substance if the requirement is reasonably likely to produce the same information already required by an EPA rule, consent agreement, or

⁶See generally EPA Memorandum of Agreement No. PW 16931704-01-0 (Occupational Safety and Health Admin.); EPA Memorandum of Agreement No. PW 61931685-01-0 (Consumer Prod. Safety Comm.).

⁷15 U.S.C.A. § 1278a(a).

⁸15 U.S.C.A. § 1278a(f).

⁹TSCA § 9(b), 15 U.S.C.A. § 2608(b).

¹⁰TSCA § 9(b)(1), 15 U.S.C.A. § 2608(b)(1).

¹¹TSCA § 9(b)(2), 15 U.S.C.A. § 2608(b)(2).

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¹TSCA § 18(a)(1), 15 U.S.C.A. § 2617(a)(1).

²TSCA § 18(a)(1)(B), 15 U.S.C.A. § 2617(a)(1)(B).

order under Section 4, 5, or 6.³ States also are barred from requiring notification of a use of a chemical substance that EPA has specified as a significant new use and for which EPA has required notification.⁴

EPA's formal announcement of the scope of a risk evaluation the Agency is undertaking for an existing chemical substance will initiate a period of temporary preemption. During this period, states may not impose new requirements that affect activities within the scope of the EPA's assessment.⁵ States may, however, continue to enforce existing requirements during the temporary or "pause" preemption period. The preemptive effect will continue until either EPA completes its evaluation or 30 months have elapsed, whichever first occurs. When this pause preemption period concludes, a state may impose a new chemical-regulatory requirement unless EPA has determined that the substance does not present an unreasonable risk to human health or the environment under the intended and foreseeable conditions of use.⁶ If EPA issues a final risk management rule limiting or prohibiting a chemical substance under certain intended or foreseeable uses, state actions would again be preempted as of the effective date of the new EPA rule.

State statutory and regulatory actions taken prior to April 22, 2016, are not preempted. Nor are new actions taken under an existing state law that was in effect on August 31, 2003—Congress selected this date to ensure the continued viability of actions under California's Proposition 65.⁷

States will still be permitted to adopt regulations identical to federal standards issued pursuant to TSCA.⁸ Thus, both EPA and the states may enforce their respective regulations if the state rule is identical, but penalties will be capped at the federal statutory maximum.⁹ In addition, state requirements that implement a "reporting, monitoring, or other information obligation" are not preempted.¹⁰ States may also take actions under the authority of another federal law or, in certain circumstances, under a state law related to water quality, air quality, or waste management.¹¹

States may seek waivers from either the permanent or temporary preemptive effect of an EPA decision under certain conditions.¹² Applications for waivers are subject to public notice and comment, and EPA's determinations on waiver applications are subject to judicial review.¹³

TSCA explicitly provides that common law rights of action are not affected by EPA actions under TSCA.¹⁴

§ 16:51 Administration of TSCA: fees and scientific standards

Prior to the 2016 amendments to TSCA, the statute authorized modest fees (up to \$2,500) for submission of premanufacture and significant new use notices under Section 5. Such fees could also be collected from persons submitting data under Sec-

³TSCA § 18(a)(1)(A), 15 U.S.C.A. § 2617(a)(1)(A).

⁴TSCA § 18(a)(1)(C), 15 U.S.C.A. § 2617(a)(1)(C).

⁵TSCA § 18(b), 15 U.S.C.A. § 2617(b).

⁶See TSCA § 18(a)(1)(B), 15 U.S.C.A. § 2617(a)(1)(B).

⁷TSCA § 18(e)(1), 15 U.S.C.A. § 2617(e)(1).

⁸TSCA § 18(d)(1)(A)(iv), 15 U.S.C.A. § 2617(d)(1)(A)(iv).

⁹TSCA § 18(d)(1)(B), 15 U.S.C.A. § 2617(d)(1)(B).

¹⁰TSCA § 18(d)(1)(A)(ii), 15 U.S.C.A. § 2617(d)(1)(A)(ii).

¹¹TSCA § 18(d)(1)(A)(i), (iii), 15 U.S.C.A. § 2617(d)(1)(A)(i), (iii).

¹²TSCA § 18(f), 15 U.S.C.A. § 2617(f).

¹³TSCA § 18(f)(5), (6), 15 U.S.C.A. § 2617(f)(5), (6).

¹⁴TSCA § 18(g)(1), 15 U.S.C.A. § 2617(g)(1).

tion 4. The 2016 amendments authorized EPA to collect significantly higher (although unspecified) fees for the purpose of defraying up to 25% of EPA's costs of implementing the testing, new chemical notification, and existing chemical risk evaluation and management programs under Sections 4, 5, and 6, as well as the costs of collecting, processing, reviewing, and providing access to confidential information, and for protecting confidential information from disclosure.¹ When a manufacturer requests an EPA risk evaluation for an existing chemical substance, it must pay up to 100% of the costs for conducting the review (50% of the costs if the substance was among those listed on the 2014 Work Plan).² Lower fees are to be assessed for small businesses, a category for which EPA prescribes standards in coordination with the Small Business Administration.³

The amended statute required that any fees be established by rule, and also required EPA to consult with parties potentially subject to the fees prior to establishing or amending the fees.⁴ EPA's initial Fees Rule,⁵ which took effect in October 2018, set fees for fiscal years 2019 through 2021 and also established a formula for calculating the fees for 2022 and beyond on a three-year cycle.⁶ The Fees Rule sets forth the following fees for fiscal years 2019 through 2021.

TSCA Fees for Fiscal Years 2019 to 2021⁷		
Action	Fee for small business concerns	Fee for other entities
Section 5 premanufacture notifications or significant new use notifications	\$2,800	\$16,000
Section 5 exemption requests (LoREX, LVE, TME, TERA, and Tier II) and modifications to previous exemption requests	\$940	\$4,700
Instant photographic film article exemption notices	\$940	\$4,700
Microbial commercial activity notices (MCANs)	\$2,800	\$16,000
Section 4(a) test rules	\$1,960 ⁸	\$9,800
Section 4(a) test orders	\$5,900 ⁹	\$29,500

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¹TSCA § 26(b)(4)(B)(i), 15 U.S.C.A. § 2625(b)(4)(B)(i). The maximum amount that EPA may collect is \$25 million, subject to adjustment for inflation. EPA's authority to assess fees for a given fiscal year is contingent upon the amount of appropriations for the Chemical Risk Review and Reduction program project being equal to or exceeding the 2014 appropriations amount. TSCA § 26(b)(5), 15 U.S.C.A. § 2625(b)(5).

²TSCA § 26(b)(4)(B)(ii), (D), 15 U.S.C.A. § 2625(b)(4)(B)(ii), (D). The percentage of costs the manufacturer must pay is 50% for chemical substances listed on the 2014 update to the TSCA Work Plan for Chemical Assessments and 100% for other substances.

³TSCA § 26(b)(2), (4)(A), 15 U.S.C.A. § 2625(b)(2), (4)(A); *see also* 40 C.F.R. § 700.43 (defining "small business concern").

⁴TSCA § 26(b)(1), (4)(E), 15 U.S.C.A. § 2625(b)(1), (4)(E).

⁵83 Fed. Reg. 52694 (Oct. 17, 2018).

⁶40 C.F.R. § 700.45(d).

⁷40 C.F.R. § 700.45(a), (c).

⁸The Fees Rule specifies that the fee for a small business concern is 20% of the fee specified for other entities. 40 C.F.R. § 700.45(c)(1)(vi).

⁹The Fees Rule specifies that the fee for a small business concern is 20% of the fee specified for

TSCA Fees for Fiscal Years 2019 to 2021 ⁷		
Action	Fee for small business concerns	Fee for other entities
Section 4(a) enforceable consent agreements	\$4,560 ¹⁰	\$22,800
EPA-initiated Section 6 risk evaluations	\$270,000 ¹¹	\$1,350,000
Manufacturer-initiated Section 6 risk evaluations of Work Plan chemicals	initial fee of \$1,250,000, and final payment totaling 50% of the actual costs	initial fee of \$1,250,000, and final payment totaling 50% of the actual costs
Manufacturer-initiated Section 6 risk evaluations of non-Work Plan chemicals	initial fee of \$2,500,000, and final payment totaling 100% of the actual costs	initial fee of \$2,500,000, and final payment totaling 100% of the actual costs

Manufacturers may form consortia to pay fees under Section 4 or 6(b).¹² The Fees Rule also made processors of chemical substances subject to fees for Section 5 Significant New Use Notices and Test Marketing Exemptions¹³ and for Section 4 test orders, test rules, and enforceable consent decrees, when the Section 4 activity relates to a Significant New Use Notice submitted by a processor.¹⁴

The Fees Rule also established processes for identifying manufacturers subject to the fees for Section 4 test rules and for EPA-initiated risk evaluations.¹⁵ EPA will prepare preliminary lists of manufacturers subject to the fees, based on information that EPA has received via reporting and notification programs, as well as other information available to EPA. For test rules, the preliminary lists will be made available with proposed rules and, for risk evaluations, the preliminary lists will be released at the time of final designation of a high-priority substance. Manufacturers who have manufactured or imported the chemical substance in the past five years then have an obligation to “self-identify,” regardless of whether they are on the preliminary list. The self-identification notice must provide contact information and, if a manufacturer has ceased manufacture prior to a specified cut-off date or has not manufactured the substance during the five-year period, the manufacturer must include a certification to that effect in its notice. EPA intends to publish final lists of manufacturers subject to the fees when it issues a final scope document for risk evaluations and with final Section 4 test rules. In 2020, after EPA designated the first 20 high-priority substances and released preliminary lists of manufacturers of those substances, it became apparent that EPA interpreted the self-identification obligation to extend not only to manufacturers and importers of the substances in bulk for use and distribution in the U.S. but also to importers of articles containing the substances and manufacturers of the substance as a byproduct or an impurity.¹⁶ Prior to the deadline for self-identification, however, EPA announced that it intended to propose amendments to the Fees Rule to exempt three categories of “manufacturers” from the Fees Rule’s self-identification obligation:¹⁷ importers of articles containing a high-priority substance; producers of a high-priority substance as a byproduct;

other entities. 40 C.F.R. § 700.45(c)(1)(vi).

¹⁰The Fees Rule specifies that the fee for a small business concern is 20% of the fee specified for other entities. 40 C.F.R. § 700.45(c)(1)(vi).

¹¹The Fees Rule specifies that the fee for a small business concern is 20% of the fee specified for other entities. 40 C.F.R. § 700.45(c)(1)(vi).

¹²40 C.F.R. § 700.45(f).

¹³40 C.F.R. § 700.45(a)(4).

¹⁴40 C.F.R. § 700.45(a)(5).

¹⁵40 C.F.R. § 700.45(b).

¹⁶85 Fed. Reg. 4661 (Jan. 27, 2020).

¹⁷News Release, EPA, EPA Announces Plan to Reduce TSCA Fees Burden for Stakeholders (Mar.

and producers or importers of a high-priority substance as an impurity.

The 2016 amendments also set forth, for the first time, statutory mandates for the scientific standards to which EPA must adhere as it implements TSCA's core information collection, risk evaluation, and risk management provisions. In its decision making, EPA must employ scientific information, technical procedures, measures, methods, protocols, methodologies, or models "in a manner consistent with best available science."¹⁸ Factors that must be considered include: the extent to which scientific information is reasonable for and consistent with the intended use of the information; the information's relevance; the degree of clarity and completeness with which the methods used to generate the information are documented; the evaluation and characterization of variability and uncertainty in the information; and independent verification and peer review of the information. EPA must also make decisions "based on the weight of the scientific evidence,"¹⁹ and must take into consideration information about a chemical substance or mixture that is "reasonably available" to EPA.²⁰

The 2016 amendments further mandate that certain types of information be made available to the public, including information and studies that form the basis for EPA decision making, and require EPA to produce nontechnical summaries of every risk evaluation it conducts.²¹

In addition, the 2016 amendments require EPA to develop and regularly review policies, procedures, and guidance for the amendments' implementation.²² In particular, the amendments stated such policies, procedures, and guidance that are applicable to testing chemical substances and mixtures should address how and when exposure would factor into EPA decisions to require new testing. Such policies, procedures, and guidance should also describe how EPA would determine its need for additional information to implement the Agency's functions, including information related to potentially exposed or susceptible populations.²³

EPA must also establish a Science Advisory Committee on Chemicals (SACC), composed of representatives of outside groups, to provide advice and consultation on the scientific and technical aspects of TSCA implementation.²⁴ The SACC reviewed each of the first 10 draft risk evaluations and issued reports with comments and recommendations reflecting the views of its members. EPA officials have indicated that the Agency may change the SACC's role so that, rather than performing peer review of each individual evaluation, the SACC would address overarching principles and methodologies.²⁵

§ 16:52 Relationship to international laws

In the past, there has been some discussion about amending TSCA to provide for the implementation of the following three international environmental agreements:

25, 2020). EPA also issued a "no action assurance" to the three categories of manufacturers indicating the Agency would not enforce the self-identification requirements against them. 85 Fed. Reg. 20275 (Apr. 10, 2020).

¹⁸TSCA § 26(h), 15 U.S.C.A. § 2625(h).

¹⁹TSCA § 26(i)(4)(A), 15 U.S.C.A. § 2625(i)(4)(A).

²⁰TSCA § 26(k), 15 U.S.C.A. § 2625(k).

²¹TSCA § 26(j), 15 U.S.C.A. § 2625(j).

²²TSCA § 26(l)(1)–(2), 15 U.S.C.A. § 2625(l)(1)–(2).

²³TSCA § 26(l)(3), 15 U.S.C.A. § 2625(l)(3).

²⁴TSCA § 26(o), 15 U.S.C.A. § 2625(o).

²⁵See Maria Hegstad, *Top Toxics Official Expects EPA To 'Tailor' First TSCA Management Rules*, Inside EPA (May 26, 2020).

- (1) Stockholm Convention on Persistent Organic Pollutants (POPs Convention),¹ which commits parties to eliminate or reduce the production, use, and release of 12 critical persistent organic pollutants, and others that are added to the various annexes to the Convention.²
- (2) Protocol on Persistent Organic Pollutants to the 1979 Convention on Long-Range Transboundary Air Pollution (LRTAP POPs Protocol),³ which similarly aims to control, reduce, or eliminate discharges and emissions of persistent organic pollutants.
- (3) Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC Convention),⁴ which promotes communication of health and safety information, so that countries can make informed decisions in the trade of hazardous chemicals and pesticides.

The United States has signed, but not ratified, each of the aforementioned treaties.⁵ If the United States does ratify the agreements, legislation would be necessary to resolve inconsistencies between provisions of these agreements, TSCA, and FIFRA,⁶ and to ensure that EPA has the authority to fully enforce U.S. obligations under the agreements.⁷ Legislators have introduced bills in Congress that would amend TSCA to implement these treaties; however, none have passed.⁸

In June 2007, the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation went into effect in Europe. REACH requires companies that produce chemicals in Europe or import them to Europe in large volumes to register those chemicals with the European Chemicals Agency (ECHA).⁹ The law has had a substantial effect on industry, as multinational corporations changed their policies to comply with REACH.¹⁰ For example, REACH required companies to preregister their chemical substances with the ECHA by December 1,

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¹See Stockholm Convention on Persistent Organic Pollutants, May 22, 2001, 40 I.L.M. 532.

²See generally *Persistent Organic Pollutants: A Global Issue, A Global Response*, EPA, <https://www.epa.gov/international-cooperation/persistent-organic-pollutants-global-issue-global-response> (updated Dec. 2009).

³See Convention on Long-Range Transboundary Air Pollution, Nov. 16, 1979, 18 I.L.M. 1442.

⁴See Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Sept. 11, 1998, 38 I.L.M. 1.

⁵See Stockholm Convention on Persistent Organic Pollutants, Signatures and Ratifications, available at <http://www.pops.int/documents/signature/>; Convention on Long-Range Transboundary Air Pollution, Status of Ratification, available at <http://bit.ly/2gVuggB>; Rotterdam Convention, Parties, available at <http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx>. The 2016 amendments to TSCA did not ratify any of these international agreements.

⁶Jerry H. Yen, Congressional Research Service, Persistent Organic Pollutants (POPs): Fact Sheet on Three International Agreements (2013), available at <http://tinyurl.com/l32h6kd>.

⁷Hagan and Walls, The Stockholm Convention on Persistent Organic Pollutants, 19 A.B.A. Natural Res. & Env't 49, 51 (2005).

⁸See, e.g., S. 696, 113th Cong. (2014); S. 3697, 112th Cong. (2012); S. 519, 111th Cong. (2009); H.R. 6421, 109th Cong. (2006); H.R. 4800, 109th Cong. (2006); H.R. 4591, 109th Cong. (2005).

⁹REACH, New Regulations in U.S. States Suggest Volatile Year for Manufacturers, Daily Env't Rep. (BNA) No. 12, at B-2 (Jan. 19, 2007).

¹⁰REACH, New Regulations in U.S. States Suggest Volatile Year for Manufacturers, Daily Env't Rep. (BNA) No. 12, at B-2 (Jan. 19, 2007). Companies that have complied with EPA's voluntary HPV program may be in the best position, because they have already been providing data on high volume chemicals.

2008.¹¹ Companies that failed to meet the preregistration deadline, and that did not qualify for late preregistration, were prohibited from producing or importing substances into the European Union market until they submitted a full registration dossier.¹² Compliance with the REACH requirements has been a particular concern for small- and middle-sized companies that export chemicals to Europe.¹³

X. TSCA TITLE II—ASBESTOS HAZARDS IN SCHOOLS AND PUBLIC BUILDINGS

§ 16:53 In general

In 1986, Congress enacted Title II of TSCA. Title II, also known as the Asbestos Hazard Emergency Response Act (AHERA), mandated that EPA develop regulations to respond to asbestos¹ in schools. Title II requires local educational agencies (LEAs) to inspect their schools for asbestos-containing materials; develop a plan to manage the asbestos for each school building that contains asbestos; update this plan every three years; provide asbestos awareness training to school maintenance and custodial workers; keep school staff and parents apprised of inspections and abatement actions; and implement timely actions to address dangerous asbestos situations. To implement this mandate, EPA promulgated the Asbestos-Containing Materials in Schools Rule.² The implementing Rule provides details regarding how LEAs must conduct inspections for asbestos-containing building materials, prepare asbestos management plans, and perform asbestos response actions to prevent or reduce asbestos hazards in schools.³ Title II requires persons who conduct the mandated activities to be properly accredited.⁴ Pursuant to statutory mandate, EPA has developed a model accreditation plan for use by state agencies.⁵ LEAs include not only public schools and charter schools, but also religious schools and nonprofit private schools.⁶

EPA and state regulators inspect LEAs to determine compliance with the regulations by reviewing documents, inspecting the schools, and collecting physical evidence to document compliance or noncompliance. Private citizens are empowered to request a state or federal investigation of a particular school building.⁷ Reasonably founded citizen allegations must be investigated by EPA or the state where the school is located.⁸

AHERA further tasked EPA with studying the extent of danger to human health

¹¹ECHA, Guidance on Data Sharing (Version 3.1), at 17 (Jan. 2017), <https://bit.ly/32Rm482>.

¹²ECHA, Guidance on Data Sharing (Version 3.1), at 17 (Jan. 2017), <https://bit.ly/32Rm482>. The registration requirement applies only to chemicals produced or imported in quantities greater than or equal to one metric tonne.

¹³REACH Registration on Track, ECHA Says; Concerns Remain about Imported Chemicals, Daily Env't Rep. (BNA), Oct. 15, 2010; Manufacturers, Importers Face Challenges With Europe's Chemical Registration Rules, 40 Env't Rep. (BNA) 44 (Jan. 16, 2009).

[Section 16:53]

¹TSCA defines asbestos as the asbestiform varieties of chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite/grunerite); anthophyllite; tremolite; and actinolite.

²40 C.F.R. Pt. 763.

³*Asbestos Laws and Regulations*, EPA <http://www2.epa.gov/asbestos/asbestos-laws-and-regulations>.

⁴TSCA § 206(a), 15 U.S.C.A. § 2646(a).

⁵TSCA § 206(b), 15 U.S.C.A. § 2646(b); 40 C.F.R. Pt. 763, Subpt. E.

⁶*Asbestos Laws and Regulations*, EPA <http://www2.epa.gov/asbestos/asbestos-laws-and-regulations>.

⁷TSCA § 207(d), 15 U.S.C.A. § 2647(d).

⁸TSCA § 207(d), 15 U.S.C.A. § 2647(d).

posed by asbestos in other public and commercial buildings and means to address such danger,⁹ and with developing a model plan for states for accrediting persons conducting asbestos inspection and corrective-action activities at schools.

Congress empowered EPA to enforce the provisions of Title II by granting the Agency the authority to impose civil penalties on LEAs that fail to conduct inspections and abatement as required.¹⁰ Contractors who conduct these activities without proper accreditation are also subject to penalties. Finally, AHERA provides protections for whistleblowers,¹¹ as well as worker protection requirements for state and local government employees not protected by OSHA.¹²

Some asbestos products also are regulated under Section 6 of TSCA, and EPA identified asbestos as one of the 10 chemical substances on which it has focused in its initial risk evaluations pursuant to the 2016 amendments to TSCA.¹³ In 2018, the EPA Office of the Inspector General (OIG) published a report that found that EPA had disinvested from the AHERA program, prioritizing other TSCA programs instead.¹⁴ OIG cited a lack of compliance inspections, without which “the EPA cannot know whether schools pose an actual risk of asbestos exposure to students and personnel.”¹⁵ OIG recommended that EPA require regions to document asbestos strategies to the Office of Enforcement and Compliance Assurance as part of their TSCA compliance monitoring planning efforts, and that EPA work with regions to develop compliance assistance materials for LEAs.¹⁶

XI. TSCA TITLE III—RADON ABATEMENT

§ 16:54 In general

TSCA Title III, the Indoor Radon Abatement Act, establishes the long-term goal of reducing radon levels in buildings to the level of the ambient air outside of buildings. It does not, however, mandate achievement of this goal. Instead, it authorizes funding for a range of programs designed to mitigate radon exposure.¹ A majority of states have developed radon reduction programs as a result of the implementation of Title III.

EPA Requirements Under TSCA Title III

⁹TSCA § 201, 15 U.S.C.A. § 2641.

¹⁰TSCA § 207(a), 15 U.S.C.A. § 2647(a); 40 C.F.R. § 19.4.

¹¹TSCA § 211(a), 15 U.S.C.A. § 2651(a).

¹²TSCA § 215, 15 U.S.C.A. § 2655.

¹³81 Fed. Reg. 91927 (Dec. 19, 2016). In 2020, environmental groups and the TSCA SACC raised concerns about the draft risk evaluation’s scope, as well as about the sufficiency of the data supporting its conclusions. *See, e.g.,* Maria Hegstad, *EPA Science Advisors Call For Rewrite Of ‘Deficient’ Asbestos Evaluation*, Inside EPA (Aug. 28, 2020). The Clean Air Act and other federal statutes also regulate asbestos. For further information, see http://www2.epa.gov/asbestos/asbestos-laws-and-regulations#epa_laws.

¹⁴EPA Office of the Inspector General, *EPA Needs to Re-Evaluate Its Compliance Monitoring Priorities for Minimizing Asbestos Risks in Schools*, Report No. 18-P-0270, at 11 (Sept. 17, 2018).

¹⁵EPA Office of the Inspector General, *EPA Needs to Re-Evaluate Its Compliance Monitoring Priorities for Minimizing Asbestos Risks in Schools*, Report No. 18-P-0270, at 9 (Sept. 17, 2018).

¹⁶EPA Office of the Inspector General, *EPA Needs to Re-Evaluate Its Compliance Monitoring Priorities for Minimizing Asbestos Risks in Schools*, Report No. 18-P-0270, at 19 (Sept. 17, 2018).

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¹TSCA § 301, 15 U.S.C.A. § 2661.

- Publish a “Citizen’s Guide to Radon” containing certain specified information about health risks, risk thresholds, and mitigation approaches²
- Develop model construction standards and techniques for controlling radon levels in new buildings³
- Develop and implement, or require another federal agency to develop and implement, activities designed to assist state radon programs⁴
- Establish regional radon training centers⁵
- Evaluate the extent of radon contamination in federally owned buildings⁶
- Survey and, where necessary, develop strategies to mitigate radon contamination in schools nationwide⁷

XII. TSCA TITLE IV—LEAD EXPOSURE REDUCTION

§ 16:55 In general

Residential use of lead-based paint was banned in 1978. TSCA Title IV, also known as the Residential Lead-Based Paint Hazard Reduction Act of 1992, is primarily concerned with risk identification and hazard abatement in dwellings constructed before this period, especially in the course of renovations and remodeling. Title IV’s goal is the development of regulations designed to reduce the hazards associated with exposure—particularly of children and residents of low-income housing—to lead-based paints in private housing.

EPA Requirements Under TSCA Title IV

- Issue guidelines for risk assessments, inspections, interim controls, and abatement of lead-based paint hazards in consultation with the Secretary of Housing and Urban Development (HUD)¹
- Promulgate regulations that identify thresholds for lead-based paint hazards, lead-contaminated dust, and lead-contaminated soil for purposes of Title IV as well as the Residential Lead-Based Paint Hazard Reduction Act of 1992²

²TSCA § 303, 15 U.S.C.A. § 2663.

³TSCA § 304, 15 U.S.C.A. § 2664.

⁴TSCA § 305, 15 U.S.C.A. § 2665.

⁵TSCA § 308, 15 U.S.C.A. § 2668.

⁶TSCA § 309, 15 U.S.C.A. § 2669.

⁷TSCA § 307, 15 U.S.C.A. § 2667.

[Section 16:55]

¹TSCA § 402(a)(1), 15 U.S.C.A. § 2682(a)(1). EPA has developed training and certification programs for these activities, along with related accreditation requirements for such programs. 40 C.F.R. §§ 745.220 to 745.239; *see also Lead Renovation, Repair and Painting Program*, EPA, <http://www2.epa.gov/lead/renovation-repair-and-painting-program>.

²TSCA § 403, 15 U.S.C.A. § 2683; *see* 40 C.F.R. §§ 745.61 to 745.65. The current regulations establish a hazard threshold of 10 micrograms of lead per square foot in floor dust; 100 micrograms per square foot in windowsill dust; 400 parts per million in bare soil in children’s play areas; and 1,200 parts per million in other soils. *See* 40 C.F.R. § 745.65(a) to (c); 84 Fed. Reg. 32632 (July 9, 2019). Under the Residential Lead-Based Paint Hazard Reduction Act of 1992, sellers or lessors of most pre-1978 housing must disclose the presence of any lead-based paint hazard. *See* 42 U.S.C.A. § 4852d. The thresholds for lead-based paint hazards also are used to “calibrate” activities under Title IV such as risk assessments, inspections, and abatements. *See* 84 Fed. Reg. at 32636.

- Conduct a program to promote the safe, effective, and affordable monitoring, detection, and abatement of lead exposure hazards, including by: (1) establishing laboratory protocols; (2) conducting studies on lead exposure; (3) sponsoring public education and outreach efforts concerning lead hazards; (4) establishing a clearinghouse of information on lead-based paint; and (5) establishing a hotline for public inquiries about lead hazards³
- Publish a lead hazard information pamphlet in consultation with the HUD Secretary and the Secretary of Health and Human Services, and promulgate regulations requiring a person performing renovation of residential property to provide the pamphlet to the owner and occupant of the property prior to commencing the renovation⁴

In addition, Title IV extends all federal, state, and local requirements associated with lead-based paint hazards to federal government entities that own or manage property or engage in any activity that may create lead-based paint exposure hazards.⁵ This section expressly waives federal government immunity with respect to these provisions.⁶

Failure to comply with TSCA Title IV requirements is subject to civil and criminal liability, injunction, and monetary penalties.⁷

XIII. TSCA TITLE V—HEALTHY HIGH PERFORMANCE SCHOOLS

§ 16:56 In general

The Energy Independence and Security Act of 2007 amended TSCA to include Title V, known as “Healthy High Performance Schools.” The title is directed to enhancing environmental health and energy efficiency in schools. In addition to the requirements enumerated below, Title V authorizes EPA to provide grants to states to address environmental issues, and to develop and implement environmental health programs.¹ Funding under the terms of Title V expired in 2013,² and further funds have not been appropriated.

EPA Requirements Under TSCA Title V

- Publish and submit to Congress an annual report on EPA activities pursuant to Title V³
- Issue, in consultation with other agencies, voluntary school site selection guidelines, taking into account potential contaminants, modes of transportation available to students and staff, energy efficiency, and the potential use of the school site as an emergency shelter⁴

³TSCA § 405, 15 U.S.C.A. § 2685.

⁴TSCA § 406, 15 U.S.C.A. § 2686; *see* 40 C.F.R. §§ 745.80 to 745.92.

⁵TSCA § 408, 15 U.S.C.A. § 2688.

⁶TSCA § 408(2), 15 U.S.C.A. § 2688(2).

⁷TSCA § 409, 15 U.S.C.A. § 2689.

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¹TSCA § 501, 15 U.S.C.A. § 2695. This authority expired December 2012.

²TSCA § 505, 15 U.S.C.A. § 2695d.

³TSCA § 503, 15 U.S.C.A. § 2695b(a). This requirement expired in 2012.

⁴TSCA § 502, 15 U.S.C.A. § 2695a.

- Provide for information-sharing concerning the exposure of children to environmental hazards in school facilities⁵
- Issue, in consultation with other agencies, voluntary guidelines for the development of school environmental health programs⁶

XIV. TSCA TITLE VI—FORMALDEHYDE IN WOOD PRODUCTS

§ 16:57 In general

The Formaldehyde Standards for Composite-Wood Products Act, enacted in 2010, added a Title VI to TSCA. This title establishes limits for formaldehyde emissions from composite wood products: hardwood plywood, medium-density fiberboard, and particleboard.¹ The definitions of these products include certain notable exemptions. For instance, “hardwood plywood” includes only indoor uses,² and items including structural products and wooden packaging (including pallets) are excluded.³ Certain products made without no-added-formaldehyde-based resins and ultra-low-emitting formaldehyde resins are exempted from Title VI.⁴

In 2016, EPA published final regulations aimed at protecting the public from the risks associated with exposure to formaldehyde.⁵ In September 2017, the EPA extended compliance dates for the rule after receiving comments from stakeholders, trade groups, and other regulated entities declaring that conditions involving supply chain, global business, and factory supply logistics necessitated additional time to comply.⁶ However, a court vacated the extension for formaldehyde standards, concluding that the extension was beyond the scope of EPA’s authority.⁷ Earlier in 2017, EPA had eliminated a provision of the rule that prohibited early labeling of compliant products.⁸

The regulations implement formaldehyde emission standards and apply to hardwood plywood, medium-density fiberboard, particleboard, and finished goods containing such products that are sold, supplied, offered for sale, or manufactured (including imported) in the United States. The regulations also establish a framework for a third-party certification program to ensure that composite wood panel producers comply with the formaldehyde emission limits established under TSCA Title VI. By law, these regulations included a sell-through period for non-conforming composite wood products manufactured (but not stockpiled) no later than one year after publication of the final regulations.⁹

In February 2018, EPA updated voluntary consensus standards incorporated by reference into the regulations and changed certain quality control testing

⁵TSCA § 503(b), 15 U.S.C.A. § 2695b(b).

⁶TSCA § 504(a), 15 U.S.C.A. § 2695c(a).

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¹TSCA § 601(b)(2), 15 U.S.C.A. § 2697(b)(2).

²TSCA § 601(a)(3)(A)(1), 15 U.S.C.A. § 2697(a)(3)(A)(1).

³TSCA § 601(c), 15 U.S.C.A. § 2697(c).

⁴TSCA § 601(c)(12), 15 U.S.C.A. § 2697(c)(12).

⁵81 Fed. Reg. 89674 (Dec. 12, 2016).

⁶82 Fed. Reg. 44533 (Sept. 25, 2017).

⁷*Sierra Club v. Pruitt*, 293 F. Supp. 3d 1050, 85 Env’t. Rep. Cas. (BNA) 2689 (N.D. Cal. 2018).

⁸82 Fed. Reg. 31922 (July 11, 2017).

⁹15 U.S.C.A. § 2697(d)(3).

requirements.¹⁰ In August 2019, EPA adopted technical amendments to further align the regulations with the California Air Resource Board's Airborne Toxic Control Measure.¹¹

XV. CONCLUSION

§ 16:58 Conclusion

The 2016 amendments to TSCA imposed immense new responsibilities on EPA during an era in which there was uncertainty concerning the incoming Trump administration's (and a Republican-controlled Congress's) commitment to providing the resources and political support that would be necessary for the Agency to meet critical near-term deadlines and achieve some early successes under the revamped statute. In the waning days of the Obama administration, EPA was timely and efficient in meeting the several 90-day and 180-day responsibilities.¹ The enthusiasm and determination of the Agency's staff and leadership in 2016 was palpable.² Notwithstanding a change in administrations, the commitment of EPA political leadership to meeting the statutory deadlines imposed by the requirements of the 2016 amendments has not waned. However, the many challenges presented by the complexities of these tasks, and the numerous efforts that must be performed by the Agency at its current staffing levels, appear to be affecting the timing and perhaps the quality of certain actions. Litigation challenges and certain judicial decisions may further complicate and impede EPA's progress.

EPA released final framework rules on schedule, in June 2017. These rules defined how the Agency would perform a myriad of tasks under TSCA. The framework rules largely withstood judicial review, but challenges to EPA's actions with respect to specific chemical substances are just beginning to make their way to the courts as EPA completes its first risk evaluations. As the current update to this chapter was written, EPA had just missed the June 2020 statutory deadline for completing risk evaluations for the first 10 substances from the 2014 Work Plan. EPA issued one final risk evaluation—for methylene chloride—before the statutory deadline, but the process for finalizing other risk evaluations may be drawn out for months, if not further. As another example of the Agency under pressure, EPA has commenced work on the next 20 risk evaluations for the first set of high-priority substances while also facing deadlines for development of risk management regulations for methylene chloride (while also defending the risk evaluation in court) as well as any other of the first 10 risk evaluation substances for which it makes a final unreasonable risk determination. Many Agency scientists and regulatory personnel are simultaneously engaged in aspects of other ongoing tasks that EPA lacks discretion to delay or postpone. These deliverables include new chemical reviews and reviews of confidentiality claims for the specific chemical identity of active substances.

A potential change in administrations at the beginning of the 2021 could lead to a substantial shift in EPA's direction as the Agency continues its work implementing

¹⁰83 Fed. Reg. 5340 (Feb. 7, 2018) (final rule); 82 Fed. Reg. 49302 (Oct. 25, 2017) (proposed rule). Although EPA had also published the updates to the consensus standards as a direct final rule, the Agency withdrew the direct final rule after receiving an adverse comment. 82 Fed. Reg. 57874 (Dec. 8, 2017).

¹¹84 Fed. Reg. 43517 (Aug. 21, 2019).

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¹For example, EPA took action regarding the new inventory of mercury compounds, identified high-priority PBTs, and selected the initial 10 substances prioritized for risk evaluation.

²See *The Frank R. Lautenberg Chemical Safety for the 21st Century Act: First Year Implementation Plan*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/frank-r-lautenberg-chemical-safety-21st-century-act-2>.

the 2016 amendments. Regardless of shifts in the political landscape, the regulated community and environmental group constituencies all will expect the Agency to continue making progress and to meet its commitments under the 2016 amendments. These expectations are unlikely to be tempered by EPA's need to identify new talent and rapidly fill vacancies being created by routine attrition and retirements among senior career personnel. The resource challenges EPA faces while simultaneously pivoting to adjust the Agency's draft risk evaluations and methodologies—responding to both unexpected outcomes in scientific peer reviews and contentious lawsuits—could further tax the Agency and impede progress, potentially, and ironically, leading to further litigation.

APPENDIX 16A

Table of Acronyms

AHERA	Asbestos Hazard Emergency Response Act
CBI	Confidential Business Information
CDR	Chemical Data Reporting
ChAMP	Chemical Assessment and Management Program
CPSC	Consumer Product Safety Commission
CPSIA	Consumer Product Safety Improvement Act
DecaBDE	Decabromodiphenyl Ether
EAB	Environmental Appeals Board
ECHA	European Chemicals Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FOIA	Freedom of Information Act
EPA	United States Environmental Protection Agency
GAO	Governmental Accountability Office (previously General Accounting Office)
HCBD	Hexachlorobutadiene
HPV	High Production Volume
ITC	Interagency Testing Committee
IUR	Inventory Update Reporting
LEA	Local Educational Agency
LoREX	Low Release and Exposure (Exemption)
LRTAP	Long-Range Transboundary Air Pollution
LVE	Low Volume Exemption
MCAN	Microbial Commercial Activity Notice
MPV	Moderate Production Volume
NIH	National Institutes of Health
NMP	N-Methylpyrrolidone
NOA	Notice of Activity
NOC	Notice of Commencement
OECD	Organisation for Economic Co-operation and Development
OIG	Office of the Inspector General
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative, and Toxic
PCB	Polychlorinated Biphenyl
PCTP	Pentachlorothiophenol
PIC	Prior Informed Consent
PIP (3:1)	Phenol, Isopropylated, Phosphate (3:1)
PMN	Premanufacture Notice
POPs	Persistent Organic Pollutants
ppm	Parts per million
PV29	C.I. Pigment Violet 29
R&D	Research and Development

REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
SACC	Science Advisory Committee on Chemicals
SCIL	Safer Chemical Ingredients List
SIDS	Screening Information Data Sets
SNUN	Significant New Use Notice
SNUR	Significant New Use Rule
TERA	TSCA Experimental Release Application
TME	Test Marketing Exemption
TSCA	Toxic Substances Control Act
UVCBs	Chemical Substances of Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
VCCEP	Voluntary Children's Chemical Evaluation Program

APPENDIX 16B

Key Changes to Core TSCA Provisions in the 2016 Amendments

Key Changes to Core TSCA Provisions in the 2016 Amendments

TSCA Provision	Overview of Provision	Key Changes in 2016 Amendments
Section 4 (15 U.S.C.A. § 2603), Testing of chemical substances and mixtures	Provides EPA with authority to gather and require development of test data and information about chemical substances	<ul style="list-style-type: none"> Grants EPA authority to issue administrative orders or enter into consent agreements to require testing in certain circumstances (in addition to previously existing authority to issue rules to require testing) Adds a subsection on reduction of testing on vertebrate animals
Section 5 (15 U.S.C.A. § 2604), Manufacturing and processing notices	Requires EPA review of new chemical substances and new uses of substances prior to commencement of manufacture, import, or processing	<ul style="list-style-type: none"> Requires an affirmative determination by EPA before manufacture, import, or processing may commence
Section 6 (15 U.S.C.A. § 2605), Prioritization, risk evaluation, and regulation of chemical substances and mixtures	Provides EPA with authority to issue regulations to limit manufacture, processing, use, and disposal activities to manage the risk of existing chemical substances	<ul style="list-style-type: none"> Requires EPA to identify and prioritize chemical substances for risk evaluations, conduct risk evaluations, and, if necessary, promulgate risk management rules within specified timeframes Establishes a regulatory framework that includes a prioritization/risk evaluation phase that does not take cost and other nonrisk factors into account Requires that EPA issue risk management regulations when a substance is determined through the risk evaluation process to present an unreasonable risk Replaces the directive that risk management requirements be applied “to the extent necessary to protect adequately against such risk using the least burdensome requirements” with a directive that such requirements be applied “to the extent necessary so that the chemical substance no longer presents” the unreasonable risk identified in the risk evaluation Eliminated a requirement that EPA make a determination that a risk management rule was “in the public interest” based on a comparison of the relative costs and efficiency of proceeding under all available laws if the Agency determined that a chemical risk could be controlled adequately by other EPA-administered laws
Section 8 (15 U.S.C.A. § 2607), Reporting and retention of information	Imposes reporting and recordkeeping obligations	<ul style="list-style-type: none"> Added a one-time reporting requirement to identify which chemical substances on the TSCA Inventory are “active” Enhanced requirements for shielding information from public disclosure, especially information about specific chemical identity Added mercury reporting and mercury inventory requirements

TSCA Provision	Overview of Provision	Key Changes in 2016 Amendments
Section 14 (15 U.S.C.A. § 2613), Confidential information	Sets parameters for what information is protected from disclosure and establishes procedures for confidentiality claims	<ul style="list-style-type: none"> ● Requires “up-front” substantiation of confidential business information (CBI) claims ● Permits EPA to protect information for which a substantiated confidentiality claim is properly asserted for up to 10 years (with extensions thereafter) ● Requires EPA to develop a program to implement reviews of all CBI claims for specific chemical identities for “active” chemical substances
Section 18 (15 U.S.C.A. § 2617), Preemption	Sets forth the circumstances in which state regulation of chemical substances will be preempted	<ul style="list-style-type: none"> ● Permanently preempts state prohibition of or restrictions on a chemical substance if EPA determines the substance does not present an unreasonable risk after conducting a risk evaluation or after the effective date of a final risk management rule issued by EPA for a substance ● Preempts new state prohibitions of and restrictions on a high-priority substance while EPA conducts a risk evaluation ● Preserves state and local prohibitions and restrictions that were imposed before April 22, 2016 and does not preempt state and local actions with respect to chemical substances and uses of chemical substances that EPA has not yet addressed ● Establishes a process and criteria for preemption waivers
Section 26 (15 U.S.C.A. § 2625), Administration	Provides for fees to be paid by regulated entities to offset EPA’s costs of administering the statute, sets forth standards for implementing the statute, addresses administrative functions related to TSCA implementation	<ul style="list-style-type: none"> ● Authorizes EPA to collect significantly higher fees to defray its costs of administering TSCA ● Establishes scientific standards for EPA decision-making under Sections 4, 5, and 6 ● Requires establishment of the Science Advisory Committee on Chemicals ● Requires EPA to make certain documents and information available to the public

Chapter 17

Pesticides*

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*By Cynthia A. Lewis. Updates and revisions by Lynn L. Bergeson, Lisa M. Campbell, Timothy D. Backstrom, Lisa R. Burchi, and Sheryl L. Dolan.

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- § 17:79 Chlorpyrifos

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Primary Authority

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I. INTRODUCTION

§ 17:1 In general

The growth in environmental awareness and protection of human health that has

typified the last four decades is clearly reflected in the history of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), originally enacted in 1947.¹ Since the first Insecticide Act was enacted in 1910,² the regulation of pesticides in the United States has been implemented through a statutory requirement that pesticides be registered with the federal government. In the 1910 and 1947 statutes, the emphasis was on consumer protection; the primary factor to be considered by the U.S. Department of Agriculture (USDA) in determining whether to register a pesticide was whether “the composition of the article is such as to warrant the proposed claims for it.”³

In 1970, the responsibility for registering pesticides was transferred from USDA to the newly created U.S. Environmental Protection Agency (EPA).⁴ Two years later, the statute was rewritten as a health and environmental protection statute.⁵ Subsequent amendments⁶ have retained environmental protection as its primary orientation, but more recent focus has centered on health risks for agricultural workers, so-called bystanders, and those who consume treated agricultural commodities.

The standard for registration of a pesticide, while continuing to take into account the product’s ability to perform as claimed, now focuses chiefly on whether the proposed use of the pesticide will cause unreasonable adverse effects on the environment,⁷ defined to include any unreasonable risk to man or the environment, including human dietary risk from pesticide residues.⁸ The Food Quality Protection Act of 1996 (FQPA) significantly revised the provisions of the Federal Food, Drug, and Cosmetic Act (FFDCA) and related FIFRA provisions that govern pesticide residues in food, and made certain other changes to FIFRA.⁹

Companies with pesticides registered under FIFRA are referred to as *registrants*, and they form the majority stakeholder commercial interest in the pesticide industry. Pesticide registrants and other companies with interests in the pesticide industry (e.g., manufacturers, distributors, growers, and other users) have formed consortia and other associations to address jointly issues of mutual interest. Environmental and non-governmental organizations (NGO) also are stakeholders advocating their interests. According to the most recent EPA report, released in 2017 and covering pesticide production and usage from 2008 to 2012, world pesticide expenditures at the producer level totaled nearly \$56 billion in 2012 while U.S. pesticide expenditures at the producer level totaled nearly \$9 billion in 2012.¹⁰ EPA also estimates the following regarding the size of this industry in 2012: (1) Major

[Section 17:1]

¹Act of June 25, 1947, ch. 125, Pub. L. No. 80-104, 61 Stat. 163 (1947), *codified as amended at* 7 U.S.C.A. §§ 136 to 136y (FIFRA).

²The Insecticide Act of 1910, Pub. L. No. 61-152, 36 Stat. 331 (1910).

³*See* 61 Stat. at 167, ch. 125, § 4 (codified at 7 U.S.C.A. § 136a(c)(5)(A)).

⁴Reorg. Plan No. 3 of 1970, § 2(a)(8)(i), 35 Fed. Reg. 15623, 15624 (Oct. 6, 1970), *reprinted in* 42 U.S.C.A. § 4321 app. (1982).

⁵Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, 86 Stat. 973 (1972).

⁶*See* Pub. L. No. 94-140, §§ 1-3, 89 Stat. 751, 751-55 (1975); Pub. L. No. 94-140, §§ 5-12, 89 Stat. 751, 751-55 (1975); Pub. L. No. 95-396, §§ 1-25, 92 Stat. 819, 819-38 (1978); Pub. L. No. 96-539, 94 Stat. 3194 (1980); Pub. L. No. 100-532, 102 Stat. 2654 (1988); Pub. L. No. 101-624, 104 Stat. 3627 (1990); Pub. L. No. 102-237, 105 Stat. 1894 (1991); Pub. L. No. 105-324, 112 Stat. 3035 (1998).

⁷*See* §§ 17:9, 17:47.

⁸FIFRA § 2(bb), 7 U.S.C.A. § 136(bb).

⁹*See* Pub. L. No. 104-170, 110 Stat. 1489 (1996).

¹⁰EPA, Pesticides Industry Sales and Usage 2008–2012 Market Estimates at 4 (2017), available at: <https://www.epa.gov/sites/production/files/2017-01/documents/pesticides-industry-sales-usage-2016>

Pesticide Producers—12; (2) Other Pesticide Producers—100; (3) Major Pesticide Formulators—120–150; (4) Other Pesticide Formulators—1,550; (5) Distributors—24,686; and (6) Establishments—42,160.¹¹

This chapter, in the sections to follow, will provide and discuss the criteria for determining whether a product is a pesticide requiring registration or exempt from registration requirements. For pesticide products requiring registration, there are significant regulatory requirements, including the development of data, that EPA will review in making a decision whether to register that pesticide product and its use. The regulatory requirements applicable to a pesticide impose requirements on registrants that affect all aspects of that product, including but not limited to production, labeling, distribution, import/export, and disposal. EPA is required to periodically review existing registered pesticides to ensure that each product continues to meet the FIFRA standard for registration. If that standard cannot be met, EPA is authorized to take regulatory actions to prohibit or limit the use of registered pesticides and is likewise authorized to pursue civil or criminal enforcement actions against those registrants that violate FIFRA requirements. This chapter will also discuss state/tribal roles in regulating pesticides. A list of commonly used acronyms is provided as an appendix to this chapter.

II. PESTICIDE REGISTRATION

§ 17:2 The registration requirement

[SUMMARY BOX] Companies must determine whether a product is a “pesticide” and, if so, register that product with EPA (unless an exemption applies).

FIFRA § 3(a)¹ makes it unlawful to “distribute or sell to any person any pesticide that is not registered.” Further, “the Administrator may by regulation limit [pesticide] distribution, sale, or use in any State.” The registration process is at the heart of EPA’s regulation of pesticides. Through its requirement and review of data submitted to support a registration, EPA determines whether use of the pesticide may be allowed and, if so, under what limitations. Limitations on the use of a pesticide are incorporated into the product’s label; the product’s registered label is the key document that discloses whether, and how, the pesticide may lawfully be used and for what purposes it may be sold. EPA also regulates pesticide “devices” on a more limited basis,² but registration of such devices is not required.

§ 17:3 The registration requirement—What is a “pesticide”?

The statute defines “pesticide” as “(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant, and (3) any nitrogen stabilizer,” except for new animal drugs regulated under FFDCA, and liquid chemical sterilant products used on “critical or semi-critical devices”; such sterilants are to be regulated by the U.S. Food and Drug

0.pdf.

¹¹*Id.* at p. 20, Table 4.1.

[Section 17:2]

¹FIFRA § 3(a), 7 U.S.C.A. § 136a(a).

²FIFRA § 2(h), 7 U.S.C.A. § 136(h).

Administration (FDA).¹

The term “pest,” as used in FIFRA’s definition of “pesticide” is further defined as “(1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organisms . . . which [EPA] declares to be a pest” excluding viruses, bacteria, or microorganisms found on or in man or other living animals.² EPA has broadly exercised its authority to declare other organisms to be pests, and has declared virtually all of the listed organisms to be pests when they exist “under circumstances that make [them] deleterious to man or the environment.”³ For some types of pesticides, FIFRA and regulations under EPA have provided more specific definitions. For example, FIFRA specifically defines “antimicrobial pesticide” as, with certain exceptions, “a pesticide . . . intended to (i) disinfect, sanitize, reduce, or mitigate growth or development of microbiological organisms; or (ii) protect inanimate objects, industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae or slime,” other than any such product that is subject to regulation as a food additive or to a tolerance under the FFDCA.⁴ This definition, an amendment made to FIFRA by the FQPA, resulted in negotiations between EPA and the FDA over which agency should have jurisdiction for various food-related uses of antimicrobials and the issuance of a notice regarding how the agencies expected to allocate their jurisdiction.⁵

In addition, in 1994, EPA released a set of five proposals that collectively explained EPA’s approach to the regulation of substances produced in plants that enable them to resist pests and disease. These proposals called for these substances to be treated as “pesticides,” as appropriate, under § 2(u) of FIFRA,⁶ “regardless of whether the pesticidal capabilities evolved in the plants or were introduced by breeding or through the techniques of modern biotechnology.”⁷ EPA published, in 2001, a set of final rules that changed the term for this type of pesticide from “plant

[Section 17:3]

¹FIFRA § 2(u), 7 U.S.C.A. § 136(u). The inclusion of nitrogen stabilizers in the definition of “pesticide” and the exclusion of liquid chemical sterilants for critical and semi-critical devices were among the amendments to FIFRA made by the 1996 FQPA. A “nitrogen stabilizer” is a substance or mixture that acts on soil bacteria to “prevent [] or hinder [] the process of nitrification, denitrification, ammonia volatilization, or urease production.” FIFRA § 2(hh), 7 U.S.C.A. § 136(hh). The statute excludes certain specific compounds from the nitrogen stabilizer definition and “grandfathers” certain substances in use prior to 1992. FIFRA § 2(hh), 7 U.S.C.A. § 136(hh). “Critical” and “semi-critical” devices are medical devices introduced directly into the human body, that are in contact with the bloodstream or normally sterile areas of the body (“critical devices”), or that contact intact mucous membranes but do not ordinarily penetrate the bloodstream or other sterile areas (“semi-critical devices”). FIFRA § 2(u), 7 U.S.C.A. § 136(u). *See also* Pesticide Registration (PR) Notice 98-2 (Jan. 1998).

²FIFRA § 2(t), 7 U.S.C.A. § 136(t).

³40 C.F.R. § 152.5.

⁴FIFRA § 2(mm), 7 U.S.C.A. § 136(mm).

⁵63 Fed. Reg. 54532 (Oct. 9, 1998). *See* Antimicrobial Regulation Technical Corrections Act of 1998, Pub. L. No. 105-324, 112 Stat. 3035 (1998) (amending FFDCA §§ 201(q)(1) and 408(j) to clarify jurisdiction over various food and food-contact uses of antimicrobials). *See* 64 Fed. Reg. 50672, 50697 to 50699 (Sept. 17, 1999) for a more detailed explanation. *See also* FDA, Guidance for Industry: Antimicrobial Food Additives (1999); 65 Fed. Reg. 33691, 33692 to 33693 (May 24, 2000); 65 Fed. Reg. 33703, 33704 (May 24, 2000) (EPA transferring certain pesticide chemical residue regulations to a portion of the Code of Federal Regulations (C.F.R.) under FDA’s jurisdiction); 63 Fed. Reg. 54532 (EPA and FDA joint notice announcing their agreement on jurisdiction over antimicrobials used on agricultural products).

⁶FIFRA § 2(u), 7 U.S.C.A. § 136(u).

⁷59 Fed. Reg. 60496 (Nov. 23, 1994); *see* 59 Fed. Reg. at 60519 (proposing a new part for plant pesticides in the C.F.R.). *See also* 64 Fed. Reg. 19958 (Apr. 23, 1999).

pesticide” to “plant-incorporated protectant.” In these final rules, EPA exempted from FIFRA requirements and FFDCA tolerance requirements plant-incorporated protectants derived through conventional breeding from sexually compatible plants.⁸ Accordingly, virtually any substance intended to prevent, destroy, repel, mitigate, or control some form of plant or animal life, fungus, microorganism, virus, or bacteria, is subject to the registration requirements of FIFRA. Products as seemingly innocuous as garlic oil and citric acid are generally required to be registered if used to control insects, microorganisms, or other pests,⁹ although EPA has acted to exempt some of these substances from most FIFRA requirements.¹⁰ EPA regulations provide that a substance is intended for a pesticidal purpose if the person who sells or distributes the substance makes express or implied claims that the substance (either by itself or in combination with any other substance) can or should be used as a pesticide, or that it contains a pesticidal ingredient and can be used to make a pesticide.¹¹ Pesticidal intent will also be found if the substance contains a pesticidal ingredient and has no commercially valuable uses except pesticidal ones. In addition, pesticidal intent will be found if the person who sells or distributes the substance has actual or constructive knowledge that it will be or is intended to be used as a pesticide.¹² Courts have held that the intent for a product to be used for pesticidal purposes may be inferred from the normally anticipated use of a product, even if the manufacturer does not subjectively intend its customers to use the product as a pesticide.¹³

Products intended for use as pesticides after reformulation or repackaging are also considered to be pesticides that must be registered. Thus, there are two broad categories of pesticides: (1) “manufacturing use products,” which are further formulated before sale to those who will use the product for pest control, and (2) “formulations” or “end-use products,” which contain pesticidally active ingredients, generally in combination with inert ingredients (for example, carriers, solvents, surfactants, and so on) and which are intended for sale to end users for controlling pests.

As suggested by the statutory definition of a pesticide as “any substance or mixture” used for pest control, every individual manufacturing use and end-use product must be separately registered under FIFRA. It is not enough that products containing the same active ingredient have previously been registered by another—or even the same—company; each separate manufacturing use product and end-use formulation must have its own registration.

§ 17:4 Registration application process

An applicant for registration must submit the registration application, draft label, and Confidential Statement of Formula (CSF) for the product, along with the data or data citation materials required by EPA regulations.¹

First, an applicant must complete a registration application form. This form

⁸See 40 C.F.R. pt. 174.

⁹EPA, Pesticide Data Submitters List By Active Chemical Code (last updated October 2, 2019), available at <https://www.epa.gov/sites/production/files/2019-10/documents/dslmain.pdf>.

¹⁰See 40 C.F.R. § 152.25; *see also* § 17:27 (discussing pesticides exempt from FIFRA).

¹¹See 40 C.F.R. § 152.15.

¹²*Id.*

¹³*N. Jonas & Co., Inc. v. U.S. E.P.A.*, 666 F.2d 829, 12 Env'tl. L. Rep. 20255 (3d Cir. 1981).

[Section 17:4]

¹*See generally* FIFRA § 3(c), 7 U.S.C.A. § 136a(c); 40 C.F.R. § 152.50. *See also* EPA, Pesticide Registration Manual, available at <https://www.epa.gov/pesticide-registration/pesticide-registration-manual> (describing EPA's review and decision-making process for registering a pesticide product and its

contains basic information about the requested registration, such as the names of the applicant and the product, how the product will be packaged, and whether the applicant proposes that the product be classified for restricted use.² Second, the applicant must submit a CSF, containing detailed information concerning the pesticide's formula and certain of its chemical properties. The CSF must also identify the purpose and supplier of each of the components of the applicant's product.³

As indicated above, it is the pesticide label that actually reflects the uses approved by EPA for the specific registered product. Thus, an applicant must submit a draft of its proposed label for the Agency's review.⁴ EPA regulations specify in detail the information that must be contained on a pesticide product label.⁵ In addition to prohibiting any false or misleading statements,⁶ the labeling regulations require that certain specified information appear on product labels.⁷

use).

²See FIFRA § 3(c)(1)(A), (B), (F), 7 U.S.C.A. § 136a(c)(1)(A), (B), (F); 40 C.F.R. § 152.50. *See* § 17:49 (classification for restricted use).

³FIFRA § 3(c)(1)(D), 7 U.S.C.A. § 136a(c)(1)(D); 40 C.F.R. § 152.50. The requirements and instructions for filing the CSF appear on the application form (EPA Form 8570-4).

⁴FIFRA § 3(c)(1)(C), 7 U.S.C.A. § 136a(c)(1)(C); 40 C.F.R. § 152.50(e).

⁵*See generally* 40 C.F.R. § 156.10. In 1984, EPA proposed new labeling regulations reflecting a comprehensive revision and updating of the existing labeling provisions. 49 Fed. Reg. 37960 (Sept. 26, 1984). That proposal was never finalized, and EPA withdrew it from its regulatory agenda. *See* 58 Fed. Reg. 25013 (Apr. 26, 1993). EPA, rather than rework the existing proposal, proposed some labeling regulation revisions in conjunction with its proposed regulations to govern registration of antimicrobial products. *See* 64 Fed. Reg. 50672. Some of the proposed revisions have been finalized. *See* 66 Fed. Reg. 64759 (Dec. 14, 2001); 71 Fed. Reg. 47330, 47420 (Aug. 16, 2006).

As part of a Consumer Labeling Initiative, EPA issued various Pesticide Registration Notices (PR Notice) to facilitate labeling improvements. *See, e.g.,* EPA, Consumer Labeling Initiative, at <https://archive.epa.gov/pesticides/regulating/con-labels/web/html/consumer-labeling.html> (last updated Feb. 22, 2016); PR Notices 97-4 (Sept. 1997) (consumer access numbers); 97-5 (Sept. 1997) (use of common names for active ingredients); 97-6 (use of the term "inert" in the label ingredients statement); 2000-3 (April 2000) (first aid statements), updated in 2001-1 (Jan. 2001) (first aid statements on pesticide product labels); 2000-5 (May 2000) (guidance for mandatory and advisory labeling statements); 2001-3 (Jan. 2001) (insect repellents; labeling restrictions for use on infants and children and restrictions on food fragrances and colors); 2001-6 (Sept. 2001) (disposal instructions on non-antimicrobial residential household use pesticide product labels). Some of EPA's labeling regulation revisions incorporated Consumer Labeling Initiative recommendations. *See* 64 Fed. Reg. 50672, 50701 to 50702; 66 Fed. Reg. 64759.

⁶40 C.F.R. § 156.10(a)(5).

⁷40 C.F.R. § 156.10(a)(1).

Required Information for Product Labels

- ✓ Product name
- ✓ Company name, address
- ✓ Net weight/volume
- ✓ EPA-assigned registration number (product and facility)
- ✓ Ingredient statement (each active ingredient's identity and percentage, inert ingredients' combined total percentage)
- ✓ Warning and precautionary statement (including appropriate human hazard signal word)
- ✓ Safety statements (product should be kept out of the reach of children, first aid measures for certain toxic pesticides, any hazards to humans, domestic animals, or the environment, and hazards resulting from the physical or chemical properties of the product)
- ✓ Directions for use of the pesticide, including a statement that it is a violation of federal law to use the product in a manner inconsistent with its labeling
- ✓ A statement as to whether the product is classified for restricted use; and
- ✓ Worker protection information

Once a pesticide label is registered and approved by EPA, a company generally may not change the label language without obtaining an amended registration, except in the case of certain minor changes that may be made by notification to EPA.⁸ In addition, all promotional claims made on behalf of the product, whether they appear on the product packaging or in separate literature or advertising, must be consistent with the registered label.⁹

§ 17:5 Registration application process—Data requirements

For EPA to make the judgment that a pesticide will not cause unreasonable adverse effects, and may therefore be registered,¹ it must review a wide variety of chemistry, health and safety, and environmental effects data.² Agency regulations list the types of data required to support pesticide registrations.³ The two ways that applicants may satisfy these data requirements are by either generating new data or citing existing data.⁴

If an applicant seeks to register a product containing a new active ingredient not previously registered (or for some reason cannot or does not wish to rely on previously submitted data on the active ingredient), the applicant will be required to

⁸See § 17:16 (amended registration).

⁹FIFRA § 12(a)(1)(B), 7 U.S.C.A. § 136j(a)(1)(B). See also PR Notice 2014-1 Web-Distributed Labeling for Pesticide Products (Apr. 2014).

[Section 17:5]

¹See § 17:9.

²See FIFRA § 3(c)(1)(F), (2)(A), 7 U.S.C.A. § 136a(c)(1)(F), (2)(A); 40 C.F.R. § 152.50(f).

³40 C.F.R. pt. 158. See also 72 Fed. Reg. 60934 (Oct. 26, 2007), as amended by 78 Fed. Reg. 26936 (May 8, 2013) (codified at 40 C.F.R. §§ 158.2200 to 2290) (revising data requirements for registration of conventional pesticides, as well as the data requirements for biochemical and microbial pesticides); 66 Fed. Reg. 37772 (July 19, 2001) (codified at 40 C.F.R. pt. 174) (addresses product performance data requirements and new data requirements for plant-incorporated protectants).

EPA also has been reviewing certain data requirements to determine if there are alternatives that can reduce animal testing. See, e.g., Interim Science Policy, *Use of Alternative Approaches for Skin Sensitization as a Replacement for Laboratory Animal Testing*, available at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0093-0090>.

⁴See 40 C.F.R. pt. 152. There may also be exemptions from some of the data requirements for particular applicants or pesticides. See § 17:28.

generate and submit all of the data required by EPA regulations. Generating such data and registering a pesticide containing a new active ingredient is a time-consuming and expensive process that limits the number of new pesticide active ingredients registered each year.⁵

By far, the more common situation is that of a company seeking to register a pesticide formulation that is identical or substantially similar to pesticide formulations previously registered by other companies. Applicants for such “me-too” registrations typically rely on previously generated data that have already been submitted to support prior registrations. An applicant may cite and rely on its own previously submitted data, government data, or data appearing in public scientific literature. An applicant may also satisfy applicable data requirements by citing and relying on relevant registration data previously submitted to EPA by another registrant.⁶ The new applicant may rely on such data with the data submitter’s permission; unless the data are protected by the “exclusive use” provision,⁷ the applicant may also rely on the data without the data submitter’s permission, but must offer to pay compensation to the data submitter for any data that were submitted to EPA within fifteen years prior to the new application.

A registration application must be accompanied by forms listing each applicable data requirement. The forms must state how the applicant is satisfying that requirement,⁸ for example, by submitting its own study, citing public literature references, citing all relevant data previously submitted to EPA files, or citing individual studies that have been submitted to the Agency. The applicant must certify that it has complied with the requirements necessary to rely on other companies’ data.⁹

§ 17:6 Registration application process—Reliance on human research

An ongoing and controversial issue is whether applicants may satisfy registration data requirements by relying on third-party studies in which humans were intentionally dosed with pesticides. Although applicants have relied on human studies in the past, the issue came to the forefront after the FQPA mandated that EPA apply an additional 10-fold safety factor for infants and children—in addition to the interspecies and intraspecies factors ordinarily used—when calculating safe levels of exposure for purposes of setting tolerances.¹ To offset the need for the application of various safety factors, many applicants began to rely on human studies that demonstrated that their pesticide posed little risk to humans, even at relatively high

⁵For example, according to EPA, the Agency registered 42 new active ingredients in fiscal year 2016, 53 in fiscal year 2017, and 136 in 2018. The notable uptick in 2018 appears to be due to a large number of new microbial pesticides registered for food use. New conventional and antimicrobial active ingredients totaled 24 in 2018. EPA, Implementing the Pesticide Registration Improvement Extension Act—Fiscal Year 2018, available at <https://www.epa.gov/pria-fees/implementing-pesticide-registration-improvement-extension-act-fiscal-year-2018#appendix> and Appendix A, Table 3, available at <https://www.epa.gov/sites/production/files/2020-01/documents/fy18-pria-annualrpt-table3.pdf>.

⁶See § 17:35.

⁷See § 17:35.

⁸Under certain circumstances, it is possible to obtain a conditional registration with less than the full data package prescribed by 40 C.F.R. pt. 158. See § 17:15.

⁹See PR Notice 2011-3 (Nov. 30, 2011) (Standard Format for Data Submitted Under FIFRA and Certain Provisions of FFDCA) (updating and replacing PR Notice 98-5 (June 1998) (announcing EPA registration support forms 8570-34 and 8570-35)). See generally 40 C.F.R. pt. 152.

[Section 17:6]

¹See National Research Council, Intentional Human Dosing Studies for EPA Regulatory Purposes: Scientific and Ethical Issues 30-35 (The National Academies Press 2004), available at <http://www.nap.edu>; Katharine Q. Seelye, *E.P.A. Reconsiders Human Tests of Pesticides*, N.Y. Times, Dec. 15, 2001, at A14.

exposure levels.² After struggling with the issue for several years, EPA asked the National Academy of Sciences (NAS) in 2001 to advise the Agency on the scientific and ethical issues associated with the consideration of such human studies.³ At the same time, EPA issued a press release stating that, during the interim period while NAS studied the matter, the Agency would not consider or rely on intentional human dosing studies in its regulatory actions, unless consideration of such data were legally required or necessary to protect public health.⁴

The policy EPA announced in its press release was immediately challenged by the registrant community as an unlawful regulation that was not issued through notice and comment rulemaking as required by the FFDCA.⁵ The U.S. Court of Appeals for the District of Columbia Circuit agreed. In a June 2003 decision, the court vacated the policy and stated that “the agency’s previous practice of considering third-party human studies on a case-by-case basis, applying statutory requirements, the Common Rule, and high ethical standards as a guide, is reinstated and remains in effect unless and until it is replaced by a lawfully promulgated regulation.”⁶ The following year, NAS issued its report on the scientific and ethical issues associated with the consideration of intentional dosing human studies. Congress carefully reviewed the NAS report, and in 2005 it prohibited EPA from using funds to consider or rely on third-party intentional dosing human studies for pesticides until the Agency adopted a rule consistent with the recommendations proposed in the report.⁷

The rule Congress mandated was promulgated by EPA in early 2006. Among other things, the rule established an independent Human Studies Review Board for the purpose of performing science and ethics reviews of applicant proposals to conduct human research and of the results of human research that EPA intended to rely on in its decision-making under the pesticide laws.⁸ The rule also banned all third-party intentional dosing research on pesticides involving children and pregnant women intended for submission to EPA; extended the provisions of the Common Rule to cover all third-party intentional dosing studies intended for submission to EPA under the pesticide laws;⁹ and established enforceable ethical safeguards to protect individuals who volunteer to participate in third-party intentional dosing research.¹⁰ EPA also included nursing women in the ban on third-party intentional dosing research.¹¹

In 2017, EPA, together with a host of other federal agencies, announced revisions

²National Research Council, *Intentional Human Dosing Studies for EPA Regulatory Purposes: Scientific and Ethical Issues* 30-35 (2004).

³See Letter from Stephen L. Johnson, Assistant Administrator, EPA, to Dr. Bruce Alberts, President, NAS (Dec. 14, 2001).

⁴See Press Release, EPA, *Agency Requests NAS Input on Consideration of Certain Human Toxicity Studies; Announces Interim Policy* (Dec. 14, 2001), available at https://archive.epa.gov/epapages/newsroom_archive/newsreleases/c232a45f5473717085256b2200740ad4.html.

⁵*CropLife America v. E.P.A.*, 329 F.3d 876, 878, 56 Env’t. Rep. Cas. (BNA) 1679, 33 Env’tl. L. Rep. 20208 (D.C. Cir. 2003).

⁶*Id.* at 879.

⁷Department of the Interior, Environment, and Related Agencies Appropriations Act, 2006, Pub. L. No. 109-54, § 201, 119 Stat. 499, 531 (2005).

⁸See Final Rule: *Protections for Subjects in Human Research*, 71 Fed. Reg. 6138, 6156 (Feb. 6, 2006) (codified at 40 C.F.R. § 26.1603).

⁹The Common Rule, or Federal Policy for the Protection of Human Subjects of Research, was adopted in 1991 by 17 federal departments and agencies that conduct, support, or otherwise regulate research involving human subjects. See *Federal Policy for the Protection of Human Subjects*, 56 Fed. Reg. 28003 (June 18, 1991).

¹⁰See 71 Fed. Reg. 6138, 6148 to 6155 (Feb. 6, 2006) (codified at 40 C.F.R. §§ 26.1101 to 26.1507).

¹¹71 Fed. Reg. 36172 (June 23, 2006) (codified at 40 C.F.R. §§ 26.203, 26.1203, 26.1703, and 26.1705). The direct final rule went into effect on August 22, 2006.

via a final rule to modernize, strengthen, and make more effective the Federal Policy for the Protection of Human Subjects that was originally promulgated as a Common Rule in 1991.¹² The *Federal Register* publication states that this final rule is intended to “better protect human subjects involved in research, while facilitating valuable research and reducing burden, delay, and ambiguity for investigators” and that the revisions “are an effort to modernize, simplify, and enhance the current system of oversight.” The effective date of the final rule was January 21, 2019.¹³

§ 17:7 Registration application process—Tolerances and tolerance exemptions

Pesticides that will be used on or around crops or processed foods are also covered by certain requirements of the FFDCA.¹ FFDCA § 408 requires that a “tolerance” be established for pesticide active ingredients that will be used on or around food. As discussed in more detail below, the 1996 FQPA substantially revised the FFDCA provisions governing pesticide residues, adopting a single safety standard applicable to residues on raw agricultural commodities and on processed foods, in contrast to the differing standards that previously applied.² A tolerance will specify the maximum residue of the pesticide’s ingredients that may be left in food as a result of use of the pesticide. Alternatively, an “exemption from tolerance” may be obtained for pesticides that are shown to be sufficiently safe that maximum residues need not be established.³ A tolerance or tolerance exemption is obtained by submitting a petition and supporting data to EPA.⁴ Unlike registrations, tolerances and tolerance exemptions are not tied to individual commercial products.⁵ Thus, once a tolerance or exemption has been established for a particular use of an active ingredient, it need not be reestablished by subsequent registrants of the same pesticide for the same use.

§ 17:8 EPA review and decision—Agency review

The EPA will conduct a review of the application package. As EPA’s Office of Pesticide Programs (OPP) is currently organized, the application package is submitted first either electronically through the Central Data Exchange (CDX) or in hard copy to the “Document Processing Desk” to be screened for completeness, proper formatting of data, and the like.¹ It is then forwarded to the “Product Manager” assigned to the class of pesticides to which the product belongs.² The Product Manager and any assistants serve as the Agency’s liaison with the applicant and handle the

¹²82 Fed. Reg. 7151 (Jan. 19, 2017).

¹³See, e.g., 83 Fed. Reg. 17595 (Apr. 20, 2018); 83 Fed. Reg. 28497 (June 19, 2018).

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¹21 U.S.C.A. §§ 301 to 392.

²See FFDCA § 408, 21 U.S.C.A. § 346a; see also § 17:59 (tolerances).

³FFDCA § 408(c), 21 U.S.C.A. § 346a(c).

⁴See generally 40 C.F.R. pt. 180.

⁵See generally 40 C.F.R. pt. 180; 21 C.F.R. pt. 193.

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¹See EPA, Pesticide Registration Manual: Chapter 21—Directions for Submitting Applications and Contacting EPA, available at <https://www.epa.gov/pesticide-registration/pesticide-registration-manual-chapter-21-directions-submitting-applications>; EPA, Submission of Incomplete Applications for Registration of Pesticides Under § 3 of FIFRA, PR Notice 86-4 (1986); EPA, Standard Format for Data Submitted Under FIFRA and Certain Provisions of FFDCA, PR Notice 2011-3.

²The product managers and their staffs are assigned to different divisions within OPP. The Registration Division (and its Fungicide, Herbicide, Insecticide and Insecticide/Rodenticide Branches) handles most conventional pesticides, the Biopesticides and Pollution Prevention Division handles a

administrative process, including ensuring that all data requirements have been satisfied, and all of the required language appears on the draft label. If new scientific data are submitted with the application, they will be referred to EPA scientists to determine whether the studies were conducted in accordance with appropriate protocols³ and whether they indicate the existence of any health or environmental risks that may pose an obstacle to registration. Initially, the scientists will conduct a preliminary technical screen to confirm that the supporting data are accurate, complete, and consistent with the proposed labeling and any tolerance or exemption petition such that, subject to full review, the information could result in the granting of the application.⁴ If the application is rejected during the technical screen, the applicant has ten (10) business days to address the deficiencies or the application will be rejected.⁵ If the application proceeds to full review, the scientific review of new data can substantially increase the time needed for EPA to act upon an application for registration. Accordingly, the type of submission dictates its Pesticide Registration Improvement Act of 2003 (PRIA) review category, with an associated review time and fee intended to be proportional to the scope of work needed to review the amount of data typically required to support the specific type of submission.⁶

Several categories of pesticide registration applications may be eligible for expedited review by EPA, pursuant to either Agency policy or the FQPA's amendments to FIFRA. These include end-use products whose ingredients and uses are identical or substantially similar (*i.e.*, "me-too") to those of a currently registered product,⁷ minor use pesticides,⁸ reduced-risk pesticides,⁹ and antimicrobial

variety of products that typically have reduced data requirements (*e.g.*, biochemicals and other products with nontoxic modes of action), and the Antimicrobial Division is responsible for all regulatory activities associated with antimicrobial pesticides.

³See 40 C.F.R. § 158.70.

⁴FIFRA § 33(f)(4)(B), 7 U.S.C.A. § 136w-8(f)(4)(B).

⁵*Id.*

⁶FIFRA § 33(b)(3), 7 U.S.C.A. § 136w-8(b)(3).

⁷See EPA, Pesticide Registration Manual: Chapter 21—Directions for Submitting Applications and Contacting EPA.

⁸FIFRA § 3(c)(3)(C), 7 U.S.C.A. § 136a(c)(3)(C). A "minor use" is one for which total U.S. crop acreage is 300,000 acres or less, or one that does not provide sufficient economic incentive to support the use nor one or more specific benefits set forth in the statute attributed to the product. FIFRA § 2(l), 7 U.S.C.A. § 136(l). The minor use designation is intended to incentivize registrants to develop and market products that may have low expected returns. FQPA amendments to FIFRA authorized EPA to provide greater flexibility with respect to waivers of data requirements and extensions of deadlines for data supporting minor uses, as well as additional exclusive-use protection for data on minor-use pesticides. See FIFRA § 3(c)(1)(F), FIFRA § 3(c)(2)(B)(vi) to (viii), FIFRA § 3(c)(2)(E), FIFRA § 3(c)(3)(C) to (D), 7 U.S.C.A. § 136a(c)(1)(F), 7 U.S.C.A. § 136a(c)(2)(B)(vi) to (viii), 7 U.S.C.A. § 136a(c)(2)(E), 7 U.S.C.A. § 136a(c)(3)(C) to (D); FIFRA § 4(d)(4)(B), FIFRA § 4(d)(6), FIFRA § 4(e)(2), FIFRA § 4(f)(2)(B), FIFRA § 4(f)(3), 7 U.S.C.A. § 136a-1(d)(4)(B), 7 U.S.C.A. § 136a-1(d)(6), 7 U.S.C.A. § 136a-1(e)(2), 7 U.S.C.A. § 136a-1(f)(2)(B), 7 U.S.C.A. § 136a-1(f)(3). In 2018, EPA issued guidance to clarify and revise its interpretation of "minor use" under FIFRA section 2(l) by: (1) setting forth new guidance to determine crop acreage; and (2) providing three tests of economic incentive to determine whether a registration qualified for an economic minor use: the net present value, the discounted revenue to cost ratio, and the internal rate of return. PR Notice 2018-1 (Mar. 2018), available at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2015-0814-0016>.

⁹FIFRA § 3(c)(10), 7 U.S.C.A. § 136a(c)(10). The FQPA amendments to FIFRA required EPA to develop procedures and guidelines for expedited registration of reduced-risk pesticides. FIFRA § 3(c)(10), 7 U.S.C.A. § 136a(c)(10); 58 Fed. Reg. 5854 (Jan. 22, 1993). EPA released revised reduced-risk guidelines. See PR Notices 97-2 (Apr. 1997), 97-3 (Sept. 1997), and 97-7 (Aug. 1998). See also EPA, Conventional Reduced Risk Pesticide Program, available at <https://www.epa.gov/pesticide-registration/conventional-reduced-risk-pesticide-program>.

products.¹⁰

If the proposed registration would be for an active ingredient not previously registered, or would authorize a changed use pattern for a previously registered pesticide, EPA must publish notice of the application in the *Federal Register* and provide an opportunity for public comments.¹¹ Historically, a pesticide registration decision by EPA could take several years or longer, depending on the pesticide's class and the priority assigned to the application by the Agency. The slow pace of EPA's review process prompted the registrant community, environmentalists, and labor groups to advocate for PRIA's enactment.¹² The intent of the various groups that supported PRIA was to create a more predictable evaluation process for certain pesticide decisions, to couple the collection of fees with specific timeframes within which EPA must make a regulatory decision, and to promote shorter decision review periods for reduced-risk applications. These goals were largely realized; PRIA added a new section to FIFRA that, among other changes, establishes a fee schedule for pesticide registration requests and lists time periods within which EPA must make a regulatory decision on specific pesticide registration and tolerance actions submitted to the Agency for review.¹³ PRIA was due to expire in September 2008.¹⁴ However, it proved so successful that, in 2007, Congress reauthorized PRIA for five more years and increased the number of actions covered by PRIA's fees.¹⁵ The expanded, reauthorized version of PRIA (commonly referred to as PRIA 2) applied to registration applications received by EPA between October 1, 2007, and September 30, 2012. PRIA 2 was followed by PRIA 3, which was effective October 1, 2012, through September 30, 2017, with a subsequent extension through September 30, 2018.¹⁶ After being extended by serial federal budget Continuing Resolutions, PRIA 4 was thereafter signed into law, effective on March 8, 2019, and applicable to registration applications for five years (*i.e.*, through 2023).¹⁷

§ 17:9 EPA review and decision—The standards for registrations and tolerances

FIFRA directs EPA to register a pesticide if, under any restrictions that may be imposed on the pesticide's use, the product's composition warrants the claims made for the product, its labeling and other materials comply with the requirements of the statute, it will perform its intended function without "unreasonable adverse effects on the environment," and, when used in accordance with "widespread and

¹⁰FIFRA § 3(h), added by FQPA in 1996, requires EPA to revise procedures for the registration of antimicrobial pesticide products with a goal of reducing the time periods needed to review applications to register such products. 7 U.S.C.A. § 136a(h). In response, EPA in 2013 established a new Antimicrobials Division, responsible for all regulatory decisions concerning antimicrobials and designed to provide expedited review of all types of antimicrobial applications, *see* PR Notice 97-3 (Sept. 1997), and issued new antimicrobial data requirements. 78 Fed. Reg. 26936, 26978 (May 8, 2013) (codified at 40 C.F.R. §§ 158.2200 to 2290).

¹¹FIFRA § 3(c)(4), 7 U.S.C.A. § 136a(c)(4).

¹²*See* James V. Aidala and Carla N. Hutton, *Pesticide Registration Improvement Act*, Daily Env't Rep. (BNA) No. 104, at B-1 (June 1, 2004).

¹³*See* FIFRA § 33, 7 U.S.C.A. § 136w-8.

¹⁴FIFRA § 33(b)(1), (m)(1), 7 U.S.C.A. § 136w-8(b)(1), (m)(1).

¹⁵*See* Pesticide Registration Improvement Renewal Act, Pub. L. No. 110-94, § 3, 121 Stat. 1000 (2007).

¹⁶*See* Pesticide Registration Improvement Extension Act of 2012, Pub. L. No. 112-177, 126 Stat. 1327 (2012); *see also* EPA, PRIA Overview and History, available at <https://www.epa.gov/pria-fees/pria-overview-and-history> and EPA, About Pesticide Registration Fees under PRIA, available at <https://www.epa.gov/pria-fees/about-pesticide-registration-fees-under-pria>.

¹⁷*See* Pesticide Registration Improvement Extension Act of 2018, Pub. L. No. 116-8, 133 Stat. 484 (2018).

commonly recognized practice it will not generally cause unreasonable adverse effects on the environment.”¹

The key concept is that of “unreasonable adverse effects on the environment,” which FIFRA has generally defined to mean “any unreasonable risk to man or the environment,² taking into account the economic, social, and environmental costs and benefits of the use of any pesticide.”³ Thus, since 1972, FIFRA has explicitly required consideration and weighing of the benefits as well as the risks of a pesticide in determining the product’s registrability, and it is against this risk-benefit standard that the scientific data on products are evaluated.

The 1996 FQPA made two changes to the definition of “unreasonable adverse effects on the environment.” First, the statute required EPA, in considering regulatory action against public health pesticides,⁴ to weigh the pesticide’s risks against the health risks prevented by the pesticide, *e.g.*, the diseases transmitted by vectors controlled by the pesticide.

Second, and more significantly, if the pesticide is a food-use pesticide and cannot satisfy the safety standard established by the FQPA amendments to FFDCA § 408 for pesticide residue tolerances in food, the pesticide will be considered to have unreasonable adverse effects, making it ineligible for registration as well as for a tolerance.

The FFDCA § 408 standard is not a risk-benefit standard. It requires that tolerance levels for pesticide chemical residues be set at levels that are “safe”;⁵ pesticides with residues above “safe” levels will be considered adulterated.⁶ A “safe” level is one at which EPA has determined that there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information.⁷ Thus, when considering a petition to establish a tolerance for pesticide residues on a particular crop or food product, EPA must consider not only the exposure to that crop or food, but also exposure to other crops on which that pesticide is used.⁸ In addition, EPA must also consider numerous other factors, including dif-

[Section 17:9]

¹FIFRA § 3(c)(5), 7 U.S.C.A. § 136a(c)(5); 40 C.F.R. § 152.112.

²FIFRA § 2(j) broadly defines the term “environment” to include “water, air, land, and all plants and man and other animals living therein, and the interrelationships which exist among these.” 7 U.S.C.A. § 136(j).

³FIFRA § 2(bb), 7 U.S.C.A. § 136(bb). The full definition of “unreasonable adverse effects on the environment” is as follows:

The term “unreasonable adverse effects on the environment” means (1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 346a of Title 21. The Administrator shall consider the risks and benefits of public health pesticides separate from the risks and benefits of other pesticides. In weighing any regulatory action concerning a public health pesticide under this subchapter, the Administrator shall weigh any risks of the pesticide against the health risks such as the diseases transmitted by the vector to be controlled by the pesticide.

⁴A “public health pesticide” is a minor-use pesticide used in public health programs “for vector control or for other recognized health protection uses.” FIFRA § 2(nn), 7 U.S.C.A. § 136(nn).

⁵A “pesticide chemical residue” is a residue on raw agricultural commodities or processed foods of any pesticide within the meaning of FIFRA, including active and inert ingredients and metabolites and degradation products of a pesticide. *See* FFDCA § 201(q), 21 U.S.C.A. § 321(q).

⁶FFDCA §§ 402(a), 408(a), 21 U.S.C.A. §§ 342(a), 346a(a).

⁷FFDCA § 408(b)(2), 21 U.S.C.A. § 346a(b)(2).

⁸When issuing its “plant-pesticide” proposal in 1997, *see* § 17:3, EPA called for certain classes of these substances to be exempt from tolerance requirements under the FFDCA. *See, e.g.*, 66 Fed. Reg. 37817 (July 19, 2001) (Exemption From the Requirement of a Tolerance Under FFDCA for Residues of

fering sensitivities among major subgroups of consumers and cumulative risks posed by exposure to other pesticides that share a common mechanism of toxicity with the pesticide under review.⁹

This standard represents a marked change from the previous § 408 standard, which allowed a consideration of benefits in establishing maximum residue levels for raw agricultural commodities. Processed foods, however, were previously subject to § 409, including the Delaney Clause, which generally mandated a zero-risk standard for pesticides found to induce cancer in humans or animals if the pesticide concentrated during processing was applied during or after processing. The inconsistent treatment of pesticides under these two sections was controversial and was a major impetus for passage of the FQPA.¹⁰

The “reasonable certainty of no harm” standard is intended by Congress to embody then-existing EPA approaches to acceptable levels of risk at the time FQPA was enacted.¹¹ The statute also requires the Agency to make a finding regarding the safety of tolerance levels for infants and children, and to impose an additional tenfold safety factor where there are not sufficient reliable data to demonstrate that a tolerance without the added safety factor will be adequately protective of infants and children.¹² Consideration of a pesticide’s benefits is not permitted, except in extremely limited circumstances.¹³

The additional 10X safety factor for infants and children that is required in determining whether a pesticide tolerance is “safe” under FQPA is commonly referred to as the “FQPA Safety Factor.” When a tolerance determination is based on animal data, the FQPA Safety Factor is utilized in addition to conventional 10X safety factors that account for interspecies differences and intraspecies variability. Thus, an aggregate safety factor of 1000 may be employed in determining whether a pesticide residue is safe for infants and children under the FQPA, and pesticide residue levels this low are not always attainable. When EPA concludes that there are “reliable data” demonstrating that a different safety factor “will be safe for infants

Nucleic Acids that are Part of Plant-Incorporated Protectants); 66 Fed. Reg. 37830 (July 19, 2001) (Exemption From the Requirement of a Tolerance Under FFDCA for Residues Derived Through Conventional Breeding From Sexually Compatible Plants of Plant-Incorporated Protectants).

⁹FFDCA § 408(b)(2)(D), 21 U.S.C.A. § 346a(b)(2)(D). EPA has issued a guidance document discussing how it will identify pesticides with a “common mechanism of toxicity.” See Pesticides; Science Policy Issues Related to the Food Quality Protection Act, 64 Fed. Reg. 5796 (Feb. 5, 1999) (announcing the availability of the revised version of the pesticide science policy document entitled “Guidance for Identifying Pesticide Chemicals and Other Substances That Have a Common Mechanism of Toxicity”).

¹⁰Under previous law, for example, the same pesticide residue could be legal on a raw agricultural product and result from a lawful FIFRA registration under the applicable risk-benefit standards of FIFRA and FFDCA § 408, but could render a food processed from that product adulterated under FFDCA § 409 and the Delaney Clause. The resulting inconsistent treatment of pesticide residues became known as the “Delaney paradox.” A 1992 court decision upheld the zero-risk standard in processed foods in response to challenges to an EPA policy interpreting the Delaney clause as containing an exception for pesticide uses posing only *de minimis* risks. *Les v. Reilly*, 968 F.2d 985 (9th Cir. 1992). FQPA did not repeal the Delaney Clause, which remains in effect for various food additives, but made the clause inapplicable to pesticide residues.

¹¹For example, a one-in-a-million lifetime risk for “nonthreshold” effects (those for which EPA cannot determine a level at which the substance will not cause or contribute to an adverse health effect) and the use of a 100-fold safety factor for “threshold” effects. See H.R. Rep. No. 104-669, at 40-45 (1996).

¹²FFDCA § 408(b)(2)(C), 21 U.S.C.A. § 346a(b)(2)(C).

¹³Benefits may be considered to maintain in effect an existing tolerance that does not meet the safety standard for nonthreshold effects, if the pesticide protects consumers from health risks greater than those posed by the pesticide, or the pesticide’s use is needed to avoid a “significant disruption in domestic production of an adequate, wholesome, and economical food supply,” so long as specified aggregate exposure risk requirements are also satisfied. FFDCA § 408(b)(2)(B), 21 U.S.C.A. § 346a(b)(2)(B).

and children,” the FQPA Safety Factor may be reduced or eliminated.¹⁴ EPA typically determines that there are “reliable data” permitting the default FQPA Safety Factor to be waived in those instances where there is a clearly established threshold for an adverse effect and EPA concludes that infants or children will not be more susceptible to this adverse effect than adults.

There was and continues to be considerable debate as to how EPA should implement these FQPA requirements. Controversy remained, despite the Agency’s issuance of notices and guidance regarding its interpretation of its FQPA obligations.¹⁵ Both industry and environmental groups petitioned EPA to conduct rulemaking and/or issue directives on some key issues,¹⁶ and both filed lawsuits challenging EPA’s implementation (or non-implementation) of FQPA requirements. EPA entered into a consent decree and settlement agreement that established a series of deadlines for agency action on the reassessment of pesticide tolerances and the re-registration of older pesticides.¹⁷

Procedurally, a tolerance may be established in response to a petition or on EPA’s own initiative, pursuant to the same rulemaking and objection procedures that apply to the modification or revocation of tolerances.¹⁸

§ 17:10 EPA review and decision—The registration decision

If EPA determines that the FIFRA requirements for registration have not been met, it must first provide the registrant with an opportunity to correct the deficiencies.¹ Sometimes, the deficiencies can be easily remedied; it may be necessary only to revise the language of the product label or to submit a minor piece of data to replace a study that the Agency has determined to be invalid. Even with straightforward revisions, the applicant may need to negotiate an extension of the PRIA review period with EPA. In other cases, however, there may be serious problems. For instance, if a major long-term study, such as a chronic feeding study, is determined to be invalid, and the application was not rejected on this basis during the technical screen, EPA may require the registrant to conduct and submit a replacement study, thus delaying issuance of the registration by a year or more.

¹⁴FFDCA § 408(b)(2)(C), 21 U.S.C.A. § 346a(b)(2)(C).

¹⁵See, e.g., PR Notices 97-1 (Jan. 1997), 97-2 (Apr. 1997), 97-3 (Sept. 1997), 98-7 (Aug. 1998), 98-10 (Oct. 1998); EPA, “Guidance for Identifying Pesticide Chemicals and Other Substances That Have a Common Mechanism of Toxicity” (Jan. 29, 1999); and various EPA notices regarding exposure assessments and science policy issues raised by the FQPA. 63 Fed. Reg. 58038 (Oct. 29, 1998); 63 Fed. Reg. 59780 (Nov. 5, 1998); 63 Fed. Reg. 67063 (Dec. 4, 1998); 64 Fed. Reg. 5796 (Feb. 5, 1999); 64 Fed. Reg. 37002 (July 8, 1999); and 64 Fed. Reg. 42372 (Aug. 4, 1999). EPA issued a report detailing the Agency’s efforts to implement FQPA requirements. See EPA, Progress Report: Implementing the Food Quality Protection Act (1999). EPA was required by FIFRA, as amended by FQPA, to publish annually a report describing its progress in meeting goals for reregistration and tolerance reassessment. See EPA, Pesticide Reregistration Performance Measures and Goals (1997-2008), available at <https://www.epa.gov/pesticide-reevaluation/pesticide-reregistration-performance-measures-and-goals-1997-2008>.

¹⁶See Natural Resources Defense Council (NRDC) *et al.*, Petition for a Directive That the Agency Fulfill Its Duty to Retain the Child-Protective Tenfold Safety Factor Mandated by the Food Quality Protection Act (1998); American Farm Bureau Federation *et al.*, Petition for Rulemaking to Develop Policies and Procedures for Implementing the Food Quality Protection Act of 1996 (1998). EPA has also interpreted various FQPA provisions in documents prepared for its Tolerance Reassessment Advisory Committee.

¹⁷See Natural Resources Defense Council v. Whitman, 53 Env’t. Rep. Cas. (BNA) 1673, 2001 WL 1221774 (N.D. Cal. 2001), judgment entered, 2001 WL 1456783 (N.D. Cal. 2001) (approving proposed consent decree and dismissing certain complaints).

¹⁸See § 17:59.

[Section 17:10]

¹FIFRA § 3(c)(6), 7 U.S.C.A. § 136a(c)(6); 40 C.F.R. § 152.118(b) to (c).

EPA may alternately require the applicant to withdraw the application, forfeit part of its registration fee, and resubmit the application when the data are complete. Or EPA may determine, after reviewing the relevant data, that, because of its acute or chronic toxicity or its environmental effects, the product would cause unreasonable adverse effects. In that case, EPA will notify the registrant and publish in the *Federal Register* its decision to deny the application for registration.² If EPA issues a formal decision to deny a registration application, the applicant may request a formal adjudicatory hearing.³

Rather than issuing a formal denial decision that would trigger adjudicatory procedures, EPA typically prefers to work with an applicant to address unresolved issues and to remedy perceived deficiencies. Most applicants also prefer this iterative approach, even though it may require that the applicant agree to one or more extensions of the applicable PRIA deadline. In the event that EPA concludes there are irreparable problems with an application, EPA typically will send a letter advising the applicant that the application cannot be granted, rather than issuing a formal denial decision. Except for a few instances where a hearing concerning the denial of pending applications was consolidated with a related cancellation hearing, EPA has never convened an adjudicatory hearing concerning the denial of an application for a FIFRA registration.

If EPA determines that the standards for registration have been met, it issues a notice of registration to the applicant. The company is then free to market its pesticide upon submission to the Agency of a copy of the final printed labeling for the product, which must incorporate any label revisions required by EPA.

§ 17:11 Registration application process—Registration of pesticide products containing nanomaterials

The application of nanotechnology to pesticides raises a number of regulatory challenges that EPA is in the early stages of tackling. A wide range of consumer products containing nanoparticles of active pesticide ingredients, such as silver, are already available to consumers.¹ At the same time, pesticide manufacturers are working on enhanced nanotechnology delivery systems and other new products. All of these applications will be encompassed within FIFRA and, thus, EPA's regulatory authority, but applying FIFRA authority to nano-pesticides raises a number of issues. One is whether new registrations and product risk assessments are required for nanoscale versions of already-registered conventional pesticides. If new registrations are necessary for these products or other new nanoscale active ingredients, then what, if any, new data requirements should be imposed?

The Nanotechnology Workgroup of EPA's Science Policy Council released a draft "Nanotechnology White Paper" in December 2005. A final version of the white paper was issued in February 2007.² Although the paper generally discusses the application of FIFRA to pesticide products containing nanomaterials, it does not recom-

²FIFRA § 3(c)(6), 7 U.S.C.A. § 136a(c)(6); 40 C.F.R. § 152.118(d).

³See FIFRA §§ 3(c)(6), 6(d), 7 U.S.C.A. §§ 136a(c)(6), 136d(d); 40 C.F.R. § 152.118(e); 40 C.F.R. pt. 164; § 17:55 (hearing procedures).

[Section 17:11]

¹Elemental silver has been an approved active ingredient in FIFRA registered products for decades (*e.g.*, use in bacteriostatic water filters, swimming pool algicides). Silver and nanosilver have demonstrated antimicrobial effects on a variety of bacteria, fungi, and viruses.

²EPA, Science Policy Council, Nanotechnology White Paper (Feb. 2007), available at https://www.epa.gov/sites/production/files/2015-01/documents/nanotechnology_whitepaper.pdf.

mend or address any specific regulatory issues.³

Pesticide products containing “colloidal” silver particles that meet the EPA definition of a nanomaterial have been registered under FIFRA for decades, but such products are now subject to greater scrutiny. EPA conditionally approved two nanosilver pesticide registrations, each considered a new “active ingredient” and subjected to the most stringent review under FIFRA. On December 1, 2011, EPA announced the conditional registration of HeiQ AGS-20, a nanosilver-based antimicrobial pesticide product approved for use as a preservative for textiles.⁴ On May 15, 2015, EPA announced a second conditional registration for a nanosilver-containing antimicrobial pesticide product named “Nanosilva.”⁵ In the decision documents approving these registrations, EPA states the following regarding potential data requirements for nanopesticides:

Historically, EPA has considered applications for pesticide products that claim to be identical or substantially similar in composition to a registered product as so-called “me-too registrations” under FIFRA registration authorities. Until recently, EPA generally has not focused on the size or surface coating of an ingredient as attributes relevant to determining if the product in an application is identical or substantially similar in composition to a registered pesticide product. However, a nanoscale ingredient may have properties that are different from those of conventionally-scaled ingredients and properties that differ from the atoms or molecules from which the nanoscale ingredient is constructed. Therefore, a nanoscale ingredient may also have different environmental health and safety properties. Accordingly, for a product containing an ingredient that is a nanoscale version of a conventionally-sized active or inert ingredient contained in an already-registered product or a different nanoscale version of a nanoscale material that is an active or inert ingredient in an already registered pesticide product, EPA may require additional data to assess the nanoscale material and to make the requisite statutory findings.

In 2013, the U.S. Court of Appeals for the Ninth Circuit granted in part and denied in part NRDC’s challenge to HeiQ Materials AG’s registration, but did not vacate the registrations.⁶ On May 30, 2017, the U.S. Court of Appeals for the Ninth Circuit responded to two petitions for review of EPA’s conditional registration of the Nanosilva pesticide product and vacated the conditional registration.⁷ On February 12, 2020, EPA announced that it is seeking public input on a proposal to incorporate a new nanosilver pesticide product into textiles to combat odors, discoloration, and other signs of wear.⁸ This is the same active ingredient in the previously vacated registration, although in the current proposal, the uses are more limited and the exposure may be more limited, as this nanosilver would be embedded within plastic beads or pellets, in contrast to the previous product registration, which was in the form of a liquid suspension.

Although EPA has yet to form a definite approach to regulating nano-pesticides under FIFRA, it made progress in 2018 when it released a Final Work Plan as part

³*Id.* at 66.

⁴EPA, Decision Document, Conditional Registration of HeiQ AGS-20 as a Materials Preservative in Textiles, EPA-HQ-OPP-2009-1012-0064 (Dec. 1, 2011).

⁵EPA, Registration Decision for NSPW-L30SS (previously referred to as “Nanosilva”), A Materials Preservative for Use in Textiles and Plastics, EPA-HQ-OPP-2012-0594-0026 (May 15, 2015).

⁶Natural Resources Defense Council v. U.S. E.P.A., 735 F.3d 873, 77 Env’t. Rep. Cas. (BNA) 1521 (9th Cir. 2013).

⁷Natural Resources Defense Council v. U.S. Environmental Protection Agency, 857 F.3d 1030, 84 Env’t. Rep. Cas. (BNA) 1771 (9th Cir. 2017). In response to the Court’s mandate, EPA issued a cancellation order on July 20, 2017.

⁸EPA, Public Participation for New Active Ingredient NSPW Nanosilver, Docket No. EPA-HQ-OPP-2020-0043.

of the nanosilver registration review process.⁹ Subsequent data call-ins (DCI) were issued in December 2019 for data requirements described in the Final Work Plan as “comprehensive.” EPA’s eventual review of new or existing data in response to the DCIs should provide informative guidance as to how nano-pesticides will be evaluated.

§ 17:12 Registration application process—Related applications and procedures

The process described above is the paradigm of the registration application process envisioned by the statute. There are, however, a number of variants of the process that constitute a substantial portion of the product regulation carried out under FIFRA.

§ 17:13 Registration application process—Reregistration and tolerance reassessment

Because of the increased emphasis on health and environmental protection required by the major amendments of 1972 and 1978, and the corresponding increase in the data needed to support a pesticide registration, Congress directed that all previously registered products be reregistered so that EPA can determine whether old products meet the current standards for registrability.¹ To accomplish that objective, and to reduce the duplicative efforts by EPA in reviewing applications to register products that are similar or even identical to other registered products, EPA initially developed a system of “registration standards” to govern reregistration of previously registered pesticides.²

As of December 1988, EPA had issued 194 registration standards affecting 350 individual active ingredients. Congress was dissatisfied with this progress and, in the 1988 FIFRA amendments, mandated that EPA reregister over 600 active ingredients that had been initially registered before November 1, 1984, through a five-phase process over a nine-year period.³ During Phase 1, EPA was required to publish four lists of active ingredients to be reregistered (Lists A, B, C, and D).⁴ In Phase 2, registrants of the listed active ingredients were required to submit notices as to whether they would seek reregistration, and were required to identify missing or inadequate data on the pesticides. During Phase 3, registrants were required to submit summaries of previously submitted data, identify any other information that would support the registrations or that may indicate unreasonable adverse effects, and make commitments to submit data to fill the outstanding data requirements or offer to share in the cost of developing such data. Under Phase 4, which was

⁹Nanosilver Final Work Plan (FWP) Registration Review: Initial Docket Case Number 5042 (Oct. 2018), available at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2011-0370-0021>.

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¹FIFRA § 3(g), 7 U.S.C.A. § 136a(g). This section was repealed by Pub. L. No. 100-532, tit. VIII, § 801(b)(9), 102 Stat. 2681 (1988), and replaced by FIFRA § 4, 7 U.S.C.A. § 136a-1.

²The registration standards system was authorized by the 1978 FIFRA amendments. *See* FIFRA § 3(c)(2)(C), 7 U.S.C.A. § 136a(c)(2)(C); *see also* H.R. Rep. No. 95-343, pt. 1, at 11 (1977), 1977 U.S.C.C. A.N. 1966, 1976; H.R. Rep. No. 663, 95th Cong., 1st Sess. 16, 19, 26 (1977), 1977 U.S.C.C.A.N. 1966, 1989, 1992, 1999.

³The 1988 FIFRA amendments were codified at FIFRA § 4, 7 U.S.C.A. § 136a-1.

⁴EPA completed Phase 1 in 1989. *See* 54 Fed. Reg. 7740 (Feb. 22, 1989) (List A published active ingredients for which registration standards had been issued prior to December 24, 1988). Lists B, C, and D include the other chemicals subject to reregistration that were first registered prior to November 1984 and did not fall under the registration standards program. *See* 54 Fed. Reg. 22706 (May 25, 1989); 54 Fed. Reg. 30846 (July 24, 1989); 54 Fed. Reg. 43388 (Oct. 24, 1989). Chemicals on these lists were subject to all phases of the reregistration process.

completed in 1993, EPA reviewed the information submitted by the registrants. During Phase 5, EPA was required to determine whether to reregister the pesticides.⁵ As EPA began its Phase 5 review, the number of active ingredients to be considered for registration had declined from over 600 in 1988 to approximately 400 in the mid-nineties.⁶ The decline may in part have been attributed to registrants of manufacturing pesticides that pose higher risks who chose to voluntarily remove their products from the marketplace rather than pay for studies that may not support the products' continued use.

During Phase 5, EPA reviewed all the studies submitted in support of an active ingredient and determined if the products containing the active ingredient were eligible for reregistration and whether any applicable tolerances or tolerance exemptions met current standards.⁷ When an active ingredient, or set of related active ingredients ("chemical cases") became eligible for reregistration, EPA issued a Reregistration Eligibility Document (RED). A RED summarized the studies reviewed and the findings reached as well as requests, when necessary, for additional generic data, product-specific studies, and revised labeling.⁸ Once the RED requirements were fulfilled and accepted, EPA reregistered the appropriate pesticide products. At the completion of Phase 5, EPA reported that approximately 1,150 pesticide active ingredients organized into 613 "cases" or related groups were subject to reregistration. In September 2008, EPA completed the last REDs for 384 of these cases, while the remaining 229 cases were canceled (cases were canceled if all the pesticide registrations were canceled before the reregistration decision was completed).⁹

As noted above, the 1996 FQPA significantly revised the statutory standard for the issuance of tolerances for pesticide residues in food. To ensure that existing as well as new tolerances meet the new standard, the FQPA amended the FFDCA to require that EPA conduct a review of existing tolerances and exemptions, which was to be completed within ten years.¹⁰ Under the FQPA amendments to FIFRA, the Agency must act to modify or revoke tolerances that do not meet the current safety standard, and is to give priority in its review to the tolerances and exemptions "that appear to pose the greatest risk to public health."¹¹ In 2007, EPA completed its review of all the tolerances that were in effect at the time the FQPA

⁵FIFRA § 4(a) to (g), 7 U.S.C.A. § 136a-1(a) to (g).

⁶EPA, Status of Pesticides in Registration, Reregistration and Special Review (Rainbow Report) 61-63 (Spring 1998); EPA, Pesticide Reregistration Progress Report for 1997 ("1997 Progress Report") 7 (Spring 1998).

⁷FIFRA § 4(g)(2)(E), 7 U.S.C.A. § 136a-1(g)(2)(E).

⁸EPA, Pesticide Reregistration (May 1992).

⁹EPA, Reregistration and Other Review Programs Predating Pesticide Registration Review, available at <https://www.epa.gov/pesticide-reevaluation/reregistration-and-other-review-programs-predating-pesticide-registration>.

¹⁰FFDCA § 408(q), 21 U.S.C.A. § 346a(q).

¹¹FFDCA § 408(q), 21 U.S.C.A. § 346a(q). As required, within one year after enactment of the FQPA, EPA published its schedule and priorities for the required tolerance reassessment process. FFDCA § 408(q)(3), 21 U.S.C.A. § 346a(q)(3); 62 Fed. Reg. 42020 (Aug. 4, 1997). *See generally* EPA, 1997 Progress Report, at 33 (Spring 1998). *See NRDC v. EPA*, No. C99-03701 WHA (N.D. Cal. filed Aug. 8, 1999) (consent decree approved by court on September 25, 2001, animal-rights interveners claims remain); *see also* *United Farm Workers of Am. v. Browner*, Civ. App. No. 99-71143 (1999); *American Farm Bureau v. U.S. E.P.A.*, 121 F. Supp. 2d 84, 51 Env't. Rep. Cas. (BNA) 2027 (D.D.C. 2000) (partially granting EPA motion to dismiss; finding that district court, not court of appeals had jurisdiction; Farm Bureau lacked standing; and fact issues remain on EPA compliance with the Administrative Procedure Act (APA)).

amendments to the FFDCA were enacted.¹²

§ 17:14 Registration application process—Registration review

Congress and EPA recognized that the five-phase reregistration program mandated by the 1988 FIFRA amendments and the tolerance reassessment program mandated by § 408 of the FFDCA, which were to be completed in 2008 and 2006, respectively, did not eliminate the need for continual reassessment of a pesticide's safety. In particular, Congress realized that the FIFRA standards for registration are likely to change over time as the scientific ability to assess risk evolves, and that such changes could lead EPA to adopt a different view of a given pesticide's risks and benefits from the view that prevailed when the pesticide was first registered.¹ Therefore, with the enactment of the FQPA in 1996, Congress amended FIFRA to require EPA to implement a registration review program that would assure that pesticides continue to meet the FIFRA standards for registration over their commercial lives. In pertinent part, the FQPA amended FIFRA by adding a new provision to FIFRA § 3 that directs EPA to establish by regulation procedures for the continuous review of all pesticide registrations—not just old registrations—with a goal of reviewing each pesticide's registration every fifteen years.² Congress revised this section in 2007 to clarify that the initial registration review for all existing pesticide registrations must be completed by October 1, 2022, and that subsequent registration reviews should be completed no later than 15 years after the date on which the initial registration review is completed and each 15 years thereafter.³ To ensure EPA's ability to achieve its goals, the new provision added by FQPA authorizes EPA to use its DCI authority to require registrants to submit data that are necessary for a registration review.⁴ If the data indicate that a pesticide no longer meets the standard for registration, EPA may cancel that pesticide's registration.⁵

EPA promulgated regulations to implement the registration review program in 2006.⁶ Under the Agency's regulations, registration review cases are to be composed of chemically related active ingredients and all the products containing such ingredient(s),⁷ with cases scheduled chronologically based on the date of initial registration of the oldest pesticide product in the case or the date of reregistration, which-

¹²See Steven Bradbury, Director, EPA, OPP, Special Review and Reregistration Division, Reregistration and Registration Review Overview, Presentation Before the Pesticide Program Dialogue Committee (Oct. 18, 2007), available at <https://archive.epa.gov/pesticides/ppdc/ppdc/2007/oct2007/session13-reregis-review.pdf>.

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¹See H.R. Rep. No. 104-669, at 38; Proposed Rule: Pesticides; Procedural Regulations for Registration Review, 70 Fed. Reg. 40251, 40253 (July 13, 2005).

²See FIFRA § 3(g), 7 U.S.C.A. § 136a(g).

³See Pesticide Registration Improvement Renewal Act at § 3, 121 Stat. 1000 to 1001.

⁴See FIFRA § 3(g)(2), 7 U.S.C.A. § 136a(g)(2). EPA's DCI authority is discussed in §§ 17:31 to 17:32.

⁵See FIFRA § 3(g)(1)(A), 7 U.S.C.A. § 136a(g)(1)(A). The procedures for cancelling a pesticide's registration under FIFRA are discussed in § 17:50.

⁶See Final Rule: Pesticides; Procedural Regulations for Registration Review, 71 Fed. Reg. 45720 (Aug. 9, 2006) (codified at 40 C.F.R. §§ 155.40 to 155.58).

⁷40 C.F.R. § 155.42. Congress incorporated this portion of EPA's regulations into FIFRA in 2007. See Pesticide Registration Improvement Renewal Act at § 3, 121 Stat. 1000. Additionally, under EPA's regulations, a pesticide product that contains multiple active ingredients can belong to multiple registration review cases. See 40 C.F.R. § 155.42.

ever is later.⁸ Also, in contrast to the comprehensive five-phase approach to pesticide reregistration mandated by the 1988 FIFRA amendments, the approach set forth in EPA's regulations allows the Agency to tailor the scope and depth of a registration review to the circumstances of each case.⁹ The initiation of a registration review case and announcement of EPA's decision in a review case are published in the *Federal Register* with opportunity for public comment.¹⁰

EPA began the registration review program in fiscal year 2007. As of July 1, 2017, there are about 725 registration review "cases" that include approximately 1,140 pesticide active ingredients. Of these, over 700 registration review cases are past the public docket opening stage, over 595 registration review cases are in active review, and over 200 registration review interim and final decisions have been completed.¹¹

§ 17:15 Related applications and procedures—Conditional registration

"Conditional registrations" were authorized by the 1978 amendments to FIFRA, permitting the Agency to register a pesticide even if the applicant does not submit all of the data required to support a full unconditional registration.¹ The provisions authorizing conditional registrations were enacted to remove a "double standard" that had arisen when FIFRA was rewritten in 1972 as a safety and environmental statute, with the resulting substantial increase in the data requirements to be satisfied to obtain a registration. Because the Agency was not able to reregister existing products under the new statutory standards and supported by new data as quickly as the 1972 Act had contemplated, products registered prior to 1972 were still registered with what would now be regarded as an inadequate data base, while identical products could not be registered because of a need to generate and submit substantial new data, which can be time-consuming to generate.²

Thus, FIFRA authorizes EPA to conditionally register "me-too" products and to conditionally amend existing registrations to permit new uses, if EPA has, either in its files or as a result of the applicant's submission, enough data to determine that the registration would not significantly increase whatever risk of unreasonable adverse environmental effects may already be posed by the existing registrations of the same or similar products.³ Thus, in determining whether to issue a conditional registration, EPA looks at the incremental risks and benefits of the proposed conditional registration or amendment, rather than assessing the risks and benefits of the product itself.

In practical terms, this means that an applicant for registration need not satisfy any data requirement that has not been satisfied by previous registrants of products containing the same active ingredient registered for the same use. Under EPA's data compensation regulations, if an applicant can show that a "data gap" exists

⁸40 C.F.R. § 155.42.

⁹See 40 C.F.R. § 155.53; 70 Fed. Reg. at 40260-61 (discussing possible approaches for conducting a pesticide's registration review).

¹⁰40 C.F.R. §§ 155.50, 155.58.

¹¹See EPA, Registration Review Process, available at <https://www.epa.gov/pesticide-reevaluation/registration-review-process>.

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¹See FIFRA § 3(c)(7), 7 U.S.C.A. § 136a(c)(7).

²See, e.g., H.R. Rep. No. 95-343, pt. 1, at 9-11, 1977 U.S.C.C.A.N. at 1974 to 1976; H.R. Rep. No. 95-663, at 19 to 20, 27 to 28 (1977), 1977 U.S.C.C.A.N. 1966, 1992-93, 2000-01.

³FIFRA § 3(c)(7)(A), (B), 7 U.S.C.A. § 136a(c)(7)(A), (B); 40 C.F.R. §§ 158.30(b)(3), (4), 152.113, 152.115(a).

with respect to one or more data requirements,⁴ it need not satisfy those data requirements at the time that it applies for its registration and the registration it receives will be conditional rather than unconditional. Such a registration for a me-too product or the new use of a previously registered product will be contingent upon the conditional registrant's agreement to submit, at the same time as other registrants of the same chemical, data to satisfy requirements not previously filled.⁵ The vast majority of the registrations granted since 1978 have been conditional ones, as the data bases for many previously registered active ingredients continue to be brought up to current standards. PRIA 3 (now PRIA 4) amended FIFRA to provide, among other things, funding to support enhancing the EPA information system capacity to track pesticide registration decisions, including the status of conditional registration decisions. EPA has developed a table, that it will update periodically, providing information regarding all pesticide active ingredients that were initially registered under the conditional registration authority in FIFRA Section 3(c)(7)(C) from fiscal year 2000 to the present.⁶

FIFRA also permits the conditional registration of a pesticide containing a new active ingredient, but the restrictions imposed on this type of conditional registration are much tighter than on those discussed above and, as a practical matter, conditional registrations of previously unregistered chemicals are granted less frequently than other conditional registrations. The conditional registration of a new chemical may be issued only for a period reasonably sufficient to generate and submit the missing data and only if the data are missing because there has not been sufficient time since the relevant data requirement was first imposed for the data to be generated. The conditional registrant must submit the data at the end of the specified period and the data must not meet or exceed risk criteria specified by EPA. In addition, EPA must determine that the use of the pesticide during the conditional registration period will not cause any unreasonable adverse effects on the environment and that use of the pesticide is in the public interest.⁷

A conditional registration raising interesting issues is that for dicamba. Herbicides containing dicamba are registered for use to control broadleaf weeds and woody plants. In this case, EPA's first conditional registrations of new dicamba formulations were time-limited and included expiration dates, unless EPA acted to extend the registration. EPA did act in 2018 to extend the registration for an additional two years, with expiration currently set for December 20, 2020.

§ 17:16 Related applications and procedures—Amended registration

In general, a registrant wishing to make changes to its registered label must submit an application for amended registration. Such an application would be submitted, for instance, to change active ingredient concentrations, dosage rates, use directions, or precautionary statements, or to obtain approval of additional uses (for example, in additional facilities, on additional crops, or against additional

⁴See § 17:29 (data gaps).

⁵FIFRA § 3(c)(7)(A), (B), 7 U.S.C.A. § 136a(c)(7)(A), (B); 40 C.F.R. § 152.115(c); see § 17:31 (DCIs).

⁶EPA, Conditional Registration Status—2000 through November 2019, available at <https://www.epa.gov/node/50959/r>.

⁷FIFRA § 3(c)(7)(C), 7 U.S.C.A. § 136a(c)(7)(C). EPA has issued *Federal Register* notices setting forth its interpretation of § 3(c)(7)(C) and the policies it will follow in issuing conditional registrations for new chemicals. 51 Fed. Reg. 7628 (Mar. 5, 1986); 51 Fed. Reg. 12199 (Apr. 9, 1986); 53 Fed. Reg. 15952 (May 4, 1988).

pests).¹

Some minor label amendments, such as changes in brand names, may be made simply upon notification to the Agency. No EPA approval is required.² Other minor changes, such as corrections of typographical errors, require no Agency notification.³

For virtually all amendments, except approval of additional brand names,⁴ new draft labeling must be submitted with the application. Depending upon the type of change, other supporting documents may also be required. For instance, if changes in the formulation are made, a new CSF will be required. Similarly, if an amendment seeks approval of new uses of the pesticide, supporting data must either be submitted or cited so that EPA can determine whether the uses will pose unreasonable risks to the environment. Thus, compensation offers must be sent to those companies that submitted any data relied upon to support the registration amendment. The EPA review process for registration amendments is essentially the same as that for registration applications.⁵ As noted above,⁶ new use amendments, like initial registrations, may be made on a conditional basis with less than a full set of supporting data being submitted.

§ 17:17 Related applications and procedures—Supplemental registrations

An abbreviated procedure is available for a supplemental registration, or “subregistration,” which permits a company to distribute another company’s registered pesticide under the distributor’s brand name. A subregistration requires only a notification form, which is submitted to EPA by the registrant and signed by both the registrant and the proposed distributor. The name of the basic registered product and the brand name proposed to be used by the distributor must be provided. With the exception of the distributor’s proposed brand name, the product label as marketed by the distributor may not vary from the label approved for the basic registered product, except that it need not contain all of the uses for which the basic product has been approved. The product to be distributed must also be manufactured and packaged by the same person who manufactures and packages the basic registered pesticide for the original registrant. No EPA response to the subregistration notification is required for the distributor to begin marketing the product.¹ EPA considers a distributor to be the agent of the registrant and both may be held liable for violations of FIFRA.²

§ 17:18 Related applications and procedures—Experimental use permits—EUP requirements

Experimental use permits (EUP) are issued by EPA pursuant to FIFRA § 5 to

[Section 17:16]

¹40 C.F.R. §§ 152.44(a), 152.46(a). *See* FIFRA § 3(f)(1), 7 U.S.C.A. § 136a(f)(1). Major formulation changes, for example, the addition of a new active ingredient, generally must be accomplished through the submission of a new product registration application rather than an amended registration application.

²40 C.F.R. § 152.46(a); EPA, Notification, Non-Notifications and Minor Formulation Amendments, PR Notice 98-10 (Oct. 1998).

³40 C.F.R. § 152.46(b); PR Notice 98-10.

⁴*See* FIFRA § 3(e), 7 U.S.C.A. § 136a(e).

⁵*See* § 17:8.

⁶*See* § 17:15.

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¹*See generally* FIFRA § 3(e), 7 U.S.C.A. § 136a(e); 40 C.F.R. § 152.132.

²40 C.F.R. § 152.132.

permit testing of unregistered pesticides or testing of registered pesticides for unregistered uses.¹ An application for an EUP may be filed at any time and must be acted upon by EPA within 120 days after receipt of the application and any required supporting data. EPA may issue an EUP only if it determines that the applicant needs the permit to develop information necessary to obtain a pesticide registration.² For a pesticide not previously registered for any use, the Agency may require data showing that use under the EUP will not cause unreasonable adverse effects.³ If the experimental use may result in pesticide residues on food or feed, the applicant must show that there is a tolerance or tolerance exemption for residues of the pesticide on such food or feed,⁴ petition for the establishment of a temporary tolerance or tolerance exemption, or certify that food or feed resulting from the testing program will either be destroyed or fed only to experimental animals for test purposes.⁵

The use of the pesticide under an EUP shall be for such length of time and under such terms and conditions as EPA may require, and EPA may revoke an EUP if it finds the conditions of the permit are being violated or are inadequate to avoid unreasonable adverse effects on the environment.⁶ EPA regulations provide that permits will generally be effective for one year, and impose labeling, supervision, and reporting requirements with respect to pesticide use under a permit.⁷

FIFRA also authorizes, and EPA has promulgated regulations governing, the issuance of EUPs for certain limited purposes by state governments in accordance with plans submitted to and approved by EPA.⁸ Certain laboratory or greenhouse tests or limited field trials intended only to determine a pesticide's properties generally may be conducted without an EUP. Such tests generally include tests conducted on experimental animals, and, with some exceptions, field trials conducted on a cumulative total of not more than ten acres and aquatic tests conducted on not more than one surface acre of water.⁹

§ 17:19 Related applications and procedures—Experimental use permits—Procedures

Upon receipt of an application for an EUP that EPA determines may be of regional or national significance, EPA must publish notice of the application in the *Federal Register* and may hold a public hearing if there is sufficient interest to warrant one. EPA must also publish *Federal Register* notices when EUPs are issued. Applicants may apply to renew EUPs under the same requirements that govern the initial grant of a permit. If EPA determines that an EUP application must be denied or an

[Section 17:18]

¹FIFRA § 5, 7 U.S.C.A. § 136c. *See generally* 40 C.F.R. pt. 172; Rohm and Haas Co. v. U.S. Environmental Protection Agency, 525 F. Supp. 921, 18 Env't. Rep. Cas. (BNA) 1951, 11 Env'tl. L. Rep. 20849 (E.D. Pa. 1981), judgment aff'd, 651 F.2d 176, 18 Env't. Rep. Cas. (BNA) 2128, 11 Env'tl. L. Rep. 20857 (3d Cir. 1981).

²FIFRA § 5(a), 7 U.S.C.A. § 136c(a).

³FIFRA § 5(d), 7 U.S.C.A. § 136c(d).

⁴*See* § 17:9.

⁵FIFRA § 5(b), 7 U.S.C.A. § 136c(b); 40 C.F.R. § 172.4(b)(2). Temporary tolerances in conjunction with experimental-use permits are authorized by FFDCA § 408(r), 21 U.S.C.A. § 346a(r).

⁶FIFRA § 5(c)(e), 7 U.S.C.A. § 136c(c)(e).

⁷*See generally* 40 C.F.R. §§ 172.1 to 172.11.

⁸FIFRA § 5(f), 7 U.S.C.A. § 136c(f); 40 C.F.R. §§ 172.20 to 172.26.

⁹40 C.F.R. § 172.3. One such exception is for certain biotechnology-based microbial pesticides. EPA must be notified of the application of these pesticides so that the Agency may determine whether an EUP is required for small-scale testing. 40 C.F.R. § 172.45. *See also* § 17:34.

existing EUP revoked, the applicant or permittee may contest the denial or revocation by submitting a written request for an opportunity to confer with EPA. The Agency must make its final decision within twenty days after such conference.¹

§ 17:20 Related applications and procedures—Special local needs registrations

Under FIFRA § 24(c),¹ state governments may register uses of a pesticide that have not been federally registered if the pesticide itself is federally registered for other uses. The state must determine that the use is necessary to meet “special local needs” (SLN) and the use in question must not have been previously denied, disapproved, or canceled by EPA. The SLN registration will authorize distribution and use only within the granting state and is subject to disapproval within ninety days by EPA. An SLN registration may not be issued for a food or feed crop use unless there is an applicable tolerance or tolerance exemption.²

EPA may suspend a state’s authority to issue SLN registrations if it determines that the state is not capable of exercising or has not exercised adequate controls to ensure that SLN registrations will be consistent with the purposes of FIFRA. Such a suspension of the state’s authority must be subject to advance notice to the state and an opportunity for the state to respond.³

§ 17:21 Related applications and procedures—Transfers of registrations and data rights—Registrations

Pesticide registrations may be transferred from one company to another. EPA must receive a request that the registration be transferred; a transfer agreement from both parties documenting their agreement to the transfer and containing terms specified by EPA regulations; and a notarized statement from the transferor that states that the transfer is legally authorized and that the person signing the transfer agreement on behalf of the transferor is authorized to do so. EPA will notify the companies in writing when the transfer has been completed, and will assign a new pesticide registration number to the product in order to reflect the transfer that has been made.¹

§ 17:22 Related applications and procedures—Transfers of registrations and data rights—Data rights

Recognizing that the data that support registrations often have a value independent of the registrations themselves, EPA has promulgated a regulation governing the transfer of exclusive use and compensation rights.¹ The submitter of the data must provide EPA with a document stating the name, address, and state of

[Section 17:19]

¹40 C.F.R. §§ 172.9 to 172.11.

[Section 17:20]

¹7 U.S.C.A. § 136v(c).

²See generally 40 C.F.R. §§ 162.150 to 162.156.

³40 C.F.R. § 162.55; FIFRA § 24(c)(4), 7 U.S.C.A. § 136v(c)(4).

[Section 17:21]

¹40 C.F.R. § 152.135; EPA, Pesticide Registration Manual: Chapter 16—Transfer of Product Registrations and Data Rights, available at <https://www.epa.gov/pesticide-registration/pesticide-registration-manual-chapter-16-transfer-product-registrations-and>.

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¹40 C.F.R. § 152.98; EPA, Pesticide Registration Manual: Chapter 16—Transfer of Product

incorporation (if any), of the transferor and transferee, and identifying in detail (for example, name of the study, date of submission, name of the laboratory that conducted the study, etc.) each piece of data being transferred; a statement of intent irrevocably to transfer all rights in the identified data and that the parties understand legal proscriptions of false statements; and the names and signatures of the transferor and transferee. In addition, the transferor must submit a notarized statement documenting its authority to make the transfer and that the transfer will not violate applicable laws, court orders, or corporate or partnership documents. The Agency will notify the parties of the effective date of the transfer, at which point the transferee will be considered the “original data submitter” for exclusive use and data compensation purposes.²

III. EXEMPTIONS

FIFRA and EPA regulations provide for several exemptions from the basic requirement that pesticides be registered and from the requirement that data be submitted to support registration or amendment applications.

§ 17:23 Exemptions—Exemptions from registration requirement— Experimental use permits

A pesticide is not required to be registered if it is being transferred in accordance with an EUP.¹

§ 17:24 Exemptions—Exemptions from registration requirement— Transfers between registered establishments operated by same company or under contract

A pesticide need not be registered if it is being transferred from one registered establishment¹ to another operated by the same producer solely for packaging or use as a component of another pesticide product.² EPA’s existing regulations define the term “operated by the same producer” to mean that the establishments are owned by, or leased for operation by and under the control of, the same person.³ Although this definition excludes facilities owned or operated by persons who merely have contractual arrangements, the transfer of pesticides between facilities not operated by the same producer is authorized under certain circumstances.⁴ An unregistered pesticide may be transferred between establishments not operated by the same producer if the transfer is solely for purposes of further formulation, packaging, or labeling of a final product, and if each active ingredient present in the pesticide (at the time of transfer) either is registered or is produced by the registrant of the final

Registrations and Data Rights, available at <https://www.epa.gov/pesticide-registration/pesticide-registration-manual-chapter-16-transfer-product-registrations-and>.

²See § 17:35.

[Section 17:23]

¹FIFRA § 3(b)(2), 7 U.S.C.A. § 136a(b)(2); 40 C.F.R. § 152.30(c). See § 17:18 (experimental use permits).

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¹See § 17:63 (establishment registrations).

²FIFRA § 3(b)(1), 7 U.S.C.A. § 136a(b)(1); 40 C.F.R. § 152.30(a).

³40 C.F.R. § 152.1(q).

⁴40 C.F.R. § 152.30(b).

product. In addition, the transferred product must be appropriately labeled.⁵

§ 17:25 Exemptions—Exemptions from registration requirement—Export-only

Under FIFRA § 17(a),¹ a pesticide need not be registered if it is being produced solely for export to a foreign country. In 1993, prompted by increased concern about the exportation of unregistered pesticides, and about pesticide residues, particularly on imported food, EPA revised its final policy statement on pesticide exports.² To qualify for this exemption from registration, the pesticide must be prepared or packaged according to the directions of the foreign purchaser and the exporter must obtain from the foreign purchaser a statement acknowledging that the pesticide is not registered for use in, and cannot be sold in, the United States.³ EPA transmits a copy of that statement to the appropriate official of the importing country's government. In addition, producers of pesticides intended for export must comply with the establishment registration and related reporting requirements of FIFRA, and must comply with specified labeling requirements designed to prevent misbranding of pesticide products as set forth in FIFRA § 2(q).⁴ In a related provision, FIFRA provides that EPA must, through the State Department, notify governments of other countries and appropriate international agencies when a pesticide registration—or the cancellation or suspension of a registration—becomes effective or is terminated. Upon request, EPA's notification shall include supporting information and information regarding other registered pesticides that could be used instead of the pesticide that is the subject of the notification.⁵ EPA also has provided guidance on the circumstances under which unregistered pesticides may be imported into the United States for formulation into export products.⁶

§ 17:26 Exemptions—Exemptions from registration requirement—Emergency exemptions

FIFRA § 18¹ authorizes EPA to exempt federal or state agencies from any provision of FIFRA in the event that emergency conditions require such an exemption. EPA regulations specify when state or federal government agencies will be permit-

⁵40 C.F.R. § 152.30; *see* 40 C.F.R. § 156.10.

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¹7 U.S.C.A. § 136o(a); *see also* 40 C.F.R. § 152.30(d).

²58 Fed. Reg. 9062 (Feb. 18, 1993).

³58 Fed. Reg. 9062, 9087. The exporter must certify that the exportation of the unregistered pesticide did not occur until after the exporter received the signed acknowledgment from the foreign purchaser. *Id.* at 9089.

⁴FIFRA § 2(q), 7 U.S.C.A. § 136(q). *See* FIFRA § 17(a)(1), 7 U.S.C.A. § 136o(a)(1). In addition, EPA has provided several notices and guidance regarding labeling compliance issues. 78 Fed. Reg. 4073 (Jan. 18, 2013); 79 Fed. Reg. 75752 (Dec. 19, 2014); EPA, FIFRA Pesticides Export Policy, Questions and Answers, Issues: Supplemental Labeling; Effective Date; Registration Status for Labeling Purposes; Foreign Purchaser Acknowledgement Statements; Confidentiality (May 27, 1993), available at <https://www.epa.gov/sites/production/files/2014-05/documents/supplabel.pdf>; EPA, FIFRA Pesticides Export Policy, Questions and Answers, Issues: Research and Development Pesticides; Active Ingredient Concentrations (Aug. 31, 1993), available at <https://www.epa.gov/sites/production/files/2014-05/documents/ai.pdf>; EPA, FIFRA Pesticides Export Policy, Interpretive Guidance, Issue: Multilingual Labeling (Apr. 8, 1993), available at <https://www.epa.gov/sites/production/files/2014-05/documents/multilanglabel.pdf>.

⁵FIFRA § 17(b), 7 U.S.C.A. § 136o(b).

⁶*See* P.R. Notice 99-1 (Mar. 1999).

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¹FIFRA § 18, 7 U.S.C.A. § 136p.

ted to use unregistered pesticides in response to an emergency.² The Agency's regulations provide that an emergency exists when there is an "urgent, non-routine" situation requiring the use of a pesticide to control a new pest not previously prevalent in the United States, to control significant risks to health, the environment, beneficial organisms, or endangered species, or to prevent specified types of economic loss, and there is no registered pesticide or economically or environmentally feasible alternate method of control available.³ The exemptions granted can be very specific and time-limited; EPA has developed a database so companies can search (by chemical, site, pest, applicant, or date range) to determine if an emergency exemption has been issued and its expiration date.⁴

As a result of FQPA, FFDCA now requires EPA to establish a tolerance or exemption from tolerance when approving a § 18 emergency exemption.⁵ EPA may establish the tolerance without providing for public notice and comment, but the tolerance must have an expiration date and must meet the safety standard of FFDCA § 408.⁶

§ 17:27 Exemptions—Exemptions from registration requirement—Other exemptions authorized by EPA

EPA may exempt pesticides from FIFRA provisions if the Agency determines the pesticides are adequately regulated by another federal agency or are of a type that need not be subject to FIFRA to carry out the purposes of the statute (e.g., because the pesticides pose a negligible risk to human health or the environment, and the burden imposed by regulation is not justified).¹

Substances exempted from the very *definition* of a pesticide include the following substances, provided they meet the criteria set forth in the regulations: (1) liquid chemical sterilants; (2) nitrogen stabilizers; (3) human drugs; (4) animal drugs; (5) animal feeds; (6) vitamin hormone products; and (7) products intended to aid the growth of desirable plants, namely plant nutrient products, plant inoculant products, and soil amendments.² On March 25, 2019, EPA released draft guidance entitled Draft Guidance for Plant Regulator Label Claims, Including Plant Biostimulants in an attempt to "reduce confusion, in both the regulatory community and regulatory agencies, as to whether specific products are or are not subject to registration as a pesticide under FIFRA."³

Pesticides exempted by EPA regulations from some or all of the statute's registration requirements include: (1) pesticides transferred solely for purposes of disposal, subject to certain prohibitions on misbranding and certain Agency regulations recommending procedures for pesticide disposal; (2) certain biological control agents; (3) new drugs within the jurisdiction of FDA under FFDCA; (4) pheromones used in pheromone traps; (5) preservatives for biological specimens; (6) foods (without active ingredients) used to attract pests; (7) certain uses of natural cedar products; and (8)

²40 C.F.R. pt. 166.

³40 C.F.R. § 166.3(d).

⁴EPA, Emergency Exemption Database, available at: <https://iaspub.epa.gov/apex/pesticides/f?p=124:2>.

⁵FFDCA § 408(l)(6), 21 U.S.C.A. § 346a(l)(6).

⁶See § 17:9.

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¹FIFRA § 25(b), 7 U.S.C.A. § 136w(b). EPA also proposed to exempt from FFDCA tolerance requirements some edible food commodities used as pesticides. 63 Fed. Reg. 37307 (July 10, 1998). The proposal was never finalized.

²40 C.F.R. § 152.6.

³84 Fed. Reg. 11538 (Mar. 27, 2019).

articles or substances treated with or containing pesticides intended to protect the articles or substances themselves.⁴

EPA has developed guidance clarifying the scope of the “treated article” exemption and the types of claims that may be made for articles treated with or containing pesticides without registering the treated article itself.⁵ EPA has brought a number of enforcement actions attempting to control the claims, in the marketing of unregistered treated products, that the treated product has health protective effects.⁶ In discussing its enforcement priority for the “marketing of unregistered pesticide-treated products with illegal, unsubstantiated public health claims” that do not meet the treated article exemption criteria, EPA states it “is concerned about these claims because, in addition to being unlawful, they are also potentially harmful to the public (*e.g.*, if people believe that a product has a self-sanitizing quality, they may become lax in their hygiene practices).”⁷

EPA also has issued “minimum risk” pesticide regulations under a Section 25(b) rule exempting a number of nontoxic active ingredients (many of them natural substances) from most FIFRA requirements.⁸

§ 17:28 Exemptions—Exemptions from data requirements—Waivers

In listing the data requirements that must be satisfied to obtain a pesticide registration, EPA has recognized that the generally applicable requirements may not be appropriate for each type of product to which they apply.¹ Accordingly, EPA has provided for case-by-case review of applicant requests that data requirements be waived, either because the data would be impossible to generate or because they would not be useful to EPA’s risk-benefit evaluation.² A waiver request must be made in writing, generally after a preliminary discussion with the appropriate EPA product manager, and must justify the waiver, describe any unsuccessful attempts to generate the required data, and supply any other information that the applicant believes appropriate, along with suggesting alternative means of obtaining data that would address the concern underlying the requirement.³

Although EPA states that it cannot specify all of the circumstances in which a waiver might be appropriate, the Agency will consider factors such as the anticipated use of and exposure to the pesticide, the impact of the data costs on the incentives for pesticide registrants to develop the data, the differences between various classes of pesticides, particularly differences between agricultural and nonagricultural pesticides, and similar factors. The Agency will notify the applicant in writing of its

⁴40 C.F.R. § 152.25(a) to (e).

⁵See EPA, Applicability of the Treated Articles Exemption to Antimicrobial Pesticides, PR Notice 2000-1 (Mar. 2000); 65 Fed. Reg. 7007 (Feb. 11, 2000); and changes to “Effective Date and Procedures” for PR Notice 2000-1, PR Notice 2000-10 (Dec. 2000).

⁶See, *e.g.*, EPA, EPA Orders Joyce Chen, Inc. to Stop Sale of Cutting Boards that Make Unproven Pesticidal Claims, EPA Note to Correspondents (July 1, 1997).

⁷EPA, Consumer Products Treated with Pesticides, available at <https://www.epa.gov/safepestcontrol/consumer-products-treated-pesticides>.

⁸40 C.F.R. § 152.25(f); 61 Fed. Reg. 8876 (Mar. 6, 1996); 80 Fed. Reg. 80653, 80660 (Dec. 28, 2015).

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¹40 C.F.R. §§ 152.91, 158.45.

²40 C.F.R. § 158.45(a). The FQPA amendments to FIFRA explicitly authorize waivers of data on minor uses if there are sufficient other data for EPA to conclude that the use will not pose unreasonable adverse effects. FIFRA § 3(c)(2)(E), 7 U.S.C.A. § 136a(c)(2)(E).

³40 C.F.R. § 158.45(b).

decision on a waiver request and may provide public notice of the decision.⁴

§ 17:29 Exemptions—Exemptions from data requirements—Data gaps

As noted in the discussion of conditional registrations, a registration applicant need not satisfy a data requirement at the time the application is submitted when that data requirement has not yet been satisfied by previous registrants of the same or a similar product.¹ Certain applicants cannot defer a data requirement on the basis of such a “data gap,” for example, when the applicant is seeking the registration of a product containing a new active ingredient or is seeking to add a new use pattern to a registered product and data are needed to demonstrate whether the new use would substantially increase the risk of unreasonable adverse effects on the environment.²

§ 17:30 Exemptions—Exemptions from data requirements—Formulator’s exemption

Under the “formulator’s exemption” of FIFRA § 3(c)(2)(D),¹ as interpreted by EPA regulations,² a registrant need not submit, cite, or pay compensation for data relating to the safety of an active ingredient in the registrant’s product if that active ingredient is purchased from another company in a form that is already registered with EPA.

Originally, the statute limited eligibility for the formulator’s exemption to applications for registration of end-use products. EPA’s data compensation regulations, however, extended the exemption and made it available to intermediates and technical products that contain purchased, registered pesticides.³ A judicial challenge to EPA’s expansion of the exemption as unauthorized by FIFRA was unsuccessful.⁴ The 1988 FIFRA amendments redrafted § 3(c)(2)(D), bringing its language into line with the EPA regulations and the judicial interpretation.⁵

A company eligible for the formulator’s exemption will still be required to submit or cite some data (product chemistry and acute toxicity) on the end-use formulation. It can either cite and offer to pay for such data if another company has submitted data on an end-use formulation like the applicant’s, or it can itself generate and submit these less expensive types of data. If a registrant who obtained a registration in reliance on the formulator’s exemption subsequently changes its source of supply so that it no longer qualifies for the formulator’s exemption, it is required to comply with the data compensation procedures, including compensation offers.

IV. ADDITIONAL INFORMATION REQUIREMENTS

§ 17:31 Data call-ins—Requirement to submit additional data on previously registered pesticides

⁴See 40 C.F.R. § 158.45; FIFRA §§ 3(c)(2)(A), 25(a)(1), 7 U.S.C.A. §§ 136a(c)(2)(A), 136w(a)(1).

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¹See § 17:15 (conditional registrations).

²40 C.F.R. § 152.96. EPA eliminated requirements that applicants certify a data gap in 2014. 79 Fed. Reg. 6826 (Feb. 5, 2014).

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¹7 U.S.C.A. § 136a(c)(2)(D).

²40 C.F.R. § 152.85.

³40 C.F.R. § 152.85.

⁴See *PBI-Gordon Corp. v. Thomas*, 609 F. Supp. 135 (W.D. Mo. 1985).

⁵Specifically, the words “an end-use product” were deleted and replaced with “the pesticide that is the subject of the application.”

FIFRA § 3(c)(2)(B)¹ authorizes EPA to require from registrants the submission of additional data, beyond the data that were initially required to obtain the registrations, when the Agency determines that such additional data are necessary to maintain the registrations in effect. Such DCIs are generally part of EPA's continuing effort to bring existing pesticide data bases up to modern standards, but they also may be initiated when EPA learns of a potential risk posed by a registered pesticide and concludes that additional data are needed to evaluate the risk.

When a DCI is issued, a notice of the new data requirements is sent to each company holding a registration for the active ingredient in question. Within ninety days of receipt of the notices, affected registrants must provide to EPA evidence that they are taking appropriate steps to satisfy the additional data requirements.² The Agency is authorized to suspend the registration of any company that does not take such appropriate steps toward producing the new data.³

Data that have been submitted pursuant to a DCI may be cited, subject to compliance with applicable data compensation requirements,⁴ by subsequent applicants for registration.⁵

§ 17:32 Data call-ins—Methods for satisfying

There are several methods by which affected registrants may satisfy DCI requirements. Obviously, any affected company can generate and submit the required data on its own. The statute also authorizes, but does not require, two or more registrants to develop the data jointly or to share the cost of developing the data.¹ The pesticide industry has taken advantage of this provision by forming task forces to share the costs of developing generic exposure data required by EPA DCIs. EPA has stated that data generated by the task forces may be acceptable for many pesticide registrations in the United States and has informed all pesticide registrants of the task forces' existence.²

In addition, DCI notices typically specify other steps that a registrant may be able to take to comply with a DCI. Such steps include demonstrating that the registrant is eligible for the formulator's exemption;³ requesting a voluntary cancellation of the product registration or the registered use to which the additional data pertain; submitting existing data that the registrant believes will satisfy the new requirements; or requesting and obtaining either a waiver of the requirements as unnecessary or inappropriate,⁴ or an extension of the deadline for submitting the data.

In addition, EPA has taken the position that it will not suspend the registration of any company that makes a "bona fide offer" to share in the costs of developing the data, even if that offer is not accepted by the company or group of companies actu-

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¹7 U.S.C.A. § 136a(c)(2)(B).

²FIFRA § 3(c)(2)(B)(i) to (ii), 7 U.S.C.A. § 136a(c)(2)(B)(i) to (ii).

³FIFRA § 3(c)(2)(B)(iv), 7 U.S.C.A. § 136a(c)(2)(B)(iv). *See* § 17:51.

⁴*See* § 17:35 (data compensation and arbitration).

⁵FIFRA § 3(c)(2)(B)(v), 7 U.S.C.A. § 136a(c)(2)(B)(v).

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¹FIFRA § 3(c)(2)(B)(ii), 7 U.S.C.A. § 136a(c)(2)(B)(ii).

²*See, e.g.,* EPA, Announcing the Formation of Two Industry-Wide Task Forces: Agricultural Reentry Task Force and Outdoor Residential Exposure Task Force, PR Notice 94-9 (Dec. 1994). Prior to that, EPA announced the formation of the Spray Drift Task Force to develop and satisfy data requirements for virtually all pesticide products. PR Notice 90-3 (Apr. 1990).

³*See* § 17:30 (formulator's exemption).

⁴*See* § 17:28 (data waivers).

ally taking the lead in producing the data. To make a bona fide offer, in EPA's view, a company must offer to share costs (a specific dollar amount need not be offered), to negotiate over the terms of the sharing arrangement, and to be bound by arbitration under § 3(c)(2)(B)(iii);⁵ and the offer must be irrevocable. Many data generators believe that, as a practical matter, EPA's position effectively makes data sharing mandatory, although at least one court has found no inconsistency between EPA's policy and the voluntary nature of joint data development under the DCI provisions of FIFRA.⁶

§ 17:33 Reporting of new adverse effects information

FIFRA § 6(a)(2)¹ provides: "[i]f at any time after the registration of a pesticide the registrant has additional factual information regarding unreasonable adverse effects on the environment of the pesticide,² the registrant shall submit such information to [EPA]."

EPA previously described its view of the obligations imposed by this requirement in a 1978 interpretive memorandum,³ a 1979 enforcement policy,⁴ and a 1985 rule codifying, in regulation form and with a few changes, the views expressed in the memorandum and enforcement policy.⁵ In 1997, EPA published a final rule, reflecting its current—and broader—view of § 6(a)(2) reporting obligations and the parties subject to them.⁶

EPA has long taken the position, upheld in federal court,⁷ that it is the Agency rather than the registrant that must determine the reliability and regulatory significance of a particular piece of information pertaining to the adverse effects of a pesticide. Accordingly, a registrant may not withhold information indicating that adverse effects are associated with a pesticide, even if the registrant believes that the information is unreliable or insufficient to support a change in the terms or conditions of its registration. In short, EPA takes a very broad view of § 6(a)(2) as

⁵7 U.S.C.A. § 136a(c)(2)(B)(iii). See § 17:37 (arbitration).

⁶Mobay Chemical Corp. v. Costle, 517 F. Supp. 254, 273-75 (W.D. Pa. 1981), judgment aff'd in part, vacated in part, 682 F.2d 419 (3d Cir. 1982).

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¹7 U.S.C.A. § 136d(a)(2).

²See § 17:9 (unreasonable adverse effects on the environment).

³43 Fed. Reg. 37611 (Aug. 23, 1978).

⁴44 Fed. Reg. 40716 (July 12, 1979).

⁵50 Fed. Reg. 38121 (Sept. 20, 1985). Although this rule appeared in the C.F.R., it was never made effective.

⁶62 Fed. Reg. 49370 (Sept. 19, 1997) (effective June 16, 1998) (codified at 40 C.F.R. pt. 159, subpt. D). In response to a number of questions and criticisms regarding the new rule, EPA made some technical corrections to the rule and issued additional guidance clarifying the Agency's position on some issues raised by the rule. See 63 Fed. Reg. 41192 (Aug. 3, 1998); 63 Fed. Reg. 33580 (June 19, 1998); PR Notice 98-4 (Aug. 1998); PR Notice 98-3 (Apr. 1998). Among other things, EPA corrected the definition of "registrant" from the September 19, 1997, regulation and delayed the date of compliance.

⁷With one exception, the Agency's 1978 interpretation was upheld as within EPA's statutory authority under § 6(a)(2) in *Chemical Specialties Mfrs. Ass'n v. U. S. Environmental Protection Agency*, 484 F. Supp. 513, 14 Env't. Rep. Cas. (BNA) 2103, 10 Env'tl. L. Rep. 20430 (D.D.C. 1980). The court held that because § 6(a)(2) requires only the submission of factual information, EPA's 1978 memorandum was incorrect in requiring the submission of certain expert opinion information. *Id.* at 518. In the 1997 rule, with additional interpretations in PR Notice 2000-8, EPA takes the position that the court's statement regarding opinion evidence was merely dicta and the Agency continues to regard such information as reportable under certain circumstances. See 40 C.F.R. § 159.158(a); 62 Fed. Reg. 49370, 49377 to 49378; PR Notice 2000-8 (Sept. 2000). This position was upheld in *American Crop Protection Ass'n v. U.S. E.P.A.*, 182 F. Supp. 2d 89, 54 Env't. Rep. Cas. (BNA) 1059, 32 Env'tl. L. Rep. 20442 (D.D.C. 2002).

requiring the submission of information in the registrant's possession, pertaining to a pesticide for which the registrant holds a registration, that (in the words of the 1978 interpretive memorandum) "would be relevant to an Agency decision regarding the risks and benefits of the pesticide, *i.e.*, an Agency decision regarding the registrability of the pesticide *or* regarding the proper terms and conditions of the registration."⁸

In general, EPA's current regulations provide more detailed guidance than the 1978 and 1979 interpretations regarding the particular types of information that the Agency believes must be reported under § 6(a)(2). The regulations address the reporting of study results, incidents, and other information and describe toxicity, environmental effects, contamination, toxic constituents or breakdown products, and product performance failure information that must be reported.⁹ The regulations also discuss the mechanics of reporting, discussing when information must be reported (generally within thirty calendar days except for certain incident reports, which must be submitted more quickly if they involve human fatalities, but may be reported over longer time periods if they involve specified, less serious effects),¹⁰ and how the information is to be submitted.¹¹ There are limited exemptions from reporting, including when the information is "clearly erroneous" or is already available to the Agency.¹²

Other requirements codified in the regulations include the following:

- Reporting requirements apply to former as well as current registrants, although the obligations of former registrants may be more limited in scope.¹³
- Future registrants are also covered, as an applicant for registration must submit at the time of application all information that would be reportable under § 6(a)(2) if the pesticide were already registered.¹⁴
- Reporting obligations may be triggered by information received by a registrant's agents—including, according to EPA, supplemental distributors, consultants, contract laboratories, and attorneys—as well as by its employees.¹⁵
- Provisions required the submission of certain information obtained prior to the promulgation of the final rule.¹⁶
- Regulations clarify the scope of registrants' responsibilities and liabilities.
- EPA takes the position, disputed by some, that serious failures to comply with

⁸43 Fed. Reg. 37611 (emphasis added); 62 Fed. Reg. 49370, 49371 to 49372; 40 C.F.R. § 159.158(a).

⁹See 40 C.F.R. §§ 159.165 and 159.167 (toxicological and ecological studies; preamble discussion, 62 Fed. Reg. 49370, 49380; 40 C.F.R. § 159.170) (human epidemiological and exposure studies; preamble discussion, 62 Fed. Reg. 49370, 49380); 40 C.F.R. § 159.178 (pesticides detected in food, feed, or water; preamble discussion, 62 Fed. Reg. 49370, 49380 to 49381); 40 C.F.R. § 159.179 (information on metabolites, degradates, contaminants, and impurities; preamble discussion, 62 Fed. Reg. 49370, 49381); 40 C.F.R. § 159.184 (toxic or adverse effect incident reports; preamble discussion, 62 Fed. Reg. 49370, 49381 to 49384); 40 C.F.R. § 159.188 (failure of performance; preamble discussion, 62 Fed. Reg. 49370, 49384 to 49386); 40 C.F.R. § 159.195 (other reportable information not otherwise described; preamble discussion, 62 Fed. Reg. 49370, 49386). Despite a district court opinion's statement in *Chemical Specialties Mfrs. Ass'n v. EPA* that benefits information is beyond the scope of § 6(a)(2), EPA continues to require certain "benefits" information (*i.e.*, information regarding failures of products to perform as claimed) and characterizes the district court opinion as "clearly incorrect." See 40 C.F.R. § 159.188; 62 Fed. Reg. 49370, 49386; 484 F. Supp. at 513.

¹⁰40 C.F.R. §§ 159.155, 159.184(d).

¹¹40 C.F.R. § 159.156.

¹²40 C.F.R. § 159.158(b).

¹³40 C.F.R. §§ 159.153, 159.160; *see also* 62 Fed. Reg. 49370, 49373.

¹⁴40 C.F.R. §§ 159.152(b), 152.50(f)(3).

¹⁵40 C.F.R. § 159.153; 62 Fed. Reg. 49370, 49373 to 49374.

¹⁶40 C.F.R. § 159.159.

§ 6(a)(2) requirements could result in a pesticide's cancellation, not simply because the information itself suggests that cancellation is justified but as a sanction for non-reporting.¹⁷

EPA issued a guidance document clarifying its position with regard to privileged information.¹⁸ EPA does not consider an attorney's professional legal judgment as an opinion or conclusion and therefore does not require reporting of such judgments: "[o]pinions and conclusions rendered as the professional legal judgment of an attorney are not relevant to EPA's assessment of the risks or benefits of a pesticide and are not required to be reported under part 159."¹⁹ However, "[t]o the extent that the attorney engages in activities that do not necessarily call for the professional legal judgment of an attorney, the attorney's opinions and conclusions may become reportable under part 159."²⁰

§ 17:34 Other new data requirements

The FQPA authorizes—or requires—EPA to use its data collection authorities to obtain certain additional information relating to pesticides. First, it authorizes EPA to require the submission of additional information determined to be necessary to support the continuation of a pesticide tolerance or tolerance exemption.¹ The Agency may do so under its FIFRA § 3(c)(2)(B) DCI authority,² its authority to issue rules requiring testing of chemical substances pursuant to § 4 of the Toxic Substances Control Act (TSCA),³ or by means of an order issued as prescribed in FFDCA § 408(f)(1)(C).⁴

In addition, FQPA requires EPA to develop and implement a program to screen all pesticide chemicals (active and inert ingredients) for “estrogenic effects,” *i.e.*, effects in humans similar to those produced by naturally occurring estrogens, or other endocrine effects designated by EPA. EPA may exempt substances from the screening program if it determines that they are not anticipated to produce estrogenic effects.⁵ EPA has published notices describing the major elements of its planned Endocrine Disruptor Screening Program (EDSP).⁶ In 2009, EPA issued the final list of the first group of 67 chemicals that were screened under EDSP for Tier 1 testing, including pesticide active ingredients and High Production Volume (HPV) chemicals used as pesticide inert ingredients, and announced the second list of 109 chemicals in 2013.⁷ EPA continues to develop policies and procedures, review screening results, and develop test guidelines under the EDSP.

V. DATA COMPENSATION AND ARBITRATION

¹⁷62 Fed. Reg. 49370, 49372 (Sept. 19, 1997).

¹⁸See PR Notice 2000-8 (Sept. 2000).

¹⁹*Id.*

²⁰*Id.*

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¹FFDCA § 408(f), 21 U.S.C.A. § 346a(f).

²See § 17:31.

³15 U.S.C.A. § 2603.

⁴21 U.S.C.A. § 346a(f)(1)(C).

⁵FFDCA § 408(p), 21 U.S.C.A. § 346a(p).

⁶See, *e.g.*, 63 Fed. Reg. 42852 (Aug. 11, 1998); 63 Fed. Reg. 71542 (Dec. 28, 1998); 70 Fed. Reg. 56449 (Sept. 27, 2005); 72 Fed. Reg. 38577 (July 13, 2007); 74 Fed. Reg. 17560 (Apr. 15, 2009).

⁷74 Fed. Reg. 17579 (Apr. 15, 2009); 78 Fed. Reg. 35922 (June 14, 2013), modified May 2014 (<https://www.epa.gov/endocrine-disruption/final-second-list-chemicals-tier-1-under-endocrine-disruptor-screening-program>).

**§ 17:35 Mandatory data licensing and exclusive use under § 3(c)(1)(F)—
The statutory provisions**

EPA's consideration of previously submitted data cited by a subsequent registration applicant is governed by the "data compensation" and "exclusive use" provisions of FIFRA § 3(c)(1)(F).¹ FQPA expressly provided that data submitted to support pesticide tolerances and exemptions are protected by these provisions.² FIFRA Section 3(c)(1)(F) permits an applicant for a new or amended registration to support its application by citing relevant data previously submitted to EPA by another registrant (or registrants) instead of generating a new set of data. The data submitters' permission is not required for an applicant to rely on the previously submitted data, but EPA may not consider the data to support the new applicant's registration application unless the applicant has offered to compensate the data submitters for reliance on the data. A registration applicant can identify the companies to which compensation offers must be sent by consulting EPA's "Data Submitters List," which lists data submitters according to the active ingredient on which they have submitted data. A company is entitled to receive compensation for a period of fifteen years following the submission of the data to support the subsequent registrants.³

EPA may issue a me-too registration once the applicant has extended the required offers of compensation, even if the applicant and the data submitter have not yet agreed upon, or an arbitrator determined, the amount of compensation that is appropriate. Thus, compensation disputes do not delay issuance of a registration.⁴

Under the "exclusive use" provision,⁵ data submitted in support of a pesticide containing a new active ingredient first registered after September 30, 1978, may not be used to support the application of any other registration applicant for a period of ten years following the registration of the new pesticide. Additional exclusive-use protection may be available if the registrant submits data supporting minor uses of a pesticide.⁶ An applicant seeking to register a product on which there are exclusive use data in EPA's files will therefore either have to generate its own new data or obtain the exclusive use data submitter's permission to rely on the earlier, protected data.

EPA has promulgated regulations to implement data submitters' data compensation and exclusive use rights.⁷ The regulations include procedures by which data submitters can challenge subsequent registrations on the grounds of failure to comply with applicable data submission, compensation, and exclusive use provisions.⁸

**§ 17:36 Mandatory data licensing and exclusive use under § 3(c)(1)(F)—
The *Monsanto* decision**

The mandatory data licensing provisions were controversial upon their enactment in 1972. Because the data compensation provisions were linked to the statutory pro-

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¹7 U.S.C.A. § 136a(c)(1)(F). Pub. L. No. 102-237 (effective Dec. 1991) redesignated FIFRA § 3(c)(1)(D), the previous data compensation provision, as § 3(c)(1)(F), but made no substantive changes. See generally 40 C.F.R. pt. 152. See also § 17:4.

²FFDCA § 408(i), 21 U.S.C.A. § 346a(i).

³FIFRA § 3(c)(1)(F)(iii), 7 U.S.C.A. § 136a(c)(1)(F)(iii).

⁴See generally FIFRA § 3(c)(1)(F)(ii), 7 U.S.C.A. § 136a(c)(1)(F)(ii). See § 17:37 (arbitration).

⁵FIFRA § 3(c)(1)(F)(i), 7 U.S.C.A. § 136a(c)(1)(F)(i).

⁶FIFRA § 3(c)(1)(F)(ii), (v), (vi), 7 U.S.C.A. § 136a(c)(1)(F)(ii), (v), (vi).

⁷40 C.F.R. pt. 152.

⁸40 C.F.R. §§ 152.99, 152.116.

visions governing disclosure and confidentiality of information submitted to EPA, a data submitter that claimed its data to be trade secret could make those data unavailable for citation by subsequent applicants. In 1978, however, Congress amended § 3(c)(1)(F) to add the exclusive use provisions and to sever the link between FIFRA's compensation and confidentiality provisions.¹ Thus, the 1978 statute made all data other than those protected by the exclusive use provisions subject to citation by subsequent applicants without the data submitter's permission.

Many data submitters were critical of FIFRA's mandatory licensing scheme, arguing that it failed to provide an adequate incentive for innovation and the development of new products. As a result, a number of legal challenges were filed, alleging that FIFRA effected an unconstitutional taking of the data submitters' property rights in their data without just compensation. All of these challenges were rejected by the courts until April 1983,² when the Eastern District of Missouri declared FIFRA's mandatory data licensing provisions unconstitutional in *Monsanto Co. v. Acting Administrator, EPA*.³ The issuance of registrations in reliance on previously submitted data without the permission of the submitter was enjoined while the Supreme Court reviewed the case.

In June 1984, the Supreme Court unanimously reversed the district court's decision and held that the data compensation scheme of § 3(c)(1)(F) is constitutional.⁴ Relying on an evaluation of data submitters' "reasonable investment-backed expectations," the Court held that there could not have been such expectations that data submitted before 1972 could not be cited because the practice followed by USDA and EPA before 1972 had apparently been to consider existing data in acting on new applications for registration. Similarly, registrants could not reasonably expect to protect from citation data submitted after 1978, when FIFRA made it clear that all non-exclusive use data would be subject to citation. Thus, for pre-1972 and post-1978 data, the Court found that there would be no taking.

§ 17:37 Arbitration—The statutory provisions

Under both §§ 3(c)(1)(F) and 3(c)(2)(B), disputes over appropriate compensation or cost-sharing are to be resolved by binding arbitration.¹ Although the 1972 version of FIFRA had provided that compensation disputes were to be resolved by EPA through adjudicatory hearing procedures, the Agency advocated a change when the law was amended in 1978. EPA cited its lack of experience and expertise in resolving the economic and competitive questions raised by compensation disputes,² and Congress responded by amending the law to provide for arbitration of such disputes. Under

[Section 17:36]

¹See § 17:35.

²See, e.g., *Dow Chemical Co. v. Train*, 423 F. Supp. 1359, 9 Env't. Rep. Cas. (BNA) 1678, 7 Env'tl. L. Rep. 20262 (E.D. Mich. 1976); *Mobay Chemical Corp. v. Costle*, 517 F. Supp. 254, 16 Env't. Rep. Cas. (BNA) 1273 (W.D. Pa. 1981), judgment aff'd in part, vacated in part, 682 F.2d 419, 17 Env't. Rep. Cas. (BNA) 1737, 12 Env'tl. L. Rep. 20776 (3d Cir. 1982); *Petrolite Corp. v. U.S. Environmental Protection Agency*, 519 F. Supp. 966, 18 Env't. Rep. Cas. (BNA) 1024, 11 Env'tl. L. Rep. 20751 (D.D.C. 1981); *Chevron Chemical Co. v. Costle*, 499 F. Supp. 732, 11 Env'tl. L. Rep. 20147 (D. Del. 1980), judgment aff'd, 641 F.2d 104, 16 Env't. Rep. Cas. (BNA) 2004, 11 Env'tl. L. Rep. 20156 (3d Cir. 1981).

³*Monsanto Co. v. Acting Adm'r, U.S. E.P.A.*, 564 F. Supp. 552, 18 Env't. Rep. Cas. (BNA) 2081, 13 Env'tl. L. Rep. 20561 (E.D. Mo. 1983), vacated and remanded, 467 U.S. 986, 104 S. Ct. 2862, 81 L. Ed. 2d 815, 21 Env't. Rep. Cas. (BNA) 1062, 14 Env'tl. L. Rep. 20539 (1984).

⁴*Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 104 S. Ct. 2862, 81 L. Ed. 2d 815 (1984).

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¹7 U.S.C.A. §§ 136a(c)(1)(F)(ii), (c)(2)(B)(iii).

²See, e.g., H.R. Rep. No. 95-343, pt. 1, at 8 (1977), 1977 U.S.C.C.A.N. at 1974.

§ 3(c)(1)(F), arbitration may be requested if the parties have not agreed on the amount and terms of compensation for the use of data after ninety days from delivery of the offer to compensate.³ Section 3(c)(2)(B) provides that, within sixty days of notifying EPA that they have agreed to develop additional data jointly, the registrants are to agree on the terms of the data development arrangement or on a procedure for reaching such an agreement. If such a further agreement is not reached within that time period, any of the registrants may initiate binding arbitration proceedings.⁴

The statute provides that arbitration is initiated by filing a request with the Federal Mediation and Conciliation Service (FMCS) to appoint an arbitrator from the roster of such arbitrators maintained by FMCS.⁵ In actuality, because FMCS has delegated its authority to the American Arbitration Association (AAA), the arbitration requests are filed with AAA. FIFRA arbitrations are conducted pursuant to rules based on AAA's Commercial Arbitration Rules that were promulgated by FMCS.⁶

FIFRA provides that the findings and determinations of the arbitrator shall be final and conclusive, and are not subject to judicial review except for fraud, misrepresentation, or other misconduct by one of the parties to the arbitration or the arbitrator. A lawsuit seeking review of an arbitration award must be based on a verified complaint with supporting affidavits attesting to specific instances of the alleged fraud, misrepresentation, or other misconduct.⁷

Under FIFRA § 3(c)(1)(F), EPA is to deny the registration application (or cancel the registration, if already issued) of a registration applicant that fails to participate in a procedure for reaching an agreement on compensation, fails to participate in an arbitration, or fails to comply with an agreement or arbitration award. A data submitter who fails to comply shall forfeit its right to compensation.⁸ Similarly, under § 3(c)(2)(B), if EPA determines that a registrant has failed to take appropriate steps to participate in a procedure for reaching an agreement concerning the joint data development arrangement or in an arbitration proceeding decision concerning a joint data development agreement, EPA may issue a notice of intent to suspend the registration for which the additional data are required.⁹

§ 17:38 Arbitration—The *Union Carbide* decision

In addition to challenging the basic concept of mandatory data licensing,¹ data submitters also challenged FIFRA's reliance on binding arbitration to resolve data compensation disputes. As in *Monsanto*, they were successful in district court, but the district court decision was subsequently overturned by a unanimous Supreme Court.

In *Thomas v. Union Carbide Agricultural Products Co.*,² the arbitration features of FIFRA were challenged on the grounds that they delegate federal judicial power

³FIFRA § 3(c)(1)(F)(ii), 7 U.S.C.A. § 136a(c)(1)(F)(ii).

⁴FIFRA § 3(c)(2)(B)(iii), 7 U.S.C.A. § 136a(c)(2)(B)(iii).

⁵FIFRA §§ 3(c)(1)(F)(ii), 3(c)(2)(B)(iii), 7 U.S.C.A. §§ 136a(c)(1)(F)(ii), 136a(c)(2)(B)(iii).

⁶See 29 C.F.R. pt. 1440.

⁷FIFRA §§ 3(c)(1)(F)(ii), 3(c)(2)(B)(iii), 7 U.S.C.A. §§ 136a(c)(1)(F)(ii), 136a(c)(2)(B)(iii). See, e.g., *Cheminova A/S v. Griffin L.L.C.*, 182 F. Supp. 2d 68 (D.D.C. 2002).

⁸FIFRA § 3(c)(1)(F)(ii), 7 U.S.C.A. § 136a(c)(1)(F)(ii).

⁹FIFRA § 3(c)(2)(B)(iv), 7 U.S.C.A. § 136a(iv). See § 17:51 (suspension).

[Section 17:38]

¹See § 17:35.

²*Thomas v. Union Carbide Agr. Products Co.*, 473 U.S. 568, 105 S. Ct. 3325, 87 L. Ed. 2d 409

to individuals, *i.e.*, the arbitrators, who do not have the constitutional attributes of federal judges (such as presidential appointment and lifetime tenure) and whose decisions in most instances are not reviewable by federal courts. Although this issue had been raised in *Monsanto*, the Supreme Court did not decide it in this case, finding it not yet ripe for review. In *Union Carbide*, however, the Court found the issue ripe and held that the arbitration remedy was a sufficient mechanism for implementing the statutorily created right to data compensation. The Court found that FIFRA provided sufficient judicial review to escape constitutional infirmity. The Court reserved judgment on another issue, *i.e.*, whether the statute unconstitutionally delegated legislative powers without establishing adequate standards to govern the exercise of those powers. However, the Court noted that “the legislative history . . . is far from silent,” citing portions of that history that indicate compensation should be based on study costs.³ The plaintiffs did not pursue this issue further.

§ 17:39 Compensation decisions

Compensation decisions tend to be very fact specific, making it difficult to generalize about such cases, and arbitration decisions do not, by their very nature, establish binding precedent. Moreover, the vast majority of data compensation and cost sharing matters are resolved without arbitration, and many arbitration decisions are not made public. It thus is not particularly meaningful to cite “trends” in the decisions, other than to observe that, as the system has matured, claimants have focused on recovery of what they assert to be data production costs and largely stopped seeking patent-like royalties. Nonetheless, citation to arbitrators of decisions in previous disputes often occurs in arbitration proceedings, and thus a review of some of the decisions is informative.

§ 17:40 Compensation decisions—Decisions by EPA under 1972 act

Two compensation cases were brought under the 1972 law, under which an EPA Administrative Law Judge (ALJ), rather than the arbitrators provided for by the current law, decided proper compensation in substantive decisions. In the first, *Ciba-Geigy Corp. v. Farmland Industries, Inc.*, Ciba-Geigy’s actual data production costs were divided on the basis of market shares.¹ The ALJ rejected its claim for royalties for the benefits Farmland gained by not having to spend the time to generate its own data.

In *Union Carbide v. Thompson-Hayward Chemical Co.*,² the ALJ again found that compensation should be determined by the cost to the data producer rather than the value of the benefits accruing to the follow-on registrant. The ALJ disallowed compensation for costs that were not adequately shown to be attributable to generating the particular data relied on by Thompson-Hayward. Also disallowed was compensation for “losses”—the cost of research on noncommercialized products—that were allocable to the development of the commercially successful pesticide use supported by the data in question. In contrast to the *Ciba-Geigy* decision, *Union Carbide* divided the compensable costs on a per capita, equal sharing basis rather than according to market shares.

(1985).

³*Id.* at 593.

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¹*Ciba-Geigy Corp. v. Farmland Indus., Inc.*, FIFRA Comp. Docket Nos. 33, 34, 41, Initial Decision (EPA 8-19-80), Order Denying Motion for Reconsideration (9-26-80), Final Order Issued by the Judicial Officer (4-30-81), Affirmed by the Administrator (7-28-81).

²*Union Carbide v. Thompson-Hayward Chem. Co.*, FIFRA Comp. Docket No. 27, Initial Decision (EPA 7-13-82).

§ 17:41 Compensation decisions—Subsequent arbitration decisions

Under the 1978 amendments to FIFRA, more than 30 arbitration decisions have been made public (in some cases with some information redacted); other decisions and settlement agreements are nonpublic by agreement of the parties. The reported decisions are a mix of final awards and preliminary decisions, some involving cases brought under § 3(c)(1)(F), others involving data cost-sharing under § 3(c)(2)(B), and some addressing compensation under both provisions.

The costs recognized as compensable in the public arbitration decisions vary depending on the facts, with some decisions allowing compensation for costs denied and other cases allowing compensation only for costs incurred. Additionally, compensable costs may be subject to adjustments, the permissibility and adjustment factors of which also vary among cases. Finally, the arbitrators in these cases have chosen various allocation methods to divide data costs, including per capita allocation, modified per capita and market share allocations, and pure market share allocation.

§ 17:42 Compensation decisions—Arbitration decisions under current act—Compensable costs

[SUMMARY BOX] Data compensation involves several elements: study costs, study managements costs, inflation/financing costs, and risk premiums. Those costs must then be allocated among the parties

In the first § 3(c)(1)(F) case under the 1978 amendments, *Stauffer Chemical Co. v. PPG Industries, Inc.* (PPG), the data submitter, Stauffer, received a substantial compensation award.¹ The tribunal concluded that direct study costs and overhead costs were compensable. The tribunal generally rejected direct compensation for efficacy studies because such studies were not required to be submitted to EPA. However, the tribunal awarded Stauffer compensation for the “slavish copying” of Stauffer’s labels by PPG, because “the incorporation of their substance in PPG’s own approved labels presupposes EPA’s use of the underlying Stauffer data in their approval.”

A royalty was denied in the next fully-arbitrated decision, *DuPont v. Griffin*.² That case was the first case to address compensation and cost-sharing under both § 3(c)(1)(F) and § 3(c)(2)(B), and the award simply allocated study costs among the registrants based on “the realities of the marketplace”—essentially, a market share based allocation with a ten percent floor. The arbitration panel also concluded that the costs of “supplemental” or “unacceptable” studies were not compensable unless such costs concerned “core supplemental data” filed before the registration was granted. With regard to § 3(c)(2)(B) cost-sharing, the panel decided that the follow-on registrants need share only the costs of studies required and “accepted” by EPA. The panel’s § 3(c)(1)(F) award provided that compensation would be limited to data originally submitted after December 31, 1969, and that neither efficacy data nor data submitted at the registrant’s initiative for purposes of defending a product under special review would be compensable.³

Subsequent cases have largely institutionalized awards for direct study and

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¹*Stauffer Chem. Co. v. PPG*, Docket No. 16-199-077-82 FIFRA (1983) (Birch, Smolka, and Vassil, Arbs.).

²*Dupont v. Griffin Corp. and Drexel Chem. Corp.*, Docket No. 16-171-0080M (1988) (Birch, Juten, Foy, Arbs.).

³*In Abbott Laboratories v. Agtrol Chemical Products, Inc.*, Docket No. 16-171-00536-89G (1991),

overhead costs, but employed several different methods of cost calculation and allocation. Only one conclusion has been consistent: costs must be adequately established in order to be compensable. For example, in *Enviro-Chem, Inc. v. Lilly Industries, Inc.*, the arbitrator rejected “replacement value” as a basis for data costs, concluding that Enviro-Chem was entitled to compensation only for data costs it actually incurred.⁴ The arbitrator also reasoned that replacement costs would be equally inappropriate if introduced by a follow-on registrant: “the underlying purposes of FIFRA are best effectuated by awarding data compensation costs in accordance with actual, historic costs of the original data submitter rather than speculative assertions as to the replacement value of such studies to the subsequent registrant.” Similarly, in *DowElanco & the Trifluralin Data Development Consortium v. Albaugh, Inc.*, the panel noted that arbitration claims may legitimately be pursued on the basis of estimated costs, but that claimants should recognize that such costs are likely to be less persuasive than those supported by more detailed contemporaneous records and may therefore be subject to discounting.⁵ In *Spray Drift Task Force v. Burlington Industries*, the arbitrator applied a 25 percent reduction to claimant’s asserted costs.⁶

Certain claims are routinely rejected in the body of reported arbitrations. Claims for the costs of efficacy studies have generally been denied in the cases that have considered the issue subsequent to *Stauffer Chemical*.⁷ Moreover, costs associated with the testing of formulations or crop applications differing from the follow-on registrant’s intended use have been denied,⁸ with a limited exception when the data either relate to the follow-on’s product or a product substantially similar to the follow-on’s product or its active ingredient.⁹

The importance of particular facts to arbitration outcomes is demonstrated by the decision in *American Cyanamid Co. v. Aceto Co.*, in which the panel included two arbitrators who had decided the *DuPont* case.¹⁰ Nonetheless, the decision departed from the reasoning in *DuPont* with regard to future studies. Whereas in *DuPont* the

two arbitrators believed that royalties based on early market entry and opportunity costs were legally permissible under FIFRA, but that evidence in the case did not support such an award. The third arbitrator, in a separate opinion, expressed the view that such royalties are not recoverable under FIFRA’s data compensation provisions, but no other opinions have adopted this view.

⁴*Enviro-Chem, Inc. v. Lilly Indus., Inc.*, Docket No. 23-171-00003-97 (1999) (Fielding, Arb.).

⁵*DowElanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-171-00100-95 (1998) (Birch and Wooden, Arbs.). See also *Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999) (Charnoff, Arb.) (discounting to 65% of claimed consultant’s costs because of poor supporting documentation).

⁶*Spray Drift Task Force v. Burlington Industries*, Docket No. 16-171-Y-00474-03 (2005) (Mercurio, Arb.). Royalties have been sought in subsequent cases, but never obtained. See, e.g., *DowElanco and the Trifluralin Data Development Consortium v. Albaugh* (June 1, 1998); *Abbott Labs. v. Agtrol Chem. Prods., Inc.*, Docket No. 16-171-00536-89G (1991).

⁷See, e.g., *DuPont v. Griffin Corp. & Drexel Chem. Corp.*, Docket No. 16-171-0080-86M (1988) (Birch, Juten, and Foy, Arbs.); *Abbott Labs. v. Agtrol Chems. Prods., Inc.*, Docket No. 16-171-00536-89G (1991) (Birch, Boyd, and Charnoff, Arbs.); *GB Biosciences Corp. v. Nations Ag II LLC*, Docket No. 23 171 00033 00 (May 17, 2001) (granting motion to strike efficacy and storage stability studies that were not cited in registration application submitted under the selective method).

⁸See *DuPont v. Griffin Corp. & Drexel Chem. Corp.*, Docket No. 16-171-0080-86M (1988).

⁹See *DowElanco*, FIFRA Case No. 52-Y-171-00100-95 (1998) (citing 40 C.F.R. § 152.86); see also *Amvac Chem. Corp. v. Termilind Ltd.*, Docket No. 23-171-00002-96 (1998) (Aldock, Butterfield, and Wilson, Arbs.) (allowing compensation where EPA announced that data on one product could be used to satisfy requirements for another product, but denying compensation for studies done on other related products because follow-on did not register these products and EPA did not designate the data as satisfying requests for the registered products).

¹⁰*American Cyanamid Co. v. Aceto Co.*, Docket No. 13-171-0800-85 (1989) (Juten, Foy, and Mathis, Arbs.).

follow-on registrants were not required to contribute to § 3(c)(2)(B) costs until EPA had “accepted” the studies, the *American Cyanamid* decision required the follow-on to pay their share of future costs when the producer incurred them.

§ 17:43 Compensation decisions—Arbitration decisions under current act—Risk and cost avoidance

Several claimants have successfully convinced arbitrators that compensation awards should include, or may be adjusted to account for, such factors as risk, opportunity costs, and early market entry costs avoided by the follow-on registrant. In *Stauffer Chemical Co. v. PPG*,¹ the tribunal awarded Stauffer running royalties on PPG’s profits on the pesticide for the ten years following the arbitration to compensate Stauffer for the “opportunity costs” and early market entry costs avoided by PPG. A few years later, the *American Cyanamid Co. v. Aceto Co.* decision stated that a basic producer may have to forego research opportunities because of diverting its resources to generating data on behalf of both registrants who received a DCI under FIFRA § 3(c)(2)(B).² The panel did not award separate compensation for these lost opportunities, however; instead, the panel stated that it took them into consideration in arriving at the total compensation figure.

In recent years, considerable attention has been directed to whether “risk” is a cost incurred by data submitters that should be reflected on an award. A number of arbitration panels have awarded adjustments for risk avoidance.³ These adjustments range from five percent to a high of 60 percent.⁴ The factors cited in support of the awards have varied from case to case, but common or related factors include: the original registrant’s potential inability to recoup costs from future sales, the assumption of testing risks by the original registrant, the original registrant’s advancement of capital to fund tests, the value to the follow-on of early entry into the market, the follow-on’s avoidance of regulatory delay, and the inclusion of risk

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¹*Stauffer Chem. Co. v. PPG*, Docket No. 16-199-077-82 FIFRA (1983) (Birch, Smolka, and Vassil, Arbs.). PPG avoided opportunity costs not only by avoiding the normal regulatory delay, but also by copying Stauffer’s product labels. Additionally, the arbitrators determined that PPG avoided an investment of five years’ time, for which Stauffer was entitled to compensation. The award of royalties was challenged unsuccessfully in court by PPG. *See American Cyanamid Co. v. Aceto Co.*, Docket No. 13-171-0800-85 (1989).

²*See American Cyanamid Co. v. Aceto Co.*, Docket No. 13-171-0800-85 (1989).

³*See DowElanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-171-00100-95 (1998) (Birch and Wooden, Arbs.); *Amvac Chem. Corp. v. Termilind Ltd.*, Docket No. 23-171-00002-96 (1998) (Aldock, Butterfield, and Wilson, Arbs.); *Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999) (Charnoff, Arb.); *Microgen, Inc. v. Lonza, Inc.*, AAA Case No. 23-171-00003-96 (2000) (Birch, Wilson, and Doolittle, Arbs.); *Cheminova A/S v. Griffin LLC*, AAA No. 23-171-00020-99 (2001) (Aldock, Ablard, Curtin, Arbs.).

⁴*See Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999) (awarding nominal risk factor of 5 percent because claimants failed “to support any particular risk factor” but “some risk was obviously involved”); *Microgen, Inc. v. Lonza, Inc.*, AAA Case No. 23-171-00003-96 (2000) (awarding 60 percent risk premium for a portion of the costs incurred in the five-year period before EPA granted approval of one disinfectant claim, but declining to apply risk premium to data costs of another claim where claim was promptly granted by EPA); *see also DowElanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-171-00100-95 (1998) (awarding 25 percent surcharge on data costs); *Amvac Chem. Corp. v. Termilind Ltd.*, Docket No. 23-171-00002-96 (1998) (awarding 25 percent risk premium on costs incurred prior to follow-on’s registration); *Avecia, Inc. v. Mareva Piscines Et Filtration’s S.A.*, Case No. 23 171 00170 99 (Aug. 15, 2002) (awarding 10% risk premium); *Syngenta Crop Protection, Inc. v. Oxon Italia, S.p.A.*, FIFRA Case No. 16 171 00180 05 (Aug. 13, 2007) (awarding 25% risk premium).

surcharges in industry task force agreements.⁵ Other arbitrators, faced with different fact circumstances, have refused to make such adjustments.⁶

§ 17:44 Compensation decisions—Arbitration decisions under current act—Adjustments for inflation and interest

Two recurring issues in the body of reported arbitrations are whether the follow-on applicant must: (1) pay for the present value of the historic costs (*i.e.*, an “inflation” adjustment), and (2) pay an interest charge (inflation-free when the follow-on pays present value) for the “carrying” costs of the data submitted by the original registrant. Such adjustments typically have been made.¹

In *FMC Corp. v. Tricon International*, the second case to arise under the 1978 amendments and the first to address FIFRA § 3(c)(2)(B), the panel concluded that the allocation should be adjusted for the cost of capital (*i.e.*, interest) between the time the costs were incurred and the time of the compensation award.² In the next case to consider the issue, *DuPont v. Griffin Corp. & Drexel Chemical Corp.*, the panel reasoned that the cost to all existing registrants of data required under FIFRA § 3(c)(2)(B) includes interest from the time the data were submitted to EPA to the time of reimbursement.³ The *DuPont* panel fixed the interest rate at ten percent, accruing from the submission of the data to EPA until thirty days after the invoice date. Many subsequent decisions have maintained one of these two approaches.⁴ More recent decisions now focus on the adjustment factor to be applied (*e.g.*, prime rate interest, inflation, GDP implicit price deflator) and a few arbitra-

⁵See *Cheminova A/S v. Griffin LLC*, AAA No. 23-171-00020-99 (2001) (Aldock, Ablard, Curtin, Arbs.); *DowElanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-171-00100-95 (1998); *Amvac Chem. Corp. v. Termilind Ltd.*, Docket No. 23-171-00002-96 (1998); *Microgen, Inc. v. Lonza, Inc.*, AAA Case No. 23-171-00003-96 (2000); *Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999) (voluntary settlement agreement); *Syngenta Crop Protection, Inc. v. Oxon Italia, S.p.A.*, FIFRA Case No. 16 171 00180 05 (Aug. 13, 2007).

⁶*Syngenta Crop Protection, Inc. v. Drexel Chemical Co.*, Docket No. 16-171-Y-00386-07 (2010) (Greer, Harty, and Manning, Arbs.); *Spray Drift Task Force v. Burlington Indus.*, Docket No. 16-171-Y-00474-03 (2005) (Mercurio, Arb.); *Enviro-Chem., Inc. v. Lilly Indus., Inc.*, Docket No. 23-171-00003-97 (1999) (Fielding, Arb.); *Dow Elanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-00100-95 (1998) (Birch and Wooden, Arbs.); *Syngenta Crop Protection, Inc. v. Drexel Chemical Co.*, FIFRA Case No. 16 171 Y 00386 07 (Sept. 20, 2010).

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¹See *Amvac Chem. Corp. v. Termilind Ltd.*, Docket No. 23-171-00002-96 (1998); *Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999); *Stauffer Chem. Co. v. PPG Indus., Inc.*, Docket No. 16-199-077-82 FIFRA (1983) (Birch, Smolka, and Vassil, Arbs.) (considering inflation only); *FMC Corp. v. Tricon Int'l*, Docket No. 16-199-0033084G FIFRA (1985) (Foy, Krister, and Morris, Arbs.); *DuPont v. Griffin Corp. & Drexel Chem. Corp.*, Docket No. 16-171-0080-86M (1988) (Birch, Juten, and Foy, Arbs.) (considering interest only); *American Cyanamid Co. v. Aceto Co.*, Docket No. 13-171-0800-85 (1989) (Juten, Foy, and Mathis, Arbs.) (same); *Ciba-Geigy Corp. v. Drexel Chem. Co.*, Docket No. 16-171-00321-92G (1994) (Baynard, Kirk, and Slattery, Arbs.) (considering inflation only); *DowElanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-171-00100-95 (1998) (awarding inflation only); *Microgen, Inc. v. Lonza, Inc.*, AAA Case No. 23-171-00003-96 (2000) (inflation not specified, but may be incorporated in the interest adjustment). *But see* 1996 Phosphine Task Force v. Bernardo Chemicals, Ltd., AAA Arb. No. 22-171-00029-96P (1998).

²*FMC Corp. v. Tricon Int'l*, Docket No. 16-199-0033084G FIFRA (1985).

³*DuPont v. Griffin Corp. & Drexel Chem. Corp.*, Docket No. 16-171-0080-86M (1988).

⁴See *American Cyanamid Co. v. Aceto Co.*, Docket No. 13-171-0800-85 (1989) (applying an eight percent interest adjustment to account for the time lag between when expenses were incurred and when payment is made by the follow-on registrant); *Amvac Chem Corp. v. Termilind Ltd.*, Docket No. 23-171-00002-96 (1998) (applying a prime rate adjustment from the time costs were incurred); *Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999) (applying the average prime interest rate for each calendar quarter from the midpoint of the time period in which the registrant's funds were expended through the present quarter of the arbitration); *Microgen, Inc. v. Lonza, Inc.*, AAA Case No. 23-171-

tors have found interest adjustments unjustifiable.⁵

§ 17:45 Compensation decisions—Arbitration decisions under current act—Cost allocation methods

Having determined the compensable costs and applicable adjustments, the arbitrator or panel must fashion a method of allocating the award. As a threshold matter, arbitrators generally must decide whether to allocate costs on a per capita, market share, or other basis. Under a pure per capita approach, the costs of the original registrant's data are shared equally by all registrants with active technical registrations, including the original registrant. Follow-on registrants, who often have smaller market shares than the data submitters, generally favor the competing market share approach, which allocates costs based on the parties' relative shares of the relevant market.

In *Stauffer Chemical Co. v. PPG*—in which the citing company was considerably larger than the data submitter—the panel allocated costs on a per capita basis, awarding one-half of the cost of testing, adjusted for inflation, although it offered no rationale for the allocation method it selected.¹ Decisions since have sometimes used a per capita approach and sometimes invoked market shares or similar considerations in making less-than-per-capita awards.

In *Enviro-Chem, Inc. v. Lilly Indus., Inc.*, the arbitrator reasoned that the per capita method best effectuates the purposes of FIFRA and the realities of EPA registration.² Under the per capita approach, all registrants bear the same costs and receive the same rights, thereby ensuring that each competitor will bear an equal cost for their equal right. Similar reasoning was employed in *Proem v. Grapetek*, wherein the arbitrator allocated costs based on the “number of entrants in the field.”³ The arbitrator held that there is a rebuttable presumption against a market share approach to allocation and that Grapetek had failed to rebut the presumption by offering only historical market share data and an estimate of future market share. In *Bayer CropScience LP v. Albaugh, Inc.*, the panel also applied a per capita allocation, stating: “FIFRA’s health and safety data requirements apply equally to all registrants, and the cost of satisfying these common obligations do not vary depending on a registrant’s ultimate product sales or market share.”⁴

Of the reported data compensation cases under the 1978 amendments, few have allocated costs under a pure market share theory. In *Ciba-Geigy Corp. v. Drexel Chemical Co.*, a case brought under FIFRA § 3(c)(2)(B), the primary issue was whether the data costs, which had been stipulated by the parties, should be al-

00003-96 (2000) (applying a six percent annual interest rate from the date of the follow-on's application to EPA until the time of the arbitration award); *BASF Corp. v. Albaugh, Inc.*, AAA No. 23 171 00040 00 (Sept. 25, 2002) (applying gross domestic product (GDP) implicit price deflator); *Syngenta Crop Protection, Inc. v. Oxon Italia, S.p.A.*, FIFRA Case No. 16 171 00180 05 (Aug. 13, 2007) (applying prime rate); *Monsanto Co. v. Tacoma Ag, LLC*, FIFRA Case No. 16 171 Y 00228 10 (Mar. 1, 2012) (applying GDP implicit price deflator).

⁵*Spray Drift Task Force v. Burlington Indus.*, Docket No. 16-171-Y-00474-03 (2005) (Mercurio, Arb.); *1996 Phosphine Task Force v. Bernardo Chem., Ltd.*, AAA No. 22-171-00029-96P (1998) (Green, Arb.).

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¹*Stauffer Chemical Co. v. PPG Industries, Inc.*, Docket No. 16-199-077-82 FIFRA (1983).

²*Enviro-Chem, Inc. v. Lilly Indus., Inc.*, Docket No. 23-171-00003-97 (1999) (Fielding, Arb.).

³*Proem v. Grapetek*, Docket No. 23-171-00027-98 (1999).

⁴*Bayer CropScience LP v. Albaugh, Inc.*, Partial Final Award (Oct. 21, 2015), Final Award (Dec. 8, 2015).

located based on the number of registrants or on Drexel's market share.⁵ The arbitrators determined that a market share allocation was appropriate given the circumstances of the case, recognizing that Drexel's market share, although small compared to Ciba-Geigy's at the time of the award, would likely increase in the future.

In *Syngenta Crop Protection, Inc. v. Drexel Chemical Co.*, the panel found that the specific facts of the case—Syngenta's strength in the market, the barriers to Drexel's entry, and the market share calculations used by the parties in initial settlement discussions—warranted a market share allocation of costs.⁶

In *DuPont v. Griffin Corp. & Drexel Chemical Corp.*, the arbitration panel adopted a modified market share theory, observing that a proper formula for § 3(c)(1)(F) compensation must consider "the realities of the marketplace."⁷ Accordingly, the panel's award provided that each follow-on registrant would bear a minimum of ten percent of the cost of data, regardless of its market and each would make additional payments based on its maximum market share for each of the first five years after its initial technical registration. With regard to § 3(c)(2)(B) cost-sharing, the panel decided that the follow-on registrant's share of costs would be based on its highest annual market share in the first five years after issuance of the EPA data requirement, except that if this market share exceeded a per capita share, the lower per capita share would govern.

Arbitrators are not limited to pure per capita or market share theories when selecting a method of allocation.⁸ The need for such modified approaches to allocation was highlighted in the 1998 case of *DowElanco & the Trifluralin Data Development Consortium v. Albaugh, Inc.*, wherein the arbitrators declined to adopt either the claimants' per capita approach (which, given the number of registrants, would have required the follow-on to pay 20 to 25 percent) or the respondent's market share approach (which would have required payment of seven to 20 percent of the test costs).⁹ Instead, the decision required Albaugh to pay a fixed share (15 percent) of the costs. The *DowElanco* arbitrators noted that "[t]he problems with sharing costs on a per capita basis center on how many companies are involved; what to do about multiple registrants; what to do about unused or slightly used registrations with few sales or little or no activity; [and] what to do to adjust for future settlements, registrations or parties." While a per capita approach was "too uncertain," predicting the future sales and profitability of the follow-on registrant was "too speculative." Additionally, the arbitrators in *DowElanco* reasoned that a market share approach would effectively allow the follow-on to avoid the risk of being unsuccessful: "[i]f it was a poor competitor with a low market share it would only have to pay a small share of the data cost." By paying a higher cost, the successful registrant with the larger market share would be required to subsidize the study costs of the unsuccessful follow-on.

VI. REGULATORY ACTIONS TO PROHIBIT OR LIMIT THE USE OF

⁵*Ciba-Geigy Corp. v. Drexel Chem. Co.*, Docket No. 16-171-00321-92G (1994) (Baynard, Kirk, and Slattery, Arbs.).

⁶*Syngenta Crop Protection, Inc. v. Drexel Chemical Co.*, Docket No. 16-171-Y-00386-07 (2010) (Greer, Harty, and Manning, Arbs.).

⁷*DuPont v. Griffin Corp. & Drexel Chem. Corp.*, Docket No. 16-171-0080-86M (1988) (Birch, Juten, and Foy, Arbs.).

⁸*See, e.g., American Cyanamid Co. v. Aceto Co.*, Docket No. 13-171-0800-85 (1989) (Juten, Foy, and Mathis, Arbs.) (noting that it is clear that FIFRA does not require the use of either per capita or market share allocation).

⁹*DowElanco & the Trifluralin Data Dev. Consortium v. Albaugh, Inc.*, FIFRA Case No. 52-Y-171-00100-95 (1998) (Birch and Wooden, Arbs.).

REGISTERED PESTICIDES

§ 17:46 EPA authority

EPA has wide authority to take regulatory actions to prohibit or limit the sale or use of a registered pesticide or to modify or revoke a pesticide's tolerance. As discussed below, the Agency may act to prevent unreasonable adverse effects on the environment as well as to respond to a registrant's failure to provide information required by a DCI or the conditions of a conditional registration.

§ 17:47 EPA authority—The “unreasonable adverse effects” standard

The standard to be applied by EPA in taking regulatory action against a pesticide on safety grounds is whether the pesticide “generally causes unreasonable adverse effects on the environment.” As previously described, a pesticide will be considered to cause “unreasonable adverse effects” if its risks outweigh its benefits or if it does not meet the FFDCA safety standard for pesticide residues in food that will result from its use.¹ Thus, for food-use products, a pesticide's registration may be canceled and its tolerance revoked if the food residues resulting from its use cannot be reduced to a “safe” level, without consideration of the pesticide's benefits (except in very limited circumstances).² When food uses are not involved, the “unreasonable adverse effects” standard requires a risk-benefit analysis to determine whether a pesticide may become and remain registered. In such cases, EPA may not cancel a registration solely on the basis of tests indicating adverse health or environmental effects, but must consider whether the risks are “unreasonable” when considered in light of the extent of exposure to the product, the chemical's benefits, and other relevant considerations.

EPA must make a similar determination before classifying a product for restricted use: the Agency must determine that the product will pose “unreasonable” risks or will not satisfy the FFDCA § 408 safety standard if its use is not restricted.³

§ 17:48 EPA authority—The *Diazinon* decision

The risk-benefit prong of the “unreasonable adverse effects” standard was reviewed in *Ciba-Geigy Corp. v. EPA*.¹ There, a pesticide manufacturer challenged EPA's decision to cancel the registration of the pesticide diazinon for use on golf courses and sod farms due to a risk of harm to birds. The manufacturer argued that the Administrator had misapplied the § 6(b) standard for cancellation by ignoring the word “generally” in the phrase “generally causes unreasonable adverse effects on the environment.”² The court held that the Administrator had in fact read the word “generally” out of § 6(b) and that the proper standard includes a determination that a pesticide not only causes unreasonable risks, but that it does so “with considerable frequency.”³ The court further held that because FIFRA defines “adverse effects” as “unreasonable risks,” the Administrator need not find that a

[Section 17:47]

¹See § 17:9.

²See § 17:9.

³See § 17:49.

[Section 17:48]

¹*Ciba-Geigy Corp. v. U.S. E.P.A.*, 874 F.2d 277, 29 Env't. Rep. Cas. (BNA) 1721, 19 Env'tl. L. Rep. 21281 (5th Cir. 1989).

²*Ciba-Geigy Corp. v. U.S. E.P.A.*, 874 F.2d 277, 278, 29 Env't. Rep. Cas. (BNA) 1721, 19 Env'tl. L. Rep. 21281 (5th Cir. 1989).

³*Ciba-Geigy Corp. v. U.S. E.P.A.*, 874 F.2d 277, 278, 280, 29 Env't. Rep. Cas. (BNA) 1721, 19

pesticide causes actual adverse consequences, but only that it creates a significant probability that adverse consequences could occur.⁴ While granting the manufacturer's petition to set aside the cancellation order, the court remanded the case to the Administrator for application of the proper legal standard.⁵

§ 17:49 EPA authority—Restricted use classification

If EPA determines that a pesticide may pose some unreasonable adverse effects but that those effects could be controlled by limiting the ways in which the pesticide is used, it may classify the pesticide as being for “restricted use.”¹ A restricted use classification means that the pesticide may only be applied by, or under the supervision of, a “certified applicator,” *i.e.*, a person who has been certified by federal or state government as being qualified by training to handle and apply restricted use pesticides.² Additional limitations on the use of a restricted use pesticide may be imposed by regulation.³

§ 17:50 EPA authority—Cancellation

If EPA determines that a pesticide generally poses unreasonable adverse environmental effects, EPA may decide to cancel the pesticide registration. EPA may also decide to cancel a registration unless the registrant agrees to delete one or more uses, or to make other revisions in the approved labeling or the other terms and conditions of registration. In the event of such a decision, the registrant has considerable procedural protection, including the right to request a formal evidentiary hearing on the substantive rationale for the proposed cancellation.¹ Nevertheless, these adjudicatory rights may have little practical utility in any instance where a tolerance is required because use of the pesticide will result in residues in food or feed, and EPA has adopted a final rule revoking the required tolerance under the FFDCA.² Moreover, because participating in an evidentiary hearing requires the registrant to expend substantial resources, and there is no assurance that such a hearing will not culminate in an adverse decision, such hearings are infrequent and the registrant will often reach an accommodation with EPA before a final decision.

FIFRA § 6(e) requires EPA to cancel a conditional registration when the registrant fails to satisfy the conditions imposed on the registration, such as the requirement that the registrant provide missing data at the same time that other registrants of

Env'tl. L. Rep. 21281 (5th Cir. 1989). To illustrate what it meant by “considerable frequency,” the court stated that a 30 percent risk that children might be killed by use of a pesticide would plainly be an unreasonable risk. However, a finding that diazinon posed an unreasonable risk of killing birds on ten percent of the golf courses on which it was used would not necessarily meet the considerable frequency test; instead, EPA should more narrowly define the class of golf courses on which to prohibit diazinon use. *Id.* at 279–80.

⁴*Id.* at 279.

⁵*Id.* at 278.

[Section 17:49]

¹FIFRA § 3(d)(1)(C), 7 U.S.C.A. § 136a(d)(1)(C).

²FIFRA § 3(d)(1)(C), 7 U.S.C.A. § 136a(d)(1)(C); FIFRA § 11, 7 U.S.C.A. § 136i, and 40 C.F.R. pt. 171 govern state and federal plans for the certification of applicators and the procedures by which responsibility for certification will be turned over to state governments by EPA.

³FIFRA § 3(d)(1)(c)(ii), 7 U.S.C.A. § 136a(d)(1)(C)(ii).

[Section 17:50]

¹FIFRA § 6(b), 7 U.S.C.A. § 136d(b); *see* § 17:55.

²*See* §§ 17:47 and 17:59.

the same active ingredient are required to do so.³ A conditional registrant who receives a notice of intent to cancel under § 6(e) is entitled to a hearing, but the procedures are more summary than those for a cancellation hearing initiated because of safety questions.⁴

A registrant may, for whatever reason, voluntarily cancel a registration or amend a registration to cancel one or more pesticide uses.⁵ The Administrator is required to publish a notice of the request in the *Federal Register* and allow thirty days for public comment. If the pesticide is registered for minor agricultural uses, EPA must publish the request to cancel, but may not act on the request for a ninety-day period if it is determined that the cancellation would adversely affect the availability of the pesticide for those uses.⁶

§ 17:51 EPA authority—Suspension

If EPA decides that the product creates an “imminent hazard,” *i.e.*, that it is so harmful that adverse effects during the time it would take to hold a cancellation hearing would be unreasonable, EPA may decide to suspend the pesticide registration pending the outcome of the cancellation hearing.¹ Except in the case of an emergency suspension (*see below*), a notice of intent to suspend must be preceded or accompanied by a notice initiating a proceeding to cancel the pesticide’s registration or to change its classification.² The registrant is entitled to an adjudicatory hearing on the question of the risks posed by the pesticide during the time it would take to hold a cancellation hearing, with the more general risk/benefit discussion deferred until the full cancellation hearing.³

The suspension on “imminent hazard” grounds of a pesticide that is ultimately canceled may give rise to a right to indemnification from EPA. A person owning the pesticide and suffering losses because of the suspension or cancellation may receive payments based on the cost of the pesticide unless the person had knowledge of facts showing that the pesticide did not meet the standards for registration and thereafter continued to produce the pesticide without notifying EPA of those facts.⁴

Additionally, as noted above,⁵ EPA may suspend the registration of a registrant that fails to take appropriate steps to comply with a DCI. The registration will remain suspended until the registrant has satisfied the DCI requirements. Affected registrants are entitled to hearings, which are subject to statutory time limits and restrictions on the scope of the issues to be addressed.⁶

§ 17:52 EPA authority—Emergency suspension

³7 U.S.C.A. § 136d(e).

⁴*See* § 17:56.

⁵FIFRA § 6(f), 7 U.S.C.A. § 136d(f).

⁶FIFRA § 6(f), 7 U.S.C.A. § 136d(f).

[Section 17:51]

¹*See* FIFRA §§ 2(1), 6(c), 7 U.S.C.A. §§ 136(1), 136d(c). *See generally* Environmental Defense Fund, Inc. v. Environmental Protection Agency, 548 F.2d 998, 9 Env’t. Rep. Cas. (BNA) 1433, 9 Env’t. Rep. Cas. (BNA) 1575, 7 Env’t. L. Rep. 20012, 7 Env’t. L. Rep. 20114 (D.C. Cir. 1976) (abrogated by, Director, Office of Workers’ Compensation Programs, Dept. of Labor v. Greenwich Collieries, 512 U.S. 267, 114 S. Ct. 2251, 129 L. Ed. 2d 221, 16 O.S.H. Cas. (BNA) 1825, 1994 A.M.C. 2855 (1994)); Environmental Defense Fund, Inc. v. Environmental Protection Agency, 510 F.2d 1292, 7 Env’t. Rep. Cas. (BNA) 1689, 5 Env’t. L. Rep. 20243 (D.C. Cir. 1975).

²FIFRA § 6(c)(1), 7 U.S.C.A. § 136d(c)(1).

³FIFRA § 6(c), 7 U.S.C.A. § 136d(c); *see* § 17:55.

⁴FIFRA § 15, 7 U.S.C.A. § 136m.

⁵*See* §§ 17:30 and 17:51.

⁶FIFRA § 3(c)(2)(B)(iv), 7 U.S.C.A. § 136a(c)(2)(B)(iv). *See* § 17:56.

If EPA determines that an emergency prevents the holding of a hearing prior to suspension, the Agency may issue an emergency suspension order. The order will take effect immediately and will remain in effect during the suspension hearing, which will be somewhat more limited in scope than a normal suspension hearing.¹ The order will expire if EPA does not issue a notice of intent to cancel the registration or change its classification within ninety days of issuing the emergency order.²

§ 17:53 Regulatory procedures—Special review

Although infrequently if ever used in recent years, EPA has the ability, except in cases requiring expedited action, to use the “Special Review” process to evaluate the available data on a pesticide and determine whether use restrictions, cancellation, or other regulatory action is appropriate. Section 3(c)(8) provides that EPA may not initiate a Special Review except on the basis of a “validated test or other significant evidence raising prudent concerns of unreasonable adverse risk to man or to the environment.” This “Grassley-Allen” amendment was intended to ensure that EPA would take into account the risks and benefits of a product before taking regulatory action, and to require the Agency to communicate with the affected registrant about EPA concerns and obtain the registrant’s input before initiating a public review of the pesticide.¹

EPA’s Special Review regulations, which incorporate the requirements of the Grassley-Allen amendment, specify the “risk criteria” used to initiate a Special Review.²

If EPA determines that proceeding with a Special Review is appropriate, it will publish a Notice of Special Review in the *Federal Register* and provide an opportunity for public comments. After the period for public comment, the Agency publishes a “preliminary determination” of what regulatory action (for example, cancellation, restricted use classification, etc.) EPA proposes to take. There is another opportunity for public comment, during which EPA’s proposed action is referred to USDA and the Agency’s FIFRA Scientific Advisory Panel (SAP) for review.³ EPA’s final decision is then published, and accompanied by a notice of intent to cancel, change classification, or hold a hearing, and so on, as appropriate. If the Agency determines that regulatory action is required, the registrant is entitled to a *de novo* adjudicatory hearing, during which it can raise new issues as well as those previously raised during the Special Review.⁴

The regulations allow the Agency to combine the Notice of Special Review and Preliminary Determination stages in order to shorten the process.

EPA has conducted approximately 100 Special Reviews, but at present has only three pending completion (*i.e.*, aldicarb, triazines (atrazine, propazine, simazine),

[Section 17:52]

¹FIFRA § 6(c)(3), 7 U.S.C.A. § 136d(c)(3).

²FIFRA § 6(c)(3), 7 U.S.C.A. § 136d(c)(3); *Dow Chemical Co. v. Blum*, 469 F. Supp. 892, 13 Env’t. Rep. Cas. (BNA) 1129, 9 Env’tl. L. Rep. 20583 (E.D. Mich. 1979). *See* § 17:56.

[Section 17:53]

¹123 Cong. Rec. 36010 (1977) (Remarks of Rep. Grassley); H.R. Conf. Rep. No. 1560, 92d Cong., 2d Sess. 35 to 36 (1978), 1978 U.S.C.C.A.N. 1966, 2051 to 2052.

²40 C.F.R. pt. 154.

³The FIFRA SAP is established by FIFRA § 25(d) to serve as an independent source of expert advice to EPA on scientific questions pertaining to pesticide regulatory decisions. It consists of seven members appointed by EPA from a list of candidates nominated by the National Institutes of Health and the National Science Foundation.

⁴*See* § 17:55 (cancellation hearing procedures).

ethylene oxide).⁵ EPA has instead concentrated its resources on completing existing Special Reviews, and attempting to resolve risk concerns through negotiations with registrants.⁶ While negotiations to reduce the risks of a specific pesticide require significantly less time and fewer resources than a formal Special Review, EPA has no formal guidance on conducting these negotiations. Furthermore, EPA's use of informal negotiation has been criticized because it decreases public involvement in the risk reduction process.⁷

§ 17:54 Regulatory procedures—Restricted-use classification procedures

There are two basic procedures available to EPA once it has determined that a pesticide must be classified for restricted use in order to prevent unreasonable adverse effects to the environment. If the pesticide has previously been classified as a general use pesticide (not subject to the requirement that it be applied only by or under the supervision of a certified applicator),¹ EPA must provide the registrant with at least forty-five days' notice of the proposed change to a restricted use classification, and must publish notice of the proposed change in the *Federal Register*.² A registrant (or other interested party with the registrant's concurrence) may contest the proposed classification by requesting a hearing, which will be conducted in accordance with the procedures that govern cancellation hearings.³

Because of the time-consuming nature of such hearings, FIFRA provides for an alternate procedure that may be followed if the pesticide has not previously been formally classified for either general or restricted use. As the restricted use provisions were not added to FIFRA until 1972, many pesticides remain unclassified, the practical effect of which is the same as being classified for general use. Such previously unclassified pesticides may be reclassified for restricted use by the promulgation of a regulation by EPA.⁴ Although EPA must issue a proposed regulation and provide an opportunity for public comment before promulgating a final regulation, this process enables EPA to avoid the lengthy, individual trial-type hearings that are available to registrants when a general use classification is changed to a restricted use classification.

§ 17:55 Regulatory procedures—Cancellation hearing procedures

In order to initiate cancellation based on dietary risks, EPA must determine that the risks exceed the "reasonable certainty of no harm" standard applicable to pesticide residues in food under FFDCA Section 408. In order to initiate cancellation based on other risks (such as residential, occupational, or ecological risks), EPA must determine that the risks are unreasonable in light of the benefits associated with the pesticide use.

If EPA concludes that a pesticide registration must be canceled, that registered

⁵See EPA, Special Review Process, available at <https://www.epa.gov/pesticide-reevaluation/reregistration-and-other-review-programs-predating-pesticide-registration#special%20review>.

⁶EPA Office of Inspector General, Report of Audit: Special Review Process for Pesticides 33 (July 22, 1993) (Audit Report).

⁷See 59 Fed. Reg. 40905 (Aug. 10, 1994) (EPA response to criticism with a description of the opportunities the Agency may provide for public involvement in significant risk reduction decisions on registered pesticides).

[Section 17:54]

¹See § 17:48.

²FIFRA § 3(d)(2), 7 U.S.C.A. § 136a(d)(2).

³FIFRA § 3(d)(2), 7 U.S.C.A. § 136a(d)(2). See § 17:55 (cancellation hearing procedures).

⁴FIFRA § 3(d)(1)(A), 7 U.S.C.A. § 136a(d)(1)(A); 40 C.F.R. §§ 152.160, 152.164.

uses must be deleted or the approved labeling must be revised to avoid cancellation of the pesticide, or that the classification of the pesticide must be changed from general to restricted use to prevent unreasonable adverse effects, EPA may issue a notice of intent either to cancel (or change the classification of) the registration or to hold a hearing to determine whether the registration should be canceled (or the classification changed). The notice must set forth the basis for EPA's determination and must be sent to the registrant and made public.¹

Prior to issuing such a notice, EPA must consider, among other factors, the effect of the proposed regulatory action on the agricultural economy and must submit the proposal to USDA for comments. At the same time (sixty days prior to issuance of the notice unless otherwise agreed), the proposed notice must also be submitted for review by the FIFRA SAP.² EPA's response to comments received from USDA and SAP must be reflected in the final notice issued by the Agency.

If EPA issues a notice of intent to cancel, the cancellation will take effect unless, within thirty days, either the registrant makes changes in its registration that eliminate the basis for the cancellation, or a person adversely affected by the notice requests a hearing and files objections to the notice of intent to cancel. In the second situation, a hearing is conducted before an EPA ALJ. If EPA issues a notice of intent to hold a hearing, a hearing automatically will be held with respect to the issues specified in the Agency's notice. In either case, the hearing is a full, adjudicatory hearing, with witnesses, cross-examination, and briefing of the issues by the parties. EPA regulations also provide for an opportunity for discovery and prehearing conferences, as appropriate, and the statute authorizes the referral of questions of scientific fact to a NAS committee. The ALJ is to render an initial decision, supported by detailed findings of fact, on the basis of the evidence in the record of the hearing. The ALJ's decision will become final unless appealed to the Environmental Appeals Board (EAB) in accordance with Agency regulations.³

§ 17:56 Regulatory procedures—Modified hearing procedures

Under FIFRA and EPA regulations, the hearing procedures described above are modified for certain types of proceedings. As a general rule, the modifications are intended to expedite the process and limit the scope of the issues that are addressed in the hearing.

If EPA determines that suspension of a registration is necessary to prevent an "imminent hazard" during the time required for cancellation proceedings,¹ the notice of intent to cancel may be accompanied by an order immediately suspending the registration. The suspension then takes effect unless a hearing is requested within five days for the purpose of determining whether an imminent hazard exists. If a hearing is requested, it must begin within five days. The ALJ has ten days from the conclusion of the hearing to submit recommended findings and conclusions to the EAB, which will then have seven days to issue a final order with respect to suspension. A final order on the question of suspension is subject to judicial review,

[Section 17:55]

¹FIFRA § 6(b), 7 U.S.C.A. § 136d(b).

²FIFRA §§ 6(b), 25(d), 7 U.S.C.A. §§ 136d(b), 136w(d).

³*See generally* FIFRA § 6(b), (d), 7 U.S.C.A. § 136d(b), (d); 40 C.F.R. pt. 164; *Dow Chemical Co. v. Allen*, 672 F.2d 1262, 3 Ed. Law Rep. 274, 17 Env't. Rep. Cas. (BNA) 1013, 13 Env'tl. L. Rep. 20444 (7th Cir. 1982); *Environmental Defense Fund, Inc. v. Costle*, 631 F.2d 922, 15 Env't. Rep. Cas. (BNA) 1217, 15 Env't. Rep. Cas. (BNA) 1611, 10 Env'tl. L. Rep. 20585 (D.C. Cir. 1980); *Stearns Elec. Paste Co. v. E.P.A.*, 461 F.2d 293, 4 Env't. Rep. Cas. (BNA) 1164, 2 Env'tl. L. Rep. 20368 (7th Cir. 1972).

[Section 17:56]

¹*See* § 17:50.

even if related cancellation proceedings have not been completed.²

If EPA determines that an emergency suspension order is required,³ the suspension goes into effect pending the “expeditious completion” of a suspension hearing. In addition, no party other than the registrant and EPA may participate in the hearing, except that anyone adversely affected by the suspension order may file briefs and, upon doing so, will be considered a party to the hearing for purposes of judicial review.⁴ The hearing procedures are also modified in the case of a suspension hearing initiated because of the registrant’s failure to satisfy a DCI.⁵ In such an instance, the proposed suspension will take effect unless a hearing is requested within thirty days. The hearing is conducted in accordance with the procedures that govern cancellation hearings, except that the only matters to be heard at the hearing are whether the registrant failed to take the action that served as the basis for EPA’s notice of intent to suspend, and whether any EPA decision with respect to the disposition of existing stocks of the pesticide is consistent with FIFRA. The hearing must be completed and a decision made within seventy-five days of the Agency’s receipt of the request for a hearing.⁶

Modified hearing procedures also apply in the event EPA decides to cancel a conditional registration because the registrant did not initiate and pursue appropriate action toward fulfilling a condition of registration, or has not met a condition of registration within the applicable time period. If EPA issues a notice of intent to cancel a conditional registration, the registration will be canceled unless a hearing is requested within 30 days. As in the case of a suspension hearing for failure to satisfy a DCI, the scope of the issues that may be considered in the hearing is limited and the hearing must be held and a final determination made within 75 days. The only issues to be considered are whether the registrant has initiated and pursued appropriate action to comply with the condition(s) in question, or has met the condition(s) in question within the specified time period, and whether EPA’s determination concerning existing stocks is consistent with FIFRA.⁷

EPA has strictly construed the limitations on the scope of the adjudicatory hearing that a registrant may obtain if EPA issues a notice of intent to cancel a conditional registration for failure to satisfy a condition of registration. In 2016, EPA sought to cancel the registrations for pesticides containing flubendiamide because the registrants did not satisfy a condition of registration that required them to voluntarily cancel the registrations following a formal determination by EPA that continued registration of the products would cause “unreasonable adverse effects.” The registrants sought a hearing concerning the legality of this termination condition, but the EAB found that the registrants had agreed to accept the condition when it was originally imposed, and that the registrants could have challenged the legality of the condition at that time by requesting a denial hearing.⁸

§ 17:57 Other matters related to suspension and cancellation— Indemnification

FIFRA provides for indemnification of registrants, consumers, and dealers and distributors who suffer financial loss as the result of EPA’s suspension and cancella-

²FIFRA § 6(c), 7 U.S.C.A. § 136d(c). *See also* 40 C.F.R. §§ 164.120 to 164.122.

³40 C.F.R. § 164.123. *See* § 17:52.

⁴FIFRA § 6(c)(3), 7 U.S.C.A. § 136d(c)(3); 40 C.F.R. § 164.121.

⁵*See* § 17:51.

⁶FIFRA § 3(c)(2)(B)(iv), 7 U.S.C.A. § 136a(c)(2)(B)(iv).

⁷FIFRA § 6(e), 7 U.S.C.A. § 136d(e).

⁸In *Re Bayer Cropscience LP*, FIFRA Appeal No. 16-01, Final Decision and Order, July 26, 2016.

tion of a pesticide registration.¹ Registrants and consumers are to be indemnified by the government; dealers and distributors are to be reimbursed by pesticide sellers, or, under limited circumstances, by the government.

EPA may not indemnify pesticide registrants unless Congress approves, in advance, a specific line item appropriation of funds.² Consumers (end users) are entitled to indemnification from the government's Judgment Fund without such an appropriation.³ Dealers and distributors are to be reimbursed by the parties from whom they purchased the pesticide (*e.g.*, registrants, wholesalers, and other dealers and distributors) unless the seller at the time of distribution or sale notified the dealer or distributor in writing that it would not provide reimbursement. The government will indemnify dealers and distributors only if (1) a dealer or distributor did not receive written notice from its seller that the pesticide was not subject to reimbursement, and (2) the seller, as a result of insolvency or bankruptcy, is unable to provide the reimbursement. In such cases, indemnification will come from the Judgment Fund without the requirement of a specific advance appropriation by Congress.⁴

The amount of indemnification will be based on the cost of the pesticide owned by the person to be indemnified immediately prior to issuance of the suspension notice, but is not to exceed the fair market value of the pesticide.⁵

§ 17:58 Other matters related to suspension and cancellation—Storage, disposal, and existing stocks

The 1988 FIFRA amendments reflect growing concern with the storage and disposal of suspended or canceled pesticides. EPA is now authorized to require (1) data on methods of safe storage and disposal of suspended or canceled pesticides; (2) label language specifying procedures for transport, storage, and disposal of pesticides and pesticide containers; and (3) sufficient financial and other resources to carry out a recall of the pesticide. In addition, EPA may issue regulations or orders governing persons who store, transport, or dispose of suspended or canceled pesticides.¹ Using its authority under FIFRA § 19(e) and (f) granted to it by the 1988 Amendments to the Act, EPA in 2006 issued extensive new regulations governing container design and residue removal.² These regulations set forth requirements for registrants, refillers (retailers, distributors) and pesticide users related to nonrefillable containers, refillable containers, repackaging pesticide products, and container labeling. There are also requirements for compliance by agricultural retailers, agricultural commercial applicators, and agricultural custom blenders regarding containment structures.³

EPA may institute a recall of a suspended or canceled pesticide if the Agency determines that such a recall is “necessary to protect health or the environment.”

[Section 17:57]

¹FIFRA § 15, 7 U.S.C.A. § 136m.

²FIFRA § 15(a)(4), 7 U.S.C.A. § 136m(a)(4).

³FIFRA § 15(b)(1), (3), 7 U.S.C.A. § 136m(b)(1), (3).

⁴FIFRA § 15(b)(2), (3), 7 U.S.C.A. § 136m(b)(2), (3).

⁵FIFRA § 15(c), 7 U.S.C.A. § 136m(c).

[Section 17:58]

¹FIFRA § 19(a), 7 U.S.C.A. § 136q(a).

²40 C.F.R. Pt. 165; 40 C.F.R. Pt. 156, Subpt. H; 71 Fed. Reg. 47330 (Aug 16, 2006), as amended by 73 Fed. Reg. 64,215, 64224 (Oct. 29, 2008) and 75 Fed. Reg. 62323, 62326 (Oct. 8, 2010).

³*Id.*; EPA, Pesticide Containers, available at <https://www.epa.gov/pesticide-worker-safety/pesticide-containers>.

EPA may determine that the recall can be on a voluntary basis, subject to an approved plan, when a voluntary recall would be as effective as a mandatory recall.⁴ EPA may require a person subject to a recall to: (1) provide storage facilities for the recalled pesticide; (2) inform the Agency of the locations of such facilities; (3) accept and store existing stocks tendered by any other person who obtained the pesticide from that person; (4) provide transportation to the storage facilities; and (5) take reasonable steps to inform persons holding pesticides subject to the recall of how they can tender the pesticides and arrange for transportation to the storage facilities.⁵

A registrant who provides storage facilities may be partially reimbursed for the costs associated with such storage if it submits a storage and disposal plan that meets criteria established by EPA regulation.⁶

EPA has the authority to decide whether, and under what conditions, to permit the continued sale, distribution, and use of existing stocks of pesticides whose registrations are amended, canceled, or suspended.⁷ FIFRA does not specify a standard for EPA to apply when making these decisions; however, an Agency policy statement outlines the standards it intends to use.⁸ In general, if there are significant risk concerns related to the pesticide, EPA will not allow its continued sale, distribution, or use unless the benefits associated with such sale, distribution, or use exceed the risks.⁹ Where there are no significant risk concerns, the Agency will generally allow unlimited use of existing stocks, and unlimited sale by persons other than the registrant. The registrant will generally be allowed to continue to sell existing stocks for one year after the date of cancellation.¹⁰ EPA, in 1997, issued a PR Notice establishing a uniform date for implementing certain Agency-directed label changes. Under this PR Notice EPA allows registrants (and supplemental distributors) at least a year, and sometimes more, to make those changes.¹¹

§ 17:59 Tolerance modification and revocation

A tolerance thought not to comply with the FFDCA § 408 safety standard may be modified or revoked either as a result of a petition filed by any interested party or upon EPA's initiative.¹ If the Agency acts on its own initiative, it must do so through issuance of a proposed and final regulation with an opportunity for public comment.² In response to a petition, EPA may issue a final regulation modifying or revoking the tolerance, a proposed regulation followed by a final regulation, or an order denying the petition.³ Within sixty days of the issuance of a final regulation modifying or revoking a tolerance (whether in response to a petition or on the Agency's own initiative), any person may file objections and request a hearing; however, the filing of objections will not prevent the regulation from taking effect unless EPA stays the regulation's effectiveness. EPA may hold a public evidentiary hearing if the Agency

⁴FIFRA § 19(b), 7 U.S.C.A. § 136q(b).

⁵FIFRA § 19(b)(4), 7 U.S.C.A. § 136q(b)(4).

⁶FIFRA § 19(c), 7 U.S.C.A. § 136q(c).

⁷FIFRA § 6(a), 7 U.S.C.A. § 136d(a).

⁸56 Fed. Reg. 29362 (June 26, 1991).

⁹*Id.*

¹⁰*Id.*

¹¹See PR Notice 97-7 (Sept. 1997).

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¹See FFDCA §§ 408(d)(1), 408(e)(1), 21 U.S.C.A. §§ 346a(d)(1), 346a(e)(1).

²FFDCA § 408(e), 21 U.S.C.A. § 346a(e).

³FFDCA § 408(d)(4), 21 U.S.C.A. § 346a(d)(4).

determines that such a hearing is necessary to obtain evidence on material issues of fact.⁴ EPA will then issue a final order in response to the objections to the regulation.⁵

A final regulation modifying or revoking a tolerance, or a final order in response to objections to such a regulation, may be reviewed by the U.S. courts of appeals in response to petitions filed within sixty days after publication of the regulation or order.⁶

VII. PUBLIC AVAILABILITY OF DATA

§ 17:60 General provisions

Section 10 of FIFRA governs the protection and disclosure of trade secrets and other confidential information related to pesticide registrations and tolerances.¹ Section 10(b) prohibits EPA from making public information that “contains or relates to trade secrets or commercial or financial information . . . and [is] privileged or confidential,” except that information relating to product formulas may be revealed to other federal agencies, or at a public hearing or in findings of fact issued by the Administrator.²

The general prohibition on disclosure of confidential information is limited by § 10(d), which provides that virtually all data pertinent to the potential risks associated with a pesticide are disclosable.³ More specifically, “[a]ll information concerning the objectives, methodology, results, or significance of any test or experiment performed on or with a registered . . . pesticide or its separate ingredients, impurities, or degradation products, and any information concerning the effects of such pesticide . . . shall be available for disclosure to the public.” Limited exceptions protect against disclosure of manufacturing or quality control processes, methods for testing or measuring deliberately added inert ingredients, or the identity or quantity of deliberately added inert ingredients, unless EPA has determined that such disclosure is necessary to protect against an unreasonable risk of injury to health or the environment. However, a federal district court has held that information regarding the identity of inert ingredients is not trade secret information per se, and that a registrant seeking to prevent disclosure of such information—in response to a Freedom of Information Act request, for example—must be able to make a showing that the information is truly confidential and not available from other sources, as well as a showing of the competitive harm that would result from disclosure.⁴

Before EPA releases information that the submitter has claimed to be protected, it must provide thirty days’ advance notice to the submitter by certified mail. During this thirty-day period, the submitter may initiate a federal district court action

⁴FFDCA § 408(g), 21 U.S.C.A. § 346a(g).

⁵FFDCA § 408(g)(2)(C), 21 U.S.C.A. § 346a(g)(2)(C).

⁶FFDCA § 408(h), 21 U.S.C.A. § 346a(h).

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¹7 U.S.C.A. § 136h, FFDCA § 408(i), 21 U.S.C.A. § 346a(i).

²7 U.S.C.A. § 136h(b).

³7 U.S.C.A. § 136h(d); *see also* FIFRA § 3(c)(2)(A), 7 U.S.C.A. § 136a(c)(2)(A); 40 C.F.R. § 152.119 (requiring EPA to make available to the public, except as prohibited by § 10, the data and other scientific information supporting the registration of a pesticide).

⁴*Northwest Coalition for Alternatives to Pesticides v. Browner*, 941 F. Supp. 197 (D.D.C. 1996). On June 29, 2016, the U.S. District Court for the Northern District of California issued an opinion dismissing the complaint and denying plaintiffs’ motion for summary judgment challenging EPA’s 2014 denial of a 2006 rulemaking petition to require the labeling of 371 inert ingredients in pesticides. *Center for Environmental Health v. McCarthy*, 192 F. Supp. 3d 1036, 82 Env’t. Rep. Cas. (BNA) 2056 (N.D. Cal. 2016).

for a declaratory judgment or an injunction to prevent disclosure, depending on the nature of the information and the circumstances under which EPA proposes to release it.⁵

Like the mandatory data licensing provisions of FIFRA, the statutory authorization of public disclosure of registration data was upheld in *Ruckelshaus v. Monsanto Co.*⁶ against a challenge that such disclosure would be an unconstitutional taking of registrants' property rights in their data.

§ 17:61 Prohibition on disclosure to multinationals

The otherwise broad public availability of pesticide registration data is limited by § 10(g). That provision prohibits EPA from making such data available to foreign or multinational business entities without the data submitter's consent, unless such information is relevant to an EPA determination as to whether the pesticide causes unreasonable adverse effects and the disclosure is made in connection with a public proceeding under FIFRA or the Agency's regulations.¹ The purpose of Congress in enacting § 10(g) was to prevent one company from using data submitted to EPA by another company to obtain registrations abroad.² EPA requires anyone requesting access to pesticide registration data to sign an affirmation that he or she is not acting on behalf of a multinational corporation.

§ 17:62 Penalties

FIFRA § 10(f) provides for criminal penalties of up to \$10,000 and/or one year's imprisonment for any federal employee who, knowing that such disclosure is prohibited, willfully discloses protected information to anyone not entitled to receive it. This remedy is provided in lieu of the less severe criminal penalty that would otherwise be available under the Trade Secrets Act,¹ but does not preempt any civil remedy under state or federal law that a company might have for wrongful disclosure of its trade secrets.²

VIII. ESTABLISHMENT REGISTRATION

§ 17:63 In general

[SUMMARY BOX] Pesticide production includes labeling, relabeling, packaging, and repackaging, all of which can only take place in facilities that are registered with FIFRA as "establishments."

Pursuant to § 7 of FIFRA,¹ every establishment at which pesticides or pesticide

⁵FIFRA §§ 10(c), 10(d)(3), 7 U.S.C.A. §§ 136h(c), 136h(d)(3).

⁶*Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 104 S. Ct. 2862, 81 L. Ed. 2d 815 (1984); see § 17:36.

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¹FIFRA § 10(g), 7 U.S.C.A. § 136h(g).

²See, e.g., 123 Cong. Rec. 36007-08 (1977) (Remarks of Rep. Fithian); *Hearings Extending and Amending FIFRA Before the House Subcomm. on Dep't Investigations, Oversight, and Research of the Comm. on Agriculture*, 95th Cong., 1st Sess. 168-69 (1977).

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¹18 U.S.C.A. § 1905.

²FIFRA § 10(f), 7 U.S.C.A. § 136h(f).

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¹FIFRA § 7, 7 U.S.C.A. § 136e.

devices are produced must be registered with EPA.² An application for establishment registration must inform the Agency of the name and address of the establishment and must identify the producer operating the establishment. Within a month after an establishment is registered, EPA must be given certain information concerning the types and amounts of pesticides produced at the establishment and the active ingredients used in pesticides produced, sold, or distributed during the past year. A report containing similar information is then submitted to EPA on an annual basis by each registered establishment.³

Under FIFRA § 8 and EPA regulations,⁴ pesticide producers are required to maintain records concerning the types and quantities of pesticides they produce. Records are also to be maintained with respect to the production of pesticide devices, receipt of pesticide deliveries, pesticide shipments, and inventories. Copies of domestic advertising of restricted use pesticides, and copies of guarantees given with respect to pesticides, are also to be retained. Finally, records of pesticide exports, disposal, and testing, and reports of adverse effects caused by pesticides are to be maintained. All required books and records are to be retained for periods of time specified in the regulations, during which time they may be inspected by Agency enforcement personnel.⁵

IX. IMPORTS AND EXPORTS

§ 17:64 In general

FIFRA Section 17 and EPA policy set requirements for the export of registered pesticides, devices, and unregistered pesticides intended solely for export.¹ For registered pesticides to be exported, EPA requires those products to bear the product label approved by EPA for its registration or collateral labeling. EPA also requires that certain labeling language be in English and in the language(s) of the imported country(ies).²

Pesticides and pesticide devices that are imported into the United States must comply with FIFRA.³ An importer, or an agent for the importer, must submit to the appropriate EPA Regional Office a Notice of Arrival of Pesticide and Devices.⁴ The notice must be submitted (electronically or paper version) prior to the shipment's arrival in the United States.⁵ Following EPA's direction, U.S. Customs and Border

²FIFRA § 2(w), 7 U.S.C.A. § 136(w), defines "produce" to mean "to manufacture, prepare, compound, propagate, or process." EPA's regulations expand this definition to include repackaging "or otherwise chang[ing] the container of any pesticide or device." 40 C.F.R. § 167.3. In 1988, EPA revised its establishment registration regulations to provide that a producer must register its establishment if it has actual or constructive knowledge that its product will be used as a pesticide or as an active ingredient in a pesticide. 53 Fed. Reg. 35056 (Sept. 8, 1988).

³See generally 40 C.F.R. pt. 167.

⁴FIFRA § 8, 7 U.S.C.A. § 136f; 40 C.F.R. pt. 169.

⁵FIFRA § 8, 7 U.S.C.A. § 136f; 40 C.F.R. pt. 169.

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¹FIFRA § 17, 7 U.S.C.A. § 136o; 40 C.F.R. §§ 168.65 to 168.85. See also § 17:25 (exemption from FIFRA registration for pesticides intended solely for export).

²40 C.F.R. § 168.69.

³FIFRA § 17(c), 7 U.S.C.A. § 136o(c).

⁴EPA Form No. 3540-1.

⁵19 C.F.R. §§ 12.112 to 12.113. See also 65 Fed. Reg. 35069 (June 1, 2000) (guidance on pesticide import tolerances and residue data for imported food); PR Notice 99-1 (Mar. 1999) (regarding the import of unregistered pesticides for the purpose of export).

Protection (CBP) will release or refuse entry.⁶ EPA may request samples of the imported pesticides and, if it determines that the pesticide is adulterated,⁷ misbranded,⁸ or otherwise in violation of FIFRA, the pesticide may be refused entry into the country. Prior to EPA's decision, the consignee of the imported pesticide has the opportunity to appear before the Agency with respect to the import's compliance with FIFRA. A pesticide that is denied entry and is not exported by the owner within ninety days may be destroyed by the CBP. The pesticide may be delivered into the custody of the consignee pending a decision on the question of the entry, subject to the consignee's execution of an appropriate bond and payment of all relevant storage, transportation, and labor charges.⁹

X. ENFORCEMENT

§ 17:65 Unlawful acts

FIFRA makes it unlawful for any person to distribute, sell, or offer for sale any pesticide that is not registered, that differs in composition from the composition submitted to EPA to obtain a registration, that is adulterated or misbranded,¹ or that is distributed pursuant to claims on its behalf that differ substantially from the claims that were made for it in obtaining a registration.² The statute lists a variety of other actions that are also unlawful, including using a pesticide in a manner inconsistent with its registered labeling;³ violating any orders, including cancellation or suspension orders, issued under the Act; violating the terms of an EUP, restricted use classification, or the recordkeeping requirements applicable to registered establishments; falsification of materials submitted to the Agency pursuant to the Act; and the like.⁴

§ 17:66 Inspection and penalties

EPA is authorized to conduct inspections for purposes of FIFRA enforcement. Such inspections may be conducted at any place where pesticides or devices are held for distribution or sale, and may involve the collection of samples of pesticides, devices, containers, or labeling. Inspectors must present their credentials and a justification for the inspection, including a statement as to whether a violation of the law is suspected.¹ The Agency is also empowered to obtain search warrants authorizing the inspection or copying of pesticide records and the seizure of pesticides or devices that are in violation of the statute.²

⁶19 C.F.R. §§ 12.110 to 12.117.

⁷FIFRA § 2(c), 7 U.S.C.A. § 136(c) (definition of "adulterated").

⁸FIFRA § 2(q), 7 U.S.C.A. § 136(q) (definition of "misbranded").

⁹*See generally* FIFRA § 17(c), 7 U.S.C.A. § 136o(c).

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¹FIFRA § 2(c), 7 U.S.C.A. § 136(c); FIFRA § 2(q), 7 U.S.C.A. § 136(q). *See also* 40 C.F.R. 156.10(a) (5); EPA, Draft Guidance for Pesticide Registrants on False and Misleading Pesticide Product Brand Names, 75 Fed. Reg. 28012 (May 19, 2010) (Notice of Availability).

²FIFRA § 12(a)(1), 7 U.S.C.A. § 136j(a)(1).

³*See* FIFRA § 2(ee), 7 U.S.C.A. § 136(ee).

⁴FIFRA § 12(a)(2), 7 U.S.C.A. § 136j(a)(2).

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¹FIFRA § 9(a), 7 U.S.C.A. § 136g(a).

²FIFRA § 9(b), 7 U.S.C.A. § 136g(b).

Section 14 of FIFRA authorizes the assessment of civil penalties,³ following an administrative hearing, against registrants, commercial applicators, wholesalers, dealers, retailers, or other distributors that violate the Act.⁴ Penalties may be assessed against other people, including private pesticide applicators.⁵ Although FIFRA's statutory language refers to maximum civil penalties of \$5,000 and \$1,000, EPA amended the specified statutory maximum penalty amounts pursuant to the Debt Collection Improvement Act of 1996, which requires periodic adjustment of maximum penalties to account for inflation.⁶ The 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990 required agencies to adjust civil penalties and annually adjust thereafter, resulting in significantly increased penalty amounts (*e.g.*, 2020 maximum civil penalty of \$20,288).⁷ The statute directs the Agency, in assessing a penalty, to consider the size of the business, the effect of the penalty on the violator's ability to continue in business, and the gravity of the violation, and authorizes EPA to issue warnings instead of assessing penalties where the violation occurred despite due care or did not significantly harm health or the environment.⁸ The majority of enforcement actions are resolved through settlement with the issuance of a consent agreement and final order (CAFO). While some cases settle with no or minimal civil penalties, penalties have exceeded \$500,000 in some cases, depending on the nature and number of violations at issue.⁹

For knowing violations of the statute by registrants, producers, or applicants, EPA may seek criminal penalties of up to \$50,000 and/or one year's imprisonment. For knowing violations by commercial applicators, wholesalers, dealers, retailers, and other distributors, EPA may seek criminal penalties of up to \$25,000 and/or one year's imprisonment. A fine of up to \$10,000 and/or up to three years' imprisonment may be imposed on anyone who uses or reveals confidential product formula information with intent to defraud.¹⁰ As discussed above, criminal penalties may also be assessed against federal employees who willfully disclose confidential information in violation of the Act.¹¹

§ 17:67 Stop sale, use, or removal orders

The statute authorizes EPA to issue written “stop sale, use, or removal” orders to anyone controlling or possessing pesticides that the Agency determines may be in violation of FIFRA or have been or are intended to be distributed in violation of either the Act or final cancellation or suspension orders. However, EPA must follow the procedural mandates of the statute before undertaking cancellation proceedings.¹ EPA may also proceed in federal district court to seize and confiscate pesticides that

³7 U.S.C.A. § 1361.

⁴See EPA, FIFRA Enforcement Response Policy (December 2009), available at <https://www.epa.gov/sites/production/files/documents/fifra-erp1209.pdf>.

⁵FIFRA § 2(e), 7 U.S.C.A. § 136(e), defines the terms “commercial applicator” and “private applicator.”

⁶61 Fed. Reg. 69360 (Dec. 31, 1996).

⁷85 Fed. Reg. 1751 (Jan. 13, 2020). *See also* 81 Fed. Reg. 43091, 43094 (July 1, 2016).

⁸FIFRA § 14(a)(4), 7 U.S.C.A. § 1361(a)(4). *See generally* FIFRA §§ 9(c), 14(a); 7 U.S.C.A. §§ 136g(c), 1361(a).

⁹FIFRA enforcement cases highlighted by EPA on its website can be viewed at: <https://cfpub.epa.gov/enforcement/cases/index.cfm?templatePage=12&ID=10&sortBy=&stat=Federal%20Insecticide%2C%20Fungicide%2C%20and%20Rodenticide%20Act>.

¹⁰FIFRA §§ 9(c), 14(b), 7 U.S.C.A. §§ 136g(c), 1361(b).

¹¹*See* § 17:62.

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¹*See* *Reckitt Benckiser, Inc. v. Jackson*, 762 F.Supp.2d 34 (D.D.C. 2011) (holding that EPA could

are in violation of the registration, labeling, misbranding, or other key requirements of the statute.²

§ 17:68 State enforcement authority

Section 26 of FIFRA gives state governments the primary authority to take enforcement action with respect to pesticide use violations, if they adopt adequate pesticide use laws and regulations and implement adequate procedures for enforcing them.¹ Most states have their own authority to enforce state pesticide requirements. States must keep records and reports to demonstrate compliance with these requirements. States may also enter into cooperative agreements with EPA with respect to pesticide enforcement; states, along with those that have been delegated authority for the certification of pesticide applicators,² will also have primary enforcement responsibility with respect to pesticide use violations.³

EPA retains primary enforcement responsibility in those states that have not complied with the above requirements, and may rescind a state's primary enforcement responsibility if it determines, after a notice and an opportunity for the state to take corrective action, that a state is not adequately enforcing pesticide use provisions.⁴ EPA has promulgated regulations implementing and governing the state enforcement provisions of FIFRA.⁵ Historically, California and New York have been among the most aggressive states for enforcement. Civil penalty levels are equivalent to those imposed under FIFRA.

§ 17:69 No FIFRA citizen suit

Unlike many environmental statutes, FIFRA does not authorize private citizen suits.¹ Rather, it grants enforcement authority solely to EPA and authorized states and tribes.² In light of the absence of a citizen suit provision, some plaintiffs have tried leveraging citizen suit provisions in other environmental statutes to challenge pesticide application practices. These suits have had mixed results.³

not mandate that a rodenticide manufacturer make changes to its product or that its product be labeled misbranded without first conducting full cancellation proceedings).

²FIFRA § 13, 7 U.S.C.A. § 136k.

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¹7 U.S.C.A. § 136w-1.

²See § 17:54.

³FIFRA §§ 23, 26(b), 7 U.S.C.A. §§ 136u, 136w-1(b).

⁴FIFRA §§ 26, 27, 7 U.S.C.A. §§ 136w-1, 136w-2.

⁵40 C.F.R. pt. 173.

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¹See, e.g., *Almond Hill School v. U.S. Dept. of Agriculture*, 768 F.2d 1030, 1035, 15 Env'tl. L. Rep. 20985 (9th Cir. 1985); *Eli Lilly and Co. v. E.P.A.*, 615 F. Supp. 811 (S.D. Ind. 1985) (dicta); *Fiedler v. Clark*, 714 F.2d 77, 79 (9th Cir. 1983); *In re Agent Orange Product Liability Litigation*, 635 F.2d 987, 991 n.9 (2d Cir. 1980); *National Agr. Chemicals Ass'n v. Rominger*, 500 F. Supp. 465, 473-74, 7 Fed. R. Evid. Serv. 836 (E.D. Cal. 1980).

²See §§ 17:66 to 17:68.

³See *No Spray Coalition, Inc. v. City of New York*, 252 F.3d 148, 150 (2d Cir. 2001) (rejecting a claim under the Resource Conservation and Recovery Act (RCRA) citizen suit provision that pesticide applied contrary to label directions was "discarded solid waste" subject to RCRA and noting that FIFRA is not enforceable by a private right of action); and *Headwaters, Inc. v. Talent Irrigation Dist.*, 243 F.3d 526 (9th Cir. 2001) (finding standing for environmental group under the Clean Water Act's (CWA) citizen suit provision; compliance with FIFRA registration and labeling requirement did not absolve herbicide user of obligation to obtain permit under CWA for application of product to water). See also § 17:73. Endangered Species Act.

XI. STATE/TRIBAL AUTHORITY AND PREEMPTION

§ 17:70 In general

The 1972 amendments to FIFRA transformed the statute from a pesticide licensing and labeling law into a comprehensive regulatory statute, and greatly increased the enforcement authority of EPA. This transformation gave rise to the issue of whether FIFRA preempts state and local regulation of pesticides. The issue has arisen primarily in two contexts. The first involves the regulation of the use and application of pesticides through state and local laws and ordinances. The second is related to the authority of courts to entertain claims of inadequate labeling under state tort law.

A number of provisions in FIFRA contemplate the coordination of federal, state, and local authorities.¹ FIFRA Section 23, for example, authorizes EPA to enter into cooperative agreements with States and tribes. These agreements may include provisions for States and tribes to ensure FIFRA compliance by conducting inspections and enforcement actions.² These agreements establish compliance monitoring and enforcement programs in 49 authorized states, 6 territories, and 23 tribes. EPA also approves applicator certification plans proposed by states, tribes, and federal agencies.³ With regard to tribes, EPA has developed specific guidance for funding tribal pesticide programs and tribal cooperative agreements, as well as restricted use pesticide (RUP) applicator certifications.⁴

FIFRA also expressly provides that a state may regulate the sale or use of any federally registered pesticide to the extent that it does not permit a sale or use otherwise prohibited by FIFRA.⁵ This language generated a number of legal challenges relating to local pesticide use ordinances, and courts have been divided on whether local regulation of pesticides is preempted.⁶ The controversial issue reached the Supreme Court, which unanimously upheld the authority of cities and towns to control and ban the use of pesticides through permits, licenses, and other requirements that focus on the use of pesticides.⁷ It stated that “even when considered together the language and the legislative [history] . . . are insufficient to demonstrate the necessary congressional intent to preempt.”⁸

The statute expressly provides that no state shall impose any requirements for

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¹See, e.g., FIFRA §§ 8(b), 22(b), 23, 24, 7 U.S.C.A. §§ 136f(b), 136t(b), 136u, 136v.

²See, e.g., 2018–2021 FIFRA Cooperative Agreement Guidance (Feb. 14, 2017), available at <https://www.epa.gov/sites/production/files/2017-03/documents/18-21guidance.pdf>.

³40 C.F.R. pt. 171.

⁴Guidance for Funding Development and Administration of Tribal Pesticide Field Program and Enforcement Cooperative Agreements (Jan. 2011), available at <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100AVNU.txt>; and EPA Plan for the Federal Certification of Applicators of Restricted Use Pesticides within Indian Country (Nov. 19, 2013), available at <https://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPP-2011-0037-0017>.

⁵FIFRA § 24(a), 7 U.S.C.A. § 136v(a).

⁶*Compare* Professional Lawn Care Ass’n v. Village of Milford, 909 F.2d 929, 31 Env’t. Rep. Cas. (BNA) 1825, 20 Env’tl. L. Rep. 21245 (6th Cir. 1990) (abrogated by, *Wisconsin Public Intervenor v. Mortier*, 501 U.S. 597, 111 S. Ct. 2476, 115 L. Ed. 2d 532, 33 Env’t. Rep. Cas. (BNA) 1265, 21 Env’tl. L. Rep. 21127 (1991)) and cert. granted, judgment vacated, 501 U.S. 1246, 111 S. Ct. 2880, 115 L. Ed. 2d 1046, 33 Env’t. Rep. Cas. (BNA) 1324 (1991) (in light of Supreme Court case discussed below) and *Maryland Pest Control Ass’n v. Montgomery County, Md.*, 822 F.2d 55 (4th Cir. 1987) with *Hurt v. Dow Chemical Co.*, 759 F. Supp. 556 (E.D. Mo. 1990) and *Central Maine Power Co. v. Town of Lebanon*, 571 A.2d 1189 (Me. 1990).

⁷501 U.S. 597.

⁸501 U.S. 597, 607.

labeling in addition to or different from those required under FIFRA.⁹ Some states have been able to effectively circumvent this general prohibition by refusing to grant a state pesticide registration unless the registrant obtains EPA approval for specific modifications in the product labeling. In this scenario, the labeling that is ultimately approved by EPA and the state remains the same. Another permissible state regulatory measure includes imposing limitations on the use of pesticides on certain crops or within certain areas. States also may establish programs to require permits before a person may apply a federally registered pesticide. It additionally is permissible for a state to require point of sale posting on restrictions, but the state may not impose requirements on the content of product labeling or the size or types of packaging used.

One recent preemption case involves warning language required under California's Proposition 65 (Prop 65) on pesticide labels, in which a court issued a preliminary injunction enjoining California from enforcing its requirement that products containing glyphosate provide a warning that the glyphosate is a chemical known to the state to cause cancer.¹⁰ The California Office of Environmental Health Hazard Assessment (OEHHA) in 2017 listed glyphosate based on an International Agency for Research on Cancer (IARC) classification of glyphosate as "probably carcinogenic to cancer." EPA disagreed with IARC's assessment, however, and issued a letter to glyphosate registrants that it would consider a Prop 65 warning on a glyphosate label to constitute a false and misleading claim.¹¹ This case illustrates the controversy concerning the application of OEHHA's Prop 65 warning requirements to FIFRA-regulated pesticide labels and the express and implied preemption of California duty to warn claims on pesticide labels generally.

Prior to the Supreme Court's decision in *Bates v. Dow AgroSciences LLC*, the courts were divided on whether FIFRA's language, prohibiting a state from requiring pesticide labeling that differs from the EPA approved labeling, prevents a court from entertaining state tort law claims of inadequate labeling (*i.e.*, failure to warn) or other related common law claims, such as misrepresentation, breach of warranty, and product liability.¹² Some held that such claims could not be entertained because a verdict in favor of a plaintiff would suggest that a pesticide manufacturer would have to alter its federally approved label in contravention of FIFRA.¹³ Others, however, did not believe that a verdict in favor of a plaintiff would command the manufacturer to alter its label, but would only force it to absorb the liability as part of the cost of doing business in the given state.¹⁴

In short, states retain significant authority to regulate pesticides under FIFRA. A state may refuse to register a federally registered pesticide. No state is required to

⁹FIFRA § 24(b), 7 U.S.C.A. § 136v(b).

¹⁰*National Association of Wheat Growers v. Zeise*, 309 F. Supp. 3d 842, Prod. Liab. Rep. (CCH) P 20295 (E.D. Cal. 2018).

¹¹Letter from Michael L. Goodis, P.E., EPA to Glyphosate Registrants (Aug. 7, 2019), available at https://www.epa.gov/sites/production/files/2019-08/documents/glyphosate_registrant_letter_-_8-7-19_-_signed.pdf. See also OEHHA Statement Regarding US EPA's Press Release and Registrant Letter on Glyphosate (Aug. 12, 2019) available at <https://oehha.ca.gov/proposition-65/general-info/oehha-statement-regarding-us-epas-press-release-and-registrant-letter>.

¹²*Bates v. Dow Agrosciences LLC*, 544 U.S. 431, 125 S. Ct. 1788, 161 L. Ed. 2d 687, 60 Env't. Rep. Cas. (BNA) 1129, 35 Env'tl. L. Rep. 20087 (2005).

¹³*Arkansas-Platte & Gulf Partnership v. Van Waters & Rogers, Inc.*, 959 F.2d 158 (10th Cir. 1992), cert. granted, judgment vacated, 506 U.S. 910, 113 S. Ct. 314, 121 L. Ed. 2d 235 (1992) and adhered to, 981 F.2d 1177 (10th Cir. 1993); *Papas v. Upjohn Co.*, 926 F.2d 1019 (11th Cir. 1991), cert. granted, judgment vacated, 505 U.S. 1215, 112 S. Ct. 3020, 120 L. Ed. 2d 892 (1992).

¹⁴See, *e.g.*, *Ferebee v. Chevron Chemical Co.*, 736 F.2d 1529, 16 Fed. R. Evid. Serv. 64 (D.C. Cir. 1984); *Riden v. ICI Americas, Inc.*, 763 F. Supp. 1500 (W.D. Mo. 1991); *Evenson v. Osmose Wood Preserving, Inc.*, 760 F. Supp. 1345 (S.D. Ind. 1990).

have a pesticide registration program, but all do. Most states operate on a calendar year and require little more than the payment of a registration fee. California and New York have the most extensive programs. Other aspects of state pesticide regulatory programs can include the certification and licensing of pesticide applicators, pesticide dealer licensing, and the imposition of use restrictions.

§ 17:71 Preemption decisions

A 1992 Supreme Court decision had a significant impact on the preemption issue. In *Cipollone v. Liggett Group, Inc.*,¹ the Supreme Court ruled on the preemptive effect of the Federal Cigarette Labeling Acts of 1965 and 1969 (FCLA) on state common law tort claims. After examining the preemption section of the FCLA, a plurality of the Court found that the express language of the 1969 version preempted any state common law which would affect cigarette advertising or promotion. Most significantly, the Court rejected the notion that allowing litigants to maintain tort actions can be considered a mere cost of doing business in a given state, instead finding that tort claims are premised upon a legal duty and that the tort system is a “‘potent method of governing conduct and controlling policy.’”²

On specific directions from the Supreme Court,³ two circuits, the Tenth and the Eleventh, expressly considered FIFRA preemption in the context of *Cipollone*. Each court determined on remand that FIFRA expressly preempts any state common law tort claim for inadequate warning or breach of warranty.⁴ Five other circuits that ruled on the issue after *Cipollone* came to the same conclusion.⁵ The Fourth Circuit had ruled similarly before the *Cipollone* decision.⁶

The Supreme Court finally resolved the scope and breadth of FIFRA preemption in *Bates v. Dow AgroSciences LLC*.⁷ In *Bates*, a group of Texas peanut farmers alleged that their crops were severely damaged by the application of a newly-marketed

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¹*Cipollone v. Liggett Group, Inc.*, 505 U.S. 504, 112 S. Ct. 2608, 120 L. Ed. 2d 407, 17 U.C.C. Rep. Serv. 2d 1087 (1992).

²*Id.* at 521.

³*Arkansas-Platte & Gulf Partnership v. Dow Chemical Co.*, 506 U.S. 910, 113 S. Ct. 314, 121 L. Ed. 2d 235 (1992); *Papas v. Zoecon Corp.*, 505 U.S. 1215, 112 S. Ct. 3020, 120 L. Ed. 2d 892 (1992) (each vacating and remanding rulings that FIFRA preempted state tort claims for redetermination in light of *Cipollone*).

⁴*Arkansas-Platte & Gulf Partnership v. Van Waters & Rogers, Inc.*, 981 F.2d 1177 (10th Cir. 1993); *Papas v. Upjohn Co.*, 985 F.2d 516, 22 U.C.C. Rep. Serv. 2d 108 (11th Cir. 1993). In reaching these decisions, both courts determined that *Cipollone* affirmed their prior determinations on this issue.

⁵*See Welchert v. American Cyanamid, Inc.*, 59 F.3d 69 (8th Cir. 1995); *Taylor AG Industries v. Pure-Gro*, 54 F.3d 555, 26 U.C.C. Rep. Serv. 2d 734 (9th Cir. 1995); *MacDonald v. Monsanto Co.*, 27 F.3d 1021 (5th Cir. 1994); *King v. E.I. DuPont De Nemours and Co.*, 996 F.2d 1346 (1st Cir. 1993); *Shaw v. Dow Brands, Inc.*, 994 F.2d 364 (7th Cir. 1993) (holding modified by, *Meridian Sec. Ins. Co. v. Sadowski*, 441 F.3d 536 (7th Cir. 2006)).

⁶*Worm v. American Cyanamid Co.*, 970 F.2d 1301, 18 U.C.C. Rep. Serv. 2d 410 (4th Cir. 1992) (*Worm I*) (finding that FIFRA preempts claims such as failure to warn, which could only be avoided by the altering of a federally approved label, but that FIFRA does not preempt claims for negligent product design or testing, and that the states may enhance federal penalties for violation of federal labeling requirements). On appeal from the district court's decision on remand from *Worm I*, the Fourth Circuit reaffirmed its holding on the preemptive effect of FIFRA after the *Cipollone* decision. *Worm v. American Cyanamid Co.*, 5 F.3d 744 (4th Cir. 1993) (*Worm II*). The Fourth Circuit subsequently held that FIFRA does not preempt state law claims if the registrant's advertising materials make claims substantially different from claims made by the registrant and approved by EPA in connection with the product's registration. *Lowe v. Sporicidin Intern.*, 47 F.3d 124, 26 U.C.C. Rep. Serv. 2d 87 (4th Cir. 1995).

⁷544 U.S. 431.

herbicide. The farmers brought claims against the herbicide's manufacturer for breach of express warranty, fraud, defective design, defective manufacture, negligent testing, and negligent failure to warn.⁸ The Fifth Circuit held that all of the farmers' claims were expressly preempted by FIFRA.⁹ The Supreme Court reversed, finding that none of the farmers' claims were definitively preempted by FIFRA.

In *Bates*, the Supreme Court clarified that FIFRA preempts state statutes or common law rules only if the following two conditions are satisfied: (i) the state law or rule must concern "labeling or packaging" requirements and (ii) the state law or rule must be "in addition to or different from" requirements imposed by FIFRA.¹⁰ Applying the test to the farmers' claims, the Court found that two of the claims—fraud and negligent failure to warn—concerned "labeling or packaging" requirements. The Court noted, however, that state-law labeling requirements are preempted only if they impose additional or different requirements from FIFRA.¹¹ Thus, the Court reversed and remanded the farmers' fraud and negligent failure to warn claims to the Fifth Circuit for a determination of whether those common-law claims imposed duties on manufacturers that were equivalent to FIFRA's misbranding standards.¹²

Regarding the farmers' other claims—breach of express warranty, defective design, defective manufacture, and negligent testing—the Court reversed the Fifth Circuit outright because those claims did not concern labeling or packaging requirements.¹³ In particular, the Court rejected the conclusion by the Fifth Circuit that a breach of express warranty claim imposed a labeling or packaging requirement on manufacturers under FIFRA Section 24(b), "because success on such claims would necessarily induce [a manufacturer] to alter its product label."¹⁴ According to the Supreme Court, lower courts should not consider a manufacturer's speculation about its future response to a jury verdict to be a "requirement."¹⁵ Thus, the *Bates* decision makes clear that, FIFRA's provisions notwithstanding, pesticide

⁸*Id.* at 433 n.15.

⁹*Dow Agrosciences LLC v. Bates*, 332 F.3d 323, 331, 56 Env't. Rep. Cas. (BNA) 1652, Prod. Liab. Rep. (CCH) P 16658, 51 U.C.C. Rep. Serv. 2d 384, 2 A.L.R. Fed. 2d 645 (5th Cir. 2003), vacated and remanded, 544 U.S. 431, 125 S. Ct. 1788, 161 L. Ed. 2d 687, 60 Env't. Rep. Cas. (BNA) 1129, 35 Env'tl. L. Rep. 20087 (2005). The court read FIFRA § 24(b), 7 U.S.C.A. § 136v(b), to pre-empt any state-law claim in which "a judgment against Dow would induce it to alter its product label." The court also held that because petitioners' fraud, warranty, and deceptive trade practices claims focused on oral statements by the herbicide manufacturer's agents that did not differ from statements made on the product's label, success on those claims would give the manufacturer a "strong incentive" to change its label.

¹⁰544 U.S. at 444. The Court explained that the term "requirements" in FIFRA § 24(b), 7 U.S.C.A. § 136v(b), "reaches beyond positive enactments, such as statutes and regulations, to embrace common-law duties." *Id.* at 443 (citing 505 U.S. at 521).

¹¹*Id.* at 447 (explaining that "a state-law labeling requirement is not pre-empted by § 136v(b) if it is equivalent to, and fully consistent with, FIFRA's misbranding provisions [FIFRA § 2(q), 7 U.S.C.A. § 136(q)]"). The Court took lower courts to task for "too quickly conclud[ing] that failure-to-warn claims were pre-empted under FIFRA, as they were in *Cipollone*, without paying attention to the rather obvious textual differences between the two pre-emption clauses." *Id.* at 446.

¹²*Id.* at 453–54 ("We emphasize that a state-law labeling requirement must in fact be equivalent to a requirement under FIFRA in order to survive pre-emption [; however] . . . [t]o survive pre-emption, the state-law requirement need not be phrased in the *identical* language as its corresponding FIFRA requirement.").

¹³*Id.* at 444 ("None of these common-law rules requires that manufacturers label or package their products in any particular way. Thus, petitioners' claims for defective design, defective manufacture, negligent testing, and breach of express warranty are not pre-empted.").

¹⁴332 F.3d at 333.

¹⁵*See* 544 U.S. at 445 ("[A]n event, such as a jury verdict, that merely motivates an optional decision is not a requirement. The proper inquiry . . . does not call for speculation as to whether a jury verdict will prompt the manufacturer to take any particular action.").

manufacturers are potentially liable under state law for injuries due to a product's design or marketing.

With respect to pesticide tolerances, the FQPA amended FFDCA § 408 to provide that states may not impose tolerances different from federal tolerances that meet the current safety standard unless authorized by EPA on the basis of "compelling local conditions" and a finding that the state regulation would not cause any food to violate federal law. This tolerance "uniformity" provision does not preempt state authority to require warnings or other statements regarding the presence of pesticide residues in food.¹⁶

XII. JUDICIAL REVIEW OF EPA ACTION UNDER FIFRA

§ 17:72 In general

FIFRA divides judicial review responsibility between the federal district courts and the courts of appeals. The validity of any order issued by EPA following a public hearing may be reviewed in the courts of appeals. Any person who is adversely affected by the order and who was a party to the administrative proceeding may obtain review by filing a petition in the circuit where that person resides or has a place of business. The petition must be filed within sixty days after the entry of the order. EPA's order will be sustained by the court if it is supported by substantial evidence when considered on the record as a whole.¹ The D.C. and Ninth Circuits have liberally interpreted the provision that the court of appeals has jurisdiction when there has been a prior "public hearing," holding that a formal hearing with witnesses, cross-examination, and so on, may not be necessary if the proceeding that took place generated an administrative record adequate for review by a court of appeals.² The general effect of these decisions broadly construing those procedures that constitute a "public hearing" has been to expand those EPA actions that are subject to judicial review solely in the courts of appeals. This is important both because review in the courts of appeals is generally confined to the administrative record compiled by EPA during those procedures constituting the "public hearing," and because any judicial review in the courts of appeals must be commenced within 60 days of the action being reviewed.

Other final agency actions not committed to agency discretion, including refusals to cancel or suspend registrations or change classifications not following a hearing, are judicially reviewable in the district courts.³ The district courts also have jurisdiction specifically to enforce and to prevent and restrain violations of the Act.⁴ This latter provision has been held not to confer standing on private citizens to bring "citizen suits" to enforce the Act.⁵

XIII. REGULATORY AUTHORITY UNDER OTHER ENVIRONMENTAL

¹⁶FFDCA § 408(n), 21 U.S.C.A. § 346a(n).

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¹FIFRA § 16(b), 7 U.S.C.A. § 136n(b).

²See *Humane Society of U.S. v. E.P.A.*, 790 F.2d 106, 32 Ed. Law Rep. 66, 16 Env'tl. L. Rep. 20521 (D.C. Cir. 1986); *Environmental Defense Fund, Inc. v. Costle*, 631 F.2d 922, 15 Env't. Rep. Cas. (BNA) 1217, 15 Env't. Rep. Cas. (BNA) 1611, 10 Env'tl. L. Rep. 20585 (D.C. Cir. 1980); *United Farm Workers of America, AFL-CIO v. Administrator, E.P.A.*, 592 F.3d 1080, 69 Env't. Rep. Cas. (BNA) 2121 (9th Cir. 2010).

³FIFRA § 16(a), 7 U.S.C.A. § 136n(a).

⁴FIFRA § 16(c), 7 U.S.C.A. § 136n(c).

⁵See § 17:69; *Almond Hill School v. U.S. Dept. of Agriculture*, 768 F.2d 1030, 1035, 15 Env'tl. L. Rep. 20985 (9th Cir. 1985); *Eli Lilly and Co. v. E.P.A.*, 615 F. Supp. 811 (S.D. Ind. 1985) (dicta); *Fiedler v. Clark*, 714 F.2d 77, 79 (9th Cir. 1983); *In re Agent Orange Product Liability Litigation*, 635 F.2d 987, 991 n.9 (2d Cir. 1980), cert denied, 454 U.S. 1128 (1981); *National Agr. Chemicals Ass'n v. Rominger*,

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§ 17:73 Endangered Species Act

The Endangered Species Act (ESA), enacted in 1973, was designed by Congress to provide for the conservation of threatened and endangered plants and animals and the habitat they depend on to survive.¹ The scope of the ESA is expansive and has been described as “the most comprehensive legislation for the preservation of endangered species ever enacted by any nation.”² FIFRA is not exempt from its reach.³

Unlike FIFRA, and most other major environmental statutes, the ESA is not administered by EPA. While the Departments of Interior and Commerce were originally vested with the authority to implement the ESA,⁴ they subsequently delegated authority for terrestrial species to the U.S. Fish and Wildlife Service (FWS) and authority for marine species to the National Marine Fisheries Service (NMFS) (collectively “Services”).⁵

The ESA generally prohibits persons, including individuals, corporations, and the government,⁶ from “taking” species that are protected under the Act as threatened or endangered.⁷ The concept of a “taking” is broad and has come to mean virtually any negative impact on a threatened or endangered species.⁸

Federal agencies have a special obligation under § 7 of the ESA to consult with the Services to insure that their actions are “not likely to jeopardize the continued existence of any endangered species or threatened species.”⁹ In general, consultation is required when the agency action “may affect” a threatened or endangered species.¹⁰ An agency is not required to proceed formally with consultation when the federal action is “not likely to adversely affect” (NLAA) a protected species or its habitat and the responsible Service is in agreement.¹¹ Formal consultation ends with the issuance of a biological opinion by the relevant Service that states whether the proposed action is likely to jeopardize the continued existence of a protected species or its impact on critical habitat.¹² If jeopardy is likely, the biological opinion will include any reasonable and prudent alternatives aimed at avoiding the effect.¹³ When jeopardy is not likely, but a taking is, the responsible Service may exempt the

500 F. Supp. 465, 473-74, 7 Fed. R. Evid. Serv. 836 (E.D. Cal. 1980).

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¹16 U.S.C.A. §§ 1531 to 1543; Pub. L. No. 93-205, § 1, 87 Stat. 884 (1973).

²Tennessee Valley Authority v. Hill, 437 U.S. 153, 180, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

³See, e.g., Defenders of Wildlife v. Administrator, E.P.A., 882 F.2d 1294, 1299, 30 Env’t. Rep. Cas. (BNA) 1460, 19 Env’tl. L. Rep. 21440 (8th Cir. 1989) (“FIFRA does not exempt the EPA from complying with ESA requirements when the EPA registers pesticides.”); Washington Toxics Coalition v. Environmental Protection Agency, 413 F.3d 1024, 60 Env’t. Rep. Cas. (BNA) 1940, 35 Env’tl. L. Rep. 20138 (9th Cir. 2005).

⁴ESA § 4, 16 U.S.C.A. § 1533.

⁵See 50 C.F.R. pts. 402 to 453.

⁶ESA § 3(13), 16 U.S.C.A. § 1532(13).

⁷ESA § 9(a), 16 U.S.C.A. § 1536(a).

⁸The term “take” is defined broadly to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” ESA § 3(19), 16 U.S.C.A. § 1532(19); 50 C.F.R. § 17.3.

⁹ESA § 7(a)(2); 16 U.S.C.A. § 1536(a)(2); see also 50 C.F.R. pt. 402.

¹⁰50 C.F.R. § 402.14(a).

¹¹50 C.F.R. § 402.13(a)(1).

¹²50 C.F.R. § 402.14(h).

¹³50 C.F.R. § 402.14(h)(3).

take by issuing an incidental take statement that specifies reasonable and prudent measures to minimize impact.¹⁴ An agency, therefore, must have an incidental take statement before proceeding with an action.¹⁵

Pesticide registrations actions by EPA are subject to both the ESA's taking prohibition and consultation requirement. For example, the Eighth Circuit has held for some time now that EPA's continued registration of strychnine that resulted in the poisoning of endangered species (*e.g.*, black-footed ferret) constituted a taking under the ESA.¹⁶

More recently, the focus has turned to EPA's consultation obligations. District and circuit courts have held that EPA is required to consult with the Services when a pesticide registration decision may affect a protected species.¹⁷ Notably, the Ninth Circuit also sanctioned the use of injunctive relief in the form of pesticide-free buffer zones around endangered species' habitats as protective measures, pending compliance with the ESA's consultation requirement.¹⁸

In an effort to comply with its consultation obligation imposed by the courts, EPA has completed several "may affect" determinations and initiated consultation with the Services on several pesticide registrations.¹⁹ Because of a general lack of resources, however, the Services have been unable to complete pesticide consultations on a timely basis. Addressing the backlog, one court set NMFS on a stipulated schedule to complete consultations on 37 pesticides regarding impacts on endangered salmon and steelhead populations in the Pacific Northwest by February 2012.²⁰ One of the first pesticide biological opinions issued by NMFS, as a result of this schedule, was immediately challenged by the registrants in district court. The case was initially dismissed on jurisdictional grounds, holding that registrants were required to bring their challenge directly in the court of appeals and only after completion of a cancellation proceeding under FIFRA was completed.²¹ On appeal, the Fourth Circuit overruled the district court, remanding the case and holding that a pesticide biological opinion could be immediately challenged under the Administrative Procedure Act in district court and was ripe for review.²²

Recognizing the additional burden caused by consultation, the Services, with EPA's help, promulgated counterpart consultation regulations,²³ in an effort to streamline the consultation process when required for pesticide registration and re-

¹⁴ESA § 7(b)(4); 16 U.S.C.A. § 1536(b)(4); 50 C.F.R. § 402.14(i).

¹⁵882 F.2d at 1300.

¹⁶*Id.* at 1301.

¹⁷*Center for Biological Diversity v. Leavitt*, 35 Env'tl. L. Rep. 20190, 2005 WL 2277030 (N.D. Cal. 2005); *Washington Toxics Coalition v. Environmental Protection Agency*, 413 F.3d 1024, 60 Env't. Rep. Cas. (BNA) 1940, 35 Env'tl. L. Rep. 20138 (9th Cir. 2005); see also *Washington Toxics Coalition v. E.P.A.*, 2002 WL 34213031 (W.D. Wash. 2002); *CBD v. EPA*, No. 07-02794 (N.D. Cal., stipulated injunction ordered May 17, 2010); revised settlement agreement issued July 2015, available at <https://www.epa.gov/endangered-species/revised-settlement-agreement-cbd-v-epa-july-2015>.

¹⁸413 F.3d at 1035 ("[T]he appropriate remedy for violations of the ESA consultation requirements is an injunction pending compliance with the ESA.").

¹⁹EPA, Endangered Species Effects Determinations, Consultations, and Biological Opinions, available at <https://iaspub.epa.gov/apex/pesticides/f?p=CHEMICALSEARCH:23:0>.

²⁰*Northwest Coalition for Alternatives to Pesticides v. NMFS*, No. 07-1791 (W.D. Wash. stipulated settlement agreement entered Aug. 1, 2008).

²¹*Dow AgroSciences LLC v. National Marine Fisheries Service*, 638 F. Supp. 2d 508, 70 Env't. Rep. Cas. (BNA) 1464 (D. Md. 2009), rev'd, 637 F.3d 259, 72 Env't. Rep. Cas. (BNA) 1353 (4th Cir. 2011).

²²*Dow AgroSciences LLC v. National Marine Fisheries Service*, 637 F.3d 259, 72 Env't. Rep. Cas. (BNA) 1353 (4th Cir. 2011).

²³The counterpart regulations are authorized by 50 C.F.R. § 402.04, which provides that "[t]he consultation procedures set forth in this Part may be superseded for a particular Federal agency by joint counterpart regulations among that agency, the Fish and Wildlife Service, and the National

registration actions.²⁴ These regulations generally permitted EPA to rely entirely on its own NLAA determination regarding a protected species without concurrence from the Service if it entered into an “alternative consultation agreement” with the Service.²⁵ The regulations also provided for an optional formal consultation process whereby EPA is permitted to perform its own effects determination that the Service can either adopt, modify with explanation, or reject altogether and draft its own biological opinion.²⁶ Finally, the regulations permitted EPA to delay formal consultation involving emergency actions under FIFRA § 18, based on the similarity of the definition for emergency under both FIFRA and the ESA.²⁷

The counterpart regulations were subsequently challenged in the Western District of Washington.²⁸ The district court set aside, as arbitrary and capricious and contrary to law, the provisions allowing EPA to make unilateral NLAA determinations and to postpone formal consultation in cases of FIFRA § 18 emergencies. However, the court let stand the optional formal consultation process.²⁹ In 2019, the Services issued three final rules (one rule issued by FWS and two rules issued jointly by FWS and NMFS) amending ESA implementing regulations that, in part, change the standards under which listings, delistings, reclassifications, and critical habitat designations are made.³⁰

An issue that has become increasingly important in recent years is the proper venue for review of claims that EPA failed to consult concerning pesticide registration decisions. Recent cases have held that when a party seeks judicial review of a failure by an agency to consult under the ESA before taking an administrative action that is itself susceptible to judicial review, the ESA consultation claim can only be reviewed in the court where the agency action is reviewable.³¹ As a practical matter, this precludes review of any ESA claims that involve a specific pesticide registration decision, concerning which EPA has provided sufficient notice and comment to constitute a “public hearing,” unless the ESA claims are brought in the court of appeals within 60 days of the decision.

One illustrative case is the so-called “Mega ESA” case, in which the Ninth Circuit analyzed the reviewability of four distinct categories of claims concerning 31 pesticides for which the plaintiffs had alleged a failure to consult under the ESA.³² The court affirmed a decision by the District Court to dismiss category one claims that EPA failed to consult concerning a RED, either because these claims either were time-barred by the general six-year statute of limitations, or because jurisdiction to review these claims was only available in the court of appeals and the claims

Marine Fisheries Service.”

²⁴69 Fed. Reg. 47732 (Aug. 5, 2004) (codified at 50 C.F.R. §§ 402.40 to 402.48).

²⁵69 Fed. Reg. at 47737; 50 C.F.R. § 402.45.

²⁶69 Fed. Reg. at 47738; 50 C.F.R. § 402.46; *Washington Toxics Coalition v. U.S. Dept. of Interior, Fish and Wildlife Service*, 457 F. Supp. 2d 1158, 1180, 64 Env’t. Rep. Cas. (BNA) 1280, 36 Env’tl. L. Rep. 20190 (W.D. Wash. 2006).

²⁷*See* 69 Fed. Reg. at 47732, 47739–47740 (“The Services believe that EPA’s statutory and regulatory standard for an “emergency” under FIFRA § 18 is generally comparable to the intended scope of emergency in § 402.05 and that, therefore, the overwhelming majority of FIFRA emergency exemption actions could properly be considered emergencies for the purposes of § 402.05.”).

²⁸457 F. Supp. 2d at 1200.

²⁹457 F. Supp. 2d at 1200.

³⁰84 Fed. Reg. 44753; 84 Fed. Reg. 44976; 84 Fed. Reg. 45020 (Aug. 27, 2019) (codified at 50 C.F.R. §§ 402.02 to 402.40).

³¹*American Bird Conservancy v. F.C.C.*, 545 F.3d 1190, 1192–93, 67 Env’t. Rep. Cas. (BNA) 1833 (9th Cir. 2008); *Center for Biological Diversity v. U.S. Environmental Protection Agency*, 847 F.3d 1075, 1088–90, 83 Env’t. Rep. Cas. (BNA) 2165 (9th Cir. 2017).

³²*CBD v. EPA*, 847 F. 3d at 1086–94.

were not brought within 60 days of the issuance of the RED. The court also affirmed the District Court's dismissal of category two claims for the same pesticidal active ingredients, which asserted that EPA's continued "discretionary control" over these pesticides constituted "ongoing action."³³ The court further rejected category three claims based on EPA's completion of the reregistration process for a pesticide, because this event does not itself constitute a discrete administrative action requiring consultation. However, the court allowed the case to proceed for category four claims that alleged a failure by EPA to consult concerning registration of specific pesticide products, rejecting the assertion that these claims were barred as collateral attacks on the underlying RED.

There are a number of other cases that are ongoing, or where settlements have been reached, in which ESA claims concerning pesticide registration decisions are still being adjudicated.³⁴

§ 17:74 Clean Water Act

The Clean Water Act (CWA) prohibits the discharge of pollutants from a point source into waters of the United States, except as authorized by EPA via a National Pollutant Discharge Elimination System (NPDES) permit.¹ A "point source" is very broadly defined to include "any discernible, confined and discrete conveyance."² "Pollutant" is likewise broadly defined to include wastes that are discharged into water.³

Despite the fact that pesticides are applied using sprayers, hoses, nozzles, and other discrete conveyances, it has been EPA's longstanding policy not to require a NPDES permit for pesticide applications in or near waterbodies.⁴ This position was called into question by a series of arguably confusing cases in the Ninth Circuit. In the first of these, *Headwaters, Inc. v. Talent Irrigation District*,⁵ the court held that application of an herbicide directly to irrigation canals to control aquatic weeds did not foreclose the need for an NPDES permit because of the residues remaining after the pesticide's intended effect were a pollutant.⁶ In a seeming departure from *Talent*, the Ninth Circuit subsequently held in *Fairhurst v. Hagener*,⁷ that an NPDES permit was not required where pesticides were intentionally applied to a lake to

³³These claims were based primarily on language in the 2005 Washington Toxics Coalition v. EPA decision, but the viability of claims concerning ongoing discretionary control based on that case was subsequently clarified by *Karuk Tribe of California v. U.S. Forest Service*, 681 F.3d 1006, 74 Env't. Rep. Cas. (BNA) 1737 (9th Cir. 2012). The *Karuk* case held that an ESA consultation claim only can be brought when an agency takes a discretionary affirmative action. Thus, a claim that EPA failed to consult under the ESA cannot be based solely on the hypothetical ability of EPA to revisit a prior reregistration decision.

³⁴EPA, Endangered Species Litigation and Associated Pesticide Limitations, available at <https://www.epa.gov/endangered-species/endangered-species-litigation-and-associated-pesticide-limitations>.

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¹CWA §§ 301, 402, 33 U.S.C.A. §§ 1311(a), 1342. See Ch. 13 of this treatise for a detailed discussion of the requirements of the CWA.

²CWA § 502(14), 33 U.S.C.A. § 1362(14). See § 13:33 of this treatise for a discussion of "point source" and "pollutant" under CWA.

³Section 502(6) of the CWA defines "pollutant" to mean: "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C.A. § 1362(6).

⁴71 Fed. Reg. 68483, 68484 (Nov. 27, 2006) ("[EPA] has never issued an NPDES permit for the application of a pesticide to or over water.").

⁵*Headwaters, Inc. v. Talent Irrigation Dist.*, 243 F.3d 526 (9th Cir. 2001).

⁶*Id.* at 532.

⁷*Fairhurst v. Hagener*, 422 F.3d 1146 (9th Cir. 2005).

control invasive fish species. The court reasoned that a permit was not required because the pesticides were not pollutants where there were no residues or unintended consequences from the application.⁸

In an attempt to thread the holdings of these cases together and to provide some clarity to the regulated community, EPA issued a final rule generally excluding applications of pesticides to waters of the United States in two circumstances when the application is consistent with all relevant requirements under FIFRA.⁹ The first of these is the direct application of pesticides to waters of the United States to control pests, such as mosquitoes and aquatic weeds.¹⁰ The second covers the application of pesticides over or near waters of the United States, where it is unavoidable in order to effectively target pests. This expressly includes the situation where insecticides are aerially applied to forest canopy for control of mosquitoes or other pests.¹¹

Both environmental and industry groups petitioned for review of EPA's Final Rule, and the cases were ultimately consolidated before the Sixth Circuit. In *National Cotton Council of America v. EPA*, the Sixth Circuit vacated EPA's Final Rule, finding it contrary to the text of the CWA.¹² In vacating the rule, the Sixth Circuit reconciled *Fairhurst* and *Talent* by holding that, "[if a chemical pesticide] leaves no excess portions after performing its intended purpose, then that chemical's use need not be regulated. If, on the other hand, a chemical pesticide is known to have lasting effects beyond the pesticide's intended object, then its use must be regulated under the CWA."¹³

To comply with the Sixth Circuit's decision in *National Cotton Council*, EPA developed an NPDES Pesticide General Permit that took effect on October 31, 2011.¹⁴ Despite repeated attempts (e.g., Reducing Regulatory Burdens Act of 2011, Agriculture and Nutrition Act of 2018, H.R. 890, 116th Cong.), NPDES permitting for FIFRA-compliant pesticide applications is still required.

§ 17:75 Toxic Substances Control Act

While registered pesticides are clearly exempt from TSCA,¹ it has been EPA's position for some time that inert ingredients and isolated intermediates used in the manufacture of pesticides are nonetheless subject to regulation under TSCA.² TSCA jurisdiction detaches and FIFRA jurisdiction attaches once the inerts are formulated

⁸*Id.* at 1150.

⁹71 Fed. Reg. 68483 (amending 40 C.F.R. § 122.3).

¹⁰71 Fed. Reg. at 68485.

¹¹71 Fed. Reg. at 68485 (The final rule, however, does not exempt pesticides that are entrained in storm water or other industrial or municipal discharges, or residual materials that remain in the water after the application and intended purpose of eliminating the target pests is completed. It also does not specifically exempt spray drift from terrestrial application that may deposit into waters of the United States.).

¹²*National Cotton Council of America v. U.S. E.P.A.*, 553 F.3d 927, 68 Env't. Rep. Cas. (BNA) 1129 (6th Cir. 2009).

¹³*Id.* at 937 (internal citations omitted).

¹⁴76 Fed. Reg. 68750 (Nov. 7, 2011); 78 Fed. Reg. 38591 (June 27, 2013); EPA, NPDES Pesticide Applications, available at <https://www.epa.gov/npdes/pesticide-applications-1>.

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¹TSCA § 3(2)(B)(ii), 15 U.S.C.A. § 2602(2)(B)(ii) (exempting "any pesticide [as defined in FIFRA] when manufactured, processed, or distributed in commerce for use as a pesticide."). See Ch. 16 of this treatise for a detailed discussion of TSCA.

²See 42 Fed. Reg. 64572, 64586 (Dec. 23, 1977); see also Questions & Answers for the New Chemicals Program, EPA, OPPT, at 2-18, available at <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/questions-answers-new-chemicals>.

into a registered pesticide product.³

A pesticide that is still undergoing research and development testing presents a different problem. EPA's position is that such pesticides are subject to TSCA (including the requirement for premanufacture notice under § 5 and the requirement under § 8(e) to report substantial risk information) until the manufacturer demonstrates its intent "to create a pesticide by submitting an application for an experimental use permit . . . or an application for registration under . . . FIFRA."⁴ However, if the intent is to import small quantities of an active ingredient for clinical testing solely to determine if a registration can be obtained under FIFRA, TSCA § 5 does not apply.⁵ There is no exemption under TSCA § 8(e)⁶ for research and development or for small production or import volumes.

XIV. HOT TOPICS

Several disputes in recent history present novel or controversial issues with regard to pesticide registrations and use, demonstrating issues related to pesticide labels, adverse effects, tolerances, cancellations, and the relationship between federal and state agencies.

§ 17:76 Worker Protection Standard

As discussed above, information required to appear on product labels includes worker protection information.¹ Final regulations, known as the Worker Protection Standard (WPS), revised standards for protecting agricultural workers from exposure to pesticides.² The revised regulations expand the scope of previous worker protection standards by including employees in forests, nurseries, and greenhouses and other agricultural employees who handle pesticides. The regulations require registrants to add appropriate labeling statements referencing the worker protection regulations and specifying application restrictions, restrictions on entry into treated areas, and personal protection equipment requirements.³

EPA issued additional revisions to the WPS in 2015 intended to "enhance the protections provided to agricultural workers, pesticide handlers, and other persons under the Worker Protection Standard (WPS) by strengthening elements of the existing regulation, such as training, notification, pesticide safety and hazard communication information, use of personal protective equipment, and the providing of supplies for routine washing and emergency decontamination."⁴ Controversy regarding these new requirements is longstanding. In 2017, EPA announced that it is initiating a process to revise (1) certain requirements in the agricultural WPS;⁵ and (2) to revise the minimum age requirements in the Certification of Pesticide Ap-

³Questions & Answers for the New Chemicals Program at 2-18.

⁴51 Fed. Reg. 15096, 15097 (Apr. 22, 1986); *see also* EPA, TSCA Section 8(e) Reporting Guide, at F29-F30 (June 1991), available at <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/tsca-section-8e-reporting-guide>.

⁵TSCA § 5(h)(3), 15 U.S.C.A. § 2604(h)(3); 40 C.F.R. § 720.36(g).

⁶15 U.S.C.A. § 2607(e).

[Section 17:76]

¹*See* § 17:4; 40 C.F.R. § 156.10(a)(1).

²*See* 40 C.F.R. pt. 170.

³*See* 40 C.F.R. pt. 156, subpt. K; pt. 170. *See also* PR Notice 2000-9 (Sept. 2000) (Worker risk mitigation for organophosphate pesticides).

⁴80 Fed. Reg. 67496 (Nov. 2, 2015).

⁵82 Fed. Reg. 60576 (Dec. 21, 2017).

plicators rule.⁶ In 2019, EPA proposed additional changes to “clarify and simplify” the application exclusion zone requirements.⁷

§ 17:77 Cannabis/Hemp

Cannabis presents pesticide registration challenges between the federal government and states,¹ as an increasing number of states have legalized cannabis (*e.g.*, medical marijuana, recreational use). So long as cannabis remained regulated on a federal level under Schedule 1 of the Controlled Substances Act of 1970, EPA would not approve any pesticides for use on cannabis, nor would it approve any tolerances for use of a pesticide on these crops.

Some changes are evolving in this area, as the 2014 federal Farm Bill allows for industrial hemp production, provided: (1) “industrial hemp is grown or cultivated for purposes of research conducted under an agricultural pilot program or other agricultural or academic research”; and (2) state law allows such research.² Nevertheless, when four states in 2017 attempted to issue SLN registrations for tolerance-exempt products to use on cannabis, EPA notified those states that it would disapprove the registrations. This results in state withdrawal of those registrations.³

The 2018 federal Farm Bill (the Agricultural Improvement Act of 2018) removed industrial hemp from its earlier classification as a controlled substance, again providing new opportunities for EPA to approve pesticides for use by growers of this newly legally available commodity. On August 21, 2019, EPA announced its receipt of 10 applications seeking to add new hemp uses to pesticide products already registered under FIFRA.⁴ EPA has not, however, established tolerances for these crops.

§ 17:78 Neonicotinoids

In the past several years, pesticides’ adverse impacts on bees and other pollinators have gained national attention. The global pollinator crisis and colony collapse disorder in honey bee populations have raised concerns whether certain pesticides, specifically the class of pesticides known as the neonicotinoids, are linked to large-scale bee mortality. The U.S. federal government began to develop strategies to address the risk to pollinators from pesticide use in 2013, when EPA finalized a new policy that required certain pesticides to be labeled with warnings and specific directions for use designed to minimize harm to pollinator species and notified registrants to report under Section 6(a)(2) incidents involving pollinators within an accelerated time frame.¹

In early 2017, EPA issued another policy to protect commercial honey bees used

⁶82 Fed. Reg. 60195 (Dec. 19, 2017).

⁷84 Fed. Reg. 35054 (July 22, 2019), 84 Fed. Reg. 58666 (Nov. 1, 2019).

[Section 17:77]

¹See XI. State/Tribal Authority and Preemption.

²7 U.S.C. § 5940.

³EPA letter to California Department of Pesticide Regulation (CDPR) re: Notice of Intent to Disapprove (June 22, 2017).

⁴84 Fed. Reg. 44296 (Aug. 23, 2019).

[Section 17:78]

¹EPA Memorandum to Registrants of Nitroguanidine Neonicotinoid Products (Aug. 15, 2013), available at <https://www.epa.gov/sites/production/files/2013-11/documents/bee-label-info-ltr.pdf>; Presidential Memorandum—Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators (June 2014), available at <https://obamawhitehouse.archives.gov/the-press-office/2014/06/20/presidential-memorandum-creating-federal-strategy-promote-health-honey-b>. See also § 17:33 (Reporting of new adverse effects information).

to provide pollinator services from agricultural pesticide spray and dust applications.² In addition to the policy, EPA also instituted an expedited re-evaluation of the neonicotinoid family of pesticides, as well as certain other pesticides, and temporarily halted the approval of new outdoor neonicotinoid pesticide uses until new bee data are submitted and pollinator risk assessments are complete.³ In January 2020, EPA took its next steps in its regulatory review of neonicotinoid pesticides and released proposed interim decisions for acetamiprid, clothianidin, dinotefuran, imidacloprid, and thiamethoxam. EPA states that these decisions contain new measures to reduce potential ecological risks, particularly to pollinators, and to protect public health.

§ 17:79 Chlorpyrifos

Chlorpyrifos is a widely used organophosphate insecticide that has been subject to lawsuits, brought by NGOs, challenging EPA's continued registrations of products containing chlorpyrifos. In an opinion issued on August 10, 2015, the U.S. Court of Appeals for the Ninth Circuit granted a writ of mandamus requested by Pesticide Action Network North America and the Natural Resources Defense Council (Petitioners) to require EPA to respond to a 2007 administrative petition to cancel the registrations of all pesticides containing chlorpyrifos. The Court imposed an October 31, 2015, deadline for EPA's action (later extended to March 31, 2017). In response, EPA proposed a rule to revoke all tolerances which, if issued as a final rule, would result in the cessation of all agricultural uses of chlorpyrifos.¹ Two years later, under President Trump's administration, EPA declined to act on EPA's prior proposal to revoke chlorpyrifos tolerances, and instead denied the 2007 petition, stating that it would continue to review the safety of chlorpyrifos and would make a further determination as part of the registration review of the pesticide. Although EPA initially stated that its registration review of chlorpyrifos would continue until 2022, EPA has now stated that it will expedite the review and issue a proposed registration review decision by October 2020.

The significance of any further EPA review of chlorpyrifos is now in doubt because the most prominent manufacturer and defender of chlorpyrifos has announced it will discontinue all production by the end of 2020. This decision follows its agreement to end sales of chlorpyrifos in California by February 2020, the European Union announcement that it will no longer permit sales of chlorpyrifos after January 31, 2020, and Canada's proposed cancellation of most chlorpyrifos uses.²

²EPA, Policy to Mitigate the Acute Risk to Bees from Pesticide Products (Jan. 12, 2017), available at <https://www.epa.gov/pesticides/epa-finalizes-steps-better-protect-bees-pesticides>.

³§ 17:14. Registration application process—Registration review; § 17:47. EPA authority—The “unreasonable adverse effects” standard.

[Section 17:79]

¹80 Fed. Reg. 69080 (Nov. 6, 2015).

²See CDPR Press Release “Agreement Reached to End Sale of Chlorpyrifos in California by February 2020” (Oct. 9, 2019), available at <https://www.cdpr.ca.gov/docs/pressrls/2019/100919.htm>; European Commission, Chlorpyrifos & Chlorpyrifos-methyl, available at https://ec.europa.eu/food/plant/pesticides/approval_active_substances/chlorpyrifos_chlorpyrifos-methyl_en; Canada Pest Management Regulatory Agency, Proposed Re-evaluation Decision PRVD2019-05, Chlorpyrifos and Its Associated End-use Products: Updated Environmental Risk Assessment (May 31, 2019), available at <https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/public consultations/proposed-re-evaluation-decisions/2019/chlorpyrifos/document.html#a1>.

List of Acronyms

AAA	American Arbitration Association
ALJ	Administrative Law Judge
CAFO	Consent agreement and final order
CBP	U.S. Customs and Border Protection
CAFO	Central Data Exchange
CSF	Confidential Statement of Formula
CWA	Clean Water Act
DCIEAB	Data call-in
EAB	Environmental Appeals Board
EDSP	Endocrine Disruptor Screening Program
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EUP	Experimental use permit
FCLA	Federal Cigarette Labeling Acts of 1965 and 1969
FDA	U.S. Food and Drug Administration
FFDCA	Federal Food, Drug, and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMCS	Federal Mediation and Conciliation Service
FQPA	Food Quality Protection Act of 1996
FWS	U.S. Fish and Wildlife Service
HPV	High Production Volume
IARC	International Agency for Research on Cancer
NAS	National Academy of Sciences
NGO	Non-governmental organization
NLAA	Not likely to adversely affect
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OEHHA	California's Office of Environmental Health Hazard Assessment
OPP	EPA's Office of Pesticide Programs
PR Notice	Pesticide Registration Notice
PRIA	Pesticide Registration Improvement Extension Act (effective 2004 to September 2008)
PRIA 2	Pesticide Registration Improvement Extension Act of 2007 (effective October 1, 2007, to September 30, 2012)
PRIA 3	Pesticide Registration Improvement Extension Act (effective October 1, 2012, to September 30, 2017, extended through September 30, 2018)
PRIA 4	Pesticide Registration Improvement Extension Act of 2018 (effective March 8, 2019, through 2023)
RED	Reregistration Eligibility Document
RUP	Restricted use pesticide
SAP	Scientific Advisory Panel
SLN	Special local needs
TSCA	Toxic Substances Control Act
USDA	U.S. Department of Agriculture
WPS	Worker Protection Standard

Chapter 18

Drinking Water*

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DRINKING WATER



Photo of a Black-necked Stilt taken by A. Driggs on June 21, 2020.

I. INTRODUCTION

§ 18:1 In General

Congress, EPA, and the public have logically assigned drinking water a high priority and it is understandably a focus of several statutes. For example, the laws controlling hazardous waste management and the cleanup of hazardous substances were enacted, in part, to prevent and remediate the contamination of underground sources of drinking water. Congress also passed laws controlling discharges to surface water with an eye toward protecting water bodies used as drinking water supplies.

The Safe Drinking Water Act (SDWA) was one of a suite of environmental laws that Congress passed in the early 1970s, including the National Environmental Policy Act of 1970, the Clean Air Act Amendments of 1970, the Pesticide Control Act of 1972, the Ocean Dumping Act of 1972, the Federal Water Pollution Control Act Amendments of 1972, the Endangered Species Act of 1973, the Clean Air Act of 1974, the Resource Conservation and Recovery Act of 1976, the Toxic Substance Control Act of 1976, and the Federal Land Policy and Management Act of 1976. The SDWA is unique because it directly regulates drinking water quality.

Congress passed the SDWA in response to nationwide studies that demonstrated a range of concerns over water quality and management and operation of treatment facilities. Since 1974, it has been amended numerous times, with the most significant amendments dating to 1986, 1996, and 2016.¹

Under the 1974 law, states were delegated implementation and enforcement authority for the drinking water program, pursuant to a cooperative federalism model. Under the Public Water Supply Supervision (PWSS) Program, 49 of the states and one tribe—the Navajo Nation—have assumed this authority.² Nevertheless, the SDWA reflects a level of discomfort with state and tribal sovereignty, as evidenced by the prescriptive requirements for states and tribes.³

While much of the Act is necessarily *sui generis*, some portions mirror provisions in the Clean Air Act (for example, in its distinction between primary and secondary

[Section 18:1]

¹42 U.S.C.A. § 300j-11, as enacted by Pub. L. No. 93-523, 88 Stat. 1660 (1974), and amended by Pub. L. No. 94-317, 90 Stat. 707 (1976); Pub. L. No. 94-484, 90 Stat. 2325 (1976); Pub. L. No. 95-190, 91 Stat. 1393 (1977); Pub. L. No. 96-63, 93 Stat. 411 (1979); Pub. L. No. 96-502, 94 Stat. 2737 (1980); Pub. L. No. 99-339, 100 Stat. 642 (1986); Pub. L. No. 100-572, 102 Stat. 2884 (1988); Pub. L. No. 103-382, 108 Stat. 3518 (1994); Pub. L. No. 103-437, 108 Stat. 4581 (1994); Pub. L. No. 104-66, 109 Stat. 707 (1995); Pub. L. No. 104-182, 110 Stat. 1613 (1996); Pub. L. No. 107-110, 115 Stat. 1425 (2002); Pub. L. No. 107-188, 116 Stat. 594 (2002); Pub. L. No. 108-328, 118 Stat. 1273 (2004); Pub. L. No. 109-58, 119 Stat. 594 (2005); Pub. L. No. 111-380, 124 Stat. 4131 (2011); Pub. L. No. 113-64, 127 Stat. 668 (2013); Pub. L. No. 114-45, 129 Stat. 473 (2015); Pub. L. No. 114-98, 129 Stat. 2199 (2015); Pub. L. No. 114-322, 130 Stat. 1628 (2016); and Pub. L. No. 115-270, 132 Stat. 3765 (2018).

²Mary Tiemann, Cong. Research Serv., RL 31243, *Safe Drinking Water Act (SDWA): A Summary of the Act and Its Major Requirements* 1 (2017).

³Some Federal Courts have held that the SDWA constitutes a comprehensive federal statutory scheme so as to occupy the field of drinking water regulation and preempt some constitutional and other claims that individuals might have under federal law. *See Mattoon v. City of Pittsfield*, 980 F.2d 1, 37 Env't. Rep. Cas. (BNA) 1471, 24 Fed. R. Serv. 3d 330, 23 Env'tl. L. Rep. 20361 (1st Cir. 1992); *Nitao v. Pacific Gas and Electric Company*, 2016 WL 4154932, at *3 (C.D. Cal. 2016) (“SDWA preempts all other forms of federal relief for SDWA violations—including claims under Sections 1983 and 1985(3)”; *Missey v. City of Staunton, Ill.*, 2008 WL 4911877 (C.D. Ill. 2008) (rejecting claim of violation of constitutional rights arising from alleged failure to provide warnings with a “boil water” order); *but see Boler v. Earley*, 865 F.3d 391 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018) (reversing the lower court’s dismissal of plaintiffs’ section 1983 claim due to contaminated drinking water).

standards) and the Clean Water Act (for example, in many aspects of its citizen suit provisions).

After an initial push to publish interim regulations in the middle 1970s,⁴ EPA made a concerted effort to grant primary enforcement authority to states and began to encounter more difficult implementation problems. This included reluctance by other bureaucracies to cooperate in the standard setting process,⁵ and difficulties some public water systems encountered in meeting existing regulations.⁶

In the early 1980s, the pace of regulation slowed. In keeping with the trends prevalent at that time, several bills were introduced in Congress to limit EPA's ability to regulate drinking water,⁷ and the Agency primarily issued Health Advisories and Advance Notices of Proposed Rulemaking.⁸ In the middle 1980s, however, EPA began to implement an ambitious program to promulgate additional drinking water regulations.⁹ In addition, under renewed congressional scrutiny, state and EPA enforcement efforts were viewed as inadequate.¹⁰ In 1986, after several years of effort, Congress amended the SDWA to require EPA to increase its regulatory and enforcement efforts.¹¹ The 1986 Amendments gave EPA "precise marching orders," specifying that a significant number of new drinking water standards be issued within strict deadlines.¹²

With the 1986 amendments to the SDWA, Congress charted EPA's course in setting standards. Many new standards were required within the first few years, followed by 25 additional standards every three years thereafter.¹³ While EPA endeavored to meet these new demands and to increase compliance and enforcement, the resource demands it encountered were substantial, and the Agency missed several deadlines. Moreover, the compliance costs to local water suppliers were rapidly increasing, thereby raising questions about the need for so many new standards and associated monitoring requirements.¹⁴

As a result of those pressures and the desire to provide financial assistance to wa-

⁴Congress expected EPA to adopt interim regulations based on its review of existing U.S. Public Health Service standards. H.R. Rep. No. 1153, 93d Cong., 2d Sess. 17 (1974). EPA did so. *See* 40 Fed. Reg. 59566 (Dec. 24, 1975) and 41 Fed. Reg. 28402 (July 9, 1976) (National Interim Primary Drinking Water Regulations).

⁵The SDWA originally called on the National Academy of Sciences (NAS) to provide proposals for health goals to serve as a target for additional regulations. Pub. L. No. 93-523, § 1412, 88 Stat. 1662 (1974) (former SDWA § 1412(B) and (e)). Believing this exercise required consideration of non-health factors that were beyond their purview, NAS declined to provide proposals for health goals. *See* 48 Fed. Reg. 45503 (Oct. 5, 1983).

⁶*See* 45 Fed. Reg. 40222 (June 13, 1980) (the small systems compliance strategy).

⁷*See, e.g.*, H.R. 4509, 97th Cong., 1st Sess., 127 Cong. Rec. H6385 (daily ed. Sept. 17, 1981) (introduced by Rep. Gramm).

⁸*See* 47 Fed. Reg. 9350 (Mar. 4, 1982); 48 Fed. Reg. 45502 (Oct. 5, 1983).

⁹*See, e.g.*, 49 Fed. Reg. 46880 (Nov. 29, 1984); 50 Fed. Reg. 20164 (May 14, 1985); 50 Fed. Reg. 46936 (Nov. 13, 1985); 50 Fed. Reg. 46880 (Nov. 13, 1985); 50 Fed. Reg. 47142 (Nov. 14, 1985).

¹⁰H.R. Rep. No. 168, 99th Cong. 1st Sess. 26 (1985).

¹¹Pub. L. No. 99-339, 100 Stat. 642 (1986), amending 42 U.S.C.A. §§ 300f to 300j-11. *See* Kenneth F. Gray, *The Safe Drinking Water Act: Now a Tougher Act to Follow*, 16 *Env'tl. L. Rep.* (Env'tl. L. Inst.) 10338 (Nov. 1986).

¹²*Natural Resources Defense Council, Inc. v. E.P.A.*, 824 F.2d 1211, 1216, 26 *Env't. Rep. Cas.* (BNA) 1305, 17 *Env'tl. L. Rep.* 21100 (D.C. Cir. 1987).

¹³Pub. L. No. 99-339, 100 Stat. 642 (1986).

¹⁴*See, e.g.*, G. Richard Dreese and Vivian Witkind Davis, *Briefing Paper on the Economic Impact of the Safe Drinking Water Act Amendments of 1986*, The National Regulatory Research Institute 87-9 (July 1987), <https://pubs.naruc.org/pub/4006BBA4-155D-0A36-3138-06CD6AF2E6DB>.

ter suppliers, Congress passed the SDWA Amendments of 1996.¹⁵ The 1996 Amendments instituted several critical reforms to the program. Most significantly, the amendments withdrew the provisions mandating 25 new standards every three years and instead provided EPA with the flexibility to decide which contaminants to regulate, based on occurrence data, risk assessment, and cost-benefit considerations.

Following the September 11, 2001 terrorist attacks, the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 introduced a number of security-related amendments. For example, community water systems (CWSs) serving more than 3,300 people were required to conduct vulnerability assessments and prepare emergency response plans.¹⁶

Another important amendment, the Drinking Water Protection Act, addressed the assessment and management of the risks posed by algal toxins in public drinking water supplies.¹⁷ EPA was required to, among other items, assess the health risks from algal toxins, issuing health advisories if needed; provide guidance on the assessment and measurement of these toxins; recommend treatment and protection options for water supplies; and provide technical assistance to public water systems facing this issue.¹⁸

Following the Flint Water Crisis, and in the wake of increasing national security bioterrorism concerns, Congress made a number of amendments to the SDWA with the Water Infrastructure Improvements for the Nation (WIIN) Act.¹⁹ The 2016 amendments redetermined allowable lead levels in drinking water, required disclosure when levels exceeded the maximum amount, increased assistance for disadvantaged communities and schools, and generally provided additional funding opportunities for public water infrastructure projects.²⁰

Several themes in drinking water regulation will be familiar to those who have experience with other federal environmental programs. EPA sets enforceable standards to protect health (National Primary Drinking Water Regulations (NPDWR) or Primary Regulations) that apply to public water systems. These standards are to be set as close as possible to established health goals, considering the “best available technology” (BAT), cost, and feasibility. States, territories, and tribes may adopt standards that are at least as stringent as the federal program and, after EPA approval, may assume primary enforcement authority. The contemporary themes of water security and water conservation are incorporated via EPA’s implementation of the SDWA.²¹

This Chapter discusses the types of water systems subject to regulation, the setting of Primary Regulations, variances and exemptions, public notification, state

¹⁵Pub. L. No. 104-182, 110 Stat. 1613 (1996).

¹⁶See section 401 of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Pub. L. No. 107-188, 116 Stat. 594 (2002).

¹⁷Pub. L. No. 114-45, 129 Stat. 473 (2015).

¹⁸Pub. L. No. 114-45, 129 Stat. 473 (2015).

¹⁹See Perri Zeitz Ruckart, et al., *The Flint Water Crisis: A Coordinated Public Health Emergency Response and Recovery Initiative*, 25 J. Public Health Manag. Pract. S84-S90 (2019).

²⁰Pub. L. No. 114-322, 130 Stat. 1628 (2016).

²¹Water security provisions can be found at SDWA §§ 1433 to 1435, 42 U.S.C.A. §§ 300i-2 to 300i-4. EPA’s consideration of water conservation played a central role in its 2003 decision that “submetering” by apartment buildings and others was not “selling water” for purposes of classification as a public water system. *Applicability of the Safe Drinking Water Act to Submetered Properties*, 68 Fed. Reg. 74233-34 (Dec. 23, 2003). The decision withstood challenge. *Manufactured Housing Institute v. U.S. Environmental Protection Agency*, 467 F.3d 391, 36 Env’tl. L. Rep. 20216 (4th Cir. 2006) (rejecting petition challenging EPA’s failure to include manufactured housing and mobile home parks under EPA policy).

drinking water programs, enforcement authorities, and groundwater protection.²² It does not address Underground Injection Control regulation under the Safe Drinking Water Act, as that subject is discussed elsewhere in this treatise.

II. WHAT IS A PUBLIC WATER SYSTEM?

§ 18:2 In General

Only water served by “public water systems” is subject to minimum requirements under the SDWA.

§ 18:3 Public Water System Defined

The term public water system means “a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals.”¹ Water systems typically take in surface water or groundwater, treat it, and then send it through pipes to consumers. The 1996 SDWA Amendments expanded the definition of public water system to encompass “constructed conveyances” in addition to pipes.² The amendments specify that, under certain circumstances, conveyances other than pipes shall not be considered “connections” for purposes of the “fifteen service connections” requirement.³ The amendments also exempted from public water system status certain irrigation districts in existence prior to May 18, 1994.⁴

Public water systems need not be “public” in the sense they are government-owned,⁵ and there are many public water systems owned and operated by private investors. To be covered by the Act, public water systems need only “regularly”

²²This Chapter does not address the more detailed, general provisions of the SDWA, such as inspection authority, grants, whistleblower protections and judicial review. Those subjects are covered in SDWA §§ 1441 to 1450, 42 U.S.C.A. §§ 300j-1 to 300j-11 and are relatively straightforward.

[Section 18:3]

¹SDWA § 1401(4), 42 U.S.C.A. § 300f(4). Before the 1996 Amendments, which expressly address irrigation canal systems, the U.S. Court of Appeals for the Ninth Circuit held that where untreated water was provided to consumers through an irrigation canal system, the irrigation district was not a public water system, because the canals did not constitute a “piped” system. *Imperial Irr. Dist. v. U.S. E.P.A.*, 4 F.3d 774, 776-77, 37 Env’t. Rep. Cas. (BNA) 1557, 23 Env’tl. L. Rep. 21310 (9th Cir. 1993). “Water for human consumption” also includes water for “such normal uses as bathing and showering, cooking and dishwashing, and maintaining oral hygiene.” *U.S. v. Midway Heights County Water Dist.*, 695 F. Supp. 1072, 1076, 27 Env’t. Rep. Cas. (BNA) 2183, 27 Env’t. Rep. Cas. (BNA) 2185, 19 Env’tl. L. Rep. 20142 (E.D. Cal. 1988). Connections to homes or buildings are service connections. The term “public water system” includes (1) collection, treatment, storage, and distribution facilities under control of the operator and used primarily with such system, and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with the system. The outer bounds of “collection or pretreatment storage facilities” have not been defined. However, the Georgia Supreme Court, interpreting a state law that is virtually identical to the SDWA, held that the statute does not regulate private lines running from the service connections of distribution facilities into homes, because private lines are not within the control of the water system operators. *Bass v. Ledbetter*, 257 Ga. 738, 363 S.E.2d 760, 761, 27 Env’t. Rep. Cas. (BNA) 1471 (1988).

²EPA has issued guidance defining “public water system,” as provided in the 1996 SDWA amendments. 63 Fed. Reg. 41940 (Aug. 5, 1998). EPA has also adopted definitions relating to “wholesale systems,” “consecutive systems,” and “combined distribution systems” for purposes of implementing the primary drinking water regulations, although these definitions do not expand the term “public water system.” See 40 C.F.R. § 141.2 (definitions) and Part 141, Subpart U.

³SDWA § 1401(4)(B)(i), 42 U.S.C.A. § 300f(4)(B)(i).

⁴SDWA § 1401(4)(B)(ii), 42 U.S.C.A. § 300f(4)(B)(ii).

⁵H.R. Rep. No. 93-1185, at 16 (1974).

serve the requisite number of persons.⁶ EPA has defined regular service to be daily service at least 60 days out of the year.⁷ As explained below, EPA has further subdivided public water systems based on the number of days of service so that not all systems are required to meet the same regulations.

The term “public water systems” encompasses a broad array of facilities and includes systems that are not traditionally considered water utilities. Gasoline stations, factories, schools, private housing developments, campgrounds,⁸ trailer camps, restaurants, motels, and other facilities that have their own wells or surface water supplies must comply with the regulations if they serve the requisite number of service connections or persons.⁹ Thus, even a system on an off-shore drilling platform near Louisiana has been held to be a public water system by EPA.¹⁰

Despite the breadth of the public water system definition, certain systems are unregulated. Obviously, systems that serve fewer than 25 persons or 15 service connections are not covered. Under the Act, a system is also exempt if it:

- (1) consists only of distribution and storage facilities (without any collection and treatment facilities);
- (2) obtains all its water from, but is not owned or operated by, a public water system;
- (3) does not sell water to any person; and
- (4) is not a carrier that conveys passengers in interstate commerce.¹¹

This exemption is in part intended to exclude facilities like hotels and grocery stores, which merely by virtue of having a storage tank and acting as a conduit from public water system to the consumer would otherwise be subject to regulation.¹² Carriers of water in interstate commerce (for example, airplanes and buses) are not exempt, and water they serve must meet SDWA standards.¹³ Bottled drinking water purveyors are not public water systems because they are not providing water through a “pipe or constructed conveyance.”¹⁴ However, the Food and Drug Administration, as authorized by statute, has adopted the drinking water standards for bottled water, so that, by federal law, bottled water distributed interstate is to

⁶Systems serving more than 25 persons have occasionally attempted to disconnect users to avoid regulation, or to establish two “separate” systems, each serving fewer than 25 persons. In the latter case, there is often a factual question whether there will be one system or two after the attempted spin-off.

⁷40 C.F.R. § 141.2. Specifying 60 days rather than two months means that a system may qualify as a public water system even if it is not operational every day during two months or through a continuous 60-day period. 40 Fed. Reg. 59566 (Dec. 24, 1975).

⁸See *U.S. v. Ritz*, 721 F.3d 825, 826, 76 Env’t. Rep. Cas. (BNA) 1813 (7th Cir. 2013).

⁹H.R. Rep. No. 93-1185, at 16–17 (1974). See 40 Fed. Reg. 59566 (1975).

¹⁰EPA, Regional Counsel Opinion, Nov. 22, 1975, Region VI, Coverage of the Safe Drinking Water Act—Off-shore Drilling Platforms, reprinted in 1 EPA General Counsel Opinions 43.

¹¹SDWA § 1411, 42 U.S.C.A. § 300g. A system that operates water treatment facilities, collects 30% of its source water from rainwater catchment and groundwater well collection facilities, and receives no more than 70% of its water from a public water system is not exempt from coverage by the SDWA. *United States v. Virgin Islands Hous. Auth.*, 27 Env. 2187 (D.V.I. 1988).

¹²H.R. Rep. No. 93-1185, at 17 (1974). Public water systems that receive water from other public water systems (so-called “consecutive systems”) may have reduced monitoring requirements. 40 C.F.R. § 141.29.

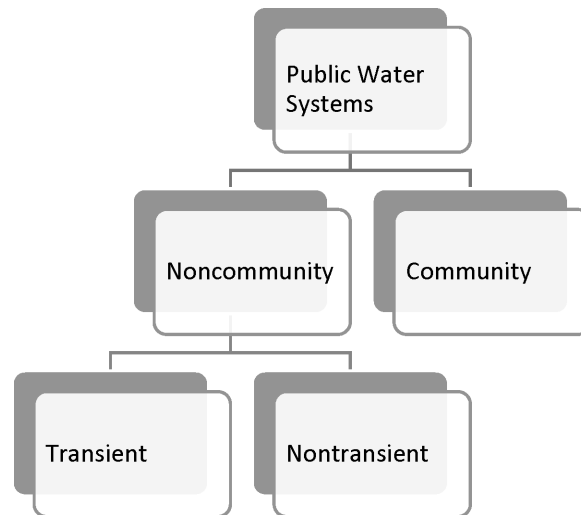
¹³SDWA § 1411(4), 42 U.S.C.A. § 300g(4). Because of the challenges of rigorous schedules and multiple sources of water, airlines have faced specific compliance challenges. In an effort to address these challenges, EPA has established drinking water standards specifically tailored to air carriers. 74 Fed. Reg. 53590 (Oct. 19, 2009).

¹⁴See SDWA § 1401(4), 42 U.S.C.A. § 300f(4).

contain no more contaminants than tap water.¹⁵ In § 305 of the 1996 SDWA amendments, Congress amended the Federal Food, Drug, and Cosmetic Act to impose further requirements on bottled water. EPA has allowed systems to provide bottled water to consumers to prevent unreasonable risks during the term of a variance or exemption and has established monitoring, quality, and quantity requirements for such interim measures.¹⁶

§ 18:4 Community and Non-Community Water Systems

Figure 1.¹



When the National Interim Drinking Water Regulations were adopted in 1975, EPA subdivided public water systems into two types—community water systems and non-community water systems.² Community systems are what we normally think of as water utilities—they serve our homes. Community water systems serve the same people year-round: at least 15 service connections or 25 residents.³ According to EPA, eight percent of U.S. community water systems provide water to 82% of the U.S. population.⁴ All of the federal SDWA regulations apply to these systems.

¹⁵Federal Food, Drug and Cosmetic Act § 410, 21 U.S.C.A. § 349. *See* 21 C.F.R. Pt. 129. Although bottled water must meet minimum standards, the Food and Drug Administration has not adopted EPA's monitoring requirements for public water systems.

¹⁶40 C.F.R. §§ 141.101, 142.57(a) to (b), 142.62(f) to (g); 56 Fed. Reg. 26460, 26563 to 26564 (June 7, 1991). Bottled water may not be used by public water systems to achieve compliance with drinking water standards. 40 C.F.R. § 141.101; 52 Fed. Reg. 25701, 25716 (1987).

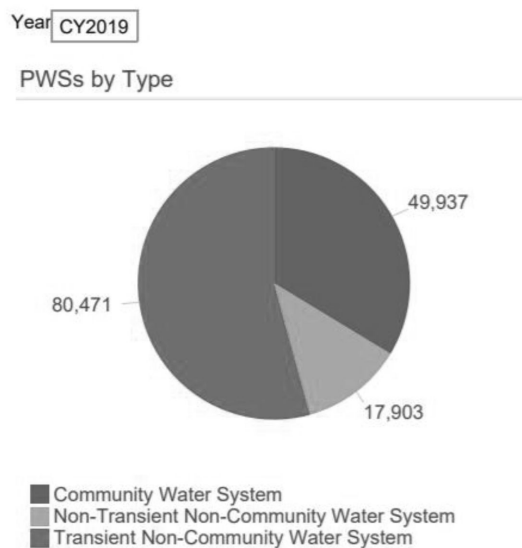
[Section 18:4]

¹*See* Centers for Disease Control and Prevention, *Public Water Systems* (Apr. 7, 2014), <https://www.cdc.gov/healthywater/drinking/public/index.html>.

²40 C.F.R. § 141.2. *See* 40 Fed. Reg. 59566 (1975). All public water systems are either community or non-community water systems. Congress codified these terms in the 1996 amendments. SDWA § 1401(15), (16), 42 U.S.C.A. § 300f(15), (16).

³SDWA § 1401(15), 42 U.S.C.A. § 300f(15); 40 C.F.R. § 141.2.

⁴*Public Water Systems*, *supra* note 1.

Figure 2.⁵

Non-community systems are all other public water systems that serve the requisite number of persons at least 60 days per year.⁶ Unlike community systems, non-community systems do not serve residents.⁷ Non-community systems include hotels, motels, restaurants, schools, factories, and churches that produce their own drinking water. Non-community systems constitute the large majority of public water systems.⁸ As of 2017, roughly 51,350 community water systems provided water to more than 299 million people.⁹

This distinction is not trivial. Traditionally, while community systems were required to meet all drinking water standards, non-community systems were only required to meet drinking water standards for acutely toxic agents like arsenic, total trihalomethanes, and nitrates.¹⁰ EPA based this science/policy decision on the general proposition that brief or intermittent exposures resulting from most non-community systems did not justify a high priority for control of other contaminants that caused adverse health effects only after longer-term exposure (*i.e.*, chronic effects).¹¹ EPA also indicated that it was concerned about the feasibility of immediate implementation of the drinking water program, given the large number of small water systems and limited laboratory capability.¹² These concerns proved real, as EPA later recognized in adopting a strategy to assist the smaller systems that were having trouble complying with even the few maximum contaminant levels (MCLs)

⁵Data retrieved from EPA's ECHO system, available at <https://echo.epa.gov/trends/comparative-maps-dashboards/drinking-water-dashboard?yearview=CY&view=activity&criteria=basic&state=National>.

⁶SDWA § 1401(16), 42 U.S.C.A. § 300f(16); 40 C.F.R. § 141.2; *see also* Turner T. Smith, Jr. and Steven J. Koorse, *New Safe Drinking Water Act Liability for Corporate America*, 18 Env'tl. L. Rep. (Env'tl. L. Inst.) 10422 (Oct. 1988).

⁷SDWA § 1401(16), 42 U.S.C.A. § 300f(16).

⁸40 Fed. Reg. 59566 (Dec. 24, 1975).

⁹Mary Tiemann, *Safe Drinking Water Act (SDWA): A Summary of the Act and Its Major Requirements*, Cong. Research Serv., RL 31243 (2017).

¹⁰40 C.F.R. §§ 141.11 to 141.13.

¹¹40 Fed. Reg. at 59566.

¹²40 Fed. Reg. at 59566.

that existed.¹³

There is another category of public water systems: non-transient non-community water systems (NTNCWS).¹⁴ This class of public water system applies to systems serving at least 25 of the same persons over six months per year.¹⁵ Those persons cannot be residents; otherwise, the system would be considered a “community system.” Thus, NTNCWSs include schools, factories, and hospitals that produce their own water. Most drinking water regulations apply to these systems.

§ 18:5 Protection for Other Water Systems

Over 12% of the nation’s population uses drinking water from private sources rather than public water systems.¹ What standards apply to drinking water that is not provided by public water systems? The short answer is that the SDWA simply does not regulate these sources.² Thus, for example, private wells serving a few homes even year-round are not covered by federal drinking water regulations. A nationwide survey conducted by the United States Geological Survey concluded that a significant percentage of private wells contain at least one contaminant at levels of potential health concern.³

Without the protections provided by the federal SDWA, what other means of regulatory protection are available for users of private water sources? Local ordinances may require initial testing of private wells, although such ordinances rarely provide minimum, mandatory standards for water quality, or require regular monitoring. The remaining “protections” do not apply directly to water systems, but they are generally directed at controlling or preventing contamination of surface

¹³See 45 Fed. Reg. 40222 (June 13, 1980). Maximum contaminant levels, essentially performance standards for public water systems, are discussed in greater detail in § 18:10. MCLs are the highest levels of contaminants that are allowed in drinking water; Maximum Contaminant Level Goals (MCLGs) are the contaminant levels below which there are no known or expected risks to health. MCLGs have a safety margin and are non-enforceable public health goals. MCLs are set as close to MCLGs as possible using the best available treatment technology, and MCLs take cost into consideration. See EPA, *Ground Water and Drinking Water: National Primary Drinking Water Regulations*, <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#one> (last visited July 21, 2020).

¹⁴There is a third broad category of PWS: transient non-community water systems (TNCWS) provide water in places where people do not remain for long periods of time. Locations such as gas stations and campgrounds would be considered TNCWSs. Only SDWA regulations for contaminants that pose immediate risks to health (e.g., bacteria, nitrates) apply to these systems.

¹⁵40 C.F.R. § 141.2; 52 Fed. Reg. 25712 (July 8, 1987). EPA has clarified that those persons must be served at least four days per week for at least 26 weeks per year. Memorandum from Paul Baltay, Director, State Programs Division, U.S. EPA Office of Drinking Water, to Regional Drinking Water Program Branches (Sept. 16, 1987).

[Section 18:5]

¹Andrea Kopaski, *Public vs Private: A National Overview of Water Systems*, The Environmental Finance Blog, UNC School of Government: Environmental Finance Center (Oct. 19, 2016) (citing the data derived from EPA’s Safe Drinking Water Information System), <http://efc.web.unc.edu/2016/10/19/public-vs-private-a-national-overview-of-water-systems/>.

²Note, however, that the Administrator’s emergency powers under SDWA § 1431, 42 U.S.C.A. § 300i, are not limited to protecting public water systems. For example, those powers may be used to protect underground sources of drinking water or to address threatened or potential terrorist attacks. Also, § 101(b)(2) of the SDWA Amendments of 1996 directed the General Accounting Office to undertake a study ascertaining the number and location of water systems that are not “public water systems” by virtue of the “connections” exceptions under SDWA § 1401(4)(B)(i), (ii), 42 U.S.C.A. § 300f(4)(B)(i), (ii).

³DeSimone, L.A., Hamilton, P.A., Gilliom, R.J., 2009, *Quality of water from domestic wells in principal aquifers of the United States, 1991–2004—Overview of major findings*: U.S. Geological Survey Circular 1332, p. 48. This survey analyzed water drawn from about 2,100 wells located in 48 different states. Over 200 contaminants were identified during the study; inorganic chemicals were the dominant presence at levels presenting potential health effects.

water or groundwater. They are discussed more specifically elsewhere in this treatise, but several deserve special mention here.

If there is a threat of contamination that may cause an imminent and substantial endangerment to either surface or groundwater drinking supplies, EPA has authority to take any action necessary to address the threat.⁴ Also, if there is a contamination incident, tort law (primarily nuisance and trespass) has traditionally supplied grounds for legal action.⁵ Where the contamination incident is caused by the release of a substance from a facility regulated by the Resource Conservation and Recovery Act (RCRA),⁶ or if contamination comes to the attention of EPA through the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)⁷ program, EPA may act to require the responsible facility to clean up the site to meet the applicable drinking water standards, if the affected drinking water currently is or potentially could be used by a public water system.⁸ CERCLA also provides remedies allowing private parties (for example, a well owner) to clean up the site and bring actions for cost recovery against parties responsible for hazardous substance contamination,⁹ regardless of whether the water affected is used by a public water system.¹⁰ Various state “drinking water” laws, such as California’s Proposition 65 and groundwater protection laws, also attempt to prevent contamination of drinking water supplies, irrespective of whether the supply is used by a public water system.¹¹

III. NATIONAL DRINKING WATER REGULATIONS

⁴SDWA § 1431, 42 U.S.C.A. § 300i.

⁵*See, e.g.*, Willard v. Parsons Hill Partnership, 178 Vt. 300, 2005 VT 69, 882 A.2d 1213, 1217 (2005) (breach of warranty of habitability); State v. Monarch Chemicals, Inc., 90 A.D.2d 907, 456 N.Y.S.2d 867, 907-08, 13 Env’tl. L. Rep. 20482 (3d Dep’t 1982) (no preemption of state suit). *See also* W. Rodgers, Environmental Law: Air & Water § 4.7 (1986).

⁶42 U.S.C.A. §§ 6901 to 6992k.

⁷42 U.S.C.A. §§ 9601 to 9675(B).

⁸40 C.F.R. § 300.430(e)(2)(i).

⁹42 U.S.C.A. § 9607. *See* § 14:138.

¹⁰*Cooper Industries, Inc. v. Aviall Services, Inc.*, 543 U.S. 157, 159, 125 S. Ct. 577, 160 L. Ed. 2d 548, 59 Env’t. Rep. Cas. (BNA) 1545, 34 Env’tl. L. Rep. 20154 (2004) (limited, to an extent, the ability of companies to sue others to share in clean-up costs after a voluntary clean-up to contribution actions taking place “during or following a civil action” under CERCLA).

¹¹California Initiative No. 65, passed November 1986 (codified at Cal. Health & Safety Code § 25249.5). Proposition 65 states that no person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical is likely to pass into any source of drinking water. *See* Me. Rev. Stat. Ann. tit. 38, §§ 561 to 570M (regulating tanks).



Photo taken by A. Driggs on April 19, 2015.

§ 18:6 In General

Federal drinking water regulations are divided between two categories. National Primary Drinking Water Regulations (Primary Regulations or NPDWR) protect health and are enforceable against public water systems. Primary Regulations are the heart of the SDWA. National Secondary Drinking Water Regulations (Secondary Regulations) protect “welfare,” address aesthetic concerns such as odor, and are not federally enforceable under the SDWA.¹ Most of this section is devoted to Primary Regulations and the exemptions and variances from Primary Regulations.

§ 18:7 National Primary Drinking Water regulations—Definition

Primary Regulations specify MCLs or treatment techniques for contaminants that may have any adverse effect on the health of persons.¹ MCLs and treatment techniques are the heart of the Primary Regulations, and they are discussed at length below. In addition to MCLs and treatment techniques, Primary Regulations include “criteria and procedures” for assuring compliance (for example, monitoring) and may include requirements for minimum quality intake waters and siting.² “Contaminants” that may be regulated include anything that may be in water, regardless of whether it is naturally occurring or man-made, intentionally or unintentionally added.³

MCLs are essentially performance standards for public water systems: MCLs are not to be exceeded in water delivered to users.⁴ Public water systems are generally free to meet MCLs using any technology they desire.⁵ However, systems may not use bottled water to comply with MCLs because of concern that these alternatives would not provide the same degree of public health protection as centralized treatment of drinking water;⁶ bottled water is restricted to temporary use to avoid unreasonable risks to health during a variance or exemption.⁷ Typical water treatment practices have traditionally included filtration and disinfection (usually by chlorination), but these practices do not effectively reduce many of the organic and inorganic contaminants that have been discovered in drinking water sources. More recently, advanced treatment technologies, such as granular activated carbon, ion exchange, and microfiltration, are being used routinely to achieve compliance with MCLs.

[Section 18:6]

¹The distinction between primary “health” and secondary “welfare” regulations has its origins in the Clean Air Act of 1970, which contains a similar distinction. *See* Clean Air Act § 109(a) to (b), 42 U.S.C.A. § 7409(a) to (b). This is no coincidence. The SDWA was referred to the same congressional committees that reviewed and passed the Clean Air Act. One major difference between Primary and Secondary Regulations under the two statutes is that the SDWA Secondary Regulations are not federally enforceable, while the Clean Air Act Secondary Regulations are intended to be enforceable.

[Section 18:7]

¹SDWA § 1401(1), 42 U.S.C.A. § 300f(1).

²SDWA § 1401(1)(D), 42 U.S.C.A. § 300f(1)(D).

³“Contaminant” means “any physical, chemical, biological, or radiological substance or matter in water.” SDWA § 1401(6), 42 U.S.C.A. § 300f(6).

⁴SDWA § 1401(3), 42 U.S.C.A. § 300f(3).

⁵EPA is proscribed by the Act from requiring that any particular technology, treatment technique, or other means be used to comply with an MCL. SDWA § 1412(b)(4)(E)(1), 42 U.S.C.A. § 300g-1(b)(4)(E)(1). If the system uses a device to treat water entering houses and buildings (point-of-entry treatment device), the system must show the device is effective and meet other specified criteria. 40 C.F.R. § 141.100. *See* 40 C.F.R. § 141.2 (definition of “point-of-entry treatment device”). Because every building connected to the system must have a point-of-entry treatment device, use of this compliance option may be limited.

⁶*See* 52 Fed. Reg. 25701 (July 8, 1987); 63 Fed. Reg. 31932 (June 11, 1998).

⁷40 C.F.R. § 141.101.

In contrast with MCLs, treatment techniques are engineering or design requirements for public water systems and may be specified in lieu of an MCL. Treatment techniques may be chosen by EPA if it is “not economically or technologically feasible” to ascertain the level of a contaminant.⁸ EPA is required to list the treatment techniques that prevent adverse health effects.⁹

§ 18:8 National Primary Drinking Water Regulations—Pre-1996 SDWA Amendments: Selecting Contaminants for Regulation

The requirements EPA must follow in selecting contaminants for regulation were radically altered by the SDWA Amendments of 1996. Prior to those amendments, EPA was generally directed to establish Primary Regulations for any contaminant “which, in the judgment of the Administrator, may have any adverse effect on the health of persons and which is known or anticipated to occur in public water systems.”¹ That test encompassed both a toxicity component (adverse effect on health) and an occurrence or exposure component (known or anticipated to occur). EPA intended to set standards for as many substances as possible that might be of health concern when present in drinking water.² Specifically, EPA claimed that it would regulate substances where there were: (1) analytical methods to detect a contaminant in drinking water; (2) sufficient health effects information to conclude that there might be a health concern; and (3) occurrences in drinking water or potential for increased occurrences in drinking water.³

The second of these criteria, potential health effects, generally included a wide—but not unlimited—variety of undesirable symptoms, such as the obvious acute and chronic effects of sickness, carcinogenicity, mutagenicity, and teratogenicity.⁴ For example, EPA decided that functional impairment of an organ or bone was an adverse health effect, but that mottling and pitting of teeth from high fluoride levels were not, because mottling and pitting do not functionally impair teeth.⁵ This was upheld in court.⁶ EPA was directed to regulate contaminants that “may” have an adverse effect on health. What probability of a health effect was deemed appropriate to meet the statutory standard? In declining to regulate vinylidene chloride for its “possible” carcinogenic effects, for instance, EPA found the evidence only weakly suggestive of carcinogenicity.⁷ In upholding EPA’s decision, the U.S. Court of Appeals for the District of Columbia Circuit stated, in dictum:

a preponderance-of-the-evidence test would probably be inconsistent with Congress’ directions in the Drinking Water Act. If the evidence established, for example, a 40% probability that a compound was carcinogenic, the agency’s decision not to regulate

⁸SDWA § 1412(b)(7)(A), 42 U.S.C.A. § 300g-1(b)(7)(A).

⁹SDWA § 1412(b)(7)(A), 42 U.S.C.A. § 300g-1(b)(7)(A).

[Section 18:8]

¹SDWA § 1412(b)(3)(A), 42 U.S.C.A. § 300g-1(b)(3)(A), *amended by* Pub. L. No. 104-18, 110 Stat. 1613 (1996). The occurrence criteria were appended to the “adverse effect” language by the SDWA Amendments of 1986. SDWA § 1412(b)(2), 42 U.S.C.A. § 300g-1(b)(2), *amended by* Pub. L. No. 99-339, 100 Stat. 643 (1986).

²50 Fed. Reg. 46936, 46940-41 (Nov. 13, 1985).

³50 Fed. Reg. 46936, 46940-41 (Nov. 13, 1985).

⁴50 Fed. Reg. 46936, 46942 (Nov. 13, 1985).

⁵50 Fed. Reg. 47142, 47143-44 (Nov. 14, 1985). In addition, EPA has determined that any impaired self-image or loss of self-esteem that may accompany mottled teeth are not significant enough to be termed adverse health effects under the Act.

⁶Natural Resources Defense Council, Inc. v. E.P.A., 812 F.2d 721, 725, 25 Env’t. Rep. Cas. (BNA) 1681, 17 Env’t. L. Rep. 20418 (D.C. Cir. 1987).

⁷50 Fed. Reg. 46880 (Nov. 13, 1985).

would be difficult to square with the Drinking Water Act's instruction to . . . establish a . . . level for each contaminant which, in its judgment, *may* have any adverse effect on health. Such a decision might well constitute an abuse of . . . discretion.⁸

In the same decision, the court rejected arguments that EPA could regulate contaminants only where the Agency found a “significant risk.” The court pointed out that contaminants may have some adverse effect on health without posing a significant risk.⁹

The third criterion, known or anticipated occurrence, historically played little role in EPA's selection of contaminants to regulate. However, even before the statute was amended in 1986 to specifically include occurrence criteria, EPA asserted authority to regulate contaminants that occur or may occur in “drinking water” (a more expansive universe than “public water systems”).¹⁰ EPA has therefore looked to occurrence in private wells, surface water or groundwater, and liquid or solid waste (as well as production rates of chemicals that may be contaminants, mobility of contaminants in the environment, and dispersive use patterns).¹¹ The 1996 Amendments impose a more demanding burden on EPA to demonstrate occurrence before selecting a contaminant for regulation, and “known or anticipated occurrence” has played a major role since.¹²

Until the 1996 Amendments, EPA's agenda for selecting which contaminants to regulate was dictated by the SDWA Amendments of 1986.¹³ Those amendments required EPA to regulate no fewer than 83 contaminants by June 19, 1989.¹⁴ Those 83 listed contaminants were identified in two EPA Advance Notices of Proposed Rulemaking referred to in the amendments.¹⁵ However, 22 of the 83 contaminants to be regulated were already covered by Primary Regulations (these contaminants were slated for revision by EPA).

The 83 listed contaminants included a variety of organic, inorganic, microbiological, and radiological contaminants. EPA substituted seven contaminants for the listed contaminants, finding that regulating the substitutes was more likely to be protective of public health.¹⁶ EPA was also directed by the statute to develop Primary Regulations requiring two treatment techniques—filtration and disinfection—for public water systems.¹⁷

The 1986 Amendments also required EPA to publish, beginning January 1, 1988, a triennial priority list of contaminants “which are known or anticipated to occur in public water systems and which may require regulation.”¹⁸ Within two years of each

⁸Natural Resources Defense Council, Inc. v. E.P.A., 824 F.2d 1211, 1217, 26 Env't. Rep. Cas. (BNA) 1305, 17 Env'tl. L. Rep. 21100 (D.C. Cir. 1987). However, if adverse effects have been caused by unusual dietary practices whereby persons put themselves at risk, the agency is not bound to set the standard to protect against such effects. *NRDC*, 812 F.2d 721, 724 (D.C. Cir. 1987) (EPA not required to set a national standard at levels to protect against crippling skeletal fluorosis from fluoride due to consumption of very large amounts of water and high fluoride foods).

⁹*NRDC*, 824 F.2d at 1215.

¹⁰50 Fed. Reg. 40941-43 (Oct. 7, 1985).

¹¹50 Fed. Reg. 46936, 46943 (Nov. 13, 1985).

¹²*See, e.g.*, 68 Fed. Reg. 42898 (July 18, 2003) and 73 Fed. Reg. 44251 (July 30, 2008).

¹³Pub. L. No. 99-339, 100 Stat. 642 (1986).

¹⁴SDWA § 1412(b)(1), 42 U.S.C.A. § 300g-1(b)(1).

¹⁵SDWA § 1412(b)(1), 42 U.S.C.A. § 300g-1(b)(1); *see* H.R. Conf. Rep. No. 575, 99th Cong., 2d Sess. 29–30 (1986), *reprinted in* 132 Cong. Rec. H2333 (daily ed. May 5, 1986).

¹⁶53 Fed. Reg. 1892 (Jan. 22, 1988). *See* SDWA § 1412(b)(2), 42 U.S.C.A. § 300g-1(b)(2).

¹⁷SDWA § 1412(b)(7)(C), 42 U.S.C.A. § 300g-1(b)(7)(C); SDWA § 1412(b)(8), 42 U.S.C.A. § 300g-1(b)(8).

¹⁸Former SDWA § 1412(b)(3)(A) to (D), 42 U.S.C.A. § 300g-1(b)(3)(A) to (D). *See* 53 Fed. Reg. 1892,

listing, EPA was to propose Primary Regulations for at least 25 contaminants on the list; within three years of listing, regulations were to be promulgated.¹⁹

The standard for listing had two components. First, EPA was required to consider contaminants that are “known or anticipated to occur” in public water systems. This was also the occurrence standard imposed by the Act for contaminants that must be regulated under Primary Regulations.²⁰ Second, EPA was to consider listing those contaminants that “may require regulation.”²¹ Contaminants that may require regulation would logically include those that may have an adverse effect on human health.

EPA was to publish the priority list every three years. The statute did not specify a date after which the priority list need not be published, and there is no legislative history addressing whether Congress intended this requirement to continue indefinitely. It was arguably consistent with the goals of the Act to publish the priority list and regulations so long as EPA identified contaminants that meet the criteria established by the Act.

In preparing the priority lists, EPA looked to (among other sources) hazardous substances under CERCLA and registered pesticides under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).²² EPA selected contaminants that appeared most frequently in drinking water and groundwater, and for which there was adequate toxicological information from which to postulate potential adverse health effects.²³ Hazardous substances under CERCLA, including hazardous waste under RCRA, met these requirements and were included on the lists.²⁴

EPA did not publish MCLs for all 83 contaminants by June 19, 1989. By that deadline, it had published MCLs for only eight contaminants and proposed MCLs or treatment techniques for 40 more.²⁵ Citizens groups filed several lawsuits seeking to require EPA to expedite its MCL promulgation schedule.²⁶

§ 18:9 National Primary Drinking Water Regulations—Selecting Contaminants for Regulation after the 1996 SDWA Amendments

The 1996 SDWA Amendments radically altered the direction EPA must follow in selecting contaminants for regulation. The 1996 Amendments, unlike those in 1986, did not prescribe the specific contaminants or the number of contaminants EPA must regulate. Instead, they identified procedures and schedules EPA must use in selecting contaminants to regulate.

To begin with, EPA was required, beginning on February 6, 1998, and every five years thereafter, to publish a list of contaminants that, at the time of publication, were not subject to any proposed or final MCL or treatment technique, and that are

1901 (Jan. 22, 1988) (the first triennial list); 56 Fed. Reg. 1470 (Jan. 14, 1991) (the second triennial list).

¹⁹Former SDWA § 1412(b)(3)(C), (D), 42 U.S.C.A. § 300g-1(b)(3)(C), (D). The first list included 53 contaminants. 53 Fed. Reg. 1892, 1901 (Jan. 22, 1988).

²⁰Former SDWA § 1412(b)(3)(A), 42 U.S.C.A. § 300g-1(b)(3)(A).

²¹Former SDWA § 1412(b)(3)(A), 42 U.S.C.A. § 300g-1(b)(3)(A).

²²7 U.S.C.A. §§ 136 to 136y.

²³53 Fed. Reg. 1892, 1893 (Jan. 22, 1988).

²⁴53 Fed. Reg. at 1898-99.

²⁵Since June 19, 1989, EPA promulgated MCLs or treatment techniques for more of the 83 contaminants. *See* 54 Fed. Reg. 27486 (June 29, 1989); 54 Fed. Reg. 27544 (June 29, 1989); 56 Fed. Reg. 3526 (Jan. 30, 1991); 56 Fed. Reg. 26460 (June 7, 1991); 56 Fed. Reg. 30266 (July 1, 1991); 57 Fed. Reg. 31776 (July 17, 1992); 59 Fed. Reg. 34320 (July 1, 1994); 65 Fed. Reg. 76708 (Dec. 7, 2000); 66 Fed. Reg. 6976 (Jan. 22, 2001); 67 Fed. Reg. 1812 (Jan. 14, 2002).

²⁶*See, e.g.,* Joseph L. Miller v. EPA, No. 89-6328-E (D. Or., filed 6-25-89).

known or anticipated to occur in public drinking water systems.¹ Prior to publication of that list, EPA must consult with its Science Advisory Board, publish the list for notice and comment, and consider the occurrence database established under SDWA § 1445(g).²

By August 6, 2001, and every five years thereafter, EPA was required to publish, for at least five contaminants on its list, a determination as to whether or not it will subject those contaminants to regulation. A regulatory determination is a decision to begin (or decline to begin) the process to develop and promulgate a national primary drinking water regulation (NPDWR) for an unregulated contaminant.³

EPA must first issue a preliminary determination for notice and comment. EPA is required to regulate contaminants if the Administrator determines that: (1) the contaminant may have an adverse effect on the health of persons; (2) the contaminant is known to occur, or there is a substantial likelihood that the contaminant will occur, in public water systems with a frequency and at levels of public health concern; and (3) regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems.⁴ In selecting contaminants according to those three factors, EPA is required to set priorities by considering contaminants that present the “greatest public health concern.”⁵ EPA was also required to include sulfate as one of the first five contaminants to be considered for possible regulation.⁶ In addition, the 1996 Amendments authorized EPA to regulate a contaminant, if necessary to address an urgent threat to public health.⁷

There are some exceptions to this process, however. In contrast to the flexible scheme for selecting most of the contaminants to be regulated, the 1996 Amendments imposed a specific schedule for the regulation of disinfectants and disinfection byproducts.⁸ EPA was required to promulgate an Interim Enhanced Surface

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¹SDWA § 1412(b)(1)(B), 42 U.S.C.A. § 300g-1(b)(1)(B).

²In considering contaminants for its list, EPA is required to evaluate, among other contaminants, hazardous substances as defined under CERCLA, and substances registered as pesticides under FIFRA.

³“It should be noted that the analyses associated with a regulatory determination process are distinct from the analyses needed to develop a National Primary Drinking Water Regulation (NPDWR). Thus, a decision to regulate is the beginning of the Agency’s regulatory development process, not the end. For example, EPA may find at a later point in the regulatory development process, and based on additional or new information, that a contaminant does not meet the three statutory criteria for finalizing a NPDWR.” Announcement of Preliminary Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate List, 85 Fed. Reg. 14098, 14100 (Mar. 10, 2020).

⁴SDWA § 1412(b)(1)(A), 42 U.S.C.A. § 300g-1(b)(1)(A).

⁵SDWA § 1412(b)(1)(C), 42 U.S.C.A. §§ 300g-1(b)(1)(C). For purposes of setting those priorities, the 1996 amendments require EPA to take into consideration, “among other factors of public health concern, the effect of such contaminants upon subgroups that comprise a meaningful portion of the general population (such as infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations) that are identifiable as being at greater risk of adverse health effects due to exposure to contaminants in drinking water than the general population.”

⁶SDWA § 1412(b)(12), 42 U.S.C.A. § 300g-1(b)(12). EPA has since established a Secondary Regulation for sulfate. 40 C.F.R. § 143.3.

⁷SDWA § 1412(b)(1)(D); 42 U.S.C.A. § 300g-1(b)(1)(D). The urgent threat can only be determined by EPA after consultation with, and written response to, any comments provided by the Secretary of Health and Human Services, acting through the Director of the Centers for Disease Control and Prevention or the Director of the National Institutes of Health.

⁸SDWA § 1412(b)(2)(C), 42 U.S.C.A. § 300g-1(b)(2)(C).

Water Treatment Rule,⁹ a Final Enhanced Surface Water Treatment Rule,¹⁰ a Stage I Disinfectants and Disinfection Byproducts Rule,¹¹ and a Stage II Disinfectants and Disinfection Byproducts Rule,¹² all in accordance with the schedule published in table III.13 of the proposed Information Collection Rule.¹³ The 1996 amendments also required EPA to promulgate an MCL for arsenic by January 1, 2001,¹⁴ and both an Maximum Contaminant Level Goal (MCLG) and either an MCL or treatment technique for radon by August 6, 2000.¹⁵

The final First Candidate Contaminant List (CCL 1) included 60 chemical and microbiological contaminants; that list was published in the Federal Register on March 2, 1998.¹⁶ The final regulatory determinations for nine of the 60 CCL 1 contaminants were published on July 18, 2003.¹⁷ At that time, EPA decided that NPDWRs were not needed for nine contaminants: *Acanthamoeba*, aldrin, dieldrin, hexachlorobutadiene, manganese, metribuzin, naphthalene, sodium, and sulfate. Rather than establish NPDWRs, EPA published information about *Acanthamoeba* on EPA's website and issued health advisories (HAs) for manganese, sodium, and sulfate. However, EPA decided regulating the nine contaminants would not reduce health risks for those served by PWSs.¹⁸

The final Second Candidate Contaminant List (CCL 2) was published on February 24, 2005.¹⁹ That list included the 51 remaining chemical and microbial contaminants from CCL 1.²⁰ The final regulatory determinations for 11 of the 51 CCL 2 contaminants were then published on July 30, 2008.²¹ EPA determined that NPDWRs were not needed for: boron, the dacthal mono- and di-acid degradates, 1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene (DDE), 1,3-dichloropropene (Telone), 2,4-dinitrotoluene, 2,6-dinitrotoluene, s-ethyl dipropylthiocarbamate (EPTC), fonofos, terbacil, and 1,1,2,2-tetrachloroethane.²² EPA then issued new or updated health advisories for boron, dacthal degradates, 2,4-dinitrotoluene, 2,6-dinitrotoluene, and 1,1,2,2-tetrachloroethane.²³

The final Third Candidate Contaminant List (CCL 3) listed 116 contaminants; it

⁹63 Fed. Reg. 69478 (Dec. 16, 1998); 66 Fed. Reg. 3770 (Jan. 16, 2001).

¹⁰67 Fed. Reg. 1812 (Jan. 14, 2002).

¹¹63 Fed. Reg. 69390 (Dec. 16, 1998); 66 Fed. Reg. 3770 (Jan. 16, 2001).

¹²71 Fed. Reg. 388 (Jan. 4, 2006).

¹³59 Fed. Reg. 6361 (Feb. 10, 1994).

¹⁴SDWA § 1412(b)(12), 42 U.S.C.A. § 300g-1(b)(12); 66 Fed. Reg. 6976 (Jan. 22, 2001), *amended by* 66 Fed. Reg. 28342 (May 22, 2001); 68 Fed. Reg. 14502 (Mar. 25, 2003).

¹⁵SDWA § 1412(b)(13), 42 U.S.C.A. § 300g-1(b)(13). The 1996 Amendments provided an alternative regulatory scheme for radon, allowing for multimedia controls (*i.e.*, removal from drinking water and air). All of these rules have been issued, with the exception of radon.

¹⁶63 Fed. Reg. 10273 (Mar. 2, 1998).

¹⁷Announcement of Regulatory Determinations for Priority Contaminants on the Drinking Water Contaminant Candidate List, 68 Fed. Reg. 42898 (July 18, 2003).

¹⁸Announcement of Regulatory Determinations for Priority Contaminants on the Drinking Water Contaminant Candidate List, 68 Fed. Reg. 42898 (July 18, 2003).

¹⁹Drinking Water Contaminant Candidate List 2; Final Notice, 70 Fed. Reg. 9071 (Feb. 25, 2005).

²⁰Drinking Water Contaminant Candidate List 2; Final Notice, 70 Fed. Reg. 9071 (Feb. 25, 2005).

²¹Drinking Water: Regulatory Determinations Regarding Contaminants on the Second Drinking Water Contaminant Candidate List, 73 Fed. Reg. 44251 (July 30, 2008).

²²Drinking Water: Regulatory Determinations Regarding Contaminants on the Second Drinking Water Contaminant Candidate List, 73 Fed. Reg. 44251 (July 30, 2008).

²³*See* Drinking Water: Regulatory Determinations Regarding Contaminants on the Second Drinking Water Contaminant Candidate List, 73 Fed. Reg. 44251 (July 30, 2008).

was published in the Federal Register on October 8, 2009.²⁴ During the CCL 3 process, EPA received input from the National Academy of Science's (NAS) National Research Council (NRC) and the National Drinking Water Advisory Council (NDWAC); the public also provided input.²⁵

In selecting candidates for the final CCL 3 list, EPA (1) identified about 7,500 potential drinking water contaminants; (2) selected about 600 contaminants for the preliminary CCL (PCCL) list based on the potential of the various chemicals to occur in PWSs and to cause public health issues; and (3) evaluated the PCCL contaminants after a detailed review of both occurrence and health effects—this led to the identification of a list of 116 CCL 3 contaminants.²⁶

The preliminary determinations for the CCL 3 contaminant list were published in the Federal Register on October 20, 2014.²⁷ EPA made preliminary determinations for five of the 116 contaminants on the CCL 3 list, including a preliminary determination to regulate strontium and a preliminary determination not to regulate dimethoate, 1,3-dinitrobenzene, terbufos, and terbufos sulfone.²⁸ These negative determinations were finalized on January 4, 2016.²⁹ The decision on strontium was delayed; that allowed EPA time to consider additional data.³⁰

EPA published an off-cycle final determination and decided to regulate perchlorate (a CCL 3 contaminant) on February 11, 2011.³¹

The Fourth Contaminant Candidate List (CCL 4) was published on November 17, 2016,³² and included 97 chemicals/chemical groups and 12 microbial contaminants. Then, on February 20, 2020, EPA announced the preliminary regulatory determinations for eight of these chemicals.³³ EPA decided to regulate PFOS and PFOA but not to regulate six other potential contaminants: 1,1-dichloroethane, acetochlor, methyl bromide (bromomethane), metolachlor, nitrobenzene, and RDX.³⁴ EPA then extended the comment period for this preliminary regulatory determination through June 10, 2020.³⁵

²⁴Drinking Water Contaminant Candidate List 3-Final, 74 Fed. Reg. 51850 (Oct. 8, 2009).

²⁵Drinking Water Contaminant Candidate List 3-Final, 74 Fed. Reg. 51850 (Oct. 8, 2009).

²⁶Drinking Water Contaminant Candidate List 3-Final, 74 Fed. Reg. 51850 (Oct. 8, 2009).

²⁷Announcement of Preliminary Regulatory Determinations for Contaminants on the Third Drinking Water Contaminant Candidate List, 79 Fed. Reg. 62715 (Oct. 20, 2014).

²⁸Announcement of Preliminary Regulatory Determinations for Contaminants on the Third Drinking Water Contaminant Candidate List, 79 Fed. Reg. 62715 (Oct. 20, 2014).

²⁹Announcement of Final Regulatory Determinations for Contaminants on the Third Drinking Water Contaminant Candidate List, 81 Fed. Reg. 13 (Jan. 4, 2016).

³⁰Announcement of Final Regulatory Determinations for Contaminants on the Third Drinking Water Contaminant Candidate List, 81 Fed. Reg. 13 (Jan. 4, 2016).

³¹Drinking Water: Regulatory Determination on Perchlorate, 76 Fed. Reg. 7762 (Feb. 11, 2011). However, in June of 2020, EPA announced the issuance of “a final action regarding the regulation of perchlorate under the Safe Drinking Water Act (SDWA). Considering the best available science and the proactive steps that EPA, states and public water systems have taken to reduce perchlorate levels, the agency has determined that perchlorate does not meet the criteria for regulation as a drinking water contaminant under the SDWA. Therefore, the agency is withdrawing the 2011 regulatory determination and is making a final determination to not issue a national regulation for perchlorate at this time.” EPA, *Perchlorate in Drinking Water: Final Action*, <https://www.epa.gov/sdwa/perchlorate-drinking-water> (last visited July 21, 2020).

³²81 Fed. Reg. 81099 (Nov. 17, 2016).

³³85 Fed. Reg. 14098 (Mar. 10, 2020).

³⁴85 Fed. Reg. 14098 (Mar. 10, 2020).

³⁵See EPA, *Contaminant Candidate List (CCL) and Regulatory Determination*, <https://www.epa.gov/ccl/regulatory-determination-4> (last visited July 21, 2020).

§ 18:10 National Primary Drinking Water Regulations—Maximum Contaminant Level Goals

Once EPA decides to regulate a contaminant, the Agency is to set an MCLG, an unenforceable health goal that is the target for the enforceable MCLs. EPA is required to propose the MCLG no later than two years from the time it makes the determination to regulate a contaminant, and must issue the final MCLG within 18 months of the proposal.¹ MCLGs are set at the level at which “no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety.”² MCLs must be set as close to MCLGs as is “feasible,” a term defined in the Act and discussed in the next section.³ MCLGs are goals; they are not required to be set at achievable levels, although they may be achievable in some cases.

EPA has established a three-part scheme for setting MCLGs.⁴ First, contaminants not considered to have carcinogenic potential have MCLGs set at numerical “no effect” levels for chronic or lifetime periods, including a margin of safety. Second, if there is sufficient evidence that a contaminant is a probable animal or human carcinogen, the MCLG is set at zero. As explained by EPA, such an MCLG is based on the inability of scientists to demonstrate experimentally a threshold for carcinogenic effects.⁵ Third, if a contaminant is deemed to be a “possible” human carcinogen, presenting limited or equivocal evidence of carcinogenicity in animals in the absence of human data, a conservative, non-zero MCLG is selected. This MCLG is either based on a projected risk estimate (for example, a 10^{-6} risk) or a non-carcinogenic end point with added uncertainty factors to account for the possibility of carcinogenicity. Carcinogenicity evidence is categorized using EPA’s carcinogen classification scheme.

EPA’s approach has withstood legal challenge. In *NRDC v. EPA*,⁶ the U.S. Court of Appeals for the District of Columbia Circuit deferred to EPA’s judgment that zero was an appropriate level for known or probable human carcinogens to prevent adverse effects with a margin of safety. The court also upheld EPA’s discretion not to regulate vinylidene chloride as a probable animal or human carcinogen, notwithstanding some data suggesting possible carcinogenicity. Finally, the court approved of EPA’s downward adjustment of the MCLG based on chronic effects to account for the possibility of carcinogenicity.

If a contaminant may have an adverse effect (for example, in the case of vinylidene chloride, because of its noncarcinogenic risks), the Administrator is directed to set the recommended level at a level at which “no known or anticipated adverse effects on the health of persons occur *and* which allows an adequate margin of safety.”⁷ The statute thus leaves room for EPA to consider in its actual setting of the recommended level risks other than those that catalyzed the preliminary decision to es-

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¹SDWA § 1412(b)(1)(E), 42 U.S.C.A. § 300g-1(b)(1)(E).

²SDWA § 1412(b)(4)(A), 42 U.S.C.A. § 300g-1(b)(4)(A).

³SDWA § 1412(b)(4) to (5), 42 U.S.C.A. § 300g-1(b)(4) to (5).

⁴See 50 Fed. Reg. 46936, 46944-50 (Nov. 13, 1985).

⁵50 Fed. Reg. 46880, 46881 (Nov. 13, 1985). In setting MCLGs of zero, EPA rejected MCLGs based on analytical detection limits and calculated lifetime cancer risk (e.g., a 10^{-6} (or 1 in 1,000,000) excess cancer risk level). 50 Fed. Reg. 46936, 46948 (Nov. 13, 1985).

⁶Natural Resources Defense Council, Inc. v. E.P.A., 824 F.2d 1211, 1215, 26 Env’t. Rep. Cas. (BNA) 1305, 17 Env’tl. L. Rep. 21100 (D.C. Cir. 1987).

⁷Prior to the 1986 Amendments, EPA referred to MCLGs as “recommended maximum contaminant levels.”

establish a recommended level.⁸

By contrast, the U.S. Court of Appeals struck down as arbitrary and capricious EPA's MCLG of zero for chloroform when EPA itself had acknowledged that the best available science indicated a non-zero level was justified.⁹

§ 18:11 National Primary Drinking Water Regulations—MCLs and Treatment Techniques

MCLs and treatment techniques are the central requirements public water systems must meet. MCLs are to be set as close to the MCLGs as feasible.¹ Like the MCLGs, MCLs or treatment techniques must be proposed within two years of EPA's determination to regulate a particular contaminant, and the final rule is due 18 months thereafter.² EPA's authority to establish MCLs has withstood constitutional challenges, including suits brought on Commerce Clause grounds.³

How does EPA decide whether to set an MCL or treatment technique? An MCL is the statute's favored approach unless it is technically or economically infeasible to monitor for the contaminant in drinking water, in which case a treatment technique is to be set.⁴ The legislative history explains that EPA is to determine if monitoring is infeasible by analyzing whether (1) effective monitoring techniques are technologically available, and (2) the frequency of monitoring necessary to protect against significantly increased health hazards is economically feasible.⁵

Both MCLs and treatment techniques are to protect to the extent "feasible." Feasibility is defined as "feasible with the use of the best technology, treatment techniques, and other means which the [EPA] finds, after examination for efficacy

⁸*NRDC*, 824 F.2d at 1218.

⁹*See* *Chlorine Chemistry Council v. E.P.A.*, 206 F.3d 1286, 1290–91, 50 Env't. Rep. Cas. (BNA) 1353, 30 Env'tl. L. Rep. 20473 (D.C. Cir. 2000); 65 Fed. Reg. 34404 (May 30, 2000). The statute was amended in 1996 to require the use of best available science in establishing drinking water standards. SDWA § 1412(b)(3)(A), 42 U.S.C.A. § 300g-1(b)(3)(A).

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¹SDWA § 1412(b)(4) to (5), 42 U.S.C.A. § 300g-1(b)(4) to (5).

²SDWA § 1412(b)(1)(E), 42 U.S.C.A. § 300g-1(b)(1)(E).

³*Nebraska v. E.P.A.*, 331 F.3d 995, 56 Env't. Rep. Cas. (BNA) 1755, 33 Env'tl. L. Rep. 20228 (D.C. Cir. 2003) (rejecting claim that arsenic standard violated Commerce Clause as applied to systems that do not ship water across state lines or have other links to interstate commerce).

⁴SDWA § 1401(1)(C), 42 U.S.C.A. § 300f(1)(C).

⁵H.R. Rep. No. 1153, 93d Cong., 2d Sess. 11–12 (1974). For lead and copper, which occur in drinking water primarily as leachate from pipes and fittings, EPA has promulgated a treatment technique in lieu of MCLs. EPA set a treatment technique because it believed that the lead and copper problem was primarily caused by plumbing in homes, not by facilities under the control of public water systems. 56 Fed. Reg. 26460, 26463 (June 7, 1991). The Lead and Copper Rule has undergone two revisions (and a 2004 revision that was intended to reinstate text that had been inadvertently lost): 65 Fed. Reg. 950 (Jan. 12, 2000) and 72 Fed. Reg. 57782 (Oct. 10, 2007). The 2007 revision strengthened the rule by clarifying minimum sampling requirements and monitoring periods, requiring prior approval of changes in water treatment processes or water sources Oxford common and expanding public notice and public education provisions. On July 29, 2020, EPA issued the final regulation: "Use of Lead Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water." This rule will reduce lead in drinking water by having, among other things, manufacturers or importers certify that their products meet the SDWA requirements using a consistent verification process, which will happen within 3 years of the rule's final publication date. Use of Lead Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water, Pre-publication version (July 29, 2020). The EPA has also proposed additional revisions to the Lead and Copper Rule that are intended to be more protective of human health. National Primary Drinking Water Regulations: Proposed Lead and Copper Rule Revisions, 84 Fed. Reg. 61684 (Nov. 13, 2019).

under field conditions . . . are available (taking cost into consideration).”⁶ This is best available technology (BAT) under the SDWA.⁷ BAT is selected primarily based on an evaluation of: (1) effectiveness of treatment technologies, (2) reasonable affordability by regional and large metropolitan water systems,⁸ (3) analytical methodology to measure to a practical quantitation level,⁹ and (4) health risks.¹⁰

Effectiveness of a technology is usually a relatively straightforward consideration. EPA examines removal efficiency, compatibility with other water treatment processes, service life, and ability to treat all water served by a public water system.¹¹ Field testing data for the technology must be available, but the technology need not be tested for each specific contaminant.¹² The statute specifies that the selected BAT for synthetic organic chemicals must be at least as effective as granular activated carbon.¹³ The 1996 Amendments require EPA, for existing and new MCLs or treatment techniques, to identify technologies or other affordable means for three different classes of small public water systems in order to achieve compliance with those requirements.¹⁴

The statute does not specifically address how costs are to be taken “into consideration.” In setting MCLs, EPA historically looked to the total national cost of compliance for the total number of systems that might have to control organic contaminants.¹⁵ The 1996 Amendments add an entirely new dimension to the cost element. When proposing any MCL, EPA is required to undertake various cost-benefit analyses.¹⁶ EPA is then authorized, based on a determination that the benefits cannot be justified by the costs, to promulgate an MCL that “maximizes health risk reduction benefits at a cost that is justified by the benefits.”¹⁷ The cost-benefit is folded into a risk assessment document available to the public while EPA develops such a regulation. There are restrictions on EPA’s flexibility to use this cost-benefit exception, including a prohibition against its use for disinfectants and

⁶SDWA § 1412(b)(4)(D), 42 U.S.C.A. § 300g-1(b)(4)(D).

⁷Congress modified the former phrase “best generally available technology” by removing the term “generally.” The legislative history explains that Congress wanted to assure that MCLs “reflect the full extent of current technology capability.” S. Rep. No. 56, 99th Cong., 1st Sess. 6 (1985). EPA has concluded that the statutory term “best available technology” is a broader standard than “best technology generally available” and that this standard allows EPA to select a field-tested technology that may not necessarily be in widespread use. 52 Fed. Reg. 25697 (July 8, 1987).

⁸*See, e.g.*, 52 Fed. Reg. 25697-701 (July 8, 1987) (discussion of MCL determination for eight volatile organic compounds).

⁹EPA defines “practical quantitation level” as “the lowest level achievable by good laboratories within specified limits during routine laboratory operating conditions.” 50 Fed. Reg. 46902, 46906 (Nov. 13, 1985).

¹⁰52 Fed. Reg. 25697-701 (July 8, 1987).

¹¹52 Fed. Reg. 25690, 25697-98 (July 8, 1987).

¹²52 Fed. Reg. 25690, 25697-98 (July 8, 1987). EPA may project operating conditions for a specific contaminant.

¹³SDWA § 1412(b)(4)(D), 42 U.S.C.A. § 300g-1(b)(4)(D). EPA selected granular activated carbon and (packed tower) aeration as BAT for removing eight volatile organic chemicals and set MCLs for known or probable carcinogens at levels from 2 micrograms per liter (ug/l) to 200 ug/l. 52 Fed. Reg. 25690, 25716 (July 8, 1987).

¹⁴SDWA § 1412(b)(4)(E), 42 U.S.C.A. § 300g-1(b)(4)(E).

¹⁵52 Fed. Reg. at 25699.

¹⁶SDWA § 1412(b)(3)(C)(i), 42 U.S.C.A. § 300g-1(b)(3)(C)(i). A number of factors come into play here, including an estimate of the expenditure needed to comply with the regulation, negative health impacts associated with a reduced efficacy, and estimates of the market effects of the expenditures. *See* EPA, *National Cost Analysis for Drinking Water Regulations*, <https://www.epa.gov/sdwa/national-cost-analysis-drinking-water-regulations> (last visited July 21, 2020).

¹⁷SDWA § 1412(b)(6)(A), 42 U.S.C.A. § 300g-1(b)(6)(A).

disinfection by-products and against its use as a means to revise existing standards, which prevents backsliding.¹⁸

The other factors EPA evaluates in setting MCL determinations are analytical methodology and health risks.¹⁹ Because drinking water quality is measured analytically to determine MCL compliance, EPA examines the lowest levels that can be reliably measured under routine laboratory operating conditions.²⁰ In addition, EPA looks to the risks presented by the MCLs under consideration to confirm that its MCLs are adequately protective. EPA has a target range for carcinogens of 10^{-4} to 10^{-6} risk using conservative calculation models, and the MCLs EPA has promulgated generally fall in this range.²¹

The 1996 Amendments authorize EPA to establish MCLs at levels other than the “feasible level,” if the technology and other means used to determine the feasible level would result in an increase in the health risk from drinking water by: (1) increasing the concentration of other contaminants in the water; or (2) interfering with the efficacy of drinking water treatment techniques or processes that are used to comply with the SDWA.²²

EPA did not promulgate any treatment techniques in the first 13 years of administering the Act, but the 1986 Amendments directed EPA to promulgate two: one to require filtration (for systems using surface water sources) and the other to require disinfection (for systems using surface waters and groundwater sources).²³ The 1996 Amendments replaced the mandate to disinfect all public groundwater systems with a discretionary program.²⁴ The states were required to determine which public water systems must filter, after notice and opportunity for a hearing, based on criteria established by EPA. The statute specifies deadlines for EPA requirements, state decisions, and public water system compliance.²⁵ The filtration procedure is unusual under the SDWA because it calls on states to make case-by-case decisions as to which public water systems must filter.²⁶

In addition to fulfilling the requirement in the Act to promulgate treatment techniques for filtration and disinfection, EPA also has promulgated treatment techniques for acrylamide and epichlorohydrin,²⁷ and for lead and copper.²⁸ In conjunction with the issuance of either MCLs or treatment techniques, the 1996

¹⁸SDWA § 1412(b)(6)(B) to (C), 42 U.S.C.A. § 300g-1(b)(6)(B) to (C) and SDWA § 1412(b)(9) (the “antibacksliding” provision), 42 U.S.C.A. § 300g-1(b)(9). EPA’s cost-benefit analyses for its drinking water rulemakings under the 1996 amendments have survived several legal challenges. *See City of Portland, Oregon v. E.P.A.*, 507 F.3d 706, 65 Env’t. Rep. Cas. (BNA) 1910 (D.C. Cir. 2007) and *City of Waukesha v. E.P.A.*, 320 F.3d 228, 55 Env’t. Rep. Cas. (BNA) 2025, 33 Env’tl. L. Rep. 20160 (D.C. Cir. 2003).

¹⁹52 Fed. Reg. at 25697, 25699. Analytical methodology is thus a criterion for determining whether regulation is appropriate and in determining whether to set an MCL or a treatment technique, and it is also evaluated in setting MCLs.

²⁰52 Fed. Reg. at 25699, 25700; *see also* 40 C.F.R. § 141.24(g) (setting forth requirements laboratories must meet before they can measure organic chemicals for compliance purposes).

²¹*See* 52 Fed. Reg. at 25700-01 (discussing health risk factors from volatile organic chemicals).

²²SDWA § 1412(b)(5)(A), 42 U.S.C.A. § 300g-1(b)(5)(A).

²³SDWA § 1412(b)(7)(C), (b)(8), 42 U.S.C.A. § 300g-1(b)(2)(C), (b)(8). EPA promulgated rules requiring filtration and disinfection for surface waters (and groundwater influenced by surface water) at 54 Fed. Reg. 27486 (June 29, 1989) (the Surface Water Treatment Rule). The initial rule has been supplemented by the Interim Enhanced Surface Water Treatment Rule, 63 Fed. Reg. 69478 (Dec. 16, 1998). The Long Term Enhanced Surface Water Treatment Rule, 67 Fed. Reg. 1812 (Jan. 14, 2002), and the Long Term 2 Enhanced Surface Water Treatment Rule, 71 Fed. Reg. 654 (Jan. 5, 2006).

²⁴SDWA § 1412(b)(8), 42 U.S.C.A. § 300g-1(b)(8).

²⁵SDWA § 1412(b)(7)(C), 42 U.S.C.A. § 300g-1(b)(2)(C).

²⁶SDWA § 1412(b)(7)(C), 42 U.S.C.A. § 300g-1(b)(2)(C).

²⁷56 Fed. Reg. 3526 (Jan. 30, 1991).

Amendments require EPA to satisfy certain peer review procedures and to provide the public with a detailed presentation of public health information.²⁹

Finally, the 1996 Amendments also required EPA to promulgate a regulation to govern the recycling of filter backwash water within the treatment process of a public water system.³⁰

§ 18:12 National Drinking Water Regulations—Lead

Prior to, and increasingly in the wake of the Flint Water Crisis, the SDWA has had a particular focus on lead in drinking water. The 1986 amendments to the SDWA limited lead concentrations in public water systems by limiting the lead in solder and flux, pipes and pipe fittings, and plumbing fixtures—or what EPA refers to as “endpoint devices.”¹ “Lead free” under these amendments means not greater than 0.2% lead in flux and solder and not greater than 8.0% in pipes and pipe fittings.² Plumbing fixtures are to have no more lead than that of industry standard compliance.³ In addition to the use or installation of such lead-containing materials, these amendments also prohibit selling such materials except where permitted in manufacturing or industrial processes.

Congress added Section 1417(e) to the SDWA in 1996.⁴ Generally, the section directed EPA to assist in the development of standards and testing protocols for analyzing lead leaching in plumbing fittings and fixtures in water systems meant for human ingestion.⁵ The Reduction of Lead in Drinking Water Act subsumed this standard setting process, however.⁶ In 2011, the allowable standard for lead in pipes, plumbing, fittings, and fixtures was lowered from 8.0% to no more than 0.25% by weighted average (where solder and flux are still limited to 0.2% lead). Although it ratcheted down the allowable lead content in plumbing generally, the amendment added an exception for pipes, pipe fittings, plumbing fitting, and fixtures, as well as a variety of other items (toilets, urinals, shower valves, etc.) “used exclusively for nonpotable services . . . where the water is not anticipated to be used for human consumption.”⁷ These new standards became effective on January 4, 2014.

Following the Flint Water Crisis, Congress passed the Water Infrastructure Improvements for the Nation Act (WIIN Act), which added new notification requirements to the SDWA.⁸ Importantly, the WIIN Act requires EPA to notify households when EPA receives drinking water data that indicates the affected household’s lead levels exceed EPA’s lead action levels.⁹

²⁸56 Fed. Reg. 26460 (June 7, 1991); 56 Fed. Reg. 32113 (July 15, 1991); 57 Fed. Reg. 28785 (June 29, 1992); 59 Fed. Reg. 33860 (June 30, 1994); 65 Fed. Reg. 1950 (Jan. 12, 2000); 69 Fed. Reg. 38850 (June 29, 2004).

²⁹SDWA § 1412(b)(3)(A), 42 U.S.C.A. § 300g-1(b)(3)(A), (B).

³⁰66 Fed. Reg. 31086 (June 8, 2001).

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¹SDWA § 1417(a), 42 U.S.C.A. § 300g-6(a).

²SDWA § 1417(a), 42 U.S.C.A. § 300g-6(a).

³SDWA § 1417(a), 42 U.S.C.A. § 300g-6(a).

⁴SDWA § 1417(e).

⁵SDWA § 1417(e).

⁶Pub. L. No. 111-380, 124 Stat. 4131 (2011).

⁷Pub. L. No. 111-380, 124 Stat. 4131 (2011).

⁸Pub. L. No. 114-322, 130 Stat. 1628 (2016) (“The EPA must establish a strategic plan for conducting targeted outreach, education, technical assistance, and risk communication to populations affected by lead in the public water system.”).

⁹Pub. L. No. 114-322, 130 Stat. 1628 (2016). This modification to Section 1414 of the SDWA

One lead-related focus of the WIIN Act is to provide assistance for low-income communities in reducing lead concentrations in drinking water. The Act accomplished this by instituting a grant program targeting all public water systems, but particularly “water for human consumption at a school, daycare, or other facility that primarily serves children or other vulnerable human subpopulation.”¹⁰ Section 2107 of the WIIN Act further required EPA to establish a testing program for lead in drinking water at schools. Additionally, the WIIN Act amended section 1442 of the SDWA, providing grants to tribes to meet SDWA requirements.¹¹

§ 18:13 Variances and Exemptions

The SDWA gives eligible states, tribes, and EPA the authority to provide variances and exemptions, which can help PWSs achieve MCL compliance.¹ Variances and exemptions provide legal safety valves for systems that cannot comply with the Primary Regulations. Variances and exemptions reach different factual circumstances, but both temporarily excuse noncompliance or delay obligations to comply with Primary Regulations—as long as certain conditions are met.²

Variances allow eligible systems to be noncompliant with a NPDWR if: (1) the system installs a given technology and; (2) the drinking water quality is protective of people’s health.³ Variances may be appropriate if the system’s intake water quality is so poor that it cannot comply with the MCL even after application of BAT.⁴ This BAT may or may not be the same BAT as specified in setting the MCL or treatment technique. EPA is to promulgate this BAT at the same time a Primary Regulation is established, but the Agency’s finding of BAT may vary for purposes of variances depending “on the number of persons served by the system or for other physical conditions related to engineering feasibility and costs of compliance with (MCLs) as . . . appropriate.”⁵ A state may allow a system not to install BAT as a condition of obtaining a variance if it can demonstrate that the BAT would only achieve a *de minimis* reduction of the contaminant of concern.⁶

Any time EPA promulgates an MCL or treatment technique, the 1996 Amendments require the Agency to list “variance technologies” for three classes of small water systems. These technologies, while not necessarily capable of achieving

requires CWS and NTNCWS to provide notice to the public as soon as practical, but no later than 24 hours after the system learns of the lead action level exceedance.

¹⁰Pub. L. No. 114-322, § 2105, 130 Stat. 1628 (2016).

¹¹See EPA, *WIIN Act Section 2104: Assistance for Small and Disadvantaged Communities Tribal Grant Program*, <https://www.epa.gov/tribaldrinkingwater/wiin-act-section-2104-assistance-small-and-disadvantaged-communities-tribal> (last visited July 21, 2020).

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¹EPA, *Drinking Water Requirements for States and Public Water Systems: Variances and Exemptions* [https://www.epa.gov/dwreginfo/variances-and-exemptions#:~:text=The%20Safe%20Drinking%20Water%20Act,maximum%20contaminant%20levels%20\(MCLs\)](https://www.epa.gov/dwreginfo/variances-and-exemptions#:~:text=The%20Safe%20Drinking%20Water%20Act,maximum%20contaminant%20levels%20(MCLs).). Variances are subject to various conditions; for example, variances and exemptions are not permitted under the Revised Total Coliform Rule.

²See Safe Drinking Water Act Amendments of 1996, Pub. L. No. 104-182, 110 Stat. 1613 (1996).

³*Variances and Exemptions*, *supra* note 1.

⁴SDWA § 1415(a)(1)(A), 42 U.S.C.A. § 300g-4(a)(1)(A). Variances from MCLs provide additional time for systems to investigate and implement alternative measures that lead to compliance. Variances are available from treatment techniques (except the filtration and disinfection requirements) where implementing the techniques is not necessary because raw water sources are clean. See SDWA § 1415(a)(1)(B), 42 U.S.C.A. § 300g-4(a)(1)(B).

⁵SDWA § 1415(a)(1)(A), 42 U.S.C.A. § 300g-4(a)(1)(A). This section of the statute does not contain the provisions of § 1412 restricting technology to field tested techniques or selecting granular activated carbon as a benchmark for synthetic organic chemicals.

⁶See, e.g., 40 C.F.R. § 142.62(a) to (c); 52 Fed. Reg. 25707-08 (July 8, 1987).

compliance with the MCL or treatment technique, must achieve the maximum affordable reductions considering the system size and the quality of the source water.⁷ The 1996 Amendments required EPA, beginning on August 6, 1998, to issue variance technologies for each pre-1996 Amendments drinking water regulation for which § 1415(e) small system variances may be granted.⁸ As a result of the 1996 Amendments, the system would also need to convince the state that alternative water supply sources are not available.⁹

Variances are to be accompanied by compliance schedules and, if appropriate, additional control measures.¹⁰ Before becoming effective, the variance must be the subject of public notice and opportunity for a public hearing. Significantly, the variance must not result in an unreasonable risk to health.¹¹ EPA is to regularly review variances issued by states.¹² If a state abuses its discretion by granting inappropriate variances in a substantial number of instances, EPA may revoke those variances after notice and public hearing.¹³

The 1996 Amendments added a special variance provision specifically for systems serving fewer than 10,000 persons. This provision, unlike the general variance provision, allows states to consider affordability as the basis for letting systems use variance technologies in lieu of complying with an MCL or treatment technique.¹⁴ EPA may, on its own or in response to a petition from a consumer,¹⁵ object to a state variance decision. Importantly, however, EPA determined that small system variances are unavailable for microbial contaminants, as affordable compliance technologies are available, and for any contaminant MCL promulgated prior to January 1, 1986.¹⁶

Exemptions apply under different circumstances. “Exemptions allow eligible systems additional time to achieve and maintain regulatory compliance with new NPDWRs.”¹⁷ Unlike variances, exemptions do not permit the violation of NPDWRs; instead, they permit the system more time to find a solution to achieve compliance.¹⁸

Exemptions are appropriate for systems that cannot comply with MCLs or treat-

⁷SDWA § 1412(b)(15)(A), 42 U.S.C.A. § 300g-1(b)(15)(A).

⁸SDWA § 1412(b)(15)(D), 42 U.S.C.A. § 300g-1(b)(15)(D). By practice to date, EPA has listed variance technologies only where affordable compliance technologies are not identified. “In 2006, EPA published a Federal Register notice to request comment on revisions to EPA’s national affordability methodology for small drinking water systems and a methodology for determining if an affordable variance technology is protective of public health. The proposal described a number of options for revising the affordability methodology for public review and comment.” See EPA, *Small Drinking Water System Variances*, <https://www.epa.gov/sdwa/small-drinking-water-system-variances> (last visited July 21, 2020).

⁹SDWA § 1415(a)(1)(A), 42 U.S.C.A. § 300g-4(a)(1)(A).

¹⁰SDWA § 1415(a)(1)(A), 42 U.S.C.A. § 300g-4(a)(1)(A).

¹¹SDWA § 1415(a)(1)(A), 42 U.S.C.A. § 300g-4(a)(1)(A). Bottled water, point-of-use and point-of-entry devices may be used for limited periods to prevent unreasonable risk and, even then, only under prescribed circumstances.

¹²SDWA § 1415(a)(1)(F), 42 U.S.C.A. § 300g-4(a)(1)(F).

¹³SDWA § 1415(a)(1)(G), 42 U.S.C.A. § 300g-4(a)(1)(G).

¹⁴SDWA § 1415(e), 42 U.S.C.A. § 300g-4(e).

¹⁵See *A Citizen’s Guide to Using Federal Environmental Laws to Secure Environmental Justice*, available at https://www.epa.gov/sites/production/files/2015-02/documents/citizen_guide_ej.pdf.

¹⁶See 63 Fed. Reg. 42032 (Aug. 6, 1998) (stating the existing methodology for determining affordable compliance technologies for a new drinking water standard for small systems).

¹⁷*Variances and Exemptions*, available at [https://www.epa.gov/dwreginfo/variances-and-exemption-s#:~:text=The%20Safe%20Drinking%20Water%20Act,maximum%20contaminant%20levels%20\(MCLs\).](https://www.epa.gov/dwreginfo/variances-and-exemption-s#:~:text=The%20Safe%20Drinking%20Water%20Act,maximum%20contaminant%20levels%20(MCLs).)

¹⁸*Variances and Exemptions*, available at [https://www.epa.gov/dwreginfo/variances-and-exemption-s#:~:text=The%20Safe%20Drinking%20Water%20Act,maximum%20contaminant%20levels%20\(MCLs\).](https://www.epa.gov/dwreginfo/variances-and-exemption-s#:~:text=The%20Safe%20Drinking%20Water%20Act,maximum%20contaminant%20levels%20(MCLs).)

ment techniques “due to compelling factors (which may include economic factors, including qualification of the public water system as a system serving a disadvantaged community).”¹⁹ The possibility of case-by-case examination of economic factors for other than small systems is one major difference between variances and exemptions.

However, variances and exemptions have several similarities. Exemptions must be accompanied by compliance schedules and, if appropriate, control measures.²⁰ Exemptions are to be the subject of notice and opportunity for a public hearing and may not result in unreasonable risks to health.²¹ In addition, EPA must periodically examine exemptions and may revoke them where appropriate.²²

Exemptions are effective for three years from the original compliance date. A three-year extension is available only if the system establishes that it needs capital or financial assistance or is joining other systems and is taking “all practicable steps” to meet the standard.²³ Systems serving no more than 3,300 persons are eligible for one or more two-year extensions, but not to exceed six years.²⁴ These extensions are available only to systems that require financial assistance for necessary improvements and are taking all practicable steps to meet the standard.²⁵ EPA issued regulations implementing the variance and exemption provisions in the 1996 Amendments.²⁶

§ 18:14 National Secondary Drinking Water Regulations

Secondary regulations address “public welfare” concerns, including taste, appearance, and odor. Contaminants governed by the Secondary regulations are generally the most readily noticed by consumers when they appear and are usually attended to quickly by water system operators when complaints are registered. Certainly, water that smells like rotten eggs due to the presence of hydrogen sulfide is hard to ignore and complaints are to be expected. However, the great public attention paid to these concerns should not overshadow concerns for compliance with the Primary Regulations, given that secondary contaminants are not expected to pose adverse health effects.

Secondary regulations contain MCLs, which EPA believes protect public welfare.¹ Secondary regulations may apply to any drinking water contaminant that may: (1) adversely affect the odor or appearance of water and cause a substantial number of consumers to use other sources; or (2) otherwise adversely affect public welfare.² Aesthetics are therefore, by statute, an aspect of public welfare.

¹⁹SDWA § 1416(a), 42 U.S.C.A. § 300g-5(a). To qualify, the system also must have been in operation on the effective date of the Primary Regulation or not have a reasonable alternative source of drinking water.

²⁰SDWA § 1416(b)(1), 42 U.S.C.A. § 300g-5(b)(1).

²¹SDWA § 1416(a)(3), 42 U.S.C.A. § 300g-5(a)(3).

²²SDWA § 1416(d), 42 U.S.C.A. § 300g-5(d).

²³SDWA § 1416(b)(2), 42 U.S.C.A. § 300g-5(b)(2).

²⁴SDWA § 1416(b)(2)(c), 42 U.S.C.A. § 300g-5(b)(2)(c).

²⁵SDWA § 1416(b)(2)(C), 42 U.S.C.A. § 300g-5(b)(2)(C). The statute provides “taking all practicable steps to meet the requirements of subparagraph (B).” It is unclear whether the system has to reestablish its entitlement to exemption under subparagraph (B) (e.g., showing of need for financial assistance) or merely that it is taking “all practicable steps” to meet the standard. SDWA § 1416(b)(2)(B) to (C), 42 U.S.C.A. § 300g-5(b)(2)(B) to (C).

²⁶63 Fed. Reg. 43833 (Aug. 14, 1998).

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¹SDWA § 1401(2), 42 U.S.C.A. § 300f(2).

²SDWA § 1401(2), 42 U.S.C.A. § 300f(2). Such regulations may vary according to geographic and

EPA has established secondary regulations for a variety of public welfare effects, including odor, color, foaming, and corrosivity.³ Without question, the most controversial secondary contaminant is fluoride. Although fluoride at lower levels helps protect against cavities, fluoride is regulated under the secondary regulations for its public welfare effect of mottling and pitting teeth in some children when fluoride is present at high levels.⁴ This decision was controversial in part because, in 1975, EPA regulated fluoride under the primary regulations, believing mottling to be an adverse health effect.⁵ Because fluoride mottling apparently does not impair the function of teeth, EPA set a primary regulation to protect against crippling skeletal fluorosis and reclassified the mottling effect as detrimental to public welfare, a decision that has been upheld by the D.C. Circuit.⁶ Fluoride is also unique because it is the only contaminant that is subject to public notification requirements if the secondary MCL is exceeded.⁷ Because it poses both adverse health effects and adverse public welfare effects, fluoride is thus regulated under both primary and secondary regulations.⁸

Although the secondary MCLs are not federally enforceable, systems may be compelled to meet secondary standards for contaminants as a matter of state law.⁹ In any event, the SDWA requires EPA to notify states whenever EPA finds that systems do not comply with the secondary regulations due to failed state efforts to take “reasonable action” to assure compliance.¹⁰ Obviously, this is no sword of Damocles hanging over states, but the statute does not contemplate one. As both the statute and EPA recognize, enforcement of the primary regulations is a higher priority.¹¹

IV. PUBLIC NOTIFICATION AND MONITORING, REPORTING, AND RECORDKEEPING

other circumstances.

³See 40 C.F.R. § 143.3. These regulations were promulgated in 1979. 44 Fed. Reg. 42195 (July 19, 1979).

⁴40 C.F.R. § 143.3. The secondary MCL is 2.0 milligrams per liter (mg/l). See 51 Fed. Reg. 11396, 11401 (Apr. 2, 1986).

⁵See 40 Fed. Reg. 59566 (Dec. 24, 1975). This decision was upheld in *Environmental Defense Fund, Inc. v. Costle*, 578 F.2d 337, 347 n.35, 11 Env’t. Rep. Cas. (BNA) 1209, 8 Env’tl. L. Rep. 20200 (D.C. Cir. 1978). However, the court also noted that there was a “serious question” whether mottling could be regulated as an adverse health effect.

⁶*Natural Resources Defense Council, Inc. v. E.P.A.*, 812 F.2d 721, 25 Env’t. Rep. Cas. (BNA) 1681, 17 Env’tl. L. Rep. 20418 (D.C. Cir. 1987).

⁷40 C.F.R. § 143.5. The regulation requires water systems serving water with more than 2.0 mg/l fluoride to issue a public notice with specific language explaining the effects of fluoride. EPA has cited SDWA §§ 1445(a) and 1450 as supporting these notification requirements. See 51 Fed. Reg. 11403 (Apr. 2, 1986).

⁸The legislative history expressly endorses this regulatory approach if statutory criteria are met. H.R. Rep. No. 1153, 93d Cong., 2d Sess. 16 (1974).

⁹Some states have treated secondary MCLs as primary MCLs.

¹⁰SDWA § 1414(d), 42 U.S.C.A. § 300g-3(d). “EPA does not propose to use its resources on a routine basis to independently determine compliance. . . . It will however, review data which may be reported by the states on a discretionary basis or which is received incidental to other studies. On the basis of such review, the agency will consult with the States.” 44 Fed. Reg. 42196 (July 19, 1979).

¹¹SDWA § 1414(d), 42 U.S.C.A. § 300g-3(d); 44 Fed. Reg. 42196 (July 19, 1979).

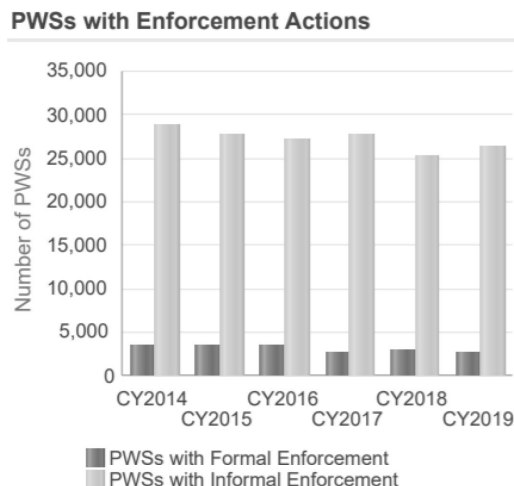


Photo of Pyramid Island taken by A. Driggs on June 9, 2017.

§ 18:15 Public Notification of Violations

The SDWA was the first federal environmental statute to require direct public notification of compliance status. Today, although many statutes require monitoring information to be reported to government officials, only a few require that the general public be educated or alerted.¹ EPA has an information dashboard that “provides an easy-to-use summary of key activities to answer questions like: which PWS are regulated, how many PWSs have been inspected, how many systems have had alleged violations identified and enforcement action taken, and how many systems have returned to compliance.”²

Figure 3.³



The framers of the 1974 Act had lofty goals: “[P]ublic education is deemed essential . . . to develop public awareness of the problems facing public water systems, to encourage a willingness to support greater expenditure . . . to assist in solving these problems, and to advise the public of potential or actual health hazards.”⁴ EPA was given some flexibility to determine the frequency, form, and manner of notification. The statute originally underlined the seriousness of this notice by providing criminal fines for violation of the public notification requirements.⁵

Although the public today is more aware of the importance of safe drinking water and the threats to it, it is hard to ascribe this result to the SDWA public notification requirements. Systems that are likely to ignore monitoring or MCL regulations are less likely to notify the public, and if they have not been monitoring, are less likely to have data to report that indicates an MCL exceedance. Past rules allowed systems

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¹As statutes have been amended over the last 15 years, they have been increasingly concerned with opportunities for public education and public involvement. Although some statutes, like the Emergency Planning and Community Right-To-Know Act, 42 U.S.C.A. §§ 11001 to 11050, put more information in the hands of the public, the SDWA public notification provisions are more dramatic, because “violations” of health regulations are being reported directly to consumers.

²Analyze Trends: Drinking Water Dashboard, available at <https://echo.epa.gov/trends/comparative-maps-dashboards/drinking-water-dashboard?yearview=CY&view=activity&criteria=basic&state=National>.

³Data available at <https://echo.epa.gov/trends/comparative-maps-dashboards/drinking-water-dashboard?view=activity&state=National&yearview=CY&criteria=basic>.

⁴H.R. Rep. No. 1153, 93d Cong., 2d Sess 24 (1974).

⁵Original SDWA § 1414(c), 42 U.S.C.A. § 300g-3(c), amended by Pub. L. No. 95-190, § 12(b), 91 Stat. 1398 (1977).

up to three months to report a violation, left it to the system to explain the violation, required notice even for corrected violations, and imposed the same notification requirements for monitoring violations as Primary Regulations violations.⁶ Under these former rules, some systems delayed issuing important notices, and in some cases, notices were confusing and did not explain the violation.

The amended statutory provisions and new rules specify detailed notification requirements applicable to community and noncommunity water systems. Those requirements, which vary depending on the circumstances, include both timing and substantive provisions.⁷

Beginning on January 1, 1998, and annually thereafter, each state was required to prepare and make available to the public a report listing virtually every SDWA violation of which it is aware.⁸ In addition, EPA published regulations, as required by the 1996 Amendments,⁹ requiring each community water supplier to issue an annual “consumer confidence report.”¹⁰ Those reports are intended to provide the public with specific information about the water they are consuming and any associated risks.

Public notice is likely to alert those in the community sensitive to health and environmental issues. Public notification may also achieve the statutory goals of developing an awareness of problems facing public water systems and encouraging expenditures for water system improvements.¹¹

§ 18:16 Monitoring, Reporting, and Recordkeeping

EPA is authorized to require monitoring, reporting, and recordkeeping by public water systems.¹ EPA’s authority may be directed to public water systems and persons (including individuals) who own or operate public water systems. EPA has relied on its monitoring, reporting, and recordkeeping authority to require systems to begin the monitoring required to determine whether treatment will be necessary to comply with MCLs with a future effective date.² Under this authority, EPA may require monitoring, reporting, and recordkeeping as reasonably necessary to determine compliance, assist in establishing regulations, administer financial assistance programs, evaluate health risks of unregulated contaminants, or advise the public of health risks. Although this authority is broad, it may only be invoked by rulemaking.³ Under the 1996 Amendments, the states are authorized to provide relief from EPA’s general monitoring requirements.⁴ The analytical test methods required for all monitoring activities are prescribed in the rules.⁵

Monitoring for unregulated drinking water contaminants is the subject of ad-

⁶SDWA § 1414(c), 42 U.S.C.A. § 300g-3(c).

⁷SDWA § 1414(c), 42 U.S.C.A. § 300g-3(c); 40 C.F.R. § 141.32, *amended by* 65 Fed. Reg. 26022 (May 4, 2000). Amendments to the statute also require notice that lead may be in certain systems.

⁸SDWA § 1414(c)(3)(A), 42 U.S.C.A. § 300g-3(c)(3)(A).

⁹63 Fed. Reg. 44512 (1998), *corrected by* 64 Fed. Reg. 49671 (Sept. 14, 1999).

¹⁰SDWA § 1414(c)(4), 42 U.S.C.A. § 300g-3(c)(4).

¹¹*Supra* section 18.12 regarding new notification of elevated lead concentrations.

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¹SDWA § 1445(a)(1), 42 U.S.C.A. § 300j-4(a)(1).

²*See, e.g.*, 52 Fed. Reg. 25711 (July 8, 1987) (relying on SDWA § 1445 to require monitoring for volatile organic chemicals to commence in advance of the date for compliance with the respective MCLs).

³SDWA § 1445(a)(1), 42 U.S.C.A. § 300j-4(a)(1).

⁴SDWA § 1418, 42 U.S.C.A. § 300g-7.

⁵40 C.F.R. §§ 141.21 to 141.30.

ditional provisions in the statute and the regulations. The SDWA directs EPA to promulgate regulations that require public water systems to monitor for “unregulated contaminants.”⁶ The purpose here is preventative: By identifying contaminants early on, water systems and EPA may take appropriate action to protect public health. EPA has promulgated regulations requiring monitoring for numerous contaminants and allowing states discretion to require monitoring for additional ones.⁷ Congress has since amended those requirements: EPA was required, by August 6, 1996,⁸ and every five years thereafter, to issue a list of up to 30 unregulated contaminants to be monitored by public water systems. Consistent with the Act’s emphasis on public notification, systems are required to provide customers with the results of this monitoring.⁹

The Unregulated Contaminant Monitoring Rule (UCMR) is the main tool EPA leverages to collect data on the occurrence of unregulated contaminants in PWSs.¹⁰ EPA published the lists and requirements for the First Unregulated Contaminant Monitoring Rule on September 17, 1999.¹¹ The Second Unregulated Contaminant Monitoring Rule was published on January 4, 2007, under which monitoring was conducted mostly from 2008-10.¹² The Third Unregulated Contaminant Monitoring Rule was published on May 2, 2012, and the monitoring was primarily conducted from 2013-15.¹³ The Fourth Unregulated Contaminant Monitoring Rule was published on December 20, 2016, and the monitoring took place between 2018-2020.¹⁴

V. STATE DRINKING WATER PROGRAMS

⁶SDWA § 1445(a)(2), 42 U.S.C.A. § 300j-4(a)(2). How “unregulated” contaminants must be to qualify for special unregulated monitoring is not addressed by statute or legislative history.

⁷40 C.F.R. § 141.40; 52 Fed. Reg. 25715 (July 8, 1987); 56 Fed. Reg. 3592 (Jan. 30, 1991); 57 Fed. Reg. 31776 (July 17, 1992).

⁸64 Fed. Reg. 50556 (Sept. 17, 1999); 66 Fed. Reg. 2273 (Jan. 11, 2001), *amended by* 66 Fed. Reg. 46221 (Sept. 4, 2001).

⁹SDWA § 1445(a)(2)(E), 42 U.S.C.A. § 300j-4(a)(2)(E) (requiring reporting to customers); 40 C.F.R. § 141.35(b) (requiring reporting to EPA, the appropriate state, and the public).

¹⁰*See* SDWA § 1412(b)(1)(B)(ii)(II), 42 U.S.C.A. § 300(b)(1)(B)(ii)(II).

¹¹Revisions to the Unregulated Contaminant Monitoring Regulation for Public Water Systems, 64 Fed. Reg. 50556 (Sept. 17, 1999).

¹²Unregulated Contaminant Monitoring Regulation (UCMR) for Public Water Systems Revisions, 72 Fed. Reg. 367 (Jan. 4, 2007).

¹³Revisions to the Unregulated Contaminant Monitoring Regulation (UCMR 3) for Public Water Systems, 77 Fed. Reg. 26072 (May 2, 2012).

¹⁴Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 4) for Public Water Systems and Announcement of Public Meeting, 81 Fed. Reg. 92666 (Dec. 20, 2016).



Photo of the Salton Sea taken by A. Driggs on March 10, 2018.

§ 18:17 In General

Before the 1970s, few states had adopted standards for drinking water quality. Even fewer states had in place a regulatory program with enforcement capability. A 1971 review of state drinking water standards revealed that only 14 states had adopted the minimal U.S. Public Health Service Drinking Water Standards.¹ A 1970 survey by the Conference of State Sanitary Engineers judged state inspection programs deficient.²

Despite the limited state commitment obvious at the time, Congress remained hopeful that states would “take the lead” in adopting standards and compliance strategies, and in bringing enforcement actions.³ To this end, the SDWA authorizes states to assume “primary enforcement responsibility” (primacy) if they adopt the minimum drinking water program specified by the statute.⁴ At least if measured by the large number of jurisdictions that have assumed primacy, Congress’ desire for state participation has been fulfilled. Currently, 55 of 57 jurisdictions (states, territories, and tribal support programs) have been granted primacy.⁵

To assume primacy, states must establish that their program meets specified criteria.⁶ Under the Act, these criteria include adopting standards at least as stringent as the National Primary Drinking Water Regulations; procedures for the enforcement of these standards; recordkeeping and reporting to EPA; plans for emergency provisions of drinking water; and requiring that variances and exemptions be no less stringent than EPA’s.⁷ Clearly, state regulation may be more stringent. EPA regulations elaborate on these criteria by spelling out in more detail the authorities and administrative programs that states must adopt.⁸ Beyond requirements for injunctive authority, penalties, and reporting to EPA, states are also required to adopt public notification requirements that are at least as stringent as those set by EPA.⁹ Congress expected EPA to exercise “utmost care” in reviewing state primacy applications and to deny such applications only upon a “clear failure” by states to meet primacy requirements.¹⁰

Federal agencies and Indian tribes are also addressed under the Act. Federal facilities are expressly subject to state drinking water authorities, and they are even liable for penalties.¹¹ Under the 1986 Amendments, EPA was to publish regulations specifying whether and when Indian tribes may be treated as states and assume primacy.¹²

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¹See H.R. Rep. No. 93-1185, at 6–7 (1974). These standards, adopted in 1962, primarily addressed contaminants posing acute risks.

²H.R. Rep. No. 93-1185, at 6–7 (1974).

³H.R. Rep. No. 93-1185, at 21 (1974).

⁴SDWA § 1413, 42 U.S.C.A. § 300g-2.

⁵The District of Columbia and Wyoming have not assumed primary enforcement authority.

⁶SDWA § 1413, 42 U.S.C.A. § 300g-2; 40 C.F.R. § 142 (subpart B).

⁷SDWA § 1413(a), 42 U.S.C.A. § 300g-2(a); 40 C.F.R. §§ 142.10 to 142.19.

⁸40 C.F.R. §§ 142.10 to 142.11, 142.14 to 142.16. EPA sometimes specifies the contents of reports that must be submitted related to state implementation of drinking water regulations and spells out “specific primacy conditions” to ensure states will implement programs in accord with federal minima. See 40 C.F.R. §§ 142.15 and 142.16.

⁹40 C.F.R. § 142.16(a).

¹⁰H.R. Rep. No. 93-1185, at 21 (1974).

¹¹SDWA § 1447(a), 42 U.S.C.A. § 300j-6(a). The statute provides immunity only from criminal sanctions.

¹²SDWA § 1451, 42 U.S.C.A. § 300j-11. The Navajo Nation is the only Tribe that has been granted

Once primacy is granted, state drinking water programs are subject to federal oversight. Generally, EPA and the state enter into an agreement specifying the obligations the state must fulfill and EPA provides a sum of money to support the state program. EPA also may review state-issued variances and exemptions,¹³ take enforcement action where states do not,¹⁴ and if necessary, terminate primacy.¹⁵ Indeed, EPA has an obligation to periodically review whether states meet primacy requirements or have issued variances and exemptions that are less stringent.¹⁶ State variances have not always met with EPA's approval.¹⁷

Where states are not able to update their regulations in a timely fashion, the federal regulations still apply. EPA takes the position that the Primary Regulations are federally enforceable in states with primacy.¹⁸ Of course, EPA encourages states to adopt such requirements expeditiously so that there is no "split" primacy.¹⁹ Since the overwhelming majority of eligible jurisdictions have primacy, they conduct most of the enforcement against violations, and maintain active enforcement programs. A 1999 EPA study found that "MCL exceedances are not common" and that volatile organic chemicals and synthetic organic chemicals are the cause of most of those exceedances.²⁰ States have been more vigorously enforcing their laws.²¹

Under the 1986 Amendments, all states were subjected to new duties to minimize lead in drinking water.²² These duties were not tied to primacy; thus, states that do not enforce the requirements do not risk losing primacy. The SDWA's lead provisions, other than those addressing treatment techniques, are not tied to primacy either, but states failing to comply do risk the loss of grant funds. In particular, the

primary regulatory authority. 65 Fed. Reg. 66541 (Nov. 6, 2000).

¹³40 C.F.R. §§ 142.20 to 142.24.

¹⁴SDWA § 1414(a)(1)(B), 42 U.S.C.A. § 300g-3(a)(1)(B); 40 C.F.R. §§ 142.30 to 142.34.

¹⁵SDWA § 1413(b)(1), 42 U.S.C.A. § 300g-2(b)(1); 40 C.F.R. § 142.17(a)(2).

¹⁶40 C.F.R. § 142.17; SDWA §§ 1415(a)(1)(F) and 1416(d)(1), 42 U.S.C.A. §§ 300g-4(a)(1)(F) and 300g-5(d)(1); 40 C.F.R. § 142.22.

¹⁷A dispute arose between EPA and several states in the late 1970s over the proper use of variances. Several states had issued variances that did not require use of best generally available technology, and the Agency proposed a rule to clarify that the variance authority did not allow such variances. 45 Fed. Reg. 50833 (1980). Faced with this resolve, the offending states ceased their practices. In 1986, EPA formally revoked variances with these same defects issued by another state when the state did not rescind them. 51 Fed. Reg. 23468 (1986). This process followed the notice-and-comment procedure outlined in SDWA § 1415(a)(1)(G), 42 U.S.C.A. § 300g-4(a)(1)(G), and in 40 C.F.R. § 142.23. More recently, EPA and New York City and New York State jostled for several years on how to protect New York City's water supply, which affected EPA decisions on the state's primacy and spawned an unsuccessful lawsuit by several New York towns. *See Coalition of Watershed Towns v. U.S. E.P.A.*, 552 F.3d 216, 68 Env't. Rep. Cas. (BNA) 1625 (2d Cir. 2008) (towns' injury was not redressable).

¹⁸52 Fed. Reg. 25692 (July 8, 1987).

¹⁹52 Fed. Reg. 25692 (July 8, 1987). Those rules were supplemented by the Long Term Enhanced Surface Water Treatment Rule, 67 Fed. Reg. 1812 (Jan. 14, 2002) and the Long Term 2 Enhanced Surface Water Treatment Rule, 71 Fed. Reg. 654 (Jan. 5, 2006).

²⁰U.S. Environmental Protection Agency, *A Review of Contaminant Occurrence in Public Water Systems* at 71 (EPA 816-R-99-006) (Nov. 1999).

²¹As penalties and enforcement have increased, defendants have advanced more fundamental objections with varying degrees of success. *See, e.g., Meadowlake Corp. v. Ohio ex rel. Rogers*, 555 U.S. 1098, 129 S. Ct. 899, 173 L. Ed. 2d 107 (2009) (declining to review 8th Amendment claim of excessive fines and 6th Amendment claim of entitlement to counsel).

²²In later amendments, Congress established a program for: (1) recalling drinking water coolers with lead-lined water reservoir tanks; (2) banning the sale of all drinking water coolers that were not lead-free; and (3) identifying lead problems in schools. The Lead Contamination Control Act of 1988, Pub. L. No. 100-572 (Oct. 31, 1988).

law prohibits the general use and distribution of lead pipe, solder, and flux.²³ States are to enforce this prohibition or risk loss of up to 5% of the annual federal grant that they receive for administering an EPA-approved drinking water program.²⁴ It is safe to say that state drinking water programs have not been generously funded, yet they are called on to adopt a large number of new regulations, more comprehensively regulate the non-transient non-community water systems, adopt new enforcement programs for lead, and step up enforcement efforts.²⁵ Because so many states have primacy, those interested in the implementation of these new drinking water responsibilities will scrutinize state efforts closely.

VI. FEDERAL AND CITIZEN ENFORCEMENT



Photo of Multnomah Falls taken by A. Driggs on August 24, 2019.

§ 18:18 Federal Enforcement—Enforcement of Primary Regulations, Variances, and Exemptions

Anticipating that states might not be willing or able to address all violations of drinking water requirements, the SDWA empowers EPA to enforce Primary Regulations when states do not. Similarly, conditions of variances and exemptions may be enforced by the federal government against non-complying systems when states do not enforce them.¹ Of course, the federal government also has the primary responsibility of enforcing drinking water requirements in Wyoming and in Washington, D.C., as well as on most Indian reservations that do not have primary enforcement authority.² These federal enforcement powers were substantially expanded by the 1986 Amendments, which streamlined enforcement, raised penal-

²³SDWA § 1417(a), 42 U.S.C.A. § 300g-6(a).

²⁴SDWA § 1417(b) to (c), 42 U.S.C.A. § 300g-6(b) to (c).

²⁵See *Beyond Tight Budgets: 2018 Resource Demands Analysis for State Drinking Water Programs*, Association of State Drinking Water Administrators (2018).

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¹SDWA § 1414(a)(1), 42 U.S.C.A. § 300g-3(a)(1); SDWA § 1414(a)(2).

²See EPA, *Primacy Enforcement Responsibility for Public Water Systems*, <https://www.epa.gov/dwreginfo/primacy-enforcement-responsibility-public-water-systems#:~:text=Contact%20Us-,Primacy%20Enforcement%20Responsibility%20for%20Public%20Water%20Systems,Monitoring%20and%20reporting%20requirements> (last visited July 21, 2020).

ties, and established a new administrative order authority. In 1996, Congress required States to adopt administrative order authority as well and mandated States to report on their enforcement activities in an annual report to EPA.³

§ 18:19 Federal Enforcement—Enforcement of Primary Regulations, Variances, and Exemptions—Finding a Violation

Where a state has primacy, EPA retains a backup enforcement role. If, after reviewing a state report, EPA (the Regional Office) finds that a system does not comply with a Primary Regulation or a variance or exemption condition, EPA is to notify the state and the water system and provide “advice and technical assistance” to bring the system into compliance.¹ If, after 30 days following notification, the state has not “commenced appropriate enforcement action,” the statute provides that EPA “shall” issue an order requiring compliance or commence a civil action.² The 1986 amendments adopted the mandatory term “shall” in this provision in place of the permissive term “may.”³

Exercise of this enforcement authority raises several questions. What “finding” of a violation will trigger the process and what violators are likely to attract EPA’s interest? What is “appropriate” state enforcement action that will avoid federal enforcement? Is EPA required to take enforcement action after the statutory procedures have been satisfied?

Under the Act, enforcement provisions are triggered whenever EPA “finds” a violation.⁴ In many cases, EPA will have knowledge of violations. Violations must be reported to the appropriate state, which in turn must report these violations and state enforcement actions (or lack thereof) to the Agency.⁵ However, a question arises whether EPA has the discretion to select the violations of which it is aware for a “finding.” Nothing in the SDWA or legislative history suggests that EPA must make a finding for every violation it discovers. The 1996 Amendments prescribe procedures for EPA enforcement in non-primacy jurisdictions.⁶ What violations are likely to attract EPA attention? EPA generally enters into enforcement agreements with primacy states that detail how and when states are to take enforcement action and when EPA will step in to enforce. EPA specifies in these agreements that a “timely and appropriate enforcement response” is to be taken against “significant

³SDWA § 1413(a)(6), 42 U.S.C.A. § 300g-2(a)(6) (primacy state requirement to have administrative penalty authority); SDWA 1414(c)(3), 42 U.S.C.A. § 300g-3(c)(3) (annual state enforcement reports).

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¹Monitoring errors might incorrectly indicate a violation, particularly for contaminants measured at low levels. The legislative history provides that if water systems can provide proof that readings in excess of regulations were due to such error, the system would be excused (at least from the public notification requirement). H.R. Rep. No. 93-1185, at 24 (1974).

²SDWA § 1414(a)(1)(B), 42 U.S.C.A. § 300g-3(a)(1)(B). This process replaced a more extensive procedure that required an additional notice to the state, a state report, a total of 60 days before EPA could take action and, in some cases, a finding that the state had abused its discretion. *See* former SDWA § 1414(a)(1)(B), 42 U.S.C.A. § 300g-3(a)(1)(B), Pub. L. No. 93-523, § 2(a), 88 Stat. 1666. This procedure was generally faulted as cumbersome and one reason why EPA had not taken a significant number of enforcement actions.

³Pub. L. No. 99-339, § 102(b), 100 Stat. 647 (amending SDWA § 1414(a)(1)(B), 42 U.S.C.A. § 300g-3(a)(1)(B)).

⁴SDWA §§ 1414(a)(1)(A) to (B), 1423(a)(1) to (2), 42 U.S.C.A. §§ 300g-3(a)(1)(A) to (B), 300h-2(a)(1) to (2).

⁵40 C.F.R. §§ 141.31, 142.15.

⁶SDWA § 1414(a)(2), 42 U.S.C.A. § 300g-3(a)(2).

non-compliers.”⁷ So far, significant non-compliance has included serious and continuous violations of most MCLs and their respective monitoring and reporting requirements and violations of compliance agreements or compliance schedules (such as the schedules that commonly accompany variances and exemptions).⁸ As a result of the 1996 Amendments, violations are more visible and, thus, more likely to be evaluated for enforcement purposes. For example, no later than August 6, 1997, each state was required to submit to EPA a list of CWSs and NTNCWSs that have a history of significant noncompliance, as defined by EPA.⁹ States must update their lists periodically. By August 6, 2001, each state had to submit to EPA a report on how enforcement mechanisms and other actions have succeeded in improving conditions at water systems on the list.¹⁰ The list and report are part of the capacity development strategy required of each state under penalty of the loss of significant federal loan funds. Each state must develop and implement its strategy to assist public water system to acquire and maintain technical, managerial, and financial capacity.

EPA regards state action as “timely” if it results in formal enforcement action or a compliance agreement within six months of the state’s discovery, depending on the type of violation.¹¹ “Appropriate” state enforcement action, according to EPA, includes issuance of an administrative order, a civil or criminal action, or an enforceable agreement with a compliance schedule signed by both parties.¹²

The question of whether EPA has a mandatory duty to issue an order or commence civil action after these initial hurdles have been cleared is currently unanswered. The change from “may” to “shall” in the enforcement provision and supporting legislative history may provide grounds to argue that the Agency is now subject to mandatory enforcement.¹³ However, given the general preference of the courts to preserve agency enforcement discretion and precedents set under related environmental statutes, a counter-argument can be advanced.

⁷Memorandum from Michael B. Cook, Director of the U.S. EPA Office of Drinking Water, to EPA Water Management Division Directors (May 22, 1990).

⁸Memorandum from Michael B. Cook, Director of the U.S. EPA Office of Drinking Water, to EPA Water Management Division Directors (May 22, 1990).

⁹SDWA § 1420(b), 42 U.S.C.A. § 300g-9(b).

¹⁰SDWA § 1420(b)(2), 42 U.S.C.A. § 300g-9(b)(2).

¹¹Memorandum from Michael B. Cook, Director of the U.S. EPA Office of Drinking Water, to EPA Water Management Division Directors, 4 (May 22, 1990). Of course, actual compliance may take a longer period if compliance requires installation of additional treatment technologies. Compliance may be delayed if the system does not report its violation to the state or if the state does not identify the violation quickly.

¹²Memorandum from Michael B. Cook, Director of the U.S. EPA Office of Drinking Water, to EPA Water Management Division Directors, 4 (May 22, 1990). For relatively minor violators, one could argue that formal enforcement is not appropriate given other, higher priority violations and limited state resources.

¹³See H.R. Rep. No. 575, 99th Cong., 2d Sess. (1986). The prior provision, stating that EPA “may” commence enforcement action, was held to vest absolute prosecutorial discretion on when to seek compliance with primacy drinking water regulations. *Hattie v. Thomas*, 22 Env’t. Rep. Cas. (BNA) 1728 (N.D. Ohio 1985). One could make an argument that under *Heckler v. Chaney*, 470 U.S. 821, 833, 105 S. Ct. 1649, 84 L. Ed. 2d 714, 15 Env’t. L. Rep. 20335 (1985), the presumption against reviewability of enforcement decisions has been rebutted by “circumscribing (the) agency’s power to discriminate among issues or cases it will pursue.” However, in signing the Amendments, the President stated: “The principal [sic] of prosecutorial discretion is an essential ingredient in the execution of the laws. I believe that the Congress cannot bind the Executive in advance and remove all prosecutorial discretion without infringing on the powers of the Executive. It is unrealistic to expect that the EPA will ever have the resources or the need to take formal enforcement action against each and every violation of the Act, without regard to how trivial the violation or unfair an enforcement action would be.” 22 Weekly Comp. Pres. Doc. 832 (June 19, 1986).

§ 18:20 Federal Enforcement—Enforcement of Primary Regulations, Variances, and Exemptions—Commencing a Civil Action or Issuing a Compliance Order

Once EPA decides to bring an enforcement action, it may either commence a civil action or issue a compliance order.¹ If the Agency decides to proceed in U.S. district court, it may call on the court's equitable powers for "such judgment as protection of public health may require," taking into consideration the time necessary to comply and the availability of alternative water supplies.² Injunctive relief is clearly authorized.³ The legislative history states that courts considering remedies in these enforcement actions are not to apply traditional balancing principles used by equity courts. Rather, legislative history directs courts to give utmost weight to the objective of providing maximum feasible protection to public health.⁴

Are courts empowered to close public water systems to protect public health? Although it appears that Congress may have wished courts to have this power, it is equally clear that Congress did not want to deprive consumers of drinking water.⁵ Closing down a water supply system may be a case of killing the patient to effect a cure. In many cases, more limited remedies—such as a temporary requirement that citizens boil water or that the system supply bottled water—provide interim solutions, allowing the water system time to implement a long-term remedy.

EPA may seek civil penalties for violations of Primary Regulations, taking into account the seriousness of the violation, the population at risk, and other appropriate factors.⁶ This maximum penalty amount has been substantially increased since the original Act. Revisions to the penalty authority have also removed a major evidentiary burden for federal prosecutors: prior to the 1986 Amendments, only willful violations were subject to penalties.⁷ Although the government may now seek penalties in a wider variety of cases, enforcement resources and the new opportunity to

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¹SDWA § 1414(b), 42 U.S.C.A. § 300g-3(b). If requested by the chief executive officer in the state or the state agency with jurisdiction over public water systems, EPA need not follow the preliminary procedures outlined in the previous subsection and may bring a civil action directly. SDWA § 1414(b)(2), 42 U.S.C.A. § 300g-3(b)(2). *U.S. v. Alisal Water Corp.*, 431 F.3d 643, 62 Env't. Rep. Cas. (BNA) 1009 (9th Cir. 2005).

²SDWA § 1414(b), 42 U.S.C.A. § 300g-3(b).

³*See, e.g., U.S. v. Alder Creek Water Co.*, 823 F.2d 343, 26 Env't. Rep. Cas. (BNA) 1369, 17 Env'tl. L. Rep. 21095 (9th Cir. 1987).

⁴H.R. Rep. No. 93-1185, at 23 (1974). This language in the legislative history, specifying maximum "feasible" protection for public health, suggests a balancing of public health concerns and feasibility, contrary to the general desire stated in the legislative history that balancing principles not apply.

⁵"Although requiring prompt compliance by some small outdated systems may in effect force the closing thereof, such a court order would be both permissible and warranted if an expansion of existing regional water service or other state or local assistance would be provided to assure the availability of adequate and safe drinking water supplies to those presently serviced." H.R. Rep. No. 93-1185, at 23-24. And, "[i]t is not the Committee's intent to cause any area to be deprived of existing drinking water supply services." *Id.* at 18.

⁶SDWA § 1414(b), 42 U.S.C.A. § 300g-3(b). *See Alder Creek*, 823 F.2d at 343 (water company found liable for damage resulting from removal of agency-installed monitoring device); *United States v. Neskowin*, 10 Env'tl. L. Rep. (Env'tl. L. Inst.) 20622 (D. Or. 1980) (findings of willfulness in violations and imposing penalties for MCL, monitoring, and public notification violations); *United States v. Tenny*, 14 Env'tl. L. Rep. (Env'tl. L. Inst.) 20094 (M.D. Pa. 1983) (defendants ordered to comply with the Act and to take specific actions). Other actions have sought civil penalties and compliance orders and imposed penalties on water company presidents personally. *See United States v. Paxton Water Corp.*, No. 86-101-C (S.D. consent decree filed 1-15-87); *see also United States v. Merritt Mobile Manors*, No. C86-0207 (D. Wyo. consent decree filed 2-26-87).

⁷*See former section 1414(b)*, 42 U.S.C.A. § 300g-3(b), Pub. L. No. 93-523, § 2(a), 88 Stat. 1666 (1974). EPA has sought penalties. For example, under a 2008 settlement, New York City would build a

issue administrative compliance orders will likely limit civil actions to the more egregious violations.⁸

§ 18:21 Federal Enforcement—Enforcement of Primary Regulations, Variances, and Exemptions—Administrative Compliance Orders and Administrative Penalties

EPA may choose to issue an order to require compliance.¹ These administrative orders may not initially assess penalties for violations. The orders are true “compliance orders,” directing the respondent water system to comply with an applicable requirement.² EPA must provide the system with notice and an opportunity for a public hearing on the order and offer the primacy state the opportunity to confer on the order.³ If an order is violated, EPA may, through a second administrative order, assess administrative penalties.⁴ EPA is also authorized to issue administrative penalty orders against any federal agency that violates the SDWA.⁵ Penalty proceedings are generally formal hearings on the record. Water suppliers may challenge penalty orders in federal circuit court.⁶ The orders will be struck down and remanded back to EPA if the court finds either a lack of substantial evidence in the record to support the finding of violation or that the penalty EPA has assessed is an abuse of discretion.

As an alternative to taking administrative action, EPA may seek civil penalties in U.S. district court for violations of the SDWA or administrative orders.⁷ EPA expects this administrative authority to be a cornerstone of the Agency’s expanded enforcement efforts.⁸ As a result of the 1996 Amendments, states generally must have authority to issue administrative penalty orders as a condition of primacy.⁹

§ 18:22 Federal Enforcement—Public Notification and Monitoring Requirements

In addition to enforcing against violations of the Primary Regulations and condi-

filtration system, pay civil penalties and undertake a supplemental environmental project valued at approximately half a million dollars. *United States v. Middletown*, No. 08-6369 (S.D.N.Y. consent decree approved Sept. 5, 2008).

⁸*See, e.g.*, *U.S. v. Alisal Water Corp.*, 431 F.3d 643, 62 Env’t. Rep. Cas. (BNA) 1009 (9th Cir. 2005). In *Alisal*, EPA brought a civil suit alleging twelve counts of multiple SDWA violations. The counts included allegations of failure to monitor, sample, provide adequate notice, or report as well as counts alleging falsified reports. In all, EPA alleged that the system had over 230 violations.

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¹Administrative orders may be issued whenever EPA is authorized to proceed against a violator in court. SDWA § 1414(g)(1), 42 U.S.C.A. § 300g-3(g)(1). EPA has used this tool to enforce a specific standard in states with primacy, where a state may not yet have obtained authority to enforce that standard. For example, EPA used orders to enforce the arsenic standard against 11 systems in California before the state regulations had been revised. *See* BNA Daily Environment Report, Oct. 29, 2008, “EPA Orders California Water Systems to cut Arsenic Levels in Drinking Water.”

²SDWA § 1414(g)(3), 42 U.S.C.A. § 300g-3(g)(3); 63 Fed. Reg. 48076 (Sept. 8, 1998).

³SDWA § 1414(g)(2), 42 U.S.C.A. § 300g-3(g)(2).

⁴40 C.F.R. § 19.4. The Federal Civil Penalties Inflation Adjustment Act of 1990 requires EPA to, every four years, revise the penalty amounts available under federal environmental statutes, including the SDWA. For the current penalty amounts, *see* 40 C.F.R. Pt. 19, Table 1 of Section 19.4.

⁵SDWA § 1447(b), 42 U.S.C.A. § 300j-6(b).

⁶SDWA § 1448(a), 42 U.S.C.A. § 300j-7(a).

⁷SDWA § 1448(a), 42 U.S.C.A. § 300j-7(a). *See also* SDWA § 1414(g)(3), 42 U.S.C.A. § 300g-3(g)(3); 40 C.F.R. § 19.4.

⁸EPA Journal, Mar. 1987, at 2 (Glenn Unterberger, U.S. EPA Associate Counsel for Water Enforcement).

⁹SDWA § 1413(a), 42 U.S.C.A. § 300g-2(a).

tions of variances and exemptions, the federal government is authorized to enforce all other applicable requirements,¹ such as public notification and monitoring requirements.² Violators of public notification and monitoring requirements are subject to civil penalties and compliance order authority.³ Because civil penalty actions demand more extensive preparation, EPA might use administrative orders to address these violations.

§ 18:23 Federal Enforcement—Emergency Powers and Tampering¹

The SDWA provides EPA with broad powers to protect against threats to public water systems and their water supplies beyond the MCL, variance, and exemption authorities. The Act allows the Administrator to take such actions as deemed necessary to protect health if: (1) the Administrator has information that a contaminant is present in or likely to enter a public water system or an underground source of drinking water; (2) the presence of the contaminant may present an imminent and substantial endangerment to health; and (3) appropriate state and local officials have not acted to protect health.²

EPA may issue orders to protect the health of persons who are or may be water consumers or may commence a civil action for appropriate relief (including a restraining order or permanent or temporary injunction).³ The statute is clear that the Administrator is not limited to these remedies.⁴ Violation of such emergency orders for any reason is subject to civil penalties.⁵

“Imminence” of the danger is to be measured in view of the time it would take to prepare legal papers, complete litigation, and enforce administrative or court orders to protect health.⁶ The legislative history provides examples of “substantial” endangerment. They include a “substantial likelihood” that contaminants “capable of causing adverse health effects” will be ingested by consumers if preventive action is not taken, and “the threat of substantial or serious harm (such as exposure to carcinogenic agents or other hazardous contaminants).”⁷

The fact that it is not used frequently suggests that EPA intends to reserve this

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¹SDWA § 1414(a)(1)(A), 42 U.S.C.A. § 300g-3(a)(1)(A).

²SDWA §§ 1414(c), 1445(c), 42 U.S.C.A. §§ 300g-3(c), 300j-4(c).

³SDWA §§ 1414(c), 1445(c), 42 U.S.C.A. §§ 300g-3(c), 300j-4(c), 40 C.F.R. § 19.4 (allowing assessment of civil penalties for public notification and monitoring violations, respectively). SDWA § 1414(g)(1), 42 U.S.C.A. § 300g-3(g)(1), authorizes EPA to issue orders in any case in which it is authorized to bring a civil action for public notification and monitoring violations.

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¹Under SDWA’s emergency powers, EPA “may take such actions as [the Administrator] may deem necessary” to protect human health when a contaminant in a water system “may present an imminent and substantial endangerment to the health of persons” and state and local authorities have not acted. EPA used this authority under section 1431 to issue its emergency order during the Flint crisis. *See* SDWA § 1431, 42 U.S.C.A. § 300i.

²SDWA § 1431(a), 42 U.S.C.A. § 300i(a). To the extent the Administrator determines it to be practicable in light of the imminent endangerment, the Administrator is to consult state and local authority to confirm the information and ascertain what actions they may be taking. If state or local efforts are not forthcoming in a timely fashion or are not effective, EPA is not barred from taking action. H.R. Rep. No. 1153, 93d Cong., 2d Sess. 35 (1974).

³SDWA § 1431(a), 42 U.S.C.A. § 300i(a).

⁴SDWA § 1431(a), 42 U.S.C.A. § 300i(a).

⁵SDWA § 1431(b), 42 U.S.C.A. § 300i(b); 40 C.F.R. § 19.4 (2009).

⁶H.R. Rep. No. 1153, 93d Cong., 2d Sess. 36 (1974).

⁷H.R. Rep. No. 1153, 93d Cong., 2d Sess. 36 (1974). “[I]t is well established from the legislative history and case law that SDWA confers on the EPA broad authority to address present and future

power to prevent “real” imminent harm (possibly because most threats to health are generally deemed to be under control). Indeed, there is support for the view that this authority should not be used when the system of regulatory controls could be used to protect public health.⁸ Where the jurisdictional requirements are met, emergency orders may be enforced notwithstanding the existence of any exemption, variance, permit, license, regulations, order, or other requirement.⁹ The law does not restrict who may be subject to these emergency orders, but the legislative history states that the orders may be issued to anyone whose “action or inaction requires prompt regulation to protect public health.”¹⁰ The objects of the order may be as broad as the subjects to whom it is issued. The Administrator may “take such actions as he may deem necessary in order to protect the health of such persons.”¹¹ Such orders may therefore be issued to obtain information, to require public notice, to prevent a hazardous condition, to treat or reduce hazardous situations once they have arisen, or to provide alternative water supplies.¹²

The SDWA emergency authority has been invoked frequently in Superfund cases where the government seeks action from potentially responsible parties under CERCLA section 106.¹³ However, in these cases, the SDWA emergency authority has generally played a supporting role rather than a lead role.

“Tampering” with a public water system is singled out as a specific crime under the SDWA.¹⁴ The statute criminalizes actual tampering, attempts to tamper, and threats to tamper where there is the appropriate *mens rea*.

The term “tamper” means to introduce a contaminant into a public water system, or to otherwise interfere with a system’s operations, intending to harm persons.¹⁵ Criminal charges are likely to be restricted to terrorists and other real wrongdoers.

In 2002, Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act to help address concerns that arose in the wake of the September 11, 2001 terrorist attacks.¹⁶ This legislation was, in part, designed to help tighten security at public drinking water systems as well as improve emergency response times in the event of a terrorist attack or other catastrophic event occurs that affects public drinking water. Under the law, community water systems must conduct an assessment of the vulnerability of the system to terrorist attacks as well as prepare and implement an emergency response plan based on the vulner-

harm that may substantially threaten the health of persons who use public water systems.” *W.R. Grace & Co. v. U.S. E.P.A.*, 261 F.3d 330, 339, 52 Env’t. Rep. Cas. (BNA) 1993, 32 Env’t. L. Rep. 20093 (3d Cir. 2001). The absence of evidence demonstrating that water consumers are drinking contaminated water does not necessarily preclude a finding of an “imminent and substantial endangerment.” *Trinity American Corp. v. U.S. E.P.A.*, 150 F.3d 389, 399, 47 Env’t. Rep. Cas. (BNA) 1071, 28 Env’t. L. Rep. 21575 (4th Cir. 1998).

⁸H.R. Rep. No. 1153, 93d Cong., 2d Sess. 35 (1974); *see also* *W.R. Grace*, 261 F.3d at 339-40.

⁹H.R. Rep. No. 1153, 93d Cong., 2d Sess. 35 (1974). In short, compliance with the law is no bar to a SDWA emergency action.

¹⁰H.R. Rep. No. 1153, 93d Cong., 2d Sess. 35 (1974) (Among others, orders may be issued to “owners or operators of public water systems, to State or local government units, to State or local officials, owners or operators of underground injection wells (and) to area or point source polluters.”).

¹¹SDWA § 1431(a), 42 U.S.C.A. § 300i(a).

¹²H.R. Rep. No. 1153, 93d Cong., 2d Sess. 35 (1974).

¹³42 U.S.C.A. § 9606. *See, e.g.,* *W.R. Grace*, 261 F.3d at 339-40; *U.S. v. Stringfellow*, 20 Env’t. Rep. Cas. (BNA) 1905, 14 Env’t. L. Rep. 20385, 1984 WL 3206 (C.D. Cal. 1984).

¹⁴SDWA § 1432, 42 U.S.C.A. § 300i-1. This provision may be redundant with existing state laws (e.g., criminal assault and battery), but the SDWA provision now establishes this activity as a federal offense, subject to Federal Bureau of Investigation jurisdiction and enforcement by local U.S. attorneys.

¹⁵SDWA § 1432(d), 42 U.S.C.A. § 300i-1(d).

¹⁶Pub. L. No. 107-188, 116 Stat. 682 (2002).

ability assessment.¹⁷

§ 18:24 Citizen Suits

The SDWA citizen suit provision itself is unremarkable. Any person may commence a civil action against persons alleged to be in violation of the statute or regulations (including the United States and the various states) and EPA if the Agency is not discharging a non-discretionary duty.¹ The citizen suit must be preceded by proper notice and may not be maintained if the United States or a state is diligently prosecuting a civil action in a court of the United States.² There is another restriction on SDWA citizen suits. No citizen suit can be maintained to require a state to prescribe a schedule for a variance or an exemption unless the plaintiff shows (to the satisfaction of the court) that the state has failed to prescribe schedules in a “substantial number of cases.”³ Although attorneys’ and expert witnesses’ fees are available for the successful plaintiff,⁴ the statute does not authorize the court to assess penalties in such a suit. An exception applies to suits against federal agencies. In those cases, citizens may file suit to collect penalties that an agency has failed to pay within 18 months of the effective date of an administrative penalty order.⁵

Recently, however, other avenues for citizen suits have opened. In response to the Flint Water Crisis, a court upheld a plaintiff’s Federal Torts Claim Act.⁶ Although the court recognized that the SDWA afforded EPA significant discretion in constructing its response to primary regulation violations, the court agreed with the plaintiff that EPA had failed in its mandate.

§ 18:25 Federal Preemption

In the wake of the Flint Water Crisis, a bevy of § 1983 claims were brought against Flint, MI officials responsible for switch between the water sources resulting in elevated lead levels in the city water supply.¹ Two cases, *Boler* and *Mays*, were dismissed in district court when the court ruled that the SDWA preempted the statutory claims of the plaintiffs. The cases were consolidated on appeal. On appeal, the circuit court reversed *Boler*, stating that there was no clear inference of congressional intent from either the text of the SDWA, its legislative history, nor its reme-

¹⁷SDWA § 1433(a) to (b), 42 U.S.C.A. § 300i-2(a) to (b).

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¹SDWA § 1449(a), 42 U.S.C.A. § 300j-8(a). *See also* 40 C.F.R. §§ 135.10 to 135.13 (setting forth procedural requirements for bringing citizen suit actions).

Courts have not yet addressed the question of whether a SDWA citizen suit against a public water system may only be maintained if the violations are alleged to be continuing.

²SDWA § 1449(b), 42 U.S.C.A. § 300j-8(b). *Fluker v. Federal Bureau of Prisons*, 2009 WL 1065986 (D. Colo. 2009).

³SDWA § 1449(b), 42 U.S.C.A. § 300j-8(b).

⁴SDWA § 1449(d), 42 U.S.C.A. § 300j-8(d).

⁵SDWA § 1449(a)(3), 42 U.S.C.A. § 300j-8(a)(3).

⁶*Burgess v. United States*, 375 F. Supp. 3d 796 (E.D. Mich. 2019), motion to certify appeal denied, 2019 WL 4734686 (E.D. Mich. 2019).

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¹*Boler v. Early*, 2016 WL 1573272 (E.D. Mich. 2016), *aff’d in part, rev’d in part*, 865 F.3d 391 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018); *Mays v. Snyder*, 2017 WL 445637 (E.D. Mich. 2017), *aff’d in part, rev’d in part*, 865 F.3d 391 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018); *McMillian v. Snyder*, 83 Env’t. Rep. Cas. (BNA) 2232, 2017 WL 492077 (E.D. Mich. 2017).

dial scheme that would preempt such claims.²

The *Boler* court reasoned that “the findings enunciated in the SDWA emphasize Congress’s focus on the interstate economic impacts of polluted drinking water, not on any constitutional violation that may accompany the pollution.”³ The court also distinguished violations of the SDWA from a constitutional violation stemming from negligence that results in contaminated drinking water.⁴ The consequence of such a decision is that there may be some leeway between the citizen suit provision and the statutory strictures of the SDWA that some might argue allows individuals private rights of action, even if such actions are contingent on what would amount to a SDWA violation.

VII. SOURCE PROTECTION

²*Boler v. Earley*, 865 F.3d 391, 417 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018) (reversing the district court’s dismissal of the plaintiffs’ section 1983 claims, while affirming the plaintiffs’ claims in *May* on the separate basis of sovereign immunity).

³*Boler v. Earley*, 865 F.3d 391, 404 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

⁴*Boler v. Earley*, 865 F.3d 391, 408 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).



Photo of Lake Moraine taken by A. Driggs on March 23, 2019.

§ 18:26 In General

The SDWA contains several provisions intended to identify, improve the quality of, and prevent the deterioration of significant drinking water sources.¹ Section 1424(e) allows EPA on its own, or in response to a petition, to designate as a “sole source aquifer” a groundwater source serving as the sole or principal drinking water source for that area.² EPA must first make a finding, however, that the water source, if contaminated, would create a significant hazard to public health. Once designated, a sole source aquifer enjoys special protection from any federally funded project that might adversely affect the aquifer.

The “critical aquifer protection area” provision, which arose in the 1986 Amendments, authorized various governmental entities to develop comprehensive management plans designed to protect all or part of a designated sole source aquifer.³ The program was a demonstration initiative that could apply only in areas that had been designated, or approved for designation, as of June 19, 1988.

The SDWA also contains a “wellhead protection” provision,⁴ which required the states to submit, by June 19, 1989, a program for protecting areas that, if contaminated, could adversely affect the quality of groundwater sources used for drinking water. Several states have not complied with this provision, and the SDWA does not require EPA to act in their stead.

The 1996 Amendments introduced two new source protection programs. The “Source Water Assessment” provision invited, but did not require, states to develop a program to delineate the boundaries of public water systems and to determine the susceptibility of those delineated areas to exposure from contaminants regulated under the SDWA.⁵ Implementation of this program was a prerequisite for the monitoring relief that states are authorized to provide under SDWA § 1418(a).

The second program allowed any state to establish a program inviting a community water supply system or a locality to submit a “source water quality protection partnership petition.”⁶ That petition would request state assistance in developing a voluntary, incentive-based partnership whose role would be to make recommendations for identifying and controlling sources of contaminants with the potential to enter the water supply source. The partnership would consist of all persons likely to be affected by those recommendations.

VIII. CONCLUSION

§ 18:27 Generally

Obtaining safe drinking water is a perennial problem for civilizations; in a nation where the Safe Drinking Water Act is almost 50 years old and provides a backdrop for potable water consumption, it is easy to take its provisions for granted. Recent events like the Flint Water Crisis have focused renewed attention on this statute,

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¹While direct potable reuse (DPR) and indirect potable reuse (IPR) are permissible under the SDWA (and, indeed, can produce water quality that is well above that required by the SDWA), such treated wastewater may need to be identified as a source water. See EPA, *Ground Water and Drinking Water: Potable Water Reuse and Drinking Water*, <https://www.epa.gov/ground-water-and-drinking-water/potable-water-reuse-and-drinking-water> (last visited July 21, 2020).

²SDWA § 1424(e), 42 U.S.C.A. § 300h-3(a).

³SDWA § 1427, 42 U.S.C.A. § 300h-6.

⁴SDWA § 1428, 42 U.S.C.A. § 300h-7.

⁵SDWA § 1453, 42 U.S.C.A. § 300j-13.

⁶SDWA § 1454, 42 U.S.C.A. § 300j-14.

and emerging issues like PFAS and microplastics continue to be the focus of study and debate. The SDWA continues to evolve: One of the key changes being considered as of the date of this chapter is a suite of regulatory revisions to the NPDWR for lead and copper, which are intended to reduce the levels of those substances in drinking water.¹ Other challenges remain, requiring scientific expertise, significant financial resources, and commitment by our society and people at all levels of government.

[Section 18:27]

¹National Primary Drinking Water Regulations: Lead and Copper Rule Revisions, 84 Fed. Reg. 61684 (Nov. 13, 2019).

APPENDIX 18A

Table of Acronyms

Table of Acronyms	
BAT	Best Available Technology
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CCL	Contaminant Candidate List
CCL 1	First Contaminant Candidate List
CCL 2	Second Contaminant Candidate List
CCL 3	Third Contaminant Candidate List
CCL 4	Fourth Contaminant Candidate List
CWS	Community Water System
DDE	1,1-Dichloro-2,2-Bis(p-chlorophenyl) Ethylene
DPR	Direct Potable Reuse
EPA	U.S. Environmental Protection Agency
EPTC	S-Ethyl Dipropylthiocarbamate
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
HA	Health Advisory
IARC	International Agency for Research on Cancer
IPR	Indirect Potable Reuse
KWA	Karegnondi Water Authority
MCL	Maximum Contaminant Levels
MCLG	Maximum Contaminant Level Goals
NAS	National Academy of Science
NDWAC	National Drinking Water Advisory Council
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NPDWR	National Primary Drinking Water Regulation
NSPS	New Source Performance Standards
NTNCWS	Non-Transient Non-Community Water Systems
NRC	National Research Council
PCCL	Preliminary CCL
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorobutanoic Acid
PFDA	Perfluorodecanoic Acid
PFHxA	Perfluorohexanoic Acid
PFHxS	Perfluorohexanesulfonic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonic Acid
PPT	Parts Per Trillion
PWS	Public Water System
PWSS	Public Water Supply Supervision
RCRA	Resource Conservation and Recovery Act
RRP	Renovating, Repair, and Painting

SDWA	Safe Drinking Water Act
TAS	Treatment as a State
TIP	Tribal Implementation Plan
TNCWS	Transient Non-Community Water Systems
UCM	Unregulated Contaminant Monitoring
UCMR	Unregulated Contaminant Monitoring Rule
UCMR 1	First Unregulated Contaminant Monitoring Rule
UCMR 2	Second Unregulated Contaminant Monitoring Rule
UCMR 3	Third Unregulated Contaminant Monitoring Rule
UCMR 4	Fourth Unregulated Contaminant Monitoring Rule
UIC	Underground Injection and Control
WIIN Act	Water Infrastructure Improvements for the Nation Act
WQS	Water Quality Standards

APPENDIX 18B

Case Studies

Case Studies: Flint, Michigan

Starting in the late 1960s, Flint, Michigan (the “City”) sourced its drinking water from Lake Huron.¹ In 2013, the City decided to switch to another water supplier: the Karegnondi Water Authority (KWA).² The KWA would take several years to build; in the interim, City officials decided to use water from the Flint River.³ This change occurred in April 2014; however, the City made no effort to upgrade its treatment plants or provide for other measures to ensure the safety of the water.⁴

Immediately after City officials changed the source of the water, residents began to complain about the smell, appearance, and taste of the water.⁵ Serious issues with the water included the following:

- Coliform and *E. coli* bacteria were detected after testing in August and September of 2014;
- Shortly after that, in October of 2014, the water was linked to an outbreak of Legionnaire’s disease; and
- General Motors stopped its water service because the pollution in the Flint River was corroding its parts.⁶

Despite numerous warning signals, the City issued a notice in January of 2015 that, while the water violated applicable standards, it was still safe to drink.⁷ Shortly after this, in February 2015, additional testing indicated that the water contained high levels of other chemicals, like lead and trihalomethane.⁸

When “Flint began using the Flint River water in April of 2014, it did not treat the water with orthophosphate to control lead levels in the drinking water, and

¹Boler v. Earley, 865 F.3d 391, 397 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

²Boler v. Earley, 865 F.3d 391, 397 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

³Boler v. Earley, 865 F.3d 391, 397 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

⁴Boler v. Earley, 865 F.3d 391, 398 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

⁵Boler v. Earley, 865 F.3d 391, 398 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

⁶Boler v. Earley, 865 F.3d 391, 398 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

⁷Boler v. Earley, 865 F.3d 391, 398 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

⁸Boler v. Earley, 865 F.3d 391, 398 (6th Cir. 2017), cert. denied, 138 S. Ct. 1285, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1281, 200 L. Ed. 2d 469 (2018) and cert. denied, 138 S. Ct. 1294, 200 L. Ed. 2d 469 (2018).

instead added chemicals, such as ferric chloride, which, studies have shown, exacerbate” lead levels, resulting in increased lead exposures in a vulnerable, predominantly minority population.⁹

Scientists estimate that 140,000 people in this community were exposed to lead and other drinking water contaminants.¹⁰ The effects of lead exposure include: damage to children’s brains and nervous systems; slowed growth and development; and learning, behavior, hearing, and speech problems.¹¹ Because the community had been dealing with any number of preexisting socioeconomic factors, the consequences of these exposures were particularly pronounced.¹²

In Flint, “assurances of the water’s potability hid the risks, turning residents’ voluntary consumption of a substance vital to subsistence into an involuntary and unknowing act of self contamination.”¹³

In a later action, defendants claimed that they conducted “two required rounds of sampling to determine lead levels, from July to December 2014 and January to June 2015, but the results did not exceed the SDWA [Safe Drinking Water Act] Lead and Copper Rule’s ‘action level.’”¹⁴ However, it became clear that the City did not comply with all of the Lead and Copper Rule monitoring requirements and that testing regimes were inadequate.¹⁵

The City initially advised residents to “pre-flush” taps before using them or, alternatively, stop drinking the water.¹⁶ After EPA warned, in June of 2015, that the lead levels in the water were high, officials provided filters, but they were of questionable quality.¹⁷

Genesee County then declared a public health emergency in October of 2015; at this point, the City decided to reconnect to its previous water supply.¹⁸ However, the protective coating in Flint’s pipes had been damaged by the corrosive water from the river, and studies indicated that the water would continue to have high lead levels until the coating could build up again.¹⁹ In February of 2016, EPA warned residents that the unfiltered water was not safe and instructed them to drink bottled water.²⁰

The Michigan Civil Rights Commission studied the events in Flint. The Commission’s report concluded that the events in Flint were a result of systematic racism, “based on a plethora of events and policies that so racialized the structure of public policy that it systemically produced racially disparate outcomes adversely affecting a community that is primarily made up of people of color.”²¹

Flint will continue to suffer the consequences of this tragedy for decades; in the

⁹Concerned Pastors for Social Action v. Khouri, 217 F. Supp. 3d 960, 969, 83 Env’t. Rep. Cas. (BNA) 1630 (E.D. Mich. 2016).

¹⁰Perri Zeitz Ruckart, et al., *The Flint Water Crisis: A Coordinated Public Health Emergency Response and Recovery Initiative*, 25 J. Public Health Manag. Pract. S84-S90 (2019).

¹¹Perri Zeitz Ruckart, et al., *The Flint Water Crisis: A Coordinated Public Health Emergency Response and Recovery Initiative*, 25 J. Public Health Manag. Pract. S84-S90 (2019).

¹²See *id.*

¹³Guertin v. State, 912 F.3d 907, 925–26 (6th Cir. 2019), cert. denied, 140 S. Ct. 933, 205 L. Ed. 2d 522 (2020) and cert. denied, 140 S. Ct. 933, 205 L. Ed. 2d 522 (2020).

¹⁴*Boler*, 865 F.3d at 398.

¹⁵*Concerned Pastors*, 217 F. Supp. 3d at 967.

¹⁶*Boler*, 865 F.3d at 398.

¹⁷*Boler*, 865 F.3d at 398.

¹⁸*Boler*, 865 F.3d at 398.

¹⁹*Boler*, 865 F.3d at 398.

²⁰*Boler*, 865 F.3d at 398.

²¹*Boler*, 865 F.3d at 399 (quoting Michigan Civil Rights Commission, *The Flint Water Crisis*:

meantime, litigation by those affected by these events continues. Although over six years since the crisis began have passed as of the time of this publication, corroded pipes still affect the waters and people of Flint, Michigan.²²

Case Studies: PFAS

Per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that include PFOA (perfluorooctanoic acid), PFOS (perfluorooctane sulfonic acid), and GenX chemicals.²³ These chemicals have been manufactured and used since the 1940s; a variety of facilities have been associated with PFAS releases into the environment, including PFAS manufacturing and processing facilities, facilities using PFAS to produce other products, airports, and military sites.²⁴

PFOA and PFOS are the two chemical PFAS compounds that have been the most widely studied and used; they are virtually ubiquitous, having been detected in up to 98% of samples during biomonitoring studies of the U.S. population.²⁵ However, since 2006, they have been voluntarily phased out in the U.S., and serum concentrations in the population have since been decreasing.²⁶

PFOA and PFOS “can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animals. The most consistent findings . . . are increased cholesterol levels among exposed populations, with more limited findings related to: infant birth weights, effects on the immune system, cancer (for PFOA), and thyroid hormone disruption (for PFOS).”²⁷

PFAS have been found in, among other places, drinking water, although they are “typically localized and associated with a specific facility (e.g., manufacturer, landfill, wastewater treatment plant, firefighter training facility).”²⁸

EPA has established health advisories for both PFOA and PFOS.²⁹ The current health advisory level set by EPA is 70 parts per trillion.³⁰ While EPA has indicated

Systemic Racism Through the Lens of Flint at 6 (Feb. 17, 2017)).

²²In re Flint Water Cases, 960 F.3d 303, 310 (6th Cir. 2020).

²³“GenX is a trade name for a technology that is used to make high performance fluoropolymers (e.g., some nonstick coatings) without the use of perfluorooctanoic acid (PFOA). HFPO dimer acid and its ammonium salt are the major chemicals associated with the GenX technology. GenX chemicals have been found in surface water, groundwater, finished drinking water, rainwater, and air emissions in some areas.” EPA, *Basic Information on PFAS*, <https://www.epa.gov/pfas/basic-information-pfas> (last visited July 20, 2020). See *Hardwick v. 3M Company*, 2019 WL 4757134, at *1 (S.D. Ohio 2019) (citing <https://www.epa.gov/pfas/basic-information-pfas>).

²⁴Announcement of Preliminary Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate List, 85 Fed. Reg. 14098, 14115 (Mar. 10, 2020).

²⁵Announcement of Preliminary Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate List, 85 Fed. Reg. 14098, 14115 (Mar. 10, 2020).

²⁶Announcement of Preliminary Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate List, 85 Fed. Reg. 14098, 14115 (Mar. 10, 2020) (“Although PFOA and PFOS are not produced domestically or imported by the companies participating in the 2010/2015 PFOA Stewardship Program, PFOA and PFOS may still be produced domestically or imported below the CDR reporting thresholds (i.e., 2,500 pounds) by companies not participating in the PFOA Stewardship Program.”).

²⁷“Under the EPA’s Guidelines for Carcinogen Risk Assessment (USEPA, 2005b), there is ‘suggestive evidence of carcinogenic potential’ for PFOA. Similarly, the International Agency for Research on Cancer (IARC) classifies PFOA as ‘possibly carcinogenic to humans’ (IARC, 2019a; IARC, 2019b).” *Id.* at 14116. See *Basic Information on PFAS*, *supra* note 1.

²⁸Basic Information on PFAS, *supra* note 1.

²⁹EPA, *Drinking Water Health Advisories for PFOA and PFOS*, <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos> (last visited July 20, 2020).

³⁰EPA, *Drinking Water Health Advisories for PFOA and PFOS*, <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>

that it may eventually regulate PFAS and PFOA under the SDWA,³¹ EPA does not yet regulate these chemicals.³²

Various groups have criticized EPA for an inadequate response to the risks posed by these chemicals.³³ California is leading the nation in establishing PFAS regulations, recently setting response levels to 10 parts per trillion (PPT) for PFOA and 40 PPT for PFOS.³⁴ The State can require that water systems, in addition to notifying the public, be taken out of service and treated if the State Water Board finds that levels of these chemicals exceed the newly established standards.³⁵

EPA seems to be moving toward a positive regulatory determination for both PFOA and PFOS; should it do so, EPA will then undergo the SDWA rulemaking process to establish a National Primary Drinking Water Regulation (NPDWR) for both PFOA and PFOS.³⁶ During that process, EPA will request recommendations from the EPA Science Advisory Board and will also request public comments.³⁷ EPA additionally is conducting hazard assessments for the following PFAS: GenX chemicals; PFBS; PFNA; perfluorobutanoic acid (PFBA); perfluorodecanoic acid (PFDA); perfluorohexanoic acid (PFHxA); and perfluorohexanesulfonic acid (PFHxS).³⁸

Meanwhile, as EPA moves toward establishing maximum contaminant levels (MCLs) under the SDWA, numerous lawsuits have been filed over PFAS contamination.³⁹ In those suits, the plaintiffs have alleged injuries ranging from cancer to increased risks of a variety of diseases to diminished property values.⁴⁰

Case Studies: Tribes and Treatment as a State (TAS) and Primacy

When Congress passed the SDWA, tribes were not eligible to be treated as states.⁴¹ However, this changed with the 1986 SDWA Amendments; for the first time, tribes were authorized to assume primacy.⁴² Decades later, only one tribe, the Navajo Nation, has done so for the Public Water System Supervision (PWSS) Program and two

[and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos](#) (last visited July 20, 2020).

³¹EPA included PFOA and PFOS in the Final CCL 4 because they are “known to occur in drinking water, are persistent in the environment and in the human body, have shown to be toxic in animal studies and may require regulation.” See Drinking Water Contaminant Candidate List 4-Final, 81 Fed. Reg. 81099, 81107 (Nov. 17, 2016).

³²They may also be regulated under other laws, e.g., CERCLA, in the future.

³³See, e.g., Stephanie Ebbs, *EPA working aggressively to address ‘forever chemicals,’ Wheeler says*, ABC News (Nov. 25, 2019, 2:00 PM), <https://abcnews.go.com/Politics/epa-working-aggressively-address-forever-chemicals-wheeler/story?id=67295754>.

³⁴“In addition to notification levels and pursuant to Health and Safety Code section 116455, DDW [Division of Drinking Water] has lowered the response levels for PFOA and PFOS from 70 PPT combined to 10 PPT for PFOA and 40 PPT for PFOS based on a running four quarter average.” Cal. Water Boards, *Drinking Water: Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS)*, https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/PFOA_PFOS.html (last visited July 21, 2020).

³⁵Cal. Health & Safety Code § 116378.

³⁶85 Fed. Reg. at 14117.

³⁷85 Fed. Reg. at 14117.

³⁸85 Fed. Reg. at 14121.

³⁹“Ultimately, over 3,500 individuals filed cases in this MDL over which this Court has presided since April 2013.” *In re E. I. Du Pont De Nemours & Co. C-8 Pers. Injury Litig.*, No. 2:18-cv-00136, 2020 WL 597341, at *3 (S.D. Ohio Feb. 7, 2020).

⁴⁰See *id.*

⁴¹EPA, *Tribal Primacy: An Overview for the Safe Drinking Water Act’s Public Water System Supervision Program* (Aug. 2002), <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1007BCH.TXT>.

⁴²EPA, *Tribal Primacy: An Overview for the Safe Drinking Water Act’s Public Water System Supervision Program* (Aug. 2002), <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1007BCH.TXT>.

(the Navajo Nation and the Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation) have become authorized under the Underground Injection Control (UIC) Program for Class II wells.⁴³

The chart below shows the number of tribes authorized under various EPA programs;⁴⁴ while a large number of tribes participate in the Water Quality Standards Program, very few are authorized under other environmental regulatory regimes, including the SDWA.

Regulatory Program	Number of Authorized Tribes
CAA § 110—Tribal Implementation Plan (TIP)	7
CAA § 111—New Source Performance Standards (NSPS)	2
CAA § 112—National Emissions Standards for Hazardous Air Pollutants (NESHAP)	2
CAA Title V—Operating Permit Program	4
CWA §§ 303(c) / 401—Water Quality Standards (WQS) Program	69
SDWA § 1413—Public Water System Supervision (PWSS) Program	1
SDWA § 1425—Underground Injection Control (UIC) Program, Class II Wells	2
TSCA §§ 402, 404, 406—Lead Abatement and/or Renovating, Repair, and Painting (RRP) Program	4

The requirements for tribes to be treated as states under the SDWA are as follows:

(1) the Tribe is “recognized by the Secretary of the Interior and has a governing body carrying out substantial governmental duties and powers”;

(2) the “functions to be exercised” by the Tribe in question “are within the area of the Tribal Government’s jurisdiction”; and

(3) the Tribe “is reasonably expected to be capable, in the Administrator’s judgment, of carrying out the functions to be exercised in a manner consistent with the terms and purposes of this subchapter and of all applicable regulations.”⁴⁵

Why have so few tribes assumed permitting authority under the SDWA? One reason is that jurisdictional determinations are complex, heavily litigated, and can take decades, with the concomitant expense and uncertainty for all parties involved.

The divisive and difficult jurisdictional gymnastics involved in Safe Drinking Water Act permitting decisions on or near tribal lands was illustrated in the *Hydro Resources, Inc.* case, where Justice Gorsuch authored the majority opinion for a divided en banc panel.⁴⁶ The case arose because Hydro Resources, Inc. (HRI) needed a SDWA permit to mine its property and had two possible options: the New Mexico Environment Department, which had been delegated permitting authority by EPA for lands other than “Indian lands,” or EPA.⁴⁷ Since HRI owned the property in fee and it was not part of any reservation, HRI applied for, and was granted, a permit

⁴³It was not until October 23, 2000, that EPA determined that the Navajo Nation was eligible to obtain primacy for the PWSS Program. See also EPA, *Tribes Approved for Treatment as a State (TAS)* (June 2020), <https://www.epa.gov/tribal/tribes-approved-treatment-state-tas>.

⁴⁴EPA, *Tribal Primacy: An Overview for the Safe Drinking Water Act’s Public Water System Supervision Program* (Aug. 2002), <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1007BCH.TXT>.

⁴⁵See 40 C.F.R. § 131.8(a)(2); 42 U.S.C. § 300j-11(b)(1)(B); 40 C.F.R. § 145.56(b).

⁴⁶*Hydro Resources, Inc. v. U.S. E.P.A.*, 608 F.3d 1131, 1134, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010).

⁴⁷*Hydro Resources, Inc. v. U.S. E.P.A.*, 608 F.3d 1131, 1134, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010).

by the NMED.⁴⁸

EPA, however, asserted jurisdiction over the land in question since EPA viewed it as “Indian country,” as that term is defined by 18 U.S.C. § 1151.⁴⁹ Section 1151 provides primary federal criminal jurisdiction over “Indian reservation[s],” “dependent Indian communities,” and “Indian allotments.”⁵⁰ Here, EPA argued that HRI’s land should be considered Indian country because it was part of a “dependent Indian communit[y]” under Section 1151.⁵¹ The majority held that “because the individual tract at issue was neither (a) set aside by Congress (or the Executive, acting under delegated authority) for the use of the Indians as Indian land[;] nor (b) dependent in the sense that it is under federal superintendence, it is not part of a dependent Indian community under 18 U.S.C. § 1151(b).”⁵²

In the dissent’s view, “under the rule announced by the majority, a uranium mine located on non-Indian land but surrounded by land that constitutes a dependent Indian community would not be subject to federal regulation.”⁵³ The dissent was concerned that such a position would not be in accord with “the applicable statute, the case law, or the federal government’s ‘distinctive obligation of trust . . . in its dealings with these dependent and sometimes exploited people.’”⁵⁴

⁴⁸Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1134, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010).

⁴⁹Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1134, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010).

⁵⁰Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1134, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010) (alteration in original) (quoting 18 U.S.C. § 1151).

⁵¹Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1134, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010) (alteration in original).

⁵²Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1182, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010) (Henry, J., dissenting) (alteration in original) (internal quotation marks omitted).

⁵³Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1184, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010).

⁵⁴Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131, 1184, 70 Env’t. Rep. Cas. (BNA) 2089 (10th Cir. 2010) (citation omitted).

Chapter 19

Biotechnology*

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Appendix 19A. Table of Acronyms

Research References

Westlaw Search Query

adv: “Environmental Law” & Biotechnology

Primary Authority

Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301 to 399i

Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136 to 136y

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I. INTRODUCTION

§ 19:1 In General

This chapter will survey the major federal environmental statutes currently being utilized to regulate industrial and agricultural applications of biotechnology.

Biotechnology grew out of scientific breakthroughs in the early 1970s that made possible, to an unprecedented degree, the purposeful manipulation of the genetic structure of living organisms. In little more than a decade, the discoveries spawned a whole new industry. The diverse products of this industry have touched society at

many points and will continue to have an impact on our social mores, economy, and law.

This chapter is concerned with the impact of one of the most important biotechnologies—genetic engineering—on environmental law. While there is no legislation that specifically addresses the regulatory issues raised by genetic engineering, as this chapter will show, genetic engineering is generating new products, processes, wastes (including new opportunities for waste clean-up, in terms of bioremediation products), and by-products that are subject to existing environmental laws. Accommodation to this new technology has produced an extension and fine-tuning in the implementation of major environmental statutes. But, because many of those statutes are process neutral, regulating products and pollutants without regard to the manner in which they are generated, biotechnology has not impacted those laws in any fundamental sense. As a result, and as evident from the following discussion, products that successfully complete the applicable regulatory review process have been shown to be as safe to produce and use as their conventional counterparts.¹

§ 19:2 What is biotechnology?

Biotechnology is not a precisely defined term but refers generally to the exploitation of biological organisms for practical purposes. Such exploitation is nothing new. The advent of agriculture—a prime example of biotechnology—marked the dawn of civilization. For millennia farmers have been controlling the breeding, and thereby modifying the forms and functions, of plants and animals for agricultural purposes.¹ Similarly, wine, cheese, beer, and other food making processes have taken advantage of the fermentative capabilities of microorganisms.² The central, although not the only, biotechnology—genetic engineering—has dramatically extended the reach of these familiar technologies, largely by reducing the role of chance in the breeding of organisms with desired properties.³ Advances in genetic engineering promise increases in both the variety of new organisms and the rate at which they will be produced.⁴ And, while not covered in-depth in this chapter, we note that advances in technology have also opened the door to commercial-scale production of cell-cultured meat products.⁵

One of the most important and controversial of the new genetic engineering breeding techniques permits scientists to produce new varieties of organisms by directly transferring precise pieces of genetic information from one organism to

[Section 19:1]

¹See National Academy of Sciences, *GENETICALLY ENGINEERED CROPS: EXPERIENCES AND PROSPECTS* (2016).

[Section 19:2]

¹See *History of Plant Breeding*, PLANT BREEDING IN THE 21ST CENTURY (Charles Brummer & Cecilia McGregor eds., U. Ga. 2015), http://plantbreeding.coe.uga.edu/index.php?title=2._History_of_Plant_Breeding (last visited Jan. 12, 2022); Abrar Wani, *History of Animal Breeding*, HOME GROWN FARMING (Sept. 27, 2012), <http://www.homegrownfarming.com/history-of-animal-breeding> (last visited Jan. 12, 2022).

²See Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE* 22 (1986).

³See Steven C. Witt, *BIOTECHNOLOGY AND GENETIC DIVERSITY* 41–42 (1985).

⁴See Ecosystems Research Center, *POTENTIAL IMPACTS OF ENVIRONMENTAL RELEASE OF BIOTECHNOLOGY PRODUCTS: ASSESSMENT, REGULATION, AND RESEARCH NEEDS* 1113 (1985).

⁵See U.S. FDA, *Food Made with Cultured Animal Cells*, <https://www.fda.gov/food/food-ingredient-s-packaging/food-made-cultured-animal-cells> (last visited Jan. 12, 2022); 86 Fed. Reg. 49,491 (Sept. 3, 2021).

another.⁶ This technique, referred to as recombinant deoxyribonucleic acid (DNA)⁷ or gene-splicing, bypasses natural reproductive mechanisms and makes possible the combining of genes from taxonomically unrelated sources.⁸ Genes from higher organisms may now be spliced into microbes and vice versa.⁹ The resulting modified organisms are often referred to as “transgenic.”

Another and more recent advance in breeding techniques provides an even greater degree of precision in genetic engineering by allowing specific changes or “edits” to be made in a living organism’s genome without, in many cases, the need to transfer pieces of genetic information from another organism.¹⁰ Think of the genome as all of the genetic material in a plant, animal, or microbe including DNA, ribonucleic acid (RNA), genes and other elements that control the activity of those genes. Genome editing, also called gene editing, is a group of technologies that give scientists the ability to change an organism’s DNA by adding, removing, or altering discrete pieces of genetic material at particular locations in the genome.¹¹ The resulting modifications enhance the ability of the organism to grow and function in a desirable manner.¹²

With recombinant DNA and other advanced genetic techniques, we are many steps closer to being able to tailor organisms specifically to meet our needs. But the mixing of genetic material made possible by certain techniques can result in organisms that contain combinations of genetic material unlikely to be found in nature.¹³ The key scientific question is whether these acknowledged novelties in genetic constitution will significantly affect the nature and ecology of the constructed organisms. This is not an easy question to answer because both novelty and environmental effects are primarily matters of degree.

Genetically engineered organisms not found in nature are not unfamiliar. Especially during the last century, a progression of increasingly sophisticated controlled-breeding techniques produced a host of engineered organisms for use in agriculture and animal husbandry.¹⁴ Among these, hybrid corn, American Beauty roses, and beef cattle all attest to the success and relative benevolence of genetic engineering,

⁶See Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE* 15–17 (1986).

⁷“Recombinant DNA (rDNA) is a technology that uses enzymes to cut and paste together DNA sequences of interest. The recombined DNA sequences can be placed into vehicles called vectors that ferry the DNA into a suitable host cell where it can be copied or expressed.” U.S. Department of Health and Human Services, National Institutes of Health, National Human Genome Research Institute, *Recombinant DNA (rDNA)*, <https://www.genome.gov/genetics-glossary/Recombinant-DNA> (last visited Jan. 12, 2022).

⁸See Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE* 15–17 (1986).

⁹See, e.g., *id.* at 18–19 (new pharmaceutical products of recombinant DNA technology, e.g., human insulin and human growth hormone, are made by bacteria whose genetic material contains human genes coding for those substances).

¹⁰See *Genome Editing Resource*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH, <https://www.isaaa.org/resources/genomeediting/default.asp> (last visited Jan. 12, 2022).

¹¹See *What are genome editing and CRISPR-Cas9?*, MEDLINEPLUS, <https://medlineplus.gov/genetics/understanding/genomicresearch/genomeediting/> (last visited Jan. 12, 2022).

¹²See generally Ryan A. Nasti & Daniel F. Voytas, *Attaining the promise of plant gene editing at scale*, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA (2021), available at <https://doi.org/10.1073/pnas.2004846117>.

¹³See Levy, *Human Exposure and Effects Analysis for Genetically-Modified Bacteria*, THE SUITABILITY AND APPLICABILITY OF RISK ASSESSMENT METHODS FOR ENVIRONMENTAL APPLICATIONS OF BIOTECHNOLOGY B1, B1 (1985).

¹⁴See generally Jack Doyle, *ALTERED HARVEST: AGRICULTURE, GENETICS, AND THE FATE OF THE WORLD’S FOOD SUPPLY* 32–45 (1985); Steven C. Witt, *BIOTECHNOLOGY AND GENETIC DIVERSITY* 21–23 (1985).

at least by traditional methods.¹⁵ The traditional methods for genetically modifying organisms have now been joined by a spectrum of new techniques that include, in addition to gene editing, recombinant DNA techniques, somaclonal variation, and protoplast fusion.¹⁶ Not all of these techniques share with gene splicing the potential for producing highly novel organisms with genes from dissimilar parents.¹⁷ Sorting out the degree of novelty and risk associated with various organisms constructed by genetic techniques—both traditional and advanced—is a major challenge scientists and regulators face.

§ 19:3 Applications of genetic engineering

For regulatory purposes, it is useful to consider engineered organisms as having two general kinds of applications: products and processes. In product applications—represented by insect-resistant crops,¹ mineral-leaching microbes,² or biopesticides³—the organisms themselves serve as products. Such applications are most likely to involve the deliberate introduction of organisms to the general environment, and are the primary concern of this chapter.

By contrast, process applications, best represented by fermentation systems, involve genetically engineered organisms not as end products, but as production tools.⁴ The fermentation systems of interest here usually involve bacteria whose normal complement of genetic material has had foreign genes spliced into it.⁵ Grown in large numbers under carefully controlled conditions,⁶ the engineered bacteria can be regarded as mini-chemical manufacturing plants capable of synthesizing the substances coded for by the introduced genetic elements. Often such substances are present in only minute amounts in living tissues and cannot be obtained in the quantities needed for testing and therapy by any method other than genetic engineering.⁷ Fermentation applications will not receive further attention in this chapter because, as discussed later, use of genetically engineered organisms in

¹⁵See Ecosystems Research Center, *POTENTIAL IMPACTS OF ENVIRONMENTAL RELEASE OF BIOTECHNOLOGY PRODUCTS: ASSESSMENT, REGULATION, AND RESEARCH NEEDS* 11 (1985).

¹⁶See Jennifer Van Brunt, *Non Recombinant Approaches to Plant Breeding*, 3 NAT. BIOTECHNOLOGY 975, 975–80 (1985).

¹⁷See, e.g., *Id.* at 975–76. The technique of somaclonal variation involves the propagation of new organisms from non-reproductive cells of adult plants. Plants produced by this technique do not contain any foreign genetic material.

[Section 19:3]

¹See U.S. EPA, *Overview of Plant Incorporated Protectants*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/overview-plant-incorporated-protectants> (last visited Jan. 12, 2022); Domínguez-Arrizabalaga et al., *Insecticidal Activity of Bacillus thuringiensis Proteins Against Coleopteran Pests* (Jun. 29, 2020), <https://pubmed.ncbi.nlm.nih.gov/32610662> (last visited Jan. 12, 2022).

²See Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE* 24–25 (1986).

³See, EPA, *What are Biopesticides?*, <https://www.epa.gov/ingredients-used-pesticide-products/what-are-biopesticides> (last visited Jan. 12, 2022); John Leahy et al., *Biopesticide Oversight and Registration at the U.S. Environmental Protection Agency*, *BIOPESTICIDES: STATE OF THE ART AND FUTURE OPPORTUNITIES* (2014), available at https://www.epa.gov/sites/default/files/2015-08/documents/biopesticide-oversight-chapter_0.pdf.

⁴See Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE* 4–5 (1986).

⁵*Id.* at 16–19.

⁶*Id.* at 22.

⁷See King, *Economic Impacts of Biotechnology*, *BIOTECHNOLOGY AND THE ENVIRONMENT: RISK & REGULATION* 29, 41 (1985).

fermentation systems poses relatively low levels of environmental risk.⁸

The products of both kinds of applications have proven to be diverse and ingenious.⁹ Most of these have concentrated in areas that have been heavily dependent upon biotechnology in the past—agriculture, pharmaceuticals, and chemical manufacturing.¹⁰ But the technology has also spilled over into other fields such as pollution control and mineral ore extraction.¹¹ Like computer technology, future applications—many beyond imagination today—will emerge as biotechnology is applied and refined.¹²

§ 19:4 Benefits of genetic engineering

Along with any potential risks, the benefits of genetic engineering will continue to figure prominently in the regulatory picture. Promoters of the technology, and those who make use of its products both now and in the future, hope the varied applications discussed above will continue to lead to a new array of social, technical, and economic benefits.

Of the many uses of biotechnology, agricultural applications are among the most diverse and exciting, providing food, feed, fiber, and fuel including for the world's 800 million people who suffer from hunger and poverty.¹ New strains and varieties of crops have increased the availability of food, opened up new geographic ranges for crop growth, and led to plants that protect themselves from harmful insect pests and disease.² Socio-economic benefits of biotechnology crops have been extensively documented showing that they have contributed to: increasing productivity that contributes to global food, feed, and fiber security; supporting self-sufficiency on a nation's arable land; conserving biodiversity, precluding deforestation and protecting biodiversity sanctuaries; and mitigating the challenges associated with climate change.³

Turning to the area of pollution control technology, naturally occurring

⁸See § 19:8; Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE 2* (1986).

⁹See generally Robert P. Ouellette & Paul N. Cheremisinoff, *APPLICATIONS OF BIOTECHNOLOGY* (1985).

¹⁰*Id.* at 55–137.

¹¹*Id.* at 153–61.

¹²See, e.g., *BIOTECHNOLOGY AND SAFETY ASSESSMENT 1–11* (John A. Thomas & Roy L. Fuchs eds., Academic Press 3rd ed. 2002) (discussing use of plant biotechnology to reduce allergens in food); National Academies of Sciences, Engineering, and Medicine, *PREPARING FOR THE FUTURE OF PRODUCTS OF BIOTECHNOLOGY* (2017), available at https://usbiotechnologyregulation.mrp.usda.gov/NASEM_Study.pdf.

[Section 19:4]

¹*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

²*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

³*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

microorganisms capable of degrading toxins like aldrin, DDT, and kepone have been isolated with a view toward cleaning up hazardous waste.⁴ Genetic engineering offers the means of improving the efficiency of naturally occurring organisms and making microbial waste cleanup effective on a large scale and under a wide variety of cleanup situations.⁵ New methods of treating hazardous chemicals are needed to replace the environmentally unsatisfactory methods of burying or burning waste currently employed.

Finally, there are the purely economic benefits and resulting societal benefits associated with the new industry, particularly as related to agricultural applications. Nations around the world view biotechnology as one of the keys to future economic prosperity and thus have invested substantial public and private funds into its development.⁶ In 2019, the 24th year of biotechnology crop commercialization (cultivation and import for food, feed, and processing), the 470.5 million acres planted globally continued to contribute to the alleviation of socio-economic problems.⁷ The accumulated biotechnology crop area from 1996 to 2019 of 6.7 billion acres continues to provide food, feed, and shelter to a global population now at 7.7 billion, with estimated economic benefits of over \$225 billion.⁸ Global acreage of biotechnology crops increased 112-fold from 1996 to 2019, making these crops the most rapidly adopted crop technology in recent times.⁹ Stacked traits with insect resistance and herbicide tolerance increased by 6% to cover 45% of the global area planted in biotechnology crops, proof of farmers' preference for smart, sustainable agriculture with no-till and reduced use of insecticide sprays for crops with the

⁴See Robert P. Ouellette & Paul N. Cheremisinoff, *APPLICATIONS OF BIOTECHNOLOGY* 153–55 (1985).

⁵*Id.* at 159.

⁶See Graham Brookes & Peter Barfoot, *Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions*, 11 *GM CROPS & FOOD – BIOTECHNOLOGY IN AGRICULTURE AND THE FOOD CHAIN* 215, 215–41 (2020), available at <https://doi.org/10.1080/21645698.2020.1773198>; U.S. Department of Commerce, *International Trade Administration, Tradeology*, “Seizing Opportunities Across the Globe: A Message from Under Secretary Francisco Sánchez” (Nov. 1, 2011), <https://blog.trade.gov/2011/11/01/seizing-opportunities-across-the-globe-a-message-from-under-secretary-francisco-sanchez/> (last visited Jan. 12, 2022).

⁷*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>; Graham Brookes & Peter Barfoot, *Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions*, 11 *GM CROPS & FOOD – BIOTECHNOLOGY IN AGRICULTURE AND THE FOOD CHAIN* 215, 215–41 (2020), available at <https://doi.org/10.1080/21645698.2020.1773198>.

⁸*Global Status of Commercialized Biotech/GMCrops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>; Graham Brookes & Peter Barfoot, *Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions*, 11 *GM CROPS & FOOD – BIOTECHNOLOGY IN AGRICULTURE AND THE FOOD CHAIN* 215, 215–41 (2020), available at <https://doi.org/10.1080/21645698.2020.1773198>. Brookes and Barfoot reported a cumulative total of \$224.9 billion in economic benefits gained by countries planting biotech crops in the 23 years from 1996–2018. The \$225 billion figure shown here is a conservative estimate for the 24-year period from 1996–2019 covered by the ISAAA report.

⁹*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

insect resistance trait.¹⁰

An estimated 17 million farmers planted biotechnology crops in 2019 in 29 countries, including two European Union nations, and on every continent except Antarctica.¹¹ Of the 29 countries, 24 were developing and 5 were industrial countries.¹² Developing countries grew 56% of the global biotechnology crop area.¹³ In addition to the major commodity crops, so-called “minor” crops such as eggplant, papaya, potato, and squash are also being planted, and valuable new crops are being field tested specifically for use in developing countries.¹⁴

In the United States, biotechnology crops were grown commercially on over 176 million acres in 2019.¹⁵ Three crops—soybeans, corn, and cotton—made up the bulk of the total acres of biotechnology crops planted, followed by canola, sugar beets,

¹⁰*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/; Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier>, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

¹¹*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/; Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier>, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>. The 29 countries planting biotechnology crops in 2019 were, in order of acreage: United States, Brazil, Argentina, Canada, India, Paraguay, China, South Africa, Pakistan, Bolivia, Uruguay, Philippines, Australia, Myanmar, Sudan, Mexico, Spain, Colombia, Vietnam, Honduras, Chile, Malawi, Portugal, Indonesia, Bangladesh, Nigeria, Eswatini, Ethiopia, and Costa Rica.

¹²*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/; Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier>, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

¹³*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/; Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier>, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

¹⁴*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/; Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier>, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>. A total of 29 countries have issued regulatory approvals for commercial cultivation of biotechnology crops. Since 1992, there have been 4,485 approvals granted by regulatory authorities to 403 biotechnology events in 28 biotechnology crops (from alfalfa to wheat), excluding carnation, rose, petunia, and tobacco. Of these approvals, 2,115 were for food, either for direct use or for processing, 1,514 were for feed use, for direct use or processing, while 856 were for environmental release or cultivation. The U.S. had the highest number of events approved (single traits only) followed by Japan (not including intermediate events from approved stacked and pyramided events), Canada, Brazil, and South Korea in the top five. “An event is the insertion of a particular transgene into a specific location on a chromosome. The term ‘event’ is often used to differentiate genetically engineered crop varieties.” U. Nebraska, *Ag Biosafety, Glossary*, <https://agbiosafety.unl.edu/glossary.htm> (last visited Jan. 12, 2022).

¹⁵*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/; Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier>, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

alfalfa, potatoes, papaya, squash, and apples.¹⁶ Ninety-five percent of the soybeans, corn, and cotton grown in the United States contain at least one trait as a result of the application of modern biotechnology, with the predominant traits being tolerance to herbicide sprays, resistance to insect pests, or both, but also including such traits as drought tolerance and disease resistance.¹⁷ Newer crops with consumer and health benefits will further diversify this mix, including apples with reduced bruising and browning and potatoes with late blight protection, reduced potential for black spot bruising, improved taste and texture, and decreased potential formation of acrylamide during high-temperature cooking.¹⁸

Looking back on the first 25 years of commercial planting of biotechnology crops leads to the conclusion that these crops have delivered a variety of valuable agronomic, economic, environmental, health, and social benefits.¹⁹ While the results may vary based on the crop and country in question, farmers have realized such benefits as higher yields (growing more food on less land), a significant reduction in pesticide application with a corresponding reduction in farmer exposure, and the ability to use safer herbicides to fight weeds well into the growing season.²⁰ As a result, biotechnology crops support sustainable development in numerous ways,

[efault.asp](#).

¹⁶*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

¹⁷*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

¹⁸*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>; Graham Brookes & Peter Barfoot, *Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions*, 11 GM CROPS & FOOD – BIOTECHNOLOGY IN AGRICULTURE AND THE FOOD CHAIN 215, 215-41 (2020), available at <https://doi.org/10.1080/21645698.2020.1773198>.

¹⁹*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>; Graham Brookes & Peter Barfoot, *Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions*, 11 GM CROPS & FOOD – BIOTECHNOLOGY IN AGRICULTURE AND THE FOOD CHAIN 215, 215-41 (2020), available at <https://doi.org/10.1080/21645698.2020.1773198>; See National Academy of Sciences, *GENETICALLY ENGINEERED CROPS: EXPERIENCES AND PROSPECTS* (2016).

²⁰*Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>; Graham Brookes & Peter Barfoot, *Environmental impacts of genetically modified (GM) crop use 1996–2018: impacts on pesticide use and carbon emissions*, 11 GM CROPS & FOOD – BIOTECHNOLOGY IN AGRICULTURE AND THE FOOD CHAIN 215, 215-41 (2020), available at <https://doi.org/10.1080/21645698.2020.1773198>.

including contributing to food security and more affordable food in general, reducing agriculture's environmental footprint, contributing to the alleviation of poverty and hunger, mitigating climate change and reducing greenhouse gases, and contributing to sustainable economic benefits.²¹

Public acceptance and supportive government policies are key for agricultural, socio-economic, and environmental benefits of biotechnology crops to reach the poor and the hungry. Ensuring that the benefits of agricultural biotechnology will continue now and in the future depends also on the diligence and forward-looking regulatory steps based on science, critically looking at the benefits in addition to risks, agricultural productivity with a sense of environmental conservation, sustainability and product stewardship, and most importantly taking into consideration the millions of hungry and impoverished people in need of resources.²²

Moreover, what constitutes a benefit is often controversial, as demonstrated by differing views of the engineering of crops.²³ Finally, any evaluation of benefits must take into account both a range of secondary impacts and the distribution of these benefits.

§ 19:5 Why regulate genetic engineering?

Before turning to the framework of environmental legislation available to regulate genetic engineering, it is appropriate to ask, why do so? There are at least two factors that contributed to the early momentum behind regulation.

The first factor was the concern that genetic engineering would produce, along with promised benefits, unwanted health and environmental consequences. While this concern was scientifically grounded, it should be emphasized that it arose largely out of uncertainty. Unlike the well-recognized risks that gave rise to all of our health and environmental regulatory programs, the risks associated with biotechnology were speculative and hypothetical and remain so to this day. Notwithstanding intensive regulatory, commercial, and academic oversight over the past 35 years and the widespread adoption of the technology in agriculture and healthcare, the postulated adverse health and environmental consequences have not been demonstrated and are not at all certain to occur.

The second factor is a widespread nervousness about genetic engineering, particularly as related to the food supply. The nervousness is of sufficient magnitude

²¹Global Status of Commercialized Biotech/GM Crops in 2019, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

²²Global Status of Commercialized Biotech/GM Crops in 2019, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

²³See, e.g., Center for Science in the Public Interest, *Biotechnology*, <https://www.cspinet.org/protecting-our-health/biotechnology> (last visited Jan. 12, 2022); Doug Gurian-Sherman, UNION OF CONCERNED SCIENTISTS, FAILURE TO YIELD: EVALUATING THE PERFORMANCE OF GENETICALLY ENGINEERED CROPS (2009), available at <https://www.ucsusa.org/sites/default/files/2019-10/failure-to-yield.pdf>. (genetically engineering herbicide-tolerant soybeans and herbicide-tolerant corn have not increased yields, and insect-resistant corn has improved yields only marginally; the increase in yields for both crops over the last 13 years was largely due to traditional breeding or improvements in agricultural practices); MATIN QAIM, PALGRAVE STUDIES IN AGRICULTURAL ECONOMICS AND FOOD POLICY, GENETICALLY MODIFIED CROPS AND AGRICULTURAL DEVELOPMENT (2016) (biotechnology can contribute substantially to sustainable agricultural development and food security, but continued opposition to technologies shown to be beneficial and safe entails unnecessary human suffering and environmental degradation).

that it has affected the acceptance of the technology, regardless of the scientific judgment on its potential adverse consequences. A case in point is the science-based reviews of numerous biotechnology crops conducted by the European Commission (EC). The European Union (EU) Register of Authorized GMOs currently lists five crops, corn, cotton, soybeans, oilseed rape (canola) and sugar beets, comprising a total of 58 traits (including combinations of traits), that have been authorized by the EC for food, feed, and nonfood uses.¹ Notwithstanding these safety findings and authorizations, only one crop-trait combination, an insect-resistant corn plant, is commercially cultivated in the EU,² and the majority of EU countries continue to question the safety of biotechnology crops, at least for purposes of human consumption, and have elected not to authorize their cultivation.³

Much of the scientific uncertainty and public uneasiness about genetic engineering resulted from our lack of long-term experience with the technology, and the fact that society's evaluation of this technology began in advance of its implementation and in the absence of any significant educational effort regarding the underlying science. To the extent that the regulatory processes put in place have been able to identify and avoid the potential hazards associated with the technology, the pre-implementation vantage point has been an advantage. But the vantage point has simultaneously been a burden because it required decisionmaking in the early years in the face of a significant degree of uncertainty about both risks and benefits. Fortunately, that uncertainty has motivated the scientific community and agency regulators to develop and utilize risk assessment techniques for assessing the safety of biotechnology products and risk management methods to address any concerns that are identified, all of this prior to commercialization.⁴

Perhaps the most persuasive remaining justification for continued regulation is the need to increase public acceptance particularly with regard to the safety of biotechnology foods.⁵

A recent major step taken in that direction was passage by Congress of legislation requiring the U.S. Department of Agriculture (USDA) to establish the National Bioengineered Food Disclosure Standard (NBFDS).⁶ The statute, which had bipartisan support on Capitol Hill,⁷ was signed into law by President Obama on July 29, 2016.⁸ USDA promulgated regulations establishing the NBFDS in 2018 and disclosure of bioengineered content in covered food products became mandatory

[Section 19:5]

¹European Commission, *Fact Sheet: Questions and Answers on EU's policies on GMOs*, https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_4778 (last visited Jan. 12, 2022).

²*Id.*

³European Commission, *Fact Sheet: Questions and Answers on EU's policies on GMOs*, https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_4778 (last visited Jan. 12, 2022); *Global Status of Commercialized Biotech/GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>.

⁴*See, e.g.*, BIOTECHNOLOGY AND SAFETY ASSESSMENT (John A. Thomas & Roy L. Fuchs eds., Academic Press 3rd ed. 2002); NATIONAL RESEARCH COUNCIL, FIELD TESTING GENETICALLY MODIFIED ORGANISMS: FRAMEWORK FOR DECISIONS (1989).

⁵*See* Jan M. Lucht, *Public Acceptance of Plant Biotechnology and GM Crops*, 7 *VIRUSES* 4254 (2015), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4576180/>.

⁶Congressional Research Service, *The National Bioengineered Food Disclosure Standard: Overview and Select Considerations* (Feb. 7, 2020), <https://crsreports.congress.gov/product/pdf/R/L/46183> (last visited Jan. 12, 2022).

⁷*See* S. Rep. No. 114-403 (2016), available at <https://www.congress.gov/congressional-report/114th-congress/senate-report/403/1>.

⁸Pub. L. No. 114-216, 130 Stat. 834 (2016), available at <https://congress.gov/114/plaws/publ216/PLAW-114publ216.pdf>.

through labeling or other approved means on January 1, 2022.⁹ While consumers acquaint themselves with disclosure under the NBFDS, one can certainly argue that it is time for the Environmental Protection Agency (EPA), USDA, and the Food and Drug Administration (FDA) to revisit their current premarket review programs with an eye toward using the experience gained over the past 35 years and the enviable safety record of biotechnology products cleared for market entry during that time to identify appropriate, science-based opportunities for product exemptions and reduced oversight. As discussed in Section 19:15, it is arguable that USDA did just that in May 2020 when it issued extensive amendments to its Plant Protection Act (PPA) regulations.

§ 19:6 The concerns about genetic engineering

The storm of interest in genetic engineering dates from the discovery of recombinant DNA techniques capable of transferring genes among organisms from widely divergent taxonomic classifications.¹ As mentioned above, at least some of these genetic exchanges are unlikely to occur in nature;² thus such organisms are likely to be considered genuinely novel among the earth's organisms. It is the novelty of these organisms and our relative lack of experience with them that are the root of the concerns about genetic engineering. The concerns resolve themselves into two categories.

The first category derives from the properties of the new organisms themselves. There are concerns that the technology will generate organisms with undesirable properties; in most instances, these encompass pests or pathogens similar to those already in existence.

A second set of concerns revolves around the impact of the introduction of new organisms into the complex network of organisms that constitute the global ecosystem. Scientists wonder whether engineered organisms, because of their novel genetic constitutions, might proliferate in the environment, thereby displacing existing species or in some other way disrupting the balance of nature.³ The best analogy of the kind of ecological effect that might result from the release of new organisms is the introduction of a nonindigenous species into a new environment.⁴ In most cases such introductions fail, but occasionally the new organism not only survives but is so successful that it becomes a pest with serious economic consequences.⁵ Examples of naturally-occurring, nonindigenous species that come to mind are

⁹85 Fed. Reg. 65,814 (Dec. 4, 2018) (7 C.F.R. pt. 66); See also USDA AMS, *Overview of the National Bioengineered Food Disclosure Standard* (2020), https://www.ams.usda.gov/sites/default/files/media/BE_Overview_Webinar_Dec2020.pdf (last visited Jan. 12, 2022).

[Section 19:6]

¹See Day, *Engineered Organisms in the Environment: A Perspective on the Problem*, ENGINEERED ORGANISMS IN THE ENVIRONMENT: SCIENTIFIC ISSUES 4-5 (1985).

²See Levy, *Human Exposure and Effects Analysis for Genetically-Modified Bacteria*, THE SUITABILITY AND APPLICABILITY OF RISK ASSESSMENT METHODS FOR ENVIRONMENTAL APPLICATIONS OF BIOTECHNOLOGY B1, B1 (1985).

³See Peter M. Vitousek, *Plant and Animal Invasions: Can They Alter Ecosystem Processes?*, ENGINEERED ORGANISMS IN THE ENVIRONMENT: SCIENTIFIC ISSUES 169-75 (1985); Guenther Stotzky & Harvey Babich, *Fate of Genetically-Engineered Microbes in Natural Environments*, 7 RECOMBINANT DNA TECH. BULL. 163, 163-88 (1984).

⁴See F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 RECOMBINANT DNA TECH. BULL. 43, 45-50 (1983); see also Chapter 22.

⁵F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 RECOMBINANT DNA TECH. BULL. 43, 50-51 (1983); Daniel Simberloff, *Predicting Ecological Effects of Novel Entities: Evidence from Higher Organisms*, ENGINEERED ORGANISMS IN THE ENVIRONMENT: SCIENTIFIC ISSUES 152-61 (1985).

gypsy moths, kudzu, and chestnut blight in the United States, and myxoma virus in Australia.⁶

§ 19:7 Lack of unique risks

Related to being able to assess the nature and magnitude of any potential risk is another aspect of the environmental introduction issue that poses special difficulties for regulators: whether there are any risks uniquely associated with organisms engineered by recombinant DNA, gene editing, or other advanced genetic engineering techniques. As mentioned above, the spread of naturally occurring organisms like gypsy moths and kudzu depends upon an organism being novel to the environment, but not upon how it acquired its novelty.¹ Genetically engineered organisms produced by advanced genetic techniques are expected to pose these kinds of risks because of their novelty, but so do other nonindigenous organisms now existing in nature or produced by conventional technologies.² To date, notwithstanding intensive oversight, scientists have not identified any new adverse ecological consequences which flow directly from the method by which the organisms were engineered or from the fact that organisms exhibit hybrid sets of traits from distantly related organisms.³ Some ecologists have even refused to distinguish among traditional and advanced methods of genetic engineering in discussing environmental risk.⁴

Reserving the possibility that all the potential ecological hazards associated with gene-spliced organisms may not yet be known, at present environmental hazards posed by organisms produced by advanced genetic techniques appear to be similar to those produced by conventional methods. Until the controversy over biotechnology surfaced, introduction of novel organisms into the environment was considered a genuine but manageable environmental threat. Thus, while agricultural laws bar the import and distribution of novel plant pests and weeds,⁵ they do not bar the introduction of novel organisms *per se*. In fact, deliberate introductions of nonindigenous organisms are routine integrated pest management techniques.⁶

The approach chosen by the federal government for the premarket regulation of

⁶See Ecosystems Research Center, *POTENTIAL IMPACTS OF ENVIRONMENTAL RELEASE OF BIOTECHNOLOGY PRODUCTS: ASSESSMENT, REGULATION, AND RESEARCH NEEDS* 140-46 (1985).

[Section 19:7]

¹See, e.g., F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 RECOMBINANT DNA TECH. BULL. 43, 43-56 (1983).

²F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 RECOMBINANT DNA TECH. BULL. 43, 44-50 (1983); National Research Council, *ENVIRONMENTAL EFFECTS OF TRANSGENIC PLANTS: THE SCOPE AND ADEQUACY OF REGULATION* (2002).

³See, e.g., F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 RECOMBINANT DNA TECH. BULL. 43, 45-47 (1983) (discussion of novel genotypes does not distinguish crops which are novel by virtue of traditional genetic engineering techniques like selective breeding from other plants that are novel as a result of being nonindigenous in the environment); National Research Council, *INTRODUCTION OF RECOMBINANT DNA-ENGINEERED ORGANISMS INTO THE ENVIRONMENT: KEY ISSUES* (1987); National Research Council, *FIELD TESTING OF GENETICALLY MODIFIED ORGANISMS: FRAMEWORK FOR DECISIONS* (1989); National Research Council, *GENETICALLY MODIFIED PEST-PROTECTED PLANTS: SCIENCE AND REGULATION* (2000); National Research Council, *ENVIRONMENTAL EFFECTS OF TRANSGENIC PLANTS: THE SCOPE AND ADEQUACY OF REGULATION* (2002); National Academy of Sciences, *GENETICALLY ENGINEERED CROPS: EXPERIENCES AND PROSPECTS* (2016).

⁴See generally Ecosystems Research Center, *POTENTIAL IMPACTS OF ENVIRONMENTAL RELEASE OF BIOTECHNOLOGY PRODUCTS: ASSESSMENT, REGULATION, AND RESEARCH NEEDS* 134-35 (1985).

⁵See PPA §§ 411-412, 7 U.S.C. §§ 7711 to 7712.

⁶See Ecosystems Research Center, *POTENTIAL IMPACTS OF ENVIRONMENTAL RELEASE OF BIOTECHNOLOGY PRODUCTS: ASSESSMENT, REGULATION, AND RESEARCH NEEDS* 143 (1985) ("One way to try to check the spread of an accidentally introduced exotic is intentionally to introduce specific parasites or predators to control it.").

organisms intended for use in the open environment is largely process-based, with the result that it restricts regulation to organisms produced by the advanced genetic techniques, in effect grandfathering conventionally modified organisms. While directly responsive to the source of concerns about genetic engineering and easier to implement than a pure risk-based approach, such a regulatory regime has produced certain inconsistencies. Not surprisingly, the scheme has drawn fire because organisms produced by advanced techniques are subjected to premarket regulation from which their similar, conventionally produced cousins are exempt.⁷ This concern has been heightened by gene editing techniques, which often do not introduce “foreign” DNA and contain modifications indistinguishable from those that could occur in nature or through conventional breeding. Furthermore, recombinant DNA, and now gene editing, technologies have labored under a competitive disadvantage, since they have a substantially greater regulatory overhead.⁸ It has been said that the road from a good idea to commercial success is a long and perilous one and, if our experience in bringing new products to market for the past three decades is any example, a very expensive one as well.⁹

II. THE FEDERAL REGULATORY FRAMEWORK

§ 19:8 In General

The biotechnology industry has brought to the marketplace an array of products, the majority of which fall into categories that are regulated under existing legislation. In the early 1980’s, the question naturally arose whether new legislation was needed or whether, perhaps with some tinkering, the existing statutes would adequately regulate the products expected of biotechnology.

Under the lead of the Office of Science and Technology Policy (OSTP) and the Cabinet Council on Biotechnology, the White House made this question the focal point of its biotechnology policy. It took the position that, at least for the time being,

⁷See, e.g., Alison L. Van Eenennaam et al., *Proposed U.S. regulation of gene-edited food animals is not fit for purpose*, NPJ SCI. FOOD (2019), <https://www.nature.com/articles/s41538-019-0035-y.pdf> (last visited Jan. 12, 2022); Gregory Conko et al., *A Risk-Based Approach to the Regulation of Genetically Engineered Organisms*, 34 NAT. BIOTECHNOLOGY 493-503 (2016); Phillips McDougall, *The Cost and Time Involved in the Discovery, Development and Authorisation of a New Plant Biotechnology Derived Trait* (2011), https://croplife.org/wp-content/uploads/pdf_files/Getting-a-Biotech-Crop-to-Market-Phillips-McDougall-Study.pdf (last visited Jan. 12, 2022); F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 RECOMBINANT DNA TECH. BULL. 43, 45-47 (1983).

⁸See ISAAA in 2018 *Accomplishment Report*, International Service for the Acquisition of Agri-biotech, https://www.isaaa.org/resources/publications/annualreport/2018/pdf/ISAAA-Accomplishment_Report-2018.pdf (last visited Jan. 12, 2022); Alison L. Van Eenennaam et al., *Proposed U.S. regulation of gene-edited food animals is not fit for purpose*, NPJ SCI. FOOD (2019), <https://www.nature.com/articles/s41538-019-0035-y.pdf> (last visited Jan. 12, 2022); Gregory Conko et al., *A Risk-Based Approach to the Regulation of Genetically Engineered Organisms*, 34 NAT. BIOTECHNOLOGY 493-503 (2016); Phillips McDougall, *The Cost and Time Involved in the Discovery, Development and Authorisation of a New Plant Biotechnology Derived Trait* (2011), https://croplife.org/wp-content/uploads/pdf_files/Getting-a-Biotech-Crop-to-Market-Phillips-McDougall-Study.pdf (last visited Jan. 12, 2022).

⁹See, e.g., Phillips McDougall, *The Cost and Time Involved in the Discovery, Development and Authorisation of a New Plant Biotechnology Derived Trait* (2011), https://croplife.org/wp-content/uploads/pdf_files/Getting-a-Biotech-Crop-to-Market-Phillips-McDougall-Study.pdf (last visited Jan. 12, 2022) (finding the cost and time involved to be, on average, \$136 million and 13 years); see also *Global Status of Commercialized Biotech / GM Crops in 2019*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/>; *Executive Summary, Biotech Crops Drive Socio-Economic Development and Sustainable Environment in the New Frontier*, INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH BRIEF 55-2019 (2020), available at <https://www.isaaa.org/resources/publications/briefs/55/executivesummary/default.asp>.

no new legislation was needed.¹ To support this position, the OSTP coordinated the publication in the *Federal Register* of a matrix listing all the provisions of statutes, regulations, and other guidance that would apply to biotechnology.² Along with the matrix, the USDA, FDA, and EPA published proposed statements of their biotechnology policies.³ The issuance of this proposed Coordinated Framework elevated the biotechnology issue on agency agendas and stimulated the development of biotechnology policies and procedures.

A revised regulatory matrix was published in 1985.⁴ At the same time, the OSTP announced the formation of a Biotechnology Science Coordinating Committee (BSCC) consisting of senior executive-branch policy officials involved in oversight of biotechnology research and products.⁵ The final version of the Coordinated Framework, containing the policy statements of five federal agencies—FDA, EPA, USDA, Occupational Safety and Health Administration (OSHA), and the National Institutes of Health (NIH), was published in 1986.⁶

The policy statements made by the agencies reflect three categories of statutes in terms of readiness to take on biotechnology products. The statutes in one category—including the Federal Food, Drug, and Cosmetic Act (FFDCA) and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)—regulate clearly defined categories of products under protective federal licensing schemes backed with extensive test requirements.⁷ These statutes provided ample statutory authority to regulate the specified products, and their implementing programs were already in place.⁸ Over time, as regulators gained a better understanding of the product mix, they made new policies and additions to existing regulations.⁹

In the second category are statutes which provide authority to handle expected products, but which would require further interpretation, rulemaking, or similar agency action in order to be in a position to regulate products of biotechnology. The Toxic Substances Control Act (TSCA) and most of the agriculture statutes fell into this category.¹⁰ The third category includes pollution control statutes such as the Clean Air Act (CAA) and the Federal Water Pollution Control Act Amendments of 1972 (FWPCA) which have well-established regulatory programs to address pollutants from a variety of sources.¹¹ Although EPA asserted authority under these statutes, it has not mentioned them further and has expressed no plans to use these two statutes to regulate genetically engineered organisms. The result is not surprising in light of the fact that no unique risks have been identified with respect to current commercial processes.

OSHA declined to regulate workplace exposures to engineered organisms because,

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¹49 Fed. Reg. 50,856, 50,858 (Dec. 31, 1984).

²*Id.* at 50,907.

³*Id.* at 50,878-907.

⁴50 Fed. Reg. 47,173 (Nov. 14, 1985).

⁵*Id.* at 47,175.

⁶51 Fed. Reg. 23,302 (June 26, 1986).

⁷*See id.* at 23,309-13, 23,313-24.

⁸*Id.* at 23,309-13, 23,313-24.

⁹*See, e.g.*, §§ 19:15, 19:20, 19:26.

¹⁰*See* 51 Fed. Reg. 23,302, 23,313-19, 23,324-49, 23,352-93 (June 26, 1986). The Virus-Serum-Toxin Act (VSTA), however, is a licensing statute which more appropriately belongs to the first category of statutes.

¹¹*See* 49 Fed. Reg. 50,856, 50,875 (Dec. 31, 1984); 50 Fed. Reg. 47,173, 47,193 (Nov. 14, 1985).

in its view, no unique risks to workers had been identified.¹² In its brief statement in the final Coordinated Framework, OSHA reiterated its position that no additional regulation of biotechnology workplaces was currently needed because no hazards from biotechnology *per se* had been identified.¹³ OSHA, however, indicated its readiness to regulate if any of the new biotechnology processes were shown to cause hazardous workplace conditions. In that regard, OSHA noted that the Occupational Safety and Health Act imposes a general duty on each employer to furnish its employees a place of employment free from recognized hazards likely to cause death or serious physical harm.¹⁴

The NIH expressed its intention to continue to rely on its funding authority for biotechnology research to prescribe guidelines for the conduct of that work, including requiring independent review in advance of designated research projects.¹⁵ The NIH Guidelines for Research Involving Recombinant DNA molecules (NIH Guidelines), first issued in 1976, have been updated repeatedly to keep pace with developments in ongoing research.¹⁶

Since its first publication in 1986, the Coordinated Framework has undergone two updates.¹⁷ The first update, in 1992, was issued to provide a “basis for the oversight of biotechnology products introduced into the environment or used for human or animal food.”¹⁸ The second update, in 2017, was intended to clarify the roles and responsibilities of the primary agencies that regulate biotechnology products, develop a long-term strategy for federal regulatory oversight of such products, and commission an independent, expert analysis of the future landscape of such products.¹⁹ In June 2019, President Donald Trump issued an executive order for the purpose of further modernizing the regulatory scheme applicable to biotechnology products.²⁰ Among other directives, the order requires agencies to review certain regulations and guidance to determine if updates are needed to remove barriers to bringing innovative and safe genome-edited-specialty-crop plant products to market, as well as requiring the development of an international strategy to remove trade barriers and expand markets for agricultural biotechnology products.

§ 19:9 Introduction to regulatory framework

Below is a review of the major federal statutes, regulations, and guidelines that

¹²50 Fed. Reg. 14,468 (Apr. 12, 1985).

¹³51 Fed. Reg. 23,302, 23,348 (June 26, 1986).

¹⁴*Id.*

¹⁵*Id.* at 23,349.

¹⁶U.S. Department of Health and Human Services, National Institutes of Health, *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (Apr. 2019), https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf (last visited Jan. 12, 2022) (current version of NIH Guidelines); see also U.S. Department of Health and Human Services, National Institutes of Health, *NIH Guidelines: Honoring the Past, Charting the Future*, https://osp.od.nih.gov/event/nih-guidelines-honoring-the-past-charting-the-future/?instance_id=39 (last visited Jan. 12, 2022).

¹⁷See U.S. FDA, *Modernizing the Regulatory System for Biotechnology Products: Final Version of the 2017 Update to the Coordinated Framework for the Regulation of Biotechnology*, https://www.epa.gov/sites/default/files/2017-01/documents/2017_coordinated_framework_update.pdf (last visited Jan. 12, 2022).

¹⁸*Id.*

¹⁹See U.S. FDA, *Modernizing the Regulatory System for Biotechnology Products: Final Version of the 2017 Update to the Coordinated Framework for the Regulation of Biotechnology*, https://www.epa.gov/sites/default/files/2017-01/documents/2017_coordinated_framework_update.pdf (last visited Jan. 12, 2022); National Academies of Sciences, Engineering, and Medicine, *Preparing for the Future of Products of Biotechnology* (2017), available at https://usbiotechnologyregulation.mrp.usda.gov/NASEM_Study.pdf.

²⁰Exec. Order No. 13874, 84 Fed. Reg. 27,899 (Jun. 14, 2019).

govern oversight of biological organisms and the premarket review requirements that apply to those organisms. The review focuses on the three major individual statutes applicable to the regulation of organisms intentionally introduced into the environment—FIFRA, TSCA, and the PPA. It also includes brief discussions of the Animal Health Protection Act (AHPA), the CAA, the FWPCA, the FFDCA, the OSTP definitions of classes of organisms, and the NIH Guidelines.

The approach chosen by the federal government for the premarket regulation of genetically engineered organisms intended for use in the open environment is largely modeled on the requirements that apply to a subset of their conventional counterparts. To the extent some of those requirements have been more restrictive for biotechnology products without a clear basis in risk, they have resulted in a process-based approach to regulation that has produced certain inconsistencies. This approach has not been without its critics, and gene editing techniques have raised these concerns anew given that they often do not introduce “foreign” DNA and contain modifications indistinguishable from those that could occur in nature or through conventional breeding.¹ The inconsistencies are further exacerbated by the advantage given to those entities that can afford to commit the time, effort, and funding necessary to navigate the regulatory process at one, two, and sometimes three different federal agencies.²

The review of statutes, regulations and guidelines that follows highlights three parameters important for the regulation of genetically engineered organisms: (1) scope of organisms covered; (2) scope of activities covered; and (3) authority for pre-release testing and review. For purposes of this discussion, it is assumed that at the time these provisions were established, the concerns about the introduction of genetically engineered organisms were potentially serious enough to justify the imposition of a significant regulatory burden on the regulated community, as well as a delay in the introduction of new products that have been shown to be of value to agriculture.

§ 19:10 Initial federal policies

The OSTP portion of the Framework established definitions of two classes of organisms considered to be appropriate for regulation: pathogens and so-called intergeneric organisms.¹ The OSTP definitions included certain important exemptions to the pathogen and intergeneric organism categories. In the OSTP’s view,

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¹See, e.g., Alison L. Van Eenennaam et al., *Proposed U.S. regulation of gene-edited food animals is not fit for purpose*, NPJ SCI. FOOD (2019), <https://www.nature.com/articles/s41538-019-0035-y.pdf> (last visited Jan. 12, 2022); Gregory Conko et al., *A Risk-Based Approach to the Regulation of Genetically Engineered Organisms*, 34 Nat. Biotechnology 493-503 (2016); Phillips McDougall, *The Cost and Time Involved in the Discovery, Development and Authorisation of a New Plant Biotechnology Derived Trait* (2011), https://croplife.org/wp-content/uploads/pdf_files/Getting-a-Biotech-Crop-to-Market-Phillips-McDougall-Study.pdf (last visited Jan. 12, 2022); F.E. Sharples, *Spread of Organisms With Novel Genotypes: Thoughts from an Ecological Perspective*, 6 Recombinant DNA Tech. Bull. 43, 45-47 (1983).

²See ISAAA in 2018 Accomplishment Report, International Service for the Acquisition of Agri-biotech, https://www.isaaa.org/resources/publications/annualreport/2018/pdf/ISAAA-Accomplishment_Report-2018.pdf (last visited Jan. 12, 2022); Alison L. Van Eenennaam et al., *Proposed U.S. regulation of gene-edited food animals is not fit for purpose*, NPJ SCI. FOOD (2019), <https://www.nature.com/articles/s41538-019-0035-y.pdf> (last visited Jan. 12, 2022); Gregory Conko et al., *A Risk-Based Approach to the Regulation of Genetically Engineered Organisms*, 34 Nat. Biotechnology 493-503 (2016); Phillips McDougall, *The Cost and Time Involved in the Discovery, Development and Authorisation of a New Plant Biotechnology Derived Trait* (2011), https://croplife.org/wp-content/uploads/pdf_files/Getting-a-Biotech-Crop-to-Market-Phillips-McDougall-Study.pdf (last visited Jan. 12, 2022).

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¹51 Fed. Reg. 23,302, 23,306 (June 26, 1986).

exempted organisms, generally speaking, were of less concern than the pathogens and intergeneric organisms and in need of less, if any, regulatory scrutiny.²

The OSTP defined regulable pathogens as: (a) viruses or microorganisms that belong to species whose members have the ability to cause disease in other living organisms; or (b) organisms that are derived from pathogens or have been genetically engineered to contain genetic material from pathogens.³ Exempt from the pathogen category were organisms belonging to generally recognized non-pathogenic strains of species commonly used for laboratory research or commercial purposes.⁴ Also exempted were genetically engineered organisms that are created by the transfer from pathogenic source organisms of only well characterized, non-coding regulatory sequences such as origins of replication,⁵ ribosome binding sites,⁶ promoters, operators,⁷ and terminators.⁸

According to the OSTP definitions, intergeneric organisms are those deliberately formed to contain genetic material from source organisms in different genera.⁹ As with pathogens, exemptions were provided where the transferred genetic material consists of only non-coding regulatory regions from the donor organisms.¹⁰ The OSTP based the exclusion of such intergeneric transfers of non-coding sequences on the fact that such transfers do not result in the expression of new proteins in the genetically engineered organisms.¹¹ Left unaddressed by this rationale was the question whether, even in the absence of new proteins, exempted organisms might not possess novel traits of ecological significance. Other organisms exempt under the definitions included those formed by deletion or rearrangement of an organism's own genetic material, or by transfer to recipient organisms of genetic material from sources from within the same genera.

Concern about the definitions and their exemptions prompted the Foundation for Economic Trends (FET) to challenge their validity in court. In its suit, the FET asserted that the definitions issued by the OSTP were procedurally deficient because they appeared for the first time in the final framework and thus lacked notice and comment.¹² In any case, FET asserted that the definitions were irrational because, among other things, they exempted many genetically engineered organisms of

²*Id.* at 23,306-07.

³*Id.* at 23,307.

⁴*Id.*

⁵"The sites which are critical to the initiation of replication are *origins of replication*. These regions are short nucleotide sequences which serve as initiation sites for specific enzyme action during the DNA replication process." 51 Fed. Reg. 23,302, 23,307 n.2 (June 26, 1986).

⁶"*Ribosome binding sites* are short nucleotide segments at the beginning of messenger RNA molecules which signal the attachment of ribosomes for the initiation of protein synthesis." 51 Fed. Reg. 23,302, 23,307 n.2 (June 26, 1986).

⁷"Bacterial genes are precisely regulated and this regulation is based on a series of regulatory elements. The principal regulatory unit is the *operon*. Operons are controlled primarily, but not exclusively, through the regulation of the rate of initiation of messenger RNA synthesis. This regulation is based on the interaction of two short nucleotide sequences in the DNA, the *promoter*, which is the site of RNA polymerase binding and the *operator*, which follows closely and acts as an off-on switch for the movement of the polymerase into the structural gene which-follows. The function of the operator is to *bind* a cellular repressor protein which is synthesized in response to changing nutritional stimuli." 51 Fed. Reg. 23,302, 23,307 n.2 (June 26, 1986).

⁸"*Terminator* regions are short nucleotide sequences which signal the termination of mRNA synthesis by the polymerase. They act as a signal for the dissociation of the polymerase from the DNA." 51 Fed. Reg. 23,302, 23,307 n.2 (June 26, 1986).

⁹51 Fed. Reg. 23,302, 23,306-07 (June 26, 1986).

¹⁰*Id.* at 23,307.

¹¹*Id.* at 23,307 n.2.

¹²Foundation on Economic Trends v. Johnson, 661 F. Supp. 107, 25 Env't. Rep. Cas. (BNA) 1429,

potential concern. In a memorandum opinion, the District Court for the District of Columbia dismissed the complaint for lack of a case or controversy.¹³ The court found that the definitions issued by the OSTP were not part of a legislative rulemaking.¹⁴ Because the definitions were without legal effect, notice and comment were not required and the plaintiff had no standing to object to the definitions.¹⁵ The court noted, however, that the plaintiff would have the opportunity to object to the definitions should they be incorporated by regulating agencies into legally binding rules.¹⁶ No such challenge was ever brought.

The OSTP also proposed principles for the scope of federal oversight for the planned introduction into the environment of organisms with modified hereditary traits. The principles are risk based rather than process based. The precise oversight mechanism for specific types of activities are to be established by the individual federal agencies.¹⁷ Subsequently, the OSTP proposed actions to update field test requirements for biotechnology plants developed for food or feed use, and to establish early food safety assessments for new (or “unfamiliar”) proteins produced by such plants.¹⁸

§ 19:11 NIH Guidelines

A brief discussion of the NIH Guidelines is important background for the review of the major regulatory statutes. The Guidelines serve to provide “biosafety practices and containment principles” for recombinant or synthetic nucleic acid research within the United States, and compliance is required to receive NIH funding.¹

The Guidelines identify the roles and responsibilities of the NIH, the research institution, the Institutional Biosafety Committee (IBC), and various experts such as the Biological Safety Officer (BSO) and Principal Investigator (PI). Human etiologic agents such as bacteria, parasites, and viruses are classified on the basis of hazard. Physical and biological containment measures are set out in considerable detail and linked to the degree of hazard associated with the research. Among other measures, the Guidelines address: training requirements; standards for ventilation systems and protective clothing; procedures for decontamination, inactivation, and movement of research materials; and requirements for recordkeeping and reporting.

In 1976, the NIH became the first federal agency to respond to the advent of recombinant DNA, the seminal technique of the new biotechnology,² and for nearly 10 years NIH acted as the *de facto* lead agency on the biotechnology issue. NIH’s presence in the regulatory arena is unusual because it is not a regulatory agency. Its official role is that of a funding agency, disbursing to the scientific community monies Congress appropriates for biological research.³

¹⁷ Env’tl. L. Rep. 21148 (D.D.C. 1986).

¹³*Id.* at 110.

¹⁴*Id.* at 109.

¹⁵*Id.* at 110.

¹⁶*Id.* at 109.

¹⁷55 Fed. Reg. 31,118 (July 31, 1990).

¹⁸67 Fed. Reg. 50,578 (Aug. 2, 2002).

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¹U.S. Department of Health and Human Services, National Institutes of Health, *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (Apr. 2019), https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf (last visited Jan. 12, 2022).

²See Day, *Engineered Organisms in the Environment: A Perspective on the Problem*, *ENGINEERED ORGANISMS IN THE ENVIRONMENT: SCIENTIFIC ISSUES* 4 (1985).

³42 U.S.C. § 241.

NIH's quasi-regulatory status is attributable to its development of guidelines for the conduct of research with organisms produced by recombinant DNA techniques and its establishment of a Recombinant DNA Advisory Committee (RAC) to formulate scientific policy and administer the Guidelines. Both the Guidelines and the RAC are the outgrowth of the now-famous meeting at Asilomar, California, at which eminent scientists agreed, in effect, to regulate themselves by placing restrictions on basic research carried out with recombinant DNA techniques.⁴

Early versions of the NIH Guidelines were directed almost solely toward the prevention of human health hazards posed by laboratory research with recombinant DNA. They described categories of recombinant DNA experiments ranked according to the likelihood that they would yield organisms that threatened human health, and either forbade the experiments or required that they be reviewed and approved by the RAC and NIH and carried out under a set of progressively stringent containment conditions.⁵ For example, laboratories at the P1 Level (Minimal) were deemed to possess no special engineering design features, and special containment equipment was neither required nor generally available.⁶ At the P2 Level (Low), the laboratory needed access to an autoclave within the building and a "Biological Safety Cabinet."⁷ Among other requirements, the P3 Level (Moderate) required laboratories to have special engineering design features and physical containment equipment, while the P4 Level (High) required experiments to be confined to work areas in facilities "designed to contain microorganisms that are extremely hazardous to man or [could] cause serious epidemic disease."⁸

Over the years, the NIH Guidelines were substantially relaxed as laboratory experience with the recombinant DNA technology failed to demonstrate any hazard to laboratory personnel or others.⁹ Most categories of experiments with recombinant DNA continue to require the approval of local IBCs, composed of in-house scientists and public representatives, although the RAC retains jurisdiction over the review of specific categories of experiments.¹⁰

The Guidelines are not restricted to particular organisms. Various provisions apply, as appropriate, to experiments with plants, animals, and microbes.¹¹ Additional guidance has been added over time to address such issues as physical containment for large-scale uses of organisms, including Good Large Scale Practice, physical and biological containment for research involving plants, physical and biological contain-

⁴See National Institutes of Health, *NIH Guidelines: Honoring the Past, Charting the Future*, https://osp.od.nih.gov/event/nih-guidelines-honoring-the-past-charting-the-future/?instance_id=39 (last visited Jan. 12, 2022); Paul Berg, *Asilomar and Recombinant DNA* (Aug. 26, 2004), available at <https://www.nobelprize.org/prizes/chemistry/1980/berg/article/>.

⁵41 Fed. Reg. 27,901, 27,901–10 (July 7, 1976).

⁶*Id.* at 27,912. The NIH guidelines now refer to the P1-P4 levels as "Biosafety Levels (BL)" (i.e., BL1-BL4). U.S. Department of Health and Human Services, National Institutes of Health, *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (Apr. 2019), https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf (last visited Jan. 12, 2022).

⁷41 Fed. Reg. 27,901, 27,913 (July 7, 1976).

⁸*Id.*

⁹See Day, *Engineered Organisms in the Environment: A Perspective on the Problem*, ENGINEERED ORGANISMS IN THE ENVIRONMENT: SCIENTIFIC ISSUES 4-6 (1985); U.S. Department of Health and Human Services, National Institutes of Health, *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (Apr. 2019), https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf (last visited Jan. 12, 2022). Amendments to the Guidelines are issued separately upon their approval and published in the Federal Register. See, e.g., 81 Fed. Reg. 15,315 (Mar. 22, 2016).

¹⁰U.S. Department of Health and Human Services, National Institutes of Health, *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (Apr. 2019), https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf (last visited Jan. 12, 2022).

¹¹*Id.*

ment for research involving animals, and human gene transfer experiments.¹² Until recently the Guidelines were focused on research involving recombinant DNA and were known as the NIH Guidelines for Research Involving Recombinant DNA Molecules.¹³ NIH amended the scope of the Guidelines in 2012 to include certain research with nucleic acid molecules created solely by synthetic means and renamed them as NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules.¹⁴ NIH amended the Guidelines again in 2019, with the goal of both simplifying oversight for research protocols pertaining to human gene transfer research and reducing duplicative reporting requirements.¹⁵

Early versions of the NIH Guidelines also applied to deliberate release experiments,¹⁶ which are defined as experiments involving the planned introduction of recombinant DNA-containing microorganisms, plants, or animals into the environment.¹⁷ NIH involvement in reviewing this category of experiments was limited, however. Indeed, the first approval granted by NIH for an experiment involving the deliberate release of a recombinant microorganism was enjoined by a federal court which found that NIH's environmental assessment (EA) and its discharge of its statutory responsibility to consider the propriety of an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA) were "wholly inadequate."¹⁸ Subsequent deliberate release experiments were submitted to EPA and USDA for review under statutes administered by those agencies, thereby eliminating the need for NIH review.¹⁹ In recognition of the breadth of coverage provided by EPA and USDA for environmental release experiments, the Guidelines were amended in 1994 to delete the requirement for NIH review of this category of experiments in its entirety.²⁰

Although the Guidelines have been and remain enormously influential, they are quite limited in scope. In terms of the parameters outlined above, the only activity they regulate is biotechnology research conducted at institutions that receive financial support from the NIH.²¹ Furthermore, while industry follows the NIH guidelines on a voluntary basis and other government agencies have adopted them

¹²*Id.*

¹³*See, e.g.*, 66 Fed. Reg. 1,146 (Jan. 5, 2001).

¹⁴77 Fed. Reg. 54,584 (Sept. 5, 2012).

¹⁵84 Fed. Reg. 17,858 (Apr. 26, 2019). NIH explained that, at the time, there were duplicative requirements for submitting protocols, annual reports, amendments, and serious adverse events for human gene transfer clinical research to both NIH and FDA, which did not exist for other areas of clinical research. 84 Fed. Reg. 17,858 (Apr. 26, 2019). Accordingly, NIH proffered the amended Guidelines in an effort to align oversight of human gene transfer clinical research with the oversight required for other types of research. *Id.*

¹⁶*See, e.g.*, 51 Fed. Reg. 16,958, 16,960, 16,984–85 (May 7, 1986).

¹⁷55 Fed. Reg. 7,438, 7,447 (Mar. 1, 1990).

¹⁸*See* *Foundation on Economic Trends v. Heckler*, 756 F.2d 143, 22 Env't. Rep. Cas. (BNA) 1375, 15 Env'tl. L. Rep. 20248 (D.C. Cir. 1985) (affirming an injunction prohibiting the release by University of California scientists of ice-minus bacteria engineered by recombinant DNA techniques pending completion of an EA by NIH). EPA subsequently reviewed and approved a virtually identical experiment under the federal pesticide program. *See* 51 Fed. Reg. 22,858 (June 23, 1986); § 19:19.

¹⁹The Guidelines were amended in 1987 to eliminate the requirement for NIH review of experiments approved by another federal agency. 52 Fed. Reg. 31,848, 31,848–50 (Aug. 24, 1987). Under an earlier revision to the Guidelines, NIH was authorized to defer to other federal agencies in its review of certain experiments. *See* 50 Fed. Reg. 48,344 (Nov. 22, 1985).

²⁰59 Fed. Reg. 34,472, 34,472–73, 34,475 (July 5, 1994). The Guidelines were amended again on August 5, 1994, to delete conditions for approving environmental release experiments involving certain plants. 59 Fed. Reg. 40,170, 40,170–73 (Aug. 5, 1994).

²¹51 Fed. Reg. 16,952, 16,959 (May 7, 1986).

as research guidelines,²² they do not impose any requirements on industrial or privately funded research. Even in terms of biotechnology research, they are restricted in coverage in that the Guidelines extend only to work with recombinant DNA and synthetic nucleic acid molecules. They do not include work with other technologies, such as nuclear transplantation.²³ Finally, the Guidelines are backed up by a relatively weak enforcement capability. The only legal sanction for violation of the Guidelines is a withdrawal of research funds.²⁴ While this sanction is an effective one within the scientific community, it has no other force. Even within the scientific community, NIH has limited authority to inspect research facilities and must rely on other federal agencies or either the good faith of researchers or the professional compulsion to publish to learn whether a researcher followed the Guidelines in carrying out an experiment. Notwithstanding these limitations, the NIH Guidelines quickly became the *de facto* standard followed by industry for liability and public accountability reasons.

As the need to regulate commercial products of biotechnology came to the fore, the main arena for regulatory action shifted away from NIH, although it remains responsible for NIH-funded research that is not otherwise federally regulated and experiments submitted voluntarily by the private sector. But the legacy of NIH for the future regulation of genetic engineering is an important one. While the RAC has not been without its critics, particularly from the ranks of environmentalists,²⁵ the RAC has maintained a good measure of credibility and prestige on potentially divisive scientific issues. Moreover, the RAC demonstrated the advantage of a procedure flexible enough to set rigorous standards that could be relaxed in a timely fashion to reflect a decreasing estimate of risk.

§ 19:12 Agricultural statutes

Agriculture is a major component of biotechnology policy because the current and future agricultural uses of genetically engineered organisms are so numerous,¹ and because those uses involve the open-air, large-quantity releases of organisms that provoke the greatest environmental concern. In contrast to product-oriented statutes like FIFRA, the agricultural statutes do not, in every case, narrow the issues to particular categories of products. From the regulatory perspective, application of most agricultural statutes to genetically engineered organisms has been more challenging than application of FIFRA in that it requires the development of a more-or-less comprehensive regulatory policy for all applications of the technology.

The USDA portion of the Coordinated Framework identified the regulatory programs that would be utilized for genetically engineered organisms.² Subsequently, USDA issued voluntary guidelines for research involving the planned introduction into the environment of organisms with deliberately modified hereditary traits.³

Following are discussions of the major statutes that USDA has at its disposal to

²²See 48 Fed. Reg. 24,577 (June 1, 1983).

²³49 Fed. Reg. 46,267 (Nov. 23, 1984). Note that NIH amended the Guidelines in 1986 to refer specifically to RNA experiments. 51 Fed. Reg. 16,952 (May 7, 1986).

²⁴51 Fed. Reg. 16,952, 16,959 (May 7, 1986).

²⁵See generally Sheldon Krinsky, *GENETIC ALCHEMY: THE SOCIAL HISTORY OF THE RECOMBINANT DNA CONTROVERSY* (1982); 50 Fed. Reg. 9,762, 9,762–64 (Mar. 11, 1985).

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¹See USDA, *Biotechnology*, <https://www.usda.gov/topics/biotechnology> (last visited Jan. 12, 2022); USDA, *Biotechnology Frequently Asked Questions (FAQs)*, <https://www.usda.gov/topics/biotechnology/biotechnology-frequently-asked-questions-faqs> (last visited Jan. 12, 2022).

²51 Fed. Reg. 23,302, 23,336–47 (June 26, 1986).

³56 Fed. Reg. 4,134 (Feb. 1, 1991).

accomplish the regulation of products of biotechnology.

§ 19:13 Agricultural statutes—Virus-Serum-Toxin Act

The VSTA is a licensing statute which provides strict premarket testing and review of organisms classified as or involved in the production of veterinary biologics.¹ The VSTA provides USDA with the authority to regulate the import, export, and intrastate and interstate transport of veterinary biological products.² Such products are defined as “all viruses, serums, toxins, and analogous products of natural or synthetic origin, such as diagnostics, antitoxins, vaccines, live microorganisms, [and] killed microorganisms . . . *intended for use in the diagnosis, treatment, or prevention of diseases of animals.*”³ USDA and FDA have issued a memorandum of understanding resolving the overlap of jurisdiction between the VSTA and the FFDCA.⁴

Veterinary biologics must be prepared in USDA-licensed establishments and each product must be individually licensed for production.⁵ Product license applications require the submission of test reports and data establishing the purity, safety, potency, and efficacy of the product.⁶ “Safety” in these regulations generally refers to adverse effects on the recipient of the biologic or treatment, rather than to broad environmental effects.⁷

The VSTA regulations do, however, address environmental effects under certain circumstances. For example, they specifically require USDA’s approval prior to shipment of any experimental biological product.⁸ To obtain this approval, an applicant must furnish any information USDA requires in order to assess the product’s impact on the environment.⁹ These requirements are not tied to a commercial purpose, and thus appear to govern academic as well as commercial research.¹⁰ While the regulations could be read to govern only experiments involving *shipment* of experimental products, they are also subject to a broader interpretation.¹¹ In particular, the regulations require USDA to assure that the conditions under which experiments are to be conducted are adequate to prevent the spread of disease, and authorize USDA to impose special restrictions or tests, especially in the case of live organisms, whenever deemed necessary or advisable.¹² Permits are also required in order to import veterinary biological products for various purposes and a letter of authori-

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¹21 U.S.C. §§ 151 to 158.

²Amendments to the 1985 farm bill extended VSTA authority to products shipped intrastate or exported. Food Security Act of 1985, Pub. L. No. 99-198, § 1768(a), (c), 99 Stat. 1654–55 (2019) *available at* <https://www.agriculture.senate.gov/imo/media/doc/99-198%20-%20Food%20Security%20Act%20Of%201985.pdf>.

³9 C.F.R. § 101.2(w) (emphasis added).

⁴47 Fed. Reg. 26,458 (June 18, 1982).

⁵9 C.F.R. § 102.1.

⁶*Id.* § 102.3(b)(2)(ii).

⁷*Id.* § 101.5(d).

⁸*Id.* § 103.3.

⁹*Id.* § 103.3(h).

¹⁰*Id.* § 103.3.

¹¹In order to fully address regulation of genetically engineered organisms, it may eventually be necessary to revise the safety requirements for products regulated under the VSTA to explicitly require tests for the ecological effects of releases of new products and to cover experiments that do not involve shipment of test products.

¹²9 C.F.R. § 103.3.

zation is needed to produce experimental biological products at licensed facilities.¹³

In terms of organisms and activities covered, the VSTA is limited to organisms intended for a particular commercial use—that is, veterinary treatments. The VSTA, however, was the first agricultural statute with established procedures under which pre-release reviews of organisms were conducted.¹⁴ When assessing the potential impact on the environment under the VSTA, USDA routinely asks for data on virus shed, spread, and backpassage studies to determine the likelihood of reversion to virulence.

§ 19:14 Agricultural statutes—Animal Health Protection Act

The AHPA¹ provides additional authority under which USDA may regulate biotechnology products. Passed as part of the 2002 Farm Bill, this legislation consolidates, clarifies, and expands upon various prior statutes designed to protect animal health (*i.e.*, the animal quarantine statutes).

The AHPA's application to biotechnology products results not from any express provisions, but rather from its broad definitions and scope, which parallel that of the PPA that preceded it.² The AHPA defines “pest” very broadly, as any of several objects that “can directly or indirectly injure, cause damage to, or cause disease in livestock,” including, *inter alia*, an arthropod, bacteria, fungus, plant, parasite, virus, vector, or prion.³ “Livestock” is also defined more broadly than under previous animal quarantine statutes, to include “all farm-raised animals,” presumably including fish.⁴ And, the term “animal” itself is defined as “any member of the animal kingdom (except a human).”⁵ The term “article” is defined as “any pest or disease or any material or tangible object that could harbor a pest or disease.”⁶ The statute then authorizes USDA to “prohibit or restrict” the importation, exportation, or interstate movement of any article “if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction or dissemination of any pest or disease of livestock.”⁷ The definition of the term “disease” is left to the discretion of USDA,⁸ indicating a potential broadening of the term's traditional definition, which could include specific references to changes brought about through the use of new technologies.

The AHPA defines the term “move” as, *inter alia*, “to release into the environment.”⁹ Transgenic plants and animals can be regulated under the AHPA based on their potential to be pests or to act as articles that could harbor pests or disease.

In December 2020, USDA, operating through its Animal and Plant Health Protection Service (APHIS) and Food Safety Inspection Service (FSIS), issued an advance notice of proposed rulemaking concerning the regulation of movement of certain

¹³*Id.* §§ 103.1, 104.1(a), 104.2(a).

¹⁴*Id.* §§ 102-104.

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¹AHPA § 10401 et seq., 7 U.S.C. §§ 8301 et seq.

²*See* § 19:15.

³AHPA § 10403(13), 7 U.S.C. § 8302(13).

⁴AHPA § 10403(10), 7 U.S.C. § 8302(10).

⁵AHPA § 10403(1), 7 U.S.C. § 8302(1).

⁶AHPA § 10403(2), 7 U.S.C. § 8302(2).

⁷AHPA § 10406, 7 U.S.C. § 8305; *See also* AHPA §§ 10405(a), 10407(a), 7 U.S.C. §§ 8304(a), 8306(a).

⁸AHPA § 10403(3), 7 U.S.C. § 8302(3).

⁹AHPA § 10403(12), 7 U.S.C. § 8302(12).

animals modified or developed by genetic engineering.¹⁰ Under the proposed regulatory framework, USDA would provide regulatory oversight from premarket review through post-market food safety monitoring for animals subject to the Federal Meat Inspection Act and Poultry Products Inspection Act that have been modified or developed by genetic engineering and are intended for use as human food.¹¹ USDA would additionally provide this level of regulatory oversight for certain genetically engineered animals intended for agricultural purposes.¹² As of April 2022, a proposed rule has not been issued.

§ 19:15 Agricultural statutes—Plant Protection Act

USDA has responsibility for safeguarding American agriculture and regulating organisms that pose a threat to plants. APHIS is typically the first stop for any researcher interested in developing a biotechnology plant. The PPA,¹ enacted in 2000, and its predecessor statutes, such as the Plant Pest Act and Noxious Weed Act,² provide USDA with the authority to regulate the movement into or within the United States of organisms that may endanger plant life and to prevent the introduction, dissemination, or establishment of such organisms.³

Based on authority Congress granted in the Plant Pest Act and other statutes then in existence in 1987, USDA established a regulatory process designed to ensure that certain genetically engineered plants and other “genetically engineered organisms” potentially posing a plant pest risk receive a thorough premarket review and, where appropriate, a permit before they are ever placed in an open field or otherwise introduced into the environment.⁴ USDA’s legal analysis,⁵ prepared in support of the biotechnology permit regulations, carefully reviewed the relevant legislative history in which Congress expressed its clear intent to fill a gap in previously existing law in order to “protect American agriculture against invasion by foreign plant pests and diseases,” such as the imported fire ant and witchweed, and to permit USDA to regulate the movement of “new” pests as well as those “that might later be found to be injurious.”⁶ The statutory authority available to APHIS to control the movement and introduction of such genetically engineered organisms, no matter how localized, was confirmed when Congress enacted the PPA and expressly provided that all plant pests, noxious weeds, plants, plant products, and articles capable of harboring plant pests or noxious weeds are “in or affect interstate commerce or foreign commerce.”⁷

Apart from genetically engineered organisms, however, all other organisms that

¹⁰85 Fed. Reg. 84,269 (Dec. 28, 2020).

¹¹*Id.*

¹²*Id.*

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¹PPA §§ 402 to 438, 7 U.S.C. §§ 7701 to 7758.

²7 U.S.C. §§ 150aa to 150jj (1994) (repealed 2000). The Plant Pest Act supplemented and extended the much older Plant Quarantine Act, 7 U.S.C. §§ 151 to 164a, 167 (1994) (repealed 2000); 7 U.S.C. §§ 2801 to 2813 (1994) (repealed 2000).

³*See, e.g.*, PPA §§ 411–412, 7 U.S.C. §§ 7711 to 7712.

⁴*See* 7 C.F.R. §§ 340.4, 340.5.

⁵Memorandum, *Authority to Regulate Genetically Engineered Plants Pursuant to the Federal Plant Pest Act When Their Plant Pest Status is Unknown*, from John Golden to Alan Tracy (June 25, 1986), *reprinted in* Subcommittee on Investigations and Oversight, House Committee on Science and Technology, 99th Cong., 2d Sess., *Issues in Federal Regulation of Biotechnology: From Research to Release* (Dec. 1986).

⁶H.R. Rep. No. 85-289, at 2, 3, 5, 6, 9 (1957).

⁷PPA § 402(9), 7 U.S.C. § 7701(9); *see also* 54 Fed. Reg. 22,892, 22,895 (May 30, 1987).

meet the definition of a plant pest, real or potential, continue to be regulated under the permit system that predated the biotechnology rules.⁸ Thus, under USDA's broad reading of its legislative mandate, all novel and nonindigenous organisms are subject to APHIS review as potential plant pests without regard to their sources—that is, whether they are naturally occurring or produced through genetic engineering or classical genetics.⁹

In May 2020, USDA issued the Sustainable, Ecological, Consistent, Uniform, Responsible, Efficient (SECURE) Rule, which amended the Agency's biotechnology regulations at 7 C.F.R. Part 340.¹⁰ APHIS defines “genetic engineering” as “[t]echniques that use recombinant, synthesized, or amplified nucleic acids to modify or create a genome.”¹¹

“Organism,” in turn, is defined as “[a]ny active, infective, or dormant stage of life form of an entity characterized as living, including vertebrate and invertebrate animals, plants, bacteria, fungi, mycoplasmas, mycoplasma-like organisms, as well as entities such as viroids, viruses, or any entity characterized as living, related to the foregoing.”¹² Finally, “plant pest” is defined as “[a]ny living stage of a protozoan, nonhuman animal, parasitic plant, bacterium, fungus, virus or viroid, infectious agent or other pathogen, or any article similar to or allied with any of the foregoing, that can directly or indirectly injure, cause damage to, or cause disease in any plant or plant product.”¹³

With certain exceptions,¹⁴ revised Part 340 requires a permit to move any genetically engineered organism that: “(a) Is a plant that has a plant-trait-mechanism of action combination that has not been evaluated by APHIS in accordance with § 340.4 or that, as a result of such evaluation, is subject to the regulations; (b) Meets the definition of a plant pest in § 340.3; (c) Is not a plant but has received DNA from a plant pest, as defined in § 340.3, and the DNA from the donor organism either is capable of producing an infectious agent that causes plant disease or encodes a compound that is capable of causing plant disease; (d) Is a microorganism used to control plant pests, or an invertebrate predator or parasite (parasitoid) used to control invertebrate plant pests, and could pose a plant pest risk; or (e) Is a plant that encodes a product intended for pharmaceutical or industrial use.”¹⁵

Prior to the issuance of revised Part 340, APHIS provided a process for developers to petition for a determination that a particular genetically engineered organism should not be regulated as a plant pest or potential plant pest under the Part 340 regulations, referred to as a “determination of nonregulated status” or “deregulation.”¹⁶

Generally speaking, the regulations required USDA approval before a genetically engineered crop variety could be commercialized. Revised Part 340 eliminated that process in favor of a number of other options for determining whether a genetically engineered plant was regulated or not under Part 340 based on defined, science-

⁸7 C.F.R. §§ 330.100, 330.200 to 330.212.

⁹54 Fed. Reg. 22,892, 22,894 (May 30, 1987).

¹⁰85 Fed. Reg. 29,790 (May 18, 2020).

¹¹7 C.F.R. § 340.3.

¹²*Id.*

¹³*Id.*

¹⁴*See id.* § 340.1.

¹⁵*Id.* § 340.2.

¹⁶*See* USDA APHIS, *Petitions for Determination of Nonregulated Status*, <https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/permits-notifications-petitions/petitions/petition-status> (last visited Jan. 12, 2022).

based criteria.¹⁷ For example, certain genetically engineered plants are not subject to Part 340 because they contain modifications that can be obtained using conventional breeding, where there is a history of safe use related to plant pest risk, or where APHIS has previously evaluated a plant-trait-mechanism of action combination and determined that it is not to be regulated under Part 340.¹⁸

Under revised Part 340, developers of genetically engineered plants must first determine whether their plant meets the criteria for an exemption.¹⁹ USDA has provided a voluntary mechanism by which developers may seek confirmation from USDA as to whether a genetically engineered plant qualifies for an exemption.²⁰ APHIS “will provide a written response (confirmation letter) within 120 days of receiving a sufficiently detailed confirmation request,” except in unanticipated circumstances.²¹ Plant developers may also submit a request that USDA exempt a plant because it was “developed with additional modifications” not enumerated in the regulations but “that could be achieved through conventional breeding.”²²

For genetically engineered organisms that are not exempt, the developer may apply for a permit and/or, in the case of a genetically engineered plant, request that APHIS conduct a “regulatory status review” (RSR) to “determine whether there is a plausible pathway by which the genetically engineered plant, or any sexually compatible relatives that can acquire the engineered trait from the genetically engineered plant, would pose an increased plant pest risk relative to the plant pest risk posed by the respective non- genetically engineered or other appropriate comparator(s).”²³ Unlike the system that existed prior to the Sustainable, Ecological, Consistent, Uniform, Responsible, Efficient (SECURE) Rule, the RSR process requires much less information to be provided to APHIS and includes no requirement for laboratory or field-test data.²⁴

If, during the RSR process, APHIS determines that the genetically engineered plant is unlikely to pose an increased plant pest risk relative to its comparator(s), the plant will be deemed not subject to Part 340.²⁵ If APHIS identifies a plausible pathway by which the genetically engineered plant would pose an increased plant pest risk relative to its comparator(s), the developer may apply for a permit and/or request that APHIS conduct a second-level review by evaluating “the factor(s) of concern identified in the initial review to determine the likelihood and consequence of the plausible increased plant pest risk.”²⁶ Absent exigent circumstances, APHIS will complete its initial review of a request for an RSR within 180 days and the second level review within 15 months.²⁷

All permit applications must include detailed information such as the origin and destination of the genetically engineered organism, the quantity of the genetically engineered organism, “the country (or countries) and locality (or localities) where the organism was collected, developed, manufactured, reared, cultivated, and cultured (as applicable); the organism’s genus, species and any relevant subspecies

¹⁷7 C.F.R. § 340.1.

¹⁸*Id.*

¹⁹*Id.*

²⁰*Id.* § 340.1(e).

²¹*Id.*

²²*Id.* § 340.1.

²³*Id.* § 340.4.

²⁴85 Fed. Reg. 29,790 (May 18, 2020).

²⁵*Id.*

²⁶*Id.*

²⁷7 C.F.R. § 340.4.

and common name information; the intended activity (i.e., importation, interstate movement, or release into the environment of the genetically engineered organism); and information on the intended trait and the genotype of the intended trait.”²⁸ Depending on the type of permit sought (e.g., a permit for release into the environment), additional information must be furnished to APHIS.²⁹

Permit conditions will govern the release and/or movement of the relevant genetically engineered organism, including procedures for maintenance and disposal, reports of volunteer monitoring activities, and remedial measures to prevent the spread of plant pests.³⁰ Absent exigent circumstances, an application for a permit will be approved or denied within (1) 45 days for an application for a permit for interstate movement or for importation, and (2) 120 days for an application for a permit for release into the environment.³¹

Prior to issuing a permit for the movement of a genetically engineered organism into the environment or making an RSR determination, APHIS must follow the requirements of NEPA,³² assess any potential impacts on threatened or endangered species under the Endangered Species Act (ESA),³³ and, depending on the agency’s initial review, prepare a publicly available EA as well as an environmental impact statement, when necessary.³⁴ Prior to issuing a permit for an environmental release, APHIS must also coordinate with the state where the release is planned, including submitting a copy of the application to the appropriate state or tribal regulatory official for review.³⁵

§ 19:16 Agricultural statutes—Litigation

For the first 20 years that APHIS actively regulated genetically engineered organisms, approving thousands of field tests and granting dozens of determinations of nonregulated status, there were no judicial challenges to the agency’s decisions. That changed in 2006, when environmental groups successfully challenged APHIS’s permitting of field trials of certain genetically engineered plants based on APHIS’s failure to properly document its environmental analysis of the field trials under NEPA and the ESA.¹ The following year, APHIS lost another lawsuit challenging its NEPA documentation of permitted field trials of genetically engineered glyphosate-

²⁸*Id.* § 340.5. Since 1987 and under the previous regulatory scheme, APHIS reviewed and acted on tens of thousands of proposals for the importation, interstate movement or field testing of regulated articles, with field tests conducted in virtually every state. *See* USDA APHIS, *Check Status*, https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/permits-notifications-petitions/sa_permits/ct_status (last visited Jan. 12, 2022). In the vast majority of cases, APHIS either approved the permit application or acknowledged the notification, allowing the proposed activity to proceed. *Id.* While most of these actions related to corn, cotton, soy and other food or feed crops that were engineered for insect resistance, herbicide tolerance or a combination of both traits, many permits covered plants with pharmaceutical or industrial applications. *Id.* Still, hundreds of permits and notifications were denied, and hundreds more were withdrawn by the submitter or found to be incomplete by APHIS with no further action taken. *Id.*

²⁹*See* 7 C.F.R. § 340.5(b).

³⁰*See* 7 C.F.R. § 340.5(i).

³¹*See* 7 C.F.R. § 340.5(h)(5). Note that the 120 day period may be extended if an EA or EIS is needed in accordance with NEPA. *Id.*

³²42 U.S.C. §§ 4321 to 4370h.

³³16 U.S.C. §§ 1531 to 1544.

³⁴7 C.F.R. § 372.5(b)(4).

³⁵*Id.* § 340.5.

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¹*Center For Food Safety v. Johanns*, 451 F. Supp. 2d 1165 (D. Haw. 2006).

tolerant grasses.² APHIS has since revised its procedures to provide for appropriate documentation of environmental review for field trials.³ In a more recent challenge to permitted field trials of genetically engineered eucalyptus trees under both NEPA and the ESA, APHIS prevailed on all counts.⁴

In 2007, environmental groups saw the first of two successful challenges to deregulation decisions authorizing commercialization of herbicide-tolerant crops based on NEPA procedural violations.⁵ In each of these cases, the first involving genetically engineered glyphosate-tolerant alfalfa, and the second genetically engineered glyphosate-tolerant sugarbeet, APHIS had prepared an EA under NEPA. However, in both cases, the courts found that the EAs did not adequately address evidence of environmental, social and economic impacts of the GE crops, vacated APHIS's determinations of nonregulated status, and ordered APHIS to prepare EISs.⁶

In the alfalfa case, the district court initially enjoined APHIS from allowing any planting of the crop pending completion of an EIS,⁷ and this injunction was upheld by the Ninth Circuit.⁸ The Supreme Court overruled the injunction, however, recognizing that it is, in the first instance, the role of APHIS, not the courts, to determine what level of planting may be appropriate during the pendency of an EIS.⁹ In another similar case, plaintiffs unsuccessfully challenged APHIS's approvals of limited sugarbeet plantings pending completion of the sugarbeet EIS.¹⁰

APHIS completed EISs for both glyphosate-tolerant alfalfa and glyphosate-tolerant sugarbeet in December 2010 and June 2012, respectively.¹¹ Environmental groups unsuccessfully challenged the alfalfa EIS under both NEPA and ESA,¹² and appealed that decision to the Ninth Circuit. On appeal, the court held that genetically engineered alfalfa was not a "plant pest" under the meaning of the term in the PPA and its implementing regulations, and that the deregulation of the alfalfa by APHIS did not violate the ESA or NEPA.¹³ According to the Ninth Circuit, APHIS's deregulation of the alfalfa was a nondiscretionary act resulting from its determination that the plant was not a plant pest under the PPA. Thus, APHIS had no duty

²International Center for Technology Assessment v. Johanns, 473 F. Supp. 2d 9 (D.D.C. 2007).

³USDA APHIS Biotechnology Regulatory Services, *Permit User's Guide: With Special Guidance for ePermits* (Mar. 8, 2017), http://www.aphis.usda.gov/biotechnology/downloads/permit_guidance.pdf (last visited Jan. 12, 2022).

⁴Center for Biological Diversity v. Animal and Plant Health Inspection Service, 2011 WL 4737405 (S.D. Fla. 2011).

⁵Geertson Seed Farms v. Johanns, 2007 WL 518624 (N.D. Cal. 2007); Center for Food Safety v. Vilsack, 734 F. Supp. 2d 948 (N.D. Cal. 2010).

⁶Geertson Farms Inc. v. Johanns, 65 Env't. Rep. Cas. (BNA) 1318, 2007 WL 776146, at *12 (N.D. Cal. 2007); Center for Food Safety v. Vilsack, 734 F. Supp. 2d 948, 952–53, 72 Env't. Rep. Cas. (BNA) 1999 (N.D. Cal. 2010).

⁷Geertson Farms Inc. v. Johanns, 2007 WL 776146 (N.D. Cal. 2007).

⁸Geertson Seed Farms v. Johanns, 570 F.3d 1130, 69 Env't. Rep. Cas. (BNA) 1001 (9th Cir. 2009), rev'd and remanded, 561 U.S. 139, 130 S. Ct. 2743, 177 L. Ed. 2d 461, 70 Env't. Rep. Cas. (BNA) 1481 (2010).

⁹Monsanto Co. v. Geertson Seed Farms, 561 U.S. 139, 130 S. Ct. 2743, 2761–62, 177 L. Ed. 2d 461, 70 Env't. Rep. Cas. (BNA) 1481 (2010).

¹⁰Center for Food Safety v. Vilsack, 2012 WL 5546955 (9th Cir. 2012); Center for Food Safety v. Vilsack, 636 F.3d 1166 (9th Cir. 2011); Grant v. Vilsack, 2012 WL 4361435 (D.D.C. 2012).

¹¹USDA APHIS, *Roundup Ready Alfalfa Environmental Impact Statement (EIS)*, https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/hot_topics/alfalfa/ct_alfalfa_eis (last visited Jan. 12, 2022); USDA APHIS, *Roundup Ready Sugar Beet*, https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/hot_topics/sugarbeet/sugarbeet_main (last visited Jan. 12, 2022).

¹²Center for Food Safety v. Vilsack, 844 F. Supp. 2d 1006 (N.D. Cal. 2012).

¹³Center for Food Safety v. Vilsack, 718 F.3d 829, 76 Env't. Rep. Cas. (BNA) 1942 (9th Cir. 2013).

to consult under the ESA and no obligation to consider alternatives to unconditional deregulation under NEPA.¹⁴ Moreover, the court stated that the Coordinated Framework tasks EPA, not APHIS, with regulating herbicide use pursuant to FIFRA. The PPA does not address alleged harms caused by the increased use of herbicides, and APHIS has no authority to regulate that use.¹⁵

Plaintiffs have also used NEPA to successfully challenge decisions by the U.S. Department of the Interior and the Fish and Wildlife Service (FWS) for the government's failure to document potential environmental impacts of planting biotechnology crops at wildlife refuges.¹⁶ However, these cases have not been universally successful.¹⁷ In 2014, FWS issued a memorandum stating that it would phase out the use of genetically engineered crops on refuge lands to feed wildlife, but would nonetheless consider temporary use of genetically engineered crops for habitat restoration on a case-by-case basis.¹⁸ In August 2018, however, FWS issued a memorandum withdrawing the 2014 memorandum.¹⁹ FWS's subsequent withdrawal of the memorandum was also challenged by environmental groups on NEPA and ESA grounds, but was ultimately dismissed.²⁰

Recently, plaintiffs brought suit under NEPA and the ESA to challenge FDA's approval of a New Animal Drug Application (NADA) that allowed for the development, marketing, and sale for human consumption of a genetically engineered salmon.²¹ In March 2016, plaintiffs filed suit alleging that FDA had not adequately assessed the environmental and ecological effects of the approval of the NADA. Among other allegations, the plaintiffs claimed that FDA failed to prepare an EIS as required by NEPA and further failed to consult with the federal fish and wildlife agencies as required by the ESA. On November 12, 2020, the court entered judgment in favor of plaintiffs based on violations of NEPA and the ESA, but left the approval in place while the Agency updated its analysis.²²

Perhaps motivated by the growing global scientific consensus that biotechnology crops themselves are safe, plaintiffs have more recently brought challenges based on alleged adverse effects of the pesticides used in conjunction with those crops. Initially these challenges took the form of anti-biotech ordinances passed by local jurisdictions in Hawaii. A summary of these legislative actions and the inevitable

¹⁴*Id.* at 842.

¹⁵*Id.* at 841–42.

¹⁶*Center For Food Safety v. S.M.R. Jewell*, 1:14-cv-00360 (D.D.C., filed Mar. 16, 2014); *Center for Food Safety et al. v. Jewell*, 4:13-cv-03987 (N.D. Cal., filed Aug. 27, 2013); *Center for Food Safety v. Salazar*, 900 F. Supp. 2d 1 (D.D.C. 2012); *Center for Food Safety v. Salazar*, Civ. No. 1:11-cv-01934-JEB (D.D.C., filed Nov. 2, 2011); *Center for Food Safety v. Salazar*, Civ. No. 1:11-cv-01457-JEB (D.D.C., filed Aug. 11, 2011); *Delaware Audubon Soc., Inc. v. Salazar*, Civ. No. 10-62 (D. Del., filed Feb. 25, 2010); *Delaware Audubon Soc., Inc. v. Secretary of U.S. Dept. of Interior*, 1:06-cv-00223 (D. Del., filed Apr. 5, 2006).

¹⁷*See* *Center for Food Safety v. Salazar*, 2012 WL 4857793 (D.D.C. 2012).

¹⁸*See* U.S. Department of the Interior, Fish and Wildlife Service, *Use of Agricultural Practices in Wildlife Management in the National Wildlife Refuge System* (July 17, 2014) https://www.fws.gov/ecological-services/habitat-conservation/pdf/20140717_Memo_Agricultural_Practices_in_Wildlife_Management.pdf.

¹⁹*See id.*

²⁰*Center for Biological Diversity, et al. v. Bernhardt, et al.*, 1:19-cv-02898 (D.D.C., filed Sept. 26, 2019); *see also* *Center for Biological Diversity v. Bernhardt*, 490 F. Supp. 3d 40 (D.D.C. 2020).

²¹*See* *Institute for Fisheries Resources, et al. v. Hahn, et al.*, 3:16-cv-01574 (N.D. Cal., filed Mar. 30, 2016). A drug company must submit a NADA and gain FDA approval before selling a new animal drug into interstate commerce. 21 U.S.C. § 360b.

²²*Institute for Fisheries Resources v. United States Food and Drug Administration*, 499 F. Supp. 3d 657 (N.D. Cal. 2020), appeal dismissed, 2021 WL 4807198 (9th Cir. 2021); *Institute for Fisheries Resources v. Hahn*, 424 F. Supp. 3d 740 (N.D. Cal. 2019).

judicial challenges follows.

In November 2013, the Kauai County Council passed Bill 2491, which principally restricted pesticide use but also required disclosure of genetically engineered crop cultivation locations and imposed buffer zone requirements that restricted the cultivation of genetically engineered crops. Biotech seed companies filed suit in federal court to challenge the ordinance on several grounds, including on the basis the ordinance was preempted by state and federal law.²³ In August 2014, Magistrate Judge Barry Kurren issued a final decision in the case, finding that Bill 2491 was preempted by state law and issuing an injunction against implementation of the measure.²⁴ Kauai County and the intervenors appealed to the Ninth Circuit and, in November 2016, the Court of Appeals affirmed the decision of the lower court.²⁵

In December 2013, Hawaii County passed Bill 113, which severely restricted the cultivation, propagation, development, and testing of genetically engineered crops. Papaya farmers, including named Plaintiff Ross Sibucan, filed a narrow lawsuit in Hawaii state court to seek relief from implementation of the registration and disclosure provisions of Hawaii Bill 113. Plaintiffs first obtained a temporary restraining order and then a preliminary injunction, indicating that all genetically engineered papaya growers in the County would be protected from disclosure of their identities and the location of their genetically engineered papaya crops.²⁶

In June 2014, farmers, ranchers, flower growers, and organizations representing them, along with the Biotechnology Industry Organization, filed a second, broader lawsuit in federal district court, comprehensively challenging Bill 113.²⁷ The case was assigned to Magistrate Judge Barry Kurren. The plaintiffs filed a motion for partial summary judgment in July, which was heard in October 2014. In December 2014, the court held that Bill 113 was wholly preempted by state law and partially preempted by federal law.²⁸ The County's appeal to the Ninth Circuit was unsuccessful.²⁹

In November 2014, voters in Maui County narrowly approved a restrictive "moratorium" on genetically engineered crops that for all intents and purposes operated as a ban. Opponents of the moratorium brought suit in federal court against the County.³⁰ On June 30, 2015, Chief Judge Susan Mollway issued a 56-page opinion in which she concluded on the merits that the ordinance "is preempted by federal and state law and exceeds the County's authority to impose fines."³¹ The County and the intervenors appealed to the Ninth Circuit and, in November 2016, the Court of Appeals affirmed the decision of the lower court.³²

Also notable is the recent challenge to USDA's amendment to 7 C.F.R. Part 340,

²³*Syngenta Seeds, Inc. v. County of Kauai*, No. 14-cv-00014 (D. Haw., filed Jan. 10, 2014).

²⁴*Syngenta Seeds, Inc. v. County of Kauai*, 2014 WL 4216022 (D. Haw. 2014).

²⁵*Syngenta Seeds, Inc. v. County of Kauai*, Nos. 14-16833, 14-16848 (9th Cir., filed Sept. 24–25, 2014).

²⁶*See Sibucan v. County of Hawaii*, No. 14-1-0094 (Haw. 3d Cir., filed Mar. 6, 2014).

²⁷*Hawai'i Floriculture & Nursery Ass'n v. County of Hawaii*, No. 14-cv-00267 (D. Haw., filed June 9, 2014).

²⁸*Hawai'i Floriculture and Nursery Ass'n v. County of Hawaii*, 2014 WL 6685817 (D. Haw. 2014).

²⁹*Hawaii Papaya Industry Association v. County of Hawaii*, No. 14-17538 (9th Cir., filed Dec. 26, 2014); *Hawai'i Papaya Industry Association v. County of Hawaii*, 666 Fed. Appx. 631 (9th Cir. 2016).

³⁰*Robert Ito Farm, Inc. v. County of Maui*, No. 14-cv-00511 (D. Haw., filed Nov. 13, 2014).

³¹*Robert Ito Farm, Inc. v. County of Maui*, 111 F. Supp. 3d 1088, 1114 (D. Haw. 2015).

³²*Atay v. County of Maui*, Nos. 15-16466, 16552 (9th Cir. filed July 23, 2015); *Atay v. County of Maui*, 842 F.3d 688 (9th Cir. 2016).

as described in Section 19:15.³³ In July 2021, plaintiffs brought suit challenging the final rule, alleging violations of NEPA, the ESA, and the PPA, among other statutes. Plaintiffs specifically allege that USDA failed to undertake a required consultation process in violation of the ESA, failed to explore reasonable alternatives that would be more protective of the environment in violation of NEPA, and failed to comply with the PPA because it does not implement USDA's noxious weed authority. The case is still pending as of this writing.³⁴

§ 19:17 Agricultural statutes—Summary of the agricultural statutes

The jurisdiction of the agricultural statutes covers organisms used for certain purposes (*e.g.*, veterinary biologics) or having certain properties (*e.g.*, plant pests), resulting in a diverse pattern of coverage without a direct relationship to the broad range of potential ecological effects that may be associated with products of biotechnology. The statutes on their faces do not appear to cover, for example, either organisms that are beneficial to plants or crop plants, although in theory both may be as likely to disturb the environment as are organisms fitting the definitions of plant pests or noxious weeds. However, APHIS takes a very broad view of its authority under these statutes. In one example, USDA regulated honeybees, not because they were harmful to plants, but because of an infestation by mites that were harmful to the honeybees.¹

Notwithstanding any perceived statutory limitations, USDA has moved aggressively to bring genetically engineered plants and other organisms within the purview of its regulatory review programs, which have traditionally been utilized to limit the movement and introduction of organisms considered to be agricultural pests, noxious weeds, or agents of contagious disease. Although the principal purpose of these programs has been protection of agriculture rather than the environment, USDA has made a concerted effort to address the full range of potential ecological effects by consulting with EPA and other government agencies and by preparing EAs prior to acting on proposals for release, movement, or licensure of genetically engineered products.² APHIS promulgated revised procedures for conducting EAs in 1995,³ and adopted a policy for responding to the low-level presence of regulated genetically engineered plant materials in 2007.⁴

Although USDA has been successfully challenged in court on several occasions since 2006, all of the deficiencies noted were procedural in nature. No court has ever found that a genetically engineered organism posed a threat to health, safety, or the environment.

§ 19:18 Federal Insecticide, Fungicide, and Rodenticide Act—Regulation of pesticides¹

FIFRA played an early and key role in the regulation of genetically engineered

³³See National Family Farm Coalition, et al. v. Vilsack et al, 3:21-cv-05695 (N.D. Cal., Filed July 26, 2021).

³⁴*Id.*

[Section 19:17]

¹See 54 Fed. Reg. 10,992 (Mar. 16, 1989).

²See 54 Fed. Reg. 10,992 (Mar. 16, 1989); *see, e.g.*, 53 Fed. Reg. 2,610 (Jan. 29, 1988); 53 Fed. Reg. 4,439 (Feb. 16, 1988); 53 Fed. Reg. 10,133 (Mar. 29, 1988); 53 Fed. Reg. 11,521 (Apr. 7, 1988); 53 Fed. Reg. 12,551 (Apr. 15, 1988); 57 Fed. Reg. 24,769 (June 11, 1992).

³60 Fed. Reg. 6,000 (Feb. 1, 1995). *See generally* discussion of NEPA requirements in § 10:1.

⁴72 Fed. Reg. 14,649 (Mar. 29, 2007).

[Section 19:18]

¹See Chapter 17.

products—specifically, pesticides. FIFRA is a licensing statute that regulates chemicals and microorganisms intended for use as pesticides and prohibits the sale or distribution of pesticides not registered with EPA.² Congress amended the statute in 1988 to make it clear that, to the extent necessary to prevent any unreasonable risk to humans or the environment, EPA is authorized to limit the distribution, sale, or use in any state of any pesticide that is not registered and not otherwise the subject of an experimental use permit or emergency exemption.³

FIFRA's jurisdiction extends to substances “intended for preventing, destroying, repelling, or mitigating any pest, . . . [or] for use as a plant regulator, defoliant or desiccant.”⁴ The term “pest” is defined broadly to include “any insect, rodent, nematode, fungus, weed, or . . . any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organisms on or in living man or other living animals) which the Administrator declares to be a pest” under FIFRA.⁵ By far, the greatest number of pesticides are conventional chemical substances, although a number of microbial pesticides and biochemical pesticides have been registered under FIFRA.⁶ The federal government registered the first microbial pesticide in 1948 to control Japanese beetle larvae, although it was not until the late 1960s and early 1970s that interest in microbial pesticides, and genetically engineered versions, began to increase.⁷

Registration does not require that pesticides be proven absolutely safe to humans or to the environment. Such a requirement would effectively bar the use of pesticides, because chemicals that are intended to kill pest organisms are often also dangerous to other living beings. Under FIFRA, EPA balances the adverse effects of pesticides against their benefits to the economy, society, and the environment.⁸ The statute conditions EPA's approval of a pesticide on its conclusion that the pesticide's use “will not generally cause unreasonable adverse effects on the environment.”⁹ As part of the registration process, EPA sets the terms and conditions for use of a pesticide in order to meet that statutory standard. These terms and conditions are reflected in the label approved for each pesticide product.¹⁰ It is a violation of FIFRA to use a registered pesticide in a manner inconsistent with its label.¹¹ Where EPA determines that a pesticide applied in accordance with the directions for use may cause unreasonable adverse effects to the environment, including injury to applica-

²FIFRA § 3(a), 7 U.S.C. § 136a(a).

³FIFRA § 3(a), 7 U.S.C. § 136a(a), *as amended by* § 601(b)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1988, Pub. L. No. 100-532, 102 Stat. 2654 (1988).

⁴FIFRA § 2(u), 7 U.S.C. § 136(u). With certain exceptions, the term “plant regulator” is defined as “any substance or mixture of substances intended, through physiological action, for accelerating or retarding the rate of growth or rate of maturation, or for otherwise altering the behavior of plants or the produce thereof” FIFRA § 2(v), 7 U.S.C. § 136(v).

⁵FIFRA § 2(t), 7 U.S.C. § 136(t). In 2003, EPA decided that a prion should be considered to be a pest under FIFRA and that products intended to inactivate prions should be regulated as pesticides. *See* 76 Fed. Reg. 4,602, 4,604 (Jan. 26, 2011).

⁶*See generally* U.S. EPA, U.S. EPA, *Biopesticides*, <https://www.epa.gov/pesticides/biopesticides> (last visited Jan. 12, 2022); and U.S. EPA, *Biopesticide Active Ingredients*, available at <https://www.epa.gov/ingredients-used-pesticide-products/biopesticide-active-ingredients> (last visited Jan. 12, 2022). EPA, Data Requirements for Biochemical and Microbial Pesticides, 40 C.F.R. Part 158, Subparts U and V.

⁷*See generally* U.S. EPA, *Biopesticides*, <https://www.epa.gov/pesticides/biopesticides> (last visited Jan. 12, 2022).

⁸FIFRA § 2(bb), 7 U.S.C. § 136(bb).

⁹FIFRA § 3(c)(5)(D), 7 U.S.C. § 136a(c)(5)(D).

¹⁰*See* 40 C.F.R. Pt. 156.

¹¹FIFRA § 12(a)(2)(G), 7 U.S.C. § 136j(a)(2)(G).

tors, pesticide registrations may be restricted to particular uses and specific conditions that avoid those effects.¹² Pesticides classified for restricted use may be applied only by or under the direct supervision of a certified applicator.¹³

FIFRA and implementing EPA regulations require applicants to perform a variety of different studies and tests and to submit extensive health and environmental data on which the Agency can base its registration decision.¹⁴ For pesticides intended for use on food or feed crops, EPA requires applicants to provide additional data to address potential dietary risks.¹⁵ The Agency then takes appropriate action under the FFDCA with respect to anticipated residues of the pesticide in the food supply.¹⁶ In order to register a food or feed use for a pesticide, EPA must determine that any residue of the pesticide that may be present in or on food or feed will be “safe,”¹⁷ defined to mean that there is “a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information.”¹⁸

§ 19:19 Federal Insecticide, Fungicide, and Rodenticide Act—Microbial pesticides

EPA’s policy for regulating genetically engineered microorganisms under FIFRA, first announced in 1984,¹ and confirmed in the 1986 OSTP Framework document, built on the existing microbial pesticide regulations. The policy asserted jurisdiction over genetically engineered microorganisms, declining to regulate vertebrates, insects, and macroscopic parasites.² For purposes of FIFRA’s policy, “genetically engineered” includes not only organisms prepared by recombinant DNA techniques, but also by other advanced techniques, such as recombinant RNA, cell fusion, and plasmid transfer.³

In its most important action in this matter, EPA announced that it would not apply the small acreage exemption from the requirements to obtain experimental use permits (EUPs) to field tests of genetically engineered or nonindigenous microbes.⁴ The development of pesticide products routinely requires field tests to determine whether pesticides are effective under field conditions and to generate the data needed to support the registration application. FIFRA permits applicants to obtain

¹²FIFRA § 3(d)(1)(C), 7 U.S.C. § 136a(d)(1)(C).

¹³FIFRA § 3(d)(1)(C)(i), 7 U.S.C. § 136a(d)(1)(C)(i).

¹⁴FIFRA § 3(c)(2)(A), 7 U.S.C. § 136a(c)(2)(A); 40 C.F.R. § 152.50(f); 40 C.F.R. Pt. 158.

¹⁵40 C.F.R. § 158.1410.

¹⁶Reorganization Plan No. 3 of 1970, 35 Fed. Reg. 15,623 (Oct. 6, 1970), transferred to EPA the authority to set permissible levels (or “tolerances”) for pesticide residues in or on raw agricultural commodities and processed foods under the FFDCA. Although established by EPA, pesticide tolerances are still enforced by FDA.

¹⁷FIFRA § 2(bb)(2), 7 U.S.C. § 136(bb)(2).

¹⁸FFDCA § 408(b)(2)(A)(ii), 21 U.S.C. § 346a(b)(2)(A)(ii) (addressing EPA’s responsibility to protect human health, including consumers, infants and children, from pesticide residues that may occur in the food supply).

[Section 19:19]

¹49 Fed. Reg. 40,659 (Oct. 17, 1984). The policy remained in effect until it was formally incorporated into EPA’s experimental use permit regulations at 40 C.F.R. Pt. 172, Subpt. C in 1994. See 59 Fed. Reg. 45,600 (Sept. 1, 1994) (codified at 40 C.F.R. Pt. 172, Subpt. C).

²49 Fed. Reg. 40,659 (Oct. 17, 1984); 51 Fed. Reg. 23,302, 23,320 (June 26, 1986). The policy also asserted jurisdiction over “nonindigenous” microorganisms, which were not defined, except in the negative by reference to a definition of indigenous organisms as “naturally occurring.” 49 Fed. Reg. 40,659 (Oct. 17, 1984); 51 Fed. Reg. 23,302, 23,315–18 (June 26, 1986).

³49 Fed. Reg. 40,659 (Oct. 17, 1984); 51 Fed. Reg. 23,302, 23,315–18 (June 26, 1986).

⁴49 Fed. Reg. 40,659 (Oct. 17, 1984); 51 Fed. Reg. 23,302, 23,316 (June 26, 1986).

EUPs so they can conduct such tests prior to registration.⁵ Normally, however, small tests involving 10 acres of land or less are exempt from this requirement.⁶ Under the 1984 policy, the exemption no longer applied to nonindigenous or genetically engineered microorganisms, in effect extending EPA's jurisdiction to all field releases of genetically engineered microorganisms intended for pesticidal use.⁷ Applicants intending to test nonindigenous or genetically engineered microbes were required to notify EPA of their intent to test and submit with that notice information enabling EPA to decide whether an EUP was necessary.⁸

EPA's original microbial pesticide policy embodied a case-by-case approach. Rather than publish generic guidelines prior to processing applications for EUPs, EPA proceeded to evaluate each application as it arrived.

In accordance with its EUP procedures, EPA required and subsequently received applications for EUPs for small acreage tests of so-called ice-minus bacteria.⁹ After thorough review, including several requests to the company for additional data, EPA issued its first approval of a release of a living organism engineered by recombinant DNA techniques.¹⁰ EPA's approval of the EUPs was immediately challenged in court.¹¹ Following a temporary suspension of the EUPs by the Agency,¹² Judge Thomas F. Hogan denied plaintiffs' request for a preliminary injunction.¹³ The suspension was subsequently lifted and, following unsuccessful attempts at the state and local levels to block the release of the bacteria, the experiment was conducted uneventfully in April 1987 in Contra Costa County, California. EPA has since processed dozens of submissions and approved a number of additional experiments with genetically engineered microbial pesticides.¹⁴

After 10 years of experience in reviewing notifications and approving EUPs for field tests of genetically modified microbial pesticides, in 1994, EPA promulgated separate regulations governing the notification process for these experiments.¹⁵ The regulations codified the preexisting Agency procedure in effect since 1984. That procedure involved EPA screening planned small-scale tests to evaluate the potential for adverse effects on human health or the environment. EPA would then determine whether to require an EUP for carrying out the test.¹⁶

The 1994 rule applies to small-scale testing of microbial pesticides whose

⁵FIFRA § 5, 7 U.S.C. § 136c.

⁶40 C.F.R. § 172.3(c)(1).

⁷49 Fed. Reg. 40,659 (Oct. 17, 1984); 51 Fed. Reg. 23,302, 23,320 (June 26, 1986).

⁸49 Fed. Reg. 40,659 (Oct. 17, 1984); 51 Fed. Reg. 23,302, 23,321-23 (June 26, 1986).

⁹50 Fed. Reg. 33,841 (Aug. 21, 1985) (the bacteria, which lack the ability to nucleate frost on plant surfaces, were intended to protect plants against frost damage).

¹⁰50 Fed. Reg. 49,762 (Dec. 4, 1985).

¹¹*Foundation on Economic Trends v. Thomas*, 637 F. Supp. 25, 24 Env't. Rep. Cas. (BNA) 1098, 16 Env'tl. L. Rep. 20632 (D.D.C. 1986).

¹²EPA suspended the EUPs and brought an enforcement action that sought to impose a \$20,000 fine on the grounds that the applicant had knowingly submitted false information in support of the EUP applications. A settlement agreement amended the complaint by reducing the charge from knowing falsification to failure to report and reduced the fine to \$13,000. *In re Advanced Genetic Sciences*, No. FIFRA-86-H-05 (filed Mar. 28, 1985). The company eventually submitted new data to EPA's satisfaction.

¹³*Foundation on Economic Trends v. Thomas*, 637 F. Supp. 25, 24 Env't. Rep. Cas. (BNA) 1098, 16 Env'tl. L. Rep. 20632 (D.D.C. 1986).

¹⁴*See, e.g.*, 51 Fed. Reg. 22,858 (June 23, 1986); 53 Fed. Reg. 32,440 (Aug. 25, 1988); 54 Fed. Reg. 13,740 (Aug. 5, 1989); 54 Fed. Reg. 15,255 (Apr. 17, 1989); 55 Fed. Reg. 13,954 (Apr. 13, 1990); 56 Fed. Reg. 10,555 (Mar. 13, 1991).

¹⁵59 Fed. Reg. 45,600 (Sept. 1, 1994) (codified at 40 C.F.R. Pt. 172, Subpt. C).

¹⁶*Id.* at 45,601.

pesticidal properties have been imparted or enhanced by the introduction of genetic material that has been deliberately modified.¹⁷ Small-scale tests include the experimental use of a microbial pesticide in a facility such as a laboratory or greenhouse, or in limited replicated field trials or other tests conducted on a cumulative total of no more than 10 acres of land or one surface acre of water per pest.¹⁸ The phrase “introduction of genetic material” is defined broadly to include the movement of nucleotide sequences into a microorganism regardless of the technique used, and the phrase “deliberately modified” is defined as the directed addition, rearrangement, or removal of nucleotide sequences to or from genetic material.¹⁹ The term “microorganism” includes a bacterium, fungus, alga, virus, or protozoan.²⁰

In promulgating the regulations, EPA significantly reduced the number of notifications that applicants must submit, relative to prior EPA policy.²¹ The regulations carve out a specific exemption for an entire category of low-risk experiments involving microbial pesticides resulting from deletions or rearrangements within a single genome that are brought about by the introduction of genetic material that has been deliberately modified.²² In addition, testing conducted in a facility with adequate containment and inactivation controls, as specified in the rule, does not require notification.²³ Finally, the rule exempts from review certain nonindigenous microbial pesticides, with the exception of those that have not been acted on by, or are not pending before, USDA.²⁴

Applicants must submit notification to EPA at least 90 days prior to the initiation of the proposed test. Notification must include data on the microorganism involved and its potential effects, including such information as host range, survival and ability to increase in numbers in the environment, relative environmental competitiveness compared to the parental strain, potential for genetic transfer and exchange with other organisms, genetic stability of any inserted sequences, and means of evaluating potential adverse effects and methods of controlling the microorganism if detected beyond the test area.²⁵

EPA then reviews and evaluates the data submitted and makes a determination no later than 90 days after receipt of a complete notification.²⁶ However, the proposed test may not proceed until the submitter has received notice from EPA that the Agency has approved the test.²⁷ EPA may respond to a notification by (1) requiring additional data, (2) approving the test as proposed, (3) approving the test with modifications, (4) requiring an EUP for the test, or (5) disapproving the test because of the potential for unreasonable adverse effects.²⁸

The rule includes a petition process by which additional pesticides may be proposed for exemption, and an explicit reminder of the obligation for those conduct-

¹⁷*Id.* at 45,612.

¹⁸*Id.* at 45,611-12.

¹⁹*Id.*

²⁰*Id.*

²¹*Id.* at 45,602.

²²*Id.*

²³*Id.*

²⁴*Id.* This category consists of those nongenetically modified microbes that are isolated outside of, and brought into: (1) the continental United States, including Alaska, and the immediately adjoining countries of Canada and Mexico; (2) the Hawaiian Islands; and (3) the Caribbean Islands, including Puerto Rico and the U.S. Virgin Islands.

²⁵*Id.* at 45,613-14.

²⁶*Id.* at 45,614.

²⁷*Id.*

²⁸*Id.*

ing tests on microbial pesticides to submit information of adverse health and environmental effects to EPA regardless of whether the pesticide is subject to notification or is exempt.²⁹ Finally, the regulations warn that EPA may seek civil or criminal penalties or otherwise invoke the sanctions provided for under FIFRA for violations of the regulations or the terms or conditions of the approval given by EPA, or for use of a microbial pesticide in a manner that creates an imminent threat of substantial harm to health or the environment.³⁰

§ 19:20 Federal Insecticide, Fungicide, and Rodenticide Act—Plant-incorporated protectants

Through modern genetic techniques, it is possible to develop plants whose genetic structure has been altered or manipulated to exhibit pesticidal traits. In particular, these techniques permit the development of plants that produce their own pesticides or are otherwise resistant to insects, viruses, and other plant pests. This capability is an extension of traditional plant breeding techniques that attempt to select the heartiest and most disease-resistant strains for use in producing hybrid seeds and plants. In many cases the active pesticidal entity or “active ingredient” would be a protein produced by the plant. Following a lengthy review of regulatory options for addressing pesticidal substances that are produced in living plants, but not extracted from the plants, EPA announced its intention to regulate these substances—but not the plants themselves—as “plant-pesticides” under FIFRA.² In addition, for crop plants, residues of the pesticide anticipated in the food or feed would require a separate safety determination by EPA pursuant to a rulemaking conducted under the FFDCA.³

After a protracted rulemaking proceeding,⁴ which included a delay while key issues were reviewed by a committee convened by the National Research Council,⁵ EPA promulgated final rules in 2001 for regulating what the Agency now refers to as “plant-incorporated protectants” (PIPs).⁶ As a practical matter, the Agency had been implementing the essential elements of the 1994 proposal in registration and tolerance decisions made since 1995.⁷

Keeping abreast of scientific developments, EPA issued an advance notice of

²⁹*Id.* at 45,615.

³⁰*Id.*

[Section 19:20]

¹FIFRA § 2(a), 7 U.S.C. § 136(a).

²59 Fed. Reg. 60,496 (Nov. 23, 1994).

³*Id.*; See FFDCA § 408, 21 U.S.C. § 346a.

⁴The process was complicated due to the need to address EPA’s pesticide responsibilities under both FIFRA and the FFDCA, both of which were amended during the rulemaking by the Food Quality Protection Act. Pub. L. No. 104-107, 110 Stat. 1489 (1996). In deciding how best to address genetic engineering techniques for pesticides, EPA convened three conferences of regulators and scientists between 1987 and 1990 and sought advice from the Agency’s Scientific Advisory Panel and Biotechnology Advisory Committee in public meetings held between 1992 and 1994. See 66 Fed. Reg. 37,771, 37,775 (July 19, 2001) (discussing conferences). A package of five policy statements and rulemaking proposals was published for public comment in 1994, followed by requests for public comment on three supplemental proposals that addressed specific elements of the original notice. See *id.*

⁵National Research Council, GENETICALLY MODIFIED PEST-PROTECTED PLANTS: SCIENCE AND REGULATION (2000).

⁶66 Fed. Reg. 37,771 (July 19, 2001) (establishing a new Part 174 of Title 40 C.F.R.). Interestingly, one of the most controversial issues focused on the appropriate nomenclature for the substances being regulated by EPA. See, e.g., 66 Fed. Reg. 37,771, 37,781 (July 19, 2001).

⁷See U.S. EPA, *Current and Previously Registered Section 3 Plant-Incorporated Protectant (PIP) Registrations*, <https://www.epa.gov/ingredients-used-pesticide-products/current-and-previously-registered-section-3-plant-incorporated> (last visited Jan. 12, 2022) (listing current and previously registered

proposed rulemaking in 2020 regarding possible exemptions for certain PIPs derived from newer technologies.⁸ Under EPA regulations, the term “plant-incorporated protectant” is formally defined as “a pesticidal substance that is intended to be produced and used in a living plant, or in the produce thereof, and the genetic material necessary for production of such a pesticidal substance.”⁹ It also includes any inert ingredient “contained in the plant, or produce thereof.”¹⁰ In turn, “pesticidal substance” is defined as “a substance that is intended to be produced and used in a living plant, or in the produce thereof, for a pesticidal purpose, during any part of a plant’s life cycle (e.g., in the embryo, seed, seedling, mature plant).”¹¹ The term “produce thereof,” when used with respect to plants containing PIPs, means “a product of a living plant containing a plant-incorporated protectant, where the pesticidal substance is intended to serve a pesticidal purpose after the product has been separated from the living plant.”¹² Examples of such products might include agricultural produce, grains, and lumber. Importantly, EPA noted that products, such as raw agricultural commodities bearing pesticide chemical residues, are not “produce thereof” when the residues are not intended to serve a pesticidal purpose in the produce.¹³

EPA has approved several dozen of these PIPs for commercial sale and use in corn, cotton, soybean, potato, plum, and papaya.¹⁴ The EPA regulatory process governing approval of PIPs typically proceeds in two or three distinct stages, depending on the product involved. First, researchers interested in conducting field tests, typically on over 10 acres of land, apply for an EUP under § 5 of FIFRA.¹⁵ Generally at this point small-scale field tests have already been conducted pursuant to a permit or notification under USDA’s permit program.¹⁶ If granted, an EUP allows research to proceed, subject to monitoring requirements and under carefully controlled conditions that address such factors as the size and location of test plots, duration of plantings, and the use of cultivated crops, which generally are prohibited from entering the food supply.¹⁷ The next stage, which applies to some but not all products, involves an application to EPA for a registration that is limited to the production of propagative plant products such as seeds, tubers, corns, and cuttings.¹⁸ The production of these plant reproductive materials is an integral step in the development of certain commercial plant varieties. The final stage involves submission to EPA of an application for a registration under § 3 of FIFRA that will autho-

FIFRA § 3 PIPs and showing 34 active ingredient registrations for PIPs were current as of December 2021); *see also* National Research Council, *GENETICALLY MODIFIED PEST-PROTECTED PLANTS: SCIENCE AND REGULATION* 30-32 (2000).

⁸85 Fed. Reg. 64,308 (Oct. 9, 2020).

⁹40 C.F.R. § 174.3.

¹⁰*Id.*

¹¹*Id.*

¹²*Id.*

¹³*Id.*

¹⁴*See* U.S. EPA, *Current and Previously Registered Section 3 Plant-Incorporated Protectant (PIP) Registrations*, <https://www.epa.gov/ingredients-used-pesticide-products/current-and-previously-registered-section-3-plant-incorporated> (last visited Jan. 12, 2022).

¹⁵*See* FIFRA § 5(a), 7 U.S.C. § 136c(a); *see also* 40 C.F.R. § 172.3.

¹⁶*See* 7 C.F.R. § 340.4(d); *see also* discussion of PPA at § 19:15.

¹⁷40 C.F.R. §§ 172.3, 172.5, 172.8.

¹⁸*See, e.g.*, Notice of Limited Plant Propagation Registration for a Plant-Pesticide, 60 Fed. Reg. 4,910 (Jan. 25, 1995); *see also* U.S. EPA, *Are Bt Crops Safe?*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/are-bt-crops-safe> (last visited Jan. 12, 2022).

rize full commercialization of the PIP.¹⁹ Assuming the plant will be used for food or feed, the applicant must also petition for establishment of a food safety tolerance for the pesticidal substance, typically a protein, or an exemption from tolerance requirements under § 408 of the FFDCA.²⁰

EPA granted the first registration for a PIP to Monsanto Company in 1995 for a potato, under the trade name NewLeaf, that contained the genetic material needed to produce an insecticide within the plant.²¹ The plant-incorporated protectant was produced when genetic material necessary to make an insecticidal protein was taken from a naturally occurring bacterium, *Bacillus thuringiensis* or “B.t.,” and transferred to the potatoes. The insecticidal protein was produced in very small quantities by the potato plant and was specifically designed to control the Colorado potato beetle, a serious plant pest. EPA found that the protein is nontoxic to mammals, birds, and most other insects, and would eliminate the use of traditional chemical pesticides sprayed on the crop to control the Colorado potato beetle.²² In addition to the registration granted under FIFRA, EPA also issued an exemption from the requirement for a tolerance under the FFDCA for residues of the insecticidal protein and the genetic material necessary for its production in the potatoes.²³ The technology has advanced considerably since the early approvals. In 2011, EPA registered the first combination product to include a “stack” of multiple insect-resistant traits referred to as SmartStax.²⁴ EPA has additionally registered B.t. PIPs deployed as “pyramids,” where two or more proteins are used to address a single pest.²⁵

EPA used the new rules issued in 2001 as an opportunity to address the relationship between plants and PIPs and clarify that plants used as biological control agents remain exempt from FIFRA requirements.²⁶ In particular, EPA confirmed that it was not regulating plants or varieties of plants per se, but rather the pesticidal substances produced in the plants.²⁷

In general, macroorganisms intended to function as biological control agents have been exempted by EPA from regulation under FIFRA.²⁸ EPA defines a “biological control agent” as “any living organism applied to or introduced into the environment that is intended to function as a pesticide against another organism declared

¹⁹See FIFRA § 3(c), 7 U.S.C. § 136a(c).

²⁰See FFDCA § 408(a)(1), (d)(1), 21 U.S.C. § 346a(a)(1), (d)(1). Tolerances and tolerance exemptions for residues of PIPs in food or feed are codified in EPA’s pesticide regulations at 40 C.F.R. Pt. 174, Subpt. W.

²¹U.S. EPA, Press Advisory, *EPA Issues Registration and Approves Full Commercialization for Potato Plant-Pesticide* (May 5, 1995) (on file with the Environmental Law Institute); see also 60 Fed. Reg. 4,910 (Jan. 25, 1995). Before EPA’s registration actions under FIFRA, APHIS determined that Monsanto’s genetically engineered potato lines did not present a plant-pest risk and, therefore, were not considered regulated articles under the plant-pest regulations. 60 Fed. Reg. 13,108 (Mar. 10, 1995).

²²U.S. EPA, Press Advisory, *EPA Issues Registration and Approves Full Commercialization for Potato Plant-Pesticide* (May 5, 1995).

²³60 Fed. Reg. 21,725 (May 3, 1995); see also 59 Fed. Reg. 49,351, 49,353 (Sept. 28, 1994).

²⁴See U.S. EPA, *Biopesticides Registration Action Document, MON 89034 x TC1507 x MON 88017 x DAS-59122-7 (SmartStax®), B.t. Corn Seed Blend* (Nov. 29, 2011), <https://archive.epa.gov/pesticides/registration/web/pdf/smartstax-seedblend.pdf> (last visited Jan. 12, 2022).

²⁵U.S. EPA, *Insect Resistance Management for Bt Plant-Incorporated Protectants*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/insect-resistance-management-bt-plant-incorporated> (last visited Jan. 12, 2022).

²⁶66 Fed. Reg. 37,771, 37,777 (July 19, 2001).

²⁷See, e.g., *id.* at 37,777, 37,786, 37,792.

²⁸40 C.F.R. § 152.20(a).

to be a pest” under FIFRA.²⁹ This exemption applies to all biological control agents other than eucaryotic microorganisms, including protozoa, algae and fungi; procaryotic microorganisms, including bacteria; and parasitically-replicating microscopic elements, including viruses.³⁰ Coverage under the exemption extends to both invertebrate and vertebrate macroorganisms and is based on a finding that, in general, such organisms are adequately regulated by USDA and the U.S. Department of the Interior, respectively.³¹ While all living plants intended for use as biological control agents are exempt from FIFRA requirements, the regulatory status of PIPs is addressed separately under 40 C.F.R. Part 174.³² In the event that EPA determines that an individual biological control agent or class of biological control agents is no longer adequately regulated by another federal agency, and should not otherwise be exempted from the requirements of FIFRA, EPA has stated its intention to amend the regulation to revoke the exemption.³³

Pursuant to this exemption, macroorganisms such as ladybugs, mantises, chrysanthemums, and marigolds were formally exempted from regulation as pesticides. In particular, with respect to plants that met the definition of a biological control agent, EPA determined that USDA had mechanisms in place to adequately regulate those organisms.³⁴ The fact that most plants found in nature contain chemicals that may possess certain pesticidal properties did not lead EPA to conclude that regulation of plants as pesticides under FIFRA was warranted. This conclusion was in keeping with the Agency’s previously established policy of not imposing FIFRA requirements on macroscopic biological control agents.³⁵

The exemption for macroorganisms explicitly states that PIPs are not exempt, but, rather, are addressed in their own set of regulations.³⁶ An analysis of EPA’s proposed rules issued in 1994 and final rules issued in 2001 confirms that the Agency examined this issue at length and concluded that the existing exemption does not cover PIPs. It does, however, cover the plants in which the protectants are produced.³⁷

The only practical difference between an EUP or a registration for a conventional chemical pesticide and an EUP or a registration for a pesticide expressed in a genetically engineered plant is that, in the case of the conventional product, the pesticide is applied to the plant or the soil as opposed to being present in the plant itself. Regulation of pesticides produced in plants through genetic engineering has been a prudent course to follow as the technology proved its safety and its value to growers and the environment.³⁸ Now that those objectives have been met, the Agency has presumably gained sufficient experience to make informed decisions with respect to possible new science-based exemptions in line with those provided for

²⁹*Id.* § 152.3.

³⁰*Id.* § 152.20(a)(1), (3).

³¹46 Fed. Reg. 18,322, 18,323–24 (Mar. 24, 1981); 47 Fed. Reg. 23,928, 23,929–30 (June 2, 1982); FIFRA § 25(b)(1), 7 U.S.C. § 136w(b)(1).

³²40 C.F.R. § 152.20(a)(4).

³³*Id.* 152.20(a)(2).

³⁴46 Fed. Reg. 18,322, 18,323 (Mar. 24, 1981); 47 Fed. Reg. 23,928, 23,929–30 (June 2, 1982).

³⁵44 Fed. Reg. 28,093, 28,094 (May 14, 1979).

³⁶40 C.F.R. § 152.20(a)(4).

³⁷*See generally* 59 Fed. Reg. 60,496, 60,499–507 (Nov. 23, 1994); 59 Fed. Reg. 60,519, 60,520–28 (Nov. 23, 1994); 66 Fed. Reg. 37,771, 37,786 (July 19, 2001). Plants engineered to produce a pesticidal substance are subject to regulation by USDA APHIS under regulations at 7 C.F.R. Pt. 340, discussed under § 19:15.

³⁸*See, e.g.,* Chris A. Wozniak & Jeannette C. Martinez, *U.S. EPA regulation of plant-incorporated protectants: assessment of impacts of gene flow from pest-resistant plants*, 59 J. AGRIC. FOOD CHEM. 5859 (2011).

certain other pesticide products.³⁹

Where the pesticide itself is regulated under FIFRA, there should be no need to regulate the plant as a pesticide, and EPA has repeatedly confirmed its decision to proceed in that manner.⁴⁰ The plant would be subject to regulation by EPA only indirectly and only to the extent necessary to assure adequate regulation of the pesticide in the plant. A variety of terms and conditions are routinely imposed on the sale and use of pesticides under registrations and EUPs. The plants themselves are subject to regulation directly by USDA.⁴¹

Current genetic manipulation techniques also permit development of plants designed to exhibit tolerance to herbicides and other agricultural chemicals.⁴² The pesticides to which the plants in question would be tolerant would have to be registered by EPA under FIFRA. Even if already registered, an amendment would be required to the registration in order to permit use of the pesticide on the plants in question or at the higher application rate permitted as a result of the engineered tolerance of the plants.⁴³ Where food or feed crops are involved, the possibility of pesticide residues would have to be addressed under the FFDCA. The widespread adoption of herbicide tolerant crops has generated considerable controversy due to the concern that this might increase the use of traditional chemical pesticides particularly if instructions for use are not followed.⁴⁴ As to the widespread commercial adoption of PIPs, the only meaningful concern identified has been the potential development of resistance by the lepidopteran pests, such as corn rootworm, that the proteins expressed by the modified crops are designed to target. EPA has moved aggressively to address this concern through consultations with independent experts and a variety of insect resistance management (IRM) conditions imposed on the PIP registrants.⁴⁵

§ 19:21 Federal Insecticide, Fungicide, and Rodenticide Act—Summary of FIFRA

There is little controversy about the application of FIFRA to genetically engineered microorganisms. FIFRA provides EPA ample authority to conduct pre-release reviews of an important category of microbial pesticides and to register those that meet FIFRA's exacting standards. EPA first announced a policy interpreting that authority in 1984 and immediately put in place a program implementing that policy. With respect to plants whose genetic structure is modified to exhibit pesticidal traits, the Agency has successfully asserted jurisdiction over the pesticidal substance in those plants, has reviewed and approved numerous applications for field testing and has registered numerous PIPs expressed in corn, cotton, soybeans,

³⁹See, e.g., 40 C.F.R. § 152.20(a)(4) (establishing exemptions for certain biological control agents).

⁴⁰See generally 59 Fed. Reg. 60,496, 60,499–507 (Nov. 23, 1994); 59 Fed. Reg. 60,519, 60,520–28 (Nov. 23, 1994).

⁴¹See § 19:15.

⁴²See, e.g., 59 Fed. Reg. 26,781 (May 24, 1994).

⁴³See FIFRA § 2(ee), 7 U.S.C. § 136(ee).

⁴⁴See discussion of litigation challenging deregulation of herbicide tolerant crops by APHIS at § 19:16.

⁴⁵See, e.g., U.S. EPA, *Insect Resistance Management for Bt Plant-Incorporated Protectants*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/insect-resistance-management-bt-plant-incorporated> (last visited Jan. 12, 2022); U.S. EPA, *Framework to Delay Corn Rootworm Resistance*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/framework-delay-corn-rootworm-resistance> (last visited Jan. 12, 2022); U.S. EPA, *FIFRA Scientific Advisory Panel (SAP) Meetings Related to Biopesticides*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/fifra-scientific-advisory-committee-meetings-related> (last visited Jan. 12, 2022).

and a variety of other crops.¹

Although considered generally a satisfactory vehicle for premarket review, some may question the adequacy of the statute's enforcement mechanisms for controlling the use of engineered pesticides. As noted above, FIFRA often restricts pesticide registration to particular uses and conditions of use specified on the product label. For conventional chemical pesticides, much of the enforcement is directed toward ensuring that pesticides are applied in accordance with those restrictions. The enforcement effort relies heavily on inspections conducted at the state level where products are sold and used.

For PIPs, enforcement practices must follow a somewhat different path. Typically, the commercial product purchased by farmers is a bag of pest-protected seed. While the seed contains the genetic material needed for the plant to express the pesticidal substance, neither the seed nor the plant are regulated as a pesticide, nor are they labeled as such. Accordingly, it is the registrant that bears the burden of compliance with the terms and conditions of registration, and it is in those terms and conditions that the various restrictions specified by EPA are found. Farmers and other end users of seeds and plants that contain plant-incorporated protectants are bound by contractual or other commercial arrangements entered into with the registrant. As a practical matter, those arrangements take the place of a pesticide label and require compliance with the appropriate conditions of registration, such as insect resistance management.² For many pest-protected crops, such as insect-resistant corn and cotton, the registrants must provide their customers with a variety of educational materials and report to EPA at regular intervals on adherence by those customers to the specified registration conditions.³

EPA's current approach to enforcement of the terms and conditions of registration for PIPs appears to be working and FIFRA's enforcement authority appears to be adequate.⁴

§ 19:22 Toxic Substances Control Act¹

One of the most interesting statutes available to regulate the products of biotechnology is TSCA.² In contrast to FIFRA, which regulates a narrowly defined product category, TSCA is a comprehensive statute addressed to the full range of

[Section 19:21]

¹See U.S. EPA, *Current and Previously Registered Section 3 Plant-Incorporated Protectant (PIP) Registrations*, <https://www.epa.gov/ingredients-used-pesticide-products/current-and-previously-registered-section-3-plant-incorporated> (last visited Jan. 12, 2022).

²See generally U.S. EPA, *Framework to Delay Corn Rootworm Resistance*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/framework-delay-corn-rootworm-resistance> (last visited Jan. 12, 2022); U.S. EPA, *Introduction to Biotechnology Regulation for Pesticides*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/introduction-biotechnology-regulation-pesticides> (including discussion of IRM in Bt Crops) (last visited Jan. 12, 2022).

³See generally U.S. EPA, *Framework to Delay Corn Rootworm Resistance*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/framework-delay-corn-rootworm-resistance> (last visited Jan. 12, 2022); U.S. EPA, *Introduction to Biotechnology Regulation for Pesticides*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/introduction-biotechnology-regulation-pesticides> (including discussion of IRM in Bt Crops) (last visited Jan. 12, 2022).

⁴See, e.g., U.S. EPA, *Monsanto Company FIFRA Settlement*, <https://www.epa.gov/enforcement/monsanto-company-fifra-settlement> (last visited Jan. 12, 2022).

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¹See Chapter 16.

²TSCA §§ 2 to 601, 15 U.S.C. §§ 2601 to 2697; see also § 17; see generally U.S. EPA, *Overview of Biotechnology under TSCA*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/overview-biotechnology-under-tsca> (last visited Jan. 12, 2022).

problems associated with the manufacture of “chemical substances.”³ This term is defined to include tens of thousands of industrial and consumer chemicals that are not subject to regulation as pesticides, foods, drugs, or certain other specific product categories.⁴ The statute provides broad authority to regulate chemicals from cradle to grave, both prior to, during, and after manufacture, and includes the ability to gather information about the covered substances. TSCA provides EPA with an assortment of regulatory tools that can be used to oversee the commercial development, production, and use of biotechnology products.

Enacted in late 1976, TSCA was the product of six years of intense congressional debate.⁵ The central issue of the debate, the premanufacture review of chemicals, was finally resolved with a compromise between the burden the review program imposes on industry and the increment of safety it is expected to achieve.⁶ Just as at TSCA’s inception, following several years of deliberation, the statute underwent significant amendment in 2016 when Congress passed, with bipartisan support, and President Obama signed the Frank R. Lautenberg Chemical Safety for the 21st Century Act.⁷ Among other enhancements, the amendments require new chemicals to receive a more extensive, risk-based review and an affirmative safety evaluation from EPA prior to market entry.⁸ In addition, TSCA now sets out a mechanism for the collection of user fees, providing a new source of funding for the agency’s work.⁹ EPA uses TSCA to review the proposed manufacture and use of covered genetically engineered microorganisms on a case-by-case basis.¹⁰ Below is a discussion of some of the features of TSCA which are important to that end.

§ 19:23 Toxic Substances Control Act—Premanufacture notice program

TSCA administers a premanufacture review program for chemical substances that is midway in its burden on industry between the classical licensing scheme seen in FIFRA and the permitting scheme seen in the agricultural statutes. The premanufacture notice (PMN) program requires that manufacturers and importers give EPA 90 days’ notice of intent to manufacture or import¹ a “new” chemical substance,² defined as a chemical substance not currently listed on an inventory maintained by EPA.³ The TSCA Inventory is a list of chemical substances currently manufactured or processed, including imports, in the United States for uses under

³TSCA § 3(2)(A), 15 U.S.C. § 2602(2)(A).

⁴TSCA § 3(2)(A), (B), 15 U.S.C. § 2602(2)(A), (B). Excluded categories cover those products that were already subject to federal regulation under one or more federal statutes such as any pesticide, food, drug, cosmetic, medical device, tobacco, nuclear material, firearms, and ammunition.

⁵See Environment and Natural Resources Policy Division, Library of Congress, House Committee on Interstate and Foreign Commerce, *Legislative History of the Toxic Substances Control Act* 159 (Comm. Print 1976) [hereinafter TSCA Legislative History].

⁶TSCA Legislative History 161 (Comm. Print 1976).

⁷Pub. L. 114-182, 130 Stat. 448 (2016). See generally U.S. EPA, *Assessing and Managing Chemicals under TSCA, The Frank R. Lautenberg Chemical Safety for the 21st Century Act*, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/frank-r-lautenberg-chemical-safety-21st-century-act> (last visited Jan. 12, 2022).

⁸See § 19:23.

⁹TSCA § 26(b), 15 U.S.C. § 2625(b).

¹⁰See § 19:30.

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¹The term “manufacture” is defined under TSCA to include importation into the customs territory of the United States. TSCA § 3(7), 15 U.S.C. § 2602(7).

²TSCA § 5(a), 15 U.S.C. § 2604(a).

³Initially compiled in 1979, the TSCA Inventory is regularly updated with information on chemicals that pass PMN review. TSCA § 8(b), 15 U.S.C. § 2607(b).

TSCA.⁴ The notice must contain certain descriptive information, test data that are in the manufacturer's possession, and any other data on health or environmental effects known to or reasonably ascertainable by the manufacturer.⁵ During the 90-day period (which may be extended by EPA for good cause),⁶ EPA has an opportunity to request additional test data on the chemicals and, where the Agency has a concern about a chemical, it can request extensive testing and data submission.⁷ These requests for data are usually satisfied voluntarily by the manufacturers, although the high degree of cooperation is undoubtedly influenced by the several administrative and judicial actions available to EPA to coerce submissions.⁸ Like FIFRA, TSCA does not require that chemical substances meet a "zero risk" standard.⁹ TSCA's standard was, however, strengthened by the 2016 amendment and now requires an affirmative finding that the chemical substance in question "is not likely to present an unreasonable risk of injury to health or the environment, without consideration of costs or other nonrisk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant by the Administrator under the conditions of use."¹⁰

If EPA finds that a chemical may pose such an unreasonable risk to health or the environment, it must take action to the extent necessary to protect against such risk by rule or administrative order.¹¹ Such action may include establishing controls on the chemical's manufacture, processing, distribution, or disposal.¹²

If EPA makes a finding that a chemical is not likely to present an unreasonable risk of injury to health or the environment, or if the review period expires without any regulatory action being taken by the agency, the chemical may be manufactured or imported as intended by the PMN submitter.¹³ The same process applies with respect to commencement, manufacture, or processing for a significant new use of an existing chemical.¹⁴

For a new chemical substance, the final step for placement on the Inventory comes after the requisite filing of a Notice of Commencement (NOC) by the PMN submitter who has commenced manufacture or import of the substance for a non-exempt commercial purpose.¹⁵ The NOC must be submitted on, or no later than, the 30th calendar day after the first day of such manufacture or import.¹⁶ Once EPA receives a complete NOC, the reported substance is considered to be on the Inventory and becomes an "existing chemical." Chemicals on the Inventory can still be regulated by EPA but, in general, only through the relatively burdensome procedures of notice and comment rulemaking,¹⁷ or through the Agency obtaining a

⁴TSCA § 8(b), 15 U.S.C. § 2607(b). As of August 2021, the Inventory contained 86,607 chemicals of which 41,953 are commercially active. U.S. EPA, *How to Access the TSCA Inventory*, <https://www.epa.gov/tsca-inventory/how-access-tsca-inventory> (last visited Jan. 12, 2022).

⁵TSCA § 5(d), 15 U.S.C. § 2604(d).

⁶TSCA § 5(c), 15 U.S.C. § 2604(c).

⁷TSCA § 5(e), 15 U.S.C. § 2604(e).

⁸*Id.*

⁹*See, e.g.*, TSCA § 5(e)(ii)(1); 15 U.S.C. § 2604(e)(1)(A)(ii)(1).

¹⁰TSCA § 5(a), 15 U.S.C. § 2604(a)(3)(C).

¹¹TSCA § 5(f), 15 U.S.C. § 2604(f).

¹²*Id.*

¹³TSCA § 5(g), 15 U.S.C. § 2604(g).

¹⁴*Id.*

¹⁵40 C.F.R. § 720.102(a).

¹⁶*Id.* § 720.102(b).

¹⁷TSCA § 6(b), 15 U.S.C. § 2605(a) to (d).

court order.¹⁸

Over 40,000 PMNs were submitted to EPA since the new chemical review program began in fiscal year 1980 and up through June 22, 2016.¹⁹ Although it does not assure that all such new chemicals are free of risk, the program does submit each to a preliminary screening, requires additional data where needed, and regulates those that fail to meet the statute's unreasonable risk standard.²⁰ EPA estimates that approximately 10% of the total PMN submissions have resulted in various restrictions, additional testing requirements, and notices withdrawn in the face of regulation.²¹ For example, during this same 36-year period, 1,729 "Section 5(e) consent orders"²² were signed, controlling exposure to new chemical substances that raise health or environmental concerns pending development, receipt, and review of additional information.²³ Following passage of the 2016 amendments, another 658 Section 5(e) consent orders were signed through December 1, 2021,²⁴ and an almost equal number of chemicals (668) subject to either a PMN or Significant New Use Rule were cleared during this period based on an affirmative finding of "not likely to present an unreasonable risk" under Section 5(g).²⁵

TSCA's role providing for oversight of new chemical substances before they reach the workplace makes the statutory scheme a first line of defense with respect to chemicals that may pose a threat to the health and safety of American workers.

In March 2021, EPA announced its intent "to ensure necessary protections for workers identified in its review of new chemicals through regulatory means."²⁶ Specifically, EPA explained that, when the Agency "identifies a potential unreasonable risk to workers that could be addressed with appropriate personal protective equipment (PPE) and hazard communication, EPA will no longer assume that work-

¹⁸TSCA § 6, 15 U.S.C. § 2607.

¹⁹See U.S. EPA, *Statistics for the New Chemicals Review Program under TSCA*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last visited Jan. 12, 2022).

²⁰See generally U.S. EPA, *Actions under TSCA Section 5*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/actions-under-tsca-section-5> (last visited Jan. 12, 2022).

²¹See U.S. EPA, *Statistics for the New Chemicals Review Program under TSCA*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last visited Jan. 12, 2022).

²²TSCA § 5(e), 15 U.S.C. § 2604(e); see U.S. EPA, *Statistics for the New Chemicals Review Program under TSCA*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last visited Jan. 12, 2022). Over 2,000 PMNs were withdrawn by their submitter during this same period.

²³Section 5(e) orders impose conditions on the commercial manufacture and use of the new chemical substance such as use of worker personal protective equipment, exposure limits for workers, hazard communication requirements, restrictions on distribution and use, limits on environmental releases, recordkeeping, and testing requirements that apply once a specified production volume or time period is reached. Although EPA is authorized to issue such orders unilaterally, the vast majority are consent orders negotiated with the PMN submitter. See U.S. EPA, *Actions under TSCA Section 5*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/actions-under-tsca-section-5> (last visited Jan. 12, 2022); U.S. EPA, *TSCA Section 5(e) Exposure-Based Policy: Testing*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/tsca-section-5e-exposure-based> (last visited Jan. 12, 2022). Consent orders are often accompanied by a significant new use rule (SNUR) issued under TSCA § 5(a)(2), 15 U.S.C. § 2604(a)(2), discussed in § 19:25.

²⁴TSCA § 5(e), 15 U.S.C. § 2604(e); see U.S. EPA, *Statistics for the New Chemicals Review Program under TSCA*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last visited Jan. 12, 2022).

²⁵TSCA § 5(e), 15 U.S.C. § 2604(e); see U.S. EPA, *Statistics for the New Chemicals Review Program under TSCA*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last visited Jan. 12, 2022).

²⁶U.S. EPA, *Important Updates on EPA's TSCA New Chemicals Program*, <https://www.epa.gov/chemicals-under-tsca/important-updates-epas-tsca-new-chemicals-program> (last visited Jan. 12, 2022).

ers are adequately protected under OSHA's worker protection standards and updated Safety Data Sheets (SDS)."²⁷ EPA will instead "identify the absence of worker safeguards as 'reasonably foreseen' conditions of use, and mandate necessary protections through a TSCA section 5(e) order, as appropriate."²⁸ There so far have been very few legal challenges to regulation under the PMN program. The smooth functioning of the PMN program for chemicals depends in part on the economic incentives at work in the regulated community in the early stages of a chemical's development. The investment in chemicals is apparently substantial enough to incentivize manufacturers to perform the necessary tests to move a chemical through PMN review, but not large enough to justify litigation in case of disagreements with EPA. Industry prefers to avoid developing harmful products, and thus, in the early stages of a chemical's development, EPA and industry generally find it in their mutual interest to identify those that are potentially harmful.

This mutual interest was also evident in the passage of the 2016 amendments.

§ 19:24 Toxic Substances Control Act—Significant new use rules

The scope of the safety reviews conducted under the PMN program, including for microorganisms,¹ is limited in an important way. Generally, chemical risks are determined to be reasonable or unreasonable only on the basis of those exposures and health effects connected with the particular uses envisioned for the chemical at the time of the PMN review. Different uses could easily result in increased exposures sufficient to convert a reasonable risk into an unreasonable one. Yet, there is no provision in TSCA restricting uses to those specified in the PMN. In general, once they cease to be new and are entered into the Inventory, chemical substances may be produced by any manufacturer and used for any TSCA purpose absent regulatory action by EPA.

One important tool EPA possesses to address concerns over risks presented by new uses of existing chemicals is the ability to promulgate a significant new use rule (SNUR).² Using SNUR authority, EPA can promulgate a rule requiring notice of a new use of an existing chemical, which it can then subject to PMN review.³ Controls may be imposed on SNUR chemicals under the same § 2604 procedures that apply to new chemicals.⁴ In March 2021, EPA announced the Agency would stop issuing "not likely to present an unreasonable risk" determinations based on the existence of a proposed SNUR.⁵ Instead, EPA will issue an order addressing potential risks when it either: (1) concludes that one or more uses may present an unreasonable risk; or (2) lacks the necessary information to make a safety finding.⁶

SNUR authority is important to the regulation of engineered organisms because

²⁷*Id.*

²⁸*Id.*

[Section 19:24]

¹See discussion at § 19:26.

²TSCA § 5(a)(1)(A)(ii), (a)(2), 15 U.S.C. § 2604(a)(1)(A)(ii), (a)(2). EPA has issued over 2,000 SNURs as of this writing. See 40 C.F.R. Pt. 721, Subpt. E.

³A SNUR requires manufacturers, importers and processors of the chemical substance to notify EPA prior to beginning any activity that EPA designates as a "significant new use." See TSCA § 5(a)(1)(B), 15 U.S.C. § 2604(a)(1)(B); 40 C.F.R. Pt. 721, Subpt. A; EPA, *Actions under TSCA Section 5*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/actions-under-t-sca-section-5> (last visited Jan. 12, 2022).

⁴TSCA § 5(a)(3) to (f), 15 U.S.C. § 2604(a)(3) to (f); discussed in § 19:23.

⁵U.S. EPA, *Important Updates on EPA's TSCA New Chemicals Program*, <https://www.epa.gov/chemicals-under-tsca/important-updates-epas-tsca-new-chemicals-program> (last visited Jan. 12, 2022).

⁶*Id.*

all naturally occurring microbes are automatically included on the Inventory and have the status of existing chemicals.⁷ SNUR authority represents a mechanism by which defined classes of microbes or uses of microbes might be subject to PMN review despite the fact that they are similar or identical to organisms already on the Inventory.

Another major mechanism available to EPA for oversight of existing chemicals is the Chemical Data Reporting (CDR) rule. The rule requires certain manufacturers and importers of chemical substances to submit to EPA information on the production and use of many chemicals in commerce.⁸ Under the CDR rule, EPA collects basic exposure-related information including information on the types, quantities, and uses of chemical substances produced domestically and imported into the United States.⁹ The CDR database provides EPA with a comprehensive source of basic screening-level, exposure-related information, and the Agency uses it to protect the public from potential chemical risks.¹⁰ EPA collects the information every four years from manufacturers (including importers) of certain chemicals in commerce, generally when production volumes for the chemical are 25,000 pounds or greater for a specific reporting year.¹¹

§ 19:25 Toxic Substances Control Act—Information-gathering authority

In addition to the CDR rule discussed above, TSCA authorizes EPA to require the testing of chemicals and to take timely action on the basis of test results that provide a reasonable basis to conclude that a chemical or mixture presents a significant risk of serious or widespread harm to humans.¹ The 2016 amendments require EPA to establish a risk-based process to determine which existing chemicals will be prioritized for assessment, identifying them as either “high” or “low” priority substances.² A high priority designation would be based on a finding that, “without consideration of costs or other nonrisk factors, the chemical may present an unreasonable risk of injury to health or the environment because of a potential hazard and a potential route of exposure under the conditions of use, including an unreasonable risk to a potentially exposed or susceptible subpopulation” identified as relevant by the Agency.³ A high priority designation triggers a requirement and deadline for EPA to complete a risk assessment on that substance and, if an unreasonable risk is identified, the agency must take final risk management action within two years—or up to four years if an extension is needed.⁴

TSCA also authorizes EPA to impose on manufacturers (including importers), processors, and distributors requirements regarding the retention of reports of allegations of significant adverse reactions to health or the environment,⁵ the report-

⁷40 C.F.R. § 710.4(b).

⁸*Id.* Pt. 711. The authority for CDR is found in TSCA § 8(a), 15 U.S.C. § 2607(a).

⁹See U.S. EPA, *Basic Information about Chemical Data Reporting*, <https://www.epa.gov/chemical-data-reporting/basic-information-about-chemical-data-reporting> (last visited Jan. 12, 2022).

¹⁰*Id.*

¹¹40 C.F.R. Pt. 711. Microorganisms are currently exempt from CDR reporting. *Id.* § 711.6(a)(2).

[Section 19:25]

¹TSCA § 4, 15 U.S.C. § 2603.

²TSCA § 6, 15 U.S.C. § 2605(b)(1).

³TSCA § 6, 15 U.S.C. § 2605(b)(1)(B). Chemicals designated as low priority will not require a risk assessment.

⁴TSCA § 6, 15 U.S.C. § 2605(b)(3) to (4), (c). Costs and availability of alternatives may be considered when determining appropriate risk management actions.

⁵TSCA § 8(c), 15 U.S.C.A. § 2607(c).

ing of available health and safety studies on chemicals,⁶ and the reporting of information which supports the conclusion that chemicals present substantial risks of injury to health or the environment.⁷ EPA is additionally empowered to promulgate rules requiring manufacturers to maintain records and report various production, health, and exposure information.⁸ These authorities need not be confined to the support of regulations under TSCA; they could be the basis of a broader effort to collect the information needed to assess and regulate products under other federal statutes.⁹ Small manufacturers or importers are exempt from some of the information retention and gathering provisions,¹⁰ which could be a factor in view of the small size of many newly established biotechnology firms.

§ 19:26 Post-Market Regulation—Hazardous waste statutes¹

For more information, see Chapter 14 Soil and Groundwater.

§ 19:27 Toxic Substances Control Act—Using TSCA to regulate genetically engineered organisms—Jurisdiction

TSCA's broad sweep of authorities makes it an attractive basis for the regulation of genetically engineered organisms. But EPA had to confront a significant threshold problem in its use of the statute: TSCA does not expressly cover living organisms. Its jurisdictional provisions refer to "chemical substances," not living organisms.¹ Moreover, the legislative history of the statute does not mention living organisms.²

EPA nevertheless has asserted jurisdiction over both whole living organisms and the DNA they contain.³ According to EPA's interpretation, the definition of a chemical substance as "any organic or inorganic substance of a particular molecular identity, including any combination of such substances . . . occurring in nature"⁴ covers whole living organisms and their DNA. The interpretation is a potentially controversial one and, as a matter of policy, EPA has limited its TSCA activities concerning living organisms to microbes, intentionally excluding plants and animals.⁵ While there is no doubt that living organisms are composed of chemical molecules, some commentators disagree with EPA that whole organisms can be considered as chemical substances under TSCA.⁶ As a fallback, however, these commentators believe that recombinant DNA molecules within engineered organisms

⁶TSCA § 8(d), 15 U.S.C.A. § 2607(d).

⁷TSCA § 8(e), 15 U.S.C.A. § 2607(e).

⁸TSCA § 8(a), 15 U.S.C.A. § 2607(a).

⁹For a discussion of use of TSCA to support activities under other environmental statutes, see § 16:14.

¹⁰See TSCA § 8(a)(1)(A) to (B), 15 U.S.C. § 2607(a)(1)(A) to (B).

[Section 19:26]

¹See Chapter 14.

[Section 19:27]

¹TSCA § 3(2), 15 U.S.C. § 2602(2).

²See TSCA Legislative History 159 (Comm. Print 1976).

³49 Fed. Reg. 50,880, 50,886–97 (Dec. 31, 1984); 51 Fed. Reg. 23,302, 23,324 (June 26, 1986); 59 Fed. Reg. 45,526–27 (Sept. 1, 1994).

⁴TSCA § 3(2)(A)(i), 15 U.S.C. § 2602(2)(A)(i).

⁵51 Fed. Reg. 23,302, 23,324 (June 26, 1986); 59 Fed. Reg. 45,526–27 (Sept. 1, 1994). Legal support for coverage of microorganisms under TSCA was based, at least in part, on *Diamond v. Chakrabarty*, a 1980 Supreme Court decision which upheld the patentability of a genetically engineered microorganism under the Patent Act originally drafted by Thomas Jefferson. 447 U.S. 303 (1980).

⁶See Thomas O. McGarity & Karl O. Bayer, *Federal Regulation of Emerging Genetic Technologies*,

could serve as the basis for TSCA jurisdiction.⁷ To date, EPA's interpretation has not been subject to legal challenge.

§ 19:28 Toxic Substances Control Act—Using TSCA to regulate genetically engineered organisms—Small quantities and research activities

In an effort to reduce the burden on small businesses and research and development activities, TSCA specifically exempts from the notice and data provisions of § 2604 chemicals that are manufactured in small quantities solely for the purpose of scientific experimentation or research for product development.¹ Small quantities are to be defined by rule.² In accordance with this provision, EPA has specified the conditions under which a microorganism is considered not to qualify for the research and development exemption.³

As recognized by EPA in the Coordinated Framework, the application of the small quantity exemption to genetically engineered microorganisms would permit deliberate releases into the environment during the stage in product development before the organisms were ready for PMN review.⁴ EPA is concerned with potential consequences of applying this exemption to living microorganisms, which can multiply: although their amounts may be small, unlike chemicals, the effects may be much greater.⁵

To eliminate this loophole, in 1997, EPA promulgated a rule defining “small quantities” as limited to contained uses of microorganisms for research and development purposes.⁶ Under EPA's rule, there is no small quantities exemption for microorganisms introduced into the environment during commercial research and development.⁷ The rule establishes the rough functional equivalent of the EUP system for small acreage testing of pesticides under FIFRA.⁸

The PMN program would not apply to the release of genetically engineered microorganisms developed for purely academic or other noncommercial purposes.⁹ For purposes of § 2604, “manufacture” and “process” are specifically defined as “manufacturing or processing for commercial purposes.”¹⁰

36 Vand. L. Rev. 461, 505–06 (1983); William G. Schiffbauer, *Regulating Genetically Engineered Microbial Products Under the Toxic Substances Control Act*, 15 Env'tl. L. Rep. 10,279, 10,281–84 (1985).

⁷See Thomas O. McGarity & Karl O. Bayer, *Federal Regulation of Emerging Genetic Technologies*, 36 Vand. L. Rev. 461, 505–06 (1983); William G. Schiffbauer, *Regulating Genetically Engineered Microbial Products Under the Toxic Substances Control Act*, 15 Env'tl. L. Rep. 10,279, 10,281–84 (1985).

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¹TSCA § 5(h)(3), 15 U.S.C. § 2604(h)(3).

²*Id.*

³62 Fed. Reg. 17,910, 17,921 (Apr. 11, 1997).

⁴49 Fed. Reg. 50,880, 50,886–97 (Dec. 31, 1984); 51 Fed. Reg. 23,302, 23,330 (June 26, 1986).

⁵49 Fed. Reg. 50,880, 50,886–97 (Dec. 31, 1984); 51 Fed. Reg. 23,302, 23,330 (June 26, 1986); *see also* 62 Fed. Reg. 17,910, 17,921–22 (Apr. 11, 1997).

⁶62 Fed. Reg. 17,910, 17,934, 17,947 (Apr. 11, 1997).

⁷*Id.*

⁸*See* § 19:20.

⁹*See* 62 Fed. Reg. 17,910, 17,922–23 (Apr. 11, 1997).

See 50 Fed. Reg. 45,526, 45,528 (Oct. 31, 1994); 62 Fed. Reg. 17,910, 17,921–22 (Apr. 11, 1997). *See* discussion of NIH Guidelines at § 19:11.

¹⁰TSCA § 5(i), 15 U.S.C. § 2604(i) (emphasis added).

§ 19:29 Toxic Substances Control Act—Using TSCA to regulate genetically engineered organisms—Levels of review

Like the FIFRA program, the TSCA program established different levels of review based on the definitions in the Coordinated Framework and EPA's 1997 rule.¹ The highest level of review is conducted through the mechanism of PMNs, which are required for microorganisms that are either (1) considered to be “new” chemical substances under TSCA, or (2) subject to SNURs.² EPA refers to either type of notification as a Microbial Commercial Activity Notice, or MCAN.³

Microorganisms resulting from deliberate, intergeneric combinations of genetic material are considered “new” for purposes of TSCA.⁴ For such new microorganisms, EPA requires MCAN submissions that contain information on the microorganism's identity, byproducts, intended categories of use, production volumes, workplace exposure, and environmental release.⁵ In accordance with the OSTP framework document, certain new microorganisms constructed by the transfer of well-characterized, noncoding regulatory sequences may qualify for an exemption from high-level PMN review.⁶

EPA's rule provides a tiered exemption from the requirement to submit a MCAN for microorganisms intended for “general commercial use,” defined by EPA as use for commercial purposes other than research and development.⁷ Commercial activities that meet specified criteria would qualify for either a Tier I exemption on the basis of a limited certification to EPA, making the activity completely exempt from further EPA review, or a Tier II exemption, allowing for an abbreviated submission and expedited EPA review.⁸ Three requirements must be met in order to qualify for either tier: (1) the recipient organism must be specifically listed by EPA; (2) the introduced genetic material must meet designated criteria—well characterized, limited in size to the material required to perform the intended function, poorly mobilizable, and free of certain sequences; and (3) the activity must utilize performance-based criteria for physical containment and control of the new microorganisms.⁹

Although researchers are free to submit a complete MCAN as required for commercial use, EPA offers several exemptions from MCAN reporting that reduce the researcher's reporting obligations under § 2604. The first exemption is based on the “small quantities” definition and applies to research carried out in contained structures.¹⁰ The remaining exemptions cover research subject to the jurisdiction of other federal authorities, field experiments with microorganisms that EPA has specifically exempted from review, certain test marketing activities, and small-scale tests for which a TSCA Experimental Release Application (TERA) is approved by EPA.¹¹ All of the exemptions are conditional, in that they involve reduced reporting and/or recordkeeping and must meet stringent eligibility criteria established by the

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¹51 Fed. Reg. 23,302, 23,324–32 (June 26, 1986); 62 Fed. Reg. 17,910 (Apr. 11, 1997).

²62 Fed. Reg. 17,910, 17,943–46 (Apr. 11, 1997).

³*Id.*

⁴*Id.* at 17,913, 17,934.

⁵*Id.* at 17,944–45.

⁶*Id.* at 17,952.

⁷*Id.* at 17,933.

⁸*Id.* at 17,916–21, 17,951–55.

⁹*Id.*

¹⁰*Id.* at 17,923–24, 17,947–48; *see also* § 19:27.

¹¹62 Fed. Reg. 17,910, 17,923–26, 17,946–51 (Apr. 11, 1997).

Agency.¹²

The TERA is intended to provide an abbreviated notification process for the environmental testing of new microorganisms by providing EPA with sufficient information to permit a reasoned evaluation of the potential health and environmental effects of the planned test.¹³ Information to be provided to EPA includes all available data concerning actual or potential human health and environmental effects of the new microorganism; a detailed description of the proposed research and development activity; and information on monitoring, confinement, mitigation, and emergency termination procedures.¹⁴

With the cooperation of the regulated industry, EPA has successfully implemented the TSCA program originally set forth in the Coordinated Framework. In particular, EPA reviewed 101 MCANs from 1998 through February of 2016, the vast majority of which were “dropped from review” after EPA was unable to identify any unreasonable risk to health or the environment or any substantial or significant exposure, allowing the submitter to begin commercialization.¹⁵ One of the MCANs was withdrawn by the submitter.¹⁶ Since February 2016, over 170 MCANs have been filed with EPA.¹⁷ Of these, EPA determined that over 130 were not likely to present an unreasonable risk, pursuant to TSCA § 5(a)(3)(C).¹⁸ Also during the 1998 to 2016 period, EPA reviewed and approved 30 TERAs, while review of three others was suspended or found to be invalid for various reasons.¹⁹ Post-2016, EPA has received 11 additional TERAs, 7 of which have been approved.²⁰ The promulgation of the 1997 rule for microbial products of biotechnology clarified the review requirements that apply to all activities involving genetically engineered microorganisms subject to TSCA jurisdiction.

§ 19:30 Toxic Substances Control Act—Using TSCA to regulate genetically engineered organisms—Activities covered

TSCA applies primarily to chemical substances produced for commercial purposes. Of the three activities mentioned at the outset of this section as being likely to involve intentional releases of genetically engineered organisms, TSCA provides ample authority for the regulation of commercial manufacture and commercial research and development activities, but only scant authority over pure scientific research. Different authorities under TSCA apply to different activities. The premanufacture review provisions of § 2604 specifically cover commercial

¹²*Id.*

¹³59 Fed. Reg. 45,526, 45,533 (Sept. 1, 1994). Although research and development activities are eligible for reporting using the TERA process, EPA expects that TERA will be used primarily for environmental release experiments. *Id.*; 62 Fed. Reg. 17,910, 17,925 (Apr. 11, 1997).

¹⁴62 Fed. Reg. 17,910, 17,949–50 (Apr. 11, 1997).

¹⁵See U.S. EPA, *TSCA Biotechnology Notifications Status for Cases Reviewed Prior to June 22, 2016*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/tsca-biotechnology-notification-s-status-cases-reviewed> (last visited Jan. 12, 2022).

¹⁶*Id.*

¹⁷U.S. EPA, *Reviewing New Chemicals Under the Toxic Substances Control Act (TSCA), Microbial Commercial Activity Notices (MCANs) Table*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/microbial-commercial-activity> (last visited Jan. 12, 2022).

¹⁸*Id.*

¹⁹See U.S. EPA, *TSCA Biotechnology Notifications Status for Cases Reviewed Prior to June 22, 2016*, <https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/tsca-biotechnology-notification-s-status-cases-reviewed> (last visited Jan. 12, 2022).

²⁰U.S. EPA, *Reviewing New Chemicals Under the Toxic Substances Control Act (TSCA), Exemptions Table*, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/exemptions-table> (last visited Jan. 12, 2022).

manufacture and all commercial research and development except for that covered under the small quantity exemption, but exclude chemical substances used in research conducted for other than commercial purposes.¹ Many of the existing chemical provisions of § 2605 are also restricted by use and are not available to reach every chemical that poses an unreasonable risk.² In contrast, the emergency authority provided to EPA under § 2606 to address imminent hazards is not limited to commercial activities.³ Section 2607 information-gathering authorities regarding adverse health reactions, health and safety studies, and information on substantial risk are restricted to commercial manufacturers and distributors of chemicals,⁴ but the general reporting authority of § 2607(a) authorizes EPA to collect information on both commercial chemicals and chemicals used for the purposes of scientific experimentation from all who manufacture or process chemicals except small manufacturers or processors.⁵

§ 19:31 Toxic Substances Control Act—Using TSCA to regulate genetically engineered organisms—Pre-release review

The PMN program is not a permit program; the stringency of reviews conducted under it may vary enormously. No standard set of tests is required, but TSCA gives EPA full discretion to request any data it believes it needs. As noted above, EPA's requests for test data on chemicals have usually elicited voluntary submissions from industry. The question is whether the balance of incentives that make the PMN system function smoothly in the case of chemicals will continue to work smoothly for engineered microorganisms as it has since 1998. There are two factors to be considered in this regard.

The first relates to the enormous degree to which the success of any program will depend upon EPA's willingness to exercise its discretion and obtain the data necessary for review. As written, the MCAN rule requires submission of substantial amounts of data as a routine matter for new microorganisms, including information on microorganism identity, byproducts, production volume, use, worker exposure, environmental release, and available data on health and environmental effects.¹

The second factor is the effectiveness of the backup enforcement authority available to EPA. The effectiveness of the enforcement provisions of § 2604 has heretofore not been tested because the incentives are such that most manufacturers would rather drop the development of the chemical than litigate an adverse decision from EPA. If a biotechnology manufacturer chose not to cooperate with requests for data, EPA would likely respond by issuing a § 2604(e) administrative order to obtain the data. If the manufacturer failed to comply with the order, EPA would be forced to seek an injunction. TSCA requires that, in order to prevail in such a proceeding, EPA would have to demonstrate, among other things, either (1) that the microorganism may present an unreasonable risk of injury to health or the environment or (2) that it would be produced in substantial quantities and either enter or reasonably be anticipated to enter into the environment in substantial quantities or there is or

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¹TSCA § 5(i), 15 U.S.C. § 2604(i).

²TSCA § 6(a), 15 U.S.C. § 2605(a).

³TSCA § 7, 15 U.S.C. § 2606; *see* § 19:33.

⁴TSCA § 8(c), (d), (e), 15 U.S.C. § 2607(c), (d), (e).

⁵TSCA § 8(a)(1)(A) to (B), 15 U.S.C. § 2607(a)(1)(A) to (B).

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¹62 Fed. Reg. 17,910, 17,944–45 (Apr. 11, 1997).

may be significant human exposure to the substance.² Unless EPA possessed or could generate data of its own on the behavior of the organism in the environment or on the health or environmental risks posed by the organism, there is always a chance that it would not succeed in enforcing its order. Such a result would provide an incentive to manufacturers to fail to supply health data to EPA. It is likely, however, that a reviewing court would accord substantial deference to EPA, particularly on a matter related to a novel microorganism.

§ 19:32 Toxic Substances Control Act—Using TSCA to regulate genetically engineered organisms—Imminent hazards

TSCA provides emergency authority that EPA might use if a genetically engineered organism turns out to cause unanticipated adverse health or environmental effects. Section 2606 of TSCA authorizes EPA to bring a civil action for seizure of imminently hazardous chemical substances or to pursue other relief measures against the manufacturer, processors, distributors, or users of such substances.¹ Authorized relief measures include issuance of public notice of such a risk, and recall, replacement, or repurchase of the substance.² Chemical substances are considered imminently hazardous if they are likely to result in serious or widespread injury to health or the environment before a final rule under § 2605 can protect against the risk.³

§ 19:33 Toxic Substances Control Act—Summary of TSCA

TSCA is a central element of the claim that existing legislation is adequate to regulate products of biotechnology. Without TSCA, important applications of engineered organisms in areas such as pollution control, production of biofuels, and mining might be essentially unregulated. Moreover, because TSCA's jurisdiction is open-ended with respect to product categories other than the specifically exempted ones, it can act as a regulatory catchall, important in view of the innovative applications expected from the technology in the future.

Judging from the 1997 rule for microbial products of biotechnology, the Agency's public outreach activities,¹ and implementation efforts to date, EPA is making a serious attempt to adapt TSCA to the regulation of genetically engineered microorganisms. Admittedly, the application of the unique regulatory scheme embodied in TSCA to microorganisms is not a straightforward matter. In that regard, three aspects of TSCA are worthy of comment:

- 1) TSCA's jurisdiction does not expressly extend to living organisms. While, in theory, EPA's ongoing regulation of microorganisms under TSCA may still be open to the threat of challenge on this basic jurisdictional issue, the passage of time has largely eroded the likelihood that such a challenge would succeed.
- 2) The PMN Program is not a permit system; it merely affords EPA notice and opportunity for review. As long as EPA vigorously pursues its PMN op-

²TSCA § 5(e)(1)(A)(ii)(I) to (II), 15 U.S.C. § 2604(e)(1)(A)(ii)(I) to (II).

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¹TSCA § 7(a)(1), 15 U.S.C. § 2606(a)(1).

²TSCA § 7(b)(2), 15 U.S.C. § 2606(b)(2).

³TSCA § 7(f), 15 U.S.C. § 2606(f).

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¹See, e.g., 81 Fed. Reg. 70,419 (Oct. 12, 2016). In addition, in its early efforts to develop a biotechnology rule under TSCA, EPA requested comments from the public on several occasions. See, e.g., 54 Fed. Reg. 7,027 (Feb. 15, 1989); 59 Fed. Reg. 45,526 (Sept. 1, 1994).

portunities, particularly under the enhancements provided by the 2016 TSCA amendments, and the requirements of the MCAN rule, products under TSCA jurisdiction will not enter the marketplace until EPA reviews the relevant data.

- 3) The PMN program does not cover noncommercial research. Although a major portion of research is covered by the NIH Guidelines, it is likely that there will always be some relatively small amount of noncommercial, nongovernment supported research that is virtually exempt from federal government regulation.

§ 19:34 Federal Food, Drug, and Cosmetic Act—Pharmaceutical products

The FFDCA is used extensively to regulate the production of drugs and related pharmaceutical products by genetically engineered organisms and new genetic techniques. This activity will not be discussed at length in this chapter because environmental impacts do not typically play a significant role in FDA's regulatory decisions. We note, however, our discussion of FDA's approval of a NADA for a genetically engineered salmon and the ensuing court challenge in Sections 19:16 and 19:35.¹

FDA currently regulates pharmaceuticals based on process, not end-product, uses of biotechnology.² In contrast to end-product uses, these process uses do not entail deliberate releases of organisms into the environment. Under ordinary conditions, the microorganisms used to produce pharmaceuticals are confined to growth chambers; only their byproducts are removed. These uses may pose small risks of occasional accidental releases, but even if released, the engineered organisms are unlikely to proliferate. Microorganisms adapted to the luxuriant conditions of growth chambers have very poor survival prospects in the harsher general environment.³ As a result, at least for the present, FDA regulation of genetically engineered pharmaceutical products focuses almost exclusively on a set of human health and quality control issues that are quite distinct from the environmental issues that dominate the use of the traditional environmental statutes.⁴

FDA's final policy statement in the Coordinated Framework identifies several new safety and efficacy concerns associated with the use of engineered organisms for drug production, but finds that these concerns can be addressed on a case-by-case basis within the existing regime.⁵ FDA takes a similar case-by-case approach to the regulation of biological organisms involved with the production of animal drugs, animal food additives, and medical devices.⁶

The FDA policy does not propose any special measures to address the possibility of environmental releases of organisms used in drug production. However, FDA notes its responsibility under NEPA to prepare environmental impact statements or EA for premarketing approvals of FDA regulated products or other major federal ac-

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¹See *Institute for Fisheries Resources et al v. Hahn, et al.*, 3:16-cv-01574 (N.D. Cal., filed Mar. 30, 2016).

²51 Fed. Reg. 23,302, 23,310 (June 26, 1986).

³See generally Steve Olson, *BIOTECHNOLOGY: AN INDUSTRY COMES OF AGE* 22 (1986) (describing growth chambers technology).

⁴49 Fed. Reg. 50,880 (1984); 51 Fed. Reg. 23,302, 23,310–11 (June 26, 1986); 55 Fed. Reg. 10,932 (Mar. 23, 1990).

⁵51 Fed. Reg. 23,302, 23,310 (June 26, 1986).

⁶*Id.* at 23,310 (animal food additives and drugs), 23,312 (medical devices).

tions anticipated to cause significant environmental impacts.⁷

An excellent example of FDA's commitment under NEPA can be found in the Agency's approval of the first genetically engineered new animal drug on November 5, 1993.⁸ The product is a recombinant version of the naturally occurring protein hormone, bovine somatotropin (bST),⁹ produced by cows. Marketed by Monsanto Company under the trade name POSILAC®, recombinant bST¹⁰ increased the production of milk when injected into dairy cows to supplement the cows' natural bST. FDA's review of the new animal drug application for POSILAC® extended to six years and included an evaluation of a nine-volume EA prepared by the drug's sponsor. FDA required the assessment to address potential impacts of the approval of POSILAC®, both direct and indirect, including the potential for environmental release from production facilities; the fate and environmental effects of emitted substances; and resource and other secondary and tertiary effects, such as potential impacts on land use, small dairy producers, feed production, pesticide usage, manure production, and emissions of the greenhouse gases carbon dioxide and methane. Based on its review of the EA, FDA concluded that approval of the product was not expected to have a significant effect on the quality of the human environment.¹¹

§ 19:35 Federal Food, Drug, and Cosmetic Act—Food products

FDA formally approved the first food ingredient produced through recombinant DNA technology in 1990.¹ The product is a chymosin enzyme preparation used in the production of cheese and other dairy products. FDA's action affirmed that the use of a chymosin preparation derived by fermentation of a genetically modified bacterium is "generally recognized as safe" (GRAS) under the FFDCA.² In announcing its determination, FDA indicated that it had carefully considered the potential environmental effects of its action under NEPA and concluded that the action would not have a significant impact.³

Two years later, FDA unveiled a long-awaited policy on foods derived from new plant varieties, including plants developed by recombinant DNA techniques.⁴ The 1992 policy provides that foods developed through biotechnology are not inherently dangerous and, except in rare cases, should not require extraordinary testing and regulation before being able to be lawfully marketed. Foods such as fruits, vegetables, grains, and their byproducts derived from plant varieties developed by the new methods of genetic modification, will be evaluated and regulated within FDA's existing framework, utilizing an approach that is essentially identical to that

⁷*Id.* at 23,313.

⁸58 Fed. Reg. 59,946 (Nov. 12, 1993).

⁹Bovine somatotropin is referred to as bST and alternatively as bovine growth hormone or bGH.

¹⁰The product is referred to alternatively as recombinant bST, recombinant bGH, and sometribove.

¹¹58 Fed. Reg. 59,946, 59,947 (Nov. 12, 1993). FDA's decision to approve POSILAC® was the subject of considerable controversy and was challenged in a suit in federal court alleging that the Agency's decision failed to comply with both NEPA and the FFDCA. Judge Barbara B. Crabb decided the case was decided in favor of FDA. *Stauber v. Shalala*, 895 F. Supp. 1178 (W.D. Wis. 1995).

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¹55 Fed. Reg. 10,932 (Mar. 23, 1990).

²*Id.* The GRAS concept derives from the food additive provisions in §§ 201(s) and 409 of the FDCA. 21 U.S.C. §§ 321(s), 348.

³55 Fed. Reg. 10,932, 10,934 (Mar. 23, 1990).

⁴57 Fed. Reg. 22,984 (May 29, 1992). Although labeling of food products produced through genetic engineering is discussed in FDA's policy statement, a separate notice was issued by FDA to address the labeling issue. 58 Fed. Reg. 25,837 (Apr. 28, 1993).

applied to foods developed by traditional plant breeding.⁵ Since its inception, over 170 crops have satisfactorily completed FDA's review process, with FDA concluding that these products are just as safe as their conventional counterparts.⁶ Note, however, that—just as with FDA's premarket review of most conventional food ingredients—the consultation process for biotechnology foods is technically voluntary. In reality, the process is mandated by the needs of the marketplace, both domestically and globally.

The policy holds that genetically engineered foods should be regulated just like ordinary foods unless they contain ingredients or demonstrate attributes not usual for the product. Safety questions may arise if: (1) genetic modifications produce a substance that is not substantially similar to a common attribute of food (for example, levels of fats, proteins, and carbohydrates typically found in specific foods and food products); or (2) the new substance has no history of safe use in food. In the event that questions regarding the safety or nutritional value of the food are raised, premarket approval would be necessary before commercialization of a genetically modified plant.⁷

In general, FDA takes the approach that the environmental impacts of most genetically modified plants will be assessed in-depth by one or more other federal agencies, such as EPA and USDA, and that this assessment will often occur prior to commercialization.⁸ In all cases, FDA indicates that it will coordinate with these other agencies to share information and minimize duplication of environmental reviews.⁹ In terms of its own actions, FDA does not consider that the informal activities it may undertake, such as consultations with producers on safety issues and providing advice on the regulatory status of foods from new plant varieties, will constitute agency action for purposes of NEPA.¹⁰ However, to the extent a food additive regulation is needed for a biotechnology food ingredient, the promulgation of that regulation under § 409 of the FFDCA would be assessed under FDA's existing NEPA process.¹¹

An examination of the review process for the FLAVR SAVR tomato, the first genetically engineered whole food product to be marketed in the United States, illustrates the cautious approach FDA followed with respect to its evaluation of novel food products under the 1992 policy statement. The FLAVR SAVR tomato, as the first product of its kind to be reviewed by FDA, provided the Agency with an opportunity to develop a blueprint for processing future submissions.

The FLAVR SAVR is a tomato modified to permit the ripe fruit to remain firm for an extended period, thereby allowing fresh market tomatoes to be vine-ripened for enhanced flavor. As early as 1991, the product's developer, Calgene, Inc., requested an advisory opinion from FDA concerning whether FLAVR SAVR tomatoes are "food" under the FFDCA and, therefore, subject to the same regulation as other tomato varieties.¹² FDA announced Calgene's request and sought public comment in

⁵57 Fed. Reg. 22,984 (May 29, 1992). The policy applies to animal feeds as well as food produced for human consumption.

⁶See U.S. FDA, *New Plant Variety Consultations*, <https://www.cfsanappsexternal.fda.gov/scripts/fd/cc/index.cfm?set=NewPlantVarietyConsultations> (last visited Jan. 12, 2022); see also Nina Fedoroff & Nancy Brown, *MENDEL IN THE KITCHEN: A SCIENTIST'S VIEW OF GENETICALLY MODIFIED FOOD* (2004).

⁷57 Fed. Reg. 22,984, 22,991–23,004 (May 29, 1992).

⁸*Id.* at 23,004.

⁹*Id.*

¹⁰*Id.* at 23,005.

¹¹*Id.*

¹²See *id.* at 22,984. The advisory opinion was sought pursuant to 21 C.F.R. § 10.85 and prior to is-

a notice published simultaneously with the agency's 1992 policy.¹³ FDA proceeded to address the status of the FLAVR SAVR tomato through a relatively informal consultation process consistent with the principles outlined in the 1992 policy.

A closely related element of the FDA review process concerned the marker gene inserted in FLAVR SAVR tomatoes as an aid to product selection and development. Recombinant DNA techniques involve the isolation and subsequent introduction into a host plant of discrete DNA segments containing genes with one or more desirable traits, such as disease resistance or delayed ripening. The successful introduction of a new trait into a plant is referred to as "transformation" and the transformed plants that contain genetic material from other sources are called "transgenic." Developers of these transgenic plants need a means to distinguish cells that are successfully transformed from those that are not. Selectable marker genes which confer antibiotic resistance are typically used to perform this function.¹⁴

Calgene originally requested a separate advisory opinion from FDA regarding whether the selectable marker utilized in the FLAVR SAVR tomato, known as the *kan^r* gene, may be used in the production of genetically engineered tomato, cotton, and oilseed rape plants. FDA published a notice announcing receipt of the request and soliciting comments from interested persons.¹⁵ Subsequent to submission of the request for an advisory opinion, FDA published its 1992 policy on foods derived from new plant varieties, which specifically discussed selectable markers.¹⁶ Pursuant to the FDA policy statement, Calgene requested FDA to convert Calgene's request for an advisory opinion to a food additive petition, seeking FDA approval under § 409 of the FFDCa for the safe use of the *kan^r* gene product as a processing aid.¹⁷ Calgene's food additive petition was the subject of a separate notice that again sought comment from the public.¹⁸

Calgene prepared an EA in support of its original *kan^r* submission and updated that assessment as part of its food additive submission. The EA discussed such potential impacts as emissions from production facilities, weediness of the tomato plants, gene transfer to soil microbes or other plants, and changes in agronomic practices. Both of the notices published by FDA for the tomato marker gene sought public comment on the EAs.¹⁹ The consultation process that followed with respect to the tomato itself was not the subject of a separate EA. The conclusion reached in the EA, and independently ratified by FDA in a separate NEPA finding, was that the commercial use of modified plants containing the *kan^r* gene would not have a significant impact on the environment.²⁰

Ultimately, FDA subjected the results of its review of both the tomato and the marker gene to public scrutiny at a meeting of the Agency's Food Advisory

suance of FDA's policy on foods derived from new plant varieties.

¹³*Id.* at 22,985.

¹⁴For a more complete discussion of the transformation process and selectable marker genes, the reader is directed to FDA's notice on the *kan^r* gene found in the FLAVR SAVR tomato. *See* 59 Fed. Reg. 26,700, 26,702 (May 23, 1994).

¹⁵56 Fed. Reg. 20,004 (May 1, 1991). Calgene's request for an advisory opinion on *kan^r* was submitted to FDA on November 26, 1990.

¹⁶57 Fed. Reg. 22,984, 22,988 (May 29, 1992).

¹⁷The *kan^r* gene product is an enzyme known as aminoglycoside 3'-phosphotransferase II, or APH(3')II.

¹⁸58 Fed. Reg. 38,429 (June 16, 1993).

¹⁹*See* 56 Fed. Reg. 20,004 (May 1, 1991); 58 Fed. Reg. 38,429 (June 16, 1993).

²⁰*See* 59 Fed. Reg. 26,700, 26,709-10 (May 23, 1994).

Committee.²¹ The committee was actually asked to undertake a scientific discussion of FDA's overall approach to evaluating the safety of whole foods produced by new biotechnologies.²² The FLAVR SAVR tomato served as an example and focus of the discussion, however.²³ Committee members generally expressed the view that the approach used by FDA to assess the safety of the tomato was appropriate and that all relevant scientific questions had been adequately addressed.²⁴

On May 17, 1994, FDA concluded the consultation process with Calgene and cleared the way for the marketing of the FLAVR SAVR tomato.²⁵ Specifically, FDA found that FLAVR SAVR tomatoes have not been significantly altered when compared to varieties of tomatoes with a history of safe use.²⁶ The tomatoes had already been cleared by USDA under the Plant Pest Act.²⁷ With regard to the marker gene, FDA approved the use of the *kan^r* gene product as a processing aid in the development of new, genetically modified varieties of tomatoes, oilseed rape, and cotton intended for food use.²⁸ The *Federal Register* notice announcing FDA's decision on the marker gene responded to the comments that had been received from the public on the EA and discussed at length the fate of the *kan^r* gene in the environment.²⁹

Later, on November 19, 2015, after an exhaustive, rigorous and unprecedented scientific review of nearly 20 years duration, FDA determined that a genetically engineered Atlantic salmon is as safe to eat as any nongenetically engineered Atlantic salmon, and also as nutritious.³⁰ The modification was made using a gene from a related salmon species that allows the modified salmon, the AquaAdvantage® salmon, to reach market size more rapidly, thereby increasing productivity while reducing costs and environmental impacts that may be associated with current salmon farming locations.³¹ FDA's regulatory process included a comprehensive EA under NEPA, and the Agency's decision required a number of measures designed to

²¹*Id.* at 26,700–01.

²²*Id.*

²³*Id.*

²⁴*Id.*

²⁵See 59 Fed. Reg. 26,647 (May 23, 1994).

²⁶See *id.* In authorizing the marketing of the Calgene tomato, FDA referred to its 1992 consultation policy and its regulations for general recognition of safety, 21 C.F.R. § 170.30, as a basis for evaluating the regulatory status of the tomato and for concluding that the tomato had not been significantly altered compared to conventionally-bred tomatoes with a history of safe use. Reliance on this longstanding regulation provides additional regulatory credence to FDA's underlying policy on foods derived from new plant varieties.

²⁷See 57 Fed. Reg. 47,608 (Oct. 19, 1992) (issuing interpretative ruling that previously field-tested lines of FLAVR SAVR tomatoes do not present a plant pest risk and are not regulated articles under Plant Pest Act regulations). See also § 19:15. In response to a Calgene petition, additional genetically engineered tomato lines were subsequently added by USDA to those covered by the initial determination of nonregulated status. See, e.g., 59 Fed. Reg. 50,220 (Oct. 3, 1994).

²⁸See 59 Fed. Reg. 26,700 (May 23, 1994). The approval for use of the *kan^r* gene product took the form of an amendment to the food additive regulations that was effective on publication in the *Federal Register* on May 23, 1994. *Id.*

²⁹59 Fed. Reg. 26,700, 26,708–10 (May 23, 1994).

³⁰See U.S. FDA, *AquaAdvantage Salmon Fact Sheet*, <https://www.fda.gov/animal-veterinary/animal-s-intentional-genomic-alterations/aquadvantage-salmon-fact-sheet> (last visited Jan. 12, 2022); U.S. FDA, *AquaAdvantage Salmon Approval Letter and Appendix*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-approval-letter-and-appendix> (last visited Jan. 12, 2022).

³¹U.S. FDA, *AquaAdvantage Salmon Fact Sheet*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-fact-sheet> (last visited Jan. 12, 2022); U.S. FDA, *AquaAdvantage Salmon Approval Letter and Appendix*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-approval-letter-and-appendix> (last visited Jan. 12, 2022).

provide for containment of the modified salmon.³² FDA reviewed the genetic construct used to develop the modified salmon under its new animal drug authority.³³ FDA's approval was challenged in court in March 2016, as discussed in Section 19:16, but ultimately has remained in place since issued.³⁴

§ 19:36 Post-Market Regulation—Products

Earlier, this chapter explained EPA's oversight of chemical products in commerce under TSCA.¹ With that exception, the preceding discussions focused largely on the premarket regulation of genetically engineered organisms under the major, product-specific federal statutes and that is, in fact, where most of the attention has traditionally been focused. Once a product is on the market, however, each of those statutes authorizes a number of different means to address potential risks that may be identified with the manufacture, processing, use, or disposal of the product. Importantly, the technique used to develop the product, regardless of whether it is conventional or genetically engineered, is irrelevant when it comes to the authority of the agencies to address any emerging risks to health, safety, or the environment. A summary of the key post-market authorities follows.

FDA has extensive authority to regulate food and drug products in commerce. FDA is authorized to conduct examinations and investigations for the purposes of carrying out its FFDCA responsibilities through officers and employees of the agency or through any designated health, food, or drug officer or employee of any State, Territory, or political subdivision thereof.² The litany of prohibited acts under the FFDCA includes the introduction or receipt in interstate commerce of any food or drug that is adulterated or misbranded or the act of adulterating or misbranding any food or drug,³ the refusal to permit access to or copying of any required record,⁴ the refusal to permit entry or inspection as authorized by the FFDCA,⁵ and the manufacture of any food or drug that is adulterated or misbranded.⁶ As early as 1890, Congress authorized the President to suspend importation of any article used for human food or drink that is adulterated to an extent dangerous to the health or

12, 2022).

³²U.S. FDA, *AquAdvantage Salmon Fact Sheet*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-fact-sheet> (last visited Jan. 12, 2022); U.S. FDA, *AquAdvantage Salmon Approval Letter and Appendix*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-approval-letter-and-appendix> (last visited Jan. 12, 2022).

³³See U.S. FDA, *AquAdvantage Salmon Fact Sheet*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-fact-sheet> (last visited Jan. 12, 2022); U.S. FDA, *AquAdvantage Salmon Approval Letter and Appendix*, <https://www.fda.gov/animal-veterinary/animals-intentional-genomic-alterations/aquadvantage-salmon-approval-letter-and-appendix> (last visited Jan. 12, 2022); see discussion of FDA's pharmaceutical review process at § 19:33.

³⁴See *Institute for Fisheries Resources et al v. Hahn, et al.*, 3:16-cv-01574 (N.D. Cal., filed Mar. 30, 2016).

[Section 19:36]

¹See § 19:24.

²FFDCA § 702(a)(1)(A), 21 U.S.C. § 372(a)(1)(A).

³FFDCA §§ 301(a) to (c), 21 U.S.C. § 331(a) to (c). A food is considered adulterated if, among other things, it bears or contains any poisonous or deleterious substance which may render it injurious to health; if any valuable constituent has been in whole or in part omitted or abstracted therefrom; if any substance has been substituted wholly or in part therefor; if damage or inferiority has been concealed in any manner; or if any substance has been added thereto or mixed or packed therewith so as to reduce its quality or strength. FFDCA §§ 402(a), (b), 21 U.S.C. § 342(a), (b).

⁴FFDCA § 301(e), 21 U.S.C. § 331(e).

⁵FFDCA § 301(f), 21 U.S.C. § 331(f).

⁶FFDCA § 301(g), 21 U.S.C. § 331(g).

welfare of the people of the United States.⁷

If FDA determines, based on information gathered through the agency's reportable food registry,⁸ or through any other means, that there is a reasonable probability that an article of food is adulterated or misbranded and the use of or exposure to such article will cause serious adverse health consequences or death to humans or animals, the Agency is to provide the responsible party with an opportunity to cease distribution and recall the article.⁹ Should the responsible party refuse to comply, FDA is authorized to issue a mandatory recall order directed to all persons manufacturing, processing, packing, transporting, distributing, receiving, holding, or importing and selling such article, and to which such article has been distributed, transported, or sold.¹⁰ When an adulterated or misbranded food or drug product is introduced into interstate commerce or while it is held for sale, FDA is also authorized to go to federal court to obtain an order to have the product seized.¹¹

Congress has, since 2007, enacted a number of measures to bolster FDA's ability to police the food supply. One such measure authorizes enhanced aquaculture and seafood inspection.¹² Another directs FDA to consult with the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration to produce a report on any environmental risks associated with genetically engineered seafood products, including the impact on wild fish stocks.¹³ Additional amendments improved FDA's capacity to prevent, detect, and respond to food safety problems.¹⁴

Turning to the USDA, in enacting the PPA in 2000, Congress recognized that the frictionless movement of plants, plant products, biological control organisms, or other articles into, out of, or within the United States is vital to the nation's economy and should be facilitated to the extent possible.¹⁵ At the same time, Congress made clear that the detection, control, eradication, suppression, prevention, or retardation of the spread of plant pests or noxious weeds is necessary for the protection of the agriculture, environment, and economy of the United States.¹⁶

The PPA contains two additional directives that have helped USDA fine-tune its regulatory programs. First, decisions affecting imports, exports, and interstate movement of products regulated under the PPA must be based on sound science.¹⁷ Second, Congress made a key finding that all plant pests, noxious weeds, plants, plant products, articles capable of harboring plant pests or noxious weeds regulated under the PPA are "in or affect interstate commerce or foreign commerce."¹⁸ The many measures available to USDA to monitor and address issues associated with products in commerce include the prohibition or restriction of unauthorized movement of plant pests or noxious weeds,¹⁹ authorizations for inspections and enforce-

⁷21 U.S.C. § 18.

⁸FFDCA § 417, 21 U.S.C. § 350f.

⁹FFDCA § 423(a), 21 U.S.C. § 350l(a).

¹⁰FFDCA § 423(b)(1), 21 U.S.C. § 350l(b)(1).

¹¹FFDCA § 304(a)(1), 21 U.S.C. § 334(a)(1).

¹²Food and Drug Administration Amendments Act (FDAAA) of 2007 § 1006(b), 21 U.S.C. § 2105(b).

¹³Food Safety Modernization Act (FSMA) §§ 104, 108 to 110, 112, 116, 21 U.S.C. §§ 2201 to 2206.

¹⁴FSMA §§ 202(b)-05, 208, 21 U.S.C. §§ 2221 to 2225.

¹⁵PPA § 402(5), 7 U.S.C. § 7701(5).

¹⁶PPA § 402(1), 7 U.S.C. § 7701(1).

¹⁷PPA § 402(4), 7 U.S.C. § 7701(4).

¹⁸PPA § 402(9), 7 U.S.C. § 7701(9).

¹⁹PPA §§ 411(a), 412(a), 7 U.S.C. §§ 7711(a), 7712(a); PPA § 412(a), 7 U.S.C. § 7712(a).

ment,²⁰ and establishment of eradication programs.²¹

As a full-blown licensing statute, FIFRA establishes an ongoing relationship between pesticide registrants and EPA, including a rolling registration review requirement.²² Each registration must be reviewed by the Agency within 15 years of the date on which the first pesticide containing a new active ingredient is registered and every 15 years thereafter.²³ EPA can require registrants to submit any additional data deemed necessary to maintain the registration of a pesticide in effect.²⁴ Registrants have an independent obligation to promptly submit additional factual information to EPA regarding unreasonable adverse effects on the environment of the pesticide.²⁵

Inspections of any location where pesticides are being held for sale or distribution can be conducted by EPA officials or duly-designated State officials to enforce the provisions of FIFRA,²⁶ including to review and copy any records required to be maintained by FIFRA.²⁷ Information that supports a finding that a product no longer meets the applicable, risk-based statutory criteria can lead to EPA's initiation of a cancellation proceeding.²⁸ If an EPA or State official finds a pesticide that is adulterated,²⁹ misbranded, or otherwise in violation of any provision of FIFRA, an order may be issued to stop the sale, use, or removal of the product except as may be specified in the order.³⁰

§ 19:37 Post-Market Regulation—Media-specific pollution control statutes

The Clean Air and Federal Water Pollution Control Acts, although listed by the OSTP in the framework of legal authority applicable to genetically engineered organisms, are not included among the statutes discussed in the policy statements. They remain on a reserve tier of authorities available as may be needed to regulate environmental releases of genetically engineered organisms. These media-specific statutes are intended to protect the nation's air and water resources by reducing their levels of pollutant contamination. They achieve these purposes by prohibiting or limiting the discharges or emissions of pollutants into air or water, including from facilities that manufacture pharmaceuticals, pesticides, and other regulated products.

Although there was no discussion of the rationale supporting the decision not to

²⁰PPA §§ 421 et seq., 7 U.S.C. Chap. 104, SubChap. II, including authorization to collect information and issue subpoenas.

²¹See, e.g., 7 U.S.C. Chap. 104, SubChap. V, Noxious Weed Control and Eradication.

²²FIFRA § 3(g), 7 U.S.C. § 136a(g).

²³*Id.*

²⁴FIFRA § 3(c)(2)(B), 7 U.S.C. § 136a(c)(2)(B).

²⁵FIFRA § 6(a)(2), 7 U.S.C. § 136d(a)(2).

²⁶FIFRA § 9, 7 U.S.C. § 136g. Authority and responsibility for implementing and enforcing FIFRA on Native American lands lies with EPA. U.S. EPA, *Tribal Pesticide Programs*, <https://www.epa.gov/pesticide-advisory-committees-and-regulatory-partners/tribal-pesticide-programs> (last visited Jan. 12, 2022). Nonetheless, the Agency “also establishes cooperative agreements and provides funding to some tribes to offer pesticide education, training, technical assistance, compliance and enforcement, and to develop and implement pesticide programs under tribal law.” *Id.*

²⁷FIFRA § 8, 7 U.S.C. § 136f.

²⁸FIFRA § 6(b), 7 U.S.C. § 136d(b). EPA may issue an order to suspend the pesticide registration immediately, if the Agency determines that action is necessary to prevent an imminent hazard during the time required for cancellation. FIFRA § 6(c), 7 U.S.C. § 136d(c).

²⁹Adulteration of a pesticide can result if its strength or purity falls below the approved standard, any substance has been substituted for an approved ingredient, or any valuable constituent has been abstracted. FIFRA § 2(c), 7 U.S.C. § 136(c).

³⁰FIFRA § 13, 7 U.S.C. § 136k.

expressly regulate under these two statutes, some combination of the following seems reasonable. First, there might have been a belief that EPA should focus its resources on testing and market entry of products under TSCA and FIFRA. Second, the media-based statutes limit emissions and discharges of pollutants but do little to generate data on their effects. Therefore, implementation of these statutes would not do much to resolve any remaining uncertainty about the nature of any potential hazards presented by engineered organisms. Third, the uncertainty about potential hazards of release might make it difficult to set legally defensible emissions and discharge limitations for biological pollutants. Fourth and finally, there was, and is not today, any evidence to suggest that emissions from facilities that utilize engineered organisms are inadequately addressed under existing federal and state pollution control programs.

Even granting the general validity of the reasons for not using the statutes, EPA may not be able to keep them on the back burner indefinitely and there is certainly nothing in the statutes to prevent their use in that regard. As the production levels of organisms rise, routine emissions into air and water could begin to constitute significant pathways by which organisms are released into the environment. If so, such situations might prompt calls to use media-based statutes to control such releases, for consistency's sake, if for no other reason.

§ 19:38 Hazardous waste statutes—Introduction

Hazardous wastes are regulated primarily under the Resource Conservation and Recovery Act (RCRA).¹ The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or “Superfund”)² authorizes EPA to clean up abandoned waste dumps and to respond to emergencies caused by releases or threats of releases of toxic and hazardous substances.³ Both statutes may give EPA some authority to address releases of engineered organisms into the environment, assuming the applicable criteria are met. EPA, however, has so far not seen any reason to exercise it.

§ 19:39 Hazardous waste statutes—RCRA

RCRA authorizes EPA to regulate “hazardous wastes,” defined to include wastes which, because of “quantity, concentration, or physical, chemical or infectious characteristics,” are toxic, or which otherwise cause a substantial hazard to health or the environment when improperly managed.¹ The terms of the definition show that hazards to the environment, as well as to health, may lead to regulation of wastes, and the inclusion of “infectious” characteristics plainly evidences an intent to include living organisms, although neither the statute nor the legislative history is clear whether living organisms are to be included for characteristics other than infection.

In any case, EPA has not included living organisms among the wastes presently regulated under RCRA, and does not require waste generators to determine whether

[Section 19:38]

¹42 U.S.C. §§ 6901 to 6987. This is technically the Solid Waste Disposal Act, but since extensive amendment in 1976 it is commonly referred to as “RCRA.”

²42 U.S.C. §§ 9601 to 9657.

³CERCLA §§ 104, 106, 42 U.S.C. §§ 9604, 9606.

[Section 19:39]

¹RCRA § 1004(5), 42 U.S.C. § 6903(5).

their wastes are “infectious.”² Unless EPA takes further regulatory action, therefore, living organisms are not regulated under RCRA.

The statute prohibits disposal of hazardous wastes without a permit, however, and so could be used to prohibit unintentional release or purposeful disposal of engineered organisms, including accidental releases from production facilities that were not promptly recovered.³ TSCA may be a more useful statute for regulating production facilities, however, as it gives EPA direct authority over the production process, while RCRA applies only to the management of wastes.

§ 19:40 Hazardous waste statutes—CERCLA

EPA’s emergency response authority may be triggered by either a release (or substantial threat of a release) of a “hazardous substance,”¹ or by an imminent hazard posed by a “pollutant or contaminant.”² The definition of both terms is complex,³ but there are several routes by which they may apply to engineered organisms.

First, the statute provides that when EPA takes emergency action concerning any chemical substance under TSCA § 7, the chemical becomes a “hazardous substance” to which EPA may also respond under CERCLA.⁴ The additional authority is important, since CERCLA provides both funds and authority for EPA itself to contain and clean up releases, while TSCA only confers authority to compel action by others.⁵

Second, if EPA designates an infectious waste under RCRA, that too will be a “hazardous substance” to which the Agency may respond under CERCLA (although, as noted in the preceding subsection, EPA has not designated any infectious wastes, and shows no inclination to do so).⁶

Third, EPA may be authorized to designate living organisms as “hazardous substances” under CERCLA alone.⁷ Agency authority to make such designations is limited to “substances,” but because CERCLA authorizes the Agency to also respond to “disease agents” and “infectious” waste regulated under RCRA, there is no reason to think living things are excluded.

As to any of these three types of designated substances, EPA may respond whenever there is a release or threat of release—even if the release has been permitted by EPA itself; CERCLA provides added authority for EPA to respond if permitted releases of pesticides, for example, cause unforeseen problems.⁸ Private parties responsible for the release will not be liable under CERCLA for the costs of response

²See 40 C.F.R. Pt. 261. EPA initially proposed regulating such wastes, but withdrew the proposal. See 45 Fed. Reg. 33,119 (May 19, 1980). See also U.S. EPA, EPA GUIDE FOR INFECTIOUS WASTE MANAGEMENT (1986), available at <http://nepis.epa.gov/> (last visited Jan. 12, 2022). See Donald W. Stever, LAW OF CHEMICAL REGULATION AND HAZARDOUS WASTE (2018).

³See RCRA § 3005(a), 42 U.S.C. § 6925(a).

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¹See CERCLA § 104(a)(1)(A), 42 U.S.C. § 9604(a)(1)(A).

²See CERCLA § 104(a)(1)(B), 42 U.S.C. § 9604(a)(1)(B).

³See CERCLA § 101(14), 42 U.S.C. § 9601(14) (“hazardous substance”); CERCLA § 104(a)(2), 42 U.S.C. § 9604(a)(2) (“pollutant or contaminant”).

⁴See CERCLA §§ 101(14), 104(a)(1)(A), 42 U.S.C. §§ 9601(14), 9604(a)(1)(A).

⁵See generally § 14:100.

⁶See CERCLA § 101(14), 42 U.S.C. § 9601(14).

⁷CERCLA § 102(a), 42 U.S.C. § 9602(a).

⁸An exemption of “federally permitted releases” only limits financial liability for certain releases expressly authorized by permit, but does not affect EPA response authority. CERCLA § 107(a), (j), 42 U.S.C. § 9607(a), (j).

to federally permitted releases as they would be for other responses to hazardous substances.⁹ However, liability for response costs associated with a federally permitted release may attach under other statutes or common law.

Fourth, and finally, EPA may respond in any situation where a release or substantial threat of release of a “pollutant or contaminant” poses an imminent and substantial danger to public health or welfare.¹⁰ “Disease agents” are expressly included in the definition of “pollutant or contaminant” for this purpose;¹¹ the language of the statute and its history do not make clear whether other organisms are included.

This last authority is available without further regulatory action; EPA may respond to any imminent hazard posed by the release of disease organisms, and perhaps other engineered organisms. When responding to “pollutants or contaminants,” EPA may take any response measures necessary, but private parties responsible for the release have no liability for the costs of response, or damages to natural resources, as they would if the Agency were responding to unpermitted releases of “hazardous substances.”¹²

It is plain, therefore, that EPA has ample authority to respond after the fact to releases of engineered organisms, and may take protective measures where a release is threatened. The Agency may also secure injunctive relief to prevent or remedy a release if the organism has been designated a hazardous substance.¹³ While the Agency has no advance regulatory authority under CERCLA, as such, plainly it could promulgate rules, or establish policies, concerning the circumstances under which it would respond to releases of engineered organisms.

III. COORDINATION OF BIOTECHNOLOGY POLICY

§ 19:41 In General

In its early stages, the development of the federal government’s policy on biotechnology was coordinated by the BSCC, a spinoff of the Domestic Policy Council Working Group on Biotechnology that spearheaded the development of the Coordinated Framework.¹ More recently, the coordinating functions of the BSCC have been assumed by the OSTP.² On July 2, 2015, the Executive Office of the President issued a memorandum directing the primary agencies that regulate the products of biotechnology—USDA, EPA, and FDA—to review and update the Coordinated Framework. Following a request for comment and public meetings, the consolidated response from EPA, FDA, and USDA was issued in 2017.³

IV. CONCLUSION

§ 19:42 In General

⁹See CERCLA § 107(a), (j), 42 U.S.C. § 9607(a), (j).

¹⁰See CERCLA § 104(a)(2), 42 U.S.C. § 9604(a)(2).

¹¹*Id.*

¹²Liability is imposed by CERCLA § 107(a), 42 U.S.C. § 9607(a), which refers only to “hazardous substances.” See § 14:127.

¹³See CERCLA § 106(a), 42 U.S.C. § 9606(a).

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¹50 Fed. Reg. 47,174, 47,175–76 (Nov. 14, 1985).

²See, e.g., 67 Fed. Reg. 50,578 (Aug. 2, 2002).

³See U.S. EPA, *Modernizing the Regulatory System for Biotechnology Products: Final Version of the 2017 Update to the Coordinated Framework for the Regulation of Biotechnology*, https://www.epa.gov/sites/default/files/2017-01/documents/2017_coordinated_framework_update.pdf (last visited Jan. 12, 2022).

The United States has become a leader in utilizing the potential of modern biotechnology to enhance the properties of living organisms for the benefit of society. New techniques for manipulating the genetic constitutions of biological organisms are at the heart of that technology, and newer more precise techniques continue to become available. While organisms developed using these new techniques might still, in theory, pose uncertain risks to health and the environment, no such risks have yet been realized.

The Reagan Administration took the initiative on the policy front by coordinating a multiagency policy statement in support of its conclusion that existing legislation is adequate for regulating the new technology. The final version of the statement, which was issued June 26, 1986, is a milestone in biotechnology policy evolution. The issuance facilitated the establishment of new regulatory programs implementing TSCA and the agricultural statutes, and the refinement of programs under FIFRA and the FFDCA, and the responsible agencies have made adjustments to those programs as experience and science dictate.

The effectiveness of the existing statutes depends both on their legal adequacy and the vigor with which they are implemented by the responsible agencies. Of the three major statutes or sets of statutes being applied to regulate environmental applications of the products of biotechnology, FIFRA provides the strongest legal foundation for the prior review of the environmental introduction of engineered organisms. TSCA provides authority that EPA has implemented as a federal premarket review and approval program. The agricultural statutes offer an established regulatory review mechanism. Although traditionally these statutes have not been implemented in a manner that addressed the full range of environmental effects, USDA has significantly enhanced its process for assessing the potential environmental impacts of products of biotechnology under NEPA and the ESA. FDA has also paid particular attention to its responsibilities under NEPA and the ESA when approving new animal drug products, including animals produced using genetic engineering, under the FFDCA. The agencies' performance under existing legislation will remain subject to scrutiny by Congress and the courts.

Products of genetic engineering remain subject to regulation, both premarket and post market, because of a lingering concern by some that environmental introductions might have unwanted environmental and health effects. According to our current scientific understanding, such effects are theoretically possible but otherwise unseen and poorly defined and without confirmation. At this stage in the development of the technology, the United States has chosen to continue to regulate largely based on the long-standing precedents established for regulation of conventionally-developed products and the slow pace of public acceptance for their biotechnology counterparts. But any remaining uncertainty about the nature of the risk imposes a special burden on the regulators. They must continue to exercise an appropriate degree of oversight with respect to the potential impacts of the introduction of engineered organisms on the environment and public health, but also to understand the extent, if any, of those impacts based on valid scientific data and information and adjust the nature and degree of regulation to reflect the presence or absence of risk. Moving forward, just as conventionally-developed products qualify for exemption or reduced oversight when warranted by science and experience, so too must their genetically engineered counterparts.

APPENDIX 19A

Table of Acronyms

TABLE OF ACRONYMS	
AHPA	Animal Health Protection Act
APHIS	Animal and Plant Health Inspection Service
BSCC	Biotechnology Science Coordinating Committee
BSO	Biological Safety Officer
CAA	Clean Air Act
CDR	Chemical Data Reporting
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DNA	Deoxyribonucleic acid
DDT	Dichlorodiphenyltrichloroethane
EA	Environmental Assessment
EC	European Commission
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EU	European Union
EUP	Experimental Use Permit
FDA	Food and Drug Administration
FET	Foundation for Economic Trends
FFDCA	Federal Food, Drug, and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FSIS	Food Safety Inspection Service
FWPCA	Federal Water Pollution Control Act
FWS	Fish and Wildlife Service
GMO	Genetically modified organism
GRAS	Generally recognized as safe
IBC	Institutional Biosafety Committee
MCAN	Microbial Commercial Activity Notice
NADA	New Animal Drug Application
NBFDS	National Bioengineered Food Disclosure Standard
NEPA	National Environmental Policy Act
NIH	National Institutes of Health
NOC	Notice of Commencement
OSHA	Occupational Safety and Health Administration
OSTP	Office of Science and Technology Policy
PI	Principal Investigator

TABLE OF ACRONYMS	
PIP	Plant-incorporated protectant
PMN	Premanufacture notice
PPA	Plant Protection Act
RAC	Recombinant DNA Advisory Committee
RCRA	Resource Conservation and Recovery Act
RNA	Ribonucleic acid
RSR	Regulatory status review
SDS	Safety Data Sheet
SECURE Rule	Sustainable, Ecological, Consistent, Uniform, Responsible, Efficient
SNUR	Significant New Use Rule
TERA	TSCA Experimental Release Application
TSCA	Toxic Substances Control Act
USDA	U.S. Department of Agriculture
VSTA	Virus-Serum-Toxin Act

Part F

PROTECTION OF THE ECOSYSTEM

Research References

Westlaw Databases

Public Natural Resources (PUBNRL)

Additional References

Environmental Law Institute, <https://www.eli.org/>

Energy & Environment, Jurisprudence & Encyclopedias, Texts & Treatises, <https://www.westlaw.com/SharedLink/fffd18fcbf7c470280e1d3fa08b3c2b3?VR=3.0&RS=cb1t1.0>

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Protection of the Ecosystem*

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Public Natural Resources (PUBNRL)

Westlaw Search Query

adv: Ecosystem

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Land & Biodiversity Program | Environmental Law Institute, available at <https://www.eli.org/land-biodiversity>

Energy & Environment, Jurisprudence & Encyclopedias, Texts & Treatises, <https://www.westlaw.com/SharedLink/fffd18fcbf7c470280e1d3fa08b3c2b3?VR=3.0&RS=cb1t1.0>

§ 20:1 In General

As originally conceived, this treatise addressed environmental protection in the form of regulation of pollutants and waste. It expressly did not include natural resources law, which many consider a field separate from environmental law that addresses land, minerals, oil and other resources. The law of environmental protection, however, goes beyond regulation of wastes and products to protect human health and the environment and includes protection and regulation of the environment itself. Thus, in lieu of addressing regulation of natural resources, this treatise addresses the protection of the environment itself in this Part F, Protection of the Ecosystem.

In order to address protection of the ecosystem, chapters are devoted to endangered species, alien species, ocean, and climate. Of course air, water, and land as well as soil and groundwater could be included in this section as well, but the way in which our federal laws address environmental issues lends itself to this arrangement. Arguably, we could include a chapter on land use regulation within Part F, and we may include that at a later date. For the moment, we address air,

*By Scott Schang.

water, soil, and groundwater under the media statutes, and species and the global commons under this part.

Chapter 21

Endangered Species*

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I. INTRODUCTION; HISTORICAL BACKGROUND OF ESA

§ 21:1 Generally

In 1973, the U.S. Congress enacted the Endangered Species Act (ESA).¹ The ESA, which is one of the most potent pieces of environmental legislation enacted by Congress, represents a determination that species of fish, wildlife, and plants facing extinction as a result of economic growth and development require a comprehensive scheme of federal protection. The ESA also stands as a congressional mandate that requires all federal departments and agencies to conserve endangered and threatened species by utilizing their authorities in furtherance of the Act’s purposes. Because the ESA represents a broad approach to species protection and conservation that is implemented by absolute prohibitions driven by biological factors, it is a source for land use laws, agency regulations, and judicial decisions that can lead to significant impacts on private property rights and economic development. In short, the ESA has been and will continue to be of profound importance to the species, agencies, landowners, developers, and citizens who fall within the ambit of this broadly worded statute.

As first enacted, the ESA represented the balancing of species protection and conservation with sustained economic development, with the balance tipped heavily to-

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¹Endangered Species Act of 1973, 16 U.S.C.A. §§ 1531 et seq.

ward species protection and conservation. Subsequent congressional amendments, agency regulations, and judicial opinions have sought to reduce the heavy tilt of the ESA's original balance toward species protection and conservation, while still striving to maintain the Act's overriding conservationist scheme. The result is an often mystifying labyrinth of regulations and court decisions construing the ESA's statutory language. This body of law leaves many landowners, agency regulators, developers, and citizens confused as to what is required, what is prohibited, and what is allowed under the ESA. This primer analyzes the ESA, its history, agency regulations, and court decisions in order to: (1) shed light on the meaning of the ESA as drafted by Congress and interpreted by agencies and the courts; (2) provide a guide for interpreting the Act; and (3) outline the information and steps that might be needed for compliance with the ESA and applicable regulations.

With these overarching goals in mind, subchapters I and II briefly outline the historical background of the ESA and provide an overview of the Act. Subchapter III covers the listed endangered or threatened species. Subchapter IV addresses designation of critical habitat for listed species, while subchapter V addresses recovery plans for protection and conservation of listed species. Subchapter VI covers the consultation process implemented under § 7 of the ESA to coordinate planning and consider whether actions proposed by other federal agencies would comply with the ESA. Subchapter VII addresses the actions that are prohibited under the ESA and the scope of a key ESA term, the "take" definition, under § 9. Subchapter VIII discusses habitat conservation plans and incidental take permitting under § 10. Subchapter IX covers enforcement and citizen suits under § 11. Subchapter X addresses federal-state interaction issues. Subchapter XI addresses the interface between the ESA, the Natural Environmental Policy Act, and the Freedom of Information Act. Subchapter XII examines the emerging issues regarding the ESA and climate change. Subchapter XIII covers the international aspects of the ESA. Subchapter XIV addresses the issue of whether and to what extent the ESA is applicable to Indian lands. Subchapter XV covers the topic of experimental populations under the Act. Finally, Subchapter XVI addresses the ESA and the taking of property under the Fifth Amendment of the U.S. Constitution.

§ 21:2 Historical background—Generally

The ESA has important roots based on the historical antecedents of wildlife regulation, an emerging awareness of the importance of biodiversity and American natural resources, the failure of prior legislative efforts to preserve those resources, and the increasingly environmentally sensitive political climate of the late 1960s and early 1970s.

§ 21:3 Historical background—Historical antecedents of wildlife regulation

Historically, wild animals occupied a unique status within Western legal tradition.¹ The law considered wild animals in their natural state to be the property of no one until captured or killed.² Ancient Romans placed only a single restriction on acquiring wildlife as property by capture or kill, which was that a private landowner had an exclusive right to capture or kill any wildlife located upon his

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¹Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 7–8 (1997).

²Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8 (1997).

property.³ This single restriction was perhaps more “a recognition of the right of ownership in land than an exercise by the state of its undoubted authority to control the taking and use of that which belonged to no one in particular, but was common to all.”⁴

Government regulation of wildlife, however, became more apparent in feudal Europe.⁵ Sir William Blackstone attributed the origins of wildlife regulation to the desire of barons and kings to retain the fruits of their conquest by keeping weapons out of the hands of the people they conquered.⁶ Blackstone observed that “[n]othing could do this more effectively than a prohibition of hunting and sporting.” Accordingly, feudal rulers withheld the right to hunt and the right to bear arms from the general populace and those upon whom they had not granted a specific right.⁷

Early wildlife protection via restrictions on hunting and land use detrimental to wildlife soon spread from specific lands reserved to feudal kings, known as “royal forests,” to a more general and exclusive royal authority to hunt applicable to all lands within a kingdom.⁸ Feudal rulers could and often did grant franchises to hunt and fish to favored individuals; and by the 13th century, so many franchises had been granted in England that the Magna Carta of 1215 contained provisions limiting the king’s ability to grant further franchises.⁹ This reduction in royal authority paved the way for parliamentary control over wildlife regulation as the political system within England evolved.¹⁰

Although parliamentary control over wildlife regulation did not signal any great democratization of the rights to manage wildlife, it did set the stage for the development of the primary features of English wildlife law that were transplanted to the New World upon the establishment of colonies in the early 1600s.¹¹ The principal mechanism for parliamentary control over wildlife was the enactment of “qualification statutes.”¹² Those statutes prohibited the taking of game by anyone not “qualified” by the ownership of a certain amount of wealth or lands as prescribed by the statutes.¹³ Generally, the English system of wildlife regulation was focused on hunting restrictions, which some scholars believe to have perpetuated class discrimination by keeping weapons out of the hands of those who were “considered unfriendly, or potentially so, to those in power.”¹⁴

English wildlife law was imported to the new world via colonization. Though some of the particular enactments, such as the royal forest restrictions, had fallen into disuse, many of the qualification statutes remained in force until several decades after American independence.¹⁵ Thus, the essential core of English wildlife law, that Parliament—and to a lesser extent, the king—had complete authority to determine

³Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8 (1997).

⁴Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8 (1997) (citing *Geer v. State of Conn.*, 161 U.S. 519, 523, 16 S. Ct. 600, 40 L. Ed. 793 (1896) (overruled by, *Hughes v. Oklahoma*, 441 U.S. 322, 99 S. Ct. 1727, 60 L. Ed. 2d 250 (1979))).

⁵Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8 (1997).

⁶Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8 (1997) (citing 3 William Blackstone, *Commentaries* *413).

⁷Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8 (1997).

⁸Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 8–9 (1997).

⁹Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 9 (1997).

¹⁰Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 9 (1997).

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¹²Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 10 (1997).

¹³Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 10 (1997).

¹⁴Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 10 (1997).

¹⁵Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 10 (1997).

what rights others might have with respect to the taking of wildlife, became the foundation of American wildlife regulation.¹⁶

In *Martin v. Waddell*,¹⁷ the U.S. Supreme Court first considered the relationship of government and citizen with respect to wildlife. The facts of *Martin* are illustrative of the extent to which parts of the English system of wildlife regulation remained within the United States after ties with England were severed following the Revolutionary War.¹⁸ In *Martin*, the issue was whether a riparian landowner had the right to exclude all others from taking oysters located in certain mudflats in New Jersey's Raritan River.¹⁹ The landowner claimed to own both the riparian and submerged lands and traced the right of ownership to a 1664 grant from King Charles, which purported to convey "all lands, islands, soils, rivers, harbours, mines, minerals, quarries, woods, marshes, waters, lakes, fishings, hawkings, huntings, and fowlings" within the boundaries of the grant.²⁰

Chief Justice Roger Taney determined that the issue at stake in *Martin* was more than an interpretation of a deed of title; it was a question of where the authority to grant that title came from and whether that authority survived the Revolutionary War.²¹ Accordingly, Chief Justice Taney first considered the character of the right claimed by the British Crown²² and then considered whether the character of that right changed when title to the lands passed from the Crown to the plaintiff.²³ After considering these fundamental issues, Chief Justice Taney determined that "dominion and property in navigable waters, and in the lands under them [were] held by the King as a public trust" and by virtue of the limitations imposed by the Magna Carta and his public trust responsibilities, the King had no power to abridge "the public common of piscary."²⁴ Furthermore, Justice Taney determined that this public trust nature of navigable waters and the land submerged therein survived the American Revolution,²⁵ and he thus placed the states in the roles of successors to Parliament and the Crown with respect to the authority to manage wildlife and laid the foundations for the doctrine of state ownership of wildlife.²⁶ The state ownership doctrine, although technically only the law of the original 13 colonies,²⁷ was potentially a limitation upon congressional ability to enact comprehensive wildlife protection legislation until a broader interpretation of Congress' authority to legislate in previously state-governed matters via the Commerce Clause and Treaty Power began to take hold in the early 1900s.²⁸

§ 21:4 Historical background—Emerging awareness of the importance of biodiversity and early legislative attempts at species protection and conservation

The explosion of industry and capitalism following the Industrial Revolution,

¹⁶Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 10 (1997).

¹⁷*Martin v. Waddell's Lessee*, 41 U.S. 367, 10 L. Ed. 997, 1842 WL 5744 (1842).

¹⁸Bean & Rowland, *supra* note 1, at 10.

¹⁹*Martin v. Waddell's Lessee*, 41 U.S. 367, 412, 10 L. Ed. 997, 1842 WL 5744 (1842).

²⁰*Martin v. Waddell's Lessee*, 41 U.S. 367, 409, 10 L. Ed. 997, 1842 WL 5744 (1842).

²¹*Martin v. Waddell's Lessee*, 41 U.S. 367, 410, 10 L. Ed. 997, 1842 WL 5744 (1842).

²²*Martin v. Waddell's Lessee*, 41 U.S. 367, 410, 10 L. Ed. 997, 1842 WL 5744 (1842).

²³*Martin v. Waddell's Lessee*, 41 U.S. 367, 410, 10 L. Ed. 997, 1842 WL 5744 (1842).

²⁴*Martin v. Waddell's Lessee*, 41 U.S. 367, 412, 10 L. Ed. 997, 1842 WL 5744 (1842).

²⁵*Martin v. Waddell's Lessee*, 41 U.S. 367, 416, 10 L. Ed. 997, 1842 WL 5744 (1842).

²⁶Bean & Rowland, *supra* note 1, at 11.

²⁷Bean & Rowland, *supra* note 1, at 11. (citing *Pollard v. Hagen*, 44 U.S. 212, 3 How. 212 (1845) for the proposition that the *Martin* holding applied to later admitted states).

²⁸See generally Bean & Rowland, *supra* note 1, at 11–27.

which spawned immense wealth, did not come without costs. Throughout the New World, buildings were being erected in places where only nature and wildlife existed.¹ Not surprisingly, by the dawn of the 20th century, wildlife populations in the United States were at historic lows.² Even the most abundant species, such as the white-tailed deer and the seemingly infinite bison herds, were nearly gone.³ This astonishingly rapid and widely publicized decline aroused public sentiment in favor of wildlife protection.⁴ State and local governments began to respond, enforcing existing hunting regulations more stringently and imposing new ones.⁵ For the first time, native animals were transplanted from their remaining strongholds to reinforce dwindling populations elsewhere.⁶

Although Congress showed interest in protecting individual species in certain locations, such as plains bison as early as the 1870s,⁷ protection for any species on a national scale did not commence until 1900 with the passage of the Lacey Act.⁸ The Lacey Act prohibited interstate commerce in animals killed in violation of state law and directed the Secretary of Agriculture to ensure the continued abundance of game animals and birds.⁹ By enacting the Lacey Act, Congress recognized that the individual states had inadequate resources to prevent species extinction and that federal help was necessary.¹⁰ Sixteen years later, Congress and the executive branch recognized the international scope of problems faced by species extinction and

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¹James V. Grimaldi, *Endangered Species Act in Danger Itself*, Orange Co. Reg., July 31, 1994, at A1 (citing a Center for Responsive Politics study); see also Ike C. Sugg, *Caught in the Act: Evaluating the Endangered Species Act, Its Effects on Man, and Prospects for Reform*, 24 Cumb. L. Rev. 1, 37 (1994).

²See George Cameron Coggins & Michael E. Ward, *The Law of Wildlife Management on the Federal Public Lands*, 60 Or. L. Rev. 59, 61–62 (1981).

³See Robert L. Downing, Success Story: WhiteTailed Deer, in *Restoring America's Wildlife 1937–1987*, at 45 (Harmon Kallman et al. eds., 1987) (noting that by the early part of the 1900s, the white-tailed deer had been reduced to a mere 1 or 2% of its pre-Columbian population) [hereinafter *Restoring America's Wildlife*]. See also Devra G. Kleiman, *Reintroduction of Captive Mammals for Conservation*, 39 Bioscience 152 (1989) (noting that by 1889, the bison population had been reduced from an estimated 60 million animals to a herd of less than 1,000).

⁴See Thomas R. Dunlap, *Saving America's Wildlife* 6–7, 12 (1988).

⁵See Coggins & Ward, *supra* note 2, at 62.

⁶For example, bison were brought from Texas and Montana to supplement the depleted herd in Yellowstone National Park. See Margaret Mary Meagher, *The Bison of Yellowstone National Park* 26 (1973); Robert B. Keiter, *Greater Yellowstone's Bison: Unraveling of an Early American Wildlife Conservation Achievement*, 61 J. Wildlife Mgmt. 1, 2 (1997). In addition, Yellowstone's reservoir of elk, in turn, was used to restock areas of Montana and Colorado. See Jack Lyon & Jack Ward Thomas, *Elk: Rocky Mountain Majesty*, in *Restoring America's Wildlife*, *supra* note 3, at 146. Restoration efforts were not limited to the West. Eastern projects included, for example, the restoration of beaver to upstate New York. See Edward P. Hill, *Beaver Restoration*, in *Restoring America's Wildlife*, *supra* note 3, at 281, 282.

⁷See 1876 Cong. Rec. H1237 (daily ed. Feb. 23, 1876) (statement of Rep. Fort); 1874 Cong. Rec. H2105 (daily ed. Mar. 10, 1874).

⁸Lacey Act of 1900, 18 U.S.C.A. § 42 (2001).

⁹See Lacey Act of 1900, 18 U.S.C.A. § 42 (2001).

¹⁰See 33 Cong. Rec. H4871 (daily ed. Apr. 30, 1900) (statement of Rep. Lacey). Act of May 25, 1900 ch. 553, §§ 1 to 5, 31 Stat. 187 (current version at 16 U.S.C.A. § 667(e) (2001), 18 U.S.C.A. §§ 42 to 44 (2001)). The Lacey Act was intended to prohibit partially the transportation of birds or game animals that were captured or killed in violation of state law. See George Cameron Coggins, *Federal Wildlife Law Achieves Adolescence: Development in the 1970s*, 1978 Duke L.J. 753 (1978) (discussing origins of federal wildlife law and tracing development of several specific acts including the Migratory Bird Treaty Act and the ESA); James R. Dickens, *The Law and Endangered Species of Wildlife*, 9 Gonz. L. Rev. 57 (1973) (discussing development of international treaties, early federal laws, and state laws concerning endangered wildlife).

entered into an international treaty protecting migratory birds.¹¹

Congress' efforts, however, were piecemeal, focusing on either specific species or issues rather than on a comprehensive preservation program.¹² Moreover, Congress made little effort to estimate the economic value of preserving a species or to recognize that allowing a species to become extinct created an economic loss to society.¹³ It was not until the 1960s that the "the environmental costs of unchecked economic development" were recognized. Even then, Congress had yet to enact any major legislation.¹⁴

§ 21:5 Historical background—Environmental sensitivity of the 1960s and 1970s

Congress began to recognize in the early 1960s that more comprehensive legislation was needed to address species protection and conservation.¹ With plant and animal species facing extinction at an ever-increasing rate, Congress realized that the rapidly escalating economic development of the first half of the 20th century was increasingly devastating to plant and wildlife ecology.² In response to this growing awareness, Congress passed the Endangered Species Protection Act of 1966 (the 1966 Act).³

The 1966 Act was the first federal action to confront species extinction generally.⁴ This law, however, provided only nominal protection.⁵ The Secretary of the Interior was required merely to implement conservation programs when "practicable"⁶ and "consistent with the primary purposes"⁷ of either his own agency or another agency requiring his assistance in implementing the requirements of the Act.⁸

Congress soon realized the limitations of the 1966 Act and passed the Endangered

¹¹See Convention for the Protection of Migratory Birds, Aug. 16, 1916, U.S.-Gr. Brit. (on behalf of Can.), 39 Stat. 1702 [hereinafter Canada Convention]; see also Migratory Bird Treaty Act of 1918, ch. 128, 40 Stat. 755 (1918) (codified as amended at 16 U.S.C.A. §§ 703 to 711 (2001)). State of Missouri v. Holland, 252 U.S. 416, 40 S. Ct. 382, 64 L. Ed. 641, 11 A.L.R. 984 (1920), the Court explored and established the scope of federal treaty power through the lens of this treaty and the Migratory Bird Treaty Act of 1918.

¹²Congress "took no action to inventory and protect either animal or plant species as a whole." Ronald H. Rosenberg, *Federal Protection of Unique Environmental Interests: Endangered and Threatened Species*, 12 Land Use & Envtl. L. Rev. 469, 476 (1981).

¹³Mark Bonnett & Kurt Zimmerman, *Politics and Preservation: The Endangered Species Act and the Northern Spotted Owl*, 18 Ecology L.Q. 105, 105-06 (1991) (discussing the potential economic costs borne by society when a species is allowed to become extinct).

¹⁴Mark Bonnett & Kurt Zimmerman, *Politics and Preservation: The Endangered Species Act and the Northern Spotted Owl*, 18 Ecology L.Q. 105 (1991).

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¹See generally Jared des Rosiers, *The Exemption Process Under the Endangered Species Act: How the "God Squad" Works and Why*, 66 Notre Dame L. Rev. 825 (1991) (noting Congress' awakening to environmental and ecological issues).

²Mark Bonnett & Kurt Zimmerman, *Politics and Preservation: The Endangered Species Act and the Northern Spotted Owl*, 18 Ecology L.Q. 105, 105-06 (1991). See also des Rosiers, *supra* note 1, at 836 n.68 (providing reference to detailed account of Congress' concern for alarming increase in rate of plant and animal extinction). Congress mandated that the 1966 Act would "conserve, protect, and restore species threatened with extinction."

³Endangered Species Protection Act of 1966, Pub. L. No. 89-669, 80 Stat. 926 (repealed in 1973).

⁴See des Rosiers, *supra* note 1, at 835.

⁵See des Rosiers, *supra* note 1, at 835.

⁶1966 Act § 2(d) (repealed 1973).

⁷1966 Act § 1(b) (repealed 1973).

⁸1966 Act § 2(d) (repealed 1973).

Species Conservation Act of 1969 (the 1969 Act).⁹ More comprehensive than the 1966 Act, the 1969 Act barred the importation of any endangered species,¹⁰ expanded the definition of “wildlife” to include both vertebrates and invertebrates,¹¹ authorized the Secretary of the Interior to develop a list of species or subspecies threatened with worldwide extinction,¹² and authorized the state purchase of private lands that would aid in the preservation of endangered species.¹³ The 1969 Act, however, still had significant limitations. Perhaps most notably, it failed to eliminate the “practicability” qualifier¹⁴ from the obligations imposed on the Secretary of the Interior.¹⁵

In the early 1970s, Congress passed more major pieces of ecological and environmental legislation than ever before in American history. The environmental revolution began with Earth Day in 1970. That event raised the environmental conscience of the nation and led to a series of landmark environmental statutes. The National Environmental Policy Act (NEPA)¹⁶ was considered the linchpin of these laws by directing every federal agency to consider the environmental impacts of their actions.¹⁷ Other environmental statutes enacted were the Clean Air Act,¹⁸ the Resource Conservation and Recovery Act,¹⁹ the Federal Water Pollution Control Act of 1972,²⁰ and the most significant piece of wildlife protection legislation—the ESA.²¹

The environmental statutes enacted in the 1970s represented a major shift in

⁹Endangered Species Conservation Act of 1969, Pub. L. No. 91-135 §§ 1 to 5, 83 Stat. 275 (repealed 1973). See Ronald H. Rosenberg, *Federal Protection of Unique Environmental Interests: Endangered and Threatened Species*, 12 Land Use & Envtl. L. Rev. 469, 479–80 (1981) (providing detailed discussion of effects of 1969 Act).

¹⁰See des Rosiers, *supra* note 1, at 836.

¹¹1969 Act § 1 (repealed 1973).

¹²1969 Act § 3(a).

¹³1969 Act § 12(c).

¹⁴1969 Act § 3(a).

¹⁵1966 Act §§ 1(b), 2(d) (repealed 1973). See *supra* notes 6–8 and accompanying text (noting practicability requirements).

¹⁶Pub. L. No. 91-190, 83 Stat. 852 (1970), 42 U.S.C.A. §§ 4321 to 4370f, ELR Stat. NEPA §§ 2-209. The purpose of NEPA is:

to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

Id. § 4321, ELR Stat NEPA § 2.

¹⁷§ 4321, ELR Stat NEPA § 2. §§ 4321 to 4325, ELR Stat. NEPA § 101.

¹⁸Pub. L. No. 91-604, 84 Stat. 1076 (codified as amended at 42 U.S.C.A. §§ 7401 to 7671q, ELR Stat. CAA §§ 101 to 618). See Arnold W. Reitze Jr., *Air Pollution Control Law: Compliance & Enforcement* (Envtl. L. Inst. 2001).

¹⁹Pub. L. No. 94-580, 90 Stat. 2795 (codified as amended at 42 U.S.C.A. §§ 6901 to 6992k, ELR Stat. RCRA §§ 1001 to 11011).

²⁰The Federal Water Pollution Control Act Amendments, Pub. L. No. 92-500, 86 Stat. 816 (1972), substantially expanded and reorganized the Federal Water Pollution Control Act of 1948, ch. 758, 62 Stat. 1155. During its first five years, the Act was commonly known as the Federal Water Pollution Control Act. Since 1977, when Congress amended the Act and officially approved the term “Clean Water Act,” it has usually been called by that name. See Michael Blumm, *The Clean Water Act’s Section 404 Program Enters Its Adolescence: An Institutional and Programmatic Perspective*, 8 Ecology L.Q. 410, 410 (1980).

²¹Endangered Species Act, Pub. L. No. 93-205, 87 Stat. 884 (codified as amended at 16 U.S.C.A. §§ 1531 to 1544, ELR Stat. ESA §§ 2 to 18). The Act was considered so significant because it provided comprehensive protection for threatened and endangered species and their habitats, without any limitations or bypass provisions. See §§ 21:6 to 21:7 note 1 and accompanying text (detailing specific provisions of Act).

priorities for Congress. Before then, particularly in the early part of the 20th century, Congress seemed reluctant to formulate a national environmental policy, and few pieces of legislation were passed.²² Scholars have offered two theories to explain this. One theory holds that Congress was demonstrating a simple lack of interest in, or social awareness of, species preservation and other environmental issues.²³ Another, more probative theory concludes that Congress' reluctance to pass environmental and ecological legislation was a reaction to the Court's decision in *Geer v. Connecticut*.²⁴

The *Geer* Court ruled that a state "owns" its wild animals and "has an absolute right to control and regulate the killing of game as its judgment deems best in the interest of its people."²⁵ Thus, the Court concluded that the right to control and regulate was a proper exercise of the state's police power.²⁶ Given the holding in *Geer*, Congress might have been understandably reluctant to interfere with a judicially sanctioned state police action, even though its interstate commerce power may have granted Congress authority to override this state police power.²⁷ Either way, Congress passed little legislation on species preservation nationwide until the 1960s.

While the 1966 Act²⁸ and the 1969 Act²⁹ evidenced Congress' growing concern that both plant and animal species were becoming extinct at an alarming rate and that federal legislation was needed,³⁰ the passage of the ESA in 1973 manifested these concerns as paramount.³¹ Chief Justice Warren Burger observed that, in enacting the ESA, Congress intended to "halt and reverse [the] trend towards species extinction, whatever the cost."³²

Second, on a more philosophical plane, the gradual elimination of different forms

²²See § 21:4, notes 6–11 and accompanying text (discussing early legislative efforts).

²³See des Rosiers, *supra* note 1, at 834 n.57 (providing detailed background reference material discussing early wildlife legislation and interpretations of congressional intent and purpose).

²⁴*Geer v. State of Conn.*, 161 U.S. 519, 16 S. Ct. 600, 40 L. Ed. 793 (1896) (overruled by, *Hughes v. Oklahoma*, 441 U.S. 322, 99 S. Ct. 1727, 60 L. Ed. 2d 250 (1979)).

²⁵*Geer v. State of Conn.*, 161 U.S. 519, 530, 16 S. Ct. 600, 40 L. Ed. 793 (1896) (overruled by, *Hughes v. Oklahoma*, 441 U.S. 322, 99 S. Ct. 1727, 60 L. Ed. 2d 250 (1979)).

²⁶*Geer v. State of Conn.*, 161 U.S. 519, 534, 16 S. Ct. 600, 40 L. Ed. 793 (1896) (overruled by, *Hughes v. Oklahoma*, 441 U.S. 322, 99 S. Ct. 1727, 60 L. Ed. 2d 250 (1979)). See also des Rosiers, *supra* note 1, at 835 n.62 (citing additional material discussing whether *Geer* actually prohibited congressional action).

²⁷See des Rosiers, *supra* note 1, at 835 n.62.

²⁸Pub. L. No. 89-669, 80 Stat. 926 (repealed 1973).

²⁹Pub. L. No. 91-135, 83 Stat. 275 (repealed 1973).

³⁰S. Rep. No. 526, 91st Cong., 1st Sess. 3 (1969), *reprinted in* 1969 U.S.C.C.A.N. 1413, 1415. The U.S. Senate report on the 1969 Act embodied two rationales. One rationale was that the extinction of a species removes its unique genetic contribution from the ecology and eliminates the possible benefits of "controlled exploitation" of the species for the public good.

³¹See des Rosiers, *supra* note 1, at 835–37 nn.64–74 (providing supplemental reference citations concerning 1966 and 1969 Acts and underlying congressional intent and purpose); see also Steven P. Quarles & Thomas R. Lundquist, *The Pronounced Presence and Insistent Issues of the ESA*, Nat. Res. & Env't, Fall 2001, at 59 (noting that the Court likely found that the ESA manifests overbearing statutory authority because it is devoid of "weasel words" such as "to the extent feasible," "insofar as practicable," "best available technology," and "in the public interest").

³²*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 185, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978) (enjoining completion and operation of Tellico Dam because it would place the snail darter, an endangered species of fish, in danger of extinction). Chief Justice Burger went on to say that the disregard of cost in species preservation "[was] reflected not only in the stated policies of the Act, but in literally every section of the statute." See George Cameron Coggins, *Conserving Wildlife Resources: An Overview of the Endangered Species Act of 1973*, 51 Notre Dame L. Rev. 315 (1974) (providing background of rationale underlying the ESA).

of life reduces the richness and variety of our environment and may restrict our understanding and appreciation of natural processes. Moreover, in hastening the destruction of different forms of life merely because they cannot compete in our common environment upon man's terms, mankind, which has inadvertently arrogated to itself the determination of which species shall live and which shall die, is assuming an immense ethical burden.

S. Rep. No. 526, 91st Cong., 1st Sess. 3 (1969).

II. OVERVIEW AND STRUCTURE OF THE ESA

§ 21:6 Generally

Congress enacted the ESA in 1973 and, in so doing, substantially increased the government's management authority over endangered and threatened species on public and private land.¹ Finding that "species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people,"² Congress established in the ESA a comprehensive set of affirmative mandates, stringent prohibitions, and limited exceptions.³

§ 21:7 Basic purposes of the ESA

Congress stated that the ESA had three purposes: first, to provide a means to conserve the ecosystems of endangered and threatened species;¹ second, to provide a conservation program for the endangered and threatened species;² and third, to take appropriate steps to achieve the purposes of specific treaties and conventions identified in the Act.³

Congress granted two federal agencies the authority to implement and carry out the provisions of the ESA. Specifically, the U.S. Department of the Interior (DOI) is responsible for all terrestrial species, while the U.S. Department of Commerce is responsible for marine species and anadromous fish such as salmon.⁴ Congress also directed that all federal departments are to "seek to conserve endangered species and threatened species" and use their authorities in furtherance of the purposes of the Act.⁵

In 1978, the Supreme Court summarized the breadth and reach of the ESA by stating that the Act was "the most comprehensive legislation for the preservation of

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¹Robert Meltz, *ESA & Private Property: Where the Wild Things Are: The Endangered Species Act and Private Property*, 24 *Envtl. L.* 369, 372 (1994).

²16 U.S.C.A. § 1531(a)(3), ELR Stat. ESA § 2(a)(3).

³Tony A. Sullins, *Endangered Species Act 2* (2001).

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¹16 U.S.C.A. § 1531(b), ELR Stat. ESA § 2(b).

²16 U.S.C.A. § 1531(b), ELR Stat. ESA § 2(b).

³16 U.S.C.A. § 1531(b), ELR Stat. ESA § 2(b). Section 2(a) of the ESA references the following treaties and conventions: (1) the migratory bird treaties with Canada and Mexico; (2) the Migratory and Endangered Bird Treaty with Japan; (3) the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere; (4) the International Convention for the Northwest Atlantic Fisheries; (5) the International Convention for the High Seas Fisheries of the North Pacific Ocean; (6) the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and (7) other international agreements. 16 U.S.C.A. § 1531(a), ELR Stat. ESA § 2(a).

⁴16 U.S.C.A. § 1533, ELR Stat. ESA § 4.

⁵16 U.S.C.A. § 1531(c), ELR Stat. ESA § 2(c).

endangered species ever enacted by any nation.”⁶ Although Congress has substantially amended the ESA since the Court’s landmark *Tennessee Valley Authority v. Hill*⁷ decision, the ESA remains a powerful tool for species protection and conservation.⁸

§ 21:8 Structure of the ESA

The ESA describes in detail: how to determine and designate an endangered or threatened species;¹ how the state may purchase land to protect a species’ habitat;² how states and federal agencies must cooperate with the ESA’s objectives and regulations;³ how the ESA prohibits certain acts⁴ how to obtain exemptions from its provisions;⁵ and how the ESA enforces its provisions and penalizes violators.⁶

In enacting the ESA, Congress intended “to halt and reverse the trend toward species extinction.”⁷ Accordingly, § 4 of the ESA directs the Secretary of Commerce to determine which species are “in danger of extinction throughout all or a significant portion of [their] range”⁸ and to create a list of such “endangered” species. The ESA also directs the Secretary to list as “threatened” any species that is “likely to become an endangered species within the foreseeable future through all or a portion of its range.”⁹ Section 4 of the ESA describes the criteria and process for listing a species¹⁰ and imposes certain duties on the Secretary of the Interior and the Secretary of Commerce to develop and maintain these lists.¹¹ With the exception of certain monitoring, conferencing, and conservation activities associated with a candidate species, the ESA only provides substantive protection to species that are listed as endangered or threatened in accordance with § 4 of the Act.¹² Thus, the scope of these listings is key to obtaining the protections provided by the Act.

Section 4 also addresses two other key elements of the ESA: critical habitat designations; and recovery plans for listed species. Concurrent with a listing determination, the Secretary is also required to determine “to the maximum extent

⁶See *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

⁷*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

⁸See James C. Kilbourne, *The Endangered Species Act Under the Microscope: A Closeup Look From a Litigator’s Perspective*, 21 *Envtl. L.* 499, 501 (1991).

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¹16 U.S.C.A. § 1533(a) to (i), ELR Stat. ESA § 4(a) to (i).

²16 U.S.C.A. § 1534(a) to (b), ELR Stat. ESA § 5(a) to (b).

³16 U.S.C.A. § 1535(a) to (i), ELR Stat. ESA § 6(a) to (i) (describing states’ cooperation); 16 U.S.C.A. § 1536(a), ELR Stat. ESA § 7(a) (describing agencies’ cooperation).

⁴16 U.S.C.A. § 1538(a) to (g), ELR Stat. ESA § 8(a) to (g).

⁵16 U.S.C.A. § 1539(a) to (l), ELR Stat. ESA § 10(a) to (l).

⁶16 U.S.C.A. § 1540(a) to (h), ELR Stat. ESA § 11(a) to (h).

⁷*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 184, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

⁸16 U.S.C.A. § 1532(6), ELR Stat. ESA § 3(6). An important distinction is that plant life is only protected on federal land. See 16 U.S.C.A. § 1538, ELR Stat. ESA § 8 (making it unlawful to “remove and reduce to possession any such species from areas under Federal jurisdiction”).

⁹16 U.S.C.A. § 1532(20), ELR Stat. ESA § 3(20).

¹⁰The present or threatened destruction of a species’ range, the inadequacy of existing regulatory mechanisms, or other natural or man-made factors affecting its continued existence justifies the Secretary’s listing of an endangered species. See 16 U.S.C.A. § 1533, ELR Stat. ESA § 4.

¹¹The present or threatened destruction of a species’ range, the inadequacy of existing regulatory mechanisms, or other natural or man-made factors affecting its continued existence justifies the Secretary’s listing of an endangered species. See 16 U.S.C.A. § 1533, ELR Stat. ESA § 4.

¹²See 16 U.S.C.A. §§ 1534 to 1537, ELR Stat. ESA §§ 5 to 8.

prudent and determinable” whether any area should be designated as “critical habitat” for that listed species under the Act.¹³ Section 4(f) requires the adoption and implementation of “recovery plans” for each listed species unless a finding is made that such plans will not benefit the species.¹⁴

Section 7 of the ESA requires federal agencies, in consultation with the Secretary, to “ensure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species” or “result in the destruction or adverse modification of [critical] habitat.”¹⁵ Section 7 establishes procedures governing “consultation” by federal agencies with the Secretary regarding such agency actions. The consultation process is often considered the heart of the ESA in that it is the primary procedural mechanism for the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) to review federal agency actions that affect listed species. Other provisions require coordination between federal and state officials, as well as cooperation with foreign countries, to protect endangered or threatened species.¹⁶ The ESA also authorizes specific federal agencies to acquire land in order to support conservation programs¹⁷ and directs these agencies to consult with affected states before acquiring land for this purpose.¹⁸

Section 9 of the ESA restricts private conduct on privately owned land.¹⁹ The provisions that make it illegal to “take” endangered species within the United States, in the territorial seas of the United States, or upon the high seas have been highly controversial.²⁰ “Take” is broadly defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect.”²¹ The DOI interprets this definition as forbidding “significant habitat modification or degradation where it actually kills or injures wildlife.”²² This interpretation of the term “take” hinders private as well as public building and commercial activities, and thus has been a frequent source of litigation.²³ Arguably, the “take” interpretation that results in restrictions regarding habitat modification is equivalent to a land use or zoning regulation of private lands. Traditionally, regulation of land use and zoning were the province of state and local governments.²⁴ Furthermore, the DOI’s broad interpretation of the “take” definition affects recreational uses of land, such as driving off-road vehicles and

¹³16 U.S.C.A. § 1533(a)(3)(A), ELR Stat. ESA § 4(a)(3)(A).

¹⁴16 U.S.C.A. § 1533(f)(1).

¹⁵16 U.S.C.A. § 1536, ELR Stat. ESA § 7. This is the provision that was at issue in the Tellico Dam case, *see Tennessee Valley Authority v. Hill*, 437 U.S. 153, 184, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

¹⁶*See* 16 U.S.C.A. §§ 1535, 1537, ELR Stat. ESA §§ 6, 8.

¹⁷*See* 16 U.S.C.A. § 1534, ELR Stat. ESA § 5.

¹⁸16 U.S.C.A. § 1535(a), ELR Stat. ESA § 6(a). The Supreme Court has found that provisions like these are authorized by the federal government’s spending power. *See* U.S. Const. art. 1, § 8, cl. 1; *see also* *New York v. U.S.*, 505 U.S. 144, 112 S. Ct. 2408, 120 L. Ed. 2d 120 (1992); *South Dakota v. Dole*, 483 U.S. 203, 107 S. Ct. 2793, 97 L. Ed. 2d 171 (1987) (permitting Congress to condition funds upon state’s adoption of a minimum drinking age).

¹⁹*See* 16 U.S.C.A. § 1538(a), (d), (e), (f), ELR Stat. ESA § 9(a), (d), (e), (f).

²⁰16 U.S.C.A. § 1538, ELR Stat. ESA § 9.

²¹16 U.S.C.A. § 1532(19), ELR Stat. ESA § 3(19).

²²50 C.F.R. § 17.3 (1998); *see also* *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995). The Court upheld the Secretary’s definition in a 6-3 decision that found the interpretation reasonable and consistent with the ESA. *See* 16 U.S.C.A. § 1532(19), ELR Stat. ESA § 3(19).

²³*See* 50 C.F.R. § 17.3 (1998); *National Ass’n of Home Builders v. Babbitt*, 130 F.3d 1041 (D.C. Cir. 1997).

²⁴*See* David A. Linehan, *Endangered Regulation: Why the Commerce Clause May No Longer Be Suitable Habitat for Endangered Species and Wetlands Regulation*, 2 Tex. Rev. L. & Pol’y 365, 419 (1998).

walking in the sand.²⁵ Perhaps not surprisingly, critics of the ESA argue that this broad interpretation, particularly the habitat modification restrictions that have an impact on the traditional powers of state and local government, cannot be justified under either the Treaty Power or the Commerce Clause.²⁶

The ESA also has a strong enforcement provision that includes a citizen suit authority under § 11, as well as important provisions to conserve and protect endangered and threatened species internationally. Most recently, climate change has emerged as a major factor in the effort to conserve listed species and their habitats.

III. CRITERIA AND PROCEDURES FOR SPECIES LISTINGS

§ 21:9 Generally

Congress granted two federal agencies, the DOI and the U.S. Department of Commerce (DOC), the authority to implement and carry out the provisions of the ESA. The DOI has delegated this authority under the ESA to the FWS, and the DOC has delegated its authority to the NMFS.¹ The ESA requires these agencies to publish lists of species determined to be “endangered” or “threatened.”² Those species in danger of becoming extinct “throughout all or a significant portion of their range” are to be listed as “endangered,”³ while those likely to become endangered in the foreseeable future are to be listed as “threatened.”⁴ A number of factors, including the present or threatened endangerment of the species’ habitat,⁵ overutilization of the species,⁶ disease or predation,⁷ inadequacy of existing regulations,⁸ and all other natural and man-made factors affecting the species’ continued existence⁹ are assessed in making these determinations.

²⁵See Endangered and Threatened Wildlife and Plants: Determination of Endangered Species for the Delhi Sands Flower-Loving Fly, 58 Fed. Reg. 49881, 49884 (Sept. 23, 1993) (to be codified at 50 C.F.R. pt. 17).

²⁶See, e.g., Gibbs v. Babbitt, 214 F.3d 483 (4th Cir. 2000); Omar N. White, *The Endangered Species Act’s Precarious Perch: A Constitutional Analysis Under the Commerce Clause and the Treaty Power*, 27 Ecology L.Q. 215 (2000); Linehan, *supra* note 24; Gavin R. Villareal, *One Leg to Stand On: The Treaty Power and Congressional Authority for the Endangered Species Act After United States v. Lopez*, 76 Tex. L. Rev. 1125 (1998); J. Blanding Holman, *After United States v. Lopez: Can the Clean Water Act and the Endangered Species Act Survive Commerce Clause Attack?*, 15 Va. Env’tl. L.J. 139 (1995) (arguing that the ESA’s take provision may be constitutionally vulnerable).

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¹See 50 C.F.R. § 424.01 (1997) (stating that the two agencies have jointly promulgated regulations implementing the statutory provisions of the listing process).

²16 U.S.C.A. § 1533(c), ELR Stat. ESA § 4(c). One such classification that spawned intense controversy involved a small fish called the snail darter. Because the snail darter was classified as an endangered species, the Supreme Court upheld the issuance of an injunction that prohibited the completion of the Tellico Dam project, a multimillion dollar dam on the Little Tennessee River. See *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 193-94, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978) (holding that the ESA prohibited continuation of a dam project because impounding a river would destroy snail darter’s habitat). Congress overruled the Court’s decision by amending the appropriations law to exempt the Tellico Dam project from the provisions of the ESA. See *Energy and Water Development Appropriation Act of 1979*, Pub. L. No. 96-69, 93 Stat. 437 (1979) (authorizing the completion of the Tellico Dam project notwithstanding “any other law”); see also *Sequoyah v. Tennessee Valley Authority*, 480 F. Supp. 608, 611 (E.D. Tenn. 1979), judgment aff’d, 620 F.2d 1159 (6th Cir. 1980) (holding that Congress expressly exempted the Tellico Dam project from any law that could affect its completion, including the ESA).

³16 U.S.C.A. § 1532(6), ELR Stat. ESA § 3(6).

⁴16 U.S.C.A. § 1532(20), ELR Stat. ESA § 3(20).

⁵16 U.S.C.A. § 1533(a)(1)(A), ELR Stat. ESA § 4(a)(1)(A).

⁶16 U.S.C.A. § 1533(a)(1)(B), ELR Stat. ESA § 4(a)(1)(B).

⁷16 U.S.C.A. § 1533(a)(1)(C), ELR Stat. ESA § 4(a)(1)(C).

In determining whether to list a species, the responsible agency is required to consider the above factors “solely on the basis of the best scientific and commercial data available.”¹⁰ Thus, such determinations take into account primarily biological risks without considering other factors such as economic impact.¹¹ All listings are subject to review at least once every five years by the Secretary of the Interior, who must determine whether the species should be removed from the list or whether its status should be upgraded from endangered to threatened or downgraded from threatened to endangered.¹² In addition, as discussed in subchapter IV, in conjunction with the listing of a species, the agencies must designate any known habitat of any listed species that meets the definition of “critical habitat.”¹³

Because the Secretary of the Interior is authorized to promulgate any regulations “necessary and advisable” for the conservation of each listed species, and the ESA prohibits specific acts regarding endangered species¹⁴ and authorizes similar prohibitions for threatened species,¹⁵ the scope of what is a “species” is important for purposes of the ESA. The following discussion focuses on the definition of “species,” the specifics of the species listing process, relevant rulemaking procedures, the exceptions available, and potential compliance issues that may arise under NEPA as the result of a listing decision.

§ 21:10 What is a “species”?

Under the ESA, an “endangered species” is “any species [of plant or animal] in danger of extinction throughout all or a significant portion of its range,” as determined by the Secretary of the Interior.¹ “Threatened species” means “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”² The legislative history of the ESA states that, “the protective measures to counter species extinction take effect when a species is listed.”³ Thus, with the exception of certain monitoring, conferencing, and conservation activities, the ESA offers real protection to only those species listed as threatened or endangered.

Although the ESA vests a nondiscretionary duty to list such endangered and

⁸16 U.S.C.A. § 1533(a)(1)(D), ELR Stat. ESA § 4(a)(1)(D).

⁹16 U.S.C.A. § 1533(a)(1)(E), ELR Stat. ESA § 4(a)(1)(E).

¹⁰16 U.S.C.A. § 1533(b)(1)(A), ELR Stat. ESA § 4(b)(1)(A).

¹¹16 U.S.C.A. § 1533(b)(1)(A), ELR Stat. ESA § 4(b)(1)(A).

¹²16 U.S.C.A. § 1533(c)(2), ELR Stat. ESA § 4(c)(2) (setting forth review guidelines).

¹³16 U.S.C.A. § 1533(a)(3)(A), ELR Stat. ESA § 4(a)(3)(A). This designation generally is to be made on “the basis of the best scientific evidence available,” also considering the economic impact of specifying an area as a critical habitat. 16 U.S.C.A. § 1533(b)(2), ELR Stat. ESA § 4(b)(2).

¹⁴16 U.S.C.A. § 1533(d), ELR Stat. ESA § 4(d); *see also* State of La., *ex rel. Guste v. Verity*, 853 F.2d 322 (5th Cir. 1988) (stating there need only be a showing that regulation does in fact prevent prohibited takings to validate a regulation under § 1533(d), thus a showing that regulation actually enhances a species’ chances for survival is not necessary); *cf. Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985) (holding that § 1533(d) limits the Secretary of the Interior’s discretion to allowing the sport hunting of threatened species).

¹⁵Both the FWS and the NMFS have promulgated regulations extending these prohibitions to threatened species. *See* 50 C.F.R. § 17.31 (1997).

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¹16 U.S.C.A. § 1532(6), ELR Stat. ESA § 3(6). The Secretary of the Interior determines a species to be endangered through a formal rulemaking process. *See* 16 U.S.C.A. § 1533(a)(1), ELR Stat. ESA § 4(a)(1).

²16 U.S.C.A. § 1532(20), ELR Stat. ESA § 3(20).

³H.R. Rep. No. 97-567, at 10 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2807, 2810.

threatened species,⁴ it does not define the term “species” with any scientific precision. Instead, the ESA takes a broad view of what types of “species” should be protected,⁵ by defining the term “species” to include “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife that interbreeds when mature.”⁶ The only specific exclusion from the definition of “species” is of any “species of the Class Insecta determined by the Secretary to constitute a pest whose protection . . . would present an overriding risk to man.”⁷

Though the term “species” is not defined in a biologically⁸ or taxonomically accurate manner,⁹ the ESA is viewed as implicitly recognizing scientific nomenclature as a threshold criterion for listing. Both the FWS and the NMFS have concluded that the term “species” may be applied, “according to the best biological knowledge and understanding of evolution, specialization, and genetics.”¹⁰ Therefore, in determining whether a species will be listed as endangered or threatened, agencies may use sources such as the International Code of Zoological Nomenclature to the extent practicable.¹¹

The ESA seems to rest on a mix of “evolutionary and essentialist assumptions and, like the 1969 Act, demonstrates a concern for both morphological and reproductive distinctions.”¹² In 1973, the House Committee on Merchant Marine and Fisher-

⁴H.R. Rep. No. 97-835, at 20 (1982).

⁵In contrast, the 1966 and 1969 precursors to the ESA covered a very limited number of species. The 1966 Act covered only vertebrate species, and most of the species it designated as endangered were mammals, birds, fish, or certain types of reptiles and amphibians. See Pub. L. No. 89-669, 80 Stat. 926 (repealed 1973). The 1969 Act added two invertebrate species, mollusks and crustaceans, to the types of organisms covered. See Pub. L. No. 91-135, 83 Stat. 275 (repealed 1973).

⁶16 U.S.C.A. § 1532(16), ELR Stat. ESA § 3(16).

⁷16 U.S.C.A. § 1532(6), ELR Stat. ESA § 3(6); 50 C.F.R. § 424.02(e).

⁸Originally, species classification was a straightforward identification of morphological characteristics as developed by Carl Linnaeus. See Ernst Mayr, *The Growth of Biological Thought* 171–80 (1982). However, Charles Darwin’s publication of *On the Origin of Species* in 1859, with its rejection of the static view of nature in favor of a changing evolutionary view, forever altered the nature of species classification, as well as the rest of biology. See Kevin D. Hill, *The Endangered Species Act: What Do We Mean by Species?*, 20 B.C. Env’tl. Aff. L. Rev. 239, 249 (1993). Modern biology has a number of competing definitions for the term “species.” See, e.g., Joel Cracraft, *Species Concepts and Speciation Analysis*, 1 *Current Ornithology* 159 (1983) (explaining the phylogenetic species concept); Alan R. Templeton, *The Meaning of Species and Speciation: A Genetic Perspective*, in *Speciation and Its Consequences* 12 (Otte & Endler eds., 1989) (describing the cohesion concept). The biological species concept, which is based on the isolation species concept proposed in the early 1940s by Harvard evolutionary biologist Ernst Mayr, is perhaps the most widely accepted. See Hill, *supra*, at 249. Notwithstanding the biological species concept’s wide acceptance, it is also subject to criticism. See Guy L. Bush, *Modes of Animal Speciation*, 6 *Ann. Rev. Ecol. & Systematics* 339, 364 (1975) (arguing that the biological species concept is only widely accepted in ornithology and is rejected by botany). The confusion surrounding the exact definition of species may in part be due to the different uses the species category has in the varying branches of biology. See Mayr, *supra*, at 552 (concluding that a biochemist’s definition of species would not necessarily be useful to an evolutionary biologist). Perhaps this is why Congress, in enacting the ESA, chose a very broad definition for the term “species,” as a broad definition would maximize the legislation’s conservation purpose.

⁹Merriam-Webster’s dictionary defines species as:

(1): a category of biological classification ranking immediately below the genus or subgenus, comprising related organisms or populations potentially capable of interbreeding, and being designated by a binomial that consists of the name of a genus followed by a Latin or latinized uncapitalized noun or adjective agreeing grammatically with the genus name.

Merriam Webster’s New Collegiate Dictionary (20th ed. 2001). See also *Southwest Center for Biological Diversity v. Babbitt*, 926 F. Supp. 920, 924 (D. Ariz. 1996) (citing Hill, note 135).

¹⁰61 Fed. Reg. 4709, 4710 (Feb. 7, 1996).

¹¹50 C.F.R. § 17.11(b) (2001).

¹²See Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science*

ies appealed to both genetic and morphological¹³ values when it explained the need to revise the 1969 Act.¹⁴ The Committee also described the “genetic heritage” represented by the species of the world as having incalculable value.¹⁵

As first enacted in 1973, the ESA included a definition of “species” that indicated Congressional intent to protect more than just evolutionary potential. The ESA of 1973 defined “species” as including not only subspecies of animals and plants but also “any other group of fish or wildlife of the same species or smaller taxa in common spatial arrangement that interbreed when mature.”¹⁶ A “taxon” is a “group of organisms of any taxonomic rank that is sufficiently distinct to be worthy of being named and assigned to a definite category.”¹⁷ While closely tracking Harvard evolutionary biologist Ernst Mayr’s biological species concept¹⁸ based primarily on evolutionary relationships, the origin of the clause can be traced to the Marine Mammals Protection Act, which protected both species and “population stocks.”¹⁹

The concept of “population stocks” was developed by the drafter of the Marine Mammal Protection Act to ensure the protection of Alaskan polar bears in the face of disagreement in the scientific community over whether Alaskan bears belonged to a separate subspecies than other arctic bears.²⁰ By using the population stock concept, Congress evinced a desire to protect the Alaskan polar bear population without regard to the evolutionary relationships among polar bears generally. Therefore, by borrowing the population stock concept within the ESA, Congress has enabled the protection of groups considered valuable for reasons other than their evolutionary heritage.

This expansive view of species protection was reinforced in 1978, when Congress expressly rejected the narrowest definition of the biological species concept. In 1978, Congress rejected an amendment that would have limited the ESA’s protections to sexually reproducing groups incapable of breeding with others. The House passed a bill that would have redefined “species” as “a group of fish, wildlife, or plants, consisting of physically similar organisms capable of interbreeding but generally

Isn't Always Better Policy, 75 Wash. U. L.Q. 1029, 1092 (1997). The 1969 Act had extended coverage to animal subspecies, but like the 1966 Act did so without any specific expansion of the definition. 1969 Act § 3(a) (repealed 1973). The 1969 Senate report did, however, emphasize the evolutionary element of the term species, noting the value of species as genetic resources for future exploitation. *See* S. Rep. No. 91-526, at 3 (1969) (noting that “with each species we eliminate, we reduce the pool of germplasm available for use by man in future years. Since each living species and subspecies has developed in a unique way to adapt itself to the difficulty of living in the world’s environment, as a species is lost, its distinctive gene material, which may subsequently prove invaluable to mankind in improving domestic animals or increasing resistance to disease or environmental contaminants, is also irretrievably lost.”). The morphological meaning of species was also implicitly invoked in the Senate report as well. *See* S. Rep. No. 91-526, at 3 (1969) (noting that the “gradual elimination of different forms of life reduces the richness and variety of our environment.”).

¹³Morphology is defined as: “a.) a branch of biology that deals with the form and structure of animals and plants; b.) the form and structure of an organism or any of its parts.” *See* Merriam Webster’s Collegiate Dictionary (20th ed. 2001).

¹⁴H.R. Rep. No. 93-412 (1973), *reprinted in* Congressional Research Service, A Legislative History of the Endangered Species Act of 1973, as Amended in 1976, 1977, 1978, 1979, and 1980, at 140, 143 (1982) [hereinafter ESA Legislative History].

¹⁵H.R. Rep. No. 93-412 (1973), *reprinted in* Congressional Research Service, A Legislative History of the Endangered Species Act of 1973, as Amended in 1976, 1977, 1978, 1979, and 1980, at 140, 143 (1982) [hereinafter ESA Legislative History].

¹⁶Pub. L. No. 93-205, 3(11), 86 Stat. 1027 (1973).

¹⁷*See* Mayr, *supra* note 8, at 207.

¹⁸*See* Ernst Mayr, *Speciation Phenomena in Birds*, 74 Am. Naturalist 249 (1940).

¹⁹Pub. L. No. 92-522, 3(11), 86 Stat. 1027 (1972) (defining “population stocks” as groups “of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature”).

²⁰*See* H.R. Rep. No. 92-707, at 22 (1972).

incapable of producing fertile offspring through breeding with organisms outside this group.”²¹ This definition would have withdrawn recognition from groups that had become reproductively isolated in nature but had not yet diverged sufficiently to become sexually incompatible. Furthermore, it would have precluded protection of asexually-reproducing organisms. However, the Senate rejected a similar proposal,²² leaving the definition of species untouched. The Conference Committee resolved the conflict by drafting the current, inclusive definition.²³

The 1978 Amendments to the ESA thus altered the earlier definition in two respects. First, Congress substituted the words “distinct population segment” for “any other group of fish or wildlife of the same species or smaller taxa in common spatial arrangement.” Second, it limited protection of population segments to vertebrates. This second change eliminated the possibility of protecting groups of invertebrates below the subspecies level. Whether the first change was intended to have any effect on the meaning of the term “species” is unclear.²⁴

Congress considered the definition of “species” again in 1979, in light of a General Accounting Office (GAO) report harshly criticizing the listing process.²⁵ The GAO report expressed concern that the existing definition was so broadly drafted that the FWS would be able to list the squirrels in any given city park as a distinct population segment, even if the squirrels existed in abundance in other parks within the same city or elsewhere in the country.²⁶ Congress ultimately reauthorized the ESA in 1979 without altering the definition of “species”; however, it admonished the listing agencies to list populations “sparingly and only when the biological evidence indicates that such action is warranted.”²⁷ At the same time, Congress observed that the ESA authorized protection of domestic populations of species found in abundance outside the United States.²⁸ This inconsistency of endorsing distinctions based on political boundaries while at the same time calling for listings based only on “biological evidence” was either unnoticed or ignored.

Based on the legislative history and amendments, it seems clear that Congress intended to protect at least distinct forms, genetic resources, and domestic populations.²⁹ Congress also recognized that none of the many species definitions employed by scientists captured all these elements. Yet, Congress did not intend to provide legal protection to the entire diversity of life.³⁰ Perhaps, attempting to find a middle ground, it adopted a definition that would largely leave to the listing agen-

²¹H.R. 14104, 95th Cong., 2d Sess. 5(2). This revision was suggested in order to limit the scope of the ESA’s protection, “to the detriment of man, to every individual creature on the face of the Earth that might differ in one degree or another from one of its brothers.” 124 Cong. Rec. 38154 (1978), *reprinted in* ESA Legislative History, *supra* note 14, at 881.

²²*See* 124 Cong. Rec. 21565 (1978), *reprinted in* ESA Legislative History, *supra* note 14, at 1105.

²³16 U.S.C.A. § 1532(16), ELR Stat. ESA § 3(16); *see also* H.R. Conf. Rep. No. 95-1804, at 2 (1978), *reprinted in* ESA Legislative History, *supra* note 14, at 1192–93.

²⁴The Conference Report provided no explanation for this change. *See* H.R. Conf. Rep. No. 95-1804, at 3 to 4, *reprinted in* ESA Legislative History, *supra* note 14.

²⁵*See* U.S. General Accounting Office, *Endangered Species: A Controversial Issue Needing Resolution* (1979).

²⁶U.S. General Accounting Office, *Endangered Species: A Controversial Issue Needing Resolution* (1979) at 52; *see also* Kate Geoffroy & Thomas Doyle, *Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?*, *Nat. Resources & Env’t*, Fall 2001, at 82, 83.

²⁷S. Rep. No. 95-151, 7 (1979), *reprinted in* ESA Legislative History, *supra* note 14, at 1397.

²⁸S. Rep. No. 95-151, 7 (1979), *reprinted in* ESA Legislative History, *supra* note 14, at 1397.

²⁹*See supra* notes 19–24 and accompanying text.

³⁰*See supra* notes 25–28 and accompanying text.

cies the task of identifying protectable groups.³¹

Overall, the agencies have provided little public information as to how they address the term “species” in the context of listing decisions. The regulatory definition of “species” is identical to the expansive statutory definition.³² In practice, however, the protection of taxonomic species has generated little controversy.³³ This is perhaps due to the fact that the term “species” has a generally understood biological significance notwithstanding the lack of a singularly accepted definition.³⁴ Conversely, the concepts of “subspecies” and “distinct population segment” components of the “species” definition have been highly controversial.³⁵

§ 21:11 “Subspecies” and “distinct population segments”

Even if a group is not recognized as a distinct taxonomic species, it may still qualify for protection under the ESA as a “subspecies” or “distinct population segment.”¹ The term “subspecies” is common in biological literature and generally reflects differences in behavior, genetics, geographic location, and morphology.² However, there is no single generally accepted definition.³ The term “distinct population segment” (DPS) is not used within biological literature at all,⁴ and some suggest it has little objective significance.⁵ As a result, the boundaries between “subspecies” and “distinct population segment” groups, which can be crucial in determining whether a group is entitled to the protections of the ESA, can turn on distinctions that might appear to be trivial.⁶ The scope of DPS determinations, in particular, has

³¹16 U.S.C.A. § 1533(a)(1), ELR Stat. ESA § 4(a)(1); Michael J. Bean & Melanie J. Rowland, *The Evolution of National Wildlife Law* 7–8 (1997).

³²50 C.F.R. § 424.02(k).

³³See National Research Council, *Science and the Endangered Species Act* 47 (1995). The only court to deal with full taxonomic species status did so only in passing. The U.S. District Court for the Southern District of Florida refused to block a white-tailed deer hunt by holding that white-tailed deer are not protected by the ESA simply because they are physically capable of breeding with the listed Key deer. *See Fund for Animals, Inc. v. Florida Game and Fresh Water Fish Com’n*, 550 F. Supp. 1206, 1208 (S.D. Fla. 1982) (declining to hold the two types of deer to be the same species without any showing that they interbreed in nature).

³⁴W.A. Fuller, *Synthesis and Recommendations*, in *The Road to Extinction* 51 (Richard & Maisie S. Fitter eds., 1987).

³⁵*Alsea Valley Alliance v. Evans*, 161 F. Supp. 2d 1154 (D. Or. 2001). *See also* Thomas Lambert, *Can an Owl Change Its Spots?*, *Ariz. Republic*, July 16, 1995, at 5.

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¹*Alabama-Tombigbee Rivers Coalition v. Norton*, 2002 WL 227032 (N.D. Ala. 2002).

²See Ernst Mayr, *The Growth of Biological Thought* 171, 289 (1982).

³See Ernst Mayr, *The Growth of Biological Thought* 171, 289 (1982); National Research Council, *Science and the Endangered Species Act* 47, 56 (1995).

⁴Policy Regarding the Recognition of Distinct Population Segments Under the Endangered Species Act, 61 Fed. Reg. 4722 (Feb. 7, 1996).

⁵See Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn’t Always Better Policy*, 75 Wash. U. L.Q. 1029, 1101 (1997).

⁶See § 21:10, note 30 and accompanying text. For example, one subspecies listing dispute turned on the taxonomic status of a small songbird called the California gnatcatcher. *See* Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn’t Always Better Policy*, 75 Wash. U. L.Q. 1029, 1104 (1997). The California gnatcatcher is found in the southwestern United States and northwestern Mexico. The FWS determined that the species included two distinct subspecies, with slight differences in bill length. One subspecies was found north of about 30 degrees latitude in Baja, California. The other was found south of that line. The location of the boundary drawn between the subspecies led to a listing of the northern subspecies, which was reduced to a very small population. If the species had been considered as a whole, it would not have qualified for a listing.

been the subject of significant litigation.⁷

Historically, the ESA permitted listing of populations as threatened or endangered without evidence of genetic variation or geographic isolation.⁸ For example, the American alligator in Louisiana was listed as both endangered and threatened by the FWS; separate populations were defined by parish boundaries⁹ even though the populations were “taxonomically and morphologically identical.”¹⁰ Although the Louisiana alligator decision was prior to the 1978 amendment to the ESA, which added the distinct population segment language, both the FWS and the NMFS have used a flexible approach to justify differential treatment of populations in listing decisions.¹¹

The language and the legislative history of the ESA indicate that Congress intended for groups of vertebrates to be listed at levels below species and subspecies.¹² Since 1978, both the FWS and the NMFS have struggled to identify the appropriate criteria on which to make DPS listing decisions,¹³ and over time, have increased the rate of DPS listings.¹⁴

The increasing number of DPS listing petitions spurred the FWS and the NMFS to develop formal policies to guide DPS listing decisions. Although the criteria used in determining a population’s eligibility for being listed as a DPS have changed over time,¹⁵ the agencies generally rely on two key policy documents: (1) the 1991 NMFS policy applying the species definition to Pacific salmon¹⁶ and (2) the 1996 joint policy

⁷See *Marincovich v. Lautenbacher*, 553 F. Supp. 2d 1237 (D. Or. 2008) (Pacific salmon); *Northwest Ecosystem Alliance v. U.S. Fish and Wildlife Service*, 475 F.3d 1136 (9th Cir. 2007) (western gray squirrel); *Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded, 566 F.3d 870 (9th Cir. 2009) (flat-tailed horned lizard); see also *National Ass’n of Home Builders v. Norton*, 340 F.3d 835, 848 (9th Cir. 2003); *Dysfunctional Downlisting Defeated: Defenders of Wildlife v. Secretary, U.S. Department of the Interior*, 34 B.C. Env’tl. Aff. L.Rev. 37, 65–78 (2007) (analyzing the origins of the DPS policy and FWS’ application of that policy in the case of the gray wolf).

⁸See *Southwest Center for Biological Diversity v. Babbitt*, 926 F. Supp. 920, 926 (D. Ariz. 1996); Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn’t Always Better Policy*, 75 Wash. U. L.Q. 1029, 1101 (1997).

⁹See http://www.state.la.us/about_facts.htm (visited Nov. 28, 2001) (defining subdivision, analogous to counties in other U.S. states).

¹⁰*Southwest Center for Biological Diversity v. Babbitt*, 926 F. Supp. 920, 926 (D. Ariz. 1996) (citing 40 Fed. Reg. 44413 to 34 (1975)).

¹¹In 1992, the FWS listed the Louisiana black bear as a “threatened” subspecies under the ESA even though the bear interbred with the American black bear and there was no evidence of geographic isolation. See *Southwest Center for Biological Diversity v. Babbitt*, 926 F. Supp. 920, 926 (D. Ariz. 1996) (citing 57 Fed. Reg. 588, 589 (1992)). Similarly, a federal district in Arizona noted that the bald eagle and the burrowing owl populations were listed even though the FWS did not require “direct evidence” of genetic differences, while the Pacific fisher, a large weasel, was not listed. See *Southwest Center for Biological Diversity v. Babbitt*, 926 F. Supp. 920, 925–26 (D. Ariz. 1996) (finding the FWS decision to not list the northern goshawk west of the 100th meridian in the United States “arbitrary and capricious”); but see *Center for Biological Diversity v. Badgley*, 2001 WL 844399 (D. Or. 2001), aff’d, 335 F.3d 1097 (9th Cir. 2003) (finding the FWS decision to list the northern goshawk west of the 100th meridian in the United States “arbitrary and capricious”); see also Kate Geoffroy & Thomas Doyle, *Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?*, Nat. Resources & Env’t, Fall 2001, at 84.

¹²See § 21:10, notes 30–32 and accompanying text.

¹³See Kate Geoffroy & Thomas Doyle, *Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?*, Nat. Resources & Env’t, Fall 2001, at 84.

¹⁴See Kate Geoffroy & Thomas Doyle, *Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?*, Nat. Resources & Env’t, Fall 2001, at 84.

¹⁵See Kate Geoffroy & Thomas Doyle, *Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?*, Nat. Resources & Env’t, Fall 2001, at 84. See also notes 16–18.

¹⁶56 Fed. Reg. 58612, 58618 (Nov. 20, 1991).

on the recognition of distinct vertebrate population segments.¹⁷

Although the 1991 NMFS policy is specific to Pacific salmon, the 1991 policy has become a benchmark for both agencies for other population listing decisions.¹⁸ The 1991 policy provides that a particular salmon stock will qualify as a DPS only if that stock “represents an evolutionarily significant unit (ESU) of the biological species.”¹⁹ An ESU must satisfy two criteria: (1) substantial reproductive isolation from other nonspecific population units and (2) representation as an important component in the evolutionary legacy of the species.²⁰ Thus, the crux of the 1991 policy is genetic distinction.²¹ Populations that are not genetically distinct—that is, they are neither reproductively isolated nor representative as an important component of a species’ evolutionary history—are ineligible for listing.²²

The 1996 joint DPS Policy outlines the interpretation of the term “DPS” for any species of vertebrate fish or wildlife for the purpose of listing, delisting, and reclassifying species under the ESA.²³ The 1996 joint policy references the 1991 policy as a “detailed extension” of the joint policy and notes the 1991 policy’s specific application to Pacific salmon.²⁴ Although the criteria for listing a DPS are different under the 1996 joint policy, the FWS and the NMFS consider both policies to be consistent.²⁵ The 1996 policy lists three guiding principles for recognition of a DPS: (1) discreteness of the population segment in relation to the remainder of the species to which it belongs, (2) the significance of the population segment to the species to which it belongs, and (3) the conservation status of the population segment (whether the DPS is endangered or threatened).²⁶

The first two guiding principles²⁷ focus on whether the population qualifies as a DPS and, like the 1991 policy, center on reproductive isolation and significance as critical factors.²⁸ Not surprisingly, the 1996 joint policy provides further guidance with respect to these principles. Under the 1996 joint policy, a population meets the discreteness principle if it satisfies either of the two following conditions:

¹⁷61 Fed. Reg. 4722 (Feb. 7, 1996).

¹⁸See Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env’t, Fall 2001, at 85. The NMFS applied the criteria used in the 1991 policy to list different season runs of Chinook salmon in the Columbia River Basin as separate evolutionarily significant units. See also 57 Fed. Reg. 14653 (Apr. 22, 1992) (determining that spring/summer Chinook salmon and the fall Chinook salmon in the Snake River were two separate species for listing purposes); Daniel J. Rohlf, *Pacific Salmon: There’s Something Fishy Going on Here: A Critique of the National Marine Fisheries Service’s Definition of a Species Under the ESA*, 24 Env’tl. L. 617, 621–22 (1994).

¹⁹56 Fed. Reg. at 58618.

²⁰56 Fed. Reg. at 58618.

²¹See Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env’t, Fall 2001, at 84.

²²Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env’t, Fall 2001, at 84. (noting that such an example is similar to the example of squirrels in a city park).

²³61 Fed. Reg. 4721 (Feb. 7, 1996).

²⁴61 Fed. Reg. 4721 (Feb. 7, 1996).

²⁵61 Fed. Reg. 4721 (Feb. 7, 1996).

²⁶61 Fed. Reg. 4721 (Feb. 7, 1996). The joint policy does not on its face appear to require a positive determination on all three criteria for a species to be listed as a DPS, but it appears clear that at least the first two principles must be met for a DPS determination. See *id.* at 4724–25. See also Tony A. Sullins, Endangered Species Act 2 (2001); see Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env’t, Fall 2001, at 85.

²⁷See 61 Fed. Reg. at 4725 (describing discreteness and significance respectively).

²⁸See Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env’t, Fall 2001, at 85.

- (1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation.
- (2) It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(A)(1)(D) of the Act.²⁹

The policy does not seem to require complete reproductive isolation, so long as the population is substantially reproductively isolated or defined with a reference to an international boundary.³⁰

After a population is found to meet the discreteness principle, the FWS and the NMFS must consider available scientific evidence used to determine the “significance” of the population to its species, which may include, but is not limited to, the following:

- (1) Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon.
- (2) Evidence that loss of the discrete population segment would result in a significant gap in the range of a taxon.
- (3) Evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range.
- (4) Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.³¹

The 1996 joint policy explicitly admits that there is inherent imprecision in applying these criteria and declines to formulate a blanket policy or describe all of the types of information that might justify a DPS decision.³²

The third principle adopted within the 1996 joint policy evaluates the conservation status of the population³³ and requires consideration of the statutory listing criteria set out in the ESA.³⁴

Several courts have heard challenges to the lawfulness of the DPS policy. A case in the Ninth Circuit determined whether the DPS policy had the force of law and whether the requirement that a population be significant to its taxon was unlawfully restrictive. In *Northwest Ecosystem Alliance v. U.S. Fish and Wildlife Service*,³⁵ the court reviewed the determination of the FWS to deny a petition classifying the Western Gray Squirrel as an endangered distinct population segment. The court first determined that the DPS policy is granted Chevron deference because Congress “expressly delegated authority to the Service to develop criteria for evaluating peti-

²⁹61 Fed. Reg. at 4724.

³⁰See Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env't, Fall 2001, at 85.

³¹61 Fed. Reg. at 4725. In fact, some commentators have criticized the 1996 joint policy assailing the expansive discretion and lack of hard and fast rules. See Kate Geoffroy & Thomas Doyle, Listing Distinct Population Segments of Endangered Species: Has It Gone Too Far?, Nat. Resources & Env't, Fall 2001, at 85.

³²61 Fed. Reg. at 4725.

³³61 Fed. Reg. at 4725.

³⁴16 U.S.C.A. § 1533(a)(1), ELR Stat, ESA § 4(a)(1).

³⁵*Northwest Ecosystem Alliance v. U.S. Fish and Wildlife Service*, 475 F.3d 1136 (9th Cir. 2007).

tions to list endangered species.”³⁶ Additionally, the creation or modification of the policy required a notice and comment period, and the court therefore held the policy carried the force of law.³⁷ Granting the FWS such deference, the court held that the FWS’ denial of the petition for listing based on the determination that the western gray squirrel in Washington was a discrete population, but not significant to the taxon, was not arbitrary and capricious.³⁸

The courts have generally deferred to determinations by the FWS that a specific population of a species represents a DPS irrespective of its worldwide status. As the court in *Defenders of Wildlife v. Norton* held, the FWS is required to address whether a species is in danger of extinction in a significant portion of its historical range, regardless of whether the species as a whole is in danger of extinction.³⁹ As a court determined in upholding the listing of the Arizona population of pygmy owls despite evidence that the species is plentiful in Mexico, “a population segment can be considered ‘discrete’ if it is delineated by international boundaries across which exist differences in management control of the species.” A species population can also be considered “significant if its loss would result in a significant gap in the range of the taxon.”⁴⁰ Thus, the listing of population segments of certain species, such as the gray wolf, has been upheld, even though the populations in Canada are plentiful.⁴¹

However, in 2001, in *Alsea Valley Alliance v. Evans*,⁴² a court overturned the FWS’ decision to list the Oregon Coast Coho Salmon as an evolutionarily significant unit (ESU), which combined hatchery and naturally spawned Coho but excluded listing the hatchery population as threatened because it was not “deemed essential” to the species’ recovery. The court held that the FWS arbitrarily distinguished members of the same DPS/ESU. The court held that “Congress expressly limited the Secretary’s ability to make listing distinctions among species below that of subspecies or a DPS of a species” and that “once NMFS determined that hatchery spawned Coho and naturally spawned Coho were part of the same DPS/ESU, the listing decision should have been made without further distinctions between members of the same DPS/ESU.”⁴³

After the Alsea decision, the NMFS developed a Hatchery Listing Policy (HLP) that required that hatchery fish be a consideration in ESU listing decisions as well as any listing of the ESU of which they are a part.⁴⁴

In delineating an ESU to be considered for listing, NMFS will identify all components of

³⁶*Northwest Ecosystem Alliance v. U.S. Fish and Wildlife Service*, 475 F.3d 1136, 1141 (9th Cir. 2007).

³⁷*Northwest Ecosystem Alliance v. U.S. Fish and Wildlife Service*, 475 F.3d 1136, 1142–43 (9th Cir. 2007).

³⁸*Northwest Ecosystem Alliance v. U.S. Fish and Wildlife Service*, 475 F.3d 1136, 1150 (9th Cir. 2007).

³⁹*Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1146 (9th Cir. 2001).

⁴⁰*Nat’l Association of Home Builders v. Norton* (No. CIV-00-0903-PHX-SRB) (Sept. 21, 2001) (slip. op. at 8).

⁴¹*U.S. v. McKittrick*, 142 F.3d 1170 (9th Cir. 1998). Recently, a court vacated the FWS’ delisting of the distinct population segment (DPS) of the Northern Rocky Mountain population of wolves as not meeting the recovery standard. *Defenders of Wildlife v. Hall*, 565 F. Supp. 2d 1160 (D. Mont. 2008). Subsequently, the FWS reopened the comment period and delisted the wolf DPS only in Idaho and Montana, not Wyoming. 74 Fed. Reg. 15070 (Apr. 2, 2009). That action was again challenged, and the court issued a Preliminary Injunction enjoining wolf hunts in those states and holding that the FWS could not delist part of a species below the level of a DPS based on political lines. *Defenders of Wildlife v. Salazar*, No. CV 09-77-MM-DVM (D. Mont. Sept. 8, 2009).

⁴²*Alsea Valley Alliance v. Evans*, 161 F. Supp. 2d 1154 (D. Or. 2001).

⁴³*Alsea Valley Alliance v. Evans*, 161 F. Supp. 2d 1154, 1162–63 (D. Or. 2001).

⁴⁴70 Fed. Reg. 37204 (June 28, 2005).

the ESU, including populations of natural fish (natural populations) and hatchery stocks that are part of the ESU. Hatchery stocks with a level of genetic divergence relative to the local natural population(s) that is no more than what occurs within the ESU: (a) are considered part of the ESU; (b) will be considered in determining whether an ESU should be listed under the ESA; and (c) will be included in any listing of the ESU.⁴⁵

However, in 2007, in *Trout Unlimited v. Lohn*, a district court found the HLP to be “internally contradictory”⁴⁶ and acknowledged that many biologists have protested the HLP because its application to hatchery fish “would not be scientifically valid.”⁴⁷ As a result, that court concluded that the HLP was contradictory to the ESA and held that hatchery-bred fish could no longer be counted toward ESA goals and listing decisions.⁴⁸

In 2008, in *Marincovich v. Lautenbacher*,⁴⁹ the District Court of Oregon once again looked at listing decisions involving the Lower Columbia River Coho Salmon. While hatchery Coho was present in abundance, the NMFS had determined that “low abundance of extant population, diminished diversity, and fragmentation and isolation of the remaining naturally produced fish confer considerable risks to the ESU.”⁵⁰ The court looked to the record and gave deference to the scientific expertise necessary to make the listing determination.⁵¹ The court held that the “NMFS’s decision to consider only naturally spawning populations in making its listing determination was not arbitrary and capricious.”⁵²

§ 21:12 Listing criteria and procedures

Section 4 of the ESA prescribes five criteria to be considered in the listing, delisting,¹ and reclassifying² of a species as either “endangered” or “threatened.” Those criteria are:

- (1) The present or threatened destruction, modification, or curtailment of the species’ habitat or range.
- (2) Overutilization for commercial, recreational, scientific, or educational purposes.

⁴⁵70 Fed. Reg. at 37215; *see also* *Alsea Valley Alliance v. Lautenbacher*, 66 Env’t. Rep. Cas. (BNA) 1108, 2007 WL 2344927 (D. Or. 2007), *aff’d*, 319 Fed. Appx. 588 (9th Cir. 2009) (holding that the NMFS did not violate the ESA and the APA by distinguishing between hatchery stock and “natural” salmon populations in its listing process).

⁴⁶*Trout Unlimited v. Lohn*, 65 Env’t. Rep. Cas. (BNA) 1633, 2007 WL 1795036 (W.D. Wash. 2007), *aff’d* in part, *rev’d* in part, 559 F.3d 946 (9th Cir. 2009).

⁴⁷*Trout Unlimited v. Lohn*, 65 Env’t. Rep. Cas. (BNA) 1633, 2007 WL 1795036 (W.D. Wash. 2007), *aff’d* in part, *rev’d* in part, 559 F.3d 946 (9th Cir. 2009).

⁴⁸*Trout Unlimited v. Lohn*, 65 Env’t. Rep. Cas. (BNA) 1633, 2007 WL 1795036 (W.D. Wash. 2007), *aff’d* in part, *rev’d* in part, 559 F.3d 946 (9th Cir. 2009).

⁴⁹*Marincovich v. Lautenbacher*, 553 F. Supp. 2d 1237 (D. Or. 2008).

⁵⁰*Marincovich v. Lautenbacher*, 553 F. Supp. 2d 1237, 1240 (D. Or. 2008).

⁵¹*Marincovich v. Lautenbacher*, 553 F. Supp. 2d 1237, 1248 (D. Or. 2008).

⁵²*Marincovich v. Lautenbacher*, 553 F. Supp. 2d 1237 (D. Or. 2008). On September 29, 2008, the U.S. District Court for the District of Columbia vacated the U.S. Fish & Wildlife Service’s (FWS) 2007 Final Rule removing ESA protection for the Western Great Lakes distinct population segment (DPS) of the gray wolf, and remanded it back to FWS.

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¹*See* 50 C.F.R. § 424.11(d) (2001) (providing that a species may only be delisted when it meets one of the following conditions: (1) the species is extinct; (2) the species has recovered; to a point where protection is no longer required, or (3) the scientific and commercial data on which the original listing decision was made is found to be erroneous).

²A species’ status under the ESA may be changed from “threatened” to “endangered” or vice versa. *See* 16 U.S.C.A. § 1533(c)(2)(B)(ii) to (iii), ELR Stat. ESA § 4(c)(2)(B)(ii) to (iii).

- (3) Disease or predation.
- (4) The inadequacy of existing regulatory mechanisms.
- (5) Other natural or man-made factors affecting the species' continued existence.³

A positive determination upon any single criteria may support a listing decision, and courts have examined listing decisions closely with regard to these listing criteria.⁴ In fact, the U.S. Court of Appeals for the District of Columbia Circuit has made it clear that any deviation from the five criteria listed in the ESA is improper.⁵

1. The Meaning of "In Danger of Extinction Throughout All or a Significant Portion of Its Range"

Under the ESA, a species may be listed as "endangered" based on these criteria if "it is in danger of extinction throughout all or a significant portion of its range."⁶ However, the ESA is silent on what constitutes "a significant portion" of a species' range. This language was added to the ESA to "allow the Secretary more flexibility in [his] approach to wildlife management."⁷ Many cases have grappled with what constitutes "a significant portion" of a species' range for purposes of listing decisions. The central controversy in most of these cases is whether the Secretary must make a listing decision based only upon a species' current and future range or must also consider the species' lost historical range. In 2001, the Ninth Circuit created the most relied upon definition in *Defenders of Wildlife v. Norton*, in which it concluded that "a species may be extinct 'throughout . . . a significant portion of its range' if there are major geographical areas in which it is no longer viable but once was."⁸

In 2005 a district court vacated the gray wolf rulemaking based on the definition of "a significant portion of its range" created in *Norton*.⁹ The gray wolf decisions are of particular significance because the FWS had held a meeting at Marymount University in 2000 in order to define the "significant portion" of the wolf's range. At that meeting, the FWS defined the significant portion of the gray wolf's range as "that area that is important or necessary for maintaining a viable, self-sustaining, and evolving representative population or populations in order for the taxon to persist into the foreseeable future."¹⁰ The Secretary relied on the Marymount meeting definition to reclassify certain populations of the gray wolf from "endangered" to "threatened." The court in *Defenders of Wildlife v. Secretary, U.S. Dep't of the Interior* held that the Marymount meeting definition of a "significant portion" of the gray wolf's range was not reasonable because it failed to consider or explain the sig-

³16 U.S.C.A. § 1533(l)(A) to (E), ELR Stat. ESA § 4(1)(A) to (E); 50 C.F.R. § 424.11(c)(1) to (5) (2001).

⁴*See, e.g., Oregon Natural Resources Council v. Daley*, 6 F. Supp. 2d 1139 (D. Or. 1998) (holding that current regulatory structure is the only appropriate basis for a listing decision); *Friends of Wild Swan, Inc. v. U.S. Fish and Wildlife Service*, 945 F. Supp. 1388 (D. Or. 1996) (holding an agency's own speculations as to future effects of another agency's species management plans insufficient basis to delay a listing decision); *Northern Spotted Owl (Strix Occidentalis Caurina) v. Hodel*, 716 F. Supp. 479 (W.D. Wash. 1988) (holding that the FWS disregarded its own biologists' expert opinions and failed to provide any expert analysis in support of its decision to not list the spotted owl).

⁵*See Biodiversity Legal Foundation v. Babbitt*, 943 F. Supp. 23 (D.D.C. 1996); *Southwest Center for Biological Diversity v. Babbitt*, 939 F. Supp. 49 (D.D.C. 1996).

⁶16 U.S.C.A. § 1532(6), ELR Stat. ESA § (3)(6). Similarly, a species may be listed as "threatened" if it "is likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range." 16 U.S.C.A. § 1532(20), ELR Stat. ESA § (3)(20).

⁷*Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1144 (9th Cir. 2001).

⁸*Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1145 (9th Cir. 2001).

⁹*Defenders of Wildlife v. Secretary, U.S. Department of the Interior*, 354 F. Supp. 2d 1156, 1167-69 (D. Or. 2005).

¹⁰*Defenders of Wildlife v. Secretary, U.S. Department of the Interior*, 354 F. Supp. 2d 1156, 1164 (D. Or. 2005) (citing AR Doc. 663 at 9924).

nificance of the wolf's lost historical range in accordance with the Norton definition.¹¹ Later that year, the court in *National Wildlife Federation v. Norton*, vacated another gray wolf listing decision on similar grounds.¹²

In 2007 another district court applied the Norton definition in analyzing a listing decision involving the flat-tailed horned lizard.¹³ In 1993, the Secretary of the Interior had proposed listing the lizard for protection¹⁴ but later moved to withdraw the proposal upon concluding that “the lost habitat is ‘not a significant portion’ of the lizard’s range and ‘does not result in the species likely becoming endangered in the foreseeable future throughout all or a significant portion of its range.’”¹⁵ The issue before the court was whether the Secretary’s determination was consistent with the Ninth Circuit Norton decision. In his findings in support of withdrawal, the Secretary first chose a point in time in which to determine the lizard’s range to establish a temporal baseline and define the subject area.¹⁶ Next, the Secretary evaluated the significance of the lizard’s lost historical habitat.¹⁷ The court held that this two-step analysis was sufficient to satisfy both the ESA and the Norton decision, especially because the Secretary had explained why the lizard’s lost historical range was not significant to the species.¹⁸

A 2007 Solicitor’s opinion further clarified the meaning of “In Danger of Extinction throughout All or a Significant Portion of its Range.”¹⁹ That opinion noted that:

Since approximately 2000, the Department . . . has interpreted the SPR [significant portion of its range] phrase to mean that a species is an endangered species only when it is in danger of extinction throughout a portion of its current range that is “so important to the continued existence of the species that threats to the species in that area can have the effect of threatening the viability of the species as a whole.” *Ctr. for Biological Diversity v. Norton* (citation omitted).²⁰

The opinion provides four reasons for this conclusion:

- (1) The SPR phrase is a substantive standard for determining whether a species is an endangered species—whenever the Secretary concludes because of the

¹¹*Defenders of Wildlife v. Secretary, U.S. Department of the Interior*, 354 F. Supp. 2d 1156, 1168 (D. Or. 2005).

¹²*National Wildlife Federation v. Norton*, 386 F. Supp. 2d 553 (D. Vt. 2005) (holding that “[t]he Secretary’s conclusion is contrary to the plain meaning of the ESA phrase ‘significant portion of its range,’ and therefore, is an arbitrary and capricious application of the ESA”).

¹³*Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded on other grounds, 566 F.3d 870 (9th Cir. 2009).

¹⁴*Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded on other grounds, 566 F.3d 870 (9th Cir. 2009) (citing 58 Fed. Reg. 62624).

¹⁵*Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded on other grounds, 566 F.3d 870 (9th Cir. 2009) (citing 71 Fed. Reg. 367545 (June 28, 2006)).

¹⁶*Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded on other grounds, 566 F.3d 870 (9th Cir. 2009). The Secretary chose to study the lizard’s habitat loss over the past 100 years.

¹⁷*Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded on other grounds, 566 F.3d 870 (9th Cir. 2009). This included an analysis as to whether “[t]here were [any] attributes or specific uses of the lost habitat by flat-tailed horned lizards that made it any more significant than any other habitat.”

¹⁸*Tucson Herpetological Society v. Kempthorne*, 66 Env’t. Rep. Cas. (BNA) 1080, 2007 WL 2023477 (D. Ariz. 2007), rev’d and remanded on other grounds, 566 F.3d 870 (9th Cir. 2009).

¹⁹Solicitor’s Opinion M-37013 (Mar. 16, 2007), available at <http://www.doi.gov/solicitor/opinions.html>.

²⁰Solicitor’s Opinion M-37013 (Mar. 16, 2007), available at <http://www.doi.gov/solicitor/opinions.html>. (citing *Center for Biological Diversity v. Norton*, 411 F. Supp. 2d 1271, 1278 (D.N.M. 2005)).

statutory five-factor analysis that a species is “in danger of extinction throughout . . . a significant portion of its range,” it is to be listed and the protections of the ESA applied to the species in that portion of its range where it is specified as an “endangered species.”

- (2) The word “range” in the SPR phrase refers to the range in which a species currently exists, not to the historical range of the species where it once existed.
- (3) The Secretary has broad discretion in defining what portion of a range is “significant” and may consider factors other than simply the size of the range portion in defining what is “significant.”
- (4) The Secretary’s discretion in defining “significant” is not unlimited; he may not, for example, define “significant” to require that a species is endangered only if the threats faced by a species in a portion of its range are so severe as to threaten the viability of the species as a whole.²¹

2. Required Use of “Best Scientific and Commercial Data Available”

As discussed above, § 4 of the ESA identifies five factors, such as habitat loss and modification, overharvesting, disease, predation, inadequate regulatory control, and other natural and manmade factors²² as the criteria to be considered for listing decisions under the ESA. In addition, § 4 requires the FWS and NMFS to make determinations “solely on the basis of the best scientific and commercial data available”²³ as to whether a species will become endangered or extinct in the foreseeable future.²⁴ Furthermore, Congress included “trade data”²⁵ as clarification for the term “commercial information” as used in the ESA. If the FWS or the NMFS finds that a species is likely to become endangered or extinct in the foreseeable future without protection, then by definition that species is presently threatened or endangered.²⁶

The FWS and the NMFS have issued joint listing regulations that specifically exclude the use of economic impact data from the definition²⁷ of best scientific and commercial data.²⁸ These regulations were issued in response to 1982 amendments to the ESA overturning Executive Order 12291, which had previously required economic impact analysis data to be included in listing decisions.²⁹ At that time, Congress also noted that “emotional reasons” and “improper biological data” were

²¹Solicitor’s Opinion M-37013 at 3.

²²16 U.S.C.A. § 1532(20), ELR Stat. § 3(20) (“The term ‘threatened species’ means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”).

²³16 U.S.C.A. § 1533(b)(1)(A), ELR Stat. § 4(b)(1)(A). *See also* Northern Spotted Owl (*Strix Occidentalis Caurina*) v. Hodel, 716 F. Supp. 479, 483 (W.D. Wash. 1988) (holding that the FWS must rely on expert analysis, rather than mere conclusory assertions of expertise, to support a determination not to list a certain species).

²⁴*See Oregon Natural Resources Council v. Daley*, 6 F. Supp. 2d 1139 (D. Or. 1998).

²⁵16 U.S.C.A. § 1533(b)(1)(A) (defining trade data as “data relevant to the trade in a particular species”).

²⁶16 U.S.C.A. § 1533(b)(1)(A) (defining trade data as “data relevant to the trade in a particular species”).

²⁷50 C.F.R. § 424.11(b) (a listing, delisting or reclassifying decisions to be made “solely on the basis of the best available scientific and commercial information . . . without reference to possible economic or other impacts of such determination”).

²⁸50 C.F.R. § 424.11(b) (a listing, delisting or reclassifying decisions to be made “solely on the basis of the best available scientific and commercial information . . . without reference to possible economic or other impacts of such determination”).

²⁹*See* Pub. L. No. 97-304, 96 Stat. 1411; 16 U.S.C.A. § 1533, ELR Stat. ESA § 4.

inappropriate bases for listing decisions³⁰ under the ESA.

The phrase “best scientific and commercial data available” appears to reflect a “fervent Congressional preference for scientific decision making.”³¹ However, Congress did not precisely indicate what it meant by “best scientific and commercial data available.” Although the FWS and the NMFS have enacted regulatory provisions to fill the definitional void and the courts have enthusiastically reviewed sources of data for lawfulness under the ESA using an “arbitrary and capricious standard,”³² a specific meaning for what meets the “best” hurdle remains elusive.

The FWS has determined that scientific or commercial publications, administrative reports, maps or other graphic materials, expert analyses or testimony, and interested party comments may be reviewed in listing decisions.³³ In 1994, the FWS and the NMFS issued a policy statement in order to clarify the inherent variability in the quality and reliability of information contained in the wide variety of sources available for consideration in listing decisions.³⁴

The agencies also provided guidelines to ensure that listing decisions under the ESA are made using the “best scientific and commercial data available.” These guidelines direct the listing decisionmaker to:

- (1) Require the evaluation of all scientific information and other information used in making a listing decision.
- (2) Gather and impartially evaluate the biological, ecological, and any other information that is contrary to the official position taken by the FWS and the NMFS.
- (3) Ensure that the evaluation of all information supporting or contrary to any position proposed by the listing agency is documented.
- (4) Use primary and original sources of information as the basis for listing decisions or recommendations.
- (5) Adhere to the timeframes established in the ESA for listing decisions.
- (6) Conduct management-level review of any documentation developed by the listing agency to verify and ensure the quality of the science used in the establishment of official agency positions.³⁵

Furthermore, the FWS and NMFS policy requires peer review of any pertinent data used in listing decisions by, “three appropriate and independent specialists.”³⁶ The opinions of the peer reviewers must be included in summary form in any final listing rule or proposed rule.³⁷

The courts have also considered what constitutes “best scientific and commercial data” in their review of the data used in listing decisions. Judicial review of administrative decisions involving the ESA is governed by § 706 of the Administrative Procedure Act (APA).³⁸ A reviewing court uses § 706 to determine whether agency decisions are “arbitrary, capricious, an abuse of discretion, or otherwise not

³⁰H.R. Rep. No. 97-567 (1982), reprinted in 1982 U.S.C.C.A.N. 2860, 2861.

³¹See Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn't Always Better Policy*, 75 Wash. U. L.Q. 1029, 1056 (1997).

³²See *supra* notes 7–17 and accompanying text.

³³50 C.F.R. § 424.13 (1999).

³⁴Interagency Cooperative Policy on Information Standards Under the Endangered Species Act, 59 Fed. Reg. 34271 (July 1, 1994).

³⁵Interagency Cooperative Policy on Information Standards Under the Endangered Species Act, 59 Fed. Reg. 34271 (July 1, 1994).

³⁶Interagency Policy for Peer Review in ESA Activities, 59 Fed. Reg. 34270 (July 1, 1994).

³⁷59 Fed. Reg. at 34271.

³⁸5 U.S.C.A. § 706, available at ELR Stat. Admin. Proc.; *Pyramid Lake Paiute Tribe of Indians v.*

in accordance with law.”³⁹ The arbitrary and capricious test gives reviewing courts a very narrow scope of review regarding agency fact-finding.⁴⁰

In order to determine whether an agency violated the arbitrary and capricious standard, a court must determine whether the agency articulated a rational connection between the facts found and the choice made.⁴¹ Therefore, reviewing courts are not empowered to substitute their judgment for that of the agency.⁴² As long as the agency decision was based on a consideration of relevant factors and there is no clear error of judgment, the reviewing court may not overturn the agency’s action as arbitrary and capricious.⁴³ The basis for the decision, however, must come from the agency. The reviewing court may not substitute reasons for agency action that are not in the record.⁴⁴

Generally, courts defer to the agency’s expertise in situations such as listing decisions where “resolution of this dispute involves primarily issues of fact.”⁴⁵ Therefore, reviewing courts will set aside only those conclusions that do not have a basis in fact, not those with which they merely disagree.⁴⁶ However, judicial review would be meaningless unless courts carefully reviewed the record to “ensure that agency decisions are founded on a reasoned evaluation of the relevant factors.”⁴⁷ Accordingly, the courts have refused to “rubber-stamp . . . administrative decisions that they deem inconsistent with a statutory mandate or that frustrate the congressional

U.S. Dept. of Navy, 898 F.2d 1410, 20 Env’tl. L. Rep. 20572 (9th Cir. 1990).

³⁹5 U.S.C.A. § 706(2)(A); see also *Pyramid Lake*, 898 F.2d at 1414, 20 ELR at 20574.

⁴⁰See *Abbott Laboratories v. Gardner*, 387 U.S. 136, 87 S. Ct. 1507, 18 L. Ed. 2d 681 (1967) (abrogated on other grounds by, *Califano v. Sanders*, 430 U.S. 99, 97 S. Ct. 980, 51 L. Ed. 2d 192 (1977)).

⁴¹See *Pyramid Lake*, 898 F.2d at 1414, 20 ELR at 20574; see also *Building Industry Ass’n of Superior California v. Norton*, 247 F.3d 1241 (D.C. Cir. 2001).

⁴²See *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 91 S. Ct. 814, 28 L. Ed. 2d 136 (1971) (abrogated on other grounds by, *Califano v. Sanders*, 430 U.S. 99, 97 S. Ct. 980, 51 L. Ed. 2d 192 (1977)).

⁴³See *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 91 S. Ct. 814, 28 L. Ed. 2d 136 (1971) (abrogated on other grounds by, *Califano v. Sanders*, 430 U.S. 99, 97 S. Ct. 980, 51 L. Ed. 2d 192 (1977)); see also *American Hosp. Ass’n v. N.L.R.B.*, 499 U.S. 606, 111 S. Ct. 1539, 113 L. Ed. 2d 675 (1991).

⁴⁴See *Camp v. Pitts*, 411 U.S. 138, 142, 93 S. Ct. 1241, 36 L. Ed. 2d 106 (1973) (holding that “[t]he focal point for judicial review is the administrative record in existence . . .”).

⁴⁵See *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 377, 109 S. Ct. 1851, 104 L. Ed. 2d 377 (1989) (holding that “[b]ecause analysis of the relevant documents ‘requires a high level of technical expertise,’ we must defer to the informed discretion of the responsible federal agencies.”) (internal citations omitted). The courts also view deference as being particularly important when the agency is “making predictions, within its area of special expertise, at the frontiers of science.” See *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 103, 103 S. Ct. 2246, 76 L. Ed. 2d 437 (1983).

⁴⁶See, e.g., *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 378, 109 S. Ct. 1851, 104 L. Ed. 2d 377 (1989) (holding that “when specialists express conflicting views, an agency must have discretion to rely upon reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive.”); *U.S. Dept. of Interior, Bureau of Indian Affairs v. Federal Labor Relations Authority*, 887 F.2d 172, 176 (9th Cir. 1989); *Love v. Thomas*, 858 F.2d 1347 (9th Cir. 1988); *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 120 F. Supp. 2d 1005, 1023 (M.D. Fla. 2000) (holding that “[p]laintiffs’ disagreement with the Service’s ultimate findings or the studies underlying them does not render its decisions arbitrary and capricious [and thus] Plaintiffs fail[ed] to demonstrate that the Secretary’s decisions were not informed by the required data.”); *New Mexico Cattle Growers Ass’n v. U.S. Fish and Wildlife Service*, 81 F. Supp. 2d 1141, 1160 (D.N.M. 1999), rev’d on other grounds, 248 F.3d 1277 (10th Cir. 2001) (rejected by, *Arizona Cattle Growers’ Ass’n v. Salazar*, 606 F.3d 1160 (9th Cir. 2010)).

⁴⁷*Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 378, 109 S. Ct. 1851, 104 L. Ed. 2d 377 (1989).

policy underlying a statute.”⁴⁸

Thus, federal courts have been willing to overturn agency decisions based on improper data. In *Friends of the Wild Swan v. U.S. Fish and Wildlife Service*, the court held that the FWS could not rely upon its own speculations as to the future effects of another agency’s management plans in order to delay a listing.⁴⁹ Similarly, in *Northern Spotted Owl v. Hodel*, the court determined that the FWS had improperly disregarded the opinion of its own expert and failed to provide any other expert analysis in support of its decision not to list the spotted owl.⁵⁰

While an agency generally has wide latitude to determine what is “the best scientific and commercial data available,” the Ninth Circuit Court of Appeals interpreted this provision to mean an agency cannot ignore available biological information, reasoning that “[i]n light of the ESA requirement that the agencies use the best scientific and commercial data available to ensure that protected species are not jeopardized, the FWS cannot ignore available biological information.”⁵¹ On the other hand, it is presumed that agencies have used the best data available unless those who are challenging agency action can identify relevant data not considered by the agency.⁵²

In fact, the courts have not even required that the data considered in listing decisions be conclusive.⁵³ Finding that Congress intended for listing actions to occur “sooner rather than later,” the Ninth Circuit concluded that data presently available would suffice to meet the best scientific and commercial data threshold.⁵⁴ There is no legal requirement for the listing agency to pursue better data than what is presently available even if such data are merely an estimate.⁵⁵

3. Listing Priority Guidelines

In 1979 Congress amended the ESA to require the listing agencies to establish “a ranking system” to identify species that would receive priority review in listing decisions.⁵⁶ In the relevant legislative history for the 1982 amendments to the ESA, Congress stated that the ranking system should be scientifically based without

⁴⁸*N.L.R.B. v. Brown*, 380 U.S. 278, 291–92, 85 S. Ct. 980, 13 L. Ed. 2d 839 (1965).

⁴⁹*Friends of Wild Swan, Inc. v. U.S. Fish and Wildlife Service*, 945 F. Supp. 1388 (D. Or. 1996).

⁵⁰*Northern Spotted Owl (Strix Occidentalis Caurina) v. Hodel*, 716 F. Supp. 479 (W.D. Wash. 1988). Federal courts have also enjoined the use of improper scientific data by agencies in listing decisions. See *Alabama-Tombigbee Rivers Coalition v. Department of Interior*, 26 F.3d 1103, 24 Env’tl. L. Rep. 21333 (11th Cir. 1994) (enjoining the use of a scientific report in a listing decision when that report was prepared in violation of the Federal Advisory Committee Act). Cf. *Cargill, Inc. v. U.S.*, 173 F.3d 323 (5th Cir. 1999) (rejecting the *Alabama-Tombigbee Rivers Coalition* decision).

⁵¹*Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988) (internal cite omitted); accord, *San Luis v. Badgley*, 136 F. Supp. 2d 1136 (E.D. Cal. 2000); *Pacific Coast Federation of Fishermen’s Ass’n v. National Marine Fisheries Service*, 71 F. Supp. 2d 1063, 1073 (W.D. Wash. 1999), aff’d in part, vacated in part on other grounds, 253 F.3d 1137 (9th Cir. 2001), opinion amended and superseded on denial of reh’g, 265 F.3d 1028 (9th Cir. 2001).

⁵²See, e.g., *Friends of Endangered Species, Inc. v. Jantzen*, 760 F.2d 976 (9th Cir. 1985).

⁵³See *Defenders of Wildlife v. Babbitt*, 958 F. Supp. 670 (D.D.C. 1997) (holding the FWS requirement for conclusive evidence in support of a listing decision to be “arbitrary and capricious”).

⁵⁴See *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988).

⁵⁵See *Southwest Center for Biological Diversity v. Babbitt*, 215 F.3d 58, 61 (D.C. Cir. 2000) (holding that the Secretary of the Interior was not legally obliged to conduct actual counts of a species in making a listing determination and that population estimates would support the decision). See also *Southwest Center For Biological Diversity v. Norton*, 2002 WL 1733618 (D.D.C. 2002) (detailed analysis of adequacy of data in the decision not to list the Goshawk).

⁵⁶Act of Dec. 28, 1979, Pub. L. No. 96-159, § 3(6), 93 Stat. 1225 to 1226 (1979). This amendment is now codified at 16 U.S.C.A. § 1533(h)(3), ELR Stat. § 4(h)(3).

regard to whether a species was a “higher or lower life form.”⁵⁷ Accordingly, in 1983, the FWS published its Listing Priority Guidelines establishing three criteria for prioritizing listing actions:

- (1) The magnitude of the threat faced by a species.
- (2) The immediacy of the threat faced by a species.
- (3) The taxonomic distinctiveness of the species.⁵⁸

The 1983 Guidelines are still used to set priorities among species. The FWS subsequently established four additional criteria to assign priorities to different types of listing actions.⁵⁹ These are, in order from highest to lowest priority:

- (1) Emergency listing rules.
- (2) Final determinations on proposed listings.
- (3) Determinations regarding current candidate species, either listing or delisting a species.
- (4) Processing of administrative findings on petitions to list or reclassify species.⁶⁰

The guidance on priority setting is identified as only a “guide.”⁶¹ Furthermore, the Listing Priority Guidelines withstood a legal challenge questioning their validity under the listing criteria under § 4 of the ESA.⁶² Perhaps in the spirit of judicial deference to agency decisions based on the facts in *Marsh*,⁶³ most courts have at least implicitly recognized the listing agencies’ applications of these guidelines as valid in particular cases.⁶⁴

4. The Listing Petition Process

The ESA listing process may be commenced by either a formal agency rulemaking or via a written petition submitted to an agency urging it to list, delist, or reclassify a species.⁶⁵ However, the citizen petition process remains the most important source of species listings. Such petitions are considered petitions for formal rulemaking under the Administrative Procedure Act and must be processed in accordance with those rulemaking procedures and applicable regulations issued by the FWS and the NMFS.⁶⁶

The FWS and the NMFS regulations specify certain minimum requirements for a valid petition. A valid petition must (1) be clearly identified as a petition; (2) be dated; (3) include the name, address, telephone number, and business or other affili-

⁵⁷H.R. Conf. Rep. No. 835, at 21, *reprinted in* 1982 U.S.C.C.A.N. 2860, 2862.

⁵⁸48 Fed. Reg. 43098, 43103 (1983).

⁵⁹64 Fed. Reg. 57114 (1999).

⁶⁰64 Fed. Reg. 57114, 57118 to 19 (1999). One commentator has noticed that this guidance has eliminated critical habitat designation from priority guidance altogether. *See* Tony A. Sullins, *Endangered Species Act 2* (2001).

⁶¹*See* 48 Fed. Reg. 43098 (1983) (noting that the priority systems presented are not to be “looked upon as inflexible frameworks for determining resource allocation”).

⁶²*See* *Biodiversity Legal Foundation v. Babbitt*, 146 F.3d 1249 (10th Cir. 1998).

⁶³*Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 377, 109 S. Ct. 1851, 104 L. Ed. 2d 377 (1989).

⁶⁴*See, e.g.,* *Carlton v. Babbitt*, 900 F. Supp. 526 (D.D.C. 1995). However, one circuit has ruled that “when faced with a nondiscretionary duty to designate critical habitat” the deciding agency must do so without regard to preferred priorities. *See* *Forest Guardians v. Babbitt*, 174 F.3d 1178 (10th Cir. 1999).

⁶⁵16 U.S.C.A. § 1533(B)(3)(A), ELR Stat. ESA § 4(B)(3)(A); 50 C.F.R. § 424.14(a). Additionally, an interested person may request the designation or revision of a critical habitat. *See* 50 C.F.R. § 424.10.

⁶⁶5 U.S.C.A. § 553(e); *see* 50 C.F.R. § 424.14(a) (requiring the agency to acknowledge receipt of petitions in writing within 30 days).

ation of the petitioner; and (4) be signed by the petitioner.⁶⁷ Furthermore, the joint regulation specifies what type of substantive information a valid petition contains. In order to justify the petitioned action, a valid petition should:

- (1) Clearly indicate the measure sought.
- (2) Give the scientific and common names of the species involved.
- (3) Contain a detailed narrative that justifies the recommended measure based upon available information, past and present numbers and distribution of the species, and any threats to the species.
- (4) Provide information regarding the status of the species in its range or significant portion thereof.
- (5) Provide supporting documentation in the form of scientific publications, letters, reports, and the like.⁶⁸

In designating the species involved, the petitioner may limit the scope of the petition by either requesting that a species or subspecies be listed throughout its entire range or requesting that a “distinct population segment” be listed. Some courts have required the listing agency to specifically address and even adhere to the scope of petitions.⁶⁹

a. The 90-Day Finding

Once an agency receives a valid petition, “to the maximum extent practicable”⁷⁰ the ESA requires it to make a finding within 90 days of receipt as to whether the petition presents “substantial scientific or commercial information” indicating that the petitioned action may be warranted.⁷¹ The joint FWS and NMFS regulations define “substantial information” as “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted.”⁷²

The 90-day finding may be waived in the rare instance where “devotion of staff resources to petition responses would interfere with actions needed to list other species in greater need of protection.”⁷³ Absent waiver, the agency making a 90-day finding must consider whether the petitioned action may be warranted.⁷⁴ Its decision must be published in the *Federal Register*;⁷⁵ a decision that the action is not

⁶⁷See 50 C.F.R. § 424.14(a).

⁶⁸See 50 C.F.R. § 424.14(b)(2)(i) to (iv).

⁶⁹See, e.g., *Friends of Wild Swan, Inc. v. U.S. Fish & Wildlife Service*, 12 F. Supp. 2d 1121, 1133 (D. Or. 1997) (finding the FWS’ designation of five distinct population segments of bull trout arbitrary and capricious when the petitioner had specifically requested the bull trout be listed in its entire range); *Southwest Center for Biological Diversity v. Babbitt*, 926 F. Supp. 920, 922 (D. Ariz. 1996) (noting that the agency had properly considered the narrow listing petitioned for and expanded its consideration following a decision that the narrow listing was not warranted); *Defenders of Wildlife v. Babbitt*, 958 F. Supp. 670 (D.D.C. 1997) (same).

⁷⁰The phrase “maximum extent practicable” is not defined within the ESA or by regulation. The Tenth Circuit has characterized the phrase as “facially ambiguous.” See *Biodiversity Legal Foundation v. Babbitt*, 146 F.3d 1249 (10th Cir. 1998). See also *Building Industry Ass’n of Superior California v. Norton*, 247 F.3d 1241 (D.C. Cir. 2001).

⁷¹16 U.S.C.A. § 1533(b)(3)(A), ELR Stat. ESA § 4(b)(3)(A); 50 C.F.R. § 424(b)(1).

⁷²See 50 C.F.R. § 424.14(b)(1).

⁷³See 49 Fed. Reg. 38900 (1984); H.R. Conf. Rep. No. 97-835, at 21 (1982), *reprinted in* 1982 U.S.C.A.N. 2807, 2862. Such an instance would be when a “scientifically based priority system” is in place that does not consider whether a species is a “higher or lower life form.”

⁷⁴16 U.S.C.A. § 1533(b)(3)(A), ELR Stat. ESA § 4(b)(3)(A); 50 C.F.R. § 424.14(b)(1).

⁷⁵16 U.S.C.A. § 1533(b)(3)(A), ELR Stat. ESA § 4(b)(3)(A); 50 C.F.R. § 424.14(b)(1).

warranted is subject to judicial review.⁷⁶ A finding that the petitioned action may be warranted triggers the “12-month finding” process.

b. The 12-Month Finding

Once the 90-day finding is made, the agency must make the next decision in the listing process within 12 months of the date the original petition was received.⁷⁷ While “review[ing] . . . the status of the species concerned,”⁷⁸ the agency must also determine whether (1) the petitioned action is warranted, (2) the petitioned action is not warranted, or (3) the petitioned action is warranted but precluded.⁷⁹ A “warranted but precluded action” is one that would be taken but for the existence of other pending proposals affecting that decision.⁸⁰

Like the 90-day finding, the determination that a proposed action is not warranted may be judicially reviewed⁸¹ and must be communicated to the petitioner and published in the *Federal Register*.⁸² If the agency determines that an action is warranted, the decision must be published in the *Federal Register* as a general notice with the complete text of any proposed regulation implementing the action.⁸³

The “warranted but precluded” determination has proven controversial in both scholarly literature⁸⁴ and the courts.⁸⁵ In fact, a “warranted but precluded” finding may be supported only if three conditions are met. First, the agency must determine that the information available regarding the petitioned action indicates that the action is warranted.⁸⁶ Second, timely promulgation of the petitioned action must be found actually to be precluded by other higher priority pending decisions.⁸⁷ Finally, a determination must be made that “expeditious progress” is being made to list, delist, or reclassify other species.⁸⁸ When making a “warranted but precluded” finding, the FWS is required to “publish such finding in the *Federal Register*, together with a description and evaluation of the reasons and data on which the finding is based.”⁸⁹ Furthermore, a petition that is found to be “warranted but precluded” is automati-

⁷⁶16 U.S.C.A. § 1533(b)(3)(C)(ii), ELR Stat. ESA § 4(b)(3)(C)(ii).

⁷⁷16 U.S.C.A. § 1533(b)(3)(B), ELR Stat. ESA § 4(b)(3)(C)(ii); 50 C.F.R. § 424.14(b)(3).

⁷⁸16 U.S.C.A. § 1533(b)(3)(A), ELR Stat. ESA § 4(b)(3)(A); 50 C.F.R. § 424.14(b)(3).

⁷⁹16 U.S.C.A. § 1533(b)(3)(B)(i) to (iii), ELR Stat. ESA § 4(b)(3)(B)(i) to (iii); 50 C.F.R. § 424.14(b)(3)(i) to (iii). Additionally, a “notice of review” inviting information from interested parties regarding the listing decision may also be published. See 50 C.F.R. § 424.15.

⁸⁰For example, proposals to list, delist, or reclassify a species would justify a “warranted but precluded” finding. 16 U.S.C.A. § 1533(b)(3)(B)(iii), ELR Stat. ESA § 4(b)(3)(B)(iii); 50 C.F.R. § 424.14(b)(3)(iii).

⁸¹16 U.S.C.A. § 1533(b)(3)(C)(ii), ELR Stat. ESA § 4(b)(3)(C)(ii).

⁸²16 U.S.C.A. § 1533(b)(3)(C)(ii), ELR Stat. ESA § 4(b)(3)(C)(ii).

⁸³16 U.S.C.A. § 1533(b)(3)(B)(i), ELR Stat. ESA § 4(b)(3)(C)(ii); 50 C.F.R. § 424.14(b)(3)(i).

⁸⁴See Oliver Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. Colo. L. Rev. 277, 286 (1993) (describing the “warranted but precluded” finding as a “black hole for unlisted endangered species” and noting that several species have languished under such findings for up to 16 years).

⁸⁵*Carlton v. Babbitt*, 900 F. Supp. 526 (D.D.C. 1995) (imposing a requirement upon the listing agency for demonstrated and diligent progress on pending listings).

⁸⁶16 U.S.C.A. § 1533(b)(3)(B)(iii), ELR Stat. ESA § 4(b)(3)(B)(iii); 50 C.F.R. § 424.14(b)(3)(iii).

⁸⁷16 U.S.C.A. § 1533(b)(3)(B)(iii), ELR Stat. ESA § 4(b)(3)(B)(iii); 50 C.F.R. § 424.14(b)(3)(iii).

⁸⁸16 U.S.C.A. § 1533(b)(3)(B)(iii), ELR Stat. ESA § 4(b)(3)(B)(iii); 50 C.F.R. § 424.14(b)(3)(iii).

⁸⁹16 U.S.C.A. § 1533(b)(3)(B); See also *Center for Biological Diversity v. Kempthorne*, 466 F.3d 1098 (9th Cir. 2006) (remanding the case to the FWS upon failure to publish its description and evaluation of its reasons and data together with its finding that the listing of the Sierra Nevada Mountain yellow-legged frog was warranted but precluded).

cally resubmitted on the anniversary date of the original petition,⁹⁰ and the agency must make a new determination as to the status of the renewed petition within 12 months of the original “warranted but precluded” finding.⁹¹

5. Rulemaking Procedures Required to List a Species

The ESA prescribes the rulemaking process for the listing, delisting, or reclassifying of species whether the rulemaking is in response to a petition or based upon an agency’s own initiative.⁹² The rulemaking process is a formal process that is governed by specific provisions of the ESA as well as the general rulemaking provisions of the Administrative Procedure Act.⁹³

a. Publication of Proposed Listing

The rulemaking process begins with the publication of a “general notice” and the complete text of any proposed rule in the *Federal Register*.⁹⁴ Regulations require the following information to be published along with the general notice: (1) a summary of data upon which any proposed rulemaking is based; (2) a summary of the relationship between the proposed rule and its supporting data; and (3) a summary of the factors affecting the species.⁹⁵

b. Further Notice and Public Comment

In addition to the *Federal Register* notice, the agency must also provide notice of the proposed rule directly to each state agency and local governmental authority in areas in which the species is believed to be found.⁹⁶ The agency is also required to provide direct notice to any other federal agencies, foreign governments, private organizations, and individuals who are “known to be affected” by the proposed rule.⁹⁷

The agency must accept public comment for at least 60 days following publication of the proposed rule in the *Federal Register* and may decide to extend or reopen the public comment period for “good cause.”⁹⁸ The agency must hold at least one public hearing upon request if such a request is made within 45 days of publication of the rulemaking notice in the *Federal Register*.⁹⁹ These rulemaking procedures and requirements are designed to promote “meaningful” participation in the rulemaking process under the APA.¹⁰⁰

c. The Final Rule

The final rule generally must be published within 12 months after the *Federal*

⁹⁰16 U.S.C.A. § 1533(b)(3)(C)(i), ELR Stat. ESA § 4(b)(3)(C)(i); 50 C.F.R. § 424.14(b)(4).

⁹¹50 C.F.R. § 424.14(b)(4).

⁹²16 U.S.C.A. § 1533(b)(4), (6), & (8), ELR Stat. ESA § 4(b)(4), (6), & (8).

⁹³16 U.S.C.A. § 1533(b)(4), ELR Stat. ESA § 4(b)(4); 5 U.S.C.A. § 553(e).

⁹⁴16 U.S.C.A. § 1533(b)(5)(A)(i), ELR Stat. ESA § 4(b)(5)(A)(i); 50 C.F.R. § 424.16(b).

⁹⁵50 C.F.R. § 424.16(b).

⁹⁶16 U.S.C.A. § 1533(b)(5)(A)(ii), ELR Stat. ESA § 4(b)(5)(A)(ii); 50 C.F.R. § 424.16(c)(1)(ii).

⁹⁷16 U.S.C.A. § 1533(b)(5)(B), ELR Stat. ESA § 4(b)(5)(B); 50 C.F.R. § 424.16(c)(1)(iii); 50 C.F.R. § 424.16(c)(1)(iv).

⁹⁸50 C.F.R. § 424.16(c)(2); *see also* Kern County Farm Bureau v. Allen, 450 F.3d 1072 (9th Cir. 2006) (holding that the FWS did not violate the ESA when it refused to reopen the comment period for the listing of the Buena Vista Lake shrew after relying on three new studies in the final rule).

⁹⁹50 C.F.R. § 424.16(c)(3). The agency must also publish a notice of the hearing and its location in the *Federal Register* at least 15 days in advance of the hearing.

¹⁰⁰*See* Idaho Farm Bureau Federation v. Babbitt, 58 F.3d 1392, 32 Fed. R. Serv. 3d 774 (9th Cir. 1995) (finding agency’s failure to provide meaningful opportunity to comment invalidated the decision).

Register publication of the proposed rule.¹⁰¹ Alternatively, the agency may publish a notice withdrawing the proposed rule or extending the decision deadline by no more than six months.¹⁰² Extending the deadline is permissible only upon a finding that “there is substantial disagreement regarding the sufficiency or accuracy of the available data relevant to the determination.”¹⁰³

A final rule is to take effect no sooner than 30 days following its publication in the *Federal Register* as a final rule, unless the agency has made a finding of “good cause,”¹⁰⁴ and not later than 90 days after both its publication and provision of the required notice to affected state and local agencies.¹⁰⁵ The publication of a final rule is required to contain the complete text of the rule, a summary of the comments and recommendations made to the proposed rule, a summary of any data relied upon by the agency in support of the rule, and a summary of the factors found to be affecting the species.¹⁰⁶ Further, the FWS and the NMFS have adopted a policy of identifying activities that because of the final rule will or will not be likely to result in a violation of the prohibited acts provisions of § 9 of the ESA.¹⁰⁷

§ 21:13 Emergency listings

Section 4 of the ESA also contains an emergency listing procedure that allows the FWS and the NMFS to bypass the normal listing procedures where there is a significant risk to the well-being of any species.¹ Emergency listings may be made effective immediately upon publication in the *Federal Register*;² and once an emergency rule is adopted, the species receives the full protection of the ESA. Publication of emergency listing notices must be accompanied by detailed explanations for the regulation, and actual notice of the listing must also be given to state authorities affected by the listing.³ Emergency rules expire 240 days after their effective dates unless the agency complies with the normal listing process in the interim.⁴ The agencies generally have utilized the emergency listing process sparingly.⁵

IV. CRITICAL HABITAT DESIGNATION

§ 21:14 Critical habitat criteria

Section 4 of the ESA specifies that the FWS and the NMFS shall “to the maximum extent prudent and determinable” designate specific geographical areas as “critical

¹⁰¹50 C.F.R. § 424.17(a)(1).

¹⁰²50 C.F.R. § 424.17(a)(1).

¹⁰³16 U.S.C.A. § 1533(b)(6)(B)(i), ELR Stat. ESA § 4(b)(6)(B)(i).

¹⁰⁴50 C.F.R. § 424.18(b)(1).

¹⁰⁵50 C.F.R. § 424.18(b)(2).

¹⁰⁶50 C.F.R. § 424.18(a).

¹⁰⁷Interagency Policy for ESA Section 9 Prohibitions, 59 Fed. Reg. 34272 (July 1, 1994).

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¹16 U.S.C.A. § 1533(b)(7), ELR Stat. ESA § 4(b)(7).

²16 U.S.C.A. § 1533(b)(7), ELR Stat. ESA § 4(b)(7).

³50 C.F.R. § 424.20 (1992). See *City of Las Vegas v. Lujan*, 891 F.2d 927 (D.C. Cir. 1989). *City of Las Vegas* was the first and remains the only major case addressing the use of emergency rulemaking authority. The case involved a challenge to the emergency listing of the Mojave population of the desert tortoise as an endangered species. The D.C. Circuit held that the ESA contemplated a somewhat less rigorous process of investigation and explanation for emergency regulations than for normal rulemaking.

⁴16 U.S.C.A. § 1533(b)(7), ELR Stat. ESA § 4(b)(7).

⁵See Ivan J. Lieben, *Political Influences on FWS Listing Decisions Under the ESA: A Time to Rethink Priorities*, 27 *Envtl. L.* 1323, 1351 & nn.219–20 (1997).

habitat,” concurrently with the listing of a species.¹ Such action is to be taken through proposal and promulgation of regulations in accordance with the procedures set out in § 4 of the ESA.² “Critical habitat” is defined as the “specific areas within the geographical areas occupied by the species, at the time it is listed . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection”³ In addition, the agencies may designate “specific areas outside of the geographical area occupied by the species at the time it is listed . . . upon a determination by the Secretary that such areas are essential for the conservation of the species.”⁴

However, unlike the decision to list a species, the agencies are required to consider economic impact and a number of other factors in the critical habitat designation process. Pursuant to § 4 of the ESA, the agencies have a statutory obligation to designate critical habitat on the basis of the “best scientific data available . . . after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat.”⁵ However, the Secretary may exclude any area from critical habitat “if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.”⁶

In making a critical habitat designation, the listing agency shall consider the following: (1) space; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) breeding and nesting sites; and (5) habitats protected due to their historical geographic or ecological distribution of the species.⁷ Furthermore, in making critical habitat determinations, the agencies are “to focus on the principal biological or physical constituent elements within the defined area that are essential to the conservation of the species,” and known primary constituent elements are to be listed with the critical habitat designation.⁸ Once critical habitat is determined, the designated area must be delineated on a map as part of the final rule.⁹

§ 21:15 Meaning of “prudent and determinable”

The ESA requires critical habitat designation only to the extent that it is “prudent

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¹16 U.S.C.A. § 1533(a)(3), ELR Stat. ESA § 4(a)(3); 50 C.F.R. § 414.12(a).

²16 U.S.C.A. §§ 1533(a) and (b), ELA Stat. ESA §§ 4(a) & (b).

³16 U.S.C.A. § 1532(5)(A)(i), ELR Stat. ESA § 3(5)(A)(i).

⁴16 U.S.C.A. § 1532(5)(A)(ii), ELR Stat. ESA § 3(5)(A)(ii).

⁵16 U.S.C.A. § 1533(b)(2), ELR Stat. ESA § 4(b)(2). The requirement also to consider the “impact on national security” was added in 2003 as part of the National Defense Authorization Act. Pub. L. 108-136, § 318(b), 117 Stat. 1433 (2003). At the same time, Congress amended § 4(a)(3) of the ESA to bar the Secretary from designating critical habitat on DOD lands that are subject to an “integrated natural resources management plan” (INMRP) if the Secretary determines that the INMRP “provides a benefit to the species for which critical habitat is proposed for designation.” Pub. L. No. 108-136, § 318(b). The conference report for the National Defense Authorization Act explained that these amendments “would allow for a balance between military training requirements and protection of threatened or endangered species.” H.R. Conf. Rep. 108-354, at 668 (2003).

⁶16 U.S.C.A. § 1533(b)(2). Furthermore, critical habitat may not be designated in foreign countries. 50 C.F.R. § 424.12(h).

⁷50 C.F.R. § 424.12(b)(1) to (5).

⁸50 C.F.R. § 424.12(b).

⁹50 C.F.R. §§ 424.12(c), 424.18.

and determinable.” While this phrase is not defined in the statute, the FWS and NMFS have issued joint regulations defining these terms. Under these regulations, a critical habitat designation is not “prudent” when: (1) the species is threatened by taking or other human activities and designation would increase the degree of the threat; or (2) the designation would not benefit the species.¹ A critical habitat is not “determinable” when: (1) there is not sufficient information available to analyze the designation in accordance with the statute; or (2) the biological needs of the species are sufficiently unknown as to prevent identification of a critical habitat.² Courts have taken a “hard look” at the listing agencies’ decisions on critical habitat and have overturned decisions based on conclusory statements.³

§ 21:16 Procedures for critical habitat designation and revision

Ideally, critical habitat designation decisions are made contemporaneously with the listing decision. However, in the event the critical habitat decision is not made contemporaneously with the listing decision and there is a finding that the critical habitat is “not then determinable,” the listing agency has 12 months from the date of the listing decision to designate critical habitat.¹ It is often the case that critical habitat is not designated at the time of listing or within the statutory time limit.² However, the inability to designate critical habitat at the time of a listing decision cannot be used to delay the listing itself.³

Furthermore, any party may petition the listing agency for critical habitat designation.⁴ A petition from an interested party may also initiate proposed revisions to critical habitat designations. The agency must make a finding within 90 days of the receipt of the petition as to whether the petitioned critical habitat designation or revision may be warranted,⁵ and must publish notice of how it intends to proceed within 12 months of that 90-day finding.⁶

A party may also file a complaint against the agency for failing to designate a

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¹50 C.F.R. § 424.12(a)(1).

²50 C.F.R. § 424.12(a)(2).

³*Natural Resources Defense Council v. U.S. Dept. of the Interior*, 113 F.3d 1121 (9th Cir. 1997) (holding the FWS’ decision to refuse designation of a critical habitat for the California gnatcatcher unsupported by the record); *see also* *Forest Guardians v. Babbitt*, 174 F.3d 1178 (10th Cir. 1999); *Marbled Murrelet (Brachyramphus Marmoratus) v. Babbitt*, 918 F. Supp. 318 (W.D. Wash. 1996).

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¹16 U.S.C.A. § 1533(b)(6)(C)(ii), ELR Stat. ESA § 4(b)(6)(C)(ii); 50 C.F.R. § 424.17(b)(2).

²*See* *Alabama-Tombigbee Rivers Coalition v. Kempthorne*, 477 F.3d 1250, 1268 (11th Cir. 2007), cert. denied, 552 U.S. 1097, 128 S. Ct. 877, 169 L. Ed. 2d 725 (2008) (stating that “it is clear that the Service chronically fails to meet its statutory duty of designating critical habitat of endangered species within the time the Endangered Species Act requires”) (citing *Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090, 1103 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003)).

³*Alabama-Tombigbee Rivers Coalition v. Kempthorne*, 477 F.3d 1250, 1269 (11th Cir. 2007), cert. denied, 552 U.S. 1097, 128 S. Ct. 877, 169 L. Ed. 2d 725 (2008). “Congress meant for species to be protected by listing decisions even if determination of their critical habitat were delayed . . . delay in habitat designation should never be used to delay the listing.”

⁴50 C.F.R. § 424.14(d) provides:

Upon receiving a petition to designate critical habitat or to adopt a special rule to provide for the conservation of a species, the Secretary shall promptly conduct a review in accordance with the Administrative Procedure Act (5 U.S.C.A. § 553) and applicable Departmental regulations, and take appropriate action.

⁵16 U.S.C.A. § 1533(b)(3)(D), ELR Stat. ESA § 4(b)(3)(D); 50 C.F.R. § 424.14(c)(1).

⁶16 U.S.C.A. § 1533(b)(3)(D)(ii), ELR Stat. ESA § 4(b)(3)(D)(ii); 50 C.F.R. § 424.14(c)(1). The agency may elect to propose a rule revising the designated critical habitat or determine that the revision is neither prudent nor determinable.

critical habitat within the mandatory time period.⁷ However, the court in *Center for Biological Diversity v. Hamilton*⁸ held that such a petition must be filed within six years of the listing determination. In *Hamilton*, the Secretary of the Interior listed two species of minnows as threatened species but failed to designate a critical habitat.⁹ Twelve years later, the plaintiffs filed a complaint against the Secretary, alleging that the continuing violation doctrine should apply that allows a “plaintiff to sue on an otherwise time-barred claim when additional violations of the law occur within the statutory period.”¹⁰ Despite a district court’s prior holding that the continuing effects doctrine applied to § 4 of the ESA thereby tolling the statute of limitations,¹¹ the *Hamilton* court held that the continuing effects of the failure to designate a critical habitat did not constitute a continuing violation under the meaning of the doctrine, and that the plaintiffs’ statute of limitations had expired after six years.¹² In its decision, the court clarified that the plaintiffs could still petition the Secretary to designate a critical habitat, as no statute of limitations applies to that action.¹³

§ 21:17 Economic impact and FWS “incremental baseline” theory

Under § 4(b)(2) of the ESA, consideration of the potential economic impacts of a critical habitat designation is mandatory, not discretionary.¹ That section provides that the FWS or the NMFS “shall designate critical habitat . . . on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat.”² For years, the FWS employed an “incremental baseline”³ theory, whereby the FWS would only examine “those economic impacts that were solely attributable to the critical habitat designation for the species; any economic impacts that were attributable to different causes, such as listing of the species, were not considered.”⁴ The FWS reasoned that because the impacts of listing a species were coextensive with the impacts of critical habitat (both triggered § 7 consultation for federal actions), no real impact resulted from the critical habitat designation.⁵

However, the FWS’ reliance on this theory in order to avoid detailed economic analysis has been soundly rejected by several courts. In *Middle Rio Grande Conser-*

⁷16 U.S.C.A. § 1533(b)(6)(A), (b)(6)(C)(2).

⁸*Center For Biological Diversity v. Hamilton*, 453 F.3d 1331 (11th Cir. 2006).

⁹*Center For Biological Diversity v. Hamilton*, 453 F.3d 1331, 1333 (11th Cir. 2006).

¹⁰*Center For Biological Diversity v. Hamilton*, 453 F.3d 1331, 1334 (11th Cir. 2006) (citing *Hipp v. Liberty Nat. Life Ins. Co.*, 252 F.3d 1208, 1221 (11th Cir. 2001)).

¹¹*Southern Appalachian Biodiversity Project v. U.S. Fish and Wildlife Services*, 181 F. Supp. 2d 883, 887 (E.D. Tenn. 2001).

¹²*Center For Biological Diversity v. Hamilton*, 453 F.3d 1331, 1335 (11th Cir. 2006).

¹³*Center For Biological Diversity v. Hamilton*, 453 F.3d 1331, 1336 (11th Cir. 2006) (citing 50 C.F.R. § 424.14(d)).

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¹*See Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 126 (D.D.C. 2004) (“Economics must play a role in critical habitat designation.”).

²*See* 16 U.S.C.A. § 1533(b)(2), ELR Stat. ESA § 4(b)(2).

³*New Mexico Cattle Growers Ass’n v. U.S. Fish and Wildlife Service*, 248 F.3d 1277, 1280 (10th Cir. 2001) (rejected by, *Arizona Cattle Growers’ Ass’n v. Salazar*, 606 F.3d 1160 (9th Cir. 2010)).

⁴*Building Industry Legal Defense Foundation v. Norton*, 231 F. Supp. 2d 100, 102 (D.D.C. 2002).

⁵A 1993 decision seemed to support this theory. *See Trinity County Concerned Citizens v. Babbitt*, 1993 WL 650393 (D.D.C. 1993).

vancy District v. Babbitt (MRGCD),⁶ the court reviewed the designation of critical habitat for the Rio Grande silvery minnow. The FWS had been given a total of 120 days to designate critical habitat for the species by the Tenth Circuit following a challenge to its failure to make a designation.⁷ The Middle Rio Grande Conservancy District (MRGCD) challenged the proposed designation of a 163-mile stretch of the Rio Grande due to the fact that it would cause a substantial curtailment of irrigated agriculture in the Middle Rio Grande Valley and would result in significant negative ecological, economic, aesthetic, cultural, and social changes. Specifically, the plaintiffs alleged that in designating the entirety of the silvery minnow's present habitat, the FWS failed to quantify adequately the impact of the designation.

In MRGCD, the FWS alleged that the designation of critical habitat provides little or no additional benefit beyond the listing of the species. Rejecting the FWS' position, the court reached the common-sense conclusion that designation has significant consequences apart from the listing.⁸ The MRGCD court's critique of the FWS' economic analysis of the impact of designation on the Middle Rio Grande Valley is especially telling. The court held that the FWS could not summarily dismiss legitimate concerns of the economic consequences of designation simply because they conflicted with the FWS' misapprehension "that the identified activities would have no impact which would not also jeopardize the continued existence of the species; and therefore, no impact of legitimate concern."⁹ Further, the court relied on *Catron County Bd. of Comm'rs v. U.S. Fish and Wildlife Service*¹⁰ in rejecting the FWS' argument that NEPA does not apply as a matter of law. The court directed the FWS to issue an environmental impact statement for the designation.

Since MRGCD, a number of other courts have held that the FWS' assumption that the designation of critical habitat does not lead to impacts above those of the listing is faulty. In *Sierra Club v. U.S. Fish and Wildlife Service*,¹¹ the court rejected the FWS' conclusion that designation of critical habitat would provide no additional benefit to a species beyond the protections currently available through the consultation and jeopardy provisions of § 7. The court held that the "adverse modification" standard of 50 C.F.R. § 402.02¹² was inconsistent with the ESA and that this led the Service to erroneous conclusions regarding the benefit of designation for threatened species. The FWS has not revised the "adverse modification" definitions following the decisions.

The Tenth Circuit subsequently expanded upon the holdings of *Sierra Club* and *MRGCD*. In *New Mexico Cattle Growers Association v. U.S. Fish and Wildlife Service*,¹³ the Tenth Circuit set aside a critical habitat designation that was based on the same faulty theory that designation causes little to no economic impact be-

⁶*Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156 (D.N.M. 2000), *aff'd*, 294 F.3d 1220 (10th Cir. 2002).

⁷*See Forest Guardians v. Babbitt*, 174 F.3d 1178 (10th Cir. 1999).

⁸*See Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1165–68 (D.N.M. 2000), *aff'd*, 294 F.3d 1220 (10th Cir. 2002) (citing, e.g., *National Wildlife Federation v. Coleman*, 529 F.2d 359, 32 A.L.R. Fed. 306 (5th Cir. 1976)).

⁹*Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1181 (D.N.M. 2000), *aff'd*, 294 F.3d 1220 (10th Cir. 2002).

¹⁰*Catron County Bd. of Com'rs, New Mexico v. U.S. Fish & Wildlife Service*, 75 F.3d 1429 (10th Cir. 1996).

¹¹*Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434, 441, 176 A.L.R. Fed. 733 (5th Cir. 2001).

¹²*Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434, 441, 442–43, 176 A.L.R. Fed. 733 (5th Cir. 2001).

¹³*New Mexico Cattle Growers Ass'n v. U.S. Fish and Wildlife Service*, 248 F.3d 1277, 1285 (10th Cir. 2001) (rejected by, *Arizona Cattle Growers' Ass'n v. Salazar*, 606 F.3d 1160 (9th Cir. 2010)).

yond what is caused by listing species because the “jeopardy standard” (applied in the context of listing) and the “adverse modification standard” (applied in the context of designated critical habitat) are essentially the same.¹⁴ Citing both Sierra Club and MRGCD, the court noted that “Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes.”¹⁵ Realizing that the required economic analysis might lead to exclusion of certain areas, the court stated that this would not undermine protection of the species, as the significant protections afforded by the listing would remain in place.¹⁶

The critical habitat designation for the cactus ferruginous pygmy-owl was overturned by a federal court in *Nat’l Association of Home Builders v. Norton*.¹⁷ The court held that “broader reconsideration” of the designation was necessary in order to fully consider economic impacts, after finding that the plaintiffs “presented evidence which suggests that [the FWS] did not fully evaluate the ‘economic and other impacts’ ” of the 731,000-acre designation in four counties in Arizona.¹⁸ Moreover, the FWS had “not presented . . . any evidence suggesting that significant harm to the species is likely to occur if the [critical habitat] designation is vacated pending remand.”¹⁹ The FWS had requested the court to stay the litigation in order to allow it to complete a new economic analysis, while keeping the designation in effect. Rejecting this request, the court held that the “FWS’s failure to comply with the statutory requirements regarding critical habitat designation is more than a minor procedural error. Its failure to follow the mandates of the statute calls the very substance of the critical habitat designation into question.”²⁰

In light of these decisions, the FWS has since recognized that its prior policy was not correct and that critical habitat designation can have an “incremental” effect above that of the “baseline” of listing. In several cases, the FWS has taken voluntary remands of designations in order to conduct new economic analyses that look at the cumulative and incremental impacts of the critical habitat designation. These decisions to vacate the designation during the remand process have largely been upheld against challenges by intervenor environmental groups. In one case, the court

¹⁴The FWS regulations define “jeopardy” as the continued existence of means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species and “adverse modification” as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alternations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

¹⁵The FWS regulations define “jeopardy” as the continued existence of means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species and “adverse modification” as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alternations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

¹⁶The FWS regulations define “jeopardy” as the continued existence of means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species and “adverse modification” as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alternations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

¹⁷*National Ass’n of Home Builders v. Norton*, 2001 WL 1876349 (D. Ariz. 2001).

¹⁸*National Ass’n of Home Builders v. Norton*, 2001 WL 1876349 (D. Ariz. 2001).

¹⁹*National Ass’n of Home Builders v. Norton*, 2001 WL 1876349 (D. Ariz. 2001).

²⁰*National Ass’n of Home Builders v. Norton*, 2001 WL 1876349 (D. Ariz. 2001).

upheld a decision to vacate the designation of critical habitat for the Riverside Fairy shrimp in Southern California due to the absence of any “specific threat to the species or the designated critical habitat units (either in the occupied or unoccupied areas) over the short time frame during which new rules would be adopted.”²¹

In *Cape Hatteras Access Preservation Alliance (CHAPA) v. U.S. Department of Interior*,²² the court discussed whether the FWS’ method of economic analysis was appropriate in determining that the critical habitat designation did not create any incremental economic impact related to future § 7 consultations. The court looked to several relevant circuit court decisions assessing the FWS’ employment of functional equivalence and baseline analysis in its economic analysis. The court noted that the Fifth and Ninth Circuits took issue with the functional equivalence doctrine, i.e., “the theory that the designation of critical habitat serves a minimal additional function separate from the listing a species.”²³ The court looked at an FWS regulation that defined “[j]eopardize” and “destruction and adverse modification” essentially identically. The court indicated that the regulation allowing the FWS to “assert that actions meeting the adverse modification standard almost always meet the jeopardy standard,” undercuts the importance of critical habitat designation and underestimates the economic impact.²⁴ While the court agreed with the Fifth and Ninth Circuits’ rejection of the functional equivalence doctrine, the court did not support the Tenth Circuit’s rejection of the FWS’ baseline economic analysis.²⁵

The *CHAPA* court found that the “baseline approach is a reasonable method for assessing the actual costs of a particular critical habitat designation.”²⁶ The FWS described its methodology as “distinguish[ing] between economic impacts caused by the ESA listing of the piping plover and those additional effects that would be caused by the proposed critical habitat designation.”²⁷ While the court accepted the methodology as “sound and in accordance with law,” the court concluded that the FWS’ “no effect” conclusion had “no connection to the facts found and [was] therefore arbitrary and capricious and must be revisited.”²⁸

²¹Other cases where voluntary remands were approved and designations vacated while the FWS reconsidered its designation include: *Building Industry Legal Defense Foundation v. Norton*, 231 F. Supp. 2d 100 (D.D.C. 2002) (Riverside Fairy shrimp and Arroyo Southwestern toad); *Home Builders Associations of Northern California v. Norton*, 293 F. Supp. 2d 1 (D.D.C. 2002) (California red-legged frog); *National Ass’n of Home Builders v. Evans*, 2002 WL 1205743 (D.D.C. 2002) (Salmon and Steelhead)); *but see* *Natural Resources Defense Council, Inc. v. U.S. Dept. of Interior*, 275 F. Supp. 2d 1136 (C.D. Cal. 2002) (the court did not vacate designation due to evidence of two large projects that posed real dangers to the gnatcatcher habitat at issue during the remand); *Home Builders Ass’n of Northern California v. U.S. Fish and Wildlife Service*, 268 F. Supp. 2d 1197 (E.D. Cal. 2003) (the court denied motion for voluntary remand regarding designations for the Alameda whipsnake because the FWS had not followed the proper APA procedures).

²²*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108 (D.D.C. 2004).

²³*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 127 (D.D.C. 2004); *see* *Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434, 176 A.L.R. Fed. 733 (5th Cir. 2001); *Custer v. Hill*, 378 F.3d 968 (9th Cir. 2004).

²⁴*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 129 (D.D.C. 2004).

²⁵*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 129 (D.D.C. 2004).

²⁶*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 140 (D.D.C. 2004).

²⁷*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 132 (D.D.C. 2004).

²⁸*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 133 (D.D.C. 2004).

§ 21:18 Special management plan exclusions

The issue of whether the FWS and the NMFS may decide not to designate critical habitat due to the existence of special management plans already in place for the same geographic area has been litigated with differing results. In *Center for Biological Diversity v. Norton* (CBD),¹ the FWS stated in both the proposed and final rules designating critical habitat for the Mexican spotted owl that it “may exclude areas from critical habitat designation if [it] determines that the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in the extinction of the species.”² The FWS had excluded over 9 million acres of owl habitat because the land was already governed by the Forest Service’s “Forest Plan.”³ The FWS reasoned that “[a]dditional special management is not required if adequate management or protection is already in place.”⁴ The court, however, disagreed with the FWS’ interpretation of “critical habitat,”⁵ concluding that “the fact that a particular habitat does, in fact, require special management is demonstrative evidence that the habitat is ‘critical,’ ”⁶ rather than excludable.

However, in *Home Builders Ass’n of Northern California v. U.S. Fish and Wildlife Service*,⁷ the court dismissed the reliance by plaintiff environmental groups on CBD for the proposition that exclusion was not permitted for lands with existing management plans pursuant to § 3(5)(A).⁸ Rather, the court noted:

The relevant provision of the ESA here is § 4(b)(2), which permits the FWS to conduct a discretionary analysis of its exclusions. Thus, the Environmental Groups have not cited any authority that would preclude the FWS from considering the existence of other management schemes in deciding whether to exclude land from its critical habitat designation.⁹

The court found that the FWS’ determination to exclude lands with comprehensive resource management plans and habitat conservation plans was reasonable because the FWS had explained that the benefits of exclusion outweighed the benefits of inclusion and the exclusion would not result in the extinction of the species.¹⁰ In fact, the court noted that based on a draft plan, designation of critical habitat

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¹*Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003).

²*Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090, 1093 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003); *see also* 65 Fed. Reg. 45336, 45339.

³*Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090, 1093 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003).

⁴*Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090, 1093 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003); *see also* 66 Fed. Reg. 8530, 8543.

⁵*Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090, 1097 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003).

⁶*Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090, 1099 (D. Ariz. 2003), amended in part, 2003 WL 22849594 (D. Ariz. 2003).

⁷*Home Builders Ass’n of North California v. U.S. Fish and Wildlife Service*, 64 Env’t. Rep. Cas. (BNA) 1843, 36 Env’tl. L. Rep. 20226, 2006 WL 3190518 (E.D. Cal. 2006), opinion modified on reconsideration, 2007 WL 201248 (E.D. Cal. 2007).

⁸*Home Builders Ass’n of North California v. U.S. Fish and Wildlife Service*, 64 Env’t. Rep. Cas. (BNA) 1843, 36 Env’tl. L. Rep. 20226, 2006 WL 3190518 (E.D. Cal. 2006), opinion modified on reconsideration, 2007 WL 201248 (E.D. Cal. 2007).

⁹*Home Builders Ass’n of North California v. U.S. Fish and Wildlife Service*, 64 Env’t. Rep. Cas. (BNA) 1843, 36 Env’tl. L. Rep. 20226, 2006 WL 3190518 (E.D. Cal. 2006), opinion modified on reconsideration, 2007 WL 201248 (E.D. Cal. 2007).

¹⁰*Home Builders Ass’n of North California v. U.S. Fish and Wildlife Service*, 64 Env’t. Rep. Cas. (BNA) 1843, 36 Env’tl. L. Rep. 20226, 2006 WL 3190518 (E.D. Cal. 2006), opinion modified on

“would provide little gain by way of increasing recognition for special habitat values on lands” because the land is already “expressly managed to protect and enhance those values.”¹¹

A 2008 Solicitor’s opinion addressed the Secretary’s authority to exclude areas from a critical habitat designation under § 4(b)(2) of the ESA.¹² The opinion noted that “[t]he Secretary has broad discretion to exclude areas under section 4(b)(2) [but that] [t]here are some limitations on that discretion, and the Secretary must comply with the relevant procedural and substantive requirements of the ESA and its implementing regulations.”¹³

In 2005, six senators approached the Keystone Center—a neutral, nonprofit, public policy and education organization—about convening and facilitating a cross-sector working group on the habitat provisions of the ESA. Keystone brought together a diverse group of individuals from the environmental and regulated communities to discuss the adequacy of the ESA in protecting and conserving habitat. This group published a list of recommendations focused on three areas: (1) incentives (with specific recommendations for the Farm Bill, voluntary cooperative agreements, tax incentives, and streamlining); (2) recovery planning (that is, producing recovery plans that are scientifically sound, financially reasonable, and adaptive); and (3) regulatory issues (so that any conservation program is more effective and less burdensome).¹⁴ The recommendations in the Keystone Report can serve as an effective starting point for discussions on future changes to habitat provisions of the ESA.

V. RECOVERY PLANS FOR LISTED SPECIES

§ 21:19 Background

Section 4(f) of the ESA requires the adoption and implementation of “recovery plans” for each listed species unless a finding is made that such a plan will not benefit the species.¹ The agency is required to give priority to species facing immediate threat from construction projects or other economic activities.² Section 4(f) forbids the prioritizing of recovery plans based upon taxonomic classification of the species.³ The section further requires the agency to report back to Congress biannually on the progress of recovery plan development but does not impose any specific timeta-

reconsideration, 2007 WL 201248 (E.D. Cal. 2007).

¹¹Home Builders Ass’n of North California v. U.S. Fish and Wildlife Service, 64 Env’t. Rep. Cas. (BNA) 1843, 36 Env’tl. L. Rep. 20226, 2006 WL 3190518 (E.D. Cal. 2006), opinion modified on reconsideration, 2007 WL 201248 (E.D. Cal. 2007).

¹²Solicitor’s Opinion M-37016 (Oct. 3, 2008).

¹³Home Builders Ass’n of North California v. U.S. Fish and Wildlife Service, 64 Env’t. Rep. Cas. (BNA) 1843, 36 Env’tl. L. Rep. 20226, 2006 WL 3190518 (E.D. Cal. 2006), opinion modified on reconsideration, 2007 WL 201248 (E.D. Cal. 2007).

¹⁴Keystone Center, The Keystone Working Group on Endangered Species Act Habitat Issues (2006), *available at* [http://www.keystone.org/spp/documents/ESA%20Report%20FINAL%204%2025%2006%20\(2\).pdf](http://www.keystone.org/spp/documents/ESA%20Report%20FINAL%204%2025%2006%20(2).pdf).

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¹16 U.S.C.A. § 1533(f)(1), ELR Stat. ESA § 4(f)(1). The recovery plan concept was added to the ESA by Congress in 1978, with Congress stating that the ESA authorizes delisting “in much the same manner as the initial listing.” H.R. Rep. No. 1625, 95th Cong., 2d. Sess. (1978). See also a 1982 House Report asserting that “delisting should be based on the same criteria and conducted according to the identical procedures as listing” H.R. Rep. No. 567, 97th Cong., 2d. Sess. (1982).

²16 U.S.C.A. at § 1533(f)(1)(A), ELR Stat. ESA § 4(f)(1)(A). This additional provision on priorities was subsequently added by Congress in 1988.

³16 U.S.C.A. at § 1533(f)(1)(A), ELR Stat. ESA § 4(f)(1)(A). This additional provision on priorities was subsequently added by Congress in 1988.

ble for plan development and implementation.⁴

Recovery plans are designed and implemented with public input,⁵ and are generally drafted by a team of individual citizens and governmental representatives as well as members of the scientific and academic community.⁶ Ideally, recovery plans are created for the benefit of multiple species, and social and economic impacts of recovery activities are to be considered in drafting the plans.⁷ The FWS and the NMFS have issued joint regulations defining recovery as “meaning improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act.”⁸ The preamble to that rule linked recovery to the concept of conservation and removal of the threat to the species that led to the original listing.⁹

§ 21:20 Recovery plan preparation and content

The ESA requires, to the maximum extent practicable, that recovery plans: (1) describe any site-specific management actions necessary to conserve and ensure survival of the species; (2) identify objective and measurable criteria that should result in the delisting of the species; and (3) set time and cost estimates for the carrying out of plan measures and to achieve intermediate steps toward the goal of recovery.¹

These three criteria for recovery plans, as set forth in the ESA, have been interpreted by the courts to act as guidance, and not specific requirements for recovery plan contents. Courts have given agencies significant leeway in determining when and if recovery plans are created, and how those plans are implemented.² Section 4(f) of the ESA does require the agencies to “provide public notice and an opportunity for public review and comment” on each “new or revised” recovery plan and to “consider” all information presented during the public comment period.³

Because the ESA does not establish a timetable for plan development, courts have not ordered recovery plan development unless the agency has “unreasonably delayed” the development of the plan.⁴ Courts have similarly determined that although the contents are to be guided by the ESA’s three criteria, the agencies retain the discretion to determine the specifics of any recovery plan.⁵ Thus, it appears that as long as an agency makes a reasonable effort to prepare a recovery plan under

⁴16 U.S.C.A. § 1533(f)(3) ELR Stat. ESA § 4(f)(3).

⁵See 16 U.S.C.A. § 1533(f)(4), ELR Stat. ESA § 4(f)(4) (providing for public notice, opportunity for review, and comment).

⁶Interagency Policy for ESA Section 9 Prohibitions, 50 Fed. Reg. 34272 (July 1, 1994).

⁷Interagency Policy for ESA Section 9 Prohibitions, 50 Fed. Reg. 34272 (July 1, 1994).

⁸50 C.F.R. § 402.02.

⁹As noted in the preamble, “the Service has modified the definition of recovery to make it clear that recovery is not attained until the threats to the species as analyzed under section 4(a) of the Act have been removed” 51 Fed. Reg. 19926, 19935.

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¹16 U.S.C.A. § 1533(f)(1)(B)(i) to (iii), ELR Stat. ESA § 4(f)(1)(B)(i) to (iii).

²See, e.g., *Oregon Natural Resource Council v. Turner*, 863 F. Supp. 1277, 1282 (D. Or. 1994) (finding delay in development of recovery plan due to prioritization efforts was reasonable); *Morrill v. Lujan*, 802 F. Supp. 424, 433 (S.D. Ala. 1992) (finding the contents of recovery plans are discretionary).

³16 U.S.C.A. § 1533 (f)(1)(B), ELR Stat. ESA § 4(f)(1)(B).

⁴See *Oregon Natural Resource Council v. Turner*, 863 F. Supp. 1277, 1282 (D. Or. 1994).

⁵See, e.g., *Oregon Natural Resource Council v. Turner*, 863 F. Supp. 1277, 1282 (D. Or. 1994); *Morrill v. Lujan*, 802 F. Supp. 424, 433 (S.D. Ala. 1992) (finding the contents of recovery plans are discretionary); *Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 35 Fed. R. Serv. 3d 547 (11th Cir. 1996) (finding that the recovery plan requirements “breathes discretion at every pore” and quoting *Strickland v. Morton*, 519 F.2d 467 (9th Cir. 1975)). *But see* *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995), opinion amended, 967 F. Supp. 6 (D.D.C. 1997) (determining that § 4(f) imposes a clear

§ 4(f), the plan is unlikely to be set aside by the courts.

However, while the courts have refused to force preparation of recovery plans, they have held that the contents of plans are reviewable once they are prepared. In *Fund for Animals v. Babbitt*,⁶ the court faulted the grizzly bear recovery plan for failing to adequately describe “site specific management actions” as required under § 4(f), observing that the ESA suggests certain “methods and procedures may be necessary to conserve a species” but “none of these methods or procedures is mandated by the Act.”⁷ However, the court also held that “a recovery plan that recognizes specific threats to the conservation and survival of a threatened or endangered species but fails to recommend corrective action or explain why it is impracticable or unnecessary to recommend such action, would not meet the ESA’s standard.”⁸

In *Defenders of Wildlife v. Babbitt*,⁹ the court ruled that the FWS’ recovery plan for the Sonoran pronghorn violated the ESA by failing to identify objective measurable criteria because the criteria in the plan failed to address identified threats to the species survival. The court stated that:

[t]hese criteria plainly do not address the five delisting factors. Defendants argue that the factors are otherwise addressed in the Plan in that certain recovery actions recognize, study, and attempt to address these five categories of potential threats. The fact that these factors are discussed elsewhere in the plan as areas for further research fails to satisfy the requirement that the criteria proposed for downlisting address these factors and whether these factors pose a continuing threat to the species.¹⁰

Thus, the courts have increasingly recognized the importance of recovery plans as a vital tool in achieving the ultimate goal of the ESA to permanently bring a species back from the brink of extinction. They will scrutinize the contents of plans under the statutory criteria; yet, they seem reluctant to force the FWS and the NMFS to prepare plans.

The *Oregon Natural Resource Council v. Turner* court’s observation is especially telling:

Congress recognized that development of recovery plans for listed species would take significant time and resources. It therefore provided in the ESA that the Secretary could establish a priority system for developing and implementing such plans. This priority system allows the Secretary broad discretion to allocate scarce resources to those species that he or she determines would most likely benefit from development of a recovery plan.¹¹

In another case, the court in *Strahan v. Linnon*¹² rejected Strahan’s argument that the NMFS had violated the ESA by failing to do a recovery plan for the blue, sei, fin, or minke whales. The court held that the ESA “places no time constraints on the development of recovery plans” and that “there are not stringent time requirements for revising a recovery plan even when the recovery plan itself provides for

duty to meet the statutory demands to the maximum extent feasible or practicable).

⁶*Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995), opinion amended, 967 F. Supp. 6 (D.D.C. 1997).

⁷*Fund for Animals v. Babbitt*, 903 F. Supp. 96, 106 (D.D.C. 1995), opinion amended, 967 F. Supp. 6 (D.D.C. 1997).

⁸*Fund for Animals v. Babbitt*, 903 F. Supp. 96, 108 (D.D.C. 1995), opinion amended, 967 F. Supp. 6 (D.D.C. 1997).

⁹*Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121 (D.D.C. 2001).

¹⁰*Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 133 (D.D.C. 2001).

¹¹*Oregon Natural Resource Council v. Turner*, 863 F. Supp. 1277, 1283 (D. Or. 1994).

¹²*Strahan v. Linnon*, 967 F. Supp. 581, 597 (D. Mass. 1997), *aff’d*, 187 F.3d 623 (1st Cir. 1998).

periodic revision.”¹³

§ 21:21 Implementation of recovery plans

Courts have also determined that because of the significant agency discretion in the development of recovery plans, recovery plans are not documents with the “force of law.”¹ In fact, a 1996 report to Congress on recovery planning stated that implementation of recovery tasks in any given plan are not assured by publication.² However, notwithstanding the substantial discretion agencies have over recovery plans and the minimal legal impact of those plans, recovery plans are still considered an essential tool in species conservation.³

In September 2007, in its Endangered Species Bulletin, the FWS responded to criticism that the ESA was not succeeding because of little recovery-related delistings.⁴ In the preceding five years, only five species had had recovery-related delisting.⁵ The FWS indicated that it does not think that recovery-related delistings are the best measure of success. The Bulletin noted that by the end of fiscal year 2006, the FWS was responsible for conserving 1,269 listed species throughout all 50 states and other lands.⁶ According to the 2007 Bulletin, 522 listed species were stable or improving in status; and “[f]orty-one percent of the species are doing better since they have gained protection under the Act.”⁷ The Bulletin stated that 90% of listed species have a recovery plan in place or do not require one. As of 2007, the Bulletin reported that 1,084 species listed for more than 2.5 years had final recovery plans, and three species had been delisted in the prior year.⁸

§ 21:22 The enforceability of recovery plans

Despite Congress’ provision for recovery plans, the courts have uniformly refused to make such plans enforceable. In one case, the court rejected an argument that the U.S. National Park Service was required to close a campground under the terms of the grizzly bear recovery plan because the location of the campground increased the risk of bear mortality.¹ In another case, a court of appeals refused to enforce the recovery plan for the endangered California condor, rejecting the argument that the FWS captive-breeding program was inconsistent with its 1979 recovery plan.²

Several cases have more clearly articulated the unenforceability of such plans. In

¹³*Strahan v. Linnon*, 967 F. Supp. 581, 597 n.18 (D. Mass. 1997), *aff’d*, 187 F.3d 623 (1st Cir. 1998).

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¹*Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 548, 35 Fed. R. Serv. 3d 547 (11th Cir. 1996).

²U.S. Fish & Wildlife Service, Report to Congress on the Recovery Program for Threatened and Endangered Species 3 (1996), *available at* <http://www.fws.gov/endangered/pdfs/Recovery/1996-1.pdf>.

³Tony A. Sullins, *Endangered Species Act 2* (2001).

⁴Krishna Gifford, *Measuring Recovery Success*, *Endangered Species Bulletin*, Sept. 2007, at 4, *available at* http://www.fws.gov/endangered/bulletin/2007/ES_Bulletin_09-2007.pdf.

⁵These include the northern flying squirrel, the gray wolf, the bald eagle, the Columbian white-tailed deer (Douglas County DPS), and the grizzly bear (Yellowstone DPS).

⁶Krishna Gifford, *Measuring Recovery Success*, *Endangered Species Bulletin*, Sept. 2007, at 4, *available at* http://www.fws.gov/endangered/bulletin/2007/ES_Bulletin_09-2007.pdf.

⁷Krishna Gifford, *Measuring Recovery Success*, *Endangered Species Bulletin*, Sept. 2007, at 4, *available at* http://www.fws.gov/endangered/bulletin/2007/ES_Bulletin_09-2007.pdf.

⁸Krishna Gifford, *Measuring Recovery Success*, *Endangered Species Bulletin*, Sept. 2007, at 4, *available at* http://www.fws.gov/endangered/bulletin/2007/ES_Bulletin_09-2007.pdf.

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¹*National Wildlife Federation v. National Park Service*, 669 F. Supp. 384 (D. Wyo. 1987).

²*National Audubon Soc. v. Hester*, 801 F.2d 405 (D.C. Cir. 1986).

Defenders of Wildlife v. Lujan,³ the court rejected an action to enforce the 1987 recovery plan for the northern Rocky Mountain wolf that required reintroduction of the wolf in Yellowstone National Park. The court explained that “the Recovery Plan itself has never been an action document . . . It left open different approaches and contemplated that when an agency or group made specific proposals for achieving a particular objective of the plan, there would be a need for further study.”⁴ In *Fund for Animals, Inc. v. Rice*,⁵ plaintiffs sued to stop construction of a municipal landfill in wetlands that arguably violated the 1987 Florida Panther Recovery Plan. The Eleventh Circuit rejected the argument, holding that recovery plans “are for guidance only,”⁶ and a number of cases subsequently have supported the holding in *Rice*.⁷

However, in *Biodiversity Legal Foundation v. Norton*,⁸ the court refused to extend the holding of *Rice* to a Multi-Species Recovery Plan (MSRP) created by the FWS. In that case, the Foundation had challenged the FWS’ delay in revising the Cape Sable seaside sparrow’s critical habitat designation. The FWS cited *Rice* to support its argument that the content of the Recovery Plan was not binding upon it and did not create a legal duty.⁹ While the court was generally persuaded by the argument that the original Recovery Plan was merely guidance, the court would not extend the *Rice* discretion to the MSRP. The MSRP was created 16 years after the original Recovery Plan and was based on new research and data. The MSRP “committed FWS to [r]eview and revise current critical habitat designation” because the current critical habitat was not sufficient for the recovery of the species.¹⁰ The court saw the MSRP as the FWS’ manifestation of intent to revise the critical habitat designation and held that the FWS had a duty to do so.¹¹

VI. FEDERAL AGENCY CONSERVATION OBLIGATIONS AND CONSULTATION UNDER § 7 OF THE ESA

§ 21:23 Generally

The ESA mandates protection of endangered and threatened species on an individual species and project basis, and § 7 of the ESA addresses the obligations of federal agencies with respect to conservation and protection of species listed as either endangered or threatened under the ESA.¹ Section 7(a)(1) sets out the primary

³*Defenders of Wildlife v. Lujan*, 792 F. Supp. 834 (D.D.C. 1992).

⁴*Defenders of Wildlife v. Lujan*, 792 F. Supp. 834 (D.D.C. 1992).

⁵*Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 35 Fed. R. Serv. 3d 547 (11th Cir. 1996).

⁶*Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 547, 35 Fed. R. Serv. 3d 547 (11th Cir. 1996).

⁷See *California Native Plant Society v. U.S. E.P.A.*, 2007 WL 2021796 (N.D. Cal. 2007) (“Plaintiffs appear to presume that the Service ignored the Recovery Plan because the BiOps issued after the Recovery Plan was promulgated acknowledge that the applicant’s proposed mitigation measures are not entirely consistent with goals set forth in the Recovery Plan. However, a Recovery Plan is a guidance document, not a regulatory document.”); see also *Conservation Northwest v. Kempthorne*, 2007 WL 1847143 (W.D. Wash. 2007); *Southwest Center For Biological Diversity v. Bartel*, 470 F. Supp. 2d 1118, 1137 (S.D. Cal. 2006); *Grand Canyon Trust v. Norton*, 2006 WL 167560 (D. Ariz. 2006); *Cabinet Resource Group v. U.S. Forest Service*, 2004 WL 966086 (D. Mont. 2004); *Strahan v. Linnon*, 967 F. Supp. 581, 597 (D. Mass. 1997), *aff’d*, 187 F.3d 623 (1st Cir. 1998).

⁸*Biodiversity Legal Foundation v. Norton*, 285 F. Supp. 2d 1 (D.D.C. 2003).

⁹*Biodiversity Legal Foundation v. Norton*, 285 F. Supp. 2d 1, 13 (D.D.C. 2003).

¹⁰*Biodiversity Legal Foundation v. Norton*, 285 F. Supp. 2d 1, 14 (D.D.C. 2003).

¹¹*Biodiversity Legal Foundation v. Norton*, 285 F. Supp. 2d 1, 14 (D.D.C. 2003).

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¹16 U.S.C.A. § 1536, ELR Stat. ESA § 7. See §§ 21:9 to 21:13, *supra*, for a discussion of the

provisions on the species conservation obligations of federal agencies,² and § 7(a)(2) addresses the basic obligation of other federal agencies to “consult” with the NMFS and the FWS before taking any “action” that might have direct or indirect impacts on listed species or designated critical habitat.³ Section 7(a)(3) provides that a private applicant for a federal action, e.g., permit or license, that may affect areas with listed species can request a consultation and evaluation of those impacts.⁴ The consultation procedures under § 7 are quite detailed and are intended to assure that federal agency action “is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species,” unless a specific exemption is granted for such action under § 7.⁵

§ 21:24 Section 7(a)(1) conservation obligations

Section 7(a)(1) directs all federal agencies, “in consultation with and with the assistance of the Secretary, [to] utilize their authorities in furtherance of the purposes of [the ESA] by carrying out programs for the conservation of [species listed as endangered or threatened].”¹ Agencies are required to affirmatively act within the scope of their authority for the conservation of listed species. However, the ESA does afford agencies some discretion in determining how conservation programs are to be implemented.²

Currently, there are no regulations directly interpreting or implementing § 7(a)(1). Joint regulations adopted by the NMFS and the FWS only address § 7(a)(1) in the limited context of adverse impact on listed species resulting from federal action.³ Thus, the boundaries of § 7(a)(1) have been set by litigation⁴ and, as such, provide case-specific guidance.⁵

Courts have determined that, at a minimum, § 7(a)(1) imposes some mandatory duties upon federal agencies.⁶ Historically, § 7(a)(1) had been interpreted to require substantially more from federal agencies with respect to the restoration of

criteria and procedures for listing species as “endangered” or “threatened” under the ESA.

²16 U.S.C.A. § 1536(a)(1), ELR Stat. ESA § 7(a)(1).

³16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

⁴16 U.S.C.A. § 1536(a)(3), ELR Stat. ESA § 7(a)(3).

⁵16 U.S.C.A. § 1635(a)(2), ELR Stat. ESA § 7(a)(2).

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¹16 U.S.C.A. § 1536(a)(1), ELR Stat. ESA § 7(a)(1).

²*Strahan v. Linnon*, 967 F. Supp. 581, 596 (D. Mass. 1997), *aff'd*, 187 F.3d 623 (1st Cir. 1998) (noting that the ESA “does not mandate particular actions be taken by federal agencies to implement section 7(a)(1)”; *Hawksbill Sea Turtle v. Federal Emergency Management Agency*, 11 F. Supp. 2d 529, 543 (D.V.I. 1998) (quoting *Strahan*, 967 F. Supp. 581 at 596).

³*See* 50 C.F.R. § 402.14(g)(6).

⁴*See, e.g., Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180–85, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978) (discussing the overall conservation mandate of the ESA); *Defenders of Wildlife v. Andrus*, 428 F. Supp. 167, 170 (D.D.C. 1977) (finding that the regulation did not affirmatively address the FWS’ duty to minimize inadvertent killing of listed species); *Pyramid Lake Paiute Tribe of Indians v. U.S. Dept. of Navy*, 898 F.2d 1410, 1416–17 (9th Cir. 1990) (noting that federal agencies have “affirmative obligations” under the ESA); *Connor v. Andrus*, 453 F. Supp. 1037, 1041 (W.D. Tex. 1978) (disapproved of by, *State of La., ex rel. Guste v. Verity*, 853 F.2d 322 (5th Cir. 1988)) (finding that the FWS is charged with conserving species to a point to where they may be delisted).

⁵J.B. Ruhl, *Section 7(a)(1) of the “New” Endangered Species Act: Rediscovering and Redefining the Untapped Power of the Federal Agencies’ Duty to Conserve Species*, 25 *Envtl. L.* 1107 (1995).

⁶*See* Tony A. Sullins, *Endangered Species Act*, Basic Practice Series (2001).

endangered or threatened species.⁷ Subsequently, the Ninth Circuit in the Pyramid Lake case found that, while § 7(a)(1) imposes affirmative conservation duties, “some discretion should be allowed” to federal agencies in fulfilling these responsibilities.⁸ It has been said that § 7(a)(1) emerges from the Pyramid Lake Paiute Tribe of Indians v. Dep’t of the Navy decision as “a little something extra” and “in the absence of firm guidance by the biological agencies, there is considerable leeway as to what that something will be.”⁹

Initially, § 7(a)(1) was construed by the courts to impose duties on federal agencies when those agencies were carrying out their primary agency missions.¹⁰ Section 7(a)(1) has been interpreted to authorize an agency to refuse to execute a contract,¹¹ to require implementation of alternative courses of action that had significant conservation benefits,¹² to require an agency to show it minimized harm to endangered species in a manner consistent with its primary obligations,¹³ and to require an agency to consider § 7(a)(1) when carrying out nonconservation activities.¹⁴ The Fifth Circuit may have significantly expanded the reach of § 7(a)(1) in *Sierra Club v. Glickman*.¹⁵

In *Glickman*, the Fifth Circuit found that § 7(a)(1) imposed an “affirmative duty on each federal agency to conserve each of the species listed.”¹⁶ Additionally, the court found that the U.S. Department of Agriculture (USDA) was required to create or implement conservation programs consistent with § 7(a)(1).¹⁷ The USDA had not taken any measures to fulfill its conservation obligations imposed by § 7(a)(1) at the time of the litigation.¹⁸ Two district court cases contemporaneous with the *Glickman* decision defined agency obligations in less mandatory terms;¹⁹ however, the agencies in those cases had taken some steps to conserve species. Thus, the courts were reluctant to reverse agency decisions without a showing that the same alternative method of conservation that would have provided greater conservation benefits should have been adopted.²⁰

⁷See, e.g., *Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985); *National Wildlife Federation v. Hodel*, 839 F.2d 694 (D.C. Cir. 1988); *Carson-Truckee Water Conservancy Dist. v. Secretary of the Interior*, 748 F.2d 523 (9th Cir. 1984); *Connor v. Andrus*, 453 F. Supp. 1037, 1041 (W.D. Tex. 1978) (disapproved of by, *State of La., ex rel. Guste v. Verity*, 853 F.2d 322 (5th Cir. 1988)); *Defenders of Wildlife v. Andrus*, 428 F. Supp. 167 (D.D.C. 1977).

⁸*Pyramid Lake Paiute Tribe of Indians v. U.S. Dept. of Navy*, 898 F.2d 1410, 1416–17 (9th Cir. 1990).

⁹See Oliver Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 Colo. L. Rev. 277, 286 (1993) (defining the phrase “a little something extra” as a New Orleans expression, also called a “lagniappe,” such as a 13th donut in a baker’s dozen, or beads on Mardi Gras Day).

¹⁰See *Florida Key Deer v. Stickney*, 864 F. Supp. 1222 (S.D. Fla. 1994); *Sierra Club v. Glickman*, 156 F.3d 606 (5th Cir. 1998).

¹¹*Carson-Truckee Water Conservancy Dist. v. Clark*, 741 F.2d 257, 260–61 (9th Cir. 1984).

¹²*Pyramid Lake Paiute Tribe of Indians v. U.S. Dept. of Navy*, 898 F.2d 1410, 1417 (9th Cir. 1990).

¹³*Defenders of Wildlife v. Andrus*, 428 F. Supp. 167, 170 (D.D.C. 1977).

¹⁴*Florida Key Deer v. Stickney*, 864 F. Supp. 1222 (S.D. Fla. 1994).

¹⁵*Sierra Club v. Glickman*, 156 F.3d 606 (5th Cir. 1998).

¹⁶*Sierra Club v. Glickman*, 156 F.3d 606, 616 (5th Cir. 1998).

¹⁷*Sierra Club v. Glickman*, 156 F.3d 606, 618 (5th Cir. 1998).

¹⁸*Sierra Club v. Glickman*, 156 F.3d 606, 618 (5th Cir. 1998).

¹⁹*Strahan v. Linnon*, 967 F. Supp. 581 (D. Mass. 1997) (holding that § 7(a)(1) conservation plans were voluntary measures); *Hawksbill Sea Turtle v. Federal Emergency Management Agency*, 11 F. Supp. 2d 529 (D.V.I. 1998) (same).

²⁰*Strahan v. Linnon*, 967 F. Supp. 581, 596 (D. Mass. 1997); *Hawksbill Sea Turtle v. Federal Emergency Management Agency*, 11 F. Supp. 2d 529, 543 (D.V.I. 1998).

However, in 2008, the court in *Florida Key Deer v. Paulison*²¹ held that FEMA had failed to comply with § 7(a)(1). The Eleventh Circuit held that FEMA's program of incentives to communities to conserve species "amounted to [] total inaction" because there was "no evidence that even a single community [had] developed or adopted" a conservation plan.²²

§ 21:25 Section 7 consultation process

Section 7 has often been described as the "heart" of the ESA. Before engaging in any type of activity that may have direct or indirect effects on endangered or threatened species or critical habitat, federal agencies must "consult" with the NMFS or the FWS¹ in order to evaluate the impact of the proposed agency action.² This consultation may be "formal" or "informal" in nature. After reviewing the biological assessment prepared by the agency, the NMFS or the FWS prepares a "biological opinion" that ultimately determines whether the proposed agency action is likely to have an adverse impact on a listed species. If such an impact will occur, the NMFS or the FWS will provide written requirements for minimizing the impact on the listed species in the form of an "incidental take" statement. Section 7 requires consulting agencies "to use the best scientific and commercial data available,"³ and failure to consult properly may result in the proposed activity being enjoined.⁴

The critical and often difficult questions regarding the § 7 requirements include: (1) what kinds of "agency actions" trigger the consultation requirements; (2) what are the procedures for interagency consultation; and (3) how are indirect and cumulative effects to be evaluated? These questions are answered by reference to both the detailed regulations adopted by the FWS and the NMFS to implement § 7⁵ and the various court decisions addressing the scope and application of § 7.

§ 21:26 Agency "action" triggering consultation

a. The Scope of Agency Action

Consultation under § 7(a)(2) is triggered through proposed "agency action." Section 7(a)(2) refers to "each Federal agency," which is defined by the ESA to mean "any department, agency, or instrumentality of the United States."¹ The ESA does not apply to state or local agency actions, even though these actions could trigger federal agency action. This is because agency action under § 7 of the ESA is limited to "activities or programs of any kind *authorized, funded, or carried out, in whole or in part, by Federal agencies* in the United States or upon the high seas."²

Under the implementing regulations, the term agency "action" has been further

²¹*Florida Key Deer v. Paulison*, 522 F.3d 1133 (11th Cir. 2008) (slip op. at 28).

²²*Florida Key Deer v. Paulison*, 522 F.3d 1133, 1147 (11th Cir. 2008) (slip op. at 28).

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¹Whether the agency must consult with the NMFS or the FWS depends on the particular species affected. See 50 C.F.R. §§ 223.102, 224.101 for species listed by the NMFS and 50 C.F.R. §§ 17.11, 17.12 for species listed by the FWS.

²16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

³16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

⁴See, e.g., *Pacific Rivers Council v. Robertson*, 854 F. Supp. 713, 724 (D. Or. 1993), judgment aff'd in part, rev'd in part on other grounds, 30 F.3d 1050 (9th Cir. 1994) (enjoining the underlying proposed action for agency's failure to initiate required consultation).

⁵50 C.F.R. Part 402.

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¹16 U.S.C.A. § 1532(7), ELR Stat. ESA § 3(7).

²50 C.F.R. § 402.02 (1990) (emphasis added).

defined to include but not be limited to:

- (1) actions intended to conserve listed species or their habitat;
- (2) the promulgation of regulations;
- (3) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or
- (4) actions directly or indirectly causing modifications to the land, water, or air.³

The courts have generally interpreted the term “agency action” broadly.⁴ Examples of activities found to constitute “agency action” include the annual delivery of water under existing service contracts,⁵ the creation of interim management strategies,⁶ and even ongoing activities and projects.⁷

The preamble to the regulations issued to implement the consultation provisions of the ESA indicates that it is the federal action agency that has the discretion, authority, and ultimate responsibility to describe the action and to comply with the ESA:

The determination of possible effects is the Federal agency’s responsibility. The Federal agency has the ultimate duty to ensure that its actions are not likely to jeopardize listed species or adversely modify critical habitat. The Federal agency makes the final decision on whether consultation is required, and it likewise bears the risk of an erroneous decision.⁸

The regulations require a federal action agency to “review its actions . . . to determine whether any action may affect listed species or critical habitat.”⁹ Thus, it is the action agency’s responsibility to define the action, assess its potential impacts, and determine whether consultation with the NMFS or the FWS is necessary. The action agency’s formal consultation request is required to include a “description of the action to be considered,” i.e., a project description, and the preamble makes clear that other activities “that are interrelated or interdependent would be discussed along with the effects of the action.”¹⁰

The preamble to the § 7 consultation regulations also establishes as a basic principle that the NMFS and the FWS “perform strictly an advisory function under Section 7 by consulting with other federal agencies to identify and help resolve conflicts between listed species and their critical habitat and proposed actions.”¹¹

³50 C.F.R. § 402.02.

⁴*See, e.g., Tennessee Valley Authority v. Hill*, 437 U.S. 153, 173, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978) (declaring that not only prospective actions, but all actions contemplated by agencies are subject to ESA scrutiny); *Natural Resources Defense Council v. Houston*, 146 F.3d 1118, 1125–27 (9th Cir. 1998) (renewal of existing contract is “agency action” under the ESA, at least when the agency has some discretion to renegotiate the terms); *Conner v. Burford*, 848 F.2d 1441, 1452–53 (9th Cir. 1988) (interpreting agency action broadly to include not only leasing but any and all post-leasing activities). *But see, e.g., Marin Audubon Soc’y v. Seidman*, 1991 U.S. Dist. LEXIS 17322 (N.D. Cal. 1991) (transfer of note, secured by property that was a habitat for endangered species, was not the type of agency action contemplated by the ESA where it would have no direct or indirect effect on the species or its environment).

⁵*O’Neill v. U.S.*, 50 F.3d 677, 680–81, 26 U.C.C. Rep. Serv. 2d 1 (9th Cir. 1995).

⁶*Lane County Audubon Soc. v. Jamison*, 958 F.2d 290, 294–95 (9th Cir. 1992).

⁷*See, e.g., Klamath Water Users Protective Ass’n v. Patterson*, 191 F.3d 1115 (9th Cir. 1999), opinion amended and superseded on denial of reh’g, 204 F.3d 1206 (9th Cir. 1999), opinion amended on denial of reh’g, 203 F.3d 1175 (9th Cir. 2000) (holding that the agency’s retention of managerial discretion over a dam facility was action triggering consultation on the continuing operation of the dam).

⁸51 Fed. Reg. 19926, 19949 (June 3, 1986).

⁹50 C.F.R. § 402.14(a).

¹⁰51 Fed. Reg. at 19950.

¹¹51 Fed. Reg. at 19928.

Their role for the purposes of § 7, as delineated in the regulations, is to “assist the Federal agencies in conforming their proposed actions to the requirements of section 7,” recognizing that “the Federal agency makes the ultimate decision as to whether its proposed action will satisfy the requirements of section 7(a)(2)” and that “the Federal agency has the primary responsibility for implementing section 7’s substantive command.”¹² The ESA “does not give the [NMFS or the FWS] the power to order other agencies to comply with its requests or to veto their decisions.”¹³

b. Agency Discretion and Agency Action

Courts have grappled with cases involving the intersection between an action agency’s discretion and the § 7 consultation requirement. The concept of ongoing activities, for example, has been a source of conflict among circuit courts with regard to the requirement for § 7 consultation. The National Forest Management Act directs the Forest Service to develop a Land and Resource Management Plan (LRMP) for each unit of the National Forest System.¹⁴ The Ninth Circuit has held that because every project planned in national forests is implemented according to those LRMPs, the LRMPs constitute ongoing agency action since they “have an ongoing and long-lasting effect even after adoption.”¹⁵ However, the Tenth Circuit held that “[an] LRMP simply does not fit within [the agency action] definition.”¹⁶ In its holding, the Tenth Circuit clarified that “the very definition of ‘action’ in [50 C.F.R.] § 402.02 tells us that the ‘promulgation of regulations,’ not the regulations themselves, constitutes ‘action’ ” for the purposes of § 7(a)(2).¹⁷ Despite this broad interpretation of “agency action,” the FWS’ regulations do limit the definition to “actions in which there is *discretionary* Federal involvement or control.”¹⁸

A significant case involved EPA’s authority under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). In *Washington Toxics Coalition v. EPA*,¹⁹ the Ninth Circuit held that EPA had a duty to consult with the FWS regarding the effects of registering 54 active ingredients on 25 species of salmon and steelheads. The district court found that there was scientific evidence to establish a causal link between the 54 active ingredients and both direct and indirect effects on the salmonid population that triggered a duty to consult under § 7(a)(2). In affirming the district court, the Ninth Circuit held that the registration provisions of FIFRA did not exempt the agency from its duty to consult under the ESA.²⁰

In 2004, EPA issued joint “counterpart regulations” that had been agreed to by the FWS and the NMFS and were to create new optional processes for consultation between EPA and the FWS and the NMFS about the effects of pesticides on

¹²51 Fed. Reg. at 19928.

¹³*Sierra Club v. Marsh*, 816 F.2d 1376, 1386 (9th Cir. 1987).

¹⁴16 U.S.C.A. § 1604(a).

¹⁵*Pacific Rivers Council v. Thomas*, 30 F.3d 1050, 1053 (9th Cir. 1994).

¹⁶*Forest Guardians v. Forsgren*, 478 F.3d 1149, 1159 (10th Cir. 2007).

¹⁷*Forest Guardians v. Forsgren*, 478 F.3d 1149, 1159 (10th Cir. 2007).

¹⁸50 C.F.R. § 402.03 (emphasis added); *see also* *Environmental Protection Information Center v. Simpson Timber Co.*, 255 F.3d 1073 (9th Cir. 2001) (finding that because the FWS did not retain discretionary control over the timber company’s incidental take permit for the northern spotted owl, the Agency was not required to reinstate consultation to consider the permit’s effects on other species); *Sierra Club v. Babbitt*, 65 F.3d 1502, 1509 (9th Cir. 1995) (concluding that when “the federal agency lacks the discretion to influence the private action, consultation would be a meaningless exercise . . .”).

¹⁹*Washington Toxics Coalition v. Environmental Protection Agency*, 413 F.3d 1024 (9th Cir. 2005).

²⁰*Washington Toxics Coalition v. Environmental Protection Agency*, 413 F.3d 1024, 1032 (9th Cir. 2005). The court cited an earlier Ninth Circuit decision of *Headwaters, Inc. v. Talent Irrigation Dist.*, 243 F.3d 526 (9th Cir. 2001), holding that the registration and labeling provisions of FIFRA did not exempt a party from its obligations under the Clean Water Act.

endangered species. EPA stated that it intended for the new regulations to make the process more efficient and timely, thereby improving the protections for endangered and threatened species.²¹

In *Washington Toxics Coalition v. Interior*,²² however, the court overturned EPA's promulgation of these "counterpart" regulations under FIFRA. The court's finding was

based not only on the positive fact of the extremely strong technical evidence in the record demonstrating that approval of EPA's risk assessment process fails to 'insure' within the meaning of ESA Section 7, but also on the negative fact of the total absence of any technical and scientific evidence to support or justify the Services' approval of the process.²³

This decision stands in contrast to the decision in *Defenders of Wildlife v. Kempthorne*²⁴ that upheld joint counterpart regulations issued by several agencies, including the DOI, Commerce, and the USDA that allow action agencies to "bypass" the Services entirely on any project within the National Forest Plan subject to development and implementation of an Alternative Consultation Agreement.

In *American Rivers Inc. v. Corps*,²⁵ the court rejected the argument that the ESA did not apply to the operation of the Missouri River Reservoir system because ESA compliance would interfere with downstream navigation that was a project purpose mandated by the Flood Control Act (FCA). The court acknowledged other cases holding that "environmental and wildlife protection statutes do not apply where they would render an agency unable to fulfill a nondiscretionary statutory purpose or require it to exceed its statutory authority."²⁶ The *American Rivers* court held that, unlike the Platte River case, the "ESA does not prevent the Corps from meeting its statutory duty under the FCA to support downstream navigation . . . the FCA does not mandate a particular level of river flow or length of navigation season, but rather allows the Corps to decide how best to support the primary interest of navigation in balance with other interests."²⁷

The Ninth Circuit in *National Wildlife Federation v. State of Idaho*²⁸ ruled that the NMFS' biological opinion addressing the impacts of the Federal Columbia River Power System (FCRPS) on salmon and steelhead violated the ESA. The court rejected the NMFS' argument that it could excuse from the proposed action's impacts the effects of related operations of dams the NMFS deemed "nondiscretionary." In a significant ruling, the court referred to the ESA regulations in holding that "the only actions not subject to ESA requirements are those the agency does not authorize, fund or carry out. Under this approach, any action actually taken is

²¹See U.S. EPA, Endangered Species Consultation Process to Be Improved Through Joint Regulations Published by Wildlife Agencies (Aug. 2005), available at <http://www.epa.gov/espp/consultation>, regulations published at 69 Fed. Reg. 47732 (Aug. 5, 2004).

²²*Washington Toxics Coalition v. U.S. Dept. of Interior, Fish and Wildlife Service*, 457 F. Supp. 2d 1158 (W.D. Wash. 2006).

²³See *Washington Toxics Coalition v. U.S. Dept. of Interior, Fish and Wildlife Service*, 457 F. Supp. 2d 1158, 1182 (W.D. Wash. 2006).

²⁴*Defenders of Wildlife v. Kempthorne*, 63 Env't. Rep. Cas. (BNA) 2003, 2006 WL 2844232 (D.D.C. 2006).

²⁵*In re Operation of Missouri River System Litigation*, 421 F.3d 618 (8th Cir. 2005).

²⁶*In re Operation of Missouri River System Litigation*, 421 F.3d 618, 630 (8th Cir. 2005).

²⁷*In re Operation of Missouri River System Litigation*, 421 F.3d 618, 631 (8th Cir. 2005).

²⁸*National Wildlife Federation v. National Marine Fisheries Service*, 481 F.3d 1224 (9th Cir. 2007), for additional opinion, see, 230 Fed. Appx. 659 (9th Cir. 2007) and opinion amended and superseded, 524 F.3d 917 (9th Cir. 2008).

discretionary.”²⁹ Further, the court held that

an agency cannot escape its ESA obligations merely because it is bound to comply with another statute that has consistent, complementary objectives [and] the very fact that the agencies are unable to define the limits of their discretion here reveals that all FCRPS operations are intertwined and subject to discretionary control.³⁰

The Supreme Court addressed this issue in *Nat’l Association of Homebuilders v. Defenders of Wildlife*,³¹ where, in a 5-4 decision, it limited the applicability of ESA § 7 requirements to only “discretionary” agency action. The Court reversed the Ninth Circuit’s determination that ESA consultation was required prior to transferring permitting authority to a state under § 402(b) of the CWA. Section 402(b) states that the EPA “shall” transfer permitting authority upon a state’s showing of nine statutory criteria. The Court stated that reading the ESA “as the Court of Appeals did would effectively repeal Section 402(b)’s statutory mandate by engrafting a tenth criterion onto the CWA Reading [§ 7] broadly would thus partially override every federal statute mandating agency action by subjecting such action to the further condition that it poses no jeopardy to endangered species.”³² The Court concluded that “when an agency is required to do something by statute, it simply lacks the power to ‘insure’ that such action will not jeopardize endangered species.”³³

This decision stands in contrast to the Eleventh Circuit’s subsequent decision in *Florida Key Deer v. Paulison*,³⁴ which held that FEMA had discretion to consider ESA issues in its administration of the National Flood Insurance Program (NFIP) and was required to consult with the resource agencies under § 7. Unlike the state delegation provision at issue in *NAHB*, the Court held that FEMA “enjoys broad discretion” in developing criteria for participation in the NFIP.³⁵

c. “Incremental Step” Consultation

The concept of agency action is so broadly defined that even relatively small actions can trigger requirements for agency consultation on an entire project. The regulations attempt to prevent agencies from subverting the ESA by taking a potentially harmful project and breaking it up into a series of small steps or pieces that, when viewed separately, appear not to trigger the § 7 consultation obligation.

Many statutes expressly permit agencies to take “incremental steps” toward the completion of certain actions. The ESA regulations, however, instruct the NMFS and the FWS to issue a biological opinion on an incremental step only if an agency submits a request *and* the incremental step is authorized by statute.³⁶ The biological opinion will set out the NMFS’ or the FWS’ opinion on the incremental step, as well

²⁹*National Wildlife Federation v. National Marine Fisheries Service*, 481 F.3d 1224, 1234 (9th Cir. 2007), for additional opinion, see, 230 Fed. Appx. 659 (9th Cir. 2007) and opinion amended and superseded, 524 F.3d 917 (9th Cir. 2008).

³⁰*National Wildlife Federation v. National Marine Fisheries Service*, 481 F.3d 1224, 1235 (9th Cir. 2007), for additional opinion, see, 230 Fed. Appx. 659 (9th Cir. 2007) and opinion amended and superseded, 524 F.3d 917 (9th Cir. 2008).

³¹*National Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 127 S. Ct. 2518, 168 L. Ed. 2d 467 (2007).

³²*National Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 127 S. Ct. 2518, 2533, 168 L. Ed. 2d 467 (2007).

³³*National Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 127 S. Ct. 2518, 2535, 168 L. Ed. 2d 467 (2007).

³⁴*Florida Key Deer v. Paulison*, 522 F.3d 1133 (11th Cir. 2008).

³⁵*Florida Key Deer v. Paulison*, 522 F.3d 1133, 1142 (11th Cir. 2008). *Id.* at 1142.

³⁶50 C.F.R. § 402.14(k).

as the entire action.³⁷ Once the biological opinion is issued, the agency may proceed with or authorize its incremental action under the following conditions:

- The biological opinion does not conclude that the incremental step would violate § 7(a)(2);
- The federal agency continues consultation with respect to the entire action and obtains biological opinions, as required, for each incremental step;
- The federal agency fulfills its continuing obligation to obtain sufficient data upon which to base the final biological opinion on the entire action;
- The incremental step does not violate § 7(d) of the ESA concerning irreversible or irretrievable commitments of resources;³⁸ and
- There is a reasonable likelihood that the entire action will not violate § 7(a)(2).³⁹

d. Section 7(a)(3)—Private Applicants

The concept of agency action under the ESA may also include action taken to issue a permit or license sought by a private applicant. Section 7(a)(3) states that consultation may be required on “any prospective agency action” relating to a “prospective permit or license” whenever listed species may be present in the area affected by the application.⁴⁰ The regulations define “applicant” as any person “who requires formal approval or authorization from a federal agency as a prerequisite to conducting the action.”⁴¹

The FWS and the NMFS have adopted a Consultation Handbook for guidance in determining which private applications rise to the level of agency action.⁴² The forward to the Handbook states that its purpose “is to promote efficiency and nationwide consistency within and between the [FWS and the NMFS]. The Handbook addresses the major consultation processes, including informal, formal, emergency and special consultations, and conferences.” It covers all federally authorized activities whether public or private. As discussed below, consultation is particularly significant under the CWA § 404 wetlands permit program where the issuance of both individual and nationwide permit approvals by the Corps has been deemed “agency action” for purposes of § 7 of the ESA.⁴³

§ 21:27 Section 7 consultation policies of particular agencies

a. Consultation Under Corps CWA § 404 Permit Program

The § 7 process has special significance under the CWA’s § 404 program. Many activities involving the discharge of dredged or fill material in waters of the United

³⁷See 50 C.F.R. § 402.14(k).

³⁸See, e.g., *Pacific Rivers Council v. Thomas*, 1994 WL 908600 (D. Or. 1994) (enjoining timber sales and road construction because they constituted per se irreversible and irretrievable commitments of resources).

³⁹50 C.F.R. § 402.14(k); see also *Conner*, 848 F.2d at 1455–56 (noting that incremental-step consultation does not vitiate the ESA requirement that the Secretary prepare a comprehensive biological opinion on the entire action).

⁴⁰16 U.S.C.A. § 1536(a)(3), ELR Stat. ESA § 7(a)(3).

⁴¹50 C.F.R. § 402.02.

⁴²See generally U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 2–13 (1998). See also, e.g., *Environmental Protection Information Center, Inc. v. Pacific Lumber Co.*, 67 F. Supp. 2d 1090 (N.D. Cal. 1999), judgment vacated on other grounds, 257 F.3d 1071 (9th Cir. 2001) (finding that lumber company’s application for an incidental take permit clearly involved “agency action”).

⁴³See *Riverside Irr. Dist. v. Andrews*, 758 F.2d 508 (10th Cir. 1985); *Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 35 Fed. R. Serv. 3d 547 (11th Cir. 1996).

States and adjacent wetlands trigger ESA consultation because of the activities' impact on listed species and their habitat. These activities include, for example, infrastructure projects such as water and sewer lines, dams and impoundments, housing and commercial development, and aggregate mining. The consultation process can be lengthy and complex with extensive negotiations between a project applicant, the Corps, and the FWS.

Under the CWA § 404 program, the Corps is the action agency responsible for determining the scope of the analysis for which it consults the FWS and the NMFS under § 7. Specifically, under the ESA implementing regulations, the Corps is responsible for evaluating the "effects of the action" on listed species and habitat.¹ The Corps' Regulatory Guidance Letter (RGL) 92-1 (Federal Agency Roles and Responsibilities) expressly affirms the Corps' exclusive authority as "the decision-maker and project manager for" the Corps' regulatory program.² RGL 92-1 also states that the Corps is "solely responsible for making final permit determinations of compliance with Corps permit regulations."³ The RGL notes that the "*Federal resource agencies have reviewed and concurred with this guidance and have agreed to act in accordance with its provisions.*"⁴ This guidance thus confirms that the resource agencies have agreed that the Corps retains the ultimate responsibility to define the proposed action subject to the permit, to determine the scope of the effects of that action, and to comply with the requirements of § 7.

Further, the Supreme Court's 2006 decision in *Rapanos v. United States* and *Carabell v. Army Corps of Eng'rs*⁵ could have a significant effect on the reach of Corps' CWA jurisdiction that will impact the Corps' consultation duties under § 7 by potentially limiting the scope of federally regulated waters and wetlands. The Court addressed whether the CWA allows the Corps to regulate wetlands and waters that are not physically connected or abutting traditionally navigable waters. In a 5-4 plurality decision, the Court created two tests for determining CWA jurisdiction: (1) the test set out by Justice Scalia for the plurality requires a permanent hydrologic connection thereby excluding channels through which water flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall; and (2) the test set out by Justice Kennedy, in concurrence, requires a wetland to possess the requisite "significant nexus" necessary to restore and maintain the chemical, physical, and biological integrity of "navigable" waters. The issue of which test represents the holding of the Court is emerging as a key issue in the wetlands debate.⁶

The Corps' nationwide permit (NWP) program under § 404(e) of the CWA authorizes specific activities that have minimal individual and cumulative impacts on the aquatic environment. The vast majority of the Corps' authorized activities come under the NWP program. In 2007, the Corps reissued 34 activity-specific NWPs and added 6 new NWPs with a number of new and modified general conditions designed to protect the aquatic environment.⁷ Most NWPs require a 45-day preconstruction notification prior to commencing work. General Condition 17 covers endangered species, stating that "no activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or

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¹50 C.F.R. § 402.02.

²See 50 C.F.R. § 402.02 ¶ 2(c).

³50 C.F.R. § 402.02 ¶ 3(a).

⁴50 C.F.R. § 402.02 ¶ 2(d) (emphasis added).

⁵*Rapanos v. U.S.*, 547 U.S. 715, 126 S. Ct. 2208, 165 L. Ed. 2d 159 (2006).

⁶The Corps and EPA issued joint guidance in June 2007 interpreting these cases (**cites**). The discussion of that guidance is beyond the scope of this overview.

⁷72 Fed. Reg. 11092 (Mar. 12, 2007).

a species proposed for such designation or which would destroy or adversely modify critical habitat.”⁸

Nonfederal permittees must notify the Corps if any listed species or designated critical habitat might be affected or is in the vicinity of the project, and permittees then cannot begin work until notified by the Corps that the requirements of the ESA have been met. The Corps will determine whether the proposed activity “may affect” or will have “no effect” on a listed species and designated critical habitat and will notify the nonfederal applicant within 45 days of receipt of a complete preconstruction notification. Where a “may affect” finding is made, the Corps and the FWS or the NMFS will engage in § 7 consultation that may result in the Corps adding species-specific, regional endangered species conditions to the NWP. Further, the NWP rule makes clear that the authorization of an activity by an NWP does not authorize the “take” of a listed species in the absence of separate authorizations under the ESA, e.g., an ESA § 10 permit, a biological opinion with “incidental” take” provisions.⁹

b. EPA-FWS-NMFS MOA on Consultations

In 2001, the EPA entered into a memorandum of agreement (MOA) with the FWS and the NMFS in an effort to enhance coordination between the agencies under the CWA and the ESA.¹⁰ According to the agencies, the MOA seeks to enhance the efficiency and effectiveness of consultations between EPA and the NMFS and the FWS regarding EPA’s promulgation of various rules and standards, including the adoption of water quality standards under the CWA. To achieve this goal, the MOA sets out specific EPA actions that require § 7 consultation. These cover:

- Approval of state/tribal national pollutant discharge elimination system (NPDES) programs;
- Issuance of individual and general federal NPDES permits;
- Approval of new or revised state/tribal water quality standards;
- Promulgation of water quality standards for a state or a tribe; and
- Promulgation of national aquatic life water quality criteria.¹¹

The MOA also provides clearer guidance to regional and field offices and establishes an “elevation process” to resolve various issues that may arise. In addition to promoting ground-level coordination, the MOA seeks to enhance coordination between the agencies at a national level through the establishment of a joint national research plan that prioritizes research on the effects of water pollution on endangered species. It is important to note that the MOA merely provides internal procedural guidance to the agencies. It does not impose any legally binding rules or requirements on the regulated community.

§ 21:28 Analysis of the “effects” of agency action

Once an agency has determined that a particular program or activity rises to the level of “agency action” under the ESA, the next step is evaluating the “effect” of such action. Determining the “effect” of an agency action is important because it dictates the extent of consultation required under § 7, i.e., whether or not formal consultation is required.

⁸72 Fed. Reg. 11092, 11192 (Mar. 12, 2007).

⁹72 Fed. Reg. 11092, 11192 (Mar. 12, 2007).

¹⁰See Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service, and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act, 66 Fed. Reg. 11201 (Feb. 22, 2001).

¹¹See 66 Fed. Reg. at 11202, 11205 to 06, and 11214 to 15.

In this regard, it should be noted that the terms “affect” and “effect” are often used throughout § 7. The Consultation Handbook defines “affect” as a verb meaning “to bring about change,” e.g., the proposed action is likely to *affect* critical habitat.¹ The term “effect” is a noun used to discuss “beneficial effects” or “adverse effects.” The regulations focus on the “effects of an action” as: (1) direct and indirect effects of an action; and (2) the effects of other activities that are interrelated or interdependent.² Such effects are analyzed in relation to the “environmental baseline.”³ The term “may affect” is the appropriate conclusion when the proposed action poses “any effect” on a listed species.⁴ “Cumulative effects” refers to those future state or private activities *not* involving federal agencies that are reasonably certain to occur *if* the agency action is permitted to proceed.⁵

a. The Environmental Baseline

All direct and indirect effects of an agency action, together with the combined effects of all other activities that are interrelated or interdependent with that action, are added to the “environmental baseline.” The environmental baseline includes: (1) the past and present impacts of all federal, state, or private actions and other human activities in the relevant action area; (2) the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early § 7 consultation; and (3) the impact of state or private actions that are contemporaneous with the consultation in process.⁶ This baseline is intended to form a basic “snapshot” of the status of the species at a particular moment in time before the action is taken. As the Ninth Circuit held in *NWF v. State of Idaho*, the “environmental baseline” requires consideration of

the effects of [NMFS] actions within the context of other existing human activities that impact the listed species [and that] the proper baseline analysis is not the proportional share of responsibility the federal agency bears for the decline of the species, but what jeopardy might result from the agency’s proposed actions in the present and future human and natural contexts.⁷

b. Direct, Indirect, and Cumulative Effects

In late 2008, the NMFS and the FWS issued the “Consultation Rule,” which changed the definition of direct, indirect, and cumulative effects, to suggest that there must be a close causal connection between the action under consultation and the effect that is being evaluated.⁸ The rule allowed the federal agencies considering a project or action that requires federal authorization or involves federal funding, in certain circumstances, to decide for themselves whether they had to consult with

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¹U.S. Fish and Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook, at x (1998).

²50 C.F.R. § 402.02.

³50 C.F.R. § 402.02.

⁴U.S. Fish and Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook, at xvi (1998).

⁵50 C.F.R. § 402.02; *see Fund For Animals v. Hall*, 448 F. Supp. 2d 127, 136 (D.D.C. 2006) (comparing the definition of “cumulative effects” between the ESA and NEPA and stating “the ESA only requires agencies to consider the cumulative impacts of non-federal actions, while NEPA requires agencies to consider cumulative impacts of all actions”).

⁶50 C.F.R. § 402.02.

⁷*National Wildlife Federation v. National Marine Fisheries Service*, 481 F.3d 1224 (9th Cir. 2007), for additional opinion, *see*, 230 Fed. Appx. 659 (9th Cir. 2007) and opinion amended and superseded, 524 F.3d 917 (9th Cir. 2008).

⁸73 Fed. Reg. 78272 (Dec. 16, 2008).

the appropriate wildlife Service on the effects of that project or action. The rule also established time frames for the informal consultation process, clarified certain definitions, and corrected the standards for effects analysis.

On March 3, 2009, President Obama issued a memorandum to the heads of executive agencies, asking the Secretaries to review the Consultation Rule. In the memo, President Obama asked the Secretaries to “determine whether to undertake new rulemaking procedures with respect to consultative and concurrence processes that will promote the purposes of the ESA.”⁹ President Obama did not formally suspend implementation of the Consultation Rule pending reconsideration. Instead, he asked federal agencies to exercise their discretion under the rule “to follow the prior longstanding consultation and concurrence practices involving the [Services]” until the review is done.

Following the president’s memorandum, Congress took action. The Omnibus Appropriations Act of 2009¹⁰ contained a provision authorizing the Secretaries of Commerce and of the Interior to withdraw the Consultation Rule. Section 429 of the Act authorized the Secretaries to “withdraw or reissue” the Consultation Rule on or before May 10, 2009, “without regard to any provision of statute or regulation that establishes a requirement for such withdrawal.” If the Secretaries withdraw a rule under the Act, they must “implement the provisions of law under which the rule was issued in accordance with the regulations in effect under such provisions immediately before the effective date of such rule, except as otherwise provided by any Act or rule that takes effect after the effective date of the rule that is withdrawn.”

On April 28, 2009, Secretary of Commerce Gary Locke and Secretary of the Interior Ken Salazar announced that their departments were revoking the Consultation Rule. The decision to revoke the consultation rule reinstates a process that has been criticized as unduly burdensome. In light of those concerns, the Administration promised to review the 1986 consultation regulations to propose “identifying potential options and improvements to the section 7 regulations that may be appropriate.”¹¹

The case law provides some meaningful guidance as to the scope of effects that ought to be considered.¹² In *Riverside Irrigation District v. Andrews*,¹³ the Tenth Circuit held that the Corps was obligated to consider the future effects of an increase in water consumption that might result from granting a permit to construct a dam and the impact that consumption may have on the critical habitat of whooping cranes located over 100 miles away from the site. The court held that the Corps could not limit its focus to the localized impacts of the dam. The court explained that the agencies were not permitted to wear “blinders” and ignore the indirect but causally related effects of certain actions.¹⁴

In *National Wildlife Federation v. Norton*,¹⁵ the court held that the FWS had violated the ESA by issuing a biological opinion for Florida Rock Industry’s proposed lime rock quarry that the Corps then relied on in issuing a CWA § 404 permit. The court held that the biological opinion failed to provide a proper analysis of the

⁹Available at http://www.whitehouse.gov/the_press_office/Memorandum-for-the-Heads-of-Executive-Departments-and-Agencies/.

¹⁰Pub. L. No. 111-8 (Mar. 11, 2009).

¹¹74 Fed. Reg. at 20422 (Apr. 28, 2009).

¹²See, e.g., *National Wildlife Federation v. Coleman*, 529 F.2d 359, 373, 32 A.L.R. Fed. 306 (5th Cir. 1976) (holding that the “effects” of the agency’s highway construction project included the future private development that would be likely to occur around the highway when it was completed).

¹³*Riverside Irr. Dist. v. Andrews*, 758 F.2d 508 (10th Cir. 1985).

¹⁴*Riverside Irr. Dist. v. Andrews*, 758 F.2d 508, 512 (10th Cir. 1985).

¹⁵*National Wildlife Federation v. Norton*, 332 F. Supp. 2d 170 (D.D.C. 2004).

cumulative impact on the endangered Florida panther and did not adequately discuss other private projects that were reasonably likely to move forward in the panther habitat as a result of the mine. The court stated that “[i]f the requirement to evaluate cumulative effects is to mean anything, the FWS must not only explain what its ‘disturbance intensity’ numbers mean for panther habitat now, but what part the Florida Rock project will play in the reasonably expectable degradation over time of the habitat upon which ‘one of the most endangered large mammals in the world’ depends.”¹⁶

The National Wildlife case stands for the proposition that a reviewing court will critically examine the agency’s explanation for whether, and to what extent, it must consider the cumulative effects of numerous reasonably foreseeable private projects in determining if a proposed action will cause what is referred to as “jeopardy.” However, a 2004 decision of the Supreme Court in *Dept. of Transportation v. Public Citizen* could have a significant limiting effect on an Agency’s scope of analysis, subject to § 7, in determining the indirect effects of federal actions. The Supreme Court’s opinion in *Department of Transp. v. Public Citizen*, 541 U.S. 752, 124 S. Ct. 2204, 159 L. Ed. 2d 60 (2004), addressed the scope of analysis used under an analogous environmental statute, NEPA, 42 U.S.C.A. §§ 4321 to 4370(f). The Court held that “where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect.”

c. Effects of Interrelated and Interdependent Actions

To assess the impacts of an agency action, the action agency and the NMFS or the FWS must consider all direct and indirect “effects of the action.” “Direct effects” include effects of “interrelated and interdependent actions.”¹⁷ An “interrelated activity” is one that is “part of the proposed action and depends on the proposed action for its justification.”¹⁸ An “interdependent activity” is one that has “no independent utility apart from the action under consultation.”¹⁹ “Indirect effects” are defined as those that are “caused by the proposed action and are later in time, but still are reasonably certain to occur.”²⁰

The determination of whether an activity is interrelated to or interdependent with a proposed action depends on a “but for” test.²¹ That is, if a given activity would not occur but for the proposed action, then its effects should be considered in the consultation process.

The Ninth Circuit has commented that the “but for” causation test asks: “But for the federal project, would the activities in question occur?”²² On this basis, in the *Sierra Club* case, the court determined that a pair of proposed private development projects in the vicinity of a highway and flood control project under Corps jurisdiction was “not part of the federal project and [were] *not related to it or dependent on*

¹⁶*National Wildlife Federation v. Norton*, 332 F. Supp. 2d 170 (D.D.C. 2004).

¹⁷50 C.F.R. § 402.02; U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 4-25 (1998).

¹⁸50 C.F.R. § 402.02; *see also* U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 4-26 (1998).

¹⁹50 C.F.R. § 402.02.

²⁰50 C.F.R. § 402.02.

²¹51 Fed. Reg. 19126, 19932 (June 3, 1986); *Sierra Club v. Marsh*, 816 F.2d 1376, 1387 (9th Cir. 1987); *see also* U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 4-26 (1998).

²²*See Sierra Club v. Marsh*, 816 F.2d 1376, 1387 (9th Cir. 1987).

it.”²³ In a later case, a district court considered a DOE easement grant for access to an existing private mining operation.²⁴ The project involved constructing a road across federal land to connect the mining operation with a freeway to “facilitate” the removal of the mined materials.²⁵ The court found that DOE had violated the ESA by failing to consult on the impacts of the mining operation as well as the easement, as the mine and the easement were “‘interrelated’ or ‘connected’ actions because the road *has no purpose other than to provide access to the mine.*”²⁶

§ 21:29 The consultation process

Section 7(a)(2) requires each federal agency to consult with either the NMFS or the FWS to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat (unless an exemption is obtained under § 7(h)).¹ In turn, a permit applicant may request prospective or “early consultation” if the applicant “has reason to believe that an endangered species or threatened species may be present” at a proposed project.² Hence, § 7(a)(2) or § 7(a)(3) can also require consultation for proposed agency actions that require the issuance of a license or permit to a private applicant.³

The regulations provide detailed requirements for consultation—which may be either “informal”⁴ or “formal.”⁵ They also address “conferencing” of agencies for actions that might affect a species proposed for listing. The ESA also imposes a duty on the agencies to use “the best scientific and commercial data available” when consulting.⁶ Generally, whether formal or informal consultation is required depends on whether an endangered species may be present in the area affected by the agency action and whether or not it appears that the action may affect the species, based on the initial analysis.⁷

a. Conferencing

When a proposed agency action threatens a species *proposed* for listing, the agency must enter into “conference” with the FWS or the NMFS.⁸ The conference concludes with a “conference report,” which contains advisory recommendations to avoid

²³Sierra Club v. Marsh, 816 F.2d 1376, 1387 (9th Cir. 1987) (emphasis added); *see also* American Rivers v. NOAA Fisheries, 2006 WL 1983178 (D. Or. 2006), subsequent determination, 63 Env’t. Rep. Cas. (BNA) 1823, 2006 WL 2792675 (D. Or. 2006) (holding agency’s flood control and irrigation activities on Upper Snake River were not interrelated and interdependent to its downstream power generation activities on the Columbia River since they would each occur irrespective of the other).

²⁴Sierra Club v. U.S., 255 F. Supp. 2d 1177 (D. Colo. 2002).

²⁵Sierra Club v. U.S., 255 F. Supp. 2d 1177, 1180 (D. Colo. 2002).

²⁶Sierra Club v. U.S., 255 F. Supp. 2d 1177, 1188 (D. Colo. 2002) (emphasis added).

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¹16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

²*See* 16 U.S.C.A. § 1536(a)(3), ELR Stat. ESA § 7(a)(3); 50 C.F.R. § 402.02 (defining “early consultation”).

³The general purpose of the interagency consultation requirement is to ensure that the federal government (through its numerous agencies) does not undertake actions, such as building a dam or highway, that incidentally jeopardize the existence of endangered or threatened species. *Carson-Truckee Water Conservancy Dist. v. Clark*, 741 F.2d 257, 262 (9th Cir. 1984).

⁴*See* 50 C.F.R. § 402.13.

⁵*See* 50 C.F.R. § 402.13.

⁶16 U.S.C.A. § 1536(a)(2); ELR Stat. ESA § 7(a)(2).

⁷*See* 16 U.S.C.A. § 1536(a)(3), ELR Stat. ESA § 7(a)(3).

⁸16 U.S.C.A. § 1536(a)(4), ELR Stat. ESA § 7(a)(4); 50 C.F.R. § 402.10.

adverse effects on the species proposed to be listed.⁹

b. Informal Consultation

“Informal consultation” is defined in the ESA regulations as “an optional process that includes all discussions, correspondence, etc. between the Service and the Federal agency or the designated non-Federal representative prior to formal consultation, if required.”¹⁰ As a practical matter, most consultations are conducted informally with the appropriate agency. Informal consultation involves telephone calls, meetings, conversations, and letters that precede formal consultation. Generally, informal consultation focuses on whether formal consultation is required or whether concurrence can be reached that there is no adverse effect on a listed species. The *Consultation Handbook* lists several purposes of informal consultation:

- To clarify whether listed, proposed, or candidate species or critical habitats may be in the action area.
- To evaluate the action’s potential effect on listed species or critical habitat.
- To explore ways to modify proposed actions to reduce or remove adverse effects or critical habitat.
- To determine the need to enter into formal consultation or conference for proposed species or habitat.
- To explore design or modification of a proposed action that would benefit the species.¹¹

The regulations discuss informal consultation as an “optional” process that includes all discussions, correspondence, etc. between the FWS or the NMFS and the agency designed to assist the agency in determining whether formal consultation or a conference is required.¹² Notably, the informal consultation determination is made by the federal agency proposing the actions, not by the FWS or the NMFS.¹³

Three possible results arise from an informal consultation. *First*, the FWS or the NMFS and the agency can determine that the proposed action “may affect” but is not likely to adversely affect any species. In that case, the consultation process would be terminated.¹⁴ *Second*, the FWS or the NMFS can recommend actions necessary to avoid the likelihood of adverse effects to a listed species, in which case consultation would also be terminated.¹⁵ *Third*, the consultation can lead the agencies to conclude that a formal consultation is required.

Prior to a final determination that formal consultation is required, the agency may recommend that additional studies be made to improve the data documenting the effect on a species. In those cases a biological assessment is made to develop the best available scientific and commercial data.

c. Biological Assessment

As part of an informal consultation, an action agency may request from the FWS or the NMFS information on whether any species that are listed or proposed to be listed may be present in the proposed action area. If the FWS or the NMFS “advises, based on the best scientific and commercial data available, that such species may be

⁹50 C.F.R. § 402.10(e).

¹⁰50 C.F.R. § 402.02.

¹¹U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 3-1 (1998).

¹²50 C.F.R. § 402.13.

¹³*Defenders of Wildlife v. Flowers*, 414 F.3d 1066, 1069–70 (9th Cir. 2005).

¹⁴*See* 50 C.F.R. § 402.13(a).

¹⁵*See* 50 C.F.R. § 402.13(b).

present,” then § 7(c) provides that the action agency “shall conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action.”¹⁶ Section 7(a)(2) requires that the action agency also “use the best scientific and commercial data available” in fulfilling all § 7 consultation obligations, which would include conducting any required biological assessment.¹⁷

A biological assessment has no set format and may be prepared by the action agency, the “designated non-federal representative,”¹⁸ or any other person under the supervision of the action agency and in cooperation with the FWS or the NMFS.¹⁹ Biological assessment is defined as “the information prepared by or under the direction of the Federal agency concerning listed and proposed species and listed and designated and proposed critical habitat that may be present in the action area and the evaluation of potential effects of the action on such species and habitat.”²⁰

The biological assessment is to be completed within 180 days after it is initiated unless a different time is agreed upon.²¹ When an application for a permit or license is involved, the time period for completion of an assessment may not be extended unless the agency provides the applicant with a written statement before the expiration of the 180-day period setting forth the estimated length of the proposed extension and the reasons for the extension.²² Section 7(c) also provides that the assessment may be undertaken as part of a federal agency’s compliance with the requirements of § 102 of NEPA.²³

At its essence, a biological assessment evaluates the potential effects of the action on listed or proposed species and designated or proposed critical habitat.²⁴ Therefore, it must be completed before any contract for construction is entered into and before construction activities are commenced.²⁵

First, the preparer of the assessment must make a determination of whether any such species or habitat is present. The regulations require the action agency to make a written request to the FWS or the NMFS requesting a list of all listed or proposed species and designated or proposed critical habitat that may be present within the action area or notifying the FWS or the NMFS of the species that are being included in the assessment.²⁶ Within 30 days of receipt of such a request, the FWS or the NMFS will either concur with the action agency’s list of species, revise the list that was provided, or provide the action agency with a list of threatened species or habitat that may be within the action area, based on the best available scientific data.²⁷

In addition to listed and proposed species, the FWS or the NMFS will also provide

¹⁶16 U.S.C.A. § 1536(c), ELR Stat. ESA § 7(c).

¹⁷16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

¹⁸See 50 C.F.R. § 402.02 (defining designated nonfederal representative). The federal agency may designate a nonfederal representative by giving the Service written notification. The action agency must provide guidance and supervision during the preparation of the biological assessment and must review and evaluate it, as the ultimate responsibility for § 7 compliance remains with the action agency. See 50 C.F.R. § 402.08.

¹⁹See 50 C.F.R. § 402.12(b).

²⁰50 C.F.R. § 402.02.

²¹16 U.S.C.A. § 1536(c), ELR Stat. ESA § 7(c); 50 C.F.R. § 402.12(i).

²²See 16 U.S.C.A. § 1536(c), ELR Stat. ESA § 7(c); 50 C.F.R. § 402.12(i).

²³42 U.S.C.A. § 4332, ELR Stat. NEPA § 102.

²⁴50 C.F.R. § 401.12.

²⁵16 U.S.C.A. § 1536(c), ELR Stat. ESA § 7(c); 50 C.F.R. § 402.12(b)(2).

²⁶See 50 C.F.R. § 402.12(c).

²⁷See 50 C.F.R. § 402.12(d).

a list of candidate species that may be present in the action area.²⁸ Candidate species refers to any species currently being considered by the FWS or the NMFS for listing as endangered or threatened but not yet the subject of a proposed rule.²⁹ Although candidate species have no legal status and are accorded no protection under the ESA, their inclusion in the list will provide the agency with advance notice of their potential listing.³⁰

If the FWS or the NMFS determines that there are no listed species or critical habitat present in the action area, the agency is not required to prepare a biological assessment and further consultation is not required.³¹

The contents of a biological assessment are left to the discretion of the action agency and will often depend on the nature of the agency action involved.³² The regulations identify the following items that may be considered for inclusion:

- The results of an on-site inspection of the area affected by the action to determine if listed or proposed species are present or occur seasonally.
- The views of recognized experts on the species at issue.
- A review of the relevant literature and other information.
- An analysis of the effects of the action on the species and habitat, including consideration of cumulative effects, and the results of any related studies.
- An analysis of alternative actions considered by the federal agency for the proposed action.³³

If a proposed action requiring the preparation of a biological assessment is identical, or very similar, to a previous action for which a biological assessment was prepared, the agency may fulfill the biological assessment requirement for the proposed action by incorporating by reference the earlier assessment, plus any supporting data from other documents that are pertinent to the consultation.³⁴

Once the biological assessment is completed, the agency must submit it to the director of the FWS or the NMFS for review. The director will respond in writing within 30 days as to whether he concurs with the findings of the biological assessment.³⁵ The action agency may initiate formal consultation simultaneously with submission of the biological assessment.³⁶

The biological assessment may be used by the FWS or the NMFS in the following manner: (1) in determining whether to request formal consultation; (2) in formulating a biological opinion; or (3) in formulating a preliminary biological opinion.³⁷

d. Formal Consultation—When Is It Triggered?

“Formal consultation” is a process that commences with the federal action agency’s written request and concludes with the issuance of a biological opinion by the FWS

²⁸See 50 C.F.R. § 402.12(d).

²⁹See 50 C.F.R. § 402.12(d).

³⁰50 C.F.R. § 402.12(d).

³¹50 C.F.R. § 402.12(d)(1).

³²50 C.F.R. § 402.12(f); *see* Strahan v. Linnon, 967 F. Supp. 581, 594 (D. Mass. 1997), *aff’d*, 187 F.3d 623 (1st Cir. 1998) (noting that the contents of a biological assessment are discretionary).

³³50 C.F.R. § 402.12(f)(1) to (5).

³⁴See 50 C.F.R. § 402.12(g). The agency must certify that the action involves similar impacts to the same species in the same geographical area and that no new species or critical habitats have been listed/designated or proposed. In addition, the biological assessment must be supplemented with any relevant changes in information. *See* 50 C.F.R. § 402.12(g)(1) to (3).

³⁵See 50 C.F.R. § 402.12(j).

³⁶See 50 C.F.R. § 402.12(j).

³⁷See 50 C.F.R. § 402.12(k)(2).

or the NMFS under § 7(b)(3). The written request from the action agency must include six items: (1) a description of the action to be considered; (2) a description of the specific area that may be affected; (3) a description of any listed species or critical habitat that may be affected; (4) a description of the manner in which a species may be affected by the action and an analysis of cumulative effects; (5) relevant reports, including any environmental impact statement, environmental assessment, or biological assessment; and (6) “any other relevant available information on the action, the affected listed species, or critical habitat.”³⁸ However, formal consultation may not be initiated until the biological assessment has been completed and submitted.³⁹

In determining whether formal consultation is required, the agencies examine the proposed action to determine whether there are listed species or critical habitat within the “action area,” whether the proposed action is a “major construction activity,” and whether the proposed action may affect a listed species. “Action area” is defined broadly to mean “all areas affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.”⁴⁰ The regulations require agencies to consult with the FWS and the NMFS to determine whether species are likely to be present in the area.

If species exist within the “action area,” the next step is to determine whether the proposed action is a “major construction activity.” The regulations define “major construction activity” as a construction project having an impact on the physical environment or significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act.⁴¹

The federal action agency must determine whether the action “may affect” a listed species or critical habitat. The *Consultation Handbook* explains that the term “may affect” essentially means “any effect.”⁴² If this initial information consultation results in a determination that the proposed action will have no effect on a listed species or critical habitat, then the agency or applicant may request a concurrence from the FWS or the NMFS, and the consultation is terminated.⁴³

A federal court in Florida in the Lake Belt overturned the Corps’ and FWS’ “informal consultation” action regarding impacts on the endangered wood stork from the Corps’ issuance of § 404 permits under the Clean Water Act to mining companies for limestone mining activities within an 89-square-mile area in Western Miami Dade County.⁴⁴ The Corps had concluded that the mining would not adversely affect wood stork foraging habitat because more than 90% of the resources to be affected were not high-quality wood stork foraging habitat but rather the area was dominated by the invasive melaleuca tree. The FWS concurred in this determination under the informal consultation process. The court found that this statement was “patently absurd.” The court held that the agencies were arbitrary and capricious in not conducting formal consultation, noting that the analysis was not based on the best available science and had understated and misrepresented information on the potential impacts from mining on destruction of wetlands habitat. The court

³⁸50 C.F.R. § 402.14(c)(1) to (6).

³⁹See 50 C.F.R. § 402.13. The regulations permit the request to encompass a number of similar actions within a geographical area or a segment of a comprehensive plan. However, “this does not relieve the Federal agency of the requirements for considering the effects of the action as a whole.”

⁴⁰50 C.F.R. § 402.02.

⁴¹50 C.F.R. § 402.02.

⁴²U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at xvi (1998).

⁴³See 50 C.F.R. § 402.14(a).

⁴⁴*Sierra Club v. Flowers*, 423 F. Supp. 2d 1273 (S.D. Fla. 2006).

then remanded the action to the agencies that then proceeded to conduct formal consultation culminating in a biological opinion issued by the FWS.

The district court's decision was subsequently vacated by the Eleventh Circuit. After reviewing the entirety of the record, reading briefs and listening to oral argument, the court determined that the district court did not give the appropriate deference to the agencies pursuant to the Administrative Procedure Act (APA). Specifically, regarding the plaintiff's ESA claims, the court stated that:

[a]fter the district court granted summary judgment, but before the court issued the Remedies Order, the Corps and FWS undertook ESA formal consultation—the only relief Sierra Club sought for [these claims]. It was therefore improper for the district court to rely on those Claims' judgments in crafting a remedy; the claims were moot.⁴⁵

e. Formal Consultation—How Is It Conducted?

Section 7 provides a formal procedure for agencies to determine whether their activities are likely to have an adverse impact on threatened species or habitat. When a federal agency determines that a proposed action *may* affect listed species or critical habitat, a formal consultation is required and a biological opinion must be prepared. The applicable regulations provide, in part, that: “Each Federal agency shall review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If such a determination is made, formal consultation is required”⁴⁶

Conversely, the statute provides that when a federal agency determines that the proposed action is not likely to have *any* adverse effect⁴⁷ on listed species or critical habitat, then formal consultation is not required.⁴⁸ This determination can be made by way of a biological assessment initiated under an informal consultation⁴⁹ or through a preliminary biological opinion issued under early consultation⁵⁰ and confirmed as the final biological opinion.⁵¹

When conducting a formal consultation, the agency is required to provide the best scientific and commercial data available.⁵² This information may include the results of studies or surveys conducted by the federal agency or another appropriate agency. Applicants also have the opportunity to submit information.⁵³

Formal consultations, which follow set timelines, do not begin until the biological assessment has been submitted.⁵⁴ Section 7 provides that a consultation shall conclude within “90 days after its initiation unless extended.”⁵⁵ When a private applicant is involved, the agencies may extend the deadline by submitting a written statement setting forth: (1) the reasons why a longer period is required; (2) the information that is needed to complete the consultation; and (3) the estimated date on

⁴⁵Sierra Club v. Van Antwerp, 526 F.3d 1353, 1359 (11th Cir. 2008).

⁴⁶50 C.F.R. § 402.11.

⁴⁷See U.S. Fish and Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook, at 3-13 (1998) (explaining that any potentially adverse effect that may occur and is not insignificant or discountable will trigger the consultation requirements).

⁴⁸50 C.F.R. § 402.12(k) (use of biological assessment); 50 C.F.R. § 402.14(b).

⁴⁹See 50 C.F.R. § 402.12(k).

⁵⁰See 50 C.F.R. § 402.11.

⁵¹See 50 C.F.R. § 402.14(b)(2).

⁵²See 50 C.F.R. § 402.14(d). This is the best information “available or that can be obtained during the consultation for an adequate review of the effects” of the action.

⁵³See 50 C.F.R. § 402.14(d).

⁵⁴See 50 C.F.R. § 402.14(c).

⁵⁵16 U.S.C.A. § 1536(b)(1)(A), ELR Stat. ESA § 7(b)(1)(A).

which the consultation will be completed.⁵⁶ A consultation involving an applicant cannot be extended more than 60 days, however, without the consent of the applicant.⁵⁷ Within 45 days after concluding formal consultation, the FWS or the NMFS must deliver a biological opinion to the agency and any applicant involved.⁵⁸

If, during the consultation, the FWS or the NMFS determines that “additional data would provide a better information base from which to formulate a biological opinion,” the FWS or the NMFS may request an extension of the consultation and request the action agency to provide additional data.⁵⁹ If there is mutual agreement to extend the consultation,⁶⁰ then the action agency must obtain “to the extent practicable” any data that can be obtained within the scope of the extension.⁶¹ It is important to note that the FWS and the NMFS do not take any responsibility for conducting or funding any additional studies.⁶² If no request for an extension is made, then the FWS or the NMFS will issue its biological opinion on the basis of the best data available at that time.

During formal consultation, the responsibilities of the FWS or the NMFS are as follows:

- Review all relevant information provided by the federal agency or that is otherwise available.
- Evaluate the current status of the listed species or critical habitat.
- Evaluate the effects of the action and cumulative effects on the listed species or critical habitat.
- Formulate a biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.
- Discuss with the federal agency and any applicant the availability of “reasonable and prudent alternatives” that the agency and the applicant can take to avoid a violation of § 7(a)(2).
- Formulate discretionary conservation recommendations to assist the federal agency in reducing or eliminating the impacts that its proposed action may have on listed species or critical habitat.
- Formulate a statement concerning “incidental take,”⁶³ if such take may occur.
- Use “the best scientific and commercial data available” in formulating its biological opinion, any reasonable and prudent alternatives, and any reasonable and prudent measures.⁶⁴

f. Biological Opinions

The result of a formal consultation is the preparation of a biological opinion. The opinion is the compilation of the best available scientific data on the status of the species and how it would be affected by the proposed action. In addition, a biological opinion proposes alternative actions that the agency or applicant could take in order

⁵⁶16 U.S.C.A. § 1536(b)(1)(B), ELR Stat. ESA § 7(b)(1)(B); *see also* 50 C.F.R. § 402.14(e).

⁵⁷16 U.S.C.A. § 1536(b)(1)(B); *see also* 50 C.F.R. § 402.14(e)(3).

⁵⁸*See* 50 C.F.R. § 402.14(e).

⁵⁹*See* 50 C.F.R. § 402.14(f).

⁶⁰*See* 50 C.F.R. § 402.14(e).

⁶¹*See* 50 C.F.R. § 402.14(f).

⁶²*See* 50 C.F.R. § 402.14(f).

⁶³“Incidental takings” is defined as “takings that result from, but are not the purpose of carrying out an otherwise lawful activity conducted by the Federal agency or applicant.” 50 C.F.R. § 402.02.

⁶⁴*See* 50 C.F.R. § 402.14(g)(1) to (8); *see also* U.S. Fish and Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook, at 4–6 (1998).

to proceed with the project and still comply with the ESA. The pertinent provision of the statute reads as follows:

Promptly after conclusion of consultation under paragraph (2) or (3) of subsection (a), the Secretary shall provide to the Federal agency and the applicant, if any, a written statement setting forth the Secretary's opinion, and a summary of the information on which the opinion is based, detailing how the agency action affects the species or its critical habitat. If jeopardy or adverse modification is found, the Secretary shall suggest those reasonable and prudent alternatives which he believes would not violate subsection (a)(2) and can be taken by the Federal agency or applicant in implementing the agency action.⁶⁵

The regulations, in turn, provide that a biological opinion must include:

- A summary of the information on which the opinion is based.
- A detailed discussion of the effects of the action on listed species or critical habitat.
- The Service's opinion on whether the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat (a "jeopardy biological opinion") or the action is not likely to jeopardize the continued existence of a listed species or adversely modify critical habitat (a "no jeopardy" biological opinion). A "jeopardy" biological opinion shall include reasonable and prudent alternatives, if any exist.⁶⁶

The *Consultation Handbook* sets forth additional requirements for biological opinions:

- Description of the Proposed Action. The opinion should set forth the proposed action and list the direct and indirect effects in the action area.
- Status of the Species/Critical Habitat. The opinion shall present biological information on the impacted species, their life history, population dynamics, habitat, status and distribution, and other factors necessary for its survival, including areas designated as critical habitat.
- Environmental Baseline. The opinion should outline the current effects of all human activity as it affects the species.
- Effects of the Action. This section of the opinion looks at direct and indirect effects of the proposed action, including proximity of the action, distribution, timing, nature of the effects, duration, disturbance, and frequency.
- Cumulative Effects. The opinion should look at the cumulative effects of the future state, tribal, local, and private actions that are reasonably certain to occur.⁶⁷

As discussed below, there are essentially two possible types of biological opinions: a no jeopardy opinion; and a jeopardy opinion.⁶⁸ In a no jeopardy opinion, a determination (based upon the best available scientific and commercial data) is made that the proposed agency action is *not* likely to jeopardize the continued existence of listed species or critical habitat. In a jeopardy opinion, which is a relatively rare outcome, the Service concludes that the proposed agency action is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat.⁶⁹

Biological opinions are not mandatory directives. Once an opinion is received, it is

⁶⁵16 U.S.C.A. § 1536(b)(3)(A), ELR Stat. ESA § 7(b)(3)(A).

⁶⁶50 C.F.R. § 402.14(h).

⁶⁷U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 4-14 to 4-31 (1998).

⁶⁸See 50 C.F.R. § 402.14(h)(3).

⁶⁹50 C.F.R. § 402.14(h)(3).

ultimately within the discretion of the agency to decide how to proceed.⁷⁰ If an agency chooses not to follow the advice set forth in a biological opinion, it will not constitute a violation of the ESA per se, so long as the agency's chosen course is a reasonable alternative measure.⁷¹ Yet, the Supreme Court in *Bennett v. Spear* noted "while the Service's Biological Opinion theoretically serves an 'advisory function,' 51 Fed. Reg. 19928 (1986), in reality it has a powerful coercive effect on the action agency."⁷² As the Court explained:

The Biological Opinion's Incidental Take Statement constitutes a permit authorizing the action agency to "take" the endangered or threatened species so long as it respects the Service's "terms and conditions." The action agency is technically free to disregard the Biological Opinion and proceed with its proposed action, but it does so at its own peril (and that of its employees), for "any person" who knowingly "takes" an endangered or threatened species is subject to substantial civil and criminal penalties, including imprisonment.⁷³

Thus, for all practical purposes, the measures suggested by the FWS or NMFS may be viewed as nondiscretionary by the action agency and permittee.⁷⁴

g. Use of Best Available Science

The biological opinion must be supported by the best scientific information available. As with other provisions of the ESA, what constitutes the "best" and "available" science has engendered considerable controversy. Regarding the preparation of a biological opinion during the § 7 consultation process, the Supreme Court cautioned that the requirement to use the best scientific data available serves to:

ensure that the ESA is not implemented haphazardly, on the basis of speculation or surmise. While this no doubt serves to advance the ESA's overall goal of species preservation, it is readily apparent that another objective (if not indeed the primary one) is to avoid needless economic dislocation produced by agency officials zealously but unintelligently pursuing their environmental objectives.⁷⁵

Some courts have held that the focus is on what type of information is "available" and therefore that even "weak" evidence does not render the opinion of the agency arbitrary and capricious.⁷⁶ Others have held that the FWS or the NMFS must conduct a detailed and "comprehensive" discussion of the effect of the proposed action.⁷⁷

There must be an analysis of the status of the environmental baseline given the listed impacts, not simply a recitation of the activities of the agencies. The [biological opinion] must also include an analysis of the effects of the action on the species when "added to"

⁷⁰50 C.F.R. § 402.15(a); *Aluminum Co. of America v. Administrator, Bonneville Power Admin.*, 175 F.3d 1156, 1160–62 (9th Cir. 1999).

⁷¹*See Tribal Village of Akutan v. Hodel*, 869 F.2d 1185, 1193 (9th Cir. 1988).

⁷²*See Bennett v. Spear*, 520 U.S. 154, 169, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997). As the Court quoted from the Service's briefs in *Bennett*, "action agencies very rarely choose to engage in conduct that the Service has concluded is likely to jeopardize the continued existence of a listed species."

⁷³*Bennett v. Spear*, 520 U.S. 154, 169, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997) (citing 16 U.S.C.A. § 1540(a) and (b)).

⁷⁴*See Bennett v. Spear*, 520 U.S. 154, 169, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

⁷⁵*Bennett v. Spear*, 520 U.S. 154, 169, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

⁷⁶*See Greenpeace Action v. Franklin*, 14 F.3d 1324 (9th Cir. 1992) (citing *Pyramid Lake Paiute Tribe of Indians v. U.S. Dept. of Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990)); *see Pacific Shores Subdivision California Water Dist. v. U.S. Army Corps of Engineers*, 538 F. Supp. 2d 242, 250–51 (D.D.C. 2008) (agreeing with the NMFS that a breach of the sandbar would have occurred naturally and therefore the NMFS' determination was reasonably based on the record).

⁷⁷*See, e.g., Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 130 (D.D.C. 2001) (finding that the Service utilized an improperly narrow "action area" and ignored many direct and indirect effects).

the environmental baseline—in other words, analysis of the *total* impact on the species.⁷⁸

The Ninth Circuit in *Gifford Pinchot Task Force v. FWS*⁷⁹ deferred to the FWS' use of a habitat proxy for an actual species count in its biological opinion related to timber harvest impacts on the northern spotted owl.⁸⁰ The court stated that “[b]ecause the ESA does not prescribe how the jeopardy prong is to be determined, nor how species populations are to be estimated, we hold that it is a permissible interpretation of the statute to rest the jeopardy analysis on a habitat proxy.”⁸¹

The Supreme Court has found that parties affected by the conclusions of the § 7 consultation may have standing to sue under the ESA and challenge the validity of the agency's scientific data.⁸² Prior to the Court's decision in *Bennett v. Spear*, courts routinely concluded that private parties whose interests were affected by the ultimate decision of the FWS or the NMFS lacked standing because they asserted “recreational, aesthetic, and commercial interests” that did not fall within the zone of interests sought to be protected by the ESA.⁸³ Hence, landowners could not challenge whether the “best” scientific data were, in fact, used by the Service in formulating an opinion. In *Bennett*, however, the Court held that “the ‘best scientific and commercial data’ provision is . . . intended, at least in part, to prevent uneconomic (because erroneous) jeopardy determinations. [A landowners’] claim that they are victims of such a mistake is plainly within the zone of interests that the provision protects.”⁸⁴ This decision is viewed as having led to a heightened standard of quality and accuracy in the scientific data supporting agency opinions.⁸⁵

Agencies and applicants play a significant role in the development of a biological opinion. They supply the critical information and data and have the opportunity to review and submit comments to the FWS or the NMFS on preliminary opinions.⁸⁶

h. Reasonable and Prudent Alternatives and Conservation Measures

If a biological opinion concludes that the agency action will not result in jeopardy

⁷⁸*Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 128 (D.D.C. 2001) (citing *Greenpeace v. National Marine Fisheries Service*, 80 F. Supp. 2d 1137, 1149 (W.D. Wash. 2000)); *see also* *Pacific Coast Federation of Fishermen's Ass'n, Inc. v. National Marine Fisheries Service*, 265 F.3d 1028 (9th Cir. 2001) (finding that the biological opinion was inadequate because it failed to consider and explain cumulative effects and short-term impact of actions).

⁷⁹*Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059 (9th Cir. 2004), opinion amended, 387 F.3d 968 (9th Cir. 2004).

⁸⁰*See* Memorandum from the FWS, Application of the “Destruction or Adverse Modification” Standard Under Section 7(a)(2) of the Endangered Species Act (Dec. 9, 2004), *available at* <http://www.fws.gov/Midwest/Endangered/permits/selreadings/AdverseModGuidance.pdf> (providing guidance to be used in § 7 adverse modification determinations).

⁸¹*Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059, 1067 (9th Cir. 2004), opinion amended, 387 F.3d 968 (9th Cir. 2004).

⁸²*See* *Bennett v. Spear*, 520 U.S. 154, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

⁸³In *Bennett*, two Oregon irrigation districts that receive water from the Klamath project and the operators of two ranches within those districts challenged a Biological Opinion that concluded that the long term operation of the Klamath Project was likely to jeopardize the continued existence of the Lost River and shortnose suckers. “In essence, petitioners claim a competing interest in the water the Biological Opinion declares necessary for the preservation of the suckers.” *Bennett v. Spear*, 520 U.S. 154, 160, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

⁸⁴*Bennett v. Spear*, 520 U.S. 154, 176, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

⁸⁵*See* *Todd Williams Roles, Has the Supreme Court Armed Property Owners in Their Fight Against Environmentalists?* *Bennett v. Spear and Its Effect on Environmental Litigation*, 41 *Ariz. L. Rev.* 227, 244–45 (1999).

⁸⁶50 C.F.R. § 402.14(g)(5).

or adverse habitat modification, or if it offers reasonable and prudent alternatives⁸⁷ to avoid that consequence, the FWS or the NMFS must provide the agency with a written statement (known as the Incidental Take Statement)⁸⁸ specifying the “impact of such incidental taking on the species,” any “reasonable and prudent measures that the [Service] considers necessary or appropriate to minimize such impact,” and setting forth “the terms and conditions . . . that must be complied with by the Federal agency . . . to implement [those measures].”⁸⁹

A “reasonable and prudent alternative” is defined as an alternative action that is consistent with the purposes of the proposed action, within the scope of the agency’s jurisdiction and authority, economically and technologically feasible, and is believed would avoid jeopardizing the continued existence of listed species or resulting in destruction or adverse modification of critical habitat.⁹⁰ However, the rules specify that such measures “along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes.”⁹¹ The final determination on whether to adopt a proposed alternative is up to the agency, but is not without its consequences. The action agency is under no obligation to accept the first or even the “best” proposed alternative.⁹² Rather, the action agency can select any proposed alternative that otherwise meets the requirement of avoiding jeopardy to listed species or destruction or adverse modification of critical habitat.⁹³

The Ninth Circuit considered the appropriateness of specific reasonable and prudent alternatives in *Pacific Coast Federation of Fisherman’s Associations v. U.S. Bureau of Reclamation*,⁹⁴ where the Court reviewed whether the Bureau of Reclamation’s operation of an irrigation project on the Klamath River complied with the ESA in protecting the threatened Southern Oregon/Northern California Coast coho salmon and its habitat. The Ninth Circuit reversed the district court in holding that the reasonable and prudent alternatives developed under the government’s phased-in approach violated the ESA. The court held that the short-term flow limitation measures developed as part of the first phase of an eight-year plan were too limiting. In rejecting the state’s argument that the phased approach was based on sound scientific evidence, the court focused on the need to protect the species throughout five generational cycles, noting that “[it] is not sufficient for the agency to impose these flows without explaining how the flows will protect critical habitat and ensure that sufficient water is in the main stem for Coho to survive during these first five generations.”⁹⁵

In addition to reasonable and prudent alternatives, a biological opinion may also include “conservation recommendations” to assist the agency in further avoiding or

⁸⁷See 16 U.S.C.A. § 1536(b)(3)(A), ELR Stat. ESA § 7(b)(3)(A).

⁸⁸See 50 C.F.R. § 402.14(i) (discussing content of incidental take statement).

⁸⁹See 16 U.S.C.A. § 1536(b)(4), ELR Stat. ESA § 7(b)(4).

⁹⁰50 C.F.R. § 402.02.

⁹¹50 C.F.R. § 402.14(i)(2).

⁹²See *Southwest Center for Biological Diversity v. U.S. Bureau of Reclamation*, 143 F.3d 515, 522–23 (9th Cir. 1998).

⁹³See *Natural Resources Defense Council v. U.S. Army Corp. of Engineers*, 31 Env’tl. L. Rep. 20880, 2001 WL 1491580 (S.D. Fla. 2001) (holding that when the action agency has some expertise in the area, its decision to disregard a biological opinion may be given a greater degree of deference).

⁹⁴*Pacific Coast Federation of Fishermen’s Associations v. U.S. Bureau of Reclamation*, 426 F.3d 1082 (9th Cir. 2005).

⁹⁵*Pacific Coast Federation of Fishermen’s Associations v. U.S. Bureau of Reclamation*, 426 F.3d 1082, 1094 (9th Cir. 2005).

reducing the impact of the project.⁹⁶ Unlike the reasonable and prudent alternatives, recommended conservation measures are unquestionably “discretionary” and are “advisory and are not intended to carry any binding legal force.”⁹⁷ Conservation recommendations should be consistent with an adopted recovery plan for a listed species.⁹⁸

i. Jeopardy Opinions

When the FWS or the NMFS concludes that a proposed agency action is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat, it must issue a “jeopardy biological opinion,” which includes a detailed discussion of the effects of the action on listed species and critical habitat.⁹⁹ Under the regulations, to “jeopardize the continued existence” of a species means “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.”¹⁰⁰ A jeopardy opinion should include a discussion of various reasonable and prudent alternative courses of action that the agency could take, if any exist.¹⁰¹ The Ninth Circuit’s opinion in *NWF v. State of Idaho*¹⁰² reaffirmed the circuit’s prior holding in *Gifford Pinchot Task Force v. FWS* that the jeopardy regulation requires the NMFS and the FWS to consider both recovery and survival impacts. As a result, the biological opinion in *NWF* was found to be legally deficient because it inadequately considered the impacts on salmon and steelhead survival and failed to consider the additional impact on recovery.¹⁰³

Jeopardy opinions are relatively rare, owing to the fact that reasonable and prudent alternatives will be adopted to minimize and avoid the impact of the action on the species.¹⁰⁴ If a jeopardy finding has been made and the agency or project proponent nonetheless wishes to go forward with the project as proposed, then an exemption must be sought from the ESA’s § 7 prohibition of jeopardy. As discussed below, the exemption procedure is rarely used.

j. Incidental Take Statements

Often a biological opinion that includes reasonable and prudent alternatives will still result in some level of “take” of a listed species. The taking of the listed species would otherwise violate § 9 of the ESA, but § 7 allows the FWS or the NMFS to issue an “incidental take permit” as part of a biological opinion.¹⁰⁵ An incidental take

⁹⁶See 50 C.F.R. § 402.14(j); 50 C.F.R. § 402.02 (defining “conservation measures”).

⁹⁷See 50 C.F.R. § 402.14(j); 50 C.F.R. § 402.02 (defining “conservation measures”).

⁹⁸See §§ 21:19 to 21:22.

⁹⁹See 50 C.F.R. § 402.14(h)(3).

¹⁰⁰50 C.F.R. § 402.02.

¹⁰¹50 C.F.R. § 402.14(h)(3).

¹⁰²*National Wildlife Federation v. National Marine Fisheries Service*, 481 F.3d 1224 (9th Cir. 2007), for additional opinion, see, 230 Fed. Appx. 659 (9th Cir. 2007) and opinion amended and superseded, 524 F.3d 917 (9th Cir. 2008).

¹⁰³*National Wildlife Federation v. National Marine Fisheries Service*, 481 F.3d 1224, 1236 (9th Cir. 2007), for additional opinion, see, 230 Fed. Appx. 659 (9th Cir. 2007) and opinion amended and superseded, 524 F.3d 917 (9th Cir. 2008).

¹⁰⁴Some have argued that the FWS or the NMFS use the jeopardy opinion aggressively in order to leverage greater concessions from an applicant. See National Association of Home Builders, Developers Guide to the Endangered Species Act, at 54 (1996).

¹⁰⁵16 U.S.C.A. § 1536(b)(4), ELR Stat. ESA § 7(b)(4); 50 C.F.R. § 402.14(i). The Supreme Court has described the biological opinion’s incidental take statement as a “permit authorizing the action agency to ‘take’ the endangered or threatened species as long as it respects the Service’s ‘terms and

statement is to be issued when the Secretary concludes, after consultation under § 7(a)(2), that: (1) the agency action will not lead to jeopardy or adverse modification of critical habitat or that reasonable and prudent alternatives have been offered; (2) the taking of an endangered species or a threatened species incidental to the agency action will not lead to jeopardy or adverse modification of critical habitat; and (3) if an endangered species or threatened species of a marine mammal is involved, the taking is authorized pursuant to § 101(a)(5) of the Marine Mammal Protection Act.¹⁰⁶ The Secretary is required to issue an incidental take written statement that:

- (1) Specifies the impact of the incidental taking.
- (2) Sets forth the reasonable and prudent measures necessary or appropriate to minimize such impact.
- (3) In the case of marine mammals, specifies those measures that are necessary to comply with § 101(a)(5) of the Marine Mammal Protection Act with regard to such taking.
- (4) Sets forth the terms and conditions that must be complied with in implementing the reasonable and prudent measures identified in the statement.¹⁰⁷

The incidental take statement effectively shields the project proponent from liability for take of the species, as long as the take is in compliance with the terms and conditions of the take statement, and “no other authorization or permit under the Act is required.”¹⁰⁸ The FWS or the NMFS can also require the agency or applicant to report the progress of the action and its impact on the species so that the FWS or the NMFS can monitor the impacts of the take.¹⁰⁹ In addition, if the amount or extent of incidental taking is exceeded, the action agency must immediately reinstate consultation.¹¹⁰

The authority of the FWS or the NMFS to condition projects under the § 7 process is not unlimited, and courts have demonstrated their willingness to review these statements in light of the statutory requirements. In *Arizona Cattle Growers’ Ass’n v. U.S. Fish & Wildlife*,¹¹¹ the Ninth Circuit placed limits on the FWS’ ability to issue and attach terms and conditions to incidental take statements. The Bureau of Land Management (BLM) initiated a consultation with the FWS over grazing permits, which led to the FWS issuing two no jeopardy biological opinions and an incidental take statement. The Cattle Growers’ Association challenged the incidental take conditions on the grounds that the FWS had offered no evidence that protected species were actually on the land for which grazing permits would be issued and that there was no evidence that the grazing activities would actually result in a taking of any such species. The FWS insisted that it was statutorily required under the ESA to issue incidental take statements in *all* no-jeopardy determinations, and therefore, such evidence was unnecessary.¹¹²

The court rejected the FWS’ interpretation of the ESA finding it to be “contrary to

conditions.” *Bennett v. Spear*, 520 U.S. 154, 170, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

¹⁰⁶See 16 U.S.C.A. § 1536(b)(4)(A) to (C), ELR Stat. ESA § 7(b)(4)(A) to (C).

¹⁰⁷See 16 U.S.C.A. at § 1536(b)(4)(C)(i) to (iv), ELR Stat. ESA § 7(b)(4)(C)(i) to (iv); 50 C.F.R. § 402.14(i)(1).

¹⁰⁸50 C.F.R. § 402.14(i)(5). The incidental take statement is the equivalent of and replaces the need for obtaining a § 10(a) permit. See 16 U.S.C.A. § 1539, ELR Stat. ESA § 10.

¹⁰⁹50 C.F.R. § 402.14(i)(2).

¹¹⁰50 C.F.R. § 402.14(i)(4).

¹¹¹*Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife*, Bureau of Land Management, 273 F.3d 1229 (9th Cir. 2001).

¹¹²*Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife*, Bureau of Land Management, 273 F.3d 1229, 1240 (9th Cir. 2001). The Service also argued that requiring such evidence would be inappropriately restrictive, and that the Service should be permitted to issue take statements whenever

clear congressional intent.”¹¹³ Citing legislative history, case law, prior agency representations, and the plain language of the ESA, the court held that incidental take statements must be predicated on the finding of an actual take that would result from the proposed activities. The court went on to find that the FWS had acted in an arbitrary and capricious manner by issuing take statements imposing conditions of land use permits, when there was either no evidence that the protected species actually existed on the land or no evidence that a take would occur if the permit was issued.

The Ninth Circuit later relied on its decision in *Arizona Cattle Growers’ Ass’n* when it invalidated an incidental take statement in *Oregon Natural Resources Council v. Allen*.¹¹⁴ The incidental take statement in that case supplemented a biological opinion that found that a timber harvest would not jeopardize the Northern Spotted owl or destroy or adversely modify its critical habitat.¹¹⁵ After the scope of the harvest and biological opinion were modified, the FWS failed to adjust the scope of the incidental take statement to reflect the change. The court held that the incidental take statement was arbitrary and capricious because there must be a “rational connection between the authorization of take and the scope of the underlying proposed action.”¹¹⁶ The Ninth Circuit also invalidated the incidental take statement because it failed to place a numerical cap on spotted owl takings under the project, noting that “[w]here possible, the impact should be specified in terms of a numerical limitation on the Federal agency or permittee or licensee.”¹¹⁷ The court recognized that the numerical limitation on incidental takes was also intended to serve a triggering function for reinitiating consultation when that number has been exceeded.¹¹⁸ In a subsequent case, a district court held that generally, where the FWS fails to numerically quantify the authorized incidental take of listed species, it must offer evidence that it was impractical to do so, or the incidental take statement would be considered invalid.¹¹⁹

In *Pacific Shores Subdivision California Waste District v. United States Army Corps of Engineers*,¹²⁰ a specific number for the level of take was unobtainable, but the incidental take statement was not ruled invalid on this basis because the NMFS had used “ecological conditions” as a surrogate for determining extent of incidental take. In *Pacific Shores*, the NMFS and the FWS were in consultation with the Corps regarding the artificial breach of a sand bar that could affect coho salmon, the tidewater goby and other listed species. In the biological opinion, the FWS had identified three reasonable and prudent measures, but had only provided terms and conditions for two of those measures. The district court concluded that the incidental

there is even a remote possibility that a listed species will be taken.

¹¹³*Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management*, 273 F.3d 1229, 1241 (9th Cir. 2001).

¹¹⁴*Oregon Natural Resources Council v. Allen*, 476 F.3d 1031 (9th Cir. 2007).

¹¹⁵*Oregon Natural Resources Council v. Allen*, 476 F.3d 1031, 1033 (9th Cir. 2007).

¹¹⁶*Oregon Natural Resources Council v. Allen*, 476 F.3d 1031, 1036 (9th Cir. 2007) (citing *Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management*, 273 F.3d 1229, 1243 (9th Cir. 2001)).

¹¹⁷*Oregon Natural Resources Council v. Allen*, 476 F.3d 1031, 1036 (9th Cir. 2007) (citing H.R. Rep. No. 97-567, at 27 (1982)); see also *Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management*, 273 F.3d 1229, 1249 (9th Cir. 2001) (stating “we have recognized that the permissible level of take ideally should be expressed as a specific number”).

¹¹⁸*Oregon Natural Resources Council v. Allen*, 476 F.3d 1031, 1040 (9th Cir. 2007) (citing H.R. Rep. No. 97-567, at 27 (1982)).

¹¹⁹See *Center for Biological Diversity v. Bureau of Land Management*, 422 F. Supp. 2d 1115, 1137–38 (N.D. Cal. 2006), subsequent determination, 2006 WL 2788252 (N.D. Cal. 2006).

¹²⁰*Pacific Shores Subdivision California Water Dist. v. U.S. Army Corps of Engineers*, 538 F. Supp. 2d 242 (D.D.C. 2008).

take statement violated the ESA due to the failure to include terms and conditions for the third measure. Quoting *Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, the court stated that “[a]n incidental take statement that fails to include terms and conditions governing the implementation of reasonable and prudent measures is ‘arbitrary and capricious.’”¹²¹ Accordingly, the Corps’ reliance on this inadequate incidental take statement was arbitrary and capricious as well.¹²²

k. Irreversible/Irretrievable Commitments of Resources

Once a consultation has begun, § 7(d) of the ESA prohibits agencies and applicants from making any “irreversible” or “irretrievable” commitments of resources toward the proposed action that would have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures.¹²³ This restriction on resource commitment remains in effect until the agency either receives a no jeopardy opinion or chooses a valid reasonable and prudent alternative, thus indicating that the requirements of § 7(a)(2) have been fully satisfied.¹²⁴ The restrictions of § 7(d) are actually quite narrow. Two criteria must be satisfied before the resource commitment restrictions take effect: (1) the commitment must be “irreversible or irretrievable”; and (2) the commitment must effectively foreclose the implementation of any reasonable alternative courses of action. Courts have recognized that committing money to a project does not, by itself, violate § 7(d).¹²⁵

§ 21:30 Exemptions from § 7

Jeopardy opinions typically lead to a request for an exemption from the prohibition of jeopardizing a species’ existence. As a result of the Supreme Court’s decision in *Tennessee Valley Authority v. Hill*,¹ Congress created an exemption process in § 7 and established a new committee to administer the exemption process.² Called the Endangered Species Committee in the ESA, the Committee is generally referred to as “the God Squad” because it is said to hold life or death power over a particular species.

a. The Exemption Process

The Endangered Species Committee is akin to the president’s Cabinet. The Committee is chaired by the Secretary of the Interior and includes the Secretaries of Agriculture and the Army, the Chairman of the Council of Economic Advisors, the Administrators of EPA and the National Oceanic Atmospheric Administration, and a presidential appointment to represent each state affected by a particular application.³ The Committee may hold hearings, issue subpoenas, take testimony, and take any action authorized. The Committee may also promulgate rules, regula-

¹²¹*Pacific Shores Subdivision California Water Dist. v. U.S. Army Corps of Engineers*, 538 F. Supp. 2d 242, 258 (D.D.C. 2008).

¹²²*Pacific Shores Subdivision California Water Dist. v. U.S. Army Corps of Engineers*, 538 F. Supp. 2d 242, 259 (D.D.C. 2008).

¹²³16 U.S.C.A. § 1536(d), ELR Stat. ESA § 7(d).

¹²⁴50 C.F.R. § 402.09; 51 Fed. Reg. 19926, 19940 (1986).

¹²⁵*See, e.g., Bays’ Legal Fund v. Browner*, 828 F. Supp. 102, 112 (D. Mass. 1993) (finding that sinking over \$100 million into project prior to completion of consultation did not violate § 7(d) because sufficient flexibility was retained to change the project design if necessary).

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¹*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

²16 U.S.C.A. § 1536(e), ELR Stat. ESA § 7(e).

³16 U.S.C.A. § 1536(e)(3), ELR Stat. ESA § 7(e)(3).

tions, and procedures and issue orders as it deems necessary.⁴

A federal agency, state governor, or applicant may apply to the Committee for an exemption from the ESA if the biological opinion following a formal consultation indicates that the proposed agency action would violate the ESA.⁵ The application for exemption must be submitted no more than 90 days after completion of consultation or no more than 90 days after the agency takes final action on the permit or license application.⁶

Upon receiving an application, the Secretary of the Interior conducts a threshold review to ensure that applicants have, in fact, consulted and completed all other required steps prior to seeking an exemption.⁷ If the application is deemed to be sufficient,⁸ the Committee is required to hold a hearing on the application for the exemption and prepare a written report.⁹ The written report must address the availability of reasonable and prudent alternatives, the nature and extent of the benefits of the agency action consistent with conserving the species or its critical habitat, whether the action is in the public interest and of regional or national significance, reasonable mitigation measures that should be considered by the Committee, and whether the agency and exemption applicant refrained from making irreversible or irretrievable commitments of resources.¹⁰

The Committee must grant the exemption if it (1) determines on the record that there are no reasonable and prudent alternatives available, that the benefits of the action outweigh the benefits of alternative courses and are consistent with conserving the species or its critical habitat, and that the action is in the public interest and of regional or national significance, and (2) if it establishes such reasonable mitigation and enhancement measures as are necessary and appropriate to minimize the adverse effects of the action.¹¹ The Committee's decision is subject to judicial review, and "any person" may file a petition for review within 90 days of the decision.¹² The exemption proceeding is a "*formal adjudication*" under the APA,¹³ and therefore, the standard of review is whether the decision is supported by "substantial evidence."¹⁴

b. Exemption Cases

The exemption process is rarely used in practice. Only six applications for exemp-

⁴16 U.S.C.A. § 1536(e)(8), ELR Stat. ESA § 7(e)(8). The implementing regulations governing exemption process and the actions of the Endangered Species Committee are set out in 50 C.F.R. Parts 450 to 453.

⁵16 U.S.C.A. § 1536(g)(1), ELR Stat. ESA § 7(g)(1).

⁶16 U.S.C.A. § 1536(g)(1), ELR Stat. ESA § 7(g)(1).

⁷16 U.S.C.A. § 1536(g)(3), ELR Stat. ESA § 7(g)(3). Before seeking an exemption, the applicant must satisfy three requirements: (1) the applicant must show that it consulted in "good faith" and gave adequate consideration to any reasonable and prudent alternatives to the proposed action; (2) any biological assessment required by § 7(c) was completed; and (3) the applicant has refrained from making any irreversible or irretrievable resource commitments prohibited by § 7(d).

⁸The Committee has adopted specific requirements for the content of an exemption application and must review the application in accordance with these provisions. 50 C.F.R. §§ 451.02, 452.03.

⁹16 U.S.C.A. § 1536(g)(4), ELR Stat. ESA § 7(g)(4). The hearing must be held within 140 days after making the determination that the applicant has satisfied the necessary criteria, unless the secretary and applicant agree otherwise.

¹⁰16 U.S.C.A. § 1536(g)(5), ELR Stat. ESA § 7(g)(5); 50 C.F.R. § 452.04.

¹¹16 U.S.C.A. § 1536(h), ELR Stat. ESA § 7(h); 50 C.F.R. § 453.03.

¹²16 U.S.C.A. § 1536(n), ELR Stat. ESA § 7(n). The petition for review can be filed in (1) the U.S. Court of Appeals for any circuit in which the agency action will occur; or (2) the District of Columbia if the action is taking place outside of any circuit.

¹³See 5 U.S.C.A. §§ 554 to 557 (governing "formal" adjudications).

¹⁴See 5 U.S.C.A. § 706(e).

tions have been filed in the 20-year history of the exemption process, and three of those applications were withdrawn. Two leading exemption cases involved the Grayrocks project and the northern spotted owl.

The Grayrocks Project. The Grayrocks project involved the construction of a dam on the Laramie River in Wyoming. The Laramie River is a tributary to the Platte River in central Nebraska. In 1978, the FWS designated a section of the Platte River as critical habitat for the whooping crane, a species listed as endangered. Concern that the construction of the Grayrocks Dam would adversely affect the whooping crane and its habitat led to a lawsuit aimed at putting a halt to the project. The court found that the federal agencies involved in the project had violated, among other laws, § 7 of the ESA and enjoined the construction.¹⁵ The parties eventually entered into a settlement after negotiating an agreement to modify the construction plans to reduce potential harm to the whooping cranes.

After this agreement was reached, the FWS issued a new biological opinion in which it determined that the modified project would not jeopardize the whooping crane or adversely modify its critical habitat. Meanwhile, an application for exemption was filed under the newly enacted exemption provision in § 7 of the ESA. The Committee voted unanimously in favor of the exemption for Grayrocks but made compliance with the settlement an express condition for the exemption.

The Northern Spotted Owl. In 1991, the northern spotted owl (the owl), a subspecies of the spotted owl that lives in the “old-growth” forests of the Northwest, was listed as endangered. Following the owl’s listing, the BLM adopted a plan for allowing timber sales in the owl’s forest habitat in Oregon. After being sued for failing to consult the FWS prior to development of the plan, the BLM submitted the plan for the first year sales to the FWS for consultation. The FWS concluded that less than half of the proposed sales were likely to jeopardize the owl. Rather than abandoning the problematic sales or pursuing reasonable alternatives, the BLM took the unusual step of applying for an exemption. On the same day the BLM announced its decision to seek an exemption, a district court in Oregon issued a decision in the initial suit filed against the BLM finding that the Bureau’s plan was adopted in violation of the ESA’s consultation requirements. Despite the court’s ruling, the exemption application was pushed through and certified to the Committee.

Following an extensive hearing before an administrative law judge, the Committee granted an exemption for 13 of the 44 proposed timber sales at issue and denied exemptions for the remaining 31 sales. The Committee did attach a condition to the exemptions requiring the BLM to consult with the FWS to develop a conservation plan for the owl. A petition for review of the Committee’s decision was promptly filed in the Ninth Circuit. The court ultimately held that the Committee was subject to the APA and remanded the case for a special evidentiary hearing to determine whether the Committee had violated the APA’s restrictions on ex parte communications.¹⁶ The case was put finally to rest, however, when the new Secretary of the Interior, Bruce Babbitt, withdrew the exemption application.

c. Exceptions From § 7 Exemption Procedures

The ESA does carve out three situations in which the § 7 exemption procedures do not apply. First, the president may exempt declared major disaster areas from ESA compliance related to projects to repair or replace public facilities if he determines that the exemption is necessary to prevent recurrence of the natural di-

¹⁵State of Nebraska v. Rural Electrification, 12 Env’tl. Rep. Cas. 1156 (D. Neb. 1978). The injunction was later stayed pending the outcome of an appeal to the Eighth Circuit.

¹⁶Portland Audubon Soc. v. Endangered Species Committee, 984 F.2d 1534 (9th Cir. 1993).

saster and reduce the potential loss of human life.¹⁷ Second, the Endangered Species Committee shall grant an exemption for any agency action if the Secretary of Defense finds that such an exemption is necessary for national security.¹⁸ Finally, the Committee cannot even consider an exemption application if the Secretary of State determines that the grant of the exemption would violate an international treaty or other international obligations.¹⁹

§ 21:31 Completion of consultation and reinitiation

Once the biological opinion and incidental take permit are issued, the consultation process may be completed. The regulations state that “[f]ollowing the issuance of a biological opinion, the Federal agency shall determine whether and in what manner to proceed with the action in light of its Section 7 obligations and the Service’s biological opinion.”¹ Presumably, the agency will determine to go forward with the project in conformity with the conditions of the biological opinion. If a jeopardy biological opinion is issued, the regulations state that the agency must notify the FWS or the NMFS of its final decision on the action.² If the agency finds the conditions unacceptable, then it can apply for an exemption,³ as discussed above.

Under certain circumstances, however, the consultation can be reopened. The regulations provide that “reinitiation” of § 7 consultation is necessary under limited circumstances, “where discretionary Federal involvement or control over the action has been retained or is authorized by law”⁴ The four circumstances in which reinitiation is necessary are:

- (1) If the amount or extent of taking specified in the incidental take statement is exceeded.
- (2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.
- (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion.
- (4) If a new species is listed or critical habitat designated that may be affected by the identified action.⁵

Thus, there is a re-opener provision that could be triggered when new information is discovered. There does not, however, appear to be an affirmative duty to seek out such new information.

The issue of “retained federal justification” necessary to reinitiate consultation is not always clear. The *Consultation Handbook* states:

Federal action agencies should be informed of the advisability of maintaining a Federal nexus for the project so that consultation can be reinitiated, if necessary. This is usually done by making the terms of the [biological opinion] a condition of the license, permit or

¹⁷16 U.S.C.A. § 1536(p), ELR Stat. ESA § 7(p).

¹⁸16 U.S.C.A. § 1536(j), ELR Stat. ESA § 7(j); 50 C.F.R. § 453.03(d).

¹⁹16 U.S.C.A. § 1536(i), ELR Stat. ESA § 7(i); 50 C.F.R. § 452.03(e).

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¹50 C.F.R. § 402.15(a).

²See 50 C.F.R. § 402.15(b).

³50 C.F.R. § 402.15(c).

⁴50 C.F.R. § 402.16.

⁵50 C.F.R. § 402.16(a) to (d).

other authorization that is issued for project approval.⁶

As one commenter has noted, “it is becoming increasingly common for agencies to include carefully crafted ‘reopener’ provisions in their authorizations. As a result, the terms and conditions in existing permits or licenses for a given activity become very important in determining the appropriateness and proper scope of any subsequent reopener.”⁷

The issue of retained jurisdiction and duty to reinitiate consultation was considered in *Environmental Protection Information Center v. Simpson Timber Co.*,⁸ in which the plaintiffs sued to force reinitiation of consultation when two new threatened species, the coho salmon and the marbled murrelet, were listed. The FWS took the position that because the original permit only allowed additional conditions relating to the northern spotted owl, the FWS did not retain any discretion to impose new conditions or reinitiate consultation on behalf of the new species. The court agreed, “holding that the degree of continuing federal involvement over logging activities was not sufficient to prompt [§ 17] reinitiation requirements.”⁹

According to one commenter, upon reinitiation “the scope of consultation should be consistent with and tailored to the nature and scope of the federal action that triggered reinitiation.”¹⁰ The scope of both direct and indirect effects of a proposed action is quite broad. The courts have looked to a variety of considerations in defining the effects that must be considered, such as requiring the U.S. Forest Service to reinitiate consultation with respect to its existing land resource management plans for two national forests following the listing of a salmon species (noting an ongoing and long-standing effect even after adoption) and requiring the EPA to reinitiate consultation on regulations permitting use of strychnine for certain above-ground purposes in response to new impact data¹¹ and to assess the impacts of ongoing Forest Service even-aged timber management practices on the red-cockaded woodpecker.¹²

VII. PROHIBITED ACTS AND THE “TAKE” DEFINITION

§ 21:32 Overview

Once a species is listed pursuant to § 4 of the ESA, § 9 identifies the acts that are prohibited and subject to penalties under § 11.¹ The prohibitions of § 9 apply to individuals, businesses, government agencies, and private entities subject to federal jurisdiction. Any violation of § 9 subjects the violator to possible civil penalties, criminal penalties, and/or the issuance of an injunction resulting from an enforce-

⁶U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook*, at 36–39 (1998).

⁷Deborah Freeman, *Reinitiation of ESA Section 7 Consultation Over Existing Projects*, in *Endangered Species Act Law, Policy, and Perspectives* 120–21 (2002) (citing *Village of False Pass v. Clark*, 733 F.2d 605 (9th Cir. 1984)).

⁸*Environmental Protection Information Center, Inc. v. Simpson Timber Co.*, 1999 WL 183606 (N.D. Cal. 1999), *aff’d*, 255 F.3d 1073 (9th Cir. 2001).

⁹Deborah Freeman, *Reinitiation of ESA Section 7 Consultation Over Existing Projects*, in *Endangered Species Act Law, Policy, and Perspectives* 120, note 263 (2002).

¹⁰Deborah Freeman, *Reinitiation of ESA Section 7 Consultation Over Existing Projects*, in *Endangered Species Act Law, Policy, and Perspectives* 120, 122 (2002) (citing *North Slope Borough v. Andrus*, 642 F.2d 589, 10 Env’tl. L. Rep. 20832 (D.C. Cir. 1980)).

¹¹*Defenders of Wildlife v. Administrator, E.P.A.*, 688 F. Supp. 1334 (D. Minn. 1988), decision *aff’d* in part, *rev’d* in part on other grounds, 882 F.2d 1294 (8th Cir. 1989).

¹²*Sierra Club v. Yeutter*, 926 F.2d 429 (5th Cir. 1991).

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¹16 U.S.C.A. § 1538, ELR Stat. ESA § 9.

ment action or citizen suit.² However, as discussed in the next section, § 10 of the ESA provides a number of exceptions to § 9's prohibitions, the most significant of which authorizes the FWS or the NMFS to issue an "incidental take permit" for takings that are "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."³

§ 21:33 General scope of § 9 prohibited conduct

Section 9 sets out categories of prohibited activities and draws distinctions between prohibitions for fish and wildlife (as opposed to plants) and between endangered and threatened species.

1. Prohibitions for Fish and Wildlife

Under § 9, there are five main prohibitions with respect to endangered fish and wildlife. Specifically, it is unlawful to:

- (1) Import or export endangered species.¹
- (2) "Take" endangered species within the United States or its territorial sea, or upon the high seas.²
- (3) Possess, sell, carry, deliver, transport, or ship any endangered species unlawfully "taken" in the course of commercial activity.³
- (4) Engage in any activity involving interstate or foreign commerce in endangered species.⁴
- (5) Violate any regulation pertaining to endangered or threatened species.⁵

2. Prohibition for Plants

Section 9 sets out a slightly different list of prohibitions with respect to endangered plants. Specifically, it is unlawful to:

- (1) Import or export such species.
- (2) Remove and reduce to possession such species or maliciously damage or destroy such species in areas under Federal jurisdiction.
- (3) Remove, cut, dig up, damage, or destroy such species in any other area in knowing violation of any state law.
- (4) Deliver, receive, carry, or transport any such species in interstate commerce and in the course of a commercial activity.
- (5) Violate any regulation issued under § 4 of the ESA for any threatened or endangered plant.⁶

²Fredrico Cheever, *An Introduction to the Prohibition Against Takings in Section 9 of the Endangered Species Act of 1973: Learning to Live With A Powerful Species Preservation Law*, 62 U. Colo. L. Rev. 109 (1991).

³16 U.S.C.A. § 1539, ELR Stat. ESA § 10. See discussion in Section 8 of incidental take permits.

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¹16 U.S.C.A. § 1538(a)(1)(A), ELR Stat. ESA § 9(a)(1)(A). "Import" is defined as, "to land or, bring into, introduce into, any place subject to the jurisdiction of the United States, regardless of the definition of import for customs laws." See 16 U.S.C.A. § 1532(10), ELR Stat. ESA § 3(10).

²16 U.S.C.A. § 1538(a)(1)(B), (C), ELR Stat. ESA § 9(a)(1)(B), (C).

³16 U.S.C.A. § 1538(a)(1)(D), ELR Stat. ESA § 9(a)(1)(D). "Commercial activity" is defined as "all activities of industry and trade, including, but not limited to, the buying or selling of commodities. . . . Provided, however, That it does not include exhibition of commodities by museums or similar cultural or historical organizations." 16 U.S.C.A. § 1532(2), ELR Stat. ESA § 3(2).

⁴16 U.S.C.A. § 1538(a)(1)(E), (F), ELR Stat. ESA § 9(a)(1)(E), (F).

⁵16 U.S.C.A. § 1538(a)(1)(G), ELR Stat. ESA § 9(a)(1)(G).

⁶16 U.S.C.A. § 1538(a)(2)(A) to (E), ELR Stat. ESA § 9(a)(2)(A) to (E).

It is fairly clear that endangered listed plants may not be imported, exported, or involved in any act of interstate commerce;⁷ however, mere possession of an endangered listed plant is not expressly prohibited by § 9.⁸

3. *Threatened Species and Rules Under § 4(d)*

Although § 9 has tremendous reach in its prohibition of activities, the specific prohibitions on categories of activities only expressly apply to endangered species.⁹ However, both for fish and wildlife and for plants, § 9 prohibits the violation of any regulation issued under § 4 of the ESA for either threatened *or* endangered fish or threatened or endangered plants.¹⁰ Section 4 of the ESA permits the agencies to promulgate regulations that are “necessary and advisable” in order to conserve threatened species.¹¹ Therefore, it is within the discretion of the Secretaries of Commerce and of the Interior to apply § 9 prohibitions to threatened species via formal rulemaking.¹²

The Secretary of Commerce extends § 9 prohibitions on an individualized basis to threatened species.¹³ Thus, § 9 prohibitions generally do not apply to species listed as threatened by the NMFS unless a specific ruling is made with respect to that species.¹⁴

By contrast, the Secretary of the Interior extends § 9 prohibitions to all threatened species unless a specific ruling has been made otherwise.

Furthermore, even though animals listed as threatened are generally covered by § 9 via the Department of the Interior’s blanket regulations, threatened plants are exempted.¹⁵

§ 21:34 The prohibited “take” and “harm” debate

The general take prohibition in § 9 is one of the most significant protections afforded a species under the ESA. Section 9 prohibits the “taking” by any private, state, federal, or foreign entity of any species of fish or wildlife that has been listed as endangered. Furthermore, the take provision in § 9 applies to most threatened species of fish and wildlife under regulations promulgated by the listing agencies.

1. *Key Definitions*

“Take” is broadly defined by the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.”¹ Congressional intent with respect to the “take” definition has often been described as being “defined in the broadest possible manner to include every conceivable way in which a person can ‘take’ or ‘attempt to take’ any fish or wildlife.”² The “take” defi-

⁷16 U.S.C.A. § 1538(a)(2)(A), (C), (D) & (E), ELR Stat. ESA § 9(a)(2)(A), (C), (D) & (E).

⁸16 U.S.C.A. § 1538(a)(2)(C), ELR Stat. ESA § 9(a)(2)(C).

⁹16 U.S.C.A. § 1533(d), ELR Stat. ESA § 9(d).

¹⁰16 U.S.C.A. §§ 1538(a)(1)(G), (a)(2)(E); ELR Stat. ESA §§ 9(a)(1)(G), 9(a)(2)(E).

¹¹16 U.S.C.A. §§ 1538(a)(1)(G), (a)(2)(E); ELR Stat. ESA §§ 9(a)(1)(G), 9(a)(2)(E).

¹²16 U.S.C.A. §§ 1538(a)(1)(G), (a)(2)(E); ELR Stat. ESA §§ 9(a)(1)(G), 9(a)(2)(E).

¹³See 50 C.F.R. Part 223 (referring to NMFS’ § 4(d) rules for threatened marine and anadromous species).

¹⁴See 50 C.F.R. Part 223 (referring to NMFS’ § 4(d) rules for threatened marine and anadromous species).

¹⁵50 C.F.R. § 17.71(a).

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¹16 U.S.C.A. § 1538(a)(1)(B), ELR Stat. ESA § 9(a)(1)(B).

²S. Rep. No. 93-307 (1973).

nition includes two key terms: “harass” and “harm.” “Harass” is defined as the intentional or negligent act or omission that created the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include but are not limited to breeding, feeding, or sheltering.³ “Harm” is defined as an act that actually kills or injures wildlife.⁴ These two definitions, especially the “harm” definition, have been the subject of extensive litigation.

2. *Palila I and II: Habitat Modifications May Result in Prohibited Harm*

Perhaps the most far-reaching early decision on “take” liability was the Ninth Circuit’s ruling in *Palila v. Hawaii Department of Land & Natural Resources*.⁵ The court ruled that the state of Hawaii was harming the endangered Palila bird for purposes of § 9 of the ESA by maintaining feral sheep and goats. The court reasoned that this was because the sheep and goats ate seedlings of the mumane trees, which denied the Palila bird the benefit of trees that would have otherwise grown to maturity.⁶ Thus, the Ninth Circuit was the first court to determine that mere habitat modification alone could become a prohibited “take.”⁷

Because of the Palila decision, the FWS clarified its definition of “harm,” stating that “habitat modification alone without any death or injury of the protected wildlife” was not a § 9 violation.⁸ However, the original plaintiffs in the Palila decision brought suit again, this time claiming that another species of sheep was harming the bird because it too was grazing on the mumane tree.⁹ Even with the benefit of the new “harm” definition, the Ninth Circuit ruled that Hawaii was still violating § 9.¹⁰ This determination was based on the court’s view that permanent degradation that causes actual injury remained prohibited under § 9 despite the FWS’ revised regulatory definition.¹¹ Other courts followed the Ninth Circuit’s lead in the Palila decisions.¹² However, when one circuit did not,¹³ the Supreme Court intervened in an attempt to resolve the issue.

3. *Sweet Home Chapter Litigation*

In *Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*,¹⁴ a coalition representing the timber industry brought a facial challenge to the validity of the FWS’ harm regulation, to the extent it prohibited habitat modifications as a taking under § 9. The plaintiffs represented interests in property inhabited by the

³See 50 C.F.R. § 17.3.

⁴Significant habitat modification or degradation can be “harm” under this definition when it significantly impairs essential behavioral patterns including breeding, feeding, or sheltering. See 50 C.F.R. § 17.3. NMFS’ definition mirrors this definition. See 50 C.F.R. § 222.102.

⁵*Palila v. Hawaii Dept. of Land and Natural Resources*, 639 F.2d 495 (9th Cir. 1981).

⁶See *Palila v. Hawaii Dept. of Land and Natural Resources*, 639 F.2d 495 (9th Cir. 1981) (noting that the Palila bird depended on the trees for its survival).

⁷See *Palila v. Hawaii Dept. of Land and Natural Resources*, 639 F.2d 495 (9th Cir. 1981) (noting that the Palila bird depended on the trees for its survival).

⁸46 Fed. Reg. 54748 (1981).

⁹*Palila v. Hawaii Dept. of Land and Natural Resources*, 852 F.2d 1106 (9th Cir. 1988).

¹⁰*Palila v. Hawaii Dept. of Land and Natural Resources*, 852 F.2d 1106 (9th Cir. 1988).

¹¹*Palila v. Hawaii Dept. of Land and Natural Resources*, 852 F.2d 1106 (9th Cir. 1988).

¹²See, e.g., *Sierra Club v. Lyng*, 694 F. Supp. 1260 (E.D. Tex. 1988), aff’d in part, vacated in part on other grounds, 926 F.2d 429 (5th Cir. 1991); *Defenders of Wildlife v. Administrator, E.P.A.*, 688 F. Supp. 1334 (D. Minn. 1988), decision aff’d in part, rev’d in part on other grounds, 882 F.2d 1294 (8th Cir. 1989).

¹³*Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 17 F.3d 1463 (D.C. Cir. 1994), judgment rev’d, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995).

¹⁴*Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 17 F.3d 1463 (D.C. Cir. 1994), judgment rev’d, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995).

threatened northern spotted owl and the endangered red-cockaded woodpecker. The timber industry sued, contending that the harm regulation interfered with its livelihood because modification of the owl's or woodpecker's habitat by logging activities would expose the industry to potential "take" liability.

After the U.S. Court of Appeals for the District of Columbia, by a 2-1 vote, held that the regulation defining "harm" and "take" to include habitat modification was invalid, the Supreme Court granted the federal government's petition for certiorari¹⁵ to decide whether the FWS' regulation defining harm to include "significant habitat modification . . . that actually kills or injures wildlife" was facially invalid, i.e., whether the regulation was invalid in every circumstance involving modification of wildlife habitat.¹⁶ In reversing the D.C. Circuit, the Court held that the FWS' regulation defining "harm" was a reasonable interpretation of an ambiguous provision of the ESA¹⁷ under *Chevron, U.S.A., Inc. v. Natural Resources Defense Council*.¹⁸ The Court agreed with the FWS that a developer could "take" a species by modifying habitat and concluded that the FWS' interpretation of harm to include habitat modification was reasonable for five reasons. It ruled that the ordinary dictionary definition of the word "harm" supported the FWS' construction.¹⁹ Justice John Paul Stevens found that "harm" meant "to injure,"²⁰ and stated that this definition "naturally encompasses habitat modification that results in injury or death to members of an endangered or threatened species."²¹ The majority reasoned that the dictionary definition of harm does not limit the word to direct application of force against protected species because "the dictionary definition does not include the word 'directly' or suggest in any way that only direct or willful action that leads to injury constitutes 'harm.'" ²² Justice Stevens added:

Moreover, unless the statutory term "harm" encompasses indirect as well as direct injuries, the word has no meaning that does not duplicate the meaning of other words that § 3 uses to define "take." A reluctance to treat statutory terms as surplusage sup-

¹⁵*Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 17 F.3d 1463 (D.C. Cir. 1994), judgment rev'd, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995).

¹⁶*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995). The Court did not, however, address the issue of whether the FWS' definition was facially void for vagueness. The court of appeals rejected this facial challenge to the FWS' definition of harm. *Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 1 F.3d 1, 3-5 (D.C. Cir. 1993), opinion modified on reh'g, 17 F.3d 1463 (D.C. Cir. 1994), judgment rev'd, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995).

¹⁷*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2416, 132 L. Ed. 2d 597 (1995). Justice John Paul Stevens delivered the opinion for a majority of six Justices with three Justices (Antonin Scalia, William Rehnquist, and Clarence Thomas) dissenting. The majority rejected the respondent's argument that "the rule of lenity should foreclose any deference to the secretary's interpretation of the ESA because the statute includes criminal penalties." *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2416 n.18, 132 L. Ed. 2d 597 (1995).

¹⁸*Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 104 S. Ct. 2778, 81 L. Ed. 2d 694 (1984).

¹⁹*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2412-13, 132 L. Ed. 2d 597 (1995).

²⁰*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2412, 132 L. Ed. 2d 597 (1995) (citing Webster's Third New International Dictionary 1034 (1966)).

²¹*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2412-13, 132 L. Ed. 2d 597 (1995).

²²*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2413, 132 L. Ed. 2d 597 (1995) (footnote omitted).

ports the reasonableness of the Secretary's interpretation.²³

The Court further held that the "harm" regulation naturally fits within the ESA's broad purposes to protect habitat and ecosystems of endangered and threatened species.²⁴ Thus, having been persuaded that the 1982 enactment of the ESA's incidental taking provision²⁵ reflected Congress' understanding that § 9 prohibits "indirect as well as deliberate takings" and "that activities not intended to harm an endangered species, such as habitat modification," could rise to the level of a "take,"²⁶ Justice Stevens found support for the FWS' interpretation of harm in three specific sections of the ESA: the definition of "take";²⁷ § 5²⁸ (which expressly authorizes the federal government to acquire land to protect wildlife habitat); and § 7²⁹ (which regulates activities of federal agencies).³⁰ In addition, Justice Stevens found sufficient evidence in the ESA's legislative history to support the FWS' interpretation.³¹

Justice Stevens rejected the respondent's argument that Congress intended § 5 of the ESA to be the exclusive means to prevent harmful habitat modification on private lands. Section 5 can provide "for protection of habitat before the seller's activity has harmed any endangered animal, whereas the Government cannot enforce the § 9 prohibition until an animal has actually been killed or injured."³² He added that "the Secretary [of the Interior] may also find the § 5 authority useful for preventing modification of land that [has] not yet, but may in the future, become habitat for an endangered or threatened species."³³

Justice Stevens' opinion also addressed the interface between § 7 and § 9 of the

²³Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2413, 132 L. Ed. 2d 597 (1995) (citation omitted).

²⁴Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2413–14, 132 L. Ed. 2d 597 (1995).

²⁵16 U.S.C.A. § 1539(a)(1)(B), ELR Stat. ESA § 10(a)(1)(B).

²⁶Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2414, 132 L. Ed. 2d 597 (1995).

²⁷16 U.S.C.A. § 1532(19), ELR Stat. ESA § 3(19).

²⁸16 U.S.C.A. § 1534, ELR Stat. ESA § 5.

²⁹16 U.S.C.A. § 1536, ELR Stat. ESA § 7. The pertinent substantive provision of § 7 is found in § 7(a)(2), 16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2), which provides in pertinent part:

Each federal agency shall . . . insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary . . . to be critical.

"Critical habitat" is defined as habitat that is "essential to the conservation of the species," 16 U.S.C.A. § 1532(5)(A)(i), (ii), ELR Stat. ESA § 3(5)(A)(i), (ii), with conservation defined as "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." 16 U.S.C.A. § 1532(3), ELR Stat. ESA § 3(3).

³⁰Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2414–16, 132 L. Ed. 2d 597 (1995).

³¹Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2416–18, 132 L. Ed. 2d 597 (1995). Justice Stevens held that the ESA's legislative history "make[s] clear that Congress intended 'take' to apply broadly to cover indirect as well as purposeful actions," and "support the Secretary's interpretation that the term 'take' in section 9 reached far more than the deliberate actions of hunters and trappers." Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2416, 132 L. Ed. 2d 597 (1995).

³²Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2416–18, 132 L. Ed. 2d 597 (1995).

³³Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2416–18, 132 L. Ed. 2d 597 (1995). Justice Stevens also concluded that statements by Representative Sullivan, the House floor manager, about the endangered species bills enacted as the ESA do not "even [suggest] that [§] 5 would be the Act's exclusive remedy for habitat modification by private land-

ESA:

The § 7 directive applies only to the Federal Government, whereas the § 9 prohibition applies to “any person.” Section 7 imposes a broad, affirmative duty to avoid adverse habitat modifications that § 9 does not replicate, and § 7 does not limit its admonition to habitat modification that “actually kills or injures wildlife.” Conversely, § 7 contains limitations that § 9 does not, applying only to actions “likely to jeopardize the continued existence of any endangered or threatened species,” . . . and to modifications of habitat that has been designated “critical” pursuant to § 4 Any overlap that § 5 or § 7 may have with § 9 in particular cases is unexceptional . . . and simply reflects the broad purpose of the Act set out in § 2.³⁴

Significantly, Justice Stevens recognized that not all land use activities affecting habitat would be a take. He recognized that activities causing “minimal or unforeseeable harm” will not rise to the level of a statutory take, even though the harm regulation may prohibit them.

Justice Stevens concluded the Court’s opinion by stressing the principle of “deference” to the FWS’ expertise, noting that

[w]hen it enacted the ESA, Congress delegated broad administrative and interpretive power to the Secretary The proper interpretation of a term such as “harm” involves a complex policy choice. When Congress has entrusted the Secretary with broad discretion, we are especially reluctant to substitute our views of wise policy for his In *this* case, that reluctance accords with our conclusion, based on the text, structure, and legislative history of the ESA, that the Secretary reasonably construed the intent of Congress when he defined “harm” to include “significant habitat modification or degradation that actually kills or injures wildlife.”³⁵

In a significant concurrence, Justice Sandra Day O’Connor provided two limiting principles on causation for take liability. First, “the challenged regulation is limited to significant habitat modification that causes actual, as opposed to hypothetical or speculative, death or injury to identifiable protected animals.”³⁶ Second, “even setting aside difficult questions of scienter, the regulation’s application is limited by ordinary principles of proximate causation, which introduces notions of foreseeability.”³⁷

In a strongly worded dissent, Justice Antonin Scalia argued that the definition of

owners or that habitat modification by private landowners stood outside the ambit of [§] 9. Respondent’s suggestion that these statements identified [§] 5 as the ESA’s only response to habitat modification contradicts their emphasis elsewhere on the habitat protections in [§] 7.” *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2417 n.19, 132 L. Ed. 2d 597 (1995).

³⁴*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2415–16, 132 L. Ed. 2d 597 (1995) (footnote omitted).

³⁵*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2418, 132 L. Ed. 2d 597 (1995). Justice Stevens also stated, in the final paragraph of his opinion, that

[i]n the elaboration and enforcement of the ESA, the Secretary and all persons who must comply with the law will confront difficult questions of proximity and degree; for, as all recognize, the Act encompasses a vast range of economic and social enterprises and endeavors. These questions must be addressed in the usual course of the law, through case-by-case resolution and adjudication.

Id. See *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 896 F. Supp. 1170, 1179 (M.D. Fla. 1995) (holding that the Court’s reference in this passage to “economic and social enterprises” did not authorize a court to balance and consider economic and social interests and consequences in deciding a motion for a preliminary injunction in a suit alleging a prohibited taking in violation of § 9 of the Act).

³⁶*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2418, 132 L. Ed. 2d 597 (1995) (O’Connor, J., concurring).

³⁷*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2418, 132 L. Ed. 2d 597 (1995). Justice O’Connor believed that these two understandings (or “limitations”) call into question *Palila*. Despite these concerns, she concurred with the majority

“take” under § 9 of the ESA should encompass only “affirmative conduct intentionally, directed against a particular animal or animals.” He argued that the FWS’ definition of harm violated the ESA and was invalid under the Chevron doctrine because of three features: (1) it prohibits habitat modification that is merely the cause-in-fact of death or injury to wildlife, without regard to intent or foreseeability, “no matter how long the chain of causality between modification and injury”;³⁸ (2) it applies to omissions as well as to acts;³⁹ and (3) “it encompasses injury inflicted, not only upon individual animals, but upon populations of the protected species.”⁴⁰ Justice Scalia contended that “take” under the ESA “describes a class of acts (not omissions) done directly and intentionally (not indirectly and by accident) to particular animals (not populations of animals).”⁴¹ He also asserted that, under the FWS’ definition, § 9 would be duplicative of the § 7 critical habitat provision.⁴²

Justice Scalia also argued that the FWS’ definition of harm provided a definition of “take” under § 9 that is inconsistent with the meaning of “take” used in other sections of the ESA.⁴³ He asserted that § 9’s taking prohibition should not apply to habitat modification because such an interpretation makes § 9 duplicative of § 7’s critical habitat provision.⁴⁴

Congress’ explicit prohibition of habitat modification in . . . [§ 7] would bar the inference of an implicit prohibition of habitat modification in . . . section [9] [I]t would be passing strange for Congress carefully to define “critical habitat” as used in § 1536(a)(2), but leave it to the Secretary to evaluate, willy-nilly, impermissible “habitat modification” (under the guise of “harm”) in § 1538(a)(1)(B).⁴⁵

Sweet Home is indeed a very important ESA decision. However, the Court’s emphasis on foreseeability suggests that courts must conduct fact-specific analysis of whether habitat modification would actually violate the take standard.

§ 21:35 Takings and consideration of future harm

Almost anything that negatively impacts a species, and certainly any action or omission that results in the injury or death of even one individual listed species, is a take. This definition is simple to apply when the animal is taken with a gun or a

“because there is no need to strike a regulation on a facial challenge out of concern that it is susceptible of erroneous application . . . and because there are many habitat-related circumstances in which the regulation might validly apply.”

³⁸Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2421, 132 L. Ed. 2d 597 (1995).

³⁹Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2422, 132 L. Ed. 2d 597 (1995).

⁴⁰Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2422, 132 L. Ed. 2d 597 (1995).

⁴¹Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2423, 132 L. Ed. 2d 597 (1995).

⁴²Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2425–26, 132 L. Ed. 2d 597 (1995).

⁴³Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2425, 132 L. Ed. 2d 597 (1995). The other sections of the ESA to which Justice Scalia referred in this argument were the forfeiture provision in 16 U.S.C.A. § 1540(e)(4)(B), ELR Stat. ESA § 11(e)(4)(B); the Native American subsistence exemption at 16 U.S.C.A. § 1539(e)(1)(A), ELR Stat. ESA § 10(e)(1)(A); and the prohibition in 16 U.S.C.A. § 1538(a)(D), ELR Stat. ESA § 9(a)(D) of the possession, sale, and transport of species taken in violation of the ESA.

⁴⁴Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2425–26, 132 L. Ed. 2d 597 (1995).

⁴⁵Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 115 S. Ct. 2407, 2425–26, 132 L. Ed. 2d 597 (1995).

snare, but in the post-Sweet Home era, the question becomes muddier when courts consider the significant impacts that humans have on natural habitats.

While the regulatory definition of “harm” includes the phrase “actually kill or injure,” future harm to a listed species is often determined to be a sufficient “actual injury” for purposes of § 9. Considering the enormous gravity Congress ascribed to species extinction, this is hardly surprising.¹ The Sweet Home decision seemed to preclude this interpretation, stating that every term in the regulation’s definition of “harm” is subservient to the phrase “an act which actually kills or injures wildlife.”² However, this aspect of the Court’s ruling does not appear to reflect the current state of the law.

In *Marbled Murrelet v. Babbitt*,³ the Ninth Circuit stated that the facial challenge in Sweet Home did not require that court to rule on the question of future harm.⁴ The *Murrelet* court pointed out that since the Sweet Home majority had held that because habitat modification that arrests breeding and sheltering amounts to “harm” under the upheld regulation, regulation of these activities anticipates the harmful future effects of a failure to breed or find shelter. Accordingly, future harm was clearly included in the regulatory definition of “harm.”⁵ However, the court in *Hawksbill Sea Turtle v. Federal Emergency Management Agency*⁶ seems to have staked out a compromise position building largely on the holding in *Marbled Murrelet*. That court held that future harm may form the basis for an ESA suit, but it must be demonstrated that this harm is not speculative but proven to a reasonable certainty.⁷ This “imminent harm” test is related to the proof required to demonstrate causation.⁸

§ 21:36 Causation litigation under the ESA

Significantly, the Sweet Home decision incorporated the traditional notion of proximate causation into the analysis of “harm” under § 9. Faced with the ESA’s broad mandate to protect listed species, the Court rejected the narrow construction of the plaintiffs. Indirect actions without specific intent, such as habitat modification, could cause harm punishable under the ESA. However, what are the limits of this indirect connection? How tenuous is too tenuous?

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¹*U.S. v. Ivey*, 949 F.2d 759, 766 (5th Cir. 1991) (“The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost.”).

²*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 2414 n.13, 132 L. Ed. 2d 597 (1995).

³*Marbled Murrelet v. Babbitt*, 83 F.3d 1060, 44 Fed. R. Evid. Serv. 349 (9th Cir. 1996), as amended on denial of reh’g, (June 26, 1996); see also *Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781 (9th Cir. 1995); *Arizona Cattle Growers’ Ass’n, v. U.S. Fish and Wildlife Service*, 63 F. Supp. 2d 1034, 1043–44 (D. Ariz. 1998), aff’d, 273 F.3d 1229 (9th Cir. 2001).

⁴*Marbled Murrelet v. Babbitt*, 83 F.3d 1060, 1065, 44 Fed. R. Evid. Serv. 349 (9th Cir. 1996), as amended on denial of reh’g, (June 26, 1996) (“To the extent the Sweet Home opinion may be read to say past injury is required before an injunction may issue, such a statement is dictum.”).

⁵*Marbled Murrelet v. Babbitt*, 83 F.3d 1060, 1067, 44 Fed. R. Evid. Serv. 349 (9th Cir. 1996), as amended on denial of reh’g, (June 26, 1996).

⁶*Hawksbill Sea Turtle v. Federal Emergency Management Agency*, 11 F. Supp. 2d 529 (D.V.I. 1998).

⁷*Hawksbill Sea Turtle v. Federal Emergency Management Agency*, 11 F. Supp. 2d 529, 552 (D.V.I. 1998) (“Although federal regulations define ‘harm’ as ‘an act which actually kills or injures wildlife,’ injunctive relief may issue under Section 9 where a plaintiff makes a claim of future harm . . . proving] a ‘reasonably certain threat of imminent harm to a protected species.’ ”).

⁸*Defenders of Wildlife v. Bernal*, 204 F.3d 920, 46 Fed. R. Serv. 3d 120 (9th Cir. 2000) (recognizing that imminent harm test allowed injunction of future harm, but ruling that environmental group had failed to show convincingly that construction of school complex would certainly cause harm to endangered pygmy owl).

Far-reaching as the Sweet Home ruling was, it created as many critical legal questions as it answered. Justice Stevens' ruling clearly allowed for the possibility that some harm proceeding from habitat modification will be "minimal and unforeseeable" and not in violation of the ESA. The line drawn between punishable and nonpunishable take has become a daunting proof problem, as courts struggle through the "difficult questions of proximity and degree" presented by such a case-by-case approach.¹

Federal courts have often found sufficient proof for this causation standard by performing the type of case-by-case analysis prescribed by Sweet Home. For example, in *Strahan v. Coxe*,² the First Circuit held that Massachusetts had committed a § 9 violation by allowing commercial fishing in right whale habitat. The court employed a "but for" test to find the state liable—but for the issuance of the permits, the taking would never have occurred.³ In arriving at this conclusion, the court evaluated the unrebutted scientific testimony that over one-half of all right whales examined bore scars from the fishing equipment. Further, 11 cases of actual entanglement were documented and introduced. Confronted with this record, the court held that while causation was "indirect," it was amply supported by the facts.⁴

Though it was decided three months prior to Sweet Home, the Ninth Circuit case of *Forest Conservation Council v. Rosboro Lumber Company*⁵ is consistent with the Supreme Court's reasoning and has been cited by subsequent, post-Sweet Home decisions.⁶ In *Rosboro*, the court held that proposed clearcutting was reasonably certain to significantly impair "essential behavioral patterns" of the spotted owl.⁷ The court examined actual evidence of behavior among the owls in the area and concluded that although the injury alleged was still in the future, the evidence was sufficient to make this "actual" injury a near certainty.⁸

An expert's testimony regarding dead piping plover chicks found in treadmarks left by off-road vehicles was enough for the court in *United States v. Town of Plymouth*.⁹ The court granted the government's request to enjoin the town government from permitting off-road vehicles to drive on a beach without conservation measures. This decision is also notable because the court disregarded evidence that the population of plovers in the area was actually increasing.¹⁰ Clearly, danger to the entire population was not a requirement, or even a factor, for the court in *Town of Plymouth*.

In *Loggerhead Turtle v. County Council of Volusia County, Fla.*,¹¹ a county's authorization of vehicular beach traffic during turtle mating season constituted a tak-

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¹See generally Alan Glen & Craig Douglas, *Taking Species: Difficult Questions of Proximity and Degree*, Nat. Resources & Env't, Fall 2001, at 65.

²*Strahan v. Coxe*, 127 F.3d 155 (1st Cir. 1997).

³*Strahan v. Coxe*, 127 F.3d 155, 163 (1st Cir. 1997).

⁴*Strahan v. Coxe*, 127 F.3d 155, 164–65 (1st Cir. 1997).

⁵*Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781 (9th Cir. 1995).

⁶See *Marbled Murrelet v. Babbitt*, 83 F.3d 1060, 1064, 44 Fed. R. Evid. Serv. 349 (9th Cir. 1996), as amended on denial of reh'g, (June 26, 1996).

⁷*Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781, 784 (9th Cir. 1995).

⁸*Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781, 788 (9th Cir. 1995).

⁹*U.S. v. Town of Plymouth, Mass.*, 6 F. Supp. 2d 81, 91 (D. Mass. 1998).

¹⁰*U.S. v. Town of Plymouth, Mass.*, 6 F. Supp. 2d 81, 91 (D. Mass. 1998).

¹¹*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 896 F. Supp. 1170 (M.D. Fla. 1995). This suit was renewed and eventually dismissed after the defendant county obtained an incidental take permit from the FWS. Though the second action resulted in dismissal of all of plaintiff's claims, the dismissal was based entirely upon mootness and standing grounds, and does not affect the district

ing based on documents from the FWS that stated that the permitted vehicle traffic was causing an “unlawful taking” of the sea turtles.¹² This specific evidence, along with other expert testimony, was enough to meet the evidentiary burden.

The court also looked at the liability of Volusia County’s indirect actions. This stemmed from the claim that the county had extended exemptions to several smaller municipalities within its borders allowing illumination at the beach after dark, in contravention of a countywide prohibition.¹³ The court acknowledged that scientific data strongly suggested that the lights could cause newly hatched turtles to become disoriented and spend more time exposed to starvation, exhaustion, and predation on the open beach. However, the plaintiffs failed to present evidence tying their scientific proof to the actual exempted lights.¹⁴ Therefore the government’s request for an injunction on the beach lighting was denied.

Compelling science, without more direct evidence of causation, will not always be sufficient in the post-Sweet Home era. In *Defenders of Wildlife v. Bernal*,¹⁵ the Ninth Circuit upheld a district court’s refusal to permanently enjoin construction of a school complex. The complex was located in an area known to be habitat of an endangered subspecies of pygmy owl. The district court performed extensive fact-finding and subjected the testimony of the plaintiff’s expert to rigorous analysis, before concluding that despite some “solid factual premises and well-founded expert opinion” the plaintiff’s theory was only “speculation” and not sufficient to support the injunction. Indeed, the court noted that “plaintiffs had the burden of proving by a preponderance of the evidence that the proposed construction would harm a pygmy owl by killing or injuring it.”¹⁶

The court, in *Greenpeace Foundation v. Mineta*,¹⁷ considered two fishing operations that were alleged to be causing take of the critically endangered Hawaiian monk seal, a species unique to Hawaii. The plaintiffs alleged that the seal’s numbers were dwindling due to low birth rate, shrinking food supply, and attrition caused by fishing operations and the fishermen themselves.¹⁸

The first operation, a lobster fishery, utilized traps, but did not physically harm the seals. Significant amounts of data were adduced by the plaintiffs to prove that operation of the lobster fishery significantly reduced availability in the area of lobster, a staple of the monk seal’s diet.¹⁹ The court found that while the habitat was being modified, the plaintiff had not shown sufficient proof that the lobster was “absolutely critical”²⁰ to the seal’s diet, i.e., that availability of lobster was the difference between life and death for the seal. Some of the study findings introduced by the plaintiff were preliminary and hedged with disclaimers. The court evinced some skepticism and concluded that while there were clear indications that lobster was

court’s initial ruling on sufficiency of evidence of causation. *See* *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231, 41 Fed. R. Serv. 3d 563 (11th Cir. 1998).

¹²*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 896 F. Supp. 1170, 1176 (M.D. Fla. 1995).

¹³*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 896 F. Supp. 1170, 1181 (M.D. Fla. 1995).

¹⁴*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 896 F. Supp. 1170, 1181 (M.D. Fla. 1995). The court also noted in dicta that the plaintiffs should have brought ESA suits against the individual towns instead of the county.

¹⁵*Defenders of Wildlife v. Bernal*, 204 F.3d 920, 46 Fed. R. Serv. 3d 120 (9th Cir. 2000).

¹⁶*Defenders of Wildlife v. Bernal*, 204 F.3d 920, 925, 46 Fed. R. Serv. 3d 120 (9th Cir. 2000).

¹⁷*Greenpeace Foundation v. Mineta*, 122 F. Supp. 2d 1123 (D. Haw. 2000).

¹⁸*Greenpeace Foundation v. Mineta*, 122 F. Supp. 2d 1123, 1127 (D. Haw. 2000).

¹⁹*Greenpeace Foundation v. Mineta*, 122 F. Supp. 2d 1123, 1133 (D. Haw. 2000).

²⁰*Greenpeace Foundation v. Mineta*, 122 F. Supp. 2d 1123, 1134 (D. Haw. 2000).

an important factor in the monk seal's diet, this was not enough.²¹ Citing *Palila II*, the court in *Mineta* articulated an “imminent harm” test, allowing that habitat change could support a § 9 allegation only if the action modified “a feature of the species’ habitat that was decidedly critical” to the continued future existence of the species.²² The court found the data insufficient and dismissed the claim against the lobster fishery but implied that a more definite showing would have produced a different result.²³

The second activity at issue in *Mineta* was the so-called bottomfish operation, involving the trailing of long lines of hooks along the sea floor. The court found that this practice had resulted in several accidental seal deaths, as seals became tangled up with these lines as they tried to pilfer catch from the hooks. Additionally, it was found that some seals had been killed by the fishermen to prevent them from stealing catch from the lines.²⁴ The court did not hesitate to find that both the accidental and intentional killings were takes under the ESA.²⁵ The death of the animal ended the inquiry.

§ 21:37 Vicarious state and local government “take” liability

Potential governmental action as a basis for imposing “vicarious” take liability under the Sweet Home doctrine has become an increasingly important area of ESA law. As stated by one commentator, “almost no private action takes place in the complete absence of some connection to government regulation or licensing. Driving, boating, water use, power consumption, appear reduction, homebuilding, eating, farming—you name it, the government has its hands in it somehow.”¹ Thus, environmental advocates see such governmental approvals as “simply irresistible” targets providing great “leverage.”² As another commentator stated:

As a practical matter, enforcing the taking prohibition of the ESA against these myriad actors is exceedingly difficult. However, if the activities of these actors are subject to regulation by some intermediary, such as a city or county government, it may be much more practical to influence what the various individual actors do by influencing how the intervening regulatory body wields its influence. Indeed, if a regulatory body could itself be deemed liable for the taking of endangered species by those whose activities it regulates, the practical alternative to enforcing the ESA’s prohibitions against thousands of individual actors would be to enforce those prohibitions against the regulatory body.³

Under the plain language of the ESA, state and local governments may be held liable. “Person” is defined in the ESA to include “any state, municipality, or political

²¹Greenpeace Foundation v. Mineta, 122 F. Supp. 2d 1123, 1134 (D. Haw. 2000).

²²Greenpeace Foundation v. Mineta, 122 F. Supp. 2d 1123, 1134 (D. Haw. 2000).

²³However, the court did go on to grant an injunction based on the NMFS’ failure to meet its obligations under § 7. Greenpeace Foundation v. Mineta, 122 F. Supp. 2d 1123, 1137 (D. Haw. 2000).

²⁴Greenpeace Foundation v. Mineta, 122 F. Supp. 2d 1123, 1135 (D. Haw. 2000).

²⁵Greenpeace Foundation v. Mineta, 122 F. Supp. 2d 1123, 1136 (D. Haw. 2000) (“The evidence in the administrative record confirms that monk seals have been killed, hooked, and poisoned in connection with bottomfishing. Such documented interactions are ‘takes’ within the meaning of Section 9 of the ESA. It is immaterial that certain of these incidents might be accidental.”).

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¹J.B. Ruhl, *State and Local Government Vicarious Liability Under the ESA*, 15 Nat. Res. & Env’t 70 (2001).

²J.B. Ruhl, *State and Local Government Vicarious Liability Under the ESA*, 15 Nat. Res. & Env’t 70 (2001).

³Michael J. Bean, *Major Endangered Species Act Developments in 2000*, 31 ELR 10283, 10285 (Mar. 2001).

subdivision of the state.”⁴ Therefore, these governments may be liable under the “take” prohibition in § 9(a)(1).⁵ Section 9(g) of the ESA seems to suggest that liability may be imposed for “indirect” acts that lead to a “take.”⁶

The issue of vicarious governmental liability under the ESA has been considered in a number of cases. The first two cases dealt with federal agency liability and predated *Sweet Home*. In *Defenders of Wildlife v. Administrator*,⁷ the Eighth Circuit held that the EPA’s decision to register a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act made EPA liable for the illegal “take” of the black-footed ferret. The court reasoned that even though the direct cause of the “take” was the use of bait laced with strychnine for eradication of rodents, the EPA could be held liable because the EPA’s registration of strychnine was necessary before the bait could be distributed for sale. In another decision, *Sierra Club v. Yeutter*,⁸ the Fifth Circuit found that the Forest Service’s approval of a timber management plan made that agency liable “when the private timber harvesting carried [out] pursuant to the plan impaired habitat of the cockaded woodpecker.”⁹

Several post-Sweet Home decisions have extended ESA liability to actions of state and local governments. The first decision, *Strahan v. Coxe*,¹⁰ not only dealt with the issue of causation under Sweet Home but also directly addressed state liability for governmental actions. In holding that the state’s licensing of commercial fishing through the use of gillnets exacted a “taking” of protected whales, the court reasoned that § 9(g) of the ESA “not only prohibits the acts of those parties that directly exact the taking, but it also bans those acts of a third party that bring about the acts exacting the taking.”¹¹ The second post-Sweet Home case to address local government liability was *United States v. Town of Plymouth*.¹² There, the court focused on the affirmative conduct of the town in issuing off-road vehicle (ORV) driving permits for beach driving in an area known to be populated by endangered piping plovers. The court held that the town’s “current management practices with respect to ORV access to Plymouth Long Beach have actually harmed piping plovers and will continue to cause harm if they remain unchecked.”¹³

The Eleventh Circuit addressed this theory of indirect liability in *Loggerhead Turtle v. County Council of Volusia County, Florida*.¹⁴ The court upheld the standing of the listed turtles to sue the county based on alleged “harmfully inadequate regulation” of beach lighting.¹⁵ The county subsequently adopted an ordinance setting out more stringent restrictions on beach lighting, and the turtles again sued, alleging that the ordinance was inadequate by creating a form of “implied permission” to take turtles. However, while the court found beachfront lighting indisput-

⁴16 U.S.C.A. § 1532(13), ELR Stat. ESA § 3(13).

⁵16 U.S.C.A. § 1538(a)(1), ELR Stat. ESA § 9(a)(1).

⁶Section 9(g) states that “it is unlawful for any person subject to the jurisdiction of the United States to attempt to commit, solicit another to commit, or cause to be committed, any offense defined in this section.” 16 U.S.C.A. § 1538(g), ELR Stat. ESA § 9(g).

⁷*Defenders of Wildlife v. Administrator, E.P.A.*, 882 F.2d 1294 (8th Cir. 1989).

⁸*Sierra Club v. Yeutter*, 926 F.2d 429 (5th Cir. 1991).

⁹*Sierra Club v. Yeutter*, 926 F.2d 429 (5th Cir. 1991).

¹⁰*Strahan v. Coxe*, 127 F.3d 155 (1st Cir. 1997).

¹¹*Strahan v. Coxe*, 127 F.3d 155, 163 (1st Cir. 1997).

¹²*U.S. v. Town of Plymouth, Mass.*, 6 F. Supp. 2d 81 (D. Mass. 1998).

¹³*U.S. v. Town of Plymouth, Mass.*, 6 F. Supp. 2d 81, 90-91 (D. Mass. 1998).

¹⁴*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231, 41 Fed. R. Serv. 3d 563 (11th Cir. 1998).

¹⁵*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231, 1249-52, 41 Fed. R. Serv. 3d 563 (11th Cir. 1998).

ably caused the “take” of turtles, the county was not liable because the county’s regulatory program “acts to prohibit, restrict and limit artificial beachfront lighting, not to authorize, entitle or legitimize it.”¹⁶ The court reasoned that the county did “not permit an act otherwise unlawful or license an act in expressly a manner likely to result in an ESA violation.”¹⁷

The issue of state and local vicarious “take” liability on the indirect effects of governmental approvals will undoubtedly continue to gain prominence as more courts grapple with this issue. Indeed, if courts continue to expand this theory of ESA liability, state and local governments could become special “targets” of environmental plaintiffs seeking to halt or delay various activities under these approvals.¹⁸

§ 21:38 Interface between § 7 incidental take statements and § 9 “take” liability

The issue of whether the same standard for § 9 “take” liability should also apply to § 7 incidental take statements has been controversial. A significant opinion by the Ninth Circuit analyzed that issue in depth in *Arizona Cattle Growers’ Association (ACGA) v. U.S. Fish and Wildlife Service*.¹ The court held that the FWS acted arbitrarily and capriciously by issuing incidental take statements under the ESA that impose terms and conditions on land use permits, where there either was no evidence that the endangered species existed on the land or no evidence that a “take” (defined as “habitat modification resulting in the actual death or injury to a listed species”) would occur if the permit were issued. The court held that the FWS would have to demonstrate that a “take” of protected species was “reasonably certain to occur.”² This holding could curtail the ability of the FWS to condition or to restrict land use in situations where endangered species or their habitats are not clearly present. Under this ruling, for activities covered by the Ninth Circuit (Arizona, California, Guam, Hawaii, Idaho, Montana, Nevada, Oregon, and Washington), the FWS will have to provide specific evidence that the activity would lead to a “take” of the species in situations where it issues an incidental take statement as part of a § 7 ESA consultation.

The litigation stemmed from a challenge by the cattlemen to the incidental take statements set forth in the biological opinions issued by the FWS in consultation with the Bureau of Land Management and the U.S. Forest Service in response to ACGA’s application for cattle grazing permits in southeastern Arizona. In its biological opinion on the permits, the FWS concluded that ongoing grazing activities on 21

¹⁶*Loggerhead Turtle v. County Council of Volusia County, Florida*, 92 F. Supp. 2d 1296, 1306 (M.D. Fla. 2000).

¹⁷*Loggerhead Turtle v. County Council of Volusia County, Florida*, 92 F. Supp. 2d 1296, 1306 (M.D. Fla. 2000).

¹⁸*See Animal Protection Institute, Center for Biological Diversity v. Holsten*, 541 F. Supp. 2d 1073 (D. Minn. 2008). Conduct of trappers which led to the incidental takings of Canada Lynx was not an independent, intervening cause that broke the chain of causation between the Minnesota Department of Natural Resources (DNR) and the incidental takings and, thus, did not preclude liability of DNR in action alleging that DNR violated the Endangered Species Act (ESA) by authorizing and allowing trapping and snaring activities that took Canada Lynx, a threatened species under the ESA; DNR’s licensure and regulation of trapping activities stimulated the conduct of trappers that resulted in the incidental takings.

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¹*Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management*, 273 F.3d 1229 (9th Cir. 2001).

²*Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management*, 273 F.3d 1229, 1232 (9th Cir. 2001).

of the 22 allotments at issue would not jeopardize the continued existence of any protected species or result in the destruction or adverse modification of any critical habitat. The FWS determined, however, that ongoing grazing activities would incidentally take members of one or more protected species in each of the 22 allotments, and it issued incidental take statements for each of those allotments.³

The statements included specific conditions that would immunize the ranchers from ESA § 9 take liability and penalties for harm to endangered species committed during activities that are otherwise lawful. The court noted that although the action agency and permittee are “technically free to disregard the biological opinion and proceed with its proposed action . . . ‘it does so at its own peril.’ . . . Consequently, if the terms and conditions of the [statements] are disregarded and a taking does occur, the action agency or the applicant may be subject to potentially severe civil and criminal penalties under Section 9.”⁴ Hence, given the potential liability of not complying with the conditions in the incidental take statements, the conditions “exert a powerful coercive effect” that cannot be ignored. As a practical matter, parties that hope to receive approval for federal permits must agree to comply with the terms and conditions of the statements.

The court addressed the standards for determining when the FWS must issue an incidental take statement. Fundamentally, “an [incidental take statement] must be predicated on a finding of an incidental take.”⁵ The court concluded that the FWS “acted in an arbitrary and capricious manner by imposing terms and conditions on land use permits, where there either was no evidence that the endangered species existed on the land or no evidence that a take would occur if the permit were issued.”⁶ In making its finding that there was “no rational basis” to conclude that a take will occur, the court rejected the FWS’ position that the definition of “take” under § 7 of the ESA should be interpreted broadly to require issuance of an incidental take statement when harm to a listed species is “possible” or “likely.”⁷ The court rejected the notion that §§ 7 and 9 ought to be interpreted differently, holding that there must be a reasonable basis for concluding that a taking will occur as a result of the activity in question. Significantly, the court then noted that “there is no evidence that Congress intended to allow the [FWS] to regulate any parcel of land that is merely capable of supporting a protected species.”⁸

Central to this finding was that the FWS failed to present evidence that an indirect taking would occur absent the existence of the species on the property. The practical effect is that the FWS has to present more than speculative evidence that habitat modification would impact a listed species. As the court stated:

The agency has a very low bar to meet, but it must at least attain it. It would be improper to force [the ranchers] to prove that the species does not exist on the permitted area, as the [FWS] urges, both because it would require [the ranchers] to meet the burden statutorily imposed on the agency, and because it would be requiring it to prove

³Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229 (9th Cir. 2001).

⁴Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229, 1231 (9th Cir. 2001).

⁵Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229 (9th Cir. 2001).

⁶Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229 (9th Cir. 2001).

⁷Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229, 1231 (9th Cir. 2001).

⁸Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229, 1233 (9th Cir. 2001).

a negative.⁹

Hence, the FWS must “establish a link between the activity and the taking of species before setting forth specific conditions.”¹⁰

VIII. INCIDENTAL TAKE PERMITS AND HABITAT CONSERVATION PLANS

§ 21:39 Overview

In 1982, Congress amended the ESA to provide a mechanism by which landowners could potentially take a listed species “if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”¹ To apply for relief under this provision and obtain an Incidental Take Permit (ITP), however, landowners must overcome various regulatory hurdles, including preparing a Habitat Conservation Plan (HCP), which details the permitted development and the required mitigation measures.² Although the ITP process has proven to be demanding and resource-intensive, there have been success stories, and the ITP remains the primary tool available to landowners to engage in activities on their property, otherwise prohibited by the ESA. In fact, new and creative applications of ESA § 10 procedures, such as the “no surprises” and “safe harbor” rules have made § 10 permits a more attractive mechanism to balance and potentially resolve the conflicts between private activities of landowners and the protection of endangered and threatened species.

§ 21:40 Incidental take permits

Section 10 of the ESA provides exceptions to the § 9 take prohibition in the form of an ITP that is issued after the approval of the mitigation and minimization measures set forth in the HCP. Congress enacted this provision in 1982 in direct response to a proposed HCP being prepared and negotiated by the FWS and developers of San Bruno Mountain.

In 1975, private developers of San Bruno Mountain, a mountain located south of San Francisco, proposed to develop the San Bruno Mountain area with 2 million square feet of office and commercial space and more than 7,000 residential units.¹ During the local review process, opposition arose from a land use perspective, and the San Mateo County Board of Supervisors approved a reduced development scheme.² As a result of a subsequent lawsuit and settlement, the developer further reduced the development and agreed that two-thirds of the mountain would be preserved for open space and parks, while the remaining one-third could be developed.³

After this settlement, the FWS discovered that the mission blue butterfly, an endangered species, inhabited San Bruno Mountain. In 1980, a steering committee

⁹Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229, 1233 (9th Cir. 2001).

¹⁰Arizona Cattle Growers’ Ass’n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229, 1236 (9th Cir. 2001).

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¹16 U.S.C.A. § 1539(a)(1)(B), ELR Stat. ESA § 10(a)(1)(B).

²16 U.S.C.A. § 1539(a)(2)(A), ELR Stat. ESA § 10(a)(2)(A).

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¹Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976 (9th Cir. 1985).

²Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976 (9th Cir. 1985).

³Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976 (9th Cir. 1985).

was formed to perform a biological study of the mission blue butterfly to determine its population size and distribution. After two years of study, the committee determined that the butterfly primarily inhabited grassland on the mountain, where development was proposed. The committee also concluded that if development did not occur, the grassland habitat would be inevitably lost to encroaching brush, thereby seriously threatening the butterfly's continued existence. Subsequent to this study, a HCP was prepared, which proposed reduced development, conveyance of significant acreage to local agencies as permanent open space, annual financial contributions by the developer to finance a permanent habitat conservation program, preservation of 86% of the present habitat of the mountain's mission blue butterfly, and protection of other endangered and vulnerable species.⁴ Although it was determined that the overall development, with the corresponding preservation, would enhance the survival of multiple species, including the mission blue butterfly, there were no provisions within the ESA that allowed such incidental take. As a result, various parties involved in the San Bruno Mountain case approached Congress to authorize a take, which would result from the adoption of the proposed HCP. Congress subsequently amended the ESA by adopting § 10(a), making it clear that future HCPs should be modeled after the HCP prepared for San Bruno Mountain.⁵

In its adoption of § 10(a), Congress expressed its clear intention of providing regulatory incentives to landowners to protect and enhance wildlife habitat. Congress expected that the public/private partnerships, formed pursuant to an HCP would provide long-term commitments regarding the conservation of listed and unlisted species and long-term assurances to the proponent of the conservation plan that the terms of the plan will be adhered to and that further mitigation requirements will only be imposed in accordance with the terms of the plan.⁶

The impetus for such partnerships is, in part, the realization that private landowners can comply with the ESA by avoiding "taking" species. Traditionally, the regulatory process has provided a landowner with "adequate assurances" and "sufficient incentives for the private sector to participate in the exceedingly costly and time-consuming process of voluntarily preparing and implementing an HCP."⁷ In exchange for this regulatory certainty, some landowners are willing to undertake measures that would not otherwise be required. Some of this regulatory certainty, however, was eroded by the FWS' adoption of a rule that provides that the FWS may revoke its approval of an HCP "as a last resort in the narrow and unlikely situation in which an unforeseen circumstance results in likely jeopardy to a species covered by the permit and the Service has not been successful in remedying the situation through other means."⁸

§ 21:41 HCPs

1. *Scope of HCPs*

In order to obtain an ITP, an applicant must submit an HCP that specifies the impact of the take, the steps to be taken to "minimize and mitigate such impacts," the funding available, the "alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized," and such

⁴*Friends of Endangered Species, Inc. v. Jantzen*, 760 F.2d 976 (9th Cir. 1985).

⁵*See* H.R. Conf. Rep. No. 97-835, at 30 to 31 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2807.

⁶H.R. Rep. No. 97-835, at 30 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2871.

⁷H.R. Rep. No. 97-835, at 31 (1982), *reprinted in* 1982 U.S.C.C.A.N. at 2872.

⁸Notice of request for additional comment on final rule amending general permitting regulations, 65 Fed. Reg. 6916, 6918 (Feb. 11, 2000).

measures as the FWS requires.¹ In addition to the implementing regulations,² the FWS and the NMFS have published a comprehensive guidance document entitled the *Habitat Conservation Planning Handbook (HCP Handbook)*.³ The *HCP Handbook* provides applicants with guidance as to how the FWS and the NMFS implement the HCP regulations. As described in the *HCP Handbook*, the HCP is initiated by the applicant and is the applicant's document.⁴ Thus, the descriptions of take, mitigation, and the alternatives considered and rejected are based on the applicant's evaluation of the project purpose and feasible mitigation measures.

An HCP may either address one or many different species, including listed and unlisted species.⁵ Alternatively, an HCP may focus on particular habitat types and address all species within certain habitat types in the area covered by the HCP.⁶ The applicant is advised to include all listed species of plants⁷ and wildlife that might be incidentally taken during the life of the proposed project. In addition, an HCP and the ITP must expressly identify all proposed activities. Failure to include a listed species that is subsequently taken may result in significant delays and prosecution.⁸ HCPs may be narrow in scope and include, for example, just the construction of a house. They may be as broad as encompassing a county building permit program, which will affect a listed species.⁹

Preparing a multispecies HCP, as was done in the San Bruno Mountain HCP, has benefits. As discussed in the *HCP Handbook*, multispecies planning can increase the biological value of HCPs by providing early evaluation of the impacts of a development on species listed, or proposed for listing.¹⁰ In addition, regional multispecies planning also helps to prevent habitat degradation before it occurs.¹¹ An important aspect of large-scale multispecies HCPs is the assurances that are provided to a landowner about the level of mitigation that will be expected over the life of the plan. As discussed below, these assurances are facilitated through the "no surprises policy." Since the adoption of this policy, and the accompanying assur-

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¹16 U.S.C.A. § 1539(a)(2)(A)(i) to (iv), ELR Stat. ESA § 10(a)(2)(A)(i) to (iv).

²50 C.F.R. Parts 401 to 453.

³U.S. Fish and Wildlife Services and National Marine Fisheries Service, *Habitat Conservation Planning Handbook* (Nov. 1996), available at <http://www.fws.gov/endangered/hcp/hcpbook.html>.

⁴U.S. Fish and Wildlife Services and National Marine Fisheries Service, *Habitat Conservation Planning Handbook* (Nov. 1996) at 1-15.

⁵U.S. Fish and Wildlife Services and National Marine Fisheries Service, *Habitat Conservation Planning Handbook* (Nov. 1996) at 3-7 to 3-8.

⁶U.S. Fish and Wildlife Services and National Marine Fisheries Service, *Habitat Conservation Planning Handbook* (Nov. 1996) at 3-37 to 3-38.

⁷Because ESA prohibitions do not apply to plants, plants typically are not the subject of a § 10 permit. However, because the FWS cannot approve a § 10 permit for an ITP that would jeopardize any listed species, plants must be identified.

⁸HCP Handbook, *supra* note 3, at 3-7. See also *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231, 41 Fed. R. Serv. 3d 563 (11th Cir. 1998).

⁹HCP Handbook, *supra* note 3, at 3-39.

¹⁰HCP Handbook, *supra* note 3, at 4-1. For a look at a local guidebook detailing key elements in joint regional HCP/ Natural Community Conservation Plan, see Institute for Local Self Government 2004 Report, *Understanding the Habitat Conservation Planning Process in California: A Guidebook for Project and Regional Conservation Planning*, available at <http://www.cacities.org/index.jsp?zone=ilsg&previewStory=22255> (chapter VI of this report provides specific elements that should be included in the plan and details the portions of regional HCPs that are most frequently subject to legal challenges).

¹¹See *National Wildlife Federation v. Babbitt*, 2001 WL 128425 (E.D. Cal. 2001); see also *National Wildlife Federation v. Norton*, 2005 WL 2175874 (E.D. Cal. 2005) (upholding new HCP because it focused on the two permittees and explained why further development or action by any other entity would require federal approval).

ances, there has been a significant increase in the number of HCPs proposed, including those that cover multiple species.

In *National Wildlife Federation v. Babbitt*, (NWF),¹² environmental organizations challenged the FWS' issuance of an incidental take permit to allow development in the Natomas Basin, a 53,000-acre tract of largely undeveloped land stretching north to the city of Sacramento. Plaintiffs argued that substantial uncertainty remained regarding the extent and effectiveness of proposed habitat reserves, the scientific information used in the multispecies HCP, and funding sources for the proposed plan.

The court agreed with most of the plaintiffs' arguments, holding that the approval of an HCP is dependent in part on the following criteria:

- HCPs that are dependent on mitigation across multiple jurisdictions must involve a multijurisdictional regional planning effort, and permits must be issued to all jurisdictions involved in preparing the plan, not just one (in this instance, a permit was issued only to the city of Sacramento).¹³
- A regional cumulative effects analysis is necessary to evaluate the habitat value of lands being destroyed and conserved so that land of equal habitat value is exchanged.¹⁴
- An alternative involving mitigation must be analyzed that supports the conclusion that the proposed plan minimizes and mitigates impacts to "the maximum extent practicable," with explicit findings as to why certain mitigation is infeasible.¹⁵
- The permit applicant must make a clear showing of a reliable funding source for the mitigation proposed, as well as identify a responsible party in the event of a funding gap. The court noted that the threat of permit revocation by the FWS is not a strong enough mechanism to ensure adequate funding.¹⁶
- The permit applicant must agree to adaptive management provisions that attach financial responsibility for their success to either the applicant or a third party.¹⁷
- An environmental impact statement (EIS) under NEPA is required for regional HCPs in almost all cases. In this case, there were factors that pointed to a need for an EIS, including substantial controversy and uncertainty regarding the effects on listed species and their habitats.¹⁸
- It is reasonable to estimate the level of take based on the extent of suitable habitat rather than the number of individuals, and the adaptive management plan was adequate in the face of scientific uncertainty.¹⁹

The NWF court concluded that the FWS had acted arbitrarily and capriciously by failing to adequately develop an HCP in line with ESA requirements and set aside the issuance of the ITP.

Subsequently, in *National Wildlife Federation v. Norton*,²⁰ the court found that the revised Natomas Basin HCP satisfied the requirements of the ESA. Unlike the first HCP, where the plan was a broad regional conservation plan with no guarantee all jurisdictions would participate, the subsequent HCP focused on the two permit-

¹²*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274 (E.D. Cal. 2000).

¹³*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1298 (E.D. Cal. 2000).

¹⁴*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1281 (E.D. Cal. 2000).

¹⁵*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1292 (E.D. Cal. 2000).

¹⁶*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1295 (E.D. Cal. 2000).

¹⁷*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1281 (E.D. Cal. 2000).

¹⁸*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1301 (E.D. Cal. 2000).

¹⁹*National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1297 (E.D. Cal. 2000).

²⁰*National Wildlife Federation v. Norton*, 2005 WL 2175874 (E.D. Cal. 2005).

tees and explained why further development or action by any other entity would require additional federal approvals.²¹ The plan also did not assume or require the participation of any third parties to be effective. The court noted that, even without participation by other jurisdictions, the goal of the HCP would not be undermined.²² Finally, the court found the plaintiffs' claim that the plan depended on the voluntary actions of third parties to be without merit. The Court concluded that the revised HCP satisfied the requirements of the ESA and that the Secretary's actions were not arbitrary and capricious.²³

Under § 10, a programmatic HCP can be issued to a governmental county or state entity. One wishing to conduct activities that are included within the programmatic HCP may obtain incidental take protection under certain instances.²⁴ Where the NMFS issues a § 10 programmatic permit, a person seeking coverage under the permit must apply for and receive a "certificate of inclusion."²⁵ When the FWS issues a programmatic § 10 permit, the permit may identify persons under the jurisdiction of the permittee who are allowed to engage in activities in accordance with the permit.²⁶

In reviewing the HCP, the ESA requires the FWS to determine, among other factors, that: (1) the taking will be incidental to an otherwise lawful activity; (2) the applicant will, to the maximum extent practicable, mitigate and minimize the impacts of the taking; (3) the applicant will ensure that adequate funding is provided for the HCP; (4) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (5) the HCP meets other measures as determined by the Secretary as necessary or appropriate for purposes of the HCP.²⁷

2. Mitigation Requirements

A landowner must be cognizant in the preparation of an HCP that the primary question is what mitigation actions will be required in order to obtain government approval. Section 10 requires that a landowner "to the maximum extent practicable, minimize and mitigate the impacts" of a proposed take.²⁸ The FWS and the NMFS require that any mitigation be based on "sound biological rationale" and be "commensurate with the impacts" addressed.²⁹

The *HCP Handbook* provides two criteria for determining the adequacy of proposed mitigation: (1) the extent to which the proposed measures provide substantial benefits to the species; and (2) whether the amount of mitigation proposed is the maximum practicable in light of such factors as the costs and benefits

²¹National Wildlife Federation v. Norton, 2005 WL 2175874 (E.D. Cal. 2005).

²²National Wildlife Federation v. Norton, 2005 WL 2175874 (E.D. Cal. 2005).

²³National Wildlife Federation v. Norton, 2005 WL 2175874 (E.D. Cal. 2005).

²⁴HCP Handbook, *supra* note 3, at 3–39.

²⁵50 C.F.R. § 222.307(f) (discussing NMFS's criteria for issuing "certificates of inclusion").

²⁶64 Fed. Reg. 32706, 32711 (June 17, 1999) (to be codified at 50 C.F.R. § 13.25(d)).

²⁷See 16 U.S.C.A. § 1539(a)(2)(B)(i to v), ELR Stat. ESA § 10(a)(2)(B)(i to v).

²⁸16 U.S.C.A. § 1539 (a)(2)(B)(ii)(2001), ELR Stat. ESA § 10(a)(2)(B)(ii).

²⁹HCP Handbook, *supra* note 3, at 3–19. Mitigation actions typically take the following forms:

- (1) Avoiding the impact (such as through relocation of facilities within the project area);
- (2) Minimizing the impact (such as through timing restrictions and buffer zones);
- (3) Rectifying the impact (such as through restoration and revegetation of disturbed project areas);
- (4) Reducing or eliminating the impact over time (such as through proper management, monitoring, and adaptive management); or
- (5) Compensating for the impact (such as through restoring or protecting habitat at an onsite or offsite location).

See HCP Handbook, *supra* note 3, at 3–19 to 3–20.

of additional mitigation, the abilities of the applicant, and the amount of mitigation provided by other applicants in similar situations.³⁰ The FWS and the NMFS require that mitigation relating to the same species be as consistent as possible.³¹ Federal courts typically rely on the administrative record to provide some “rational basis” to substantiate the decision to approve an HCP and ITP and to substantiate the determination that the level of mitigation is to the “maximum extent practicable.”³²

The FWS has, in the past, shown great deference to applicants through the HCP process. Courts have determined, however, that deference has its limits, as evidenced by the decision in *Gerber v. Norton* holding that the FWS failed to follow required procedures and make a statutorily required finding.³³

3. No Surprises Policy

In 1998, the FWS and the NMFS adopted a final rule that implemented a “No Surprises Policy.”³⁴ The purpose of this policy was to remedy an existing conflict in the approval of an HCP and the issuance of an ITP regarding ensuring the protection of listed species, but providing landowners with long-term assurances. For example, an HCP must be malleable enough to adapt to changed circumstances and new information regarding protected species, but at the same time provide landowners long-term economic and regulatory certainty regarding their HCP and the associated obligations.

The FWS and the NMFS indicated that the purpose of the No Surprises Policy was to provide:

regulatory assurances to the holder of a Habitat Conservation Plan (HCP) incidental take permit issued under § 10(a) of the ESA that no additional land use restrictions or financial compensation will be required of the permit holder with respect to species covered by the permit, even if unforeseen circumstances arise after the permit is issued indicating that additional mitigation is needed for a given species covered by the permit.³⁵

In effect, the purpose of the No Surprises Policy was to allow the HCP to become a plan upon which a landowner and the government could rely. In other words, if the No Surprises Policy were applied as originally intended, a landowner would not be responsible for significant additional measures that might become necessary to respond to “unforeseen circumstances.” As discussed below, the subsequent adoption by the FWS and the NMFS of the so-called Permit Revocation Rule raises a ques-

³⁰HCP Handbook, *supra* note 3, at 7-3.

³¹HCP Handbook, *supra* note 3, at 3-23. *See* *Sierra Club v. Babbitt*, 15 F. Supp. 2d 1274, 1281 (S.D. Ala. 1998) (overturning the issuance of a § 10 ITP because, in part, the FWS had inconsistently applied mitigation standards regarding the affected species along the Alabama coast).

³²*Sierra Club v. Babbitt*, 15 F. Supp. 2d 1274, 1282 (S.D. Ala. 1998) (overturning the FWS’ issuance of ITPs for the Alabama beach mouse, determining that the government had not demonstrated in the administrative record that the effects of the development were minimized and mitigated to the maximum extent practicable).

³³*Gerber v. Norton*, 294 F.3d 173 (D.C. Cir. 2002) (finding that the FWS failed to allow public comment on a key component of the developer’s permit application and did not make the statutorily required finding that the developer’s plan reduced the impact of the taking to the maximum extent practicable); *see also* *National Wildlife Federation v. Babbitt*, 2001 WL 128425 (E.D. Cal. 2001) (finding that certain of the FWS’ findings regarding the ITP application were not supported by the administrative record). For a decision upholding an ITP, *see* *Center for Biological Diversity v. U.S. Fish and Wildlife Service*, 202 F. Supp. 2d 594 (W.D. Tex. 2002) (Order Concerning Pending Motions for Summary Judgment) (finding that the FWS negotiated and regulated vigorously and at arms length to discharge its duty under the ESA).

³⁴Habitat Conservation Plan Assurances Rule, 63 Fed. Reg. 8859 (Feb. 23, 1998) (codified at 50 C.F.R. pt. 17 (FWS regulations) and 50 C.F.R. pt. 222 (NMFS regulations)).

³⁵Habitat Conservation Plan Assurances Rule, 63 Fed. Reg. 8859 (Feb. 23, 1998) (codified at 50 C.F.R. pt. 17 (FWS regulations) and 50 C.F.R. pt. 222 (NMFS regulations)).

tion, however, as to how much a landowner truly can rely on the HCP as a final plan with regards to mitigation requirements.³⁶

The regulations provide that the No Surprises Policy has limited applicability: (1) it is applicable only to nonfederal parties seeking an ITP; (2) the assurances provided to the permit holder are valid for the life of the permit and only with respect to species “adequately covered” by the permit; and (3) the assurances provided to a permittee are only valid when the HCP is being “properly implemented.”³⁷ The extent and nature of the assurances depend on whether a particular change in circumstances, impacting a species covered by an HCP, is foreseeable or unforeseeable.

The FWS and the NMFS do not define the term “foreseeable,” but instead use their respective definitions of the term “changed circumstances” to apply to the No Surprises Policy. The implementing regulations define “changed circumstances” as:

[c]hanges in circumstances affecting a species or geographical area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species.³⁸

Because of the uncertainty in the definition of what is or is not “foreseeable,” it is advised that the FWS or the NMFS and the permittee attempt to address all reasonable foreseeable changes in circumstances.³⁹ In effect, the listed “changed circumstances” are by definition “foreseeable,” and the permittee should be prepared to address them if they occur during the life of the HCP in a manner described in the HCP.⁴⁰ Under the No Surprises Policy, if a foreseeable change in circumstances occurs, but is not addressed in the HCP, the permittee will not be required to implement additional conservation and mitigation measures without the permittee’s consent.⁴¹

Under the No Surprises Policy, if an unforeseen circumstance should occur, the Services may only mandate minimal additional measures of the permittee. The original terms of the HCP must be maintained to the maximum extent possible and the Services may not require “commitments of additional land, water or financial compensation or additional restrictions on the use of land, water or other natural resources” without the permittee’s consent.⁴² The No Surprises Policy does recognize that some action may need to be taken on behalf of the affected species. Consequently, the No Surprises Policy rule provides that nothing in the rule should be construed to constrain or limit any governmental entity or private party from taking additional action, at its own expense, to protect or conserve a species included in an HCP.⁴³

Subsequent to adoption of the No Surprises Policy Rule, the FWS modified certain

³⁶See 50 C.F.R. §§ 17.22(b)(5)(ii), 17.32(b)(5)(ii), 222.307(g)(3)(ii); *see also* 65 Fed. Reg. 6918 (Feb. 11, 2000).

³⁷50 C.F.R. § 17.22(b)(5); 50 C.F.R. § 17.32(b)(5); 50 C.F.R. § 222.307(g); 50 C.F.R. §§ 17.3 and 222.102 (defining the term “adequately covered”).

³⁸50 C.F.R. § 17.3 (FWS); 50 C.F.R. § 222.102 (NMFS).

³⁹Habitat Conservation Plan Assurances Rule, 63 Fed. Reg. at 8863.

⁴⁰50 C.F.R. § 17.22(b)(5)(i) to (ii) (FWS Regulations for Endangered Wildlife); 50 C.F.R. § 17.32(b)(5)(i) to (ii) (FWS Regulations for Threatened Wildlife); 50 C.F.R. § 222.307(g)(1), (g)(2) (NMFS regulations).

⁴¹See 50 C.F.R. §§ 17.22(b)(5)(ii), 17.32(b)(5)(ii), 222.307(g)(3)(ii); *see also* 65 Fed. Reg. 6918 (Feb. 11, 2000) (discussion of the “revocation rule,” which puts into question the true assurances of the No Surprises Policy).

⁴²50 C.F.R. § 17.3 (FWS); 50 C.F.R. § 222.102 (NMFS); 50 C.F.R. § 17.22(b)(5)(iii) (FWS); 50 C.F.R. § 222.307(g)(3) (NMFS).

⁴³50 C.F.R. § 17.22 (FWS); 50 C.F.R. § 222.307(h) (NMFS).

aspects of its rules governing the revocation of permits (the Permit Revocation Rule (PRR)). These changes provided that the FWS could revoke its approval of an HCP “as a last resort in the narrow and unlikely situation in which an unforeseen circumstance results in likely jeopardy to a species covered by the permit.”⁴⁴ The PRR specifically allows the FWS to unilaterally revoke an ITP if the implementation of the HCP, through no fault of the permit applicant, will result in jeopardy to a covered species.⁴⁵ This rule may have the effect of deterring some from participating in the HCP process.

Both the No Surprises Policy Rule and the PRR have been susceptible to procedural and substantive challenges. In *Spirit of the Sage Council v. Norton*,⁴⁶ organizations with members that photograph, study, and observe listed species challenged the FWS’ No Surprises Rule and the PRR as being in violation of the ESA and the APA. Based on the merits, the court found that the PRR was promulgated without required notice and comment and therefore in violation of the APA’s procedural requirements.⁴⁷ Without reaching plaintiff’s substantive claims, the court remanded the PRR to the FWS for public notice and comment. The court also found that the No Surprises Rule was “sufficiently intertwined” with the PRR that it needed to be remanded for reconsideration as well.⁴⁸ After a failed appeal by the FWS,⁴⁹ the FWS solicited public comment on both the PRR and the No Surprises Rule and repromulgated both without substantial change.⁵⁰

In *Spirit of the Sage Council v. Kempthorne*,⁵¹ the court held that all procedural defects in the PRR and the No Surprises Rule had been addressed. The plaintiffs filed again for summary judgment on substantive grounds, arguing that the No Surprises Rule and the PRR contravened the ESA and were arbitrary and capricious under the APA. In determining whether the rules were contrary to the ESA, the court applied the Chevron test. Plaintiffs argued that, based on the ESA’s definition of “conservation” to include both the survival and recovery of a listed species, the PRR was contrary to law because the rule provided that an ITP could only be revoked if activity hindered survival of species and did consider the species’ recovery.⁵² The court rejected this argument after a close review of § 10 of the ESA and the necessary components of an HCP. The court noted that § 10 requirements for an ITP applicant’s conservation plan only speak to minimizing impact on species and do not address the recovery of the species.⁵³ Consequently, the court found that ITPs do not have to promote the recovery of a species and “applicants are only required to minimize and mitigate the impact on species ‘to the maximum extent possible.’”⁵⁴

Since the court found that “Congress did not intend ITPs to have to promote or

⁴⁴65 Fed. Reg. 6916, 6918 (Feb. 11, 2000).

⁴⁵50 C.F.R. §§ 17.22(b)(8), 17.32(b)(8).

⁴⁶*Spirit of Sage Council v. Norton*, 294 F. Supp. 2d 67 (D.D.C. 2003), order amended, 2004 WL 1326279 (D.D.C. 2004) and appeal dismissed, judgment vacated in part, 411 F.3d 225 (D.C. Cir. 2005).

⁴⁷*Spirit of Sage Council v. Norton*, 294 F. Supp. 2d 67, 90–91 (D.D.C. 2003), order amended, 2004 WL 1326279 (D.D.C. 2004) and appeal dismissed, judgment vacated in part, 411 F.3d 225 (D.C. Cir. 2005).

⁴⁸*Spirit of Sage Council v. Norton*, 294 F. Supp. 2d 67, 91 (D.D.C. 2003), order amended, 2004 WL 1326279 (D.D.C. 2004) and appeal dismissed, judgment vacated in part, 411 F.3d 225 (D.C. Cir. 2005).

⁴⁹*Spirit of the Sage Council v. Norton*, 411 F.3d 225 (D.C. Cir. 2005).

⁵⁰*Spirit of the Sage Council v. Norton*, 411 F.3d 225, 228 (D.C. Cir. 2005).

⁵¹*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31 (D.D.C. 2007).

⁵²*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 41–42 (D.D.C. 2007).

⁵³*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 42 (D.D.C. 2007).

⁵⁴*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 42 (D.D.C. 2007) (quoting 16 U.S.C.A. § 1539(a)(2)(B)(ii)).

maintain the recovery of listed species,”⁵⁵ under Chevron, the court further considered whether the FWS’ action was a permissible construction of the ESA. Relying on its analysis of the requirements of § 10, the court found that the “PRR adopts a facially reasonable policy for revocation.”⁵⁶ The court concluded that the No Surprises Rule was not contrary to the ESA either.

The court also rejected the plaintiffs’ arguments that the FWS did not articulate a reasoned basis for the rules and that the rules were inconsistent with the goals of the ESA.⁵⁷ The court systematically rejected all of the plaintiffs’ arguments, referencing back to its analysis of § 10 and concluding that the rules were not arbitrary and capricious under the APA.⁵⁸

4. *The Five-Point Policy*

Potential applicants must be aware of an addendum to the *HCP Handbook* (the Five-Point Policy) that adopts an adaptive management approach.⁵⁹ Adaptive management is a “method for examining alternative strategies for meeting measurable biological goals and objectives, and then, if necessary, adjusting future conservation management actions according to what is learned.”⁶⁰ Adaptive management contemplates that HCP conservation strategies will be adjusted as new information is developed. The Five-Point Policy provides that HCPs using adaptive management “should clearly state the range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty. This range defines the limits of what resource commitments may be required of the permittee.”⁶¹ Despite this guidance, in practice, the FWS has been reluctant to agree to limits on adaptive management strategies.

5. *Section 7 Consultation Requirement*

During a review of an HCP/ITP application, the FWS and the NMFS engage in consultation, in accordance with § 7 of the ESA.⁶² The consultation requirements are triggered by actions with a federal nexus, and the federal action agency may proceed with the federal action only after completing the consultation, which may include preparation of a biological opinion.⁶³ The biological opinion sets forth the “incidental take statement” that permits the private party to incidentally “take” a listed species under limited circumstances.⁶⁴ Once a project has been initiated, the § 7 consultation may be reinitiated only under limited circumstances.⁶⁵ The exacting standards regarding reinitiation provide applicants with some level of comfort that a completed project will not be continually reopened over time.

§ 21:42 Enhancement of survival and “safe harbor” permits

Section 10(a)(1)(A) of the ESA permits otherwise prohibited acts when pursued in

⁵⁵*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 43 (D.D.C. 2007).

⁵⁶*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 44 (D.D.C. 2007).

⁵⁷*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 44 (D.D.C. 2007).

⁵⁸*Spirit of Sage Council v. Kempthorne*, 511 F. Supp. 2d 31, 46 (D.D.C. 2007).

⁵⁹65 Fed. Reg. 35242 (June 1, 2000).

⁶⁰65 Fed. Reg. 35242, 35252 (June 1, 2000).

⁶¹65 Fed. Reg. 35242, 35253 (June 1, 2000).

⁶²16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2); see 50 C.F.R. § 402.10(a) (requiring same); see also H.R. Conf. Rep. No. 97-835, at 29 (1982), reprinted in 1982 U.S.C.C.A.N. 2860, 2870. The § 7 consultation requirements and procedures are reviewed in detail in §§ 21:23 to 21:31, *supra*.

⁶³See 16 U.S.C.A. § 1536(b), ELR Stat. ESA § 7(b).

⁶⁴16 U.S.C.A. § 1536(b)(4), ELR Stat. ESA § 7(b)(4).

⁶⁵50 C.F.R. § 402.16.

an effort to enhance the propagation or survival of a listed species.¹ Such enhancements have included capture, study, tagging, banding, and other scientific activities.

In 1999, the FWS adopted regulations that formalized the use of a “tool” entitled the Safe Harbor Agreement (SHA),² to be used in connection with an application for an “enhancement of survival” permit. In other words, an SHA is appropriate when a landowner is proposing to engage in activities that may restore, enhance, or maintain habitat for a listed species on one’s private land. An HCP, on the other hand, is used in connection with an ITP when a landowner proposes to engage in an activity that will result in a take of a listed species. The benefit of an SHA is that a landowner is given assurances that in exchange for its activities that will enhance the survival of a species, future land use restrictions will be limited and some future incidental take of a covered species will be allowed. Any person seeking an SHA-based permit must submit a permit application (FWS Form 3-200.54).³

§ 21:43 Other taking exceptions

In addition to the incidental take and enhancement of survival permits, the ESA provides for certain other limited exceptions to the general rule of protection of listed species. These exceptions are applicable to specific situations, involving specific species and/or persons.

The ESA’s hardship exemption provides, for example, that under certain instances, the FWS may, to minimize economic hardship, issue a permit exempting a person from applying the ESA’s prohibitions for up to one year. The hardship exemption applies in circumstances in which a person has entered into a “contract with respect to a species” prior to publication in the *Federal Register* of a notice of consideration of the species for listing and prior to the final listing of the species, but only if applying the ESA’s prohibition would cause “undue economic hardship.”¹

Section 10 of the ESA also authorizes: takings and trade of listed species by Alaska natives,² trade in specific “[p]re-Act endangered species parts” (including sperm whale oil),³ and importation or possession of certain antique articles (at least 100 years old) consisting of listed species.⁴ Certain takes are also allowed with respect to the defense of human safety, as well as activities associated with wildlife that was held in captivity or in a controlled environment, for noncommercial

[Section 21:42]

¹16 U.S.C.A. § 1539(a)(1)(A), ELR Stat. ESA § 10(a)(1)(A).

²Final Policy for Candidate Conservation Agreements With Assurances, 64 Fed. Reg. 32726 (June 17, 1999). Although the NMFS has not yet adopted a similar rule, it did indicate its intention to do so at a later date. See 64 Fed. Reg. 32726, 32727 to 28.

³64 Fed. Reg. 32726, 32712; 50 C.F.R. §§ 17.22(c)(1) (for endangered wildlife), 17.32(c)(1) (for threatened wildlife).

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¹16 U.S.C.A. § 1539(b)(2)(A) to (C), ELR Stat. ESA § 10(b)(2)(A) to (C), defines economic hardship to include:

(A) substantial economic loss resulting from inability to caused by this chapter to perform contracts with respect to species of fish and wildlife entered into prior to the date of publication in the *Federal Register* of a notice of consideration of such species as an endangered species; (B) substantial economic loss to persons who, for the year prior to the notice of consideration of such species as an endangered species, derived a substantial portion of their income from the lawful taking of any listed species, which taking would be made unlawful under this chapter; or (C) curtailment of subsistence taking made unlawful under this chapter by persons (i) not reasonably able to secure other sources of subsistence; and (ii) dependent to a substantial extent upon hunting and fishing for subsistence; and (iii) who engage in such curtailed taking for subsistence purposes.

²16 U.S.C.A. § 1539(e), ELR Stat. ESA § 10(e).

³16 U.S.C.A. § 1539(f), ELR Stat. ESA § 10(f).

⁴16 U.S.C.A. § 1539(h), ELR Stat. ESA § 10(h).

purposes, on December 28, 1973, or on the date that the particular species was listed under the ESA.⁵

§ 21:44 Candidate conservation agreements with assurances

The Candidate Conservation Agreements (CCA) Policy provides incentives for nonfederal property owners to conserve candidate species.¹ “Candidate species” are defined differently by the FWS and the NMFS. The FWS defines “candidate species” as species for which the “. . . FWS has sufficient information on file relative to status and threats to support issuance of proposed listing rules.”² The NMFS defines “candidate species” more broadly as “. . . species for which NMFS has information indicating that listing may be warranted but for which sufficient information to support actual proposed listing rules is lacking.”³

CCAs are formal agreements between the FWS and/or the NMFS and one or more parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before they are listed.⁴ Participants voluntarily commit to implement specific actions that will remove or reduce the threats to these species, thereby stabilizing or restoring the species so that listing is no longer necessary. The goal of CCAs is to remove enough threats to the target species to eliminate the need for protection under the ESA. The benefit to a landowner for entering into a CCA is that the FWS or the NMFS will provide assurances that, in the event a species covered in the CCA is subsequently listed as endangered or threatened, the FWS or the NMFS will not assert additional restrictions or require additional actions above those the property owner voluntarily committed to in the CCA.⁵ In other words, a CCA assures landowners that if they install, for example, watering facilities or fencing, or replant native vegetation to benefit candidate species, they will not be required to implement further measures or be subject to additional restrictions on the use of their land or water if the species subsequently is listed.⁶

The FWS and the NMFS evaluate whether to enter into a CCA by considering “the extent to which the agreement reduces threats to proposed and candidate species and species likely to become candidates or proposed in the near future, so as to preclude or remove any need to list these species as threatened or endangered under the ESA.”⁷ The FWS and the NMFS realize that while “the actions of a single property owner usually will not preclude or remove any need to list a species, they also realize the collective effect of the actions of many property owners may be to preclude or remove any need to list.”⁸

CCAs have resulted in the withdrawal of several proposals to list species. For example, in Utah, the FWS signed a CCA to protect a fish called the virgin spinedace. The goal of the CCA was to bring back this species to 80% of its habitat. Based on the efforts of the state, the virgin spinedace was removed from the

⁵See 16 U.S.C.A. § 1538(b)(1), ELR Stat. ESA § 9(b)(1).

[Section 21:44]

¹64 Fed. Reg. 32726, 32733 (June 17, 1999).

²64 Fed. Reg. 32726, 32734 (June 17, 1999).

³64 Fed. Reg. 32726, 32734 (June 17, 1999).

⁴64 Fed. Reg. 32726, 32734 (June 17, 1999).

⁵64 Fed. Reg. 32726, 32734 (June 17, 1999).

⁶64 Fed. Reg. 32726, 32733 to 34 (June 17, 1999).

⁷64 Fed. Reg. 32726, 32733 (June 17, 1999).

⁸64 Fed. Reg. 32726, 32733 (June 17, 1999).

candidate species list in 1996.⁹

IX. ENFORCEMENT AND CITIZEN SUITS

§ 21:45 Generally

Section 11 of the ESA sets forth the penalties that a violator may face.¹ These cover a wide range, including civil penalties,² criminal fines and prison terms,³ injunctions,⁴ reimbursement of plaintiffs' litigation costs in the case of citizen suits,⁵ forfeiture of vehicles and equipment,⁶ and loss of federal operating permits, licenses, and leases crucial to the operation of a business.⁷

§ 21:46 Tiered system of penalties

Section 11 of the ESA also operates to punish in proportion to the value of the species affected.¹ For a violation affecting a species listed as *endangered*, the ESA offers penalties of up to \$25,000 per occurrence,² along with criminal penalties of \$100,000 and a year in jail.³ For activity affecting a *threatened* species, the penalties are somewhat more modest: \$12,000 per occurrence in civil damages⁴ and a criminal penalty of \$25,000 and up to six months in jail.⁵ Other violations may bring \$500 fines.⁶

In addition, § 11 allows for the seizure of all guns, traps, nets, and other equipment, vessels, vehicles, aircraft used to aid in an ESA violation,⁷ though the parameters of this provision have not been tested by the courts. Successful ESA plaintiffs may recover their litigation costs, including attorneys fees.⁸

§ 21:47 Intent and ESA liability

In a 1978 amendment to the ESA, Congress lowered the intent requirement from

⁹Press Release, U.S. Fish and Wildlife Service, FWS Announces Conservation Agreement Avoids Listing of Virgin Spinedace (Feb. 6, 1996).

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¹16 U.S.C.A. § 1540, ELR Stat. ESA § 11.

²16 U.S.C.A. § 1540(a), ELR Stat. ESA § 11(a).

³16 U.S.C.A. § 1540(b), ELR Stat. ESA § 11(b).

⁴16 U.S.C.A. § 1540(e)(6), ELR Stat. ESA § 11(e)(6).

⁵16 U.S.C.A. § 1540(g)(4), ELR Stat. ESA § 11(g)(4).

⁶16 U.S.C.A. § 1540(e)(4)(B), ELR Stat. ESA § 11(e)(4)(B).

⁷16 U.S.C.A. § 1540(b)(2), ELR Stat. ESA § 11(b)(2).

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¹16 U.S.C.A. § 1540, ELR Stat. ESA § 11.

²16 U.S.C.A. § 1540(a)(1), ELR Stat. ESA § 11(a)(1).

³16 U.S.C.A. § 1540(b)(1), ELR Stat. ESA § 11(b)(1). *See* U.S. v. Nguyen, 916 F.2d 1016 (5th Cir. 1990) (ESA jail sentences are Class B misdemeanors under federal law).

⁴16 U.S.C.A. § 1540(a)(1), ELR Stat. ESA § 10(a)(1).

⁵16 U.S.C.A. § 1540(b)(1), ELR Stat. ESA § 10(b)(1).

⁶16 U.S.C.A. § 1540(a)(1), ELR Stat. ESA § 10(a)(1).

⁷16 U.S.C.A. § 1540(e)(4)(B), ELR Stat. ESA § 10(e)(4)(B).

⁸16 U.S.C.A. § 1540(g)(4), ELR Stat. ESA § 11(g)(4). *See* American Canoe Ass'n, Inc. v. U.S. E.P.A., 138 F. Supp. 2d 722 (E.D. Va. 2001) (prevailing plaintiffs are entitled to recover fees under the Clean Water Act and the ESA for unsuccessful claims that are substantially related to claims on which plaintiffs succeeded). *But see* Hill v. Tennessee Valley Authority, 84 F.R.D. 226 (E.D. Tenn. 1979) (plaintiffs were not entitled to award in district court for appellate printing costs and fees that were neither claimed nor awarded in either of the appellate courts).

willfully committed to knowingly committed, and thus from a “scienter” requirement of specific to general intent.¹ Thus, accidental killings of an endangered species may be considered take, so long as the action that unintentionally results in the death of a listed species was being done intentionally.² It is not necessary to show that someone who has killed an endangered species knew it was endangered or even knew there was such a thing as the ESA; all that is required is that that person be aware that he or she is killing an animal. A commonly cited example of this point is the decision in *United States v. McKittrick*,³ in which a Montana man shot an endangered grey wolf. The court held that even if the defendant McKittrick was unaware of the endangered status of the wolf, the ESA still permitted a finding of guilt.

In *United States v. Ivey*,⁴ the Fifth Circuit noted that the ESA did not proscribe specific intent crimes. The court quoted the legislative history: “The conferees do not intend to make knowledge of the law an element of either civil penalty or criminal violations of the [ESA].”⁵ In other words, the government must only show a defendant acted with general intent to commit the act, because Congress did not intend to make knowledge of the law an element of criminal violations.⁶ To require specific intent would render the ESA ineffective because it would be nearly impossible to demonstrate that the defendant intended to violate the ESA.⁷ The court also held that the protections provided by designation as a threatened or endangered species are triggered only by the taking of a species on the list at the time of the taking, not at the time of the list’s original creation.

In *United States v. Clavette*,⁸ the defendant was convicted of killing a grizzly bear in violation of the ESA. The Ninth Circuit stated the elements of the ESA case in its discussion. The court stated that, to find the defendant guilty of knowingly taking an endangered species, the government had to prove beyond a reasonable doubt that (1) the defendant knowingly killed the bear, (2) the bear was a threatened or an endangered species listed on the ESA, (3) the defendant had no permit from the FWS to kill a grizzly bear, and (4) the defendant did not act in self-defense or in the defense of others.⁹ The judgment was affirmed.

§ 21:48 Bodily harm defense

Even though specific intent is not required in order to show liability for a viola-

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¹The purpose of this amendment was to make “criminal violations of the act a general rather than a specific intent crime.”

The House report explicitly stated that it did “not intend to make knowledge of the law an element of either civil penalty or criminal violations of the Act.” See H.R. Rep. No. 1625, 95th Cong., 2d Sess. 26, *reprinted in* 1978 U.S.C.C.A.N. 9453, 9476; H.R. Conf. Rep. No. 1804, 95th Cong., 2d Sess. 26, *reprinted in* 1978 U.S.C.C.A.N. 9484, 9493.

²*Greenpeace Foundation v. Mineta*, 122 F. Supp. 2d 1123, 1136 (D. Haw. 2000).

³*U.S. v. McKittrick*, 142 F.3d 1170 (9th Cir. 1998).

⁴*U.S. v. Ivey*, 949 F.2d 759 (5th Cir. 1991).

⁵*U.S. v. Ivey*, 949 F.2d 759, 766 (5th Cir. 1991) (quoting H.R. Conf. Rep. No. 1804, 95th Cong., 2d Sess. 26 (1979)).

⁶*U.S. v. Ivey*, 949 F.2d 759, 766 (5th Cir. 1991) (quoting H.R. Conf. Rep. No. 1804, 95th Cong., 2d Sess. 26 (1979)). See also *U.S. v. Billie*, 667 F. Supp. 1485 (S.D. Fla. 1987).

⁷*U.S. v. Ivey*, 949 F.2d 759, 766 (5th Cir. 1991). See generally *U.S. v. Johnson & Towers, Inc.*, 741 F.2d 662 (3d Cir. 1984).

⁸*U.S. v. Clavette*, 135 F.3d 1308 (9th Cir. 1998).

⁹The government must disprove self-defense beyond a reasonable doubt. 16 U.S.C.A. §§ 1538(a)(1), 1540(b)(1), ELR Stat. ESA §§ 9(a)(1), 11(b)(1).

tion of the ESA, some exceptions to liability exist within § 11. For example, § 11 expressly provides that no civil or criminal liability will attach when the defendant committed the violating act “based on the good faith belief that he was acting to protect himself, or a member of his or her family, or another individual from bodily harm from any endangered or threatened species.”¹ However, this exception does not apply to any action taken to protect property of any kind, including livestock and pets, subject to regulatory allowances for specific species.²

§ 21:49 ESA citizen suits under § 11(g), generally

Section 11(g) of the ESA authorizes citizens to sue as “private attorneys general.”¹ This section has been the focus of much scrutiny and the subject of several significant constitutional standing cases. The ESA provides that any person may commence a civil suit on his own behalf,² and the definition of who may sue under § 11(g) is just as broad as the definition of who may be prosecuted under § 9(a). Environmental advocacy groups have traditionally sued under the ESA to protect species and their habitat. In addition, in 1997, the Supreme Court, in *Bennett v. Spear*,³ extended the universe of plaintiffs to cover property owners primarily asserting an economic interest affected by the ESA.

The citizen suit provision of the ESA authorizes any person to commence a civil suit:

- (1) to enjoin any person, including the United States and any other governmental instrumentality or agency (to the extent permitted by the eleventh Amendment to the Constitution), who is alleged to be in violation of any provision of [the ESA or its regulations]; or
- (2) to compel the Secretary to apply [§ 4(d) or § 9 prohibitions] with respect to the taking of any resident endangered species or threatened species within any State; or
- (3) against the Secretary where there is alleged a failure of the Secretary to perform any act or duty under [§ 4 of the ESA] which is not discretionary with the Secretary.⁴

This provision is extremely broad. Subsection (A) allows enforcement actions to be brought against any alleged violator of the ESA, including governmental agencies. Subsection (B), however, is limited in that it authorizes suits against the Secretary only with respect to the actions that violate § 4(d) regarding threatened species and § 9 take liability within a state. Subsection (C) allows suits against the Secretary for breach of nondiscretionary duties contained in § 4. These duties include responsibil-

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¹16 U.S.C.A. § 1540(a)(3), ELR Stat. ESA § 11(a)(3).

²For example, under 50 C.F.R. § 17.84(c)(4)(iii),

[a]ny private landowner, or any other individual having his or her permission, may take red wolves found on his or her property in the areas defined in paragraphs (c)(9)(i) and (ii) of this section when the wolves are in the act of killing livestock or pets, provided that freshly wounded or killed livestock or pets are evident and that all such taking shall be reported within 24 hours to the refuge manager for the red wolf population.

See also 50 C.F.R. § 17.40(b)(1)(i)(C) (allowing the taking of “nuisance bears” that have committed significant depredations upon livestock).

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¹*Bennett v. Spear*, 520 U.S. 154, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997); 16 U.S.C.A. § 1540(g), ELR Stat. ESA § 11(g).

²16 U.S.C.A. § 1540(g)(1), ELR Stat. ESA § 11(g)(1).

³*Bennett v. Spear*, 520 U.S. 154, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

⁴16 U.S.C.A. § 1540(g)(1)(A) to (C), ELR Stat. ESA § 11(g)(1)(A) to (C).

ities such as acting on petitions to list species and designate critical habitat within the time frames set out in that section. There has been considerable litigation over these procedural requirements. In contrast, challenges to the Secretary's discretionary implementation of provisions of the ESA are reviewable under the APA's "arbitrary and capricious" provision.⁵

§ 21:50 ESA citizen suits under § 11(g)—60-day notice provision

A crucial feature of the citizen suit provision is the requirement that the citizen give the target a 60-day notice of intent to file an ESA suit.¹ The Supreme Court has held that this requirement is a mandatory, nondiscretionary, condition precedent to suit.² The provision was intended to grant the defendant-to-be an opportunity to prepare a defense, mitigate or stop the activity, or cut a deal with the plaintiff. The notice also provides the FWS or the NMFS with ample time to evaluate whether the agency would be involved, based upon the plaintiff's allegations.³ The 60-day notice provision has been strictly construed,⁴ and failure to give proper notice can result in the flat dismissal of the suit.⁵

The notice must be in writing, and must be delivered to the intended defendant, as well as to the proper Secretary, depending on who regulates the affected species. The letter must specify the exact terms upon which the suit will be brought. General notice of intent to sue, or notice of intent to sue on grounds that differ from the actual grounds of the eventual suit, will not be deemed sufficient.⁶ Failure in delivery is failure of the suit; even when the contents of a letter were discussed between the plaintiff and the Secretary, failure to mail the notice resulted in the dismissal of the case.⁷ Theories of constructive notice are generally not available.

§ 21:51 ESA citizen suits under § 11(g)—Preliminary injunctions under the ESA

Preliminary injunctions are frequently sought by plaintiffs seeking to prevent impending harm to an endangered species. In considering an application for a preliminary injunction, courts typically invoke the traditional four-part balancing test, which weighs the following factors: (1) the movant's likelihood of success on the merits; (2) the potential irreparable injury to the movant in the absence of an injunction; (3) the balance of hardships among the parties; and (4) the public interest.¹

The law is unsettled, however, as to whether this traditional test for injunctive

⁵5 U.S.C.A. § 706.

[Section 21:50]

¹16 U.S.C.A. § 1540(g)(2)(C), ELR Stat. ESA § 11(g)(2)(C).

²Hallstrom v. Tillamook County, 493 U.S. 20, 110 S. Ct. 304, 107 L. Ed. 2d 237 (1989).

³Hawaii County Green Party v. Clinton, 124 F. Supp. 2d 1173 (D. Haw. 2000).

⁴Water Keeper Alliance v. U.S. Dept. of Defense, 271 F.3d 21, 29 (1st Cir. 2001) ("We have previously read the 60-day notice requirement in environmental citizen suits strictly.")

⁵See, e.g., Man Against Extinction v. Hall, 68 Env't. Rep. Cas. (BNA) 1141, 2008 WL 3549197 (N.D. Cal. 2008); Southwest Center for Biological Diversity v. U.S. Bureau of Reclamation, 143 F.3d 515 (9th Cir. 1998); Hawksbill Sea Turtle v. Federal Emergency Management Agency, 126 F.3d 461 (3d Cir. 1997).

⁶Southwest Center for Biological Diversity v. U.S. Bureau of Reclamation, 143 F.3d 515, 520–21 (9th Cir. 1998).

⁷Southwest Center for Biological Diversity v. U.S. Bureau of Reclamation, 143 F.3d 515, 522 n.3 (9th Cir. 1998).

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¹City of Las Vegas v. Lujan, 891 F.2d 927 (D.C. Cir. 1989).

relief applies in the context of the ESA. In *Tennessee Valley Authority (TVA) v. Hill*,² the Supreme Court seemingly foreclosed the traditional balancing of the equities test, noting that Congress has declared endangered species to be of an “incalculable” value and on that basis refused to consider the economic harm that would result from efforts to preserve the species.³

However, subsequent interpretation of the TVA decision by lower courts has called the breadth of the TVA holding into question. In *The Fund for Animals v. Turner*,⁴ the court rejected the argument that TVA compels judges to grant injunctions once a plaintiff has demonstrated a strong likelihood of success on the merits of its ESA claim. In distinguishing TVA, the Turner court noted that TVA involved a post-trial permanent injunction (not a preliminary injunction) and also featured an extreme set of facts, including a concession by the government that the challenged action (the building of a dam) would eradicate an entire endangered species.⁵

Commentators have also seized upon other Court decisions, including *Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon*⁶ and *Bennett*, as evidence that the Supreme Court is backing away from the uncompromising position articulated in TVA.⁷

The slow retreat from the TVA decision is well illustrated by two cases decided in the First and Ninth Circuits. Both of these circuits had initially adopted the TVA holding in toto and refused to conduct traditional balancing in ESA cases.⁸ Subsequent decisions, however, have moved away from this strict no-balancing rule and adopted a case-by-case approach.⁹

With the law unsettled, many judges have resorted to applying the traditional balancing test as an alternative ground to support a ruling, in order to protect the decision on appeal.¹⁰

§ 21:52 ESA citizen suits under § 11(g)—Standing

While the terms of ESA § 11(g) seem to offer only modest barriers to citizen suits, the Court has held that the ESA cannot reduce or evade the significant *constitutional*

²*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

³*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 187–88, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

⁴*Fund for Animals, Inc. v. Turner*, 1991 WL 206232 (D.D.C. 1991).

⁵*Fund for Animals, Inc. v. Turner*, 1991 WL 206232 (D.D.C. 1991).

⁶*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995).

⁷See, e.g., Federico Cheever, *Butterflies, Cave Spiders, Milk-Vetch, Bunchgrass, Sedges, Lilies, Check-Mallows and Why the Prohibition Against Judicial Balancing of Harm Under the Endangered Species Act Is a Good Idea*, 22 Wm. & Mary Env'tl. L. & Pol'y Rev. 313, 319–27 (1998).

⁸See *Strahan v. Coxe*, 127 F.3d 155 (1st Cir. 1997); *Sierra Club v. Marsh*, 816 F.2d 1376 (9th Cir. 1987).

⁹See *Water Keeper Alliance v. U.S. Dept. of Defense*, 271 F.3d 21, 34 (1st Cir. 2001) (distinguishing *Strahan* and applying the traditional balancing of the equities test because the national security interest asserted by the government was deserving of “greater weight than the economic harm at issue in *Strahan*”); *Southwest Center for Biological Diversity v. U.S. Dept. of Agriculture*, 314 F.3d 1060 (9th Cir. 2002) (declining to issue injunction despite finding of ESA procedural violation); *National Wildlife Federation v. Burlington Northern R.R., Inc.*, 23 F.3d 1508 (9th Cir. 1994) (affirming the lower court’s refusal to issue an injunction even though the ESA had been violated because there was little threat of future harm and therefore no irreparable injury).

¹⁰See, e.g., *House v. U.S. Forest Service*, U.S. Dept. of Agriculture, 974 F. Supp. 1022, 1027 n.8 (E.D. Ky. 1997); *Bensman v. U.S. Forest Service*, 984 F. Supp. 1242, 1247 (W.D. Mo. 1997).

requirements of Article III standing applicable to suits brought in a federal court.¹ In the pivotal case of *Lujan v. Defenders of Wildlife*,² Justice Antonin Scalia stressed the permanence of these requirements and applied them to the context of an ESA citizen suit. In *Lujan*, the plaintiffs sought to challenge a DOI regulation requiring consultation only on federal projects taking place within the United States or on the oceans, excluding government activities in foreign countries.³

a. Injury-in-Fact, or What Is “Harm”

Lujan placed the word “harm” in the center of another definitional battle with broad consequences to the ESA. This time, the question was not what constitutes harm to a species, but what constitutes sufficient harm to a plaintiff to allow him to claim standing to sue in federal court.⁴ This standing debate has been no less contentious or significant for ESA litigation than the disputes over the reach of the take provision.

In *Lujan*, the plaintiffs alleged that they had traveled overseas for the purpose of observing endangered wildlife in its native habitat in the past and that they “hoped” and “intended” to return to do so again.⁵ The court found that this failed to meet the constitutional standard, stating that “[t]he plaintiff must have suffered an injury-in-fact—an invasion of a legally protected interest which is (a) concrete and particularized, and (b) actual or imminent, not conjectural or hypothetical.”⁶

Several years later, the Court again addressed the standing under the ESA in *Bennett*. There, farmers in an irrigation district in Oregon brought suit challenging a biological opinion issued by the FWS. They alleged that the opinion, which was adopted by the Bureau of Reclamation and required minimum water levels for operation of the Klamath Project to protect the endangered snort nose sucker, caused injury by reducing water necessary for crop irrigation. The Court held that the farmers and ranchers had alleged sufficient Article III injury, even though they could not demonstrate that the opinion itself actually resulted in them receiving less water because the Bureau retained ultimate authority on water allocations. Significantly, the Court held that the issuance of the biological opinion under the ESA had such a “powerful coercive effect” that injury could be presumed.⁷

b. Causation

[Section 21:52]

¹*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

²*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

³*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 559, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

⁴*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

⁵*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 563, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

⁶*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992) (citations omitted).

⁷While not an ESA case, the Court’s 2000 ruling in *Friends of the Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc.*, 528 U.S. 167, 120 S. Ct. 693, 145 L. Ed. 2d 610, 163 A.L.R. Fed. 749 (2000), may signal a change in the weather for the definition of harm. In this case, a group of property owners in the vicinity of a chemical facility alleged that the facilities’ operators were exceeding the mercury emissions authorized by their national emissions permit. They alleged that once this fact became known, they were placed in fear of the health consequences of swimming or fishing in the North Tyger River. The court held that this subjective fear was sufficient harm to survive the standing inquiry. This stands in marked contrast to the *Lujan* Court’s requirement of actual or imminent harm, as even by the Court’s admission, the additional emission had no measurably harmful impact on the quality of the water. See Daniel A. Farber, *Environmental Litigation After Laidlaw*, 30 ELR 10516 (July 2000); Michael P. Healy, *Standing in the Environmental Citizen Suits: Laidlaw’s Clarification of the Injury-in-Fact and Redressability Requirements*, 30 ELR 10455 (June 2000); Craig N. Johnston, *Standing and Mootness After Laidlaw*, 30 ELR 10317 (May 2000).

The second standing “prong” requires plaintiffs to demonstrate that there is a causal connection between the injury and the conduct complained of—the injury has to be fairly traceable to the challenged action of the defendant, and not the result of the independent action of some third party not before the court.⁸

This requirement has real consequences for plaintiffs who wish to bring suit against federal defendants for regulating or supervising activities by private entities. Plaintiffs must demonstrate that the federal agency is taking an action or refraining from an action that demonstrably affects the actions of third parties not before the court. However, this does not mean that the presence of a third party is always a disqualification under *Lujan*; so long as the alleged shared responsibility includes the plaintiff, standing is still possible. Given the purpose of the citizen suit provision, it is not surprising that courts have been willing to find causation in many ESA cases.

As noted above, the Bennett Court found such a causal connection from the FWS’ issuance of a biological opinion, even though such an opinion is technically only advisory under § 7 of the ESA—that is, the Bureau of Reclamation was not obligated to adopt it when establishing minimum water levels for the Klamath Reservoir. The Court noted that, under the ESA, the biological opinion’s incidental take statement essentially authorizes the action agency to take the species as long as it complies with the FWS’ “terms and conditions.” While the Bureau was “technically free to disregard the Biological Opinion and proceed with its proposed action . . . it does so at its own peril” in light of the potential criminal and civil penalties for “take” under the ESA.⁹ Thus, for the first time, the Court found a sufficient (although indirect) causal connection between an FWS action and the potential harm to nonenvironmental property interests of farmers dependent on sufficient water so as to establish Article III standing under the ESA. The Bennett Court’s reasoning was subsequently followed in the case of *Building Industry Ass’n v. Babbitt*.¹⁰ There, the court held that industry plaintiffs had standing to challenge the listing of five species of fairy shrimp in the central valley of California because the listing decision had a “determinative or coercive effect” on other agencies, and in particular, on the Corps with regard to the issuance of permits under § 404 of the Clean Water Act.¹¹

In *Loggerhead Turtle v. County Council of Volusia County, Fla.*,¹² the court found a sufficient causal connection between a municipality’s regulatory action and the plaintiff’s interests in the effects of maintaining bright lights alongside a strip of beach, in the context of the plight of hatchling turtles on the beach, which mistook the bright artificial light for sunlight and headed toward it, away from the water. The court found that while third parties were also involved in the harm, the lights would not be present but for the actions of the county in locating them there and ruled in favor of the plaintiff.

c. Redressability

Under the redressability test, a court must determine whether a plaintiff’s injury may be redressed by a favorable decision. In *Lujan*, the Court articulated that standard as requiring a finding that redressability of the injury is likely, as opposed to

⁸See *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

⁹*Bennett v. Spear*, 520 U.S. 154, 170, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

¹⁰*Building Industry Ass’n of Superior California v. Babbitt*, 979 F. Supp. 893 (D.D.C. 1997).

¹¹*Building Industry Ass’n of Superior California v. Babbitt*, 979 F. Supp. 893, 899 (D.D.C. 1997).

¹²*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231, 41 Fed. R. Serv. 3d 563 (11th Cir. 1998).

merely speculative.¹³ Thus, the Court held that invalidation of the regulation at issue making § 7 consultation inapplicable to federal agency actions in foreign countries would not redress the claimed injury because action by nonparty agencies would be required (including terminating funding of foreign projects). Thus, it was “entirely conjectural” that new § 7 regulations would alter the activity that was allegedly causing harm to listed species.¹⁴

In contrast, in *Bennett* the Court found that the FWS’ biological opinion on the operation of the Klamath Project had such a “powerful coercive effect” on the Bureau that overturning the biological opinion would redress the grievances of the irrigation district plaintiffs. The ruling was also buttressed by the Court’s recognition that plaintiffs had relied on the fact that the Bureau had operated the Klamath Project in the same manner for most of the 20th century. In support of this analysis, the Court noted that the citizen suit provision allowed courts to review whether the Secretary had breached its nondiscretionary duty to “ensure that the ESA was not implemented haphazardly, on the basis of speculation or surmise” and to “avoid needless economic dislocation.”¹⁵

d. Prudential Standing Requirements

In addition to establishing constitutional standing, an ESA plaintiff must also satisfy the so-called prudential standing requirements. Prudential standing is a judicially created doctrine designed to promote judicial efficiency and restraint. Unlike constitutional standing, prudential standing requirements can be modified or abrogated by congressional fiat.¹⁶

In deciding whether a plaintiff has established prudential standing, courts consider three factors:

- (1) Whether the alleged injury to the plaintiff falls within the zone of interests protected by the statute or constitutional provision at issue.
- (2) Whether the complaint raises nothing more than abstract questions, amounting to generalized grievances that are more appropriately resolved by the legislative and executive branches.
- (3) Whether the plaintiff is asserting his or her own legal rights and interests, rather than those of third parties.¹⁷

The first of these requirements, the so-called zone of interests test, has traditionally proven vexing for litigants, particularly for industry representatives attempting to challenge environmental actions taken by the government. But in the context of the ESA, the barriers to suit are significantly lower due to the Court’s decision in *Bennett*.

In *Bennett*, the Court held that the citizen suit provision of the ESA applies “not only [to] . . . actions against private violators of environmental restrictions . . . but also to actions against the [government] asserting overenforcement of [the ESA].”¹⁸ This landmark holding opened the door to a wave of lawsuits from industry representatives seeking to curtail the government’s enforcement of the ESA and thereby created another chapter in the history of the much-litigated statute.¹⁹

e. The APA Alternative

¹³*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

¹⁴*Lujan v. Defenders of Wildlife*, 504 U.S. 555, 571, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992).

¹⁵*Bennett v. Spear*, 520 U.S. 154, 176, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

¹⁶*Bennett v. Spear*, 520 U.S. 154, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

¹⁷Moore’s Federal Practice 3d § 101.51 (citing cases).

¹⁸*Bennett v. Spear*, 520 U.S. 154, 166, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

¹⁹*E.g.*, *National Ass’n of Home Builders v. Norton*, 340 F.3d 835 (9th Cir. 2003); *Arizona Cattle*

Many suits under the ESA, indeed many environmental suits in general, involve additional allegations that a government agency has acted arbitrarily and capriciously in carrying out its responsibilities. These suits offer an appealing route for the environmental plaintiff. However, courts have been careful not to allow plaintiffs to utilize APA claims to short-circuit the 60-day citizen suit notice provision. A plaintiff may not choose her statutory weapon, as the APA is not an avenue for duplicative review. The APA is only available when there is no other way to obtain review of the agency's findings.²⁰ It should also be noted that plaintiffs who choose to sue under the APA may not present any evidence to the trial court outside of the administrative record.²¹

Review under the APA is available only when the challenged governmental decision constitutes "final agency action."²² While this limitation prevents review of mere recommendations issued by an agency, the Court has held that in the context of the ESA, a biological opinion issued by the FWS constitutes final agency action, even though the opinion is not technically binding upon the agency requesting it. In justifying this broad interpretation of the term "final," the Court noted that an FWS biological opinion has a "powerful coercive effect" upon the requesting agency and that agencies "very rarely chose to engage in conduct that [the FWS] has concluded is likely to jeopardize the continued existence of a listed species."²³ Based on these findings, the Court concluded that a biological opinion has "direct and appreciable legal consequences" and therefore constitutes final agency action reviewable under the APA.²⁴

§ 21:53 ESA citizen suits under § 11(g)—Attorneys fees under the ESA

The ESA authorizes courts to "award costs of litigation (including reasonable attorneys and expert witness fees) to any party whenever the court determines such an award is appropriate."¹ The courts have interpreted "as appropriate" as "modifying but not completely rejecting the traditional rule that a fee claimant must 'prevail' before it may recover attorneys fees."² Thus, the Court has held that "absent some degree of success on the merits by the claimant, it is not appropriate for a federal court to award attorneys fees."³ The interpretation of this standard has been addressed by courts under the ESA in response to the Supreme Court decision in *Buckhannon Board & Care Home, Inc. v. West Virginia Department of Health & Human Resources*.⁴ In *Buckhannon*, the Court invalidated the "catalyst theory" (in which a suit results in the defendant's voluntary change of conduct) as a basis for an award of fees, holding that only a party who obtains a judgment on the merits or a similar court-ordered change in the party's legal relationship, such as a consent decree, may be considered a "prevailing party" for the purposes of a fee award.⁵

Growers' Ass'n v. U.S. Fish and Wildlife, Bureau of Land Management, 273 F.3d 1229 (9th Cir. 2001).

²⁰*Hawaii County Green Party v. Clinton*, 124 F. Supp. 2d 1173, 1193 (D. Haw. 2000).

²¹*Federation of Fly Fishers v. Daley*, 131 F. Supp. 2d 1158, 1161 (N.D. Cal. 2000).

²²5 U.S.C.A. § 704.

²³*Bennett v. Spear*, 520 U.S. 154, 170, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

²⁴*Bennett v. Spear*, 520 U.S. 154, 178, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997).

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¹16 U.S.C.A. § 1540(g), ELR Stat. ESA § 11(g).

²*Ruckelshaus v. Sierra Club*, 463 U.S. 680, 686, 103 S. Ct. 3274, 77 L. Ed. 2d 938 (1983).

³*Ruckelshaus v. Sierra Club*, 463 U.S. 680, 694, 103 S. Ct. 3274, 77 L. Ed. 2d 938 (1983).

⁴*Buckhannon Bd. and Care Home, Inc. v. West Virginia Dept. of Health and Human Resources*, 532 U.S. 598, 121 S. Ct. 1835, 149 L. Ed. 2d 855 (2001).

⁵*Buckhannon Bd. and Care Home, Inc. v. West Virginia Dept. of Health and Human Resources*,

In *Loggerhead Turtle v. County Council of Volusia County, Florida*,⁶ the Eleventh Circuit, citing two other rulings,⁷ held that *Buckhannon* does not invalidate the use of the catalyst test as a basis for awarding fees under the ESA. The court upheld an award of \$286,082 in fees and costs based on a citizen suit that eventually resulted in the county amending its beach lighting ordinance to provide greater protection for the turtles. The court gave three reasons for its ruling: First, “and most important . . . there is clear evidence that Congress intended that a plaintiff whose suit furthers the goal of a ‘whenever appropriate’ statute be entitled to recover attorneys fees” (relying on such evidence in other environmental statutes such as the Clean Air Act).⁸ Second, the Court’s opinion in *Buckhannon* made no reference whatsoever to “the whenever appropriate class of fee-shifting statutes. Instead, the Court’s opinion expressly addressed only the meaning of prevailing party.”⁹ Finally, an important policy consideration in the *Buckhannon* opinion did not apply under the ESA because only equitable relief is available.¹⁰ The court commented that “[a] contrary rule would cripple the citizen suit provision of the [ESA], in derogation of Congress’ abundantly clear intent to ‘afford’ endangered species the highest of priorities.”¹¹ In sum, it appears that attorneys fees would be available for a citizen suit plaintiff who can establish that the suit furthered the purposes and goals of the Act, even though it may not have resulted in complete court-ordered relief.

X. FEDERAL AND STATE INTERACTION UNDER THE ESA

§ 21:54 Generally

As of November 2008, the FWS reported 1,358 species of animals and plants listed as either endangered or threatened,¹ with an additional 56 proposed for listing and 251 candidate species.² With roughly one-half of these species having at least 80% of their habitat on private lands,³ it is evident that an effective endangered species conservation program is dependent upon a healthy and cooperative interaction between the federal government and private landowners, communities, and tribes, with states serving as integral catalyzing agents to the species conservation

532 U.S. 598, 603–04, 121 S. Ct. 1835, 149 L. Ed. 2d 855 (2001).

⁶*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 307 F.3d 1318 (11th Cir. 2002).

⁷*Southwest Center for Biological Diversity, California Native Plant Society v. Carroll*, 182 F. Supp. 2d 944 (C.D. Cal. 2001) (*Buckhannon* did not intend to affect “whenever . . . appropriate” status for statutes such as the ESA); *Center for Biological Diversity v. Norton*, 262 F.3d 1077, 1080 n.2 (10th Cir. 2001).

⁸*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 307 F.3d 1318, 1325 (11th Cir. 2002).

⁹*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 307 F.3d 1318, 1326 (11th Cir. 2002).

¹⁰*Buckhannon* noted the absence of the possibility that a “mischievous defendant could avoid liability for attorneys fees in a meritorious case by voluntarily changing their conduct and mooting the case” as long as the plaintiff has a cause of action for damages.

¹¹*Loggerhead Turtle v. County Council of Volusia County, Fla.*, 307 F.3d 1318, 1327 (11th Cir. 2002) (citing *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978)).

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¹U.S. Fish & Wildlife Service, Threatened and Endangered Species System, http://ecos.fws.gov/te ss_public/TESSBoxscore (last visited Nov. 11, 2008).

²U.S. Fish & Wildlife Service, Threatened and Endangered Speies System, http://ecos.fws.gov/tes s_public/ (last visited Nov. 11, 2008).

³U.S. Fish & Wildlife Service, Threatened and Endangered Speies System, http://ecos.fws.gov/tes s_public/ (last visited Nov. 11, 2008).

effort.⁴ With the passage of the ESA in 1973, Congress sought to maximize this relationship through a number of key provisions and programs, at the same time that it greatly expanded the federal role in the stewardship of wildlife throughout the United States.

§ 21:55 The Federal role enhanced

The Endangered Species Protection Act of 1966 and the Endangered Species Conservation Act of 1969¹ essentially only offered protection for endangered species occurring/residing on federal lands. However, in enacting the ESA in 1973, Congress extended the reach of federal law to prohibit the taking of endangered and threatened species on all land in the United States, whether it be state-owned, municipality-owned, or privately held.² The clear and unprecedented objective of the 1973 ESA was to address species extinction as a national concern and in the process, to “better [safeguard], for the benefit of all citizens, the Nation’s heritage in fish, wildlife and plants.”³

Congress undertook this bold expansion of the ESA, like so much other social and economic legislation, through its Commerce Clause⁴ authority to “regulate Commerce with foreign nations and among the several States”⁵ For the better part of the 20th century, Congress’ Commerce Clause authority was broadly construed and deferentially reviewed by the courts, with little distinction given between activities impacting interstate commerce, whether they be directly or indirectly.⁶ In 1995, however, the U.S. Supreme Court, for the first time in almost 60 years, struck down certain federal legislation as unconstitutional under the Commerce Clause. In *United States v. Lopez*,⁷ the Court held that the Gun-Free School Zones Act of 1990, which declared possession of a gun within a school zone to be a federal offense, exceeded Congress’ authority under the Commerce Clause.

The *Lopez* Court explained that Congress could regulate three broad categories of activities: (1) “the use of the channels of interstate commerce”; (2) “the instrumentalities of interstate commerce, or persons or things in interstate commerce, even though the threat may come only from intrastate activities”; and (3) “other activities having a substantial relation to interstate commerce . . . i.e., those activities that

⁴Under the ESA, “State” is defined as “any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the Virgin Islands, Guam, and the Trust Territory of the Pacific Islands.” 16 U.S.C.A. § 1532(17), ELR Stat. ESA § 3(17).

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¹The Endangered Species Protection Act of 1966 established a National Wildlife Refuge System and prohibited the disturbance of animals or habitat within that system. Pub. L. No. 89-669, 80 Stat. 926 (repealed 1973). The Endangered Species Conservation Act of 1969 required the Secretary of the Interior to develop a list of endangered species and prohibited the importation of said species absent a permit. Pub. L. No. 91-135, 83 Stat. 275 (repealed 1973).

²*See Gibbs v. Babbitt*, 214 F.3d 483 (4th Cir. 2000).

³*See* 16 U.S.C.A. § 1531(a)(3), ELR Stat. ESA § 2(a)(3) (“these species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people”); 16 U.S.C.A. § 1531(a)(5), ELR Stat. ESA § 2(a)(5).

⁴U.S. Const. art. 1, § 8, cl. 3.

⁵U.S. Const. art. 1, § 8, cl. 3.

⁶This deferential standard of review was established by the Court in the seminal 1937 case of *N.L.R.B. v. Jones & Laughlin Steel Corp.*, 301 U.S. 1, 57 S. Ct. 615, 81 L. Ed. 893, 108 A.L.R. 1352 (1937), wherein the Court held that intrastate activities having a close and substantial relationship to interstate commerce such that their control is essential or appropriate to protect interstate commerce are within the scope of the Commerce Clause.

⁷*U.S. v. Lopez*, 514 U.S. 549, 115 S. Ct. 1624, 131 L. Ed. 2d 626, 99 Ed. Law Rep. 24 (1995).

substantially affect interstate commerce.”⁸ As the Lopez Court noted, gun possession within a school zone clearly did not fit either of the first two categories, nor could it be regulated under the third category as an activity that “substantially affects” interstate commerce, because it was not commercial in nature nor an essential part of a larger regulation of economic activity. For all these reasons, the Court concluded that Congress had no rational basis for finding that gun possession within school zones had a substantial effect on interstate commerce.

Some saw the Lopez case as a harbinger that federal environmental legislation might be rolled back as violative of Congress’ jurisdiction under the Commerce Clause. However, subsequent federal court decisions have upheld Congress’ broad regulation of endangered species under the ESA through its Commerce Clause power. In *National Ass’n of Home Builders v. Babbitt*,⁹ the court upheld the prohibition against taking of endangered species under § 9 of the ESA as a valid exercise of Congress’ Commerce Clause authority. Moreover, the Home Builders court upheld the authority to prohibit the take of a listed species, even if the species, the Delhi Sands flower-loving fly, resided solely within the borders of a single state. That court found the first two prongs of the Lopez test applicable to the fly, whose habitat was located solely within an eight-mile span in two counties in California. Judge Patricia M. Wald, writing for the majority, relied upon the third, or substantial relation, test in Lopez, and the court concluded that Congress had intended to protect listed species from takings in part in order to maintain:

the continuing availability of a wide variety of species to interstate commerce . . . each time a species becomes extinct, the pool of wild species diminishes. This, in turn, has a substantial effect on interstate commerce by diminishing a natural resource that could otherwise be used for present and future commercial purposes.¹⁰

Whereas the majority opinion in *Home Builders* found support for Congress’ § 9 taking authority, under all three prongs of the Lopez test, the Fourth Circuit, in *Gibbs v. Babbitt*,¹¹ focused almost exclusively on the third prong of the Lopez test, the “substantial relation to interstate commerce” test. The court undertook an extensive explanation of the impacts, both direct and indirect, of ESA protection of red wolves occurring only within a single state to the larger interstate commerce issues. The court went on to engage in an exhaustive discussion in support of historical federal interests in the protection of endangered wildlife and its recognition among the federal courts. The U.S. District Court for the District of Columbia has also considered the Commerce Clause authority issue with respect to § 4 of the ESA regarding proposed listing and critical habitat designation for a species of fairy shrimp present only in California.¹²

Having denied *certiorari* in the *Building Industry Association* case,¹³ the Supreme Court has yet to examine the Commerce Clause argument in the ESA context since its decisions in Lopez and in 2000 in *United States v. Morrison*.¹⁴ Further, it is unlikely the Court will undertake to address the issue until any split in the holdings of the various circuits demands resolution.

⁸*U.S. v. Lopez*, 514 U.S. 549, 558–59, 115 S. Ct. 1624, 131 L. Ed. 2d 626, 99 Ed. Law Rep. 24 (1995).

⁹*National Ass’n of Home Builders v. Babbitt*, 130 F.3d 1041 (D.C. Cir. 1997).

¹⁰*National Ass’n of Home Builders v. Babbitt*, 130 F.3d 1041, 1045 (D.C. Cir. 1997).

¹¹*Gibbs v. Babbitt*, 214 F.3d 483 (4th Cir. 2000).

¹²*Building Industry Ass’n of Superior California v. Babbitt*, 979 F. Supp. 893 (1977), *aff’d*, 247 F.3d 1241, 31 Env’tl. L. Rep. 20622 (D.C. Cir. 2001), *cert. denied*, 534 U.S. 1108, 122 S. Ct. 913 (2002).

¹³*Building Industry Ass’n of Superior California v. Babbitt*, 979 F. Supp. 893 (1977), *aff’d*, 247 F.3d 1241, 31 Env’tl. L. Rep. 20622 (D.C. Cir. 2001), *cert. denied*, 534 U.S. 1108, 122 S. Ct. 913 (2002).

¹⁴*U.S. v. Morrison*, 529 U.S. 598, 120 S. Ct. 1740, 146 L. Ed. 2d 658, 144 Ed. Law Rep. 28 (2000).

§ 21:56 Role of the states

While Congress established through the ESA a pervasive federal role in species protection, extending to “any person subject to the jurisdiction of the United States,”¹ it also acknowledged the primary role of the states in species protection by formalizing a series of interrelationships between federal and state authorities throughout the ESA.

In its declaration of policy for enacting the ESA, Congress expressed its intent that federal agencies cooperate with state and local agencies to resolve water resource issues in concert with conservation of endangered species.² Several provisions of the ESA implement the cooperative approach envisioned by Congress.

1. Section 4—Listing and Critical Habitat Designation

Section 4 of the Act establishes the process by which the FWS and the NMFS make listing determinations for particular species as endangered or threatened with extinction and concurrently designate critical habitat for these species. Section 4(b)(1)(A) requires these agencies, prior to making listing determinations regarding a particular species, to take into account any efforts being made by any state or its political subdivision to protect the species in question, including efforts at habitat conservation and predator control.³ Similarly, § 4(b)(1)(B)(ii) also requires the FWS and the NMFS to give consideration to species that have been identified by any state wildlife conservation agency as in danger of extinction or likely to become so within the foreseeable future.⁴

The FWS and the NMFS are also required to give actual notice of proposed rules for listing particular species to any potentially affected state agency and to each county or equivalent jurisdiction where a subject species is believed to exist. This notice must be given no fewer than 90 days before the regulation takes effect, and the FWS and the NMFS are required also to invite comments from these state or local agencies.⁵ If the state agency files comments disagreeing with any part of the proposed rule, the FWS or the NMFS may still issue final regulation(s) in conflict with said state’s comments. However, in those cases of disagreement, the FWS or the NMFS is required to submit to the state or local agency a written justification for the failure to adopt a rule consistent with that state’s comments.⁶

Section 4 of the ESA also requires the FWS and the NMFS to issue such regulations as are deemed necessary to provide for the conservation of a listed species.⁷ As discussed above, § 4(d) authorizes the FWS and the NMFS to extend § 9 protection to threatened species, and the FWS has extended this protection to threatened species by way of regulation.⁸ As a result, § 4(d) has developed into a frequently utilized means of easing local land use conflicts created by the ESA’s general prohibition against the take of a particular threatened species. Thus, for species listed as threatened, rather than endangered, the FWS can create a special rule, which effectively delegates ESA “no take” compliance to the states and thus allows for reso-

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¹16 U.S.C.A. § 1538(a), ELR Stat. ESA § 9(a).

²16 U.S.C.A. § 1531(c)(2), ELR Stat. ESA § 2(c)(2).

³16 U.S.C.A. § 1533(b)(1)(A); ELR Stat. ESA § 4(b)(1)(A).

⁴16 U.S.C.A. § 1533(b)(1)(B)(ii); ELR Stat. ESA § 4(b)(1)(B)(ii).

⁵16 U.S.C.A. § 1533(b)(5)(A)(ii), ELR Stat. ESA § 4(b)(5)(A)(ii); 50 C.F.R. § 424.16(c)(ii).

⁶16 U.S.C.A. § 1533(i), ELR Stat. ESA § 4(i); 50 C.F.R. § 424.18(c).

⁷16 U.S.C.A. § 1533(d), ELR Stat. ESA § 4(d).

⁸50 C.F.R. § 17.31(a). See discussion in §§ 21:32 to 21:38, *supra*.

lution by reference to state regulation and planning.⁹ This approval to regulate is available to all states that have entered into cooperative agreements (established in § 6 of the Act and discussed below) and only to the extent that the implementing § 4(d) regulations have also been adopted by the states pursuant to the cooperative agreements.¹⁰

Finally, with respect to species that have recovered from the brink of extinction under the ESA, § 4(g) carves out a key role for federal-state cooperation. That section implements a system of cooperation with the states to monitor the status of the recovered species for no fewer than five years from the time the species is deemed to have recovered and is delisted.¹¹

2. Section 6—Cooperation With the States

In § 6 of the ESA, Congress established its most explicit road map for federal-state relations in the pursuit of the conservation of endangered and threatened species. Under § 6, the FWS and the NMFS are to cooperate to the maximum extent practicable with the states in carrying out the purposes and policies of the ESA. This mandate includes consultation between the FWS and the NMFS and the states prior to any federal acquisition of land or water for the purposes of species conservation.¹²

The FWS and the NMFS have adopted an interagency policy to guide their work with state agencies to accomplish ESA directives.¹³ The policy reminds the federal agencies that states possess broad trustee and police powers over wildlife and their habitats within their respective borders and that, unless preempted by federal authority, states possess primary authority and responsibility for protection of fish, wildlife, plants, and their habitats. The policy notes that state agencies enjoy closer working relationships with local governments and landowners than do their federal counterparts and often possess valuable data and expertise on resident wildlife and their habitats that may not otherwise be available at the federal level. Overall, the policy recognizes the unique and integral role that states can play in implementing the ESA to its fullest potential. The policy lays out a framework and steps for federal and state agency cooperation in implementing key activities under the ESA, namely: (1) prelisting conservation; (2) listing; (3) consultations; (4) habitat conservation planning; and (5) recovery.

a. Agreements With the States

Section 6 of the ESA formalizes the relationship between federal and state agencies by establishing a program of management agreements and conservation agreements. Section 6(b) of the ESA authorizes the FWS and the NMFS to enter into agreements with the states to administer and manage any area established for the conservation of endangered or threatened species.¹⁴

The more expansive state management tool created under § 6 is the cooperative agreement mechanism. The FWS and the NMFS are authorized to enter into a cooperative agreement with each state that demonstrates it has established and maintains an “adequate and active program for the conservation of endangered and

⁹See also Jean O. Melious, *Enforcing the Endangered Species Act Against the States*, 25 Wm. & Mary Env'tl. L. & Pol'y Rev. 605 (2001).

¹⁰16 U.S.C.A. § 1533(d), ELR Stat. ESA § 4(d).

¹¹16 U.S.C.A. § 1533(g), ELR Stat. ESA § 4(g).

¹²16 U.S.C.A. § 1535(a), ELR Stat. ESA § 6(a).

¹³Interagency Cooperative Policy Regarding the Role of State Agencies in Endangered Species Act Activities, 59 Fed. Reg. 34275 (July 1, 1994).

¹⁴16 U.S.C.A. § 1535(b), ELR Stat. ESA § 6(b).

threatened species.”¹⁵ Cooperative agreements may be entered into with states for the conservation of both animal species and plant species.¹⁶ The FWS and the NMFS are to periodically review the conservation program of each state with which it has a cooperative agreement to confirm that state programs continue to meet the criteria for “an adequate and active program,” but such review is to occur no more frequently than at annual intervals.¹⁷

b. Funding the States

Under § 6, the FWS and the NMFS are also authorized to provide financial assistance to state agencies for species and habitat conservation activities on nonfederal lands. This funding is appropriated annually to the Cooperative Endangered Species Conservation Fund.¹⁸ In fiscal year (FY) 2008, approximately \$66 million was available to states that had entered into cooperative agreements pursuant to § 6.¹⁹ State agencies generally are required to contribute 25% of the estimated program costs of approved projects, or 10% when more than one state implements a joint project. The federal allocation may cover the remainder of the project costs, and these funds may be advanced to the states to finance the federal share agreed upon in a cooperative agreement.²⁰

Four grant programs are available through the fund, providing financial assistance from prelisting to recovery stages. The conservation grant program provides assistance to state agencies to implement such conservation projects as habitat restoration, surveys, education and outreach, captive propagation and reintroduction, genetic studies, and development of management plans. The habitat conservation planning assistance grants provide funding to states to support HCPs under § 10. Habitat conservation planning land acquisition grants, constituting the great bulk of the funding pool, e.g., \$35 million for FY 2008, fund state efforts to acquire land associated with approved HCPs.²¹ Finally, recovery land acquisition grants assist states in acquiring habitat for endangered and threatened species in support of approved recovery plans. All 50 states, Guam, Puerto Rico, and the Virgin Islands have entered into cooperative agreements for animal species, and almost all have entered into such agreements for plant species.

3. Section 7—Interagency Cooperation

In addition to the programs established under § 6 to coordinate federal and state conservation efforts, the ESA includes multiple additional “safety nets” in other sections that support this multilateral approach to species conservation.

This is nowhere better exemplified than in § 7, which proscribes any federal agency “jeopardy” to the continued existence of endangered or threatened species or designated critical habitat, absent certain limited and delineated exemptions. In the course of this federal interagency conservation process, the states maintain an active and integral decisionmaking role. The states act as “consulting” partners to the

¹⁵16 U.S.C.A. § 1535(c), ELR Stat. ESA § 6(c).

¹⁶16 U.S.C.A. § 1535(c)(1) and (2), ELR Stat. ESA § 6(c)(1) and (2).

¹⁷16 U.S.C.A. §§ 1535(c), (e), ELR Stat. ESA §§ 6(c), (e).

¹⁸16 U.S.C.A. § 1535(i), ELR Stat. ESA § 6(i).

¹⁹U.S. Fish & Wildlife Serv., Cooperative Endangered Species Conservation Fund Grants, *available at* <http://www.fws.gov/endangered/grants/section6/2009/Sec%206%20Fact%20Sheet%202009%20Final.pdf>.

²⁰16 U.S.C.A. § 1535(d)(2), ELR Stat. ESA § 6(d)(2).

²¹U.S. Fish & Wildlife Serv., Cooperative Endangered Species Conservation Fund Grants, *available at* <http://www.fws.gov/endangered/grants/section6/2009/Sec%206%20Fact%20Sheet%202009%20Final.pdf>.

FWS and the NMFS in the designation of critical habitat.²² State governors are authorized under § 7(g)(1) to apply for an exemption under § 7 for any federal agency action occurring within said state(s) that may result in “jeopardy” to a listed species.

Finally, states that are affected by federal agency actions that may result in jeopardy to a listed species occurring within such state are granted representation on the Endangered Species Committee created by § 7. The Committee establishes a process to allow activities to go forward despite a jeopardy finding.²³

§ 21:57 Conflicts between the ESA and state laws

The ESA preempts inconsistent or less restrictive state laws regarding species conservation. As provided in § 6(f), “any State law or regulation respecting the taking of an endangered species or threatened species may be more restrictive than the exemption or permits provided for in this chapter or in any regulation which implements this chapter but not less restrictive than the prohibitions so defined.”¹ Furthermore, the ESA voids any state law or regulation with respect to the import/export and interstate or foreign commerce in endangered or threatened species to the extent that such law or regulation effectively authorizes conduct that is prohibited under the ESA or, conversely, prohibits conduct authorized by a permit or exemption under the ESA.²

An apparent inconsistency to the above-referenced preemption language may be found in § 6(g)(2), which appears to exempt application of the takings prohibition to endangered and threatened species located within any state that is party to a cooperative agreement, unless such taking is also contrary to that state’s laws. Notwithstanding this apparent loophole, it is important to note that the provision only applies to states that have entered into cooperative agreements with the FWS or the NMFS. Prior to entering into a cooperative agreement with a state, the FWS and the NMFS must first determine and annually confirm, among other things, that the state agency has authorization to conserve resident species determined by the state agency to be endangered or threatened³ and furthermore, that the agency has established acceptable conservation programs, consistent with the ESA, for all resident species of wildlife and plants within the state that are deemed to be endangered or threatened.⁴

In creating this series of federal and state interrelationships in the ESA, Congress did not simply sweep away the role of the states by enacting a national solution to the problems of species conservation. Instead, the ESA embodies principles of cooperative federalism and seeks to involve the states in the conservation efforts by defining roles for both federal and state actors in the process of species conservation.

XI. THE INTERFACE BETWEEN THE ESA, THE NATIONAL ENVIRONMENTAL POLICY ACT, AND THE FREEDOM OF INFORMATION ACT

§ 21:58 NEPA and the ESA

The National Environmental Protection Act (NEPA) sets forth a national policy

²²16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

²³16 U.S.C.A. §§ 1536(c), (g)(2)(b), ELR Stat. ESA §§ 7(c), (g)(2)(b). See discussion of the Endangered Species Committee in §§ 21:23 to 21:31, *supra*.

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¹16 U.S.C.A. § 1535(f), ELR Stat. ESA § 6(f).

²16 U.S.C.A. § 1535(f), ELR Stat. ESA § 6(f).

³16 U.S.C.A. § 1535(c)(1)(A), (c)(2)(A), ELR Stat. ESA § 6(c)(1)(A), (c)(2)(A).

⁴16 U.S.C.A. § 1535(c)(1)(B), (c)(2)(B), ELR Stat. ESA § 6(c)(1)(B), (c)(2)(B).

“to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.”¹ NEPA establishes goals to protect the nation’s resources and requires all federal agencies to interpret and administer their individual policies, regulations, and laws in accordance with NEPA’s goals to “the fullest extent possible.”

Section 102(2)(c) of NEPA requires preparation of a detailed environmental impact statement (EIS) for every “major Federal action significantly affecting the quality of the human environment.”² The president’s Council on Environmental Quality (CEQ) interprets the EIS requirement and other provisions of NEPA through detailed regulations and other policy guidance.³ Accordingly, each federal agency is required to prepare detailed implementation procedures to carry out the CEQ regulations. While NEPA establishes substantive policy goals, the U.S. Supreme Court has stated that NEPA’s mandate is essentially procedural and is intended primarily to ensure a fully informed and well-considered decision.⁴

The CEQ regulations emphasize the full NEPA process in every phase of agency decisionmaking from early planning through final agency action and subsequent follow-up. Specifically, these regulations underscore the importance of assessing planning process, evaluating important alternatives, preparing analytic and accurate EISs, facilitating public involvement, preparing clear records of agency actions, and encouraging the use of mitigation and monitoring techniques.⁵

Prior to 1983, the FWS routinely prepared EISs for all regulations issued under § 4 of the ESA covering listings and critical habitat. However, in that year, the CEQ found that NEPA did not apply to these listing decisions based on the theory that the FWS was exempt as a matter of law or that such actions could be considered “categorically exempt” from NEPA.⁶ In 1983, the FWS issued a notice in the *Federal Register* stating that a NEPA analysis was not required for § 4 regulations based on two grounds: (1) ESA listing decisions are limited to considering only biological data; socioeconomic data were not a factor; and (2) the Sixth Circuit decision in *Pacific Legal Foundation (PLF) v. Andrus*⁷ found, as a matter of law, that an EIS was not required for listings.⁸

The issue of NEPA applicability has been addressed by only a few courts since the PLF case, in both the listing and critical habitat contexts. In *Douglas County v. Babbitt*,⁹ the court held that the FWS did not need to comply with NEPA for the designation of certain federal lands as critical habitat for the northern spotted owl. Citing the PLF case, the court stated that:

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¹42 U.S.C.A. § 4331(a), ELR Stat. NEPA § 101(a).

²42 U.S.C.A. § 4332(2)(C), ELR Stat. NEPA § 102(2)(C).

³40 C.F.R. §§ 1500 et seq.

⁴*Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 98 S. Ct. 1197, 55 L. Ed. 2d 460 (1978); *Strycker’s Bay Neighborhood Council, Inc. v. Karlen*, 444 U.S. 223, 100 S. Ct. 497, 62 L. Ed. 2d 433 (1980); *Andrus v. Sierra Club*, 442 U.S. 347, 99 S. Ct. 2335, 60 L. Ed. 2d 943 (1979); *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 103 S. Ct. 2246, 76 L. Ed. 2d 437 (1983).

⁵40 C.F.R. pt. 1501 (1992); see also Larry Liebesman, *The Council on Environmental Quality’s Regulations to Implement the National Environmental Policy Act—Will They Further NEPA’s Substantive Mandate?*, 10 ELR 50039 (Nov. 1980).

⁶48 Fed. Reg. 49244 (Oct. 25, 1983).

⁷*Pacific Legal Foundation v. Andrus*, 657 F.2d 829 (6th Cir. 1981).

⁸48 Fed. Reg. 49244 (Oct. 25, 1983).

⁹*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995).

[t]he purpose of the ESA is to prevent extinction of species, and Congress has allowed the Secretary to consider economic consequences of actions that further that purpose. But *Congress has not given the Secretary the discretion to consider environmental factors, other than those related directly to the preservation of the species.* The Secretary cannot engage in the very broad analysis NEPA requires when designating a critical habitat under the ESA.¹⁰

In 1996, the Tenth Circuit in *Catron County Board of Commissioners v. U.S. Fish & Wildlife Service*¹¹ took a position directly contrary to the holding in *Douglas County*. The court held that the FWS was required to comply with NEPA when designating critical habitat for the spikedace and loach minnow. The court stated that “merely because the Secretary says [NEPA] does not [apply] does not make it so.”¹² The court expressly disagreed with *Douglas County*, holding that “the legislative history . . . indicates that Congress intended that the Secretary comply with NEPA when designating critical habitat,”¹³ noting that “[w]hen the environmental ramifications of such designations are unknown, we believe Congress intends that the Secretary prepare an EA leading to either a FONSI or an EIS.”¹⁴ The Tenth Circuit in *Middle Rio Grande Conservancy District v. Norton*¹⁵ followed *Catron County* in upholding the district court’s ruling that the FWS was required to prepare an EIS for critical habitat designation of the silvery minnow.

The district court in *Cape Hatteras Access Preservation Alliance (CHAPA) v. Dep’t of the Interior*¹⁶ followed the Tenth Circuit’s *Catron County* decision in rejecting the FWS’ finding that NEPA does not apply in designations because “while a designation may restrict certain human activities on land, it does not involve ‘changes’ to the physical environment”¹⁷ The court then stated that “NEPA’s language does not talk of changes to the environment but of actions that ‘significantly affect[]’ its quality”¹⁸ and that because designation of critical habitat significantly affects the human environment, the FWS “needs to determine the extent of the impact in compliance with NEPA.”¹⁹

With regard to the listing of species, the 2007 decision in *Trout Unlimited v. Lohn*²⁰ supports the holding of PLF. In that case, the NMFS had utilized the Hatchery Listing Policy (HLP) as a guidance document in its listing decision. The court stated that “it made little sense to require the Secretary to comply with the EIS requirement when, ultimately, the determination as to whether to list the spe-

¹⁰*Douglas County v. Babbitt*, 48 F.3d 1495, 1507 (9th Cir. 1995).

¹¹*Catron County Bd. of Com’rs, New Mexico v. U.S. Fish & Wildlife Service*, 75 F.3d 1429 (10th Cir. 1996).

¹²*Catron County Bd. of Com’rs, New Mexico v. U.S. Fish & Wildlife Service*, 75 F.3d 1429, 1436 (10th Cir. 1996).

¹³*Catron County Bd. of Com’rs, New Mexico v. U.S. Fish & Wildlife Service*, 75 F.3d 1429, 1438 (10th Cir. 1996).

¹⁴*Catron County Bd. of Com’rs, New Mexico v. U.S. Fish & Wildlife Service*, 75 F.3d 1429, 1439 (10th Cir. 1996).

¹⁵*Middle Rio Grande Conservancy Dist. v. Norton*, 294 F.3d 1220 (10th Cir. 2002).

¹⁶*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108 (D.D.C. 2004).

¹⁷*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 135 (D.D.C. 2004); *Douglas County v. Babbitt*, 48 F.3d 1495, 1506 (9th Cir. 1995).

¹⁸*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 135–36 (D.D.C. 2004).

¹⁹*Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 136 (D.D.C. 2004).

²⁰*Trout Unlimited v. Lohn*, 66 Env’t. Rep. Cas. (BNA) 1020, 2007 WL 1730090 (W.D. Wash. 2007).

cies would be controlled by the factors enumerated in the ESA.”²¹ The court concluded that exempting the HLP from NEPA procedures would not harm the conservationist purposes of NEPA and the ESA.²²

Thus, while the case law is sparse, the trend of courts is to find that NEPA is applicable to critical habitat designations. However, courts generally have not considered NEPA applicable to listing decisions where the FWS or the NMFS may only consider biological factors.

§ 21:59 The ESA and the Freedom of Information Act

Over the years, the Freedom of Information Act (FOIA)¹ has been used by public and private groups to seek data on the location of species and their habitat. The FWS has, at times, resisted disclosure of such information on various theories, allegedly in order to protect species from harm. However, a decision in *National Ass’n of Homebuilders (NAHB) v. Norton*,² held that the FWS had improperly asserted four FOIA exemptions in withholding records pertaining to the presence of endangered species on private property.

The case originated with a 1998 FOIA request from the NAHB to the FWS seeking information regarding the location of populations of the cactus ferruginous pygmy owls, an endangered species resident in the American Southwest. The NAHB sought the information in part because the FWS was using it in an ongoing rulemaking proceeding on a proposal to designate more than 700,000 acres of land in Arizona as “critical habitat” for the owl.

Although the FWS had agreed to provide printouts of the Arizona Game and Fish Department’s records of the owl, the government redacted “section information, site directions, [and] site names”³ In effect, the FWS would not divulge information that would identify the specific locations where owls had been observed. The FWS initially based its decision on FOIA exemptions 3 (claiming the ESA exempted this information from disclosure), 4 (commercial data), 5 (privileged government deliberation), and 6 (privacy).

The NAHB filed suit in U.S. District Court for the District of Columbia. The district court rejected the FWS’ arguments under FOIA exemptions 3, 4, and 5, but ruled in favor of the FWS on exemption 6.⁴ The court was particularly concerned that a release of the information would lead to birdwatchers trespassing on private lands for a glimpse of the owls. Thus, the court held that the landowners’ privacy rights outweighed the right of access to the information.

In reversing the district court, the D.C. Circuit focused primarily on exemption 6.⁵ The court held that the FWS had failed to demonstrate a “substantial probability” that disclosure would cause an interference with personal privacy. The lower court

²¹*Trout Unlimited v. Lohn*, 66 Env’t. Rep. Cas. (BNA) 1020, 2007 WL 1730090 (W.D. Wash. 2007).

²²*Trout Unlimited v. Lohn*, 66 Env’t. Rep. Cas. (BNA) 1020, 2007 WL 1730090 (W.D. Wash. 2007).

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¹5 U.S.C.A. § 552.

²*National Ass’n of Home Builders v. Norton*, 309 F.3d 26 (D.C. Cir. 2002).

³*National Ass’n of Home Builders v. Norton*, 309 F.3d 26, 30 (D.C. Cir. 2002).

⁴*NAHB v. Babbitt*, No. 99-1923 (CKK) (D.D.C. 2000).

⁵FOIA exemption 6 provides that documents may be withheld only if they are “personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.” In order to prevail on an Exemption 6 claim, an agency must demonstrate two elements. First, the agency must show that the withheld data qualifies as a personnel, medical or similar file. Second, if the agency can meet that threshold burden, it must show that the privacy interests protected by withholding the requested data outweigh the public interest in obtaining the withheld information. 5 U.S.C.A. § 552 (b)(6).

had permitted the FWS to rely on an affidavit by the director of the FWS citing a prior incident where knowledge of the location of the owls resulted in birdwatchers seeking out the bird. The D.C. Circuit found this evidence unconvincing, noting that “one incident in which there is no claim that unlawful trespass occurred hardly demonstrates a general problem, and there is nothing to suggest that property owners cannot be protected against unlawful trespassers.”⁶ In addition, the court found it significant that property owners who allowed the agencies to survey their properties for owls signed agreements stating that the data may be subject to public disclosure laws and court orders. The court also emphasized that the NAHB had indicated that it did not need the names of the property owners.

The court also considered the extent to which disclosure of the information sought would shed light on an agency’s performance of its statutory duties. The NAHB had asserted a broad interest in the public’s effective participation in the upcoming critical habitat process, as well as in understanding the FWS’ other land use decisions based on the owl data. The court found a significant public interest in the public’s use of the information to explore how the FWS uses the information. The court considered such a use to be related to “citizens’ right to be informed about ‘what their government is up to.’”⁷ This has some significance in that the court found that the raw data alone would allow the public to ascertain how the agency was performing its duties.

The circuit court also affirmed the district court’s rulings on FOIA exemptions 3, 4, and 5, rejecting the FWS’ argument that these exemptions protected the owl data from disclosure. FOIA exemption 3 provides that federal agencies may withhold information that is “specifically exempted from disclosure by statute.”⁸ However, the court ruled that the ESA does not qualify under exemption 3, because the statute contains no explicit language that refers to withholding information. The court also declined to consider the legislative history of the ESA, holding that “legislative history will not avail if the language of the statute itself does not explicitly deal with public disclosure.”⁹

FOIA exemption 4 permits a federal agency to withhold information that qualifies as “trade secrets and commercial or financial information obtained from a person and privileged or confidential.”¹⁰ The FWS had argued that owl data qualifies as commercial information because the federal government provides funding to the state of Arizona in exchange for access to the owl data. In rejecting this rationale, the court held that the agreement between Arizona and the federal government was merely a “quid pro quo exchange,” which “does not constitute a commercial transaction in the ordinary sense.”¹¹ Thus, the court reasoned, because the owl data were created by a noncommercial entity (the state of Arizona) which had no commercial stake in the data’s disclosure, owl data did not qualify as commercial information under exemption 4, and exemption 4 therefore did not apply.

Finally, the court rejected the FWS’ reliance on exemption 5, which protects information that qualifies as “inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency.”¹² The court held that the owl data were merely factual information that did not reveal the FWS’ “mode of formulating or exercising policy-

⁶National Ass’n of Home Builders v. Norton, 309 F.3d 26, 34 (D.C. Cir. 2002).

⁷National Ass’n of Home Builders v. Norton, 309 F.3d 26, 34 (D.C. Cir. 2002).

⁸5 U.S.C.A. § 552(b)(3).

⁹National Ass’n of Home Builders v. Norton, 309 F.3d 26, 38 (D.C. Cir. 2002).

¹⁰5 U.S.C.A. § 552(b)(4).

¹¹National Ass’n of Home Builders v. Norton, 309 F.3d 26, 38–39 (D.C. Cir. 2002).

¹²5 U.S.C.A. § 552(b)(5).

implicating judgment.”¹³

The *NAHB* decision is significant, as it demonstrates that the courts will critically evaluate efforts by the FWS to protect data on listed species from FOIA requests, even where the FWS’ action is asserted to be furthering the goals of the ESA.¹⁴

XII. THE ESA AND CLIMATE CHANGE

§ 21:60 Introduction

Climate change is of increasing concern in the context of the ESA. The annual global emission of carbon dioxide (CO₂) grew by approximately 80% between 1970 and 2004,¹ which has led to rising global surface temperatures and rising sea levels.² Those effects led one preeminent ecologist to conclude in 2005 that climate change is “a major threat to the survival of species and integrity of ecosystems worldwide.”³ In 2007, the Intergovernmental Panel on Climate Change (IPCC) concluded that pressures from climate change and associated disturbances will likely overcome the natural resilience of many ecosystems, and as a result, 20 to 30% of plant and animal species will be subject to an increased chance of extinction in this century.⁴

On June 16, 2009, the Obama Administration released its first climate change report, *Global Climate Change Impacts in the United States*, which assesses the current and future impacts of climate change on the nation.⁵ The report, which uses stronger language than any prior presidential assessment, breaks down the effects of global warming in the United States by region and sector; it describes how urban infrastructure will be placed in danger by hurricanes and storm surges; how heat waves, poor air quality, and insects will increase; and how it will be difficult for society and natural resources to adapt to rapid climate change. The report lists the following recommendations for dealing with climate change: expand our understanding of climate change impacts; refine our ability to project climate change; expand our capacity to provide decisionmakers and the public with relevant information on climate change and its impacts; improve our understanding of thresholds likely to lead to abrupt changes in climate or ecosystems; improve our understanding of the most effective ways to reduce the rate and magnitude of climate change, as well as unintended consequences of such activities; and enhance our understanding of how

¹³National Ass’n of Home Builders v. Norton, 309 F.3d 26, 39 (D.C. Cir. 2002).

¹⁴In *Flathead Joint Bd. of Control v. U.S. Dept. of Interior*, 309 F. Supp. 2d 1217 (D. Mont. 2004), a state irrigation district negotiating state water rights with Indian tribes sued the United States, seeking disclosure under FOIA of federal water rights information. The court distinguished *Norton*, holding that the federal water rights information sought by the state irrigation district in that case differed from information regarding the location of a noncommodity animal sought in *Norton*. The court therefore held that the information fit within the “commercial or financial” information FOIA exception. The court declined to hold that *Norton* stood for the proposition that “natural resource information” generally falls outside of Exemption 4.

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¹Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report, Climate Change 2007: Synthesis Report Summary for Policymakers at 5 (Nov. 2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

²See Stefan Rahmstorf et al., *Recent Climate Observations Compared to Projections*, 316 Science 709 (2007).

³Philip E. Hulme, *Adapting to Climate Change: Is There Scope for Ecological Management in the Face of a Global Threat?*, 42 J. Applied Ecology 784 (2005).

⁴IPCC, Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report, Climate Change 2007: Climate Change Impacts, Adaptations, and Vulnerability Summary for Policymakers (2007), available at <http://www.ipcc.ch> (last visited Jan. 30, 2008).

⁵Global Climate Change Impacts in the United States (Thomas R. Karl et al. eds. Cambridge Univ. Press, 2009).

society can adapt to climate change. The Obama Administration hopes that the report will generate public and political support for strong climate change legislation.

These recent reports are the latest examples of the increase in awareness of climate change evolving over the last several decades. In 1978, Congress passed the National Climate Program Act (NCPA), which required the president to establish a program to “assist the Nation and the world to understand and respond to natural and man-induced climate processes and their implications.”⁶ In response to President Carter’s directive under the NCPA, the National Research Council concluded that continued increases in CO₂ levels would lead to climate change and that a “wait-and-see policy may mean waiting until it is too late.”⁷ In 1987, Congress enacted the Global Climate Protection Act,⁸ finding that man-made pollution “may be producing a long-term and substantial increase in the average temperature on Earth.”⁹ During the 1990s, the United Nations took a series of steps to respond to climate change, culminating in the adoption of the Kyoto Protocol, which assigned mandatory targets for industrialized nations to reduce greenhouse gas (GHG) emissions. While the United States declined to ratify the Kyoto Protocol,¹⁰ evidence of climate change has steadily increased,¹¹ as has the pressure on the U.S. government to respond.

This pressure increased further following the landmark 2007 *Massachusetts v. EPA* decision, in which the U.S. Supreme Court acknowledged that the “harms [already] associated with climate change are serious and well recognized”¹² and stated unequivocally that “global warming threatens . . . a precipitate rise in sea levels, severe and irreversible changes to natural ecosystems, a significant reduction in winter snowpack with direct and important economic consequences, and increases in the spread of disease and the ferocity of weather events.”¹³ Addressing the challenges for agencies to implement regulations taking into account climate change, the Court noted that “agencies, like legislatures, do not generally resolve massive problems in one fell swoop, but instead whittle away over time, refining their approach as circumstances change and they develop a more nuanced understanding of how best to proceed.”¹⁴ However, proceed they must, as the Supreme Court made it clear that simply because Congress did not have climate change in mind when it drafted a law does not mean that agencies can ignore the effects of climate change.¹⁵

With the ESA’s primary goal being to “provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved,”¹⁶ and with a growing scientific consensus regarding ecosystem-level impacts related to climate change, the ESA will be a focal point of climate change discussion. Indeed, many conservation groups are already utilizing the ESA in an effort to force regula-

⁶92 Stat. 601.

⁷Climate Research Board, *Carbon Dioxide and Climate: A Scientific Assessment*, vii (1979).

⁸Title XI of Pub. L. No. 100-204, 101 Stat. 1407, note following 15 U.S.C.A. § 2901.

⁹§ 1102(1), 101 Stat. 1408.

¹⁰*See* S. Res. 98, 105th Cong. (1997) (as passed).

¹¹*See, e.g.*, *Climate Change Science: An Analysis of Some Key Questions 1* (NRC Report); IPCC, *supra* note 4.

¹²*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 1455, 167 L. Ed. 2d 248 (2007).

¹³*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 1455, 167 L. Ed. 2d 248 (2007).

¹⁴*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 1442, 167 L. Ed. 2d 248 (2007).

¹⁵*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 1462–63, 167 L. Ed. 2d 248 (2007).

¹⁶16 U.S.C.A. § 1531(b), ELR Stat. ESA § 2(b).

tion of GHG emissions,¹⁷ and federal courts have begun to require consideration of climate change in conjunction with the application of the ESA.¹⁸

This section examines the implications of the findings on climate change and its effects on ecosystems for ESA application and implementation. The initial discussion describes the impacts that climate change is having or is predicted to have on wildlife and plant species. Then, using the 2008 polar bear listing and cases considering climate change in the context of § 7 consultation as examples, the analysis examines the current and potential use of climate change impacts in application of the ESA.

§ 21:61 The impact of climate change on species and their habitat

Climate change has numerous adverse implications for a variety of wildlife and ecosystems. Some scientists have predicted that within the next 50 years, up to one-third of species in certain areas will be extinct as a result of global warming.¹ The consequences of climate change for wildlife species and habitats appear in a variety of forms, as discussed below.

1. Forced Relocation Due to Rising Temperatures

Rising temperatures have already forced some species to relocate. Since the mid-20th century, wildlife has moved toward the poles an average of four miles per decade and upslope an average of 20 feet per decade.² For example, researchers in Yosemite National Park have found that in the past 90 years, the altitude of pika (*Ochotona pinceps*) population locations has risen from 7,800 feet to 9,500 feet.³ Additionally, there are currently almost no native bird species below 4,500 feet in Hawaii due to migration to higher elevations.⁴

Such relocation can be hindered by obstacles, such as lack of food supply and other ecological conditions necessary to support the displaced species.⁵ In addition, migration to suitable new habitats may be impeded or blocked by “natural obstacles to movement, such as large water bodies (which create barriers for terrestrial species) and coastlines (for marine and estuarine species).”⁶

Rising temperatures may also cause spring to arrive earlier than in previous years,⁷ resulting in ripple effects throughout ecosystems. For example, migratory patterns may be disrupted, along with the patterns of the plant and prey species

¹⁷See, e.g., ENDANGERED SPECIES: Petition to Protect Seals From Melting Ice, Greenwire, Dec. 21, 2007 (stating “Attorney Brendan Cummings, ocean program director for the Center for Biological Diversity, said that without a national legal mechanism regulating greenhouse gases, his organization has turned to the Endangered Species Act”).

¹⁸See *Natural Resources Defense Council v. Kempthorne*, 506 F. Supp. 2d 322 (E.D. Cal. 2007).

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¹*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 167 L. Ed. 2d 248 (2007).

²Camille Parmesan & Gary Yohe, *A Globally Coherent Fingerprint of Climate Change Impacts Across Natural Systems*, 421 *Nature* 37, 42 (2003).

³Donald Grayson, *A Brief History of Great Basin Pikas*, 32 *J. Biogeography* 2103 (2006).

⁴See *Global Warming May Spread Diseases*, <http://www.cbsnews.com/stories/2002/06/20/tech/main512920.shtml> (last visited June 22, 2008).

⁵See Pew Center on Global Climate Change, Executive Summary, available at http://www.pewclimate.org/global-warming-in-depth/all_reports/observedimpacts/execsumm.cfm; see also Terry L. Root & Stephen H. Schneider, *Climate Change: Overview and Implications for Wildlife* 59, in *Wildlife Responses to Climate Change: North American Case Studies* (Stephen H. Schneider & Terry L. Root eds. 2002).

⁶Camille Parmesan, *Biotic Response: Range and Abundance Changes*, in *Climate Change and Biodiversity* 52 (Lovejoy & Hannah eds., 2005).

⁷Gian-Reto Walther et al., *Ecological Responses to Recent Climate Change*, *Nature*, Mar. 28,

upon which migratory species rely for food. As a result, some migratory species may arrive at their destinations at a time that is mismatched with the plants or prey that would ordinarily be present at the location.⁸ Because “the timing of arrival on breeding territories and over-wintering grounds is a key determinant of reproductive success, survivorship, and fitness,” any variation in timing of these events can have drastic consequences for the survival of those species.⁹

2. Reduced Habitat Due to Rising Sea Levels, Melting Sea Ice and Snowpack, and Increased Frequency and Intensity of Hurricanes and Typhoons

The dramatic effect of climate change on sea ice and snow pack is a significant concern. There has been a downward trend in the extent of sea ice since 1978 with the past few years exceeding previous low records.¹⁰ Between 2000–2005, there was a 21% reduction of sea ice for the Arctic Ocean.¹¹ Significant warming has been occurring in the Arctic, as evidenced by earlier onset of spring melt and the increase in the duration of the melt season.¹² With the exception of 1996, the years 1995–2006 were the warmest on record since 1850.¹³ The effect of this warming has been greatest at higher northern latitudes, where polar bear habitats are found.¹⁴ In the last three decades of the 20th century, “sea-ice thickness has declined by about 40% in the late summer and early autumn,”¹⁵ and the polar ice cap is now melting at a rate of 9% per decade,¹⁶ which may be a conservative estimate.¹⁷ These drastic changes have led to increased concern for the species that rely on sea ice habitat, most notably evident in the listing of the polar bear as a threatened species under the ESA.¹⁸

More generally, in the past 40 years, the average snow cover in the Northern Hemisphere has decreased by 10%.¹⁹ The lack of snow cover is impacting the flow levels and temperatures of trout-bearing and salmon-bearing rivers and streams and could ultimately render some of those rivers uninhabitable.²⁰

Rising sea levels have similarly dramatic habitat impacts. In the past century,

2002, 389–95.

⁸See Climate Change and Migratory Species, http://www.bto.org/notices/climate_change.htm (last visited June 23, 2008).

⁹See Peter A. Cotton, *Avian Migration Phenology and Global Climate Change*, 100 Proceedings of the Nat'l Acad. 12219, 12219–22 (2003), available at <http://www.pnas.org/cgi/reprint/100/21/12219.pdf>.

¹⁰Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. 28212, 28220 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

¹¹Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. 28212, 28220 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

¹²Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. 28212, 28224 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

¹³Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. 28212, 28224 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

¹⁴Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. 28212, 28224 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

¹⁵Habiba Gitay, Climate Change and Biodiversity, IPCC Technical Paper V, Apr. 2002, at 6, available at <http://www.ipcc.ch/pdf/technical-papers/climate-changes-biodiversity-en.pdf>.

¹⁶Natural Resources Defense Council, Melting Glaciers, Early Ice Thaw, <http://www.nrdc.org/globalwarming/fcons/fcons4.asp> (last visited Oct. 8, 2008).

¹⁷Press Release, U.S. Department of the Interior, Secretary Kempthorne Announces Decision to Protect Polar Bears Under Endangered Species Act (May 14, 2008), available at http://www.doi.gov/news/08_News_Releases/080514a.html.

¹⁸See Section c(1) of this section.

¹⁹Gitay, *supra* note 15, at 6.

²⁰See Kirkman O'Neal, Effects of Global Warming on Trout and Salmon in U.S. Streams, Defenders of Wildlife & Natural Res. Def. Council (2002), available at <http://www.defenders.org/resources/pub>

the average global sea level rose between 4 and 8 inches, and sea levels are expected to rise between 4 and 35 inches by 2100.²¹ This will disrupt many species that rely on areas of shallow water for habitat, such as dolphins and manatees. In combination with the more frequent and intense hurricanes predicted to result from higher water temperatures, rising sea levels will lead to diminished beach habitats due to the flooding and erosion of coastal areas.²² This could lead to drastic consequences for those species that rely on those coastal areas for habitat, such as seals and sea turtles. Rising sea levels will also impact freshwater species in coastal areas where the ocean water will increase the salinity of rivers and irrigation water in those regions.²³

3. *Invasive Species Adapting to Ecosystems Altered by Climate Change*

The adverse impacts of invasive species on native species are expected to be exacerbated due to invasive colonization of vegetation communities. These communities have suffered dieback as a result of new temperature and precipitation conditions and poleward and upslope expansion in the wake of climate change.²⁴

Research has also indicated that due to increased moisture and warmth in higher latitudes and higher elevation habitats, “tropical and subtropical diseases are projected to move poleward or upslope.”²⁵ Not only will new pathogens creep into new areas that are unsuited to accommodate those species, but climate zones that generally experience seasons with average cold temperatures are predicted to experience longer annual periods of warmer temperatures that will facilitate increased pathogen growth and reproduction.²⁶ For example, increased temperatures have been cited as the cause of avian malaria in several thousand birds in Hawaii, distemper in African lions due to an insect-borne pathogen in Tanzania, and diseases that cause deadly bleaching in coral reefs.²⁷

§ 21:62 Potential implications for ESA application

In light of the growing evidence of climate change impact on species and their habitats, as described above, Congress has urged the FWS and the NMFS to take

lications/programs and policy/science and economics/global warming/effects of global warming on t rout and salmon.pdf; see also N. LeRoy Poff et al., Aquatic Ecosystem and Global Climate Change, Pew Ctr. on Global Climate Change, 9–10 (2002), available at <http://www.pewclimate.org/docUploads/aquatic.pdf> (describing how increases in atmospheric temperatures will impact aquatic ecology, specifically the habitats of trout and salmon).

²¹IPCC, Climate Change 2001: Synthesis Report, 6 (2001).

²²IPCC, Fourth Assessment Report, Climate Change 2007: Synthesis Report Summary for Policy-makers at 10 (Nov. 2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

²³U.S. Dept. of the Interior, Bureau of Reclamation, Mid-Pacific Region, Central Valley Project and State Water Project Operations Criteria and Plan—Biological Assessment at 7-20 (May 2008).

²⁴Erika Zavaleta & Jennifer L. Royval, Climate Change and the Susceptibility of U.S. Ecosystems to Biological Invasions: Two Cases of Expected Range Expansion in Wildlife Responses to Climate Change 277, in *Wildlife Responses to Climate Change: U.S. Case Studies* (Stephen H. Schneider & Terry L. Root eds., 2002).

²⁵Massachusetts v. E.P.A., 549 U.S. 497, 127 S. Ct. 1438, 167 L. Ed. 2d 248 (2007).

²⁶See Curtis Petzoldt & Abby Seaman, Climate Change Effects on Insects and Pathogens, available at <http://www.climateandfarming.org/pdfs/FactSheets/III.2Insects.Pathogens.pdf>.

²⁷See Global Warming May Spread Diseases, <http://www.cbsnews.com/stories/2002/06/20/tech/main512920.shtml> (last visited June 22, 2008). See also 65 Fed. Reg. 20760 (Apr. 18, 2000) (finding in the final rule to list the O’ahu ‘Elepaio from the Hawaiian Islands as endangered that avian malaria and avian pox were the primary contributor to the decline in those Hawaiian bird populations).

climate change into consideration with regard to effects on species.¹ However, considering climate change in the context of the ESA will be challenging due to the global nature of sources contributing to the problem and the difficulty of addressing these causes and impacts for individual species and small-scale ecosystems. Given the statutory framework of the ESA, the impacts of climate change will have to be assessed in regard to the core issues the ESA addresses: what species to protect and where and which threats to regulate and how. The following discussion examines these questions, focusing on the role of climate change in the listing process under § 4, the take prohibition under § 9, and the incidental take permitting processes (no jeopardy standard) under § 7 and § 10.

1. *Section 4: Listing Decisions, Critical Habitat Designation, and Recovery Plans*

a. Listing of Endangered and Threatened Species

The listing of species as threatened or endangered under § 4 is based on the following criteria: “(a) the present or threatened destruction, modification, or curtailment of its habitat or range; (b) overutilization for commercial, recreational, scientific, or education purposes; (c) disease or predation; (d) the inadequacy of existing regulatory mechanisms; or (e) other natural or manmade factors affecting its continued existence.”² The 2008 listing of the polar bear is probably the most prominent listing primarily based on climate change-induced impacts.³

In its listing of the polar bear as a threatened species, the FWS found that sea ice, the polar bear’s primary habitat, was declining throughout its range and that this decline was expected to continue.⁴ The FWS concluded that arctic sea ice would “continue to be affected by climate change” and more dramatically, that “catastrophic mortality events that have yet to be realized on a large scale are expected to occur.”⁵ In light of the five statutory criteria listed above, the FWS issued its listing determination primarily because “[c]hanges in sea ice negatively impact polar bears by increasing the energetic demands of movement in seeking prey, causing seasonal distribution of substantial portions of populations into marginal ice or terrestrial habitats with limited values for feeding, and increasing the susceptibility of bears to other stressors”⁶ The FWS concluded that these adverse impacts on the polar bear’s habitat threatened the species throughout its range.

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¹See *Appropriators Urge Interior to Deepen Review of How Global Warming Is Affecting Species*, 38 Env’t Rep. (BNA) 1015 (2007).

²16 U.S.C.A. § 1533(a)(1), ELR Stat. ESA § 4(a)(1).

³See 73 Fed. Reg. 28212 (May 15, 2008) (listing the polar bear as threatened); 71 Fed. Reg. 26852 (May 9, 2006) (listing the elkhorn coral and staghorn coral as threatened). The FWS had also considered climate change in earlier listing decisions. See 69 Fed. Reg. 76428, 76429 (Dec. 21, 2004) (withdrawn) (stating “we recognized in the proposal that the butterfly [Karner blue] may be vulnerable to changes in climate”); 56 Fed. Reg. 28712 (June 24, 1991) (“because of global warming and the [Uncompahgre Fritillary] butterfly’s susceptibility to drought its chances for long-term survival were nil”); 68 Fed. Reg. 7580, 7607 (Feb. 14, 2003) (stating that although the FWS ultimately decided that listing the California spotted owl was unwarranted at the time, it thoroughly discussed the implications of greenhouse gases and climate change on spotted owl populations).

⁴Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. at 28212.

⁵Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. at 28275.

⁶Determination of Threatened Status of the Polar Bear Throughout Its Range, 73 Fed. Reg. at 28275. Such other stressors include the reduced availability of prey seal species, whose populations are also expected to decline. Indeed, the NMFS initiated a status review in September 2008 of three ice seal species in response to a listing petition based in large part on climate change-induced impacts similar to those described in the polar bear listing. See 73 Fed. Reg. 51615 (Sept. 4, 2008).

The FWS' findings on the impacts of climate change on the polar bear are considered likely to lead to additional listings of polar species subject to the same stressors. Petitions to list 10 penguin species⁷ and 3 seal species⁸ have been filed, as well as petitions for species in the lower 48 states, like the American pika,⁹ that may be impacted by decreasing snow pack and rising temperatures. Such listings will continue to be at the center of ESA-based climate change litigation.

b. Protective Regulations Under § 4(d)

The polar bear listing also indicates that the distinction between listing a species as “threatened” and “endangered” will be critical. The take prohibitions of § 9 do not apply automatically to threatened species. Section 4(d) allows the FWS and the NMFS to adopt regulations deemed “necessary and advisable for the conservation of” threatened species.¹⁰ The NMFS has issued such regulations for a number of species,¹¹ but the FWS has typically extended the same protections to threatened species as endangered species.¹² In conjunction with its listing of the polar bear as threatened, the FWS issued a Special Rule under § 4(d) that essentially incorporated by reference the protective provisions of the Marine Mammal Protection Act that already applied to activities affecting the polar bear.¹³ Notably, the Special Rule explicitly exempted any taking of polar bears incidental to “an otherwise lawful activity within any area subject to the jurisdiction of the United States except Alaska,” complementing its guidance (discussed *infra*) concerning § 7 and consultations that could theoretically be triggered by GHG emissions in the lower 48 states with attenuated climate change effects in polar regions. Thus, listing species as “threatened” provides the Services with a great deal more flexibility in formulating protective measures than the “endangered” status and the strict prohibitions of § 9. On May 8, 2009, Interior Secretary Salazar announced that the DOI will retain § 4(d) Special Rule for Polar Bears.¹⁴

c. Critical Habitat Designation

The polar bear listing provides a fairly straightforward model for future climate change-based species listings, but the inherently dynamic effects of climate change

⁷See Press Release, Center for Biological Diversity, Penguins Marching Toward Endangered Species Act Protection; Court Deadline Set for 10 Penguin Species Threatened by Global Warming (Sept. 8, 2008), available at http://www.biologicaldiversity.org/news/press_releases/2008/penguins-09-08-2008.html.

⁸See Press Release, Center for Biological Diversity, Three Arctic Seal Species Advance Toward Endangered Species Act Protection; Ringed, Bearded, and Spotted Seals Threatened by Global Warming (Sept. 4, 2008), available at http://www.biologicaldiversity.org/news/press_releases/2008/seals-09-04-2008.html.

⁹See Press Release, Center for Biological Diversity, Lawsuit to Be Filed to Protect American Pika: Bush Administration Ignores Endangered Species Act Deadline for Small Mammal Threatened by Global Warming (Jan. 3, 2008), available at http://www.biologicaldiversity.org/news/press_releases/2008/pika-01-03-2008.html.

¹⁰16 U.S.C.A. § 1533(d), ELR Stat. ESA § 4(d).

¹¹See generally 50 C.F.R. Part 223.

¹²See 50 C.F.R. §§ 17.21, 17.31.

¹³Special Rule for the Polar Bear, 73 Fed. Reg. 28306, 28318 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

¹⁴Press Release, Salazar Retains Conservation Rule for Polar Bears, U.S. Department of the Interior, May 8, 2009, available at http://www.doi.gov/news/09_News_Releases/050809b.html (News Release) [hereinafter Salazar Press Release]. Under the Omnibus Appropriations Act of 2009, Congress granted Secretary Salazar authority until May 10, 2009, to revoke the 4(d) rule. Secretary Salazar declined to exercise this authority, explaining that “the best course of action for protecting the polar bear under the Endangered Species Act is to wisely implement the current rule, monitor its effectiveness, and evaluate our options for improving the recovery of the species.”

make the designation of critical habitat for these species substantially more complicated. As discussed above, climate change is expected to force species and their prey to relocate, and rising sea levels and decreasing snow pack will result in substantial physical changes to certain habitats. Critical habitat designations in the context of climate change thus pose another new challenge for the Services.

Section 4 of the ESA provides the FWS and the NMFS with considerable flexibility in designating critical habitat. First, critical habitat may include “specific areas outside the geographical area occupied by the species” upon a determination that such areas are “essential for conservation of the species.”¹⁵ This provision provides the opportunity to potentially address the habitat-shifting effects of climate change described above by, for example, using predictive modeling to determine those areas to which species affected by climate change may be migrating and to concentrate conservation efforts on those areas. The FWS applied this kind of approach when considering critical habitat designation for the Preble’s meadow jumping mouse. The FWS included small streams in the species’ critical habitat even though larger streams are more important to the species, on the ground that “Preble’s populations along mountain streams may be less subject to certain threats including . . . long-term climate change.”¹⁶

On the other hand, the ESA and its regulations also provide the flexibility to decline to designate critical habitat if it would not be “prudent,” based on a determination that it would not be beneficial to the species. The Services may also conclude that critical habitat is “indeterminable” in the face of the uncertainty posed by climate change. This was the position adopted by the FWS with respect to the polar bear. The FWS concluded that there was too much uncertainty as to which specific areas within the United States “might be essential to the conservation of the polar bear” and consequently found that critical habitat was indeterminable.¹⁷

d. Recovery Plans

ESA § 4(f) requires the FWS and the NMFS to develop recovery plans “for the conservation and survival of endangered species and threatened species listed pursuant to this section, unless [they find] that such a plan will not promote the conservation of the species.”¹⁸ This caveat gives the FWS and the NMFS the discretion not to prepare recovery plans, which may be more likely in climate change-based listings where there may be few practical domestic mechanisms to promote recovery in the face of a globalized problem. But in at least one case, the FWS has suggested that integration of climate change in the recovery plan can “support recovery actions to protect and restore local habitat and restore local habitat conditions as a buffer against larger-scale changes.”¹⁹ Thus, climate change can inform the development of localized recovery plans. Recovery plans in general can also provide extensive information about a species and can guide and inform complementary local, state, and private conservation and recovery efforts, in addition to informing incidental take authorizations under §§ 7 and 10 of the ESA.

2. Section 9: The Take Prohibition

Section 9 prohibits acts that “harass, harm, pursue, hunt, shoot, wound, kill, trap,

¹⁵16 U.S.C.A. § 1532 (5)(A), ELR Stat. ESA § 3(5)(A).

¹⁶U.S. Fish & Wildlife Serv., Designation of Critical Habitat for the Preble’s Meadow Jumping Mouse, 68 Fed. Reg. 37267, 37285 (June 23, 2003).

¹⁷73 Fed. Reg. at 28298.

¹⁸16 U.S.C.A. § 1533 (f)(1), ELR Stat. ESA § 4(f)(1).

¹⁹Nat’l Marine Fisheries Serv., Proposed Recovery Plan for the Evolutionarily Significant Unit (ESU) of the Puget Sound Chinook Salmon, 70 Fed. Reg. 76445, 76447 (Dec. 27, 2005).

capture, or collect” listed species.²⁰ In *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, the Supreme Court upheld the FWS’ definition of “harm” to include any modification of the species’ habitat that results in “actual death or injury” to a species “by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”²¹ This raises the question in the climate change context of whether GHG emissions contributing to climate change can proximately cause “harm” for ESA purposes.²² In *Sweet Home*, the Court emphasized the importance of “proximate causation and foreseeability”²³ when defining harmful activities, but these elements can be rather attenuated when dealing with climate change. On the other hand, the Supreme Court in *Massachusetts* allowed a less proximate causal chain in order to establish the “injury in fact” element to determine that the plaintiffs had standing in that case.²⁴ There, the Court first noted that there is indeed “a causal connection between man-made greenhouse gas emissions and global warming” and concluded that the Court may require the EPA to regulate automobile emissions in order to reduce domestic production of those GHGs, even if doing so would merely be a “tentative step” toward combating global climate change.²⁵ This illustrates that, in the context of takings caused by climate change, causation may take many forms, so agency discretion will have an especially important role in implementing the regulatory scheme.

3. Section 7: Jeopardy Consultations

Consideration of climate change in § 7 consultations presents two issues: (1) whether federal actions that cause, fund, or authorize greenhouse gas emissions are “likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of [critical] habitat,”²⁶ and (2) how the FWS and the NMFS should consider the effects of other federal actions in the context of climate change. The direct and indirect effects requiring consideration under the § 9 jeopardy standard include those effects “that are caused by the proposed action and are later in time, but still are reasonably certain to occur,” and “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.”²⁷ Based on these definitions, a causal connection can be drawn between GHG emissions and climate change-induced effects on species, such that federal authorizations resulting in GHG emissions could theoretically trigger § 7 consultation.

In anticipation of such arguments, the FWS issued guidance in the wake of the polar bear listing. The guidance explicitly stated that the FWS did not anticipate that such federal authorizations of projects involving GHG emissions would present a sufficient causal connection between, for example, emissions at an individual facility and individualized impacts on a species like the polar bear that is affected by

²⁰16 U.S.C.A. § 1532(19), ELR Stat. ESA § 3(19).

²¹*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 691, 115 S. Ct. 2407, 132 L. Ed. 2d 597 (1995) (citing 50 C.F.R. pt. 17.3 and 50 C.F.R. pt. 217).

²²See J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U. L. Rev. 1, 39–40 (2008) (discussing the causal issues involved in the *Babbitt v. Sweet Home* decision).

²³*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 696–97 n.9 (1995).

²⁴*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 1457, 167 L. Ed. 2d 248 (2007).

²⁵*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 1457, 167 L. Ed. 2d 248 (2007).

²⁶16 U.S.C.A. § 1536(a)(2), ELR Stat. ESA § 7(a)(2).

²⁷50 C.F.R. § 402.02.

climate change in general.²⁸ The U.S. Geological Survey concluded in concurrent guidance that “current science and models cannot link individual actions that contribute to atmospheric carbon levels to specific responses of species, including polar bears.”²⁹ Similarly, the FWS concluded:

The best scientific data available today do not allow us to draw a causal connection between GHG emissions from a given facility and effects posed to listed species or their habitat, nor are there sufficient data to establish that such impacts are reasonably certain to occur. Without sufficient data to establish the required causal connection—to the level of reasonably certainty—between a new facility’s GHG emissions and impacts to listed species or critical habitat, Section 7 consultation would not be required to address impacts of a facility’s GHG emissions.³⁰

The FWS and the NMFS subsequently proposed an update to the consultation regulations to reflect this guidance on the scope of consultation, specifically focusing on requiring a clear causal connection between a federal project and impacts to listed species.³¹ Consultation is not triggered where the

effects of [the] action are manifested through global processes and: (i) Cannot be reliably predicted or measured at the scale of a listed species’ current range, or (ii) Would result at most in an extremely small, insignificant impact on a listed species or critical habitat, or (iii) Are such that the potential risk of harm to a listed species or critical habitat is remote; or (3) The effects of such action on a listed species or critical habitat: (i) Are not capable of being measured or detected in a manner that permits meaningful evaluation; or (ii) Are wholly beneficial.³²

In issuing the final revisions to the § 7 consultation regulations on December 16, 2008, the FWS and the NMFS clarified the phrase “manifested through global processes” as covering “those effects that are the result of a specific source but become well mixed and diffused at the global scale such that they lose their individual identity.”³³ They recognized that these combined effects become a “potential contributor to a separate phenomenon with possible global impacts,” but that the contribution of any particular source to the global process that then affects a global environment is typically “very, very small.”³⁴ However, the FWS and the NMFS also explained that the term “manifested through global processes” does not refer to effects “that can be evaluated for the immediate effects on the surrounding area caused by their primary physical and chemical characteristics [because] they would be traced and measured to the extent possible”³⁵ and that the term does not “preclude the appropriate consideration of climate change, generally, for purposes of establishing the environmental baseline and the status of the species in the action area [for example, information on different precipitation patterns than experienced in the past].”³⁶

In explaining the intent behind this revision and behind the rule more generally,

²⁸See Memorandum from Dale Hall, Director, FWS, to Regional Directors, Regions 1-8, Expectations for Consultations on Actions That Would Emit Greenhouse Gases (May 14, 2008) (hereinafter Hall Memorandum).

²⁹Memorandum from Mark Myers, Director, U.S. Geological Survey to Director, FWS, The Challenges of Linking Carbon Emissions, Atmospheric Greenhouse Gas Concentrations, Global Warming, and Consequential Impacts (May 14, 2008).

³⁰Hall Memorandum, *supra* note 28.

³¹73 Fed. Reg. 47868 (Aug. 15, 2008).

³²73 Fed. Reg. 76272, 76287 (codified at 50 C.F.R. § 402.03(b)(2)).

³³73 Fed. Reg. 76272, 76282.

³⁴73 Fed. Reg. 76272, 76282.

³⁵73 Fed. Reg. 76272, 76282 to 83.

³⁶73 Fed. Reg. 76283.

the FWS and the NMFS stated unequivocally that they “believe that section 7(a)(2) simply was not intended to deal with global processes at individual project level consultations.”³⁷ The FWS and the NMFS captured the practical problem of using the ESA to regulate climate change by observing that “to attempt to regulate effects at a global scale would have the untenable consequence of transforming the ‘action area’ for consultation into the globe itself.”³⁸ Directly addressing the intent of the ESA, the FWS and the NMFS stated further that they do not believe “that Congress designed or intended the ESA to be utilized as a tool to regulate global processes.”³⁹ This discussion concluded with the following statement, which goes to one of the essential policy debates in climate change regulation and clearly indicates on which side of the policy debate the prior Bush Administration landed: it is not “appropriate to hold an agency responsible for global processes.”⁴⁰ Although the Obama Administration subsequently rescinded the December 16, 2008, revised § 7 consultation rule, it retained the Polar Bear Conservation Rule.⁴¹ In so doing, Secretary of the Interior Salazar clarified the Obama Administration’s position that the ESA is not the proper regulatory mechanism for addressing climate change.⁴²

This recent policy reflects a balancing act by the FWS and the NMFS between, on the one hand, acknowledging and responding to climate change in its listing process, and on the other hand, reining in a potentially far-reaching ESA interpretation that could require federal agencies to consult on the attenuated GHG-related effects of a project on species ranging from the polar bear to tropical corals.

While the policy position of the FWS and the NMFS on the appropriateness of regulating climate change through the ESA is clear, the language itself appears to present ripe opportunities for confusion and litigation. Phrases like “global processes,” “extremely” or “very, very” small, and “well mixed” are vague and ill-defined and have not been used in past ESA practice.⁴³ In fact, Secretary Salazar and Commerce Secretary Locke requested public comments on numerous ESA causation issues, including the issue of effects related to global climate change.⁴⁴

Recently, there have been several cases that raise the issue of global climate change as a necessary “effect” to be considered in the formal consultation between the agency and the FWS or the NMFS. Two companion cases in California (the Delta Cases) involved challenges to biological opinions issued for the federally managed Central Valley Project and the state of California’s State Water Project authorizing incidental take of the Delta smelt and several listed salmonids.⁴⁵ Among other issues, the court held that the FWS acted arbitrarily and capriciously by failing to address the issue of climate change, which the court described as a failure to analyze a potentially “important aspect of the problem” of water supply in California.⁴⁶ Citing the statutory requirement to use the “best scientific and commercial data available,” the court found that the FWS’ conclusions were impermissibly “based in part on the assumption that the hydrology of the water bodies af-

³⁷73 Fed. Reg. 76272, 76280.

³⁸73 Fed. Reg. 76272, 76283.

³⁹73 Fed. Reg. 76272, 76283.

⁴⁰73 Fed. Reg. 76272, 76283.

⁴¹74 Fed. Reg. 20421 (May 4, 2010).

⁴²Salazar Press Release, *supra* note 14.

⁴³50 C.F.R. § 402.03.

⁴⁴74 Fed. Reg. 20422 (May 4, 2009).

⁴⁵*See* Natural Resources Defense Council v. Kempthorne, 506 F. Supp. 2d 322 (E.D. Cal. 2007); Pacific Coast Federation of Fishermen’s Associations v. Gutierrez, 606 F. Supp. 2d 1122 (E.D. Cal. 2008).

⁴⁶Natural Resources Defense Council v. Kempthorne, 506 F. Supp. 2d 322, 364 (E.D. Cal. 2007).

fectured by [the projects] will follow historical patterns for the next 20 years”⁴⁷ and that there was “readily available scientific data . . . regarding the potential effects of global climate change”⁴⁸ on the project area. The Delta Cases thus provide an example of how climate change may enter into the consultation process more indirectly.

4. *Section 10: Incidental Take Permits and Experimental Populations*

a. Incidental Take Permits

The assessment of climate change-induced impacts to listed species in the context of § 10 presents the same challenges described above with respect to § 7 of the ESA. The same questions that could be raised about the need to consult on attenuated GHG-related impacts to species in the consultation context could also be raised in the context of incidental take permit applications under § 10. Two related elements unique to the habitat conservation planning under § 10, however, raise additional issues relevant to climate change: adaptive management and the No Surprises Policy. Under the No Surprises Policy, habitat conservation plans (HCPs) typically provide assurances that the FWS and the NMFS will not impose additional mitigation requirements to address future impacts by “unforeseen circumstances,” while prescribing certain additional mitigation requirements in the event of identified “changed circumstances.”⁴⁹ The court’s analysis in the Delta Cases suggests that climate change-induced impacts would be reasonably foreseeable changed circumstances for which additional mitigation measures could be required. Adaptive management principles that have been long incorporated into HCPs to address changed circumstances can be used to address those reasonably foreseeable effects of climate change, such as rising sea levels and changes in precipitation, and provide flexibility in the HCP process.

b. Experimental Populations

Section 10(j) of the ESA authorizes the FWS to transport and release members of a listed species into new areas as “experimental populations,” upon the determination that “such release will further the conservation of such species.”⁵⁰ The areas available for release include the species’ “probable historic range” or other suitable natural habitat that may not have been previously occupied by the species.⁵¹ This option for release and reintroduction of listed species to new habitats creates potential opportunities for climate change application with regard to necessity for relocation and impacts on prior and current habitats available for assisted migration. The process would potentially allow facilitation of the migrations that are already occurring as a result of displacement caused by climate change.⁵²

5. *The “Best Science” Standard*

Overarching the ESA provisions discussed above is the “best scientific and commercial data available” standard, which applies to loss of habitat considerations for

⁴⁷Natural Resources Defense Council v. Kempthorne, 506 F. Supp. 2d 322, 367 (E.D. Cal. 2007).

⁴⁸Pacific Coast Federation of Fishermen’s Associations v. Gutierrez, 606 F. Supp. 2d 1122 (E.D. Cal. 2008).

⁴⁹50 C.F.R. § 17.22(b)(5)(iii).

⁵⁰16 U.S.C.A. § 1539(j)(2)(A), ELR Stat. ESA § 10(j)(2)(A).

⁵¹See 50 C.F.R. § 17.81(a).

⁵²See Pew Center on Global Climate Change, Executive Summary, available at http://www.pewclimate.org/global-warming-in-depth/all_reports/observedimpacts/execsumm.cfm (stating “promoting dynamic design and management plans for nature reserves may enable managers to facilitate the adjustment of wild species to changing climate conditions (e.g., through active relocation programs”).

listing decisions,⁵³ critical habitat designation,⁵⁴ and no jeopardy/no adverse modification standards.⁵⁵ The court in the Delta Cases made clear that a defense of “scientific uncertainty” with respect to climate change and its effects is unlikely to prevail in the ESA context. The level of certainty will likely vary with each case, but it is clear that climate change is a factor to be included in the scientific analysis throughout the ESA.

§ 21:63 Conclusion on ESA and climate change

Given the substantial evidence that climate change is causing and is likely to continue to cause ecosystem disruptions, the various regulatory programs and determinations under the ESA can be expected to provide an increasingly contentious venue for climate change-related litigation. While the FWS and the NMFS under both the Bush and Obama Administrations have recently been more willing to acknowledge and address climate change in the context of the ESA, with the listing of the polar bear and additional listings likely to follow, the FWS and the NMFS have, so far, taken a hard line on attempting to actually regulate GHG emissions through the lens of the ESA. But recent decisions like the Delta Cases make clear that climate change will need to be taken into account in the application of the “best science available” standard, whether in the listing, consultation, or HCP processes.

XIII. INTERNATIONAL APPLICABILITY OF THE ESA

§ 21:64 Introduction

The threat of species extinction is a problem that knows no national border.¹ Both national and international attempts to promulgate broadly sweeping environmental legislation have been inevitably faced with the balance between conservation and consumption. Conservation of biodiversity, the protection of live specimens, the prevention of the spread of disease, and the avoidance of the introduction of injurious exotic species have become the foci of the U.S. approach to environmental legislation. These aspirations, however, have been tempered by the competing interests of economic development and population growth, especially in developing countries. The effectiveness of international treaties has also been hampered by inconsistent enforcement. Perhaps most staggering, illegal commerce of threatened and endangered species is the third largest illegal trade worldwide (after drugs and weapons), and generates between \$10 and \$20 billion in revenue worldwide.²

§ 21:65 The ESA and international issues

In 1973, Congress enacted the ESA, which was a far-reaching attempt to provide

⁵³See 16 U.S.C.A. § 1533(b)(1)(A), ELR Stat. ESA § 4(b)(1)(A).

⁵⁴See 16 U.S.C.A. § 1533(b)(2), ELR Stat. ESA § 4(b)(2).

⁵⁵See 16 U.S.C.A. § 1536(c), ELR Stat. ESA § 7(c); 50 C.F.R. 402.14(g)(8).

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¹Loss of habitat due to development is cited as the greatest threat to threatened and endangered wildlife. Poaching of large game also poses a significant threat. Both of these causes of wildlife destruction are heavily influenced by international trade. Furthermore, many animals travel great distances to perform their life functions. These ranges often encompass the territory of more than one country.

²See generally Robert J. Shaw, *Nabbing the Gourmet Club: Utilizing RICO Enforcement and Punitive Provisions to Curb the International Trade of Endangered Species*, 42 N.Y.L. Sch. L. Rev. 283, 284 (1998). See also Donovan Webster, *The Looting and Smuggling and Fencing and Hoarding of Impossibly Precious, Feathered, and Scaly Wild Things*, N.Y. Times Mag., Feb. 16, 1997, at 28. Illegally trafficked wildlife, according to a 1994 report, includes approximately 27,500 primates, 3.5 million birds, 5.5 million reptiles, 12.5 million reptile skins, 550 million fish, 1,500 tons of live coral, and many other types of wildlife and wildlife products. World Wildlife Fund, *World Trade in Wildlife* (1994).

for conservation, protection, and propagation of endangered species of fish and wildlife, both by federal action and by encouraging the establishment of state endangered species conservation programs.¹ In a statement accompanying the passage of the ESA, Congress declared that “the United States has pledged itself as a sovereign community to conserve to the extent practicable the various species of fish or wildlife and plants facing extinction pursuant to”² various international treaties, international standards, and commitments that will benefit all citizens. The ESA was designed to protect and restore listed fauna and flora, with the eventual goal of species recovery and removal from the lists. The ESA purposefully does not draw a distinction between domestic and exotic animals and plants. The ESA was intended to protect endangered species regardless of origin.

Internationally, the ESA provides financial incentives and U.S. expertise in addressing the preservation and restoration of threatened or endangered species to foreign countries. Sections 8(a) and (b) state:

(a) Financial assistance.

As a demonstration of the commitment of the United States to the world wide protection of endangered species and threatened species, the President may . . . provide to any foreign country (with its consent) assistance in the development and management of programs in that country which the Secretary determines to be necessary or useful for the conservation of any endangered species or threatened species listed by the Secretary pursuant to section 4 of this Act. The President shall provide assistance (which includes, but is not limited to, the acquisition, by lease or otherwise, of lands, waters, or interests therein) to foreign countries under this section under such terms and conditions as he deems appropriate

(b) Encouragement of foreign programs.

In order to carry out further the provisions of this Act, the Secretary, through the Secretary of State, shall encourage:

(1) foreign countries to provide for the conservation of fish or wildlife including endangered species and threatened species listed pursuant to section 4 of this Act;

(2) the entering into of bilateral or multilateral agreements with foreign countries to provide for such conservation; and

(3) foreign persons who directly or indirectly take fish or wildlife in foreign countries or on the high seas for importation into the United States for commercial or other purposes to develop and carry out with such assistance as he may provide, conservation practices designed to enhance such fish or wildlife or plants and their habitat.³

§ 21:66 The Convention on International Trade in Endangered Species of Wild Fauna and Flora

The ESA also implements the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).¹ CITES, which has 175 signatory par-

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¹S. Rep. No. 93-307, U.S.C.C.A.N. 2989 (1973).

²S. Rep. No. 93-307, U.S.C.C.A.N. 2989 (1973).

³16 U.S.C.A. § 1537(a), (b), ELR Stat. ESA § 8(a), (b).

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¹27 U.S.C.A. § 1087 (1973).

ties,² attempts to protect more than 30,000 threatened and endangered species from the overexploitation caused by unregulated international wildlife trade.³ It was the first international treaty to effectively address the conflicting interests of international wildlife conservation and trade⁴ and is credited with continually meeting its two stated goals: (1) to reduce the harmful effects of the commercial trade of threatened or endangered species of fauna and flora; and (2) to establish an international system for sustainable wildlife trade.⁵ Permits are required to trade in threatened or endangered species by member countries.⁶ Sanctions are suggested by CITES to bring signatory country violators into compliance. There is no obligation, however, for CITES signatory governments to enforce CITES' provisions. Due to the experience and affluence of the United States, it has taken the lead in the implementation and enforcement of CITES throughout the world. Enforcement by other countries, however, has been less aggressive.⁷

Despite the elaborate framework it provides, CITES is of limited effectiveness. Its most noteworthy deficiency is not providing for any mandatory enforcement or implementation mechanisms.⁸ CITES only compels the return of the protected speci-

²A State for which the Convention has entered into force is called a Party to CITES. For the list of Parties, visit the CITES website at <http://www.cites.org/eng/disc/parties/alphabet.shtml> (last visited Mar. 22, 2010).

³See the CITES Preamble:

Recognizing that wild fauna and flora in their many beautiful and varied forms are an irreplaceable art of the natural systems of the earth which must be protected for this and the generations to come; Conscious of the ever-growing value of wild fauna and flora from aesthetic, scientific, cultural, recreational, and economic points of view; Recognizing that peoples and States are and should be the best protectors of their own wild fauna and flora; Recognizing, in addition, that international cooperation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade; Convinced of the urgency of taking appropriate measures to this end; Have agreed [to commit to the provisions of CITES].

⁴CITES is both a conservation and a trade instrument.

⁵See CITES Preamble, *supra*.

⁶CITES has three categories of protected species. Category I species is comprised of the species most likely to become extinct. As such, these species receive the highest protection. Article II(1) states:

Appendix I shall include all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances.

Category II species are likely to become endangered unless trade is restricted. Article II(2) states:

Appendix II shall include (a) all species which although are not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival; and (b) other species which must be subject to strict regulation in order that trade in specimens in certain species referred to in sub-paragraph (a) of this paragraph may be brought under effective control.

Category III is comprised of species whose trade needs to be regulated to avoid exploitation. Article II(3) states:

Appendix II shall include all species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the cooperation of other parties in the control of trade.

See generally CITES arts. I-V.

⁷The European Union, for example, does not provide either criminal or civil sanctions for illegal wildlife trade.

⁸Compare the ESA, 16 U.S.C.A. § 1538(a)(1), ELR Stat. ESA § 9(a)(1), which imposes penalties for any person subject to the jurisdiction of the United States to import, export, offer, or sell in interstate or foreign commerce, or to receive, carry, transport, or ship in interstate or foreign commerce any threatened or endangered species. The Department of the Interior publishes lists of threatened and endangered species. The ESA also makes it unlawful to harass, harm, pursue, shoot, kill, wound, trap, capture, or collect or attempt to engage in any such conduct any threatened or endangered species within the United States, its territories, or on the high seas.

men to its country of origin.⁹ Beyond the return of the specimen, each signatory country must promulgate its own legislation to provide for civil and/or criminal punishment for violations. To compound the problem, many endangered species live in developing countries.¹⁰ These countries are less likely to take action to comply with CITES or any other international treaty due to the competing interests of their citizens for resources.

The United States, however, has been effective in effectuating sanctions in the spirit of CITES to pressure compliance. In 1994, the United States announced an unprecedented trade sanction against Taiwan for its repeated CITES violations.¹¹ Prior to the imposition of the sanctions, the United States repeatedly and publicly warned Taiwan to cease and desist in its trading of endangered tiger and rhinoceros parts.¹² Although the sanctions were lifted one year later, the punitive action was widely viewed as a powerful symbolic and political effort by the United States to follow through on its oft-articulated commitment to protect wildlife without respect to borders.

Previous to the Taiwan sanctions, trade embargoes instituted for environmental purposes had been considered to violate the General Agreement on Tariffs and Trade (GATT).¹³ The World Trade Organization (WTO), on June 15, 2001, approved a trade sanction to punish nations exporting shrimp and shrimp products caught using nets that did not protect endangered sea turtles.¹⁴ This act by the WTO was significant in signaling to other nations that enforcement actions against violators of CITES and other international environmental treaties would be supported by the international trade community.

Not surprisingly, international punitive actions, such as the imposition of trade sanctions by the United States against Taiwan under CITES, cause significant political fallout. Many offending countries have escaped punitive action by other CITES signatory countries by virtue of preexisting trade and diplomatic relations. One such country is China, which at the time of the Taiwan sanctions also had received notice that it was in frequent violation, arguably to a greater degree than Taiwan. Due to an evaluation of the potential political and economic consequences of imposing a trade sanction against China, action was not taken. Furthermore, with respect to Asia generally, a fundamental conflict arises between traditional medicine and what is perceived as the West continuing to impose its will on the lifestyles of others.

Despite these difficulties, many prosecutions have been brought under CITES. In cases where aggressive ESA prosecution of a species trafficker may be complicated, CITES can be uniquely useful to the government, as the proceeding is brought directly against the contraband the government seeks to seize, thus obviating constitutional problems that might arise from a proceeding directly against the ille-

⁹See CITES art. VII(4)(b) (When a living specimen is seized, "the Management Authority shall . . . return the specimen to . . . [the State of origin] at the expense of that State.").

¹⁰The majority of the world's rainforests, which have the greatest concentration of species of any ecosystem, exist within developing countries. Developmental and population demands have led to an epidemic of deforestation since the 1960s.

¹¹Taiwan is a signatory country.

¹²The demand for endangered animal parts for use in Asian medicinal remedies has put a profoundly serious strain on certain species of threatened and endangered fauna and flora. In fact, exploitation of certain species by the medicinal remedy industry of Asia has driven many species, including the white rhinoceros, to the brink of extinction.

¹³See Sanford E. Gaines, *International Trade, in Stumbling Toward Sustainability* 115 (Env'tl. L. Inst. 2002).

¹⁴See WTO Dispute Panel Report on the United States—Import Prohibitions of Certain Shrimp and Shrimp Products (June 15, 2001), available at <http://www.wto.org/>.

gal transporter. For example, in *United States v. 1000 Raw Skins of Caiman Crocodilus Yacare, Etc.*,¹⁵ the court found that the shipment of the skins in question did constitute a violation of CITES¹⁶ by virtue of a positive identification of the species from which the skins came and a comparison with that finding to the statements made on the CITES permits. The court also refused to apply the innocent owner defense to the CITES prosecution under the ESA. As the court in *Carpenter v. Andrus*¹⁷ noted, all imported endangered species are subject to forfeiture by the United States, and the claimant's innocence is not a defense to forfeiture.

Thus, by imposing strict liability on the defendant, the court reasoned that the dual purposes of fulfilling congressional intent and minimizing the ability of individuals from capitalizing on misdeeds would be best served. To this end, the Ninth Circuit reasoned, in *United States v. 53 Electus Parrots*,¹⁸ that the application of strict liability in wildlife forfeiture actions is necessary to effect congressional intent, as diligence by the importer and disincentives to traffic in protected wildlife would be chilled by heightening the burden to the prosecution.¹⁹

This topic was developed further in *United States v. One Handbag of Crocodilus Species*,²⁰ where the United States sought the forfeiture of 57 items allegedly manufactured from the skins of endangered crocodiles. The skins were also improperly identified on their CITES importation certificates. The court held that the importance of protecting endangered species justified the placing of responsibility for compliance squarely upon the shoulders of those who seek to traffic in animal products and that the difficulty of clearly distinguishing an endangered species of crocodilian from a common one could not be used as either a constitutional or factual defense. The court determined that making that distinction was the importer's problem and that the government can hold all importers of contraband strictly liable, regardless of what they knew or believed about their product. Further, the court noted that there are no "innocent owners" of contraband; simply by possessing it, one commits a criminal act.²¹ Further, challenges alleging problems with the delay of proceedings and the possible illegality of the search were subsequently dismissed, as the court's jurisdiction over the items were not affected by possible constitutional complaints of the transporter.²²

In another ESA prosecution, *United States v. Ivey*,²³ the Fifth Circuit held that CITES may be invoked to prosecute individuals for trade in listed threatened or endangered species regardless of whether the country of the specimen's origin was a

¹⁵*U.S. v. 1,000 Raw Skins of Caiman Crocodilus Yacare*, 1991 WL 41774 (E.D. N.Y. 1991).

¹⁶As codified in 16 U.S.C.A. §§ 1531(a)(4), 1538(c), ELR Stat. ESA §§ 2(a)(4), 9(c), and implemented through 50 C.F.R. § 23.

¹⁷*Carpenter v. Andrus*, 485 F. Supp. 320, 322 (D. Del. 1980).

¹⁸*U.S. v. Fifty-Three (53) Eclectus Parrots*, 685 F.2d 1131 (9th Cir. 1982).

¹⁹*U.S. v. Fifty-Three (53) Eclectus Parrots*, 685 F.2d 1131, 1134 (9th Cir. 1982).

²⁰*U.S. v. One Handbag of Crocodilus Species*, 856 F. Supp. 128 (E.D. N.Y. 1994).

²¹*See Secretary of Labor v. DeSisto*, 929 F.2d 789, 32 Fed. R. Evid. Serv. 723 (1st Cir. 1991). The U.S. District Court for the Eastern District of New York stated in *1000 Raw Skins*:

The application of strict liability in wildlife forfeiture actions is necessary to effect Congressional intent. To permit the importer to recover the property because he or she lacks culpability would lend support to the continued commercial traffic of the forbidden wildlife. Additionally, a foreseeable consequence would be to discourage diligent inquiry by the importer, allowing him or her to plead ignorance in the face of an import violation. Furthermore, it is not unreasonable to expect the importer to protect his or her interest by placing the risk of noncompliance on the supplier in negotiating the sales agreement.

²²*See U.S. v. One Handbag of Crocodilus Species*, 856 F. Supp. 128, 133 (E.D. N.Y. 1994). *See U.S. v. Daccarett*, 6 F.3d 37 (2d Cir. 1993).

²³*U.S. v. Ivey*, 949 F.2d 759 (5th Cir. 1991).

signatory.²⁴ The court held that the United States (and all signatories) are obliged to enforce CITES within their borders and that, again, it is the importer's problem to obtain the proper certifications, even if the country of origin is not a signatory to CITES and does not produce such certifications as a matter of course.²⁵ This paperwork burden was further discussed in *Underwater Exotics, Ltd. v. Secretary of the Interior*.²⁶ In this case, the plaintiff brought suit against the Secretary of the Interior, seeking equitable relief. The plaintiff challenged the imposition of restrictions to the renewal of the plaintiff's import/export license. The court found that the FWS' CITES actions against the plaintiff were reasonable in light of three factors: (1) the plaintiff's failure to include CITES documents in shipments; (2) the inclusion of misinformation on CITES documents, when present; and (3) shipments where the plaintiff failed to declare the specimens at all. These violations were charged against the plaintiff under a theory of strict liability. The court, affirming the FWS' imposition of conditions on the plaintiff's license, stated that "[d]ocumentation and recordkeeping of trade in endangered species, such as the paperwork violations at issue in this case, play a critical role in CITES."²⁷

Even importers who are approved may face restrictions upon their use of the specimens they bring into the country. In *World Wildlife Fund v. Hodel*,²⁸ the plaintiffs sought to enjoin the importation of two giant pandas from China. The court stated that both the ESA and CITES must be satisfied before a permit to import an endangered species may be issued. The court held that under CITES: (1) the import must be for purposes that are not detrimental to the survival of the species; (2) the proposed recipient of a living specimen must be suitably equipped to house and care for it; and (3) the specimen must not be used for primarily commercial purposes.²⁹ The court went on to state that "[t]he ESA forbids the importation of endangered species except where the Secretary [of the Interior] has determined that the importation is for scientific purposes or [will] enhance the propagation or survival of the affected species."³⁰ After a discussion of each factor and their application to the facts of the case, the court issued a portion of the requested equitable relief, enjoining the defendant from charging an exhibition fee to the public to view the pandas.

It should be noted that possession of endangered species or byproducts is a crime regardless of how long the contraband item is possessed prior to the prosecution. Applicable statutes or doctrines of limitation do not begin to run until the defendant gives up possession. Otherwise, the offense is ongoing. In *United States v. Winnie*,³¹ a CITES prosecution was brought against a U.S. citizen for possession of a cheetah head and pelt that he obtained while on safari in Africa in 1981. The court had no patience for Mr. Winnie's argument that the charges, brought in 1992, were "stale":

The cheetah was contraband, just like heroin, and the passage of time never made its possession legal. Otherwise, someone like Winnie could hide a cheetah hide for five years and then display it (or even wear it) with impunity. That scenario was not what

²⁴U.S. v. Ivey, 949 F.2d 759, 764 (5th Cir. 1991).

²⁵U.S. v. Ivey, 949 F.2d 759, 764–65 (5th Cir. 1991).

²⁶*Underwater Exotics, Ltd. v. Secretary of Interior*, 1994 WL 80878 (D.D.C. 1994).

²⁷See generally *U.S. v. 2,507 Live Canary Winged Parakeets (Brotogeris Versicolorus)*, 689 F. Supp. 1106, 1114–20 (S.D. Fla. 1988).

²⁸*World Wildlife Fund v. Hodel*, 1988 WL 66193 (D.D.C. 1988).

²⁹*World Wildlife Fund v. Hodel*, 1988 WL 66193 (D.D.C. 1988) (citing CITES art. III(3)).

³⁰*World Wildlife Fund v. Hodel*, 1988 WL 66193 (D.D.C. 1988) (citing the ESA, 16 U.S.C.A. § 1539(1)(a), ELR Stat. ESA § 10(1)(a)).

³¹*U.S. v. Winnie*, 97 F.3d 975 (7th Cir. 1996).

Congress had in mind when it prohibited the possession of endangered species.³²

Since it is often difficult to seize threatened or endangered specimens at their time of importation, due to their small size and the relatively low number of enforcement agents,³³ any other holding would simply allow importers and poachers to store their product in secret for longer.

§ 21:67 The Lacey Act

The Lacey Act, which was enacted in 1900, is the oldest U.S. national wildlife protection statute. Today, the Act is an antitrafficking statute that protects all nondomesticated animals, alive or dead, and any of their offspring. The Lacey Act is used by federal prosecutors to supplement federal, state, Native American, and foreign wildlife protection laws by requiring the accurate labeling of wildlife shipments. It imposes civil penalties,¹ forfeiture of wildlife and equipment used in trafficking,² criminal penalties including fines and incarceration,³ and permit revocation for violations.⁴ In its application, the Lacey Act provides the most comprehensive mechanism for combating wildlife trafficking.

Today, the Lacey Act prohibits both the trade in wildlife or plants that have been illegally possessed, transported or sold, and the falsification of documents or the

³²U.S. v. Winnie, 97 F.3d 975, 976 (7th Cir. 1996).

³³According to a 1994 U.S. GAO report, there were only 74 wildlife inspectors at 11 designated ports in the United States. Furthermore, under 25% of the nearly 80,000 annual wildlife shipments to and from the United States were inspected. U.S. GAO, Wildlife Protection 11 (1994).

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¹The Lacey Act provides for fines of up to \$10,000 under the trafficking prohibitions of 16 U.S.C.A. § 3372(a) or the fraudulent marking provisions of 16 U.S.C.A. § 3372(d).

Section 3373(a)(1) states:

Any person who engages in conduct prohibited by any provision of this chapter and in the exercise of due care should know that the fish or wildlife or plants were taken, possessed, transported, or sold in violation of, or in a manner unlawful under, any underlying law, treaty, or regulation, and any person who knowingly violates section 3372(d) of this title may be assessed a civil penalty by the Secretary of not more than \$10,000 for each such violation: Provided, that when the violation involves fish, wildlife, or plants with a market value of less than \$350, and involves only the transportation, acquisition or receipt of fish or wildlife or plants taken or possessed in violation of any law, treaty, or regulation of the United States, any Indian tribal law, any foreign law, or any law or regulation of any State, the penalty assessed shall not exceed the maximum provided for violation of said law, treaty, or regulation, or \$10,000, whichever is less.

²The fish, wildlife, or plant specimen itself may be seized, which is imposed on a strict liability basis, as well as any vessels, vehicles, aircraft, or other equipment involved in the violation. The forfeiture, however, may only occur after a felony conviction for the sale of the specimen, and the innocent owner defense may be invoked. A strict liability approach is not applied to the instrumentalities of trafficking.

Section 3374(a)(2) states:

All vessels, vehicles, aircraft, and other equipment used to aid in the importing, exporting, transporting, selling, receiving, acquiring, or purchasing of fish or wildlife or plants in a criminal violation of this chapter for which felony conviction is obtained shall be subject to forfeiture to the United States if (a) the owner of such vessel, vehicle, aircraft, or equipment would be used in a criminal violation of this chapter, and (b) the violation involved the sale or purchase of, the offer of sale, or purchase of, or the intent to sell or purchase, fish, wildlife, or plants.

³The Lacey Act provides for Class A misdemeanors which proscribe a one-year period of incarceration and maximum fines of \$100,000 for individual violators and \$200,000 for organizational violators. The Act also provides for Class E felonies, which are punishable by a maximum penalty of five years incarceration and \$250,000 individual and \$500,000 organizational maximum fines. See 18 U.S.C.A. §§ 3559(a)(5), 3571(b)(3), (c)(3), 16 U.S.C.A. §§ 3373(d)(1), (d)(2), (d)(3)(A).

⁴16 U.S.C.A. §§ 1801 to 1882, 3373(e).

failure to mark wildlife and plant shipments,⁵ and provides criminal and civil penalties for these actions, respectively.⁶ The Lacey Act protects all animals, as it defines the term broadly:

Any wild animal, whether alive or dead, including without limitation any wild mammal, bird, reptile, amphibian, fish, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, whether or not bred, hatched, or born in captivity, and includes any part, product, egg, or offspring thereof.⁷

This language encompasses all of the world's animal life and any derivative therefrom.⁸

It should be noted that the Lacey Act itself cannot be used to punish a taking, as the Lacey Act only applies to what is done with a specimen after a violation of the ESA or other protection law has already occurred. In *United States v. Carpenter*,⁹ a goldfish farmer shot and killed many of the flock of birds that was stealing his crop. He was charged with violation of the Migratory Bird Treaty Act¹⁰ and the Lacey Act. The Ninth Circuit, in reversing the defendant's Lacey Act conviction, held that the Lacey Act did not apply to this situation. The court explained:

In order to violate the Lacey Act a person must do something to wildlife that has already been taken or possessed in violation of law. The government's position collapses the two steps required by the statute into a single step—the very act of knowingly taking the bird in violation of laws is, in the government's view, the act of acquiring the bird. That is not the meaning of the statute. The bird must be taken before acquiring it violates the Lacey Act.¹¹

In this instance, all the defendant did was kill the birds; he did not do anything with them afterward. Thus, while he was guilty of the Migratory Bird Treaty Act violation, the Lacey Act did not apply to his conduct.

The Lacey Act's definition of plants is much more restrictive than that governing animals:

Any wild member of the plant kingdom, including roots, seeds, and other parts thereof, (but excluding common food crops and cultivars) which is indigenous to any State and which is either (a) listed on an appendix to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, or (b) listed pursuant to any State law that provides for the conservation of species threatened with extinction.¹²

In contrast to the Lacey Act's protections of animal life, the plant provisions of the Act do not protect plant species native to other countries. For the Lacey Act to apply, the plant species must be both indigenous to the United States and expressly protected by state law.¹³ Thus, trafficking in endangered exotic plants is not subject to the Lacey Act, while the same conduct for endangered animals is a felony.¹⁴

⁵16 U.S.C.A. §§ 3372, 3373 (1981) (amended 1988).

⁶16 U.S.C.A. §§ 3372, 3373 (1981) (amended 1988).

⁷16 U.S.C.A. § 3371(a).

⁸See *U.S. v. Parker*, 991 F.2d 1493, 1497 (9th Cir. 1993) (holding cockatoo eggs are included within the Lacey Act's definition of wildlife).

⁹*U.S. v. Carpenter*, 933 F.2d 748, 32 Fed. R. Evid. Serv. 1278 (9th Cir. 1991).

¹⁰16 U.S.C.A. §§ 701 et seq. (1939).

¹¹*U.S. v. Carpenter*, 933 F.2d 748, 750, 32 Fed. R. Evid. Serv. 1278 (9th Cir. 1991).

¹²16 U.S.C.A. § 3371(f).

¹³16 U.S.C.A. § 3371(f).

¹⁴16 U.S.C.A. §§ 3372(a)(1), (a)(2)(A), 3373(d)(1)(A).

Among the most noted Lacey Act prosecutions is *United States v. McKittrick*.¹⁵ McKittrick, a hunter, killed, skinned, and beheaded a grey wolf that had been brought to the United States for reintroduction to the wild. The defendant was charged with three counts: (1) taking the wolf in violation of the ESA; (2) possessing the wolf in violation of the ESA; and (3) transporting the wolf in violation of the Lacey Act. The Ninth Circuit held, in affirming the defendant's conviction on all three counts, that the experimental conservation program established in the United States was effective to give rise to the wolf's threatened or endangered status. This status change came despite the fact the wolf was not threatened or endangered where it originated. When the wolf entered the United States, it became a member of a threatened or endangered population and was thus subject to the protections of the ESA and the Lacey Act.¹⁶

The ESA has been widely considered "the most comprehensive legislation for [the] preservation of endangered species ever enacted by any nation."¹⁷ Similarly, CITES has been characterized as "the most successful of all international treaties concerned with the conservation of wildlife."¹⁸ The Lacey Act has also provided an effective mechanism for antitrafficking enforcement since its enactment in 1900. Together, these three enactments have provided the legal framework necessary to punish international violators of wildlife law. Further rigorous enforcement of these acts will be one of the keys to addressing the worldwide crisis of overexploitation of threatened or endangered wildlife.

XIV. APPLICATION OF THE ESA TO INDIAN TRIBES AND THEIR LANDS

§ 21:68 Introduction

The applicability of the ESA to Indian tribes¹ and their members' use of tribal lands and resources and exercise of tribal rights remains unclear.² This uncertainty arises because of the potentially conflicting rights and duties of both the Indian tribes and the federal government, including the following: (1) the federal trust responsibility to Indian tribes, Indian lands, and tribal resources; (2) tribal sovereignty; (3) tribal reserved rights³ and other rights; (4) freedom of religion; and

¹⁵*U.S. v. McKittrick*, 142 F.3d 1170 (9th Cir. 1998). The *McKittrick* decision is also significant because the court also held that there is no specific intent requirement for prosecution under § 9 of the ESA. The prosecution was not required to prove that McKittrick knew he was shooting a member of a threatened or endangered species to violate the ESA. All that was required by the ESA was the knowledge that the defendant was shooting an animal and that the animal turned out to be member of an endangered species protected under the ESA.

¹⁶Listing of threatened and endangered species is "the keystone of the Endangered Species Act." This is because civil and criminal penalties are not triggered until a species is listed. H.R. Rep. No. 97-567, at 10 (1982).

¹⁷*Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

¹⁸Simon Lyster, *International Wildlife Law*, 240 (1985).

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¹The term "Indian tribes" refers to federally recognized Indian tribes. This discussion will only examine the application of the ESA to federally recognized Indian tribes and their members and does not address the application of the ESA to nonfederally recognized Indian tribes or their members.

²See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm [hereinafter Secretarial Order No. 3206].

³As discussed herein below, reserved rights are those rights not transferred to the federal government but "reserved" by Indian tribes pursuant to treaties, agreements, executive orders, and statutes. These rights can be referred to as "treaty rights" or "reserved rights." Generally, this discussion will

(5) the federal duty to protect endangered species.⁴

In 1997, the Secretaries of the Department of Interior and the Department of Commerce (the Departments) issued Secretarial Order No. 3206 aimed at harmonizing these potentially conflicting duties and rights. The purpose of the order was to ensure that the Departments “carry out their responsibilities under the [ESA] in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Departments and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation.”⁵

These conflicting rights and duties raise many questions, some of which remain unresolved, regarding the application of the ESA to Indian tribes. Key questions are:

- What role does the federal fiduciary trust obligation to an Indian tribe and its resources play in the administration of the ESA?
- Can tribal reserved rights be asserted as a defense to a take violation of the ESA?
- Can freedom of religion rights be asserted as a defense to a take violation of the ESA?
- Does tribal sovereign immunity from lawsuit bar citizen actions brought under the ESA against a tribe?
- Does the doctrine of primary jurisdiction require the staying or dismissal of ESA citizen actions against a tribe?

This section will examine these questions and the policies and procedures set forth in Secretarial Order No. 3206 aimed at harmonizing these conflicting duties and rights.

§ 21:69 What role does the federal government’s fiduciary trust obligation to an Indian tribe and its resources play in the administration of the ESA?

The federal government has a trust responsibility toward Indian tribes. As Secretarial Order No. 3206 acknowledges, the “unique and distinctive political relationship between the United States and Indian tribes . . . has given rise to a special federal trust responsibility, involving the legal responsibilities and obligations of the United States toward Indian tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights.”¹

Under its trust responsibility, the federal government owes a fiduciary duty to its beneficiaries, the tribes and each tribal member, including a duty to conserve trust

use the term “reserved rights,” since courts have held that both treaty and nontreaty tribes have reserved rights. However, this discussion will occasionally use the term “treaty rights” in discussing cases that dealt with reservations created by treaty.

⁴See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁵See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

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¹See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 4. (Background) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm. This statement not only affirms a general fiduciary duty with respect to tribes and their lands and resources, but also applies fiduciary standards of due care to the “exercise of tribal rights.” Such a statement, along with a trustee’s general duty of loyalty to the beneficiary’s interest, could be interpreted to require the federal government to ensure, or at the least support, the exercise of tribal rights.

lands for the benefit of its beneficiaries, the tribe and its members, and a duty of loyalty to such beneficiaries' interests.² In fact, the federal government and its officials are held to the most exacting fiduciary standards, including the standards of a private fiduciary, in administering federal Indian programs and Indian property.³

The federal government acknowledges that such trust responsibility should be taken into account in applying the ESA to Indian tribes. As discussed above, the purpose of Secretarial Order No. 3206 was to ensure that the Departments "carry out their responsibilities under the [ESA] in a manner that harmonizes the Federal trust responsibility to tribes"⁴ Accordingly, the application of the ESA to a federally recognized Indian tribe should take into consideration the interests of the tribe and the benefits that will be received by the tribe by a proposed action that invokes the ESA.

Indian tribes have sued the federal government for breach of this fiduciary duty.⁵ For example, in *Pyramid Lake Paiute Tribe of Indians v. Morton*,⁶ the Secretary of the Interior had issued a series of regulations establishing a basis on which water would be provided from the Truckee River to the Truckee-Carson Irrigation District. The Pyramid Lake Paiute Indian Tribe (the Tribe) challenged the Secretary's action of issuing the regulations alleging, among other grounds, that the Secretary failed his trust responsibilities to the Tribe by unnecessarily diverting water from Pyramid Lake located on the Tribe's lands.⁷ The district court agreed with the Tribe and set aside the regulations. Accordingly, an Indian tribe could in theory sue the federal government for breach of its fiduciary duty based on the administration and enforcement of the ESA.

§ 21:70 The scope and significance of tribal reserved rights

The question of whether tribal reserved rights can be asserted as a defense to a violation of the ESA remains unresolved.¹ The debate revolves around whether Congress intended the ESA to abrogate tribal reserved rights. To understand this debate, it is important to first examine the origin, nature, and extent of tribal reserved rights.

²See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 4. (Background) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm; see also Donald C. Baur & William Robert Irvin, *Endangered Species Act: Law, Policy & Perspective* ch. 9, 158 (2002).

³See *Seminole Nation v. U.S.*, 316 U.S. 286, 296–97, 62 S. Ct. 1049, 86 L. Ed. 1480, 86 L. Ed. 1777 (1942). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 225–28 (1982 ed.).

⁴See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁵See, *i.e.*, *Lane v. Pueblo of Santa Rosa*, 249 U.S. 110, 113, 39 S. Ct. 185, 63 L. Ed. 504 (1919) (enjoining the Secretary of the Interior from disposing of tribal lands under the general public land laws because it "would not be an exercise of guardianship, but an act of confiscation"); *White v. Califano*, 437 F. Supp. 543, 555 (D.S.D. 1977), judgment *aff'd*, 581 F.2d 697, 698 (8th Cir. 1978) (holding that executive actions are reviewable both under the terms of specific statutes and for breach of the obligations of an ordinary trustee).

⁶*Pyramid Lake Paiute Tribe of Indians v. Morton*, 354 F. Supp. 252 (D.D.C. 1972), opinion supplemented, 360 F. Supp. 669 (D.D.C. 1973), judgment *rev'd*, 499 F.2d 1095 (D.C. Cir. 1974).

⁷*Pyramid Lake Paiute Tribe of Indians v. Morton*, 354 F. Supp. 252, 260 (D.D.C. 1972), opinion supplemented, 360 F. Supp. 669 (D.D.C. 1973), judgment *rev'd*, 499 F.2d 1095 (D.C. Cir. 1974).

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¹See *U.S. v. Dion*, 476 U.S. 734, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986) (Court declined to resolve the question of whether Congress through the ESA abrogated Indian treaty rights to hunt, fish, and gather). See also Donald C. Baur & William Robert Irvin, *Endangered Species Act: Law, Policy & Perspective* ch. 9, 160–63 (2002). It should be noted that *U.S. v. Nuesca*, 945 F.2d 254 (9th Cir. 1991), a case in which the ESA was applied to native Hawaiians, is inapplicable since at the time of its decision native Hawaiians were not a federally recognized Indian tribe.

Simply put, tribal reserved rights are those tribal rights that have not been transferred to the federal government by treaty or through executive orders and statutes. In order to resolve conflicts over lands and rights, the United States and certain Indian tribes signed treaties pursuant to which Indian reservations were created. The U.S. Supreme Court has held that such treaties are not merely a transfer of land and rights to the United States from the tribes, but also represent a reservation by the tribes of all rights not transferred to the federal government.² These nontransferred rights are referred to as “reserved rights” or treaty rights. After the signing of the last Indian treaty in 1871, the federal government continued to create and regulate Indian reservations by executive orders and statute.³ Such orders and statutes have also been found to provide a reservation of Indian rights.⁴ An individual member of an Indian tribe, as well as the tribe, can assert tribal reserved rights.⁵

Such reserved rights can include the right to hunt, fish, and gather both on-reservation and off-reservation. As stated by the Supreme Court, “[a]s a general rule, Indians enjoy exclusive treaty rights to hunt and fish on lands reserved to them, unless such rights were clearly relinquished by treaty or have been modified by Congress.”⁶ Similarly, “Indian reservations created by statute, agreement, or executive order normally carry with them the same implicit hunting rights as those created by treaty.”⁷

Courts have interpreted the scope of the tribal reserved right to hunt, fish, and gather by interpreting the treaty language or executive order as it would have been understood at the time such document was signed.⁸ Accordingly, to understand a tribe’s right to hunt, fish, and gather, one needs to look at the historical hunting, fishing, and gathering practices of the tribe.⁹ However, tribal members are not required to hunt and fish in the same manner as they did, but can adopt modern

²See *U.S. v. Winans*, 198 U.S. 371, 381, 25 S. Ct. 662, 49 L. Ed. 1089 (1905) (holding: “Only a limitation of [aboriginal rights], however, was necessary and intended [by the treaty with the Yakima], not a taking away. In other words, the treaty was not a grant of rights to the Indians, but a grant of right from them—a reservation of those [rights] not granted.”). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 444–56 (1982 ed.).

³See Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 445–46 (1982 ed.).

⁴See *State of Ariz. v. State of Cal.*, 373 U.S. 546, 598, 83 S. Ct. 1468, 10 L. Ed. 2d 542 (1963), judgment entered, 376 U.S. 340, 84 S. Ct. 755, 11 L. Ed. 2d 757 (1964), amended, 383 U.S. 268, 86 S. Ct. 924, 15 L. Ed. 2d 743 (1966) and order amended, 466 U.S. 144, 104 S. Ct. 1900, 80 L. Ed. 2d 194 (1984), subsequent determination, 530 U.S. 392, 120 S. Ct. 2304, 147 L. Ed. 2d 374 (2000), supplemented, 531 U.S. 1, 121 S. Ct. 292, 148 L. Ed. 2d 1 (2000) and (disavowed by, *California v. U.S.*, 438 U.S. 645, 98 S. Ct. 2985, 57 L. Ed. 2d 1018 (1978)); *Parravano v. Babbitt*, 70 F.3d 539 (9th Cir. 1995). See also Donald C. Baur & William Robert Irvin, *Endangered Species Act: Law, Policy & Perspective* ch. 9, 158 (2002).

⁵See *U.S. v. Dion*, 476 U.S. 734, 738 n.4, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986) (citing *U.S. v. Winans*, 198 U.S. 371, 381, 25 S. Ct. 662, 49 L. Ed. 1089 (1905); *Kimball v. Callahan*, 590 F.2d 768, 773 (9th Cir. 1979)).

⁶*U.S. v. Dion*, 476 U.S. 734, 738, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 441–46 (1982 ed.).

⁷*U.S. v. Dion*, 476 U.S. 734, 745 n.8, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986) (citing Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 224 (1982 ed.); *Antoine v. Washington*, 420 U.S. 194, 95 S. Ct. 944, 43 L. Ed. 2d 129 (1975)).

⁸See *Washington v. Washington State Commercial Passenger Fishing Vessel Ass’n*, 443 U.S. 658, 99 S. Ct. 3055, 61 L. Ed. 2d 823 (1979), opinion modified, 444 U.S. 816, 100 S. Ct. 34, 62 L. Ed. 2d 24 (1979); *Menominee Tribe of Indians v. U.S.*, 391 U.S. 404, 88 S. Ct. 1705, 20 L. Ed. 2d 697 (1968); *Kimball v. Callahan*, 493 F.2d 564, 566 (9th Cir. 1974); *State v. Tinno*, 94 Idaho 759, 497 P.2d 1386 (1972). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 446–48 (1982 ed.).

⁹See *Washington v. Washington State Commercial Passenger Fishing Vessel Ass’n*, 443 U.S. 658, 99 S. Ct. 3055, 61 L. Ed. 2d 823 (1979), opinion modified, 444 U.S. 816, 100 S. Ct. 34, 62 L. Ed. 2d 24 (1979); *Menominee Tribe of Indians v. U.S.*, 391 U.S. 404, 88 S. Ct. 1705, 20 L. Ed. 2d 697 (1968);

practices.¹⁰ Accordingly, courts have held that tribes that traditionally conducted commercial fishing maintained the right to commercially fish using modern methods.¹¹

Courts have also held that Indian tribes have reserved water rights both on-reservation and off-reservation.¹² For example, in *Winters v. United States*,¹³ the Supreme Court held that the tribe had impliedly reserved the right to use the waters of a river when it signed a treaty with the United States.¹⁴ The Court found that the tribal lands needed water to be used in agriculture or ranching.¹⁵ Since the tribe needed such agriculture to survive on the reservation, the court reasoned that the water rights were reserved when the treaty creating the reservation was signed.¹⁶ In 2000, the Working Group on the ESA and Indian Water Rights published its final recommendations in the *Federal Register*.¹⁷ Among other things, this document lists the issues raised by and comments received from tribes and acknowledges that tribes view the implementation of the ESA as a major obstacle to current efforts to develop water resources for use on Indian lands.¹⁸

§ 21:71 The conflict between tribal reserved rights and the ESA

There is a direct conflict between the ESA's prohibition against taking and certain tribal reserved rights, such as hunting. Arguably, such tribal reserved rights cannot coexist with the prohibition against taking where endangered species are involved. Accordingly, either the ESA was not meant to apply to takings done pursuant to tribal reserved rights or Congress intended the ESA to abrogate such reserved rights.

However, the courts that have ruled on whether Congress intended the ESA to abrogate tribal reserved rights to hunt have taken conflicting positions. For example, in *United States v. Dion*,¹ the Eighth Circuit held that the ESA did not abrogate the tribal reserved right to hunt on the reservation. The Supreme Court reviewed and reversed *Dion* on other grounds but expressly left unresolved the question whether

Kimball v. Callahan, 493 F.2d 564, 566 (9th Cir. 1974); *State v. Tinno*, 94 Idaho 759, 497 P.2d 1386 (1972). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 446–48 (1982 ed.).

¹⁰See *U.S. v. State of Wash.*, 384 F. Supp. 312, 402 (W.D. Wash. 1974), *aff'd* and *remanded*, 520 F.2d 676 (9th Cir. 1975).

¹¹See *U.S. v. State of Wash.*, 384 F. Supp. 312, 402 (W.D. Wash. 1974), *aff'd* and *remanded*, 520 F.2d 676 (9th Cir. 1975). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 446–48 (1982 ed.).

¹²*Winters v. U. S.*, 207 U.S. 564, 576–77, 28 S. Ct. 207, 52 L. Ed. 340 (1908); *U. S. v. New Mexico*, 438 U.S. 696, 98 S. Ct. 3012, 57 L. Ed. 2d 1052 (1978); *Confederated Salish and Kootenai Tribes of Flathead Reservation, Montana v. Namen*, 665 F.2d 951 (9th Cir. 1982); *U.S. v. Adair*, 723 F.2d 1394 (9th Cir. 1983); *Kittitas Reclamation Dist. v. Sunnyside Valley Irr. Dist.*, 763 F.2d 1032 (9th Cir. 1985). See also Felix S. Cohen, *Handbook of Federal Indian Law* ch. 3, § C, 575–604 (1982 ed.).

¹³*Winters v. U. S.*, 207 U.S. 564, 28 S. Ct. 207, 52 L. Ed. 340 (1908).

¹⁴*Winters v. U. S.*, 207 U.S. 564, 576–77, 28 S. Ct. 207, 52 L. Ed. 340 (1908).

¹⁵*Winters v. U. S.*, 207 U.S. 564, 576, 28 S. Ct. 207, 52 L. Ed. 340 (1908).

¹⁶*Winters v. U. S.*, 207 U.S. 564, 576–77, 28 S. Ct. 207, 52 L. Ed. 340 (1908).

¹⁷See Final Recommendations of the Working Group on the ESA and Indian Water Rights; Federal Register Notice of Availability and Request for Comment, 65 Fed. Reg. 41709 (July 6, 2000), *available at* http://www.doi.gov/feature/es_wr/report.htm.

¹⁸See Final Recommendations of the Working Group on the ESA and Indian Water Rights; Federal Register Notice of Availability and Request for Comment, 65 Fed. Reg. 41709 (July 6, 2000), *available at* http://www.doi.gov/feature/es_wr/report.htm.

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¹*U.S. v. Dion*, 752 F.2d 1261 (8th Cir. 1985).

the ESA abrogates Indian hunting rights.² In *United States v. Billie*,³ the Southern District of Florida decided not to follow the Eighth Circuit's ruling in *Dion* and held that the ESA does abrogate tribal reserved rights to hunt.⁴ A review of the *Dion* and *Billie* cases is instructive to understanding the issues surrounding the debate as to whether the ESA should be used to limit the exercise of tribal rights and use of tribal resources.

In *Dion*, Dwight Dion, a member of the Yankton Sioux Tribe, was charged, among other things, with violating both the Eagle Protection Act⁵ and the ESA for shooting protected eagles on the Yankton Reservation.⁶ The trial court convicted Dion of violating both the Eagle Protection Act and the ESA.⁷ The Eighth Circuit affirmed all of the convictions except those under the ESA.⁸ In so ruling, the court relied on its ruling in *United States v. White*,⁹ in which the court found that the Yankton Sioux Indians reserved a right to hunt eagles on the reservation, based in part on evidence that the Sioux Indians historically captured eagles in a religious ceremony for religious purposes. The court, however, found that the Yankton Sioux had no treaty right to commercially sell parts or carcasses of eagles, since there was no historical evidence of a Yankton Sioux practice of selling such parts or carcasses.¹⁰

The Eighth Circuit then established that it would use an "express reference" test in judging whether Congress intended to abrogate the tribal reserved right to hunt eagles in cases involving criminal violations of the ESA.¹¹ Under the express reference test, the court would look for express references either in the Act itself or its legislative history. The court chose this test over a more lenient standard, the "surrounding circumstances test," which would also consider the surrounding circumstances of the enactment of the law, because the express reference test "leads to greater clarity and more consistent results" and such clarity is "critical where criminal sanctions may be imposed."¹²

In applying the express reference test, the Eighth Circuit could not find any express reference in the ESA or the legislative history that Congress intended to abrogate Indian tribal reserved rights.¹³ The court rejected the idea that intent be construed from the consideration, but ultimate rejection by Congress of a companion bill that would have exempted American Indians from the ESA reasoning that "failure to pass a bill creating a specific exception for American Indians does not show that Congress expressly intended that the Act would abrogate Indian treaty hunting rights."¹⁴

The Eighth Circuit stated that it would reach the same conclusion even under the congressional intent test.¹⁵ Under the congressional intent test, the court considered but did not find persuasive the argument that the broad purpose of the ESA shows

²*U.S. v. Dion*, 476 U.S. 734, 745, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

³*U.S. v. Billie*, 667 F. Supp. 1485 (S.D. Fla. 1987).

⁴*U.S. v. Billie*, 667 F. Supp. 1485, 1492 (S.D. Fla. 1987).

⁵16 U.S.C.A. §§ 668 et seq.

⁶*U.S. v. Dion*, 752 F.2d 1261, 1262 (8th Cir. 1985).

⁷*U.S. v. Dion*, 752 F.2d 1261, 1262 (8th Cir. 1985).

⁸*U.S. v. Dion*, 752 F.2d 1261, 1270 (8th Cir. 1985).

⁹*U.S. v. White*, 508 F.2d 453 (8th Cir. 1974).

¹⁰*U.S. v. Dion*, 752 F.2d 1261, 1264–65 (8th Cir. 1985).

¹¹*U.S. v. Dion*, 752 F.2d 1261, 1265–67 (8th Cir. 1985).

¹²*U.S. v. Dion*, 752 F.2d 1261, 1267 (8th Cir. 1985).

¹³*U.S. v. Dion*, 752 F.2d 1261, 1269 (8th Cir. 1985).

¹⁴*U.S. v. Dion*, 752 F.2d 1261, 1269 (8th Cir. 1985).

¹⁵*U.S. v. Dion*, 752 F.2d 1261, 1269–70 (8th Cir. 1985).

that Congress intended the ESA to abrogate tribal reserved rights.¹⁶

Unlike the Billie court, the Eighth Circuit dismissed those cases that allow for the regulation of tribal hunting rights and those cases holding in dicta that treaty rights do not give the Indians a right to hunt a species to extinction, for two reasons.¹⁷ First, the court held that such cases deal with off-reservation hunting rights, not on-reservation rights.¹⁸ Second, the court held that it was not confronted with the problem of imminent extinction and thus, Congress still has time to expressly abrogate Indian rights if it wishes to do so.¹⁹

The Supreme Court reversed the Eighth Circuit's *Dion* holding that the Eagle Protection Act abrogated the reserved rights of Indians to take bald and golden eagles.²⁰ Furthermore, the Court held that even if the ESA did not expressly abrogate such reserved rights, Indians could not assert such reserved rights as a defense to prosecution under the ESA, since the Eagle Protection Act divested the Indians of such reserved rights.²¹ In making these determinations, the Court acknowledged that it had enunciated different standards for determining if Congress had abrogated Indian reserved rights, but concluded that "what is essential is clear evidence that Congress actually considered the conflict between its intended action on the one hand and the Indian treaty rights on the other, and chose to resolve that conflict by abrogating the treaty."²² The Court applied this standard to the Eagle Protection Act and found that Congress considered the special and religious interests of Indians and balanced those needs against the conservation purposes of the statute, providing a specific, narrow exception in which Indians would be allowed to take eagles.²³ The Court made this finding based upon the fact that the legislative history of the 1962 amendments to the Eagle Protection Act set forth a provision allowing the Secretary to permit the taking of an eagle for Indian religious purposes.²⁴ That was seen as both an indication that Congress believed it was abrogating Indian reserved rights to take eagles and an indication that Congress had considered the conflict between the ESA and Indian reserved rights to take eagles.²⁵

Notably, the Court decided not to rule on three issues before it. First, the Court specifically stated that it was not resolving the question of whether the ESA abrogated Indian reserved rights.²⁶ However, the Court in one section of its opinion indicated that it agrees that the ESA does not address tribal reserved rights. The Court stated that "Congress' failure to discuss [Indian treaty shield to hunt eagles] in the context of the [ESA] did not revive that right."²⁷ One might conclude from such a statement that the Court would have found that the ESA did not abrogate Indian reserve rights if it had chosen to consider this issue. Second, the Court also expressly stated that it would not address the government's argument that "Dion's hunting is outside the scope of the treaty right because that right does not protect

¹⁶U.S. v. *Dion*, 752 F.2d 1261, 1270 (8th Cir. 1985).

¹⁷U.S. v. *Dion*, 752 F.2d 1261, 1268–69 (8th Cir. 1985).

¹⁸U.S. v. *Dion*, 752 F.2d 1261, 1268–69 (8th Cir. 1985).

¹⁹U.S. v. *Dion*, 752 F.2d 1261, 1268 n.14 (8th Cir. 1985).

²⁰U.S. v. *Dion*, 476 U.S. 734, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²¹U.S. v. *Dion*, 476 U.S. 734, 745–46, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²²U.S. v. *Dion*, 476 U.S. 734, 739–40, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²³U.S. v. *Dion*, 476 U.S. 734, 740–45, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²⁴U.S. v. *Dion*, 476 U.S. 734, 740, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²⁵U.S. v. *Dion*, 476 U.S. 734, 740, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²⁶U.S. v. *Dion*, 476 U.S. 734, 745, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²⁷U.S. v. *Dion*, 476 U.S. 734, 746, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

hunting ‘to extinction.’”²⁸ Finally, the Court did not rule on religious freedom claims raised by amici.²⁹ As discussed below, the Billie court considered all three of these issues and resolved them against the tribal rights.

In *Billie*, James Billie, a member and chairman of the Seminole Indian Tribe, was charged with violating the ESA for taking an endangered Florida panther on the Big Cypress Seminole Indian Reservation.³⁰ The Florida District Court found that the question of whether the ESA abrogates Indian hunting rights “presents a question of first impression in the Eleventh Circuit” since the Court had “expressly left unresolved the question of whether the [ESA] abrogates Indian hunting rights” in *Dion* and the Eighth Circuit’s en banc opinion was “not binding on this court.”³¹ The Billie court then went on to hold that the ESA did abrogate Indian hunting rights “based on both the character of their hunting rights and on the Act’s abrogation of those rights.”³² As to the character of Indian hunting rights, the Billie court relied upon non-ESA cases in which Indian rights to hunt and fish were regulated to conclude that “Indian rights to hunt and fish are not absolute.”³³

As to the abrogation of Indian hunting rights, the Billie court rejected the “express reference” test adopted by the Eighth Circuit in *Dion*.³⁴ Instead, the Billie court concluded that congressional intent could also be found by a reviewing court from clear and reliable evidence in the legislative history of a statute.³⁵ As to such intent, the Billie court stated that “[w]hat is essential is clear evidence that Congress actually considered the conflict between its intended action on the one hand and Indian treaty rights on the other, and chose to resolve that conflict by abrogating the treaty.”³⁶

In applying the clear evidence of congressional intent standard, the Billie court reviewed the following evidence in the statute and the legislative history:

- (1) Congress choose to make an exemption to the ESA for Alaskan natives³⁷ (§ 1539(e) of the ESA).
- (2) Congress considered but rejected an exemption to the ESA for consumption and ritual use by American Indians and others.
- (3) Congress was informed in subcommittee hearings on H.R. 13081 that if Congress deletes the consumption and ritual use exemption for American Indians and others, Indian treaty rights will be preserved since such rights must be expressly eliminated.
- (4) Congress was informed in connection with H.R. 13081 that treaty rights would be preserved if the Alaskan exemption were stricken and did not strike such exemption.
- (5) A statement by an official in the hearing on H.R. 13081 that statements made by the Committee indicate a desire to prohibit American Indians from continuing to hunt and fish because of a concern for the perils of our endangered species and presumed inconsistency therewith.

²⁸U.S. v. *Dion*, 476 U.S. 734, 738 n.5, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

²⁹U.S. v. *Dion*, 476 U.S. 734, 746, 106 S. Ct. 2216, 90 L. Ed. 2d 767 (1986).

³⁰U.S. v. *Billie*, 667 F. Supp. 1485 (S.D. Fla. 1987).

³¹U.S. v. *Billie*, 667 F. Supp. 1485, 1487–88 (S.D. Fla. 1987).

³²U.S. v. *Billie*, 667 F. Supp. 1485, 1492 (S.D. Fla. 1987).

³³U.S. v. *Billie*, 667 F. Supp. 1485, 1490 (S.D. Fla. 1987).

³⁴U.S. v. *Billie*, 667 F. Supp. 1485, 1492 n.3 (S.D. Fla. 1987).

³⁵U.S. v. *Billie*, 667 F. Supp. 1485, 1489 (S.D. Fla. 1987).

³⁶U.S. v. *Billie*, 667 F. Supp. 1485, 1489 (S.D. Fla. 1987) (citing *Dion*).

³⁷16 U.S.C.A. § 1539(e), ELR Stat. ESA § 10(e).

- (6) The ESA defines “person”³⁸ to include “any other entity subject to the jurisdiction of the United States.”³⁹

“From this evidence, the court inferred that Congress must have known that the limited Alaskan exemption would be interpreted to show congressional intent not to exempt other Indians.”⁴⁰ The court held that

[t]he narrow Alaskan exception, the inclusion of Indians within the Act’s definition of “person,” the Act’s general comprehensiveness, and the evidence that the House Committee desired to prohibit Indians from hunting and fishing protected species all provide “clear evidence that Congress actually considered the conflict between its intended action on the one hand and Indian treaty rights on the other, and chose to resolve that conflict by abrogating the Indian rights.”⁴¹

The court further reasoned that “[w]hen Congress passed ‘the most comprehensive legislation for the preservation for endangered species ever enacted by any nation,’ . . . it could not have intended that the Indians would have the unfettered right to kill the last handful of Florida panthers.”⁴²

It is unclear whether other courts will consider such facts as “clear” evidence of congressional intent to abrogate Indian tribe reserved rights. However, even the Billie court considered whether the fact that Congress was told that it should but did not expressly abrogate Indian treaty rights “might be evidence that Congress believed it would not extinguish non-Alaskan Indian hunting and fishing rights without an express provision and that the lack of such a provision evinces congressional intent not to abrogate those rights.”⁴³ The Billie court rejected that this could be the case, since H.R. 13081, a companion bill that closely paralleled the ESA, was not the bill that eventually passed.⁴⁴ Moreover, this rejection of this particular statement made in hearings on H.R. 13081 does not square with the court’s reliance on other statements made in the hearings on H.R. 13081, including the statement that Congress indicates that it desires to prohibit Indians from hunting endangered species.⁴⁵ It is also unclear whether such courts will rely on those cases that regulate Indian hunting or those cases that discuss whether Indians should have the right to hunt a species to its extinction like the district court did in Billie or distinguish such cases as the Eighth Circuit did in Dion.

Assuming that the ESA does not abrogate all tribal reserved rights that would lead to a taking, a court will look at the following to see if a tribe or tribal member can assert a defense to an ESA violation: (1) whether the act that is the alleged violation of the ESA is in the scope of the tribal reserved right; and (2) whether the tribal reserved right has been abrogated by Congress other than by the ESA.

§ 21:72 Can religious freedom rights be asserted as a defense to a take violation of the ESA?

As recognized in Secretarial Order No. 3206, “Indian cultures, religions, and spirituality often involve ceremonial and medicinal uses of plants, animals, and

³⁸See 16 U.S.C.A. § 1532(13), ELR Stat. ESA § 3.

³⁹See 16 U.S.C.A. § 1532(13), ELR Stat. ESA § 3.

⁴⁰U.S. v. Billie, 667 F. Supp. 1485, 1491 (S.D. Fla. 1987).

⁴¹U.S. v. Billie, 667 F. Supp. 1485, 1491 (S.D. Fla. 1987).

⁴²U.S. v. Billie, 667 F. Supp. 1485, 1492 (S.D. Fla. 1987).

⁴³U.S. v. Billie, 667 F. Supp. 1485, 1491 (S.D. Fla. 1987).

⁴⁴U.S. v. Billie, 667 F. Supp. 1485, 1491 (S.D. Fla. 1987).

⁴⁵U.S. v. Billie, 667 F. Supp. 1485, 1491 (S.D. Fla. 1987).

specific geographic places.”¹ Accordingly, any restriction of the “plants, animals, and specific geographic places” used by Indians with religious significance could lead to a claim that such restriction violated the right to freedom of religion under the First Amendment. The First Amendment guarantees that “Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.”² However, “not all burdens on religion are unconstitutional.”³ The freedom to believe is absolute and cannot be burdened, but the freedom to act “remains subject to regulation for the protection of society.”⁴

The Billie court examined whether the ESA placed unconstitutional burdens on the defendant Billie’s right to freedom of religion. In doing so, the Billie court first examined whether the ESA passed the following “two threshold tests” of constitutionality: (1) the law must regulate conduct rather than belief; and (2) the law must have both a secular purpose and a secular effect.⁵ The Billie court held that “the [ESA] passes both of these tests” since the “Act regulates conduct, not belief, and is facially neutral in its application” in that its purpose and effect is to protect endangered and threatened wildlife.⁶

The Billie court next turned to “the difficult task of balancing governmental interest against the impugned religious interest.”⁷ The Billie court referred to the Eleventh Circuit’s “basic principle” that “the balance depends upon the cost to the Government of altering its activity to allow the religious practice to continue unimpeded versus the cost to the religious interest imposed by the Government activity.”⁸ The Billie court then weighed the fact that there are approximately 20 to 50 black Florida panthers in the wild in South Florida and therefore the loss of one breeding adult would be great and found the government’s interest in protecting the Florida black panther on the Seminole Indian Reservation “compelling” and that “the cost to the Government of altering its conservation efforts would also be substantial.”⁹

The Billie court then balanced such governmental interest and costs against the defendant Billie’s asserted religious interest in hunting and possessing the Florida black panther.¹⁰ The Billie court held that for an alleged infringement of religious rights to be cognizable, the practice in question must be central or indispensable to

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¹U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 4. (Background) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm [hereinafter Secretarial Order No. 3206].

²U.S. Const. amend. I.

³U.S. v. Billie, 667 F. Supp. 1485, 1495 (S.D. Fla. 1987) (citing Bowen v. Roy, 476 U.S. 693, 106 S. Ct. 2147, 90 L. Ed. 2d 735 (1986)).

⁴U.S. v. Billie, 667 F. Supp. 1485, 1495 (S.D. Fla. 1987) (citing Cantwell v. State of Connecticut, 310 U.S. 296, 303–04, 60 S. Ct. 900, 84 L. Ed. 1213, 128 A.L.R. 1352 (1940)).

⁵U.S. v. Billie, 667 F. Supp. 1485, 1495 (S.D. Fla. 1987) (citing Cantwell v. State of Connecticut, 310 U.S. 296, 303–04, 60 S. Ct. 900, 84 L. Ed. 1213, 128 A.L.R. 1352 (1940)).

⁶U.S. v. Billie, 667 F. Supp. 1485, 1495 (S.D. Fla. 1987) (citing Cantwell v. State of Connecticut, 310 U.S. 296, 303–04, 60 S. Ct. 900, 84 L. Ed. 1213, 128 A.L.R. 1352 (1940)).

⁷U.S. v. Billie, 667 F. Supp. 1485, 1495 (S.D. Fla. 1987) (citing Cantwell v. State of Connecticut, 310 U.S. 296, 303–04, 60 S. Ct. 900, 84 L. Ed. 1213, 128 A.L.R. 1352 (1940)).

⁸U.S. v. Billie, 667 F. Supp. 1485, 1495 (S.D. Fla. 1987) (citing Cantwell v. State of Connecticut, 310 U.S. 296, 303–04, 60 S. Ct. 900, 84 L. Ed. 1213, 128 A.L.R. 1352 (1940)).

⁹U.S. v. Billie, 667 F. Supp. 1485, 1496 (S.D. Fla. 1987).

¹⁰U.S. v. Billie, 667 F. Supp. 1485, 1496 (S.D. Fla. 1987).

religious observances.¹¹ The court considered testimony that panther claws and tails are used by Seminole medicine men in the treatment of different ailments, including cramps.¹² However, the Billie court noted that the defendant testified that “he had no thoughts regarding what he would do with the panther carcass after he shot it until the morning on which it was seized” and that he then thought that he could give it as a gift to a medicine man in order to humble himself and in the hope of learning more medicine.¹³ The court was “not convinced that panther parts are critical or essential” or “indispensable.”¹⁴ The court also inferred that because the defendant had failed to put on evidence that only Florida black panthers could be used in Indian religious ceremonies that other subspecies of panther may be available to use.¹⁵ The Billie court then concluded that “the evidence has not adequately shown that Billie’s religious interest in possessing panther parts should outweigh the compelling governmental interest in protecting the Florida panther.”¹⁶

Despite the outcome in Billie, the balancing of interest test used by the court could, in a different scenario, lead to a successful claim that the ESA violates freedom of religion by prohibiting a central and indispensable religious observance. For example, a successful religious freedom claim could occur in a case where the violation does not involve a direct take of a species whose numbers are dangerously close to the brink of extinction and where the violative act is more closely linked to a religious necessity than an afterthought once charges under the ESA have been brought.

§ 21:73 Does tribal sovereign immunity against lawsuits bar non-consensual citizen actions under the ESA against Indian tribes?

Another legal question that remains unresolved is whether Congress has abrogated tribal sovereign immunity against non-consensual citizen actions under the ESA. As with tribal reserved rights, the debate revolves around Congress’ intent to abrogate tribal sovereign immunity.

1. Tribal Sovereignty and Sovereign Immunity From Lawsuit

Indian tribes are domestic dependent nations that exercise inherent sovereign authority over their members and territories.¹ As such, Indian tribes have the right to form their own government, promulgate their own laws, and have police powers over their own tribal members and tribal lands.²

Tribal sovereignty bars suits brought by individuals and nonfederal government entities, such as states, against Indian tribes absent a clear waiver by the tribe or

¹¹U.S. v. Billie, 667 F. Supp. 1485, 1497 (S.D. Fla. 1987).

¹²U.S. v. Billie, 667 F. Supp. 1485, 1496–97 (S.D. Fla. 1987).

¹³U.S. v. Billie, 667 F. Supp. 1485, 1497 (S.D. Fla. 1987).

¹⁴U.S. v. Billie, 667 F. Supp. 1485, 1497 (S.D. Fla. 1987).

¹⁵U.S. v. Billie, 667 F. Supp. 1485, 1497 (S.D. Fla. 1987).

¹⁶U.S. v. Billie, 667 F. Supp. 1485, 1497 (S.D. Fla. 1987).

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¹Oklahoma Tax Com’n v. Citizen Band Potawatomi Indian Tribe of Oklahoma, 498 U.S. 505, 509, 111 S. Ct. 905, 112 L. Ed. 2d 1112 (1991); U. S. v. Wheeler, 435 U.S. 313, 328, 98 S. Ct. 1079, 55 L. Ed. 2d 303 (1978). See also Felix S. Cohen, Handbook of Federal Indian Law ch. 3, § C, 246–57 (1982 ed.).

²Oklahoma Tax Com’n v. Citizen Band Potawatomi Indian Tribe of Oklahoma, 498 U.S. 505, 509, 111 S. Ct. 905, 112 L. Ed. 2d 1112 (1991). Because of their sovereign authority, Indian tribes and their lands are not subject to state laws, including environmental laws, and states have no jurisdiction over Indian tribes or their lands. See Worcester v. State of Ga., 31 U.S. 515, 558, 8 L. Ed. 483, 1832 WL 3389 (1832).

congressional abrogation of such tribal sovereign immunity.³ In fact, tribal sovereign immunity has been held to bar actions based on off-reservation activities by an Indian tribe.⁴ The Court has held that a tribe's sovereign immunity extends to the tribe's off-reservation commercial activities, noting "to say substantive state laws apply to off-reservation conduct . . . is not to say that a tribe no longer enjoys immunity from suit."⁵ The Court reasoned that "there is a difference between the right to demand compliance with state laws and the means available to enforce them."⁶

Tribal sovereign immunity is, however, not a defense against lawsuits brought by the federal government.⁷ Accordingly, assuming that the ESA can be used to curtail the use of Indian reserved rights, the federal government should be entitled to enforce the ESA against tribes, even in the absence of a congressional abrogation of tribal sovereign immunity.

2. *Has Congress Waived Tribal Sovereign Immunity From Citizen Suits?*

"[A] waiver of sovereign immunity 'cannot be implied but must be unequivocally expressed.'"⁸ Furthermore, the issue of the waiver of sovereign immunity is separate from the issue of the waiver of tribal reserved rights, since the mere "fact that a statute applies to Indian Tribes does not mean that Congress abrogated Tribal immunity in adopting it."⁹ As stated by the Eleventh Circuit, "whether an Indian tribe is subject to a statute and whether the tribe may be sued for violating the statute are two entirely different questions."¹⁰ Accordingly, the ESA could apply to Indian tribes but could not be enforced through citizen actions.

Congress does not appear to have waived tribal sovereign immunity from citizen lawsuits when it enacted the ESA. As discussed above, the ESA does not expressly mention Native American Indians nor does it mention their sovereign immunity from lawsuit. Moreover, the ESA does not contain the same language as other environmental statutes that courts have found to be an express and unequivocal congressional abrogation of sovereign immunity from citizen lawsuits. For example, a court has found that Congress expressly and unequivocally abrogated tribal sovereign immunity in the Resource Conservation and Recovery Act (RCRA) of 1976

³*Oklahoma Tax Comm'n*, 498 U.S. at 509; *Santa Clara Pueblo v. Martinez*, 436 U.S. 49, 58–59, 98 S. Ct. 1670, 56 L. Ed. 2d 106 (1978); *U. S. v. U. S. Fidelity & Guar. Co.*, 309 U.S. 506, 512, 60 S. Ct. 653, 84 L. Ed. 894 (1940).

⁴*Kiowa Tribe of Oklahoma v. Manufacturing Technologies, Inc.*, 523 U.S. 751, 754–56, 118 S. Ct. 1700, 140 L. Ed. 2d 981 (1998). *See also* *Blatchford v. Native Village of Noatak and Circle Village*, 501 U.S. 775, 786 n.4, 111 S. Ct. 2578, 115 L. Ed. 2d 686 (1991).

⁵*Kiowa Tribe of Oklahoma v. Manufacturing Technologies, Inc.*, 523 U.S. 751, 754–56, 118 S. Ct. 1700, 140 L. Ed. 2d 981 (1998).

⁶*Kiowa Tribe of Oklahoma v. Manufacturing Technologies, Inc.*, 523 U.S. 751, 754–56, 118 S. Ct. 1700, 140 L. Ed. 2d 981 (1998).

⁷*See Quileute Indian Tribe v. Babbitt*, 18 F.3d 1456, 1459–60, 28 Fed. R. Serv. 3d 724 (9th Cir. 1994) (stating that "tribal sovereignty does not extend to prevent the federal government from exercising its superior sovereign powers").

⁸*Santa Clara Pueblo v. Martinez*, 436 U.S. 49, 58, 98 S. Ct. 1670, 56 L. Ed. 2d 106 (1978) (quoting *U. S. v. Testan*, 424 U.S. 392, 399, 96 S. Ct. 948, 47 L. Ed. 2d 114 (1976), and *U.S. v. King*, 395 U.S. 1, 4, 89 S. Ct. 1501, 23 L. Ed. 2d 52 (1969)).

⁹*Bassett v. Mashantucket Pequot Tribe*, 204 F.3d 343, 357, 46 Fed. R. Serv. 3d 375 (2d Cir. 2000) (holding that federal copyright statute might apply to tribe, but does not contain an express, unequivocal abrogation of tribal immunity).

¹⁰*Florida Paraplegic, Ass'n, Inc. v. Miccosukee Tribe of Indians of Florida*, 166 F.3d 1126, 1129–33 (11th Cir. 1999) (holding the Americans With Disabilities Act applies to Indian tribes, but that the Act does not abrogate tribal sovereign immunity, and therefore that private entities may not sue tribes under the Act).

to allow citizens to bring lawsuits against Indian tribes.¹¹ RCRA allows citizens to bring compliance suits against a “person” who is alleged to be in violation of the statute. The court found that the definition of “person,” which specifically includes “municipalities,” encompasses Indian tribes, since the definition of “municipalities” includes “an Indian Tribe or authorized tribal organization.” Similarly, courts found that the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA) abrogate tribal sovereign immunity from citizen suits because such acts define “person” to include “municipality” and define “municipality” to include “an Indian tribe.”¹² Unlike the CWA, RCRA, and the SDWA, the ESA does not include Indian tribes or authorized tribal organization within any of its definitions.

Although the ESA does not include Indian tribes within its definitions, the ESA does define “person” to include “any other entity subject to the jurisdiction of the United States.”¹³ Whether this broad language could be interpreted to constitute an express and unequivocal abrogation of tribal sovereign immunity against citizen suits under the ESA remains untested. However, in light of the Court’s ruling that “[i]t is settled that a waiver of sovereign immunity cannot be implied but must be unequivocally expressed,”¹⁴ a court must find more than an inference that Congress intended to abrogate tribal sovereign immunity against citizen suits.

§ 21:74 Does the doctrine of primary jurisdiction require the staying or dismissal of citizen actions brought pursuant to the ESA?

In addition to the sovereign immunity defense, an Indian tribe could argue that the doctrine of primary jurisdiction requires a federal court to stay or dismiss any ESA citizen action over which they have jurisdiction pending resolution of ESA issues by the regulatory agency administering the ESA, the NMFS, or the FWS. The primary jurisdiction doctrine “requires judicial abstention in cases where protection of the integrity of a regulatory scheme dictates preliminary resort to the agency which administers the scheme.”¹ In fact, failure to defer to the primary jurisdiction of an administrative agency when required by the doctrine is reversible error.²

Courts have invoked the doctrine of primary jurisdiction in cases where the following factors were present: “(1) the need to resolve an issue that (2) has been placed by Congress within the jurisdiction of an administrative body having regulatory authority (3) pursuant to a statute that subjects an industry or activity to a comprehensive regulatory scheme that (4) requires expertise or uniformity in administration.”³

Arguably, all four factors are present anytime a citizen suit to enforce the ESA would be brought against an Indian tribe. The issue that would need to be resolved is the harmonizing of the potentially conflicting rights and duties of both the specific Indian tribe and the federal government, including the federal trust responsibility to the Indian tribe and its lands and resources, tribal sovereignty, reserved and

¹¹Blue Legs v. U.S. Bureau of Indian Affairs, 867 F.2d 1094 (8th Cir. 1989).

¹²Atlantic States Legal Foundation v. Salt River Pima-Maricopa Indian Community, 827 F. Supp. 608 (D. Ariz. 1993); Osage Tribal Council ex rel. Osage Tribe of Indians v. U.S. Dept. of Labor, 187 F.3d 1174, 1181 (10th Cir. 1999).

¹³See 16 U.S.C.A. § 1532, ELR Stat. ESA § 3.

¹⁴Santa Clara Pueblo v. Martinez, 436 U.S. 49, 59, 98 S. Ct. 1670, 56 L. Ed. 2d 106 (1978).

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¹U.S. v. Philadelphia Nat. Bank, 374 U.S. 321, 353, 83 S. Ct. 1715, 10 L. Ed. 2d 915 (1963).

²See U.S. v. General Dynamics Corp., 828 F.2d 1356, 1364 n.15 (9th Cir. 1987).

³U.S. v. General Dynamics Corp., 828 F.2d 1356, 1362 (9th Cir. 1987).

other tribal rights, and the federal duty to protect endangered species.⁴ Furthermore, pursuant to Secretarial Order No. 3206, the Departments have acknowledged that they and their administering agencies, the FWS and the NMFS, are charged with resolving these conflicting rights and duties in administering and enforcing the ESA.⁵ Finally, it can be argued that the resolution of the issue of conflicting rights and duties requires expertise and uniformity of administration that can only be achieved by allowing the Departments and their administering agencies, the FWS and the NMFS, to apply the ESA to all Indian tribes.⁶

§ 21:75 Secretarial Order No. 3206's attempt to harmonize the conflicting rights and duties of Indian tribes and the federal government in applying the ESA

Secretarial Order No. 3206 was the result of consultation between federal and tribal participants.¹ As acknowledged by the federal government, the tribes did not acknowledge that the ESA applies to them by participating in the consultation but instead agreed to set aside legal differences to focus on the mutual goals of maintaining and restoring healthy ecosystems and promoting species conservation.²

The Secretarial Order sets forth guidelines for the Departments and the FWS and the NMFS to follow in applying the ESA.³ However, the Order does not preempt, modify, grant, expand, create, or diminish the ESA or any other legally enforceable

⁴Secretarial Order No. 3206 provides ample evidence that there is a need to resolve an issue that has been placed by Congress with the jurisdiction of an administrative body having regulatory authority pursuant to a statute that requires expertise or uniformity in administration. For example, such order provides in part that “the Departments will carry out their responsibilities under the [ESA] in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and the statutory missions of the Departments.” U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), *available at* http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm [hereinafter Secretarial Order No. 3206].

⁵Secretarial Order No. 3206 provides ample evidence that there is a need to resolve an issue that has been placed by Congress with the jurisdiction of an administrative body having regulatory authority pursuant to a statute that requires expertise or uniformity in administration. For example, such order provides in part that “the Departments will carry out their responsibilities under the [ESA] in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and the statutory missions of the Departments.” U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), *available at* http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁶Secretarial Order No. 3206 provides ample evidence that there is a need to resolve an issue that has been placed by Congress with the jurisdiction of an administrative body having regulatory authority pursuant to a statute that requires expertise or uniformity in administration. For example, such order provides in part that “the Departments will carry out their responsibilities under the [ESA] in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and the statutory missions of the Departments.” U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), *available at* http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

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¹See U.S. Fish & Wildlife Service, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act, Questions & Answers, *available at* http://endangered.fws.gov/tribal/tribal_faqs.html.

²See U.S. Fish & Wildlife Service, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act, Questions & Answers, *available at* http://endangered.fws.gov/tribal/tribal_faqs.html.

³See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 2. (Scope of Limitations) (June 5, 1997), *available at* http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm [hereinafter Secretarial Order No. 3206].

rights, including Indian reserved rights or tribal sovereignty.⁴

Although the Order does not change the legally enforceable rights of the parties, it does give an additional administrative remedy to Indian tribes by providing that an Indian tribe can file a complaint with the appropriate Secretary of the Departments if the Indian tribe feels that certain provisions of the order have been violated.⁵ It also provides for the employment of alternative dispute resolution processes to resolve disputes on technical or policy issues within statutory frames, except for investigative or prosecutorial law enforcement activities.⁶

The Order has several guidelines aimed at ensuring that Indian tribes do not bear an unnecessary burden under the ESA.⁷ For example, the Order provides that critical habitat shall not be designated in areas that may impact tribal trust resources, tribally owned fee lands, or the exercise of tribal rights, unless it is determined essential to conserve a listed species and the FWS and the NMFS have evaluated and documented the extent to which the conservation needs of the listed species can be achieved by limiting the designation to other lands.⁸ The FWS and the NMFS are also directed to try to avoid or minimize effects on tribal management or economic development or the exercise of reserved Indian fishing, hunting, gathering, or other rights, “to the maximum extent allowed by law.”⁹ In addition, the Order provides that in cases involving an activity that could raise the potential issue of an incidental take under the ESA, an analysis and determination shall be undertaken that such activity meets all of the following conservation standards: “(i) the restriction is reasonable and necessary for conservation of the species at issue; (ii) the conservation purpose of the restriction cannot be achieved by reasonable regulation of non-Indian activities; (iii) the measure is the least restrictive alternative available to achieve the required conservation purpose; (iv) the restriction does not discriminate against Indian activities, either as stated or applied; and (v) voluntary tribal measures are not adequate to achieve the necessary conservation purpose.”¹⁰

The Order also has numerous provisions attempting to harmonize the potential conflicts between tribal and federal government rights and duties discussed above. The “government to government consultation” with Indian tribes is a key provision to further such harmony. The Order requires that “whenever the agencies, bureaus,

⁴See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 2. (Scope of Limitations) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁵See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 5. (Responsibilities, Principle 1) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁶See U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 9. (Dispute Resolution) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁷In fact, one of the purposes of Secretarial Order No. 3206 is to strive “to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation.” U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 1. (Purpose and Authority) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

⁸Appendix to U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 3(B)(4) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm. The FWS states that “the Services believe that this is consistent with the special trust responsibility the Federal government has to Indian people to preserve and protect their lands and resources.” See U.S. Fish & Wildlife Service, *supra* note 1.

⁹Appendix to U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 3(B)(5) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

¹⁰U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 5. (Responsibilities, Principle 3(C)) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm. This is a restatement of the federal enforcement policy as applied to incidental take of listed species. See U.S. Fish & Wildlife Service, *supra* note 1.

and offices of the Departments are aware that their actions planned under the [ESA] may impact tribal trust resources, the exercise of tribal rights, or Indian lands, they shall consult with, and seek the participation of, the affected Indian tribes to the maximum extent practicable.”¹¹ This duty to have a government-to-government consultation with tribes was reinforced by issuance of Executive Order No. 13175 on November 6, 2000.¹²

To facilitate such government-to-government consultation, the Order requires the FWS and the NMFS to give “timely notification” of petitions to list species and proposed and final rules to list species, designate critical habitat, reclassify or remove a species, and designate experimental populations.¹³ The Order also provides that the FWS and the NMFS notify the affected tribes and the Bureau of Indian Affairs to solicit information on

tribal cultural values, reserved hunting, fishing, gathering, and other Indian rights or tribal economic development for use in: (i) the preparation of economic analyses involving impacts on tribal communities and (ii) the preparation of “balancing tests” to determine appropriate exclusions from critical habitat and in the review of comments or petitions concerning critical habitat that may adversely affect the rights or resources of Indian tribes.¹⁴

The Order also adopts a principle of assisting Indian tribes in developing and expanding tribal conservation and management programs and self-governance.¹⁵ This includes giving deference to tribal conservation and management plans for supporting tribal measures that preclude the need for conservation restrictions and, at the request of a tribe, providing technical assistance and review of and assistance with tribal conservation and resource management plans.¹⁶ In addition, the Order provides that the FWS and the NMFS can, at the request of an Indian tribe, enter into a cooperative law enforcement agreement and that such agreement may include the delegation of enforcement authority under the ESA, within limitations, to full-time tribal conservation law enforcement officers.¹⁷ The duty to support and to give deference to tribal regulations is also embodied in Executive Order No. 13175.¹⁸

¹¹U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 5. (Responsibilities, Principle 1) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

¹²See Exec. Order No. 13175, Consultation and Coordination With Indian Tribal Governments and Statement by the President, 65 Fed. Reg. 67249 (Nov. 6, 2000). For example, Executive Order No. 13175 recognizes as one of its principles that the United States “continues to work with Indian tribes on a government to government basis” and requires that “each agency shall have an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.” See Exec. Order No. 13175, §§ 2(b), 5(a).

¹³U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, App. §§ 3(B)(1), 3(B)(2), 3(D) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

¹⁴U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, App. § 3(B)(3) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm.

¹⁵U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 5. (Responsibilities, Principle 3) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm; Secretarial Order No. 3206, App. §§ 2(A), 2(D), 2(E).

¹⁶U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 5. (Responsibilities, Principle 3) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm; Secretarial Order No. 3206, App. §§ 2(A), 2(D), 2(E).

¹⁷U.S. Dept. of the Interior (DOI) Secretarial Order No. 3206, § 5. (Responsibilities, Principle 3) (June 5, 1997), available at http://elips.doi.gov/elips/sec_orders/html_orders/3206.htm; Secretarial Order No. 3206, App. § 3(F).

¹⁸Exec. Order No. 13175, § 2 (providing that “the United States recognizes the right of Indian tribes to self-government and supports tribal sovereignty and self-determination”); § 3 (providing that “with respect to Federal statutes and regulations administered by Indian tribal governments, the Federal Government shall grant Indian tribal governments the maximum administrative discretion

XV. EXPERIMENTAL POPULATIONS

§ 21:76 Generally

Since its passage in 1973, the ESA has recognized “live trapping and transplantation” of endangered species as a means to promote conservation and recovery efforts.¹ Until the ESA was amended in 1982, however, species transplantation was rarely utilized, due to vociferous political opposition from landowners who feared that reintroduced, ESA-protected species would be uncontrollable, and in some cases, dangerous.

Unsatisfied with the slow pace of transplantation efforts, Congress amended the ESA in 1982 to reinvigorate the government’s transplantation program. The centerpiece of this effort was the newly created “experimental population” designation created by § 10(j) of the ESA. This new statutory language was designed to give the Secretary of the Interior and affected landowners greater flexibility in dealing with transplanted species by exempting such populations from many of the protections of the ESA.

§ 21:77 Establishment of the experimental population

In order to establish an experimental population, the Secretary of the Interior must first determine that transplanting the species will further conservation efforts. In order to reach this conclusion, the Secretary must consider four factors:

- (1) Possible adverse effects resulting from removal of members of the species from an existing population.
- (2) The likelihood that the experimental population will become established and survive in the foreseeable future.
- (3) The relative effects that the experimental population will have on the overall recovery of the species.
- (4) The effects of existing or anticipated federal or state or private activities within or adjacent to the experimental population area.¹

If the Secretary concludes the transplantation will be beneficial to the species, then an area to release the species must be chosen. The only requirement for the selected area is that it be outside the current range of the chosen species, so that the experimental population will be “wholly separate geographically from non-experimental populations of the same species.”²

Ideally, the transplantation site will be within the “probable historical range” of the species.³ If such an area is not available, however, the Secretary may choose any area outside the species’ current range.⁴

Before an experimental population can be released, the Secretary must determine

possible” and “encourage Indian tribes to develop their own policies to achieve program objectives” and “where possible, defer to Indian tribes to establish standards”); § 5(b) (providing restriction and procedure for promulgating any regulation that has tribal implications and that preempts tribal law).

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¹16 U.S.C.A. § 1532(3), ELR Stat. ESA § 3(3).

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¹50 C.F.R. § 17.81(b)(1)(4).

²16 U.S.C.A. § 1539(j)(1), ELR Stat. ESA § 10(j)(1).

³50 C.F.R. § 17.81(a).

⁴50 C.F.R. § 17.81(a).

whether the new population is “essential to the continued existence” of the species.⁵ Essential populations are those whose loss would likely appreciably reduce the likelihood of the survival of the species as a whole in the wild.⁶ All other experimental populations are to be classified as nonessential.⁷ The FWS’ regulations establish very stringent requirements for establishing an experimental population:

- (1) Appropriate means to identify the experimental population, its location, migration, numbers, and so forth.
- (2) Management restrictions, protective measures, or other special management concerns.
- (3) A process for the periodic review and evaluation of the success or failure of the release and the effect of the release on the conservation and recovery of the species.⁸

§ 21:78 Legal protections afforded to experimental populations

The level of protection afforded to experimental populations under the ESA depends on their classification as “essential” or “nonessential.” Under the statute, essential experimental populations are designated as “threatened species,” even if the species would otherwise be entitled to the more stringent “endangered” status.¹ Nonessential experimental populations are given even less protection, as they are treated as species proposed to be listed under the ESA.²

By weakening the protections of the ESA for experimental populations, Congress sought to increase public support for transplantation efforts by defusing the argument that reintroduced species would be uncontrollable and would cause innocent parties to run afoul of the ESA:

The Committee fully expects that there will be instances where the regulations [promulgated pursuant to the 1982 Amendments] allow for the incidental take of experimental populations, such as the inadvertent taking of experimental fish species by those fishing for other species in the same body of water. The Committee also expects that, where appropriate, the regulations could allow for the directed taking of experimental populations. For example, the release of experimental populations of predators, such as red wolves, could allow for the taking of these animals if depredations occur or if the release of these populations will continue to be frustrated by public opposition.³

As discussed in the next section, Congress’ efforts to alleviate the concerns of affected landowners have not been entirely successful.

§ 21:79 Litigation under § 10(j)

After years of study and debate, in 1994, the Department of the Interior finalized its plans to reintroduce the gray wolf into Yellowstone National Park and central Idaho pursuant to § 10(j) of the ESA.¹ The decision was immediately challenged by interest groups representing local farmers and ranchers with land near the

⁵16 U.S.C.A. § 1539(j)(2)(B), ELR Stat. ESA § 10(j)(2)(B).

⁶50 C.F.R. § 17.80(b).

⁷50 C.F.R. § 17.80(b).

⁸50 C.F.R. § 17.81(c)(1), (3), & (4).

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¹16 U.S.C.A. § 1539(j)(2)(C), ELR Stat. ESA § 10(j)(2)(C).

²16 U.S.C.A. § 1539(j)(2)(C)(i), ELR Stat. ESA § 10(j)(2)(C)(i).

³H.R. Rep. No. 97-567 at 34 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2807, 2834.

[Section 21:79]

¹See 59 Fed. Reg. 60252 (Nov. 22, 1994).

designated reintroduction areas.²

Among other claims, the landowners alleged that the Department of the Interior had violated § 10(j)'s requirement that experimental populations be wholly separate geographically from nonexperimental populations of the same species. According to the landowners, nonexperimental gray wolves, which wander for hundreds of miles, routinely entered the transplantation area, and therefore the experimental population could not be considered wholly separate.³

The Department of the Interior did not dispute the landowner's allegation of intermingling. Instead, it relied on its interpretation of the term "population," which it defined to include only self-sustaining groups and not lone animals which have temporarily wandered into the transplantation area.⁴

In a holding with considerable significance for the future of the § 10(j) program, the Tenth Circuit deferred to the Department of the Interior's interpretation of population, finding it consistent with the "language and objectives of the [ESA] as a whole."⁵ In a related holding, the court also upheld the agency's right to classify all wolves within the transplantation area as experimental, even if some of the wolves had wandered into the area and were not part of the original experimental population.⁶

The importance of the holding in *Wyoming Farm Bureau Fed'n v. Babbitt* to the § 10(j) program is difficult to overstate. Since the probable historical range of species is often adjacent to areas with existing populations of the species, some degree of intermingling is difficult to avoid. By adopting a loose interpretation of the "wholly distinct" requirement, the Tenth Circuit prevented this biological reality from crippling the § 10(j) program.

Overall, though, the FWS has rarely exercised its authority under the Experimental Population Program. Where it has done so, the FWS has developed special regulations. Subsequent litigation has highlighted the particular conflicts that can arise in this program under the ESA.

XVI. FIFTH AMENDMENT TAKINGS AND THE ESA

§ 21:80 Generally

The Takings Clause of the Fifth Amendment prohibits the government from taking property for public use without "just compensation."¹ This prohibition under the Fifth Amendment must be distinguished from "taking" of a listed species under § 9 of the ESA.² Implementation of the ESA and other statutes and regulations that protect wildlife also presents many situations that raise the question of whether such a Fifth Amendment taking has occurred. These wildlife protection-related situations seldom arise from an attempt by the federal or state authorities to condemn properties utilizing their power of eminent domain. More commonly, these issues

²*Wyoming Farm Bureau Federation v. Babbitt*, 987 F. Supp. 1349 (D. Wyo. 1997), judgment rev'd, 199 F.3d 1224 (10th Cir. 2000).

³*See Wyoming Farm Bureau Federation v. Babbitt*, 199 F.3d 1224 (10th Cir. 2000).

⁴*Wyoming Farm Bureau Federation v. Babbitt*, 199 F.3d 1224, 1234 (10th Cir. 2000).

⁵*Wyoming Farm Bureau Federation v. Babbitt*, 199 F.3d 1224, 1234 (10th Cir. 2000).

⁶*Wyoming Farm Bureau Federation v. Babbitt*, 199 F.3d 1224, 1237 (10th Cir. 2000).

[Section 21:80]

¹U.S. Const. amend. V.

²16 U.S.C.A. § 1538, ELR Stat. ESA § 9. The ESA § 9 prohibition on "taking" of a listed species is premised on the statutory definition of "take" to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C.A. § 1532(19), ELR Stat. ESA § 3(19).

originate from situations in which agencies, in implementing the ESA (or some other wildlife regulation), arguably may have appropriated private property. This distinction may lead to difficulties for property owners. A “taking” may more readily be found when the interference with property can be characterized as a physical invasion by government, than when interference arises from some public program adjusting the benefits and burdens of economic life to promote the common good.³ Indeed, the Supreme Court has recognized two general types of takings. First, where the government encroaches upon or occupies private land for its own proposed use, the Court has held that even a minimal permanent physical occupation of real property requires compensation under the Fifth Amendment.⁴ Second, a taking also occurs where a government regulation, although not encroaching upon or occupying property, simply “goes too far.”⁵

In making the determination as to whether such a “taking” has occurred, a court will engage in a two-step process. First, a court determines whether the plaintiff possesses a valid interest in the property affected by the governmental action, i.e., whether the plaintiff possessed a “stick in the bundle of property rights.” If so, the court proceeds to the second step, determining whether the governmental action at issue constituted a taking of that “stick.”⁶

§ 21:81 What is the property interest?

In the first instance, a court will consider whether a prospective plaintiff claims a valid property interest that is potentially subject to protection. While it is normally clear in cases where entire parcels are condemned for public use that such an ownership right exists, such a conclusion is often not as clear in situations involving the protection of wildlife. Such situations generally involve the restriction of an owner’s right to utilize his property.

It has been held that such an alleged right will not be protected if it is not consistent with the restrictions that “background principles of the State’s law of property and nuisance already place upon land ownership.”¹ This means that, in order to be protected, the property owner’s anticipated use of the property must be one that has been (or would be) recognized under existing law as being appropriately subject to protection.

For example, in *United States ex rel. Bergen v. Lawrence*,² the court ordered the removal of a fence on privately owned property that prevented pronghorn from reaching their range. The court found that no protected ownership interest in the fence existed. As part of its reasoning, the court held that the owner never had the right to exclude wildlife from the property in that manner. The court stated that “[a]ll that [plaintiff] lost is the right to exclude others, including wildlife, from the public domain—a right he never had.”³

³*See, e. g.*, *U.S. v. Causby*, 328 U.S. 256, 66 S. Ct. 1062, 90 L. Ed. 1206 (1946).

⁴*Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 427, 102 S. Ct. 3164, 73 L. Ed. 2d 868 (1982).

⁵*Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415, 43 S. Ct. 158, 67 L. Ed. 322, 28 A.L.R. 1321 (1922).

⁶*Karuk Tribe of California v. Ammon*, 209 F.3d 1366, 1374 (Fed. Cir. 2000) (internal citation omitted).

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¹*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1029, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

²*U.S. ex rel. Bergen v. Lawrence*, 848 F.2d 1502, 1507–08 (10th Cir. 1988).

³*U.S. ex rel. Bergen v. Lawrence*, 848 F.2d 1502, 1508 (10th Cir. 1988).

Similarly, in *dicta* in *Lucas v. South Carolina Coastal Council*,⁴ the Supreme Court indicated that, in the context of coastal regulation, imposition of a restriction on coastal development would not constitute the interference with such a property right. The Court stated:

[T]he owner of a lake bed—would not be entitled to compensation when he is denied the requisite permit to engage in a landfilling operation that would have the effect of flooding other's land. Such regulatory action may well have the effect of eliminating the land's only economically productive use, but it does not proscribe a productive use that was previously permissible under relevant property and nuisance principles. The use of these properties for what are now expressly prohibited purposes was always unlawful, and (subject to other constitutional limitations) it was open to the State at any point to make the implication of those background principles of nuisance and property law explicit.⁵

Similarly, a property right will not be found if to do so would contravene the public trust doctrine. That doctrine protects the public's rights in natural resources, particularly those associated with navigable waters.⁶ Arguably, in situations where this doctrine applies, it would supersede any conflicting rights that a plaintiff could potentially assert based upon property ownership.

§ 21:82 Has a taking of the property right occurred?

Assuming that a property right subject to protection is identified, the inquiry must then proceed to the second step: determining whether there has been governmental action that constitutes a taking of that "property right."

In this regard, it should first be noted that mere enforcement of regulations protective of wildlife on private property does not constitute a taking.¹ Moreover, it has generally been held that damage to private property resulting from the actions of protected wildlife does not constitute a taking.² Further, "mere 'fluctuations in value' during the process of governmental decision-making, absent extraordinary delay, are incidents of ownership" and do not constitute takings.³

§ 21:83 The development of regulatory takings law

The following cases are important building blocks in the analysis that needs to be undertaken when considering takings in the wildlife context. In *Penn Central Transportation Co. v. City of New York*,¹ the Court considered a preservation law designed to preserve the aesthetic qualities of Pennsylvania Station in New York

⁴*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

⁵*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1029–30, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

⁶*See generally* Donald C. Baur & William Robert Irvin, *Endangered Species Act: Law, Policy & Perspective* ch. 9, 158 (2002); *Coastal Petroleum v. Chiles*, 701 So. 2d 619, 624 (Fla. Dist. Ct. App. 1st Dist. 1997).

[Section 21:82]

¹*Wyatt v. U.S.*, 271 F.3d 1090, 1095 (Fed. Cir. 2001) (The mere imposition of a permit requirement does not take property under the Fifth Amendment). *See also* *U.S. v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 106 S. Ct. 455, 88 L. Ed. 2d 419 (1985).

²*Bishop v. U. S.*, 130 Ct. Cl. 198, 126 F. Supp. 449, 452–53 (1954) (protected geese damaged crops).

³*Wyatt v. U.S.*, 271 F.3d 1090, 1098 (Fed. Cir. 2001).

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¹*Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 98 S. Ct. 2646, 57 L. Ed. 2d 631 (1978).

City. However, the law would also have prevented the construction of a 55-story office complex above the station. The developer claimed that the law restricted his ability to develop his property and should be viewed as a taking. Instead of focusing on whether the law would divide the parcel into several segments (a type of analysis that had been previously utilized in takings cases), the Court rather considered “the nature and extent of the interference with rights in the parcel as a whole.” In reaching its decision, the Court set forth three factors in an ad hoc analysis that should be considered in determining whether a regulatory taking had occurred. These factors were: (1) the economic impact of the regulation on the claimant; (2) the extent to which the regulation has interfered with distinct investment-backed expectations; and (3) the character of the governmental action.

In *Agins v. City of Tiburon*,² the Court further considered these issues. Because of density restrictions, *Agins* was prevented from building a high-density development on his parcel. In considering whether the ordinance constituted a taking, the Court considered not only whether the regulation had a substantial relationship to a legitimate state interest, but also whether the regulation denied an owner the “economically viable use of his land.” The Court held that, although the ordinance prevented the construction of some types of structures on the property, it still permitted the owner some use for the property. The Court therefore held that there had been no taking.

These issues were again considered in *Lucas v. South Carolina Coastal Council*.³ There, the plaintiff had purchased property for the purpose of building a residence. However, a South Carolina coastal statute prohibited the construction of any habitable structure on the property. The plaintiff contended that the statute removed all value from his property and therefore constituted a taking. The trial judge found that the law left his land without value and awarded him damages.⁴ The South Carolina Supreme Court ruled that, as the regulation was intended to prevent serious public harm, no compensation was owed under the Takings Clause, no matter what the resulting effect on the value of the property. The U.S. Supreme Court reversed, stating that when a property owner is forced to “sacrifice *all* economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking.”⁵

However, although the Court’s opinion articulated the requirement that a landowner must suffer a taking of the *entire* property to be awarded compensation, the Court also signaled that it might be willing to consider whether a regulation would qualify as a taking even though it affects only a portion of a particular property.⁶ This possibility was directly considered in *Loveladies Harbor, Inc. v. United States*.⁷ There, the court held that a denial of a § 404 dredging permit under the Clean Water Act for a portion of a property constituted a taking. However, the decision raised the critical issue of defining the relevant parcel, or “denominator” in the takings

²*Agins v. City of Tiburon*, 447 U.S. 255, 100 S. Ct. 2138, 65 L. Ed. 2d 106 (1980) (abrogated by, *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 125 S. Ct. 2074, 161 L. Ed. 2d 876 (2005)).

³*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

⁴*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1009, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

⁵*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1019, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

⁶*Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1016 n.7, 112 S. Ct. 2886, 120 L. Ed. 2d 798 (1992).

⁷*Loveladies Harbor, Inc. v. U.S.*, 28 F.3d 1171 (Fed. Cir. 1994).

calculus.⁸

In another decision, *Palazzolo v. Rhode Island*,⁹ the Court addressed another key aspect of the Penn Central ad hoc balancing analysis: a claimant's reasonable investment-backed expectations. There, a property owner was denied a permit to fill 11 of his property's 18 wetland acres under a state's coastal resources management program in order to build a private beach club. The Rhode Island Supreme Court held that he could not assert a taking based on a denial of all economic use of his property because the regulation at issue predated his acquisition. The Court reversed, holding that (1) his claim was ripe because the state had reached a final decision on his application, and (2) his acquisition of title after the state regulations effective date did not bar his takings claim. The Court stated that "a blanket rule that purchasers with notice have no compensation right when a claim becomes ripe is too blunt an instrument to accord with the duty to compensate for what is taken."¹⁰ Thus, the Court remanded the case to address the Penn Central factors. The important rule is that a claimant is not automatically barred from seeking just compensation simply because he had some notice of preexisting environmental legal restrictions on his property.

Another key dichotomy in regulatory takings is whether compensation may be awarded for a "temporary" as compared to a "permanent" taking. In *First English Evangelical Lutheran Church of Glendale v. County of Los Angeles*,¹¹ the Court ruled that (1) land use regulations could result in a taking even when the regulations are temporary, and (2) compensation must be available for any such "temporary taking." However, the Court did not decide what factors would be used to decide whether a temporary taking had occurred. The landmark decision of *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*¹² addressed this issue, holding that a temporary taking should not be determined using the Lucas factors for a categorical taking, even if the government regulation denied the property owner all economically viable use of the land.¹³ Instead, the Court held that a court, faced with a possible temporary regulatory taking, must apply the Penn Central factors.¹⁴ In so doing, the Court held that the Tahoe Regional Planning Commission's 32-month moratorium on development, so that it could study the environmental impact of development on Lake Tahoe and design a corresponding land use strategy, was a reasonable restriction and did not rise to the level of a regulatory taking.

⁸*Deltona Corp. v. U. S.*, 228 Ct. Cl. 476, 657 F.2d 1184 (1981), the court broadly construed this concept, suggesting that the relevant parcel included sections of the original purchase subject to prior development and sale prior to denial of a § 404 permit. Hence, the court denied compensation. More recently, the Court of Federal Claims, in *Loveladies Harbor, Inc. v. United States*, 15 Cl. Ct. 381, 19 Env'tl. L. Rep. 20092 (1988), narrowly defined the term by refusing to include two pieces of the developer's original 250-acre purchase that had been developed and sold off by the date of the alleged taking (193 acres), as well as developed, but unsold, upland lots not contiguous to the parcel subject to § 404 permit denial. On appeal, the Federal Circuit Court found a taking defining the relevant parcel as only the 11.5-acre wetlands parcel, denied a permit, and awarded plaintiffs \$2.6 million. The court enunciated the position that, in defining a parcel as a whole, courts should use "a flexible approach designed to account for factual nuances." *Loveladies Harbor, Inc. v. U.S.*, 28 F.3d 1171 (Fed. Cir. 1994).

⁹*Palazzolo v. Rhode Island*, 533 U.S. 606, 121 S. Ct. 2448, 150 L. Ed. 2d 592 (2001).

¹⁰*Palazzolo v. Rhode Island*, 533 U.S. 606, 609, 121 S. Ct. 2448, 150 L. Ed. 2d 592 (2001).

¹¹*First English Evangelical Lutheran Church of Glendale v. Los Angeles County, Cal.*, 482 U.S. 304, 107 S. Ct. 2378, 96 L. Ed. 2d 250 (1987).

¹²*Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 122 S. Ct. 1465, 152 L. Ed. 2d 517, 10 A.L.R. Fed. 2d 681 (2002).

¹³*Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 122 S. Ct. 1465, 1489, 152 L. Ed. 2d 517, 10 A.L.R. Fed. 2d 681 (2002).

¹⁴*Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 122 S. Ct. 1465, 1489, 152 L. Ed. 2d 517, 10 A.L.R. Fed. 2d 681 (2002).

Takings jurisprudence has also focused heavily on regulatory exactions. That is, separate from the Penn Central ad hoc balancing test and the Lucas total deprivation analysis, compensation may be awarded if regulatory exactions such as an easement or dedication meet certain tests enumerated by the Court. The first test was addressed by the Court in *Nollan v. California Coastal Commission*.¹⁵ The Court held that in such situations, the governmental authority would be required to demonstrate an “essential nexus” (some logical connection) between the exaction and the purpose of the law under which the exaction is required. Such a requirement prevents the use of permit conditions as a subterfuge that would enable the governmental entity to take property while avoiding the payment of compensation to the property owner altogether. Thus, the Court held that requiring owners of beach-front property to allow the public an easement across the beach portion of their property did not substantially advance the state’s interest in allowing the public to view the beach.

The Court set forth the second test in *Dolan v. City of Tigard*.¹⁶ In *Dolan* a store owner desired to make certain improvements to her property. The municipality conditioned the approval of this request upon the performance of two conditions required under the city’s Community Development Code. These conditions involved the dedication of certain portions of the property to the city. The storeowner requested a variance from these requirements, and the request was denied.

The Court disagreed with this action, holding that such an exaction not only needed to meet the “essential nexus” standard articulated in *Nollan*, but that it would also be necessary for it to be demonstrated that the exaction must be “roughly proportional” to the impact of the permitted action. The Court stated that the governmental agency must make a determination that the requirement is related both in nature and extent to the impact of the proposed development.¹⁷ The Court held that the city had not met this requirement and ultimately that the required dedications constituted a compensable taking.¹⁸

§ 21:84 Fifth Amendment takings cases and the ESA

Takings cases directly involving the presence of listed species or their habitat have been rare but are increasing in number. In *Boise Cascade Corporation v. United States*,¹ a case involving ESA restrictions established to protect spotted owls in logging forest land in Oregon, the Court of Appeals for the Federal Circuit considered whether an action that temporarily interrupted Boise’s logging activities on its property due to the owls constituted (for that period) a taking for which compensation would be required. After one owl died and the other moved off the property, the Oregon Department of Forestry (ODF) allowed logging but warned Boise that the FWS might consider logging the property to be a violation of the ESA.

Boise notified the FWS, which then inspected the property. The FWS determined that logging the parcel could harm other spotted owls that might use the site for nesting. The FWS notified Boise that it could either file an application for an Incidental Take Permit (ITP) under § 10 of the ESA, or it could attempt to swap the tract with the state of Oregon. Boise’s response was to file suit in the federal district

¹⁵*Nollan v. California Coastal Com’n*, 483 U.S. 825, 107 S. Ct. 3141, 97 L. Ed. 2d 677 (1987).

¹⁶*Dolan v. City of Tigard*, 512 U.S. 374, 114 S. Ct. 2309, 129 L. Ed. 2d 304 (1994).

¹⁷*Dolan v. City of Tigard*, 512 U.S. 374, 391, 114 S. Ct. 2309, 129 L. Ed. 2d 304 (1994).

¹⁸*Dolan v. City of Tigard*, 512 U.S. 374, 395–96, 114 S. Ct. 2309, 129 L. Ed. 2d 304 (1994).

[Section 21:84]

¹*Boise Cascade Corp. v. U.S.*, 296 F.3d 1339 (Fed. Cir. 2002).

court in Oregon seeking a declaratory judgment that its proposed logging operation would not harm any spotted owls and requesting that the court enjoin the FWS from enforcing the ESA against Boise. The United States sought an injunction prohibiting Boise's logging activities.

The district court dismissed Boise's complaint on ripeness grounds and granted the U.S. motion for an injunction pending the results of breeding surveys being conducted by the FWS. During these surveys, a juvenile owl was spotted living on the property. The district court issued an order granting the U.S. request to permanently enjoin Boise from logging the site without an ITP.

However, after the juvenile owl was also subsequently found dead on the property, and surveys indicated that no other owls were in the vicinity, the FWS notified Boise that an ITP would no longer be required. After this notification, Boise filed a complaint at the Court of Federal Claims seeking compensation for a "temporary take of merchantable timber" due to the injunction that had been entered by the district court. The Court of Federal Claims dismissed, based upon the government's argument that the injunction merely prohibited Boise from logging without a permit and that it therefore did not constitute a taking as a matter of law under *Riverside Bayview Homes*.

The Federal Circuit agreed, noting that Boise could have applied for a permit, thus offering it an "escape hatch" that would prevent a taking.² The Court then noted that extraordinary delay in the permitting process could give rise to a taking if the permit has not been denied, but that such situations will be rare and such a taking will generally not be found in the absence of bad faith. The court determined that this was not such a case.

Other takings cases involving actions under the ESA have similarly denied relief. In *Good v. United States*,³ the U.S. Army Corps of Engineers denied a developer a permit to fill wetlands because filling and consequent development would have jeopardized two species listed as endangered under the ESA. The Federal Circuit Court held that *Good* did not show he had reasonable investment-backed expectations because he had bought the land with actual knowledge of the necessity and difficulty of obtaining regulatory approval.⁴ Furthermore, it did not matter to the court that the ESA regulation that was ultimately the basis for the denial was not in effect at the time of the purchase. What the court found relevant was that there was a regulatory climate that gave actual or constructive notice that state or federal regulation could have ultimately prevented *Good* from benefitting economically from his property.⁵

The inability of claimants to satisfy the threshold requirements of (1) a property right⁶ and (2) government action⁷ has also resulted in denials of compensation in takings claims involving ESA regulations. Furthermore, courts have accepted the

²*Boise Cascade Corp. v. U.S.*, 296 F.3d 1339, 1348 (Fed. Cir. 2002).

³*Good v. U.S.*, 189 F.3d 1355 (Fed. Cir. 1999).

⁴*Good v. U.S.*, 189 F.3d 1355, 1362 (Fed. Cir. 1999).

⁵*Good v. U.S.*, 189 F.3d 1355, 1361–62 (Fed. Cir. 1999).

⁶*U.S. v. Hill*, 896 F. Supp. 1057, 1063 (D. Colo. 1995), the owner of animal parts that were listed as endangered species under ESA alleged that the ESA listing deprived him of all economic value of his legally obtained property. The court dismissed the claim reasoning that Hill did not meet the threshold principle of a property interest, because by the time he lawfully obtained the animal parts, their sale was already subject to the ESA and other (lawful) statutes. Therefore, Hill had no vested property right to sell the animal parts and consequently had lost no right for which he could claim "just compensation."

⁷*Christy v. Hodel*, 857 F.2d 1324 (9th Cir. 1988), a livestock owner killed an ESA-protected grizzly bear in order prevent it from eating the sheep. The court held that the ESA grizzly bear regulations did not affect a taking, because the bears were not government agents and consequently any damage

high degree of regulation of personal property that the ESA provisions can impose.⁸ Therefore, a court rarely, if ever, has an opportunity to consider evidence showing that personal property lost substantial or all economically viable use.

In contrast, a 2001 case in the Federal Court of Claims found a taking when the federal government imposed water use restrictions under the ESA. In *Tulare Lake Basin Water Storage District v. United States*,⁹ California water users claimed a taking of their right to certain quantities of water when federal government agencies imposed water use restrictions in order to protect two endangered species. The court found that the federal government's curtailing of the contractually conferred water rights of the users amounted to a physical taking¹⁰ of their property. As mentioned above, background principles of state nuisance and property law provide for protection of wildlife. However, the court held that the background principles of the state of California did not preclude a taking because the allocation scheme at the time of the dispute allowed the allocations the users sought to maintain. Absent a determination otherwise, the Court was reluctant to allow background principles to preclude the takings claim.¹¹

A subsequent case involved newly listed species impacting a 40-year-old water reclamation project. In *Casitas Municipal Water District v. United States*,¹² the government had signed a contract with Casitas in 1956 to build the Ventura River Project (Project) that would provide water supply for irrigation and other uses.¹³ The contract gave Casitas perpetual rights to use all water that became available from the Project. The Court of Appeals for the Federal Circuit considered whether there was a physical taking when the government forced Casitas to build a fish ladder and compelled water to be rerouted to the ladder to protect the West Coast steelhead trout.

In 1997, the NMFS had listed the West Coast steelhead trout as an endangered species in the Project watershed. To avoid a taking under § 9, the Bureau of Reclamation (Bureau) sought a biological opinion by the NMFS. The court notes that "the government concedes that the 2003 directive advising Casitas that it was obligated to comply with [the biological opinion] compelled Casitas to: (1) build a fish ladder facility . . . and (2) divert water from the project to the fish ladder, resulting in permanent loss to Casitas of a certain amount of water per year."¹⁴ The court reasoned that the purpose of the ESA is to protect endangered species because they have esthetic, ecological, and scientific value to the nation and its people. Therefore, protecting an endangered species habitat that is for government and third-party use serves a public purpose. However, the underlying issue was whether the diversion of water was a regulatory or a physical taking. The trial court, relying on *Tahoe-Sierra Preservation Council, Inc.*¹⁵ ruled that it was a regulatory taking,

they caused could not be considered government action for purposes of the Takings Clause.

⁸*U.S. v. Kepler*, 531 F.2d 796 (6th Cir. 1976), the court held that ESA provision prohibiting the sale and transportation in interstate commerce of a leopard, an endangered species under the ESA, did not affect a taking because ESA permissibly regulates the transportation and sale of protected wildlife.

⁹*Tulare Lake Basin Water Storage Dist. v. U.S.*, 49 Fed. Cl. 313 (2001).

¹⁰*Tulare Lake Basin Water Storage Dist. v. U.S.*, 49 Fed. Cl. 313, 319 (2001).

¹¹*Tulare Lake Basin Water Storage Dist. v. U.S.*, 49 Fed. Cl. 313, 321–22 (2001).

¹²*Casitas Mun. Water Dist. v. U.S.*, 543 F.3d 1276 (Fed. Cir. 2008).

¹³*Casitas Mun. Water Dist. v. U.S.*, 543 F.3d 1276 (Fed. Cir. 2008).

¹⁴*Casitas Mun. Water Dist. v. U.S.*, 543 F.3d 1276 (Fed. Cir. 2008).

¹⁵*Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 122 S. Ct. 1465, 152 L. Ed. 2d 517, 10 A.L.R. Fed. 2d 681 (2002).

and Casitas conceded that under that framework, they could not prevail.¹⁶ Casitas appealed, and the Federal Circuit reversed. The court reasoned that in protecting the West Coast steelhead trout, the government forced Casitas to divert the water away from the canal in order to feed the fish ladder.¹⁷ The Court held that reducing Casitas' water supply by such diversion was a physical taking and a violation of the Fifth Amendment.¹⁸

§ 21:85 Application to the ESA and wildlife protection regulations

From the foregoing, it appears that property owners have a difficult task in demonstrating Fifth Amendment takings under the ESA and other wildlife protection statutes and regulations. Many of the problems that such laws may present for landowners, e.g., damage caused by protected species, have been held not to be takings under the Fifth Amendment. Moreover, the ESA and most wildlife protection laws and regulations do provide for some flexibility in their operation. Normally, such features as approval of "incidental takes" and variances prevent a property owner from being deprived of all value in its property, the standard that has evolved for such regulatory takings.

In addition, the mere fact that a potential more profitable use of the property is prevented (while others remain) does not equal a taking. In most instances, property owners will have notice of such potential issues and will therefore be unable to demonstrate that they had any reasonable investment-backed expectations that the property could be used for a particular purpose. Moreover, property owners can generally find some alternative use for their property. The issues presented are further minimized when only a portion of the property contains habitat.

It should also be noted that the purpose of the ESA is not to acquire land but to protect species. Consequently, several of the concerns that the Court has expressed, to the effect that regulatory actions may simply be a subterfuge to take property, would not seem to apply to the ESA or most other wildlife protection statutes and regulations.

However, it should not be concluded that such taking claims will always fail. The foregoing cases provide general guidance on the Fifth Amendment "taking" principles that will be applied in the wildlife protection context, as these cases continue to arise. For example, under the ESA's Habitat Conservation Plan (HCP) provisions, a property owner has the right to apply for a permit that allows for "incidental takes" of areas or species under the act. Dolan provides some guidance as to what type of essential nexus or proportionality that might be utilized by courts in evaluating taking claims based upon HCP requirements. It is possible that future ESA taking litigation will address such issues.

XVII. CONCLUSION

§ 21:86 Generally

The Endangered Species Act is one of the most important and most powerful federal environmental statutes. The strict provisions of the ESA impose important procedural and substantive duties on both federal and private actors to ensure both the survival and recovery of listed species. As the Supreme Court stated in 1978 in *Tennessee Valley Auth. v. Hill*, the ESA is "the most comprehensive legislation for

¹⁶Casitas Mun. Water Dist. v. U.S., 543 F.3d 1276 (Fed. Cir. 2008).

¹⁷Casitas Mun. Water Dist. v. U.S., 543 F.3d 1276 (Fed. Cir. 2008).

¹⁸Casitas Mun. Water Dist. v. U.S., 543 F.3d 1276 (Fed. Cir. 2008).

the preservation of endangered species ever enacted by any nation.”¹ That observation remains true today. This chapter has endeavored to describe the Act’s underpinnings and the major developments in this important and evolving law—a law that is becoming even more relevant today as we face new environmental challenges, such as climate change. Hopefully, this chapter will provide practitioners with the tools to better understand and apply this important law that will likely continue to evolve in the years ahead.

[Section 21:86]

¹Tennessee Valley Authority v. Hill, 437 U.S. 153, 180, 98 S. Ct. 2279, 57 L. Ed. 2d 117 (1978).

Chapter 22

Alien Species*

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APPENDIX 22A. Presidential Executive Orders on NIS

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XI. PLANTS AND WILDLIFE ☞149EXI

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*By **Marc L. Miller**. The author would like to thank **Greg Aplet, Anita Bernstein, Bill Buzbee, Nick Fabian, Peter McAvoy, Richard Orr, Keith Pitts, Sarah Reichard, Robert Schapiro, and Ron Wright**, each of whom offered insights on earlier drafts, and **Stephanie Allen, Terry Gordon, Jason Herman, and Wendy Phillips** for research support. He wishes to express his appreciation for the insights into invasive species policy and politics provided by the National Invasive Species Council Policy and Regulation Working Group, which he served as non-federal co-chair. *See* Interim Report: Policy and Regulation Working Group of the Invasive Species Advisory Council (2000), available at <http://www.invasivespecies.gov/council/PR%20interim%20final2%20703.doc> (last visited June 10, 2003).

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§ 22:1 In General

Non-indigenous species (NIS) have increasingly come to be recognized in scientific and popular arenas as one of the most significant threats to biodiversity. That recognition has yet to extend to law and policy, which, in the United States, remain fractured and incomplete. This chapter surveys the most significant of the many bits and pieces of U.S. federal law that relate to prevention and control of NIS, and argues that a more coherent and powerful legal framework is needed to address the NIS problem.

§ 22:2 Introduction

U.S. law addressing NIS presents a paradox.

The best way to summarize U.S. NIS law is to say that there is very little statutory law, and for important dimensions of the NIS problem, including identifying new NIS invasions, tracking the impact of known harmful invasive species, and responding to emerging threats, there is none. Some federal laws have responded to threats from particular invasive species, or threats from particular pathways for alien species (such as ballast water as a source of aquatic NIS). But no federal law has ever responded directly to the general problem of prohibiting, preventing, screening, identifying, attacking, and understanding NIS.

The law of the various U.S. states is even easier to summarize: with a few interesting exceptions, including NIS legislation in Hawaii and Minnesota, most U.S. states at best offer a weak echo of the general aspects of federal statutory law.

Oddly, the second best way to summarize U.S. NIS law is to say that there is a ton of it, and that no report has yet done it justice. Indeed, there is so much law, of so many kinds, that there is no way this report can do it justice. A comprehensive summary would point to the many dozens of federal statutes that are relevant, or

might be relevant, to NIS issues. It would point to the dozens of federal agencies and hundreds of state agencies that have responded to alien species issues under various kinds of legal authority, including general organic acts for the supervisory agency and annual appropriations bills.

High on the list of evidence supporting the view that invasive species have a broad presence in U.S. law would be two presidential Executive Orders, an odd species of law, that have addressed NIS issues directly, first in a 1977 Executive Order issued by President James Carter, and then, in a new Executive Order issued by President William J. Clinton on February 3, 1999.¹ Indeed, the first piece of evidence in support of the view that the U.S. has broad legal coverage of invasive species issues would be the creation of a National Invasive Species Council staffed by Cabinet-level officers and the promulgation, in January 2001, of a National Invasive Species Management Plan.

To complicate matters still further, to the extent that law reflects culture and popular understanding, there has been a dramatic increase in coverage of NIS issues in the popular press, and to some degree in scientific and legal materials. An increasing flood of news stories has focused on particular invaders and their economic, social, aesthetic, and ecological costs.

One way to resolve the paradox is to shift the terrain of the question from “what laws apply to NIS?” to “what legal authority should exist to deal with harmful NIS, and what purposes would a new or different set of NIS laws serve?” In other words, the proper question is not whether a lawyer or policymaker might be able to find a basis in current legal authority to defend a specific action, but whether a biologist or policy-maker would say that the law adequately guides and mandates appropriate government and private actions, and, more generally, that it responds to the costs and threats imposed by NIS.

From the perspective of coherent law and policy, it is relatively easy to identify the gaps in U.S. federal and state law. It is harder to explain whether and how those gaps should be filled. If government agencies can respond to NIS problems under their current authority, and if increasing public awareness of threats from harmful NIS makes it more likely that agencies will try to deal with NIS issues, then why should anyone care about the absence of clearer, explicit legal authority on NIS issues?

Section 21:3 of this chapter summarizes the increasing awareness of the importance and seriousness of NIS issues in the United States in popular, scientific, and legal literature. Sections 21:4 to 21:13 describe current federal legal authority, focusing first on the limitations of the existing federal statutory law regarding NIS, and then on an unusual legal animal—the presidential Executive Orders—at the heart of modern U.S. legal history regarding NIS. Section 21:14 considers the legal authority regarding NIS in the U.S. states, with a special emphasis on the law of Hawaii and Minnesota.

Sections 21:15 to 21:20 address the need for new statutory provisions in U.S. federal and state law. The chapter concludes that current U.S. statutory law leaves essential aspects of the NIS problem unaddressed. Moreover, as a social and political matter, NIS pose a sufficient threat to justify their separate recognition in positive law, including the structural, substantive, public, and funding issues that such legal identification would generate. At a minimum, as a matter of coherent law and policy, a single, organic NIS law should be articulated, and that model then used to assess gaps in actual current legal authority.

[Section 22:2]

¹Exec. Order No. 11987, 3 C.F.R. § 116 (1977), ELR Admin. Mat. 45015; Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 8, 1999), ELR Admin. Mat. 45105.

§ 22:3 Alien awareness in the United States

Any evaluation of the adequacy of current law must have some metric against which to test its success or failure. In other words, there must be some sense of a social problem or situation that calls for a governmental response. If the values against which the law is being tested are not stated explicitly, or are not clear and compelling, then any critique of current law must stand or fall based on materials or facts not presented with the legal analysis.

Moreover, any assessment of the adequacy of current law must also encompass or reflect some theory of law—what role law plays in society, what subjects are the legitimate and proper domain of regulation (in contrast to private discourse and markets), and how laws work, including both the likely efficacy and the likely costs of any proposed regulation (*i.e.*, a theory of regulation).

The present analysis rests on the assumption that invasive alien species pose a major economic, ecological, and social threat that is not being dealt with adequately. This section provides an overview of the scope of the NIS problem in the United States, and the level of public and professional awareness of that problem. The legal analysis that follows assumes that the multidimensional case for responding to NIS has been more than adequately made elsewhere by ecologists and economists.

Though increasingly outdated, the best overview of the NIS problem in the United States remains the 1993 report *Harmful Non-Indigenous Species in the United States*.¹ The Office of Technology Assessment (OTA), a now-defunct research arm of the U.S. Congress (eliminated in 1995),² produced a 400-page report that for a decade has been the standard reference for the scope of the NIS problem in the United States.

The OTA scientists, after reviewing the literature, concluded that “[a]t least 4,500 species of foreign origin have established free-living populations” in the United States.³ The OTA summary of the estimated numbers of NIS in the United States appears in Table 1. Other scientists have estimated much higher numbers,⁴ and all assessments, including that by the OTA, emphasize the lack of knowledge in this area, and the likelihood that for many kinds of organisms, the counts are probably much higher.

The OTA notes the variety of harms from NIS, including economic, ecological, and aesthetic harms. The report captures the difficulty in adequately describing the scope of harm in the following summary paragraphs:

Approximately 15 percent of the NIS in the United States cause severe harm. High impact species—such as the zebra mussel, gypsy moth, or leafy spurge (*Euphorbia esula*) (a weed)—occur through the country. Almost every part of the United States confronts at least one highly damaging NIS today. They affect many national interests: agriculture, industry, human health, and the protection of natural areas.

[Section 22:3]

¹Office of Technology Assessment (OTA), *Harmful Non-Indigenous Species in the United States* (1993), available at http://www.wws.princeton.edu/~ota/disk1/1993/9325_n.html (last visited Aug. 1, 2003) [hereinafter OTA Report].

²See Wendy Wagner, *Congress, Science, and Environmental Policy*, 1999 U. Ill. L. Rev. 181, 213 n.121; Colleen Krueger, *Congress’ Own “Think Tank” Falls Victim to Cuts by GOP*, L.A. Times, Oct. 25, 1995, at A5.

³OTA Report, at 3.

⁴More recent reports have suggested as many as 50,000 non-indigenous species (NIS) in the United States. See David Pimental, Lori Lach, Rodolfo Zuniga, & Doug Morrison, *Environmental and Economic Costs Associated with Non-Indigenous Species in the United States*, Presentation at American Association for the Advancement of Science, Anaheim, California, Jan. 1999, available at http://www.news.cornell.edu/releases/Jan99/species_costs.html (last visited Aug. 1, 2003).

The number and impact of harmful NIS are chronically underestimated, especially for species that do not damage agriculture, industry, or human health. Harmful NIS cost millions to perhaps billions of dollars annually. From 1906 to 1991, just 79 NIS caused documented losses of \$97 billion in harmful effects, for example. A worst-case scenario for 15 potential high-impact NIS puts forth another \$134 billion in future economic losses. The figures represent only a part of the total documented and possible costs—that is, they do not include a large number of species known to be costly but for which little or no economic data were available, e.g., non-indigenous agricultural weeds. Nor do they account for intangible, nonmarket impacts.

Harmful NIS also have had profound environmental consequences, exacting a significant toll on U.S. ecosystems. These range from wholesale ecosystem changes and extinction of indigenous species (especially on islands) to more subtle ecological changes and increased biological sameness. . . .⁵

It is easy to list harmful NIS that do not seem to be included in the cumulative economic and ecological assessments. For example at the turn of the last century, chestnut blight—a non-indigenous disease—appeared in the United States and decimated Eastern forests by wiping out the American chestnut. The American chestnut was the most important hardwood species in eastern forests⁶ and constituted 25 percent of the trees and a substantial portion of the biomass in those forests. The blight is estimated to have killed as many as one billion trees.⁷ Any estimate of economic harm from chestnut blight is likely to be highly speculative, and it is not clear that this harm was included in the OTA estimates.

Table 22.1⁸
Estimated Numbers of Non-Indigenous Species in the United States^a

Species with origins outside the United States

Category	Number	Percentage of total species in the United States in category
Plants	>2,000	^b —
Terrestrial vertebrates	142	= 6%
Insects and arachnids	>2,000	= 2%
Fish	70	= 8%
Mollusks (non-marine)	91	= 4%
Plant pathogens	<u>239</u>	^b —
Total	4,542	

Species of U.S. origin introduced beyond their natural ranges

Category	Number	Percentage of total species in the United States in category
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⁵The range of estimates of total NIS since the promulgation of the 1977 Executive Order by President Carter has ranged across two orders of magnitude (1977 Executive Order: several hundred; 1993, OTA Report: 5,000; 1999, David Pimental, Lori Lach, Rodolfo Zuniga & Doug Morrison, *Environmental and Economic Costs Associated with Non-Indigenous Species in the United States*, Presentation at American Association for the Advancement of Science, Anaheim, California, Jan. 1999: 50,000). The problems in assessing the total number of NIS, are in part definitional—including whether only harmful NIS are counted, and whether the range of established agricultural and other familiar species, e.g., dogs and cats, are counted. But the problems with accurate numbers also reflect a basic lack of knowledge. OTA Report, at 5.

⁶OTA Report at 66, citing U.S. Dept. of Agriculture, U.S. Forest Service, Pest Risk Assessment of the Importation of Larch from Siberia and the Soviet Far East, Miscellaneous Publication No. 1495 (1991).

⁷OTA Report, at 66.

⁸OTA Report, at Table 1–1.

Species with origins outside the United States

Category	Number	Percentage of total species in the United States in category
Plants	^b —	^b —
Terrestrial vertebrates	51	= 2%
Insects and arachnids	^b —	^b —
Fish	57	= 17%
Mollusks (non-marine)	^b —	^b —
Plant pathogens	^b —	^b —

^a Numbers should be considered minimum estimates. Experts believe many more NIS are established in the country, but have not yet been detected.

^b Number or proportion unknown.

^c Percentage for fish is the calculated average percentage for several regions. Percentages for all other categories are calculated as the percent of the total U.S. flora or fauna in that category.

Other reports, popular and technical, have tried to capture the scope of harm from NIS in the United States, and have concluded that the impact is even greater than the OTA report suggests. A 1999 Congressional Research Service report cited an unpublished study estimating NIS costs at \$123 billion annually.⁹ Another study concluded in 1998 that NIS are second only to habitat destruction as a cause of modern extinction.¹⁰

Reports on the harm from NIS are equally dramatic when focused on specific areas and specific invaders. For example, among the best state-level evaluations of general NIS issues is a 1992 report by the Nature Conservancy of Hawaii and the National Resources Defense Council, Inc. (NRDC) titled *The Alien Species Invasion in Hawaii: Background Study and Recommendations for Interagency Planning*.¹¹ This report found significant financial impact on Hawaii's \$1 billion annual agriculture industry; ecosystem degradation, especially of watershed forests; financial harm to housing from an introduced termite; harm to rangeland; and threats to human health. The report also found that "[t]he primary cause of [ecosystem changes], and the greatest single threat to native species, is predation or competition by non-native weeds and animal pests."¹²

Breathtaking economic and ecological impacts leap from the pages of various reports that begin with a focus on one area or problem. An excellent 1999 report on NIS in the Great Lakes suggests the scope of alien species issues at regional scales:

Harmful exotic aquatic organisms (aquatic nuisance species) do economic damage in the

⁹M. Lynne Corn et al., Congressional Research Service, Harmful Non-Native Species: Issues for Congress (1999), citing David Pimental, Lori Lach, Rodolfo Zuniga & Doug Morrison, *Environmental and Economic Costs Associated with Non-Indigenous Species in the United States*, Presentation at American Association for the Advancement of Science, Anaheim, California, Jan. 1999, available at http://www.news.cornell.edu/releases/Jan99/species_costs.html (last visited June 4, 2003).

¹⁰David Wilcove et al., *Quantifying Threats to Imperiled Species in the United States*, 48 *Bioscience* 607 (1998). The January 2001 federal National Invasive Species Management Plan synthesizes and quotes these prior reports but does not provide additional estimates or analysis of the scope of the NIS problem in the United States. National Invasive Species Council, National Invasive Species Management Plan (2001), at <http://www.invasivespecies.gov/council/nmp.shtml> (last visited June 4, 2003).

¹¹The Nature Conservancy of Hawaii & Susan Miller & Alan Holt, NRDC, *The Alien Pest Species Invasion in Hawaii: Background Study and Recommendations for Interagency Planning* (1992).

¹²The Nature Conservancy of Hawaii & Susan Miller & Alan Holt, NRDC, *The Alien Pest Species Invasion in Hawaii: Background Study and Recommendations for Interagency Planning* 4 (1992).

range of several billion dollars per year, damage native fishery resources, and cause irreplaceable loss to the biodiversity of the planet. Some of the past invaders of the Great Lakes include the sea lamprey, purple loosestrife, the alewife, furunculosis, Eurasian watermilfoil, protozoan fish parasites, European ruffe, the Asiatic clam, and the zebra mussel. The threat includes organisms throughout the taxonomic scale, from fish and macroscopic plants to bacteria and viruses. The majority of current aquatic invaders of the Great Lakes enter through ballast water of transoceanic commercial shipping. Other major vectors of concern are commercial transportation of aquatic organisms across large ecological zones for use as aquaculture, bait, and aquarium or ornamental pond fish. Genetic modification of native species for use in aquaculture is also a matter of concern.¹³

Both technical and policy literatures reveal widespread agreement that the NIS problem in the United States is substantial on economic, ecological, and aesthetic dimensions. The problems are so substantial and so varied, both in cause and in impact, that they are difficult to frame in policy and research terms. In other words, descriptions of the harm from specific invasive species often show a concreteness and specificity that aggregate descriptions lack. But I have found no serious (or for that matter, non-serious) statement suggesting that modern scientific concerns with NIS are overblown.

Despite this consistent view in the scientific and policy literature about NIS, general concern for NIS has only recently begun to attract much popular—or political—attention. Indeed, until recently, only a handful of NIS had received widespread recognition for the harm they caused. Even the OTA report recognizes that only a handful of economically significant species led to Congress' request for this report. These species include the zebra mussel and Asian clam, the gypsy moth, and leafy spurge. The list might easily and fairly be expanded to include another dozen organisms. However, it would be fair to say that general NIS threats, as opposed to species or location specific concerns, are much more an emerging phenomenon.¹⁴

But, as Bob Dylan noted some years back: "There's a battle outside, and it is ragin' . . . for the times, they are a-changin'."¹⁵ Over the past several years, there has been a dramatic increase in the number of news stories that address the

¹³Eric Reeves, Analysis of Laws and Policies Concerning Exotic Invasions of the Great Lakes 1 (1999), available, along with other documents related to NIS issues in the Great Lakes, at http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314---,00.html (last visited June 3, 2003).

¹⁴See, e.g., Union of Concerned Scientists, The Science of Invasive Species (2001), available at <http://www.ucsusa.org/publication.cfm?publicationID=451> (last visited June 5, 2003); National Wildlife Refuge Association, Silent Invasion: A Call to Action (2002), available at <http://www.refugenet.org/new-pdf-files/Silent%20Invasion%20pdf.pdf> (last visited June 4, 2003).

¹⁵Bob Dylan, *The Times They Are A-Changin'* (1964). Bob Dylan surely did not have invasive species in mind when he penned these lyrics, but the lyrics make it seem like he did. A portion of the lyrics to that song follow, applicable then to social change and now to ecological change.

Come gather 'round people
Wherever you roam
And admit that the waters
Around you have grown
And accept it that soon
You'll be drenched to the bone.
If your time to you
Is worth savin'
Then you better start swimmin'
Or you'll sink like a stone
For the times they are a-changin' . . .
Come senators, congressmen
Please heed the call
Don't stand in the doorway
Don't block up the hall

potential harm from NIS. Increasingly, the popular media highlights invasive species beyond the handful that have achieved statutory responses and widespread recognition. For reasons that are not hard to understand, news stories tend to focus on invasive species with substantial economic impacts or other impacts on human enjoyment. For example, Africanized honeybees have received widespread coverage, as have concerns about the spread of fire ants. In both cases, the direct impact on peoples' lives may help sell the stories.

News stories have been expanding, in number and scope, to include a wider range of invasive species with a wider range of impacts. Figure 21.1 illustrates the trend towards increasing coverage of NIS issues in the U.S. media.¹⁶ Illustrations of U.S. media coverage of invasive species issues can be found on the National Invasive Species Council web site.¹⁷

The increase in popular attention to NIS issues is reflected in books and magazines as well. The best illustration of this trend may be the 1998 book *Alien Invasion: America's Battle With Non-Native Plants and Animals*.¹⁸ This volume, written by science writer Robert Devine, was published by the National Geographic Society, and appeared with an introduction by then-Secretary of the Interior Bruce Babbitt. Another current popular overview of NIS issues appears in the 1998 book *Life Out of Bounds: Bioinvasion in a Borderless World*.¹⁹

The scientific literature addressing invasive species has been growing steadily, and one journal—the Journal of Biological Invasions²⁰—is devoted to the topic. The legal literature devoted to invasive species is far more sparse, but even among legal scholars there seems to be some increasing attention to NIS issues.

NIS have a substantial presence in scientific discourse, a growing popular recognition, and a small but growing presence in legal literature. But to what extent are they part of our laws? The answer, oddly, is a lot, and a little.

For he that gets hurt
Will be he who has stalled
There's a battle outside
And it is ragin'.
It'll soon shake your windows
And rattle your walls
For the times they are a-changin'

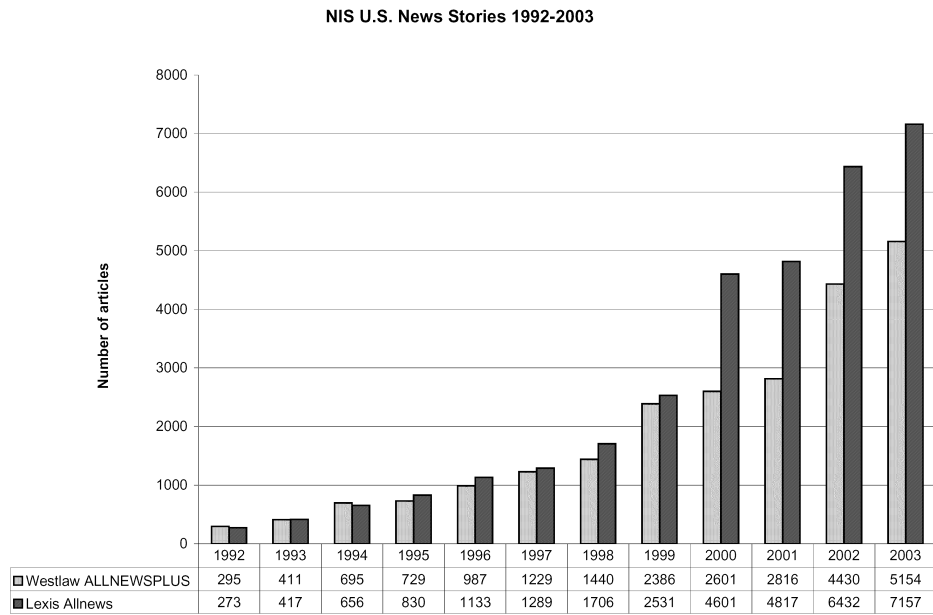
¹⁶There are some data problems with using the Lexis and Westlaw newspaper databases for general topic prevalence and incidence since the database has expanded somewhat over the years as new newspapers were added. The more recent information data is more accurate than the older data. Thus, the numbers before 1990 should be taken as only a loose indication of the prevalence of the terms. A rough calculation suggests that the database essentially doubled in size between the beginning of 1995 and the end of 1999. Since the frequency of references to alien species roughly quadrupled in the same period, the basic point still holds—that NIS have invaded popular media and that the scope of that media invasion is increasing. For a discussion and a more precise calculation of the change in the size of the Westlaw and Lexis news databases, see Ronald Wright, *The Abruptness of Action*, 36 Crim. L. Bull. 401, 424-26 (2000).

¹⁷[Invasivespecies.gov](http://www.invasivespecies.gov/newsmedia.shtml), Newsmedia on Invasive Species, at <http://www.invasivespecies.gov/newsmedia.shtml> (last visited June 5, 2003) (chronological list, with links where available); [Invasivespecies.gov](http://www.invasivespecies.gov/news/isnews.shtml), Invasive Species News Sources, at <http://www.invasivespecies.gov/news/isnews.shtml> (last visited June 5, 2003) (organized by topic).

¹⁸Robert Devine, *Alien Invasion: America's Battle with Non-Native Plants and Animals* (1998).

¹⁹Christopher Bright, *Life Out of Bounds: Bioinvasion in a Borderless World* (1998). A more technical though still accessible overview of alien species in Florida appears in Daniel Simberloff et al., Eds., *Strangers in Paradise: Impact and Management of Non-Indigenous Species in Florida* (1997).

²⁰See World Conservation Union, *New Journal Biological Invasions*, at <http://www.issg.org/bioinvasions.html> (last visited July 3, 2003).

Figure 21.1

§ 22:4 U.S. legal authority

The two most important points about U.S. NIS law are that there is very little, and yet, in another sense, there is a lot. There are a small number of U.S. federal laws that address specific NIS issues directly, but there are a huge number of U.S. federal laws that grant authority and funding to agencies that might be used to deal with NIS problems. Moreover, there are two dramatic presidential Executive Orders directly addressing NIS issues, the first issued by President Carter in 1977 and the second by President Clinton in February 1999. Finally, there are a host of regulations and practices in federal agencies and less formal working groups that also address NIS issues.

This paradox—the essential absence and, at the same time, the abundance of relevant legal authority—is the major puzzle that this chapter tries to solve. To do so, I first present summaries of current law, and then suggest the limits of available law to serve as a foundation for a general legal framework to deal with harmful NIS. Finally, given the indirect and odd nature of much of the available legal authority, I point out what does not yet exist—what is missing from this seemingly rich legal bouillabaisse.

The first part of this section describes the federal legal authority that exists, summarizing explicit federal NIS statutory authority and then noting, in passing, the general authorizing legislation for relevant government agencies. It then describes general federal governmental powers under environmental legislation not designed primarily (and perhaps at all) with NIS in mind. The second and more detailed part of this section evaluates the two presidential Executive Orders. In a very direct way, these presidential Executive Orders test the combined powers of all available laws since they rely on those collective powers to direct federal agencies to act.

§ 22:5 U.S. legal authority—Federal statutory authority

The first question regarding current federal statutory authority is whether current law directly addresses the general issue of harmful NIS: it does not. A more interesting question with regard to current authority, however, is whether enough partial and indirect authority exists that, when read expansively, would allow current federal agencies to act appropriately to deal with harmful NIS.

No one has yet published a full accounting of U.S. legal authority that might be applicable to government responses to harmful NIS. The OTA report concluded that “[t]he current Federal effort is largely a patchwork of laws, regulations, policies, and programs. Many only peripherally address NIS, while others address the more narrowly drawn problems of the past, not the broader emerging issues.”¹ An April 1999 Congressional Research Service (CRS) report titled *Harmful Non-Native Species: Issues for Congress*, concluded that “[f]ederal law concerning non-native species is scattered. No laws focus on the broad problems of non-native species, their interception, prevention, and control across a variety of industries and habitats.”² At another point, the CRS report summarized U.S. federal law this way:

[I]n the century or so of congressional responses to harmful, non-native species, the usual approach has been an ad hoc attack on the particular problem, from impure seed stocks, to brown tree snakes on Guam. A few attempts have been made to address specific pathways, e.g., contaminated ballast water, but no current law addresses the general concern over non-native species and the variety of paths by which they enter

[Section 22:5]

¹OTA Report, at 11.

²M. Lynne Corn et al., Congressional Research Service, *Harmful Non-Native Species: Issues for Congress* pt. IV (1999).

this country.³

The CRS report did provide a list of relevant federal laws, but none of the discussions of any one law, even the most relevant, extended more than a few paragraphs. The OTA report made reference to a number of federal laws, but did not analyze any of those laws in detail. The OTA was primarily interested in what federal and state agencies were doing (under whatever authority) and what such agencies might do, rather than in specifying the precise limits on government power under current statutes and regulations. Indeed, some of the assertions about federal law in the OTA report do seem open to challenge.

The reasons that a comprehensive survey of U.S. law on invasive species has not been done is partly practical, but more importantly the challenges are conceptual and functional. The practical challenge arises because of the immense number of minor legal provisions that might be used to justify policy responses to invasive species. Such provisions would include appropriations and spending bills for relevant agencies, and many pieces of legislation with no obvious link to invasive species, such as the organic acts (the initial, general authorization and authority) for the many relevant government agencies.⁴ Thus, practically, a complete listing of all potentially relevant U.S. legal authority would be a dreary project, and it would produce a ponderous product.

More importantly, even an exhaustive survey of potentially relevant statutory authority would not produce a determinate answer to the abstract question “what legal authority might be used to support invasive species policies.” The full answer, if there is ever to be a full answer, would come in light of judicial, executive, or legislative challenges to particular policy initiatives. Moreover, a catalog of all potentially applicable legal authorities would not be especially revealing, since it would be unlikely to answer the most immediate and important questions about how either the federal or state governments are responding, or how they should respond, to harmful NIS.

Providing a comprehensive review of U.S. law might be necessary in defense of some government action that is alleged to be lawless (or less dramatically, beyond current authority). Indeed, it is fair to say that for most conceivable federal government actions with respect to NIS there would probably be a reasonable claim that authority exists, should such actions be challenged in court. But such a study of the plausible outer reaches of the law is not necessary or even useful to answer the question of what general legal authority is currently used in responding to harmful NIS, or whether additional legal authority (and responsibility) would be useful.

While it is useful to consider whether the current authority might be stretched to cover new policy initiatives, the very need to imagine creative readings and understandings of current authority highlights the most important point: most aspects of the harmful NIS problem are not clearly addressed in current law. Moreover, examining the minutiae of the mass of legal authority that might be brought to bear on the problem of harmful NIS could also obscure the important virtues—from the standpoint of efficiency, funding, coherent policy, and public understanding—of designing laws to address serious problems directly.

§ 22:6 U.S. legal authority—Explicit federal statutory NIS authority

“Blacklist” and “exclusion” acts

³M. Lynne Corn et al., Congressional Research Service, *Harmful Non-Native Species: Issues for Congress*, Introduction (1999).

⁴*See, e.g.*, The National Park Service Organic Act, Act of Aug. 25, 1916, 39 Stat. 535, codified at 16 U.S.C.A. §§ 1 to 4.

There is a compensation in the distribution of plants, birds, and animals by the God of nature. Man's attempt to change and interfere often leads to serious results.¹

The recognition that NIS might cause harm has been evident in U.S. federal law at least since the Lacey Act, first enacted in 1900 and substantially revised in recent years.² It was originally enacted for a range of purposes anchored to the idea of protecting native wildlife, especially birds that were being commercially harvested for their feathers. A particular place of concern was the Everglades. The sponsors were not only aware of the lack of controls on commerce in wild species among the states, as well as between nations, but they also recognized that alien species could harm native species and ecosystems (though, of course, Representative Lacey and his colleagues did not use the term "ecosystems"). Harms from sparrows and starlings that had been introduced in the latter half of the 19th century were noted in the legislative history.³

The Lacey Act currently provides the federal government with authority to ban the import, export, or transportation of "any fish or wildlife" or "any plant" that is made illegal by "any law, treaty[, or regulation]" of the United States or of any individual state.⁴ The Act provides for both civil penalties of a modest nature, *e.g.*, knowingly or negligently violating the Act may result in a penalty of "not more than \$10,000 for each such violation,"⁵ and criminal penalties, up to five years in prison and a \$20,000 fine for each violation.⁶

The Lacey Act seems to provide broad authority to the government to ban harmful NIS. There are other aspects of the Lacey Act that also have this sweeping character. For example, the Act provides enforcement authority to the Secretary of the Interior, the Secretary of Transportation, and the Secretary of the Treasury.⁷ The Act also explicitly leaves U.S. states free to make or enforce laws "not inconsistent" with the federal provisions.⁸

The problem with relying on the Lacey Act's general authority to ban animal and plant species is that these powers only apply to animals and plants that are made illegal under federal or state law. The key provision of the Lacey Act that establishes the authority to specify which organisms should be excluded is substantially more restrictive than the general enforcement powers, which relate to organisms identi-

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¹Rep. John Lacey (R-Ind.), 33 Cong. Rec. 4871 (1900).

²Lacey Act, as amended, 16 U.S.C.A. §§ 3371 to 3379; 18 U.S.C.A. § 42.

³See Robert Anderson, *The Lacey Act: America's Premier Weapon in the Fight Against Unlawful Wildlife Trafficking*, 16 Pub. Land L. Rev. 27, 36-53 (1995) (discussing history of Lacey Act).

Although its coverage extended to animals, the Lacey Act was essentially a bird preservation and restoration measure designed to enhance and protect agriculture. Its language reflected Rep. Lacey's personal passion for the preservation of agriculturally beneficial birds and the eradication of harmful exotic species. . . . Lacey listed the primary threats to bird populations as excessive hunting of game birds by market hunters, the introduction of harmful exotic species that displaced native populations, and the millinery industry, which at that time consumed millions of birds each year for the production of ladies' hats.

See also Davina Kari Kaile, *Evolution of Wildlife Legislation in the United States: An Analysis of the Legal Efforts to Protect Endangered Species and the Prospects for the Future*, 5 Geo. Int'l Envtl. L. Rev. 441, 446-48 (1993); Stuart McIver, *True Tales of the Everglades* 5 (1989) (attributing passage of the Lacey Act to harvesting of birds from the Everglades).

⁴16 U.S.C.A. § 3372.

⁵16 U.S.C.A. § 3373(a) to (c).

⁶16 U.S.C.A. § 3373(d).

⁷16 U.S.C.A. § 3375(a).

⁸16 U.S.C.A. § 3378(a). The non-preemption of state law would have been clear enough from the general provisions of the Lacey Act since federal agencies are given enforcement power—the power to ban species—made illegal under the law of any state.

fied not only under the Lacey Act, but also under other federal and state laws. Title 18, § 42 provides the following:

The importation into the United States. . . or any shipment between the continental United States [and Hawaii, Puerto Rico, U.S. territories or possessions] . . . of the mongoose of the species *Herpestes auropunctatus*; of the species of so-called flying foxes or fruit bats of the genus *Pteropus*; of the zebra mussel of the species *Dreissena polymorpha* and such other species of wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, reptiles, brown tree snakes, or the offspring of eggs of any of the foregoing which the Secretary of the Interior may prescribe by regulation to be injurious to human beings, to the interests of agriculture, forestry, or to wildlife or the wildlife resources of the United States, is hereby prohibited.⁹

There are three major limitations that prevent the Lacey Act from being or becoming a general harmful NIS law.¹⁰ First, while the Lacey Act provides the Secretary of the Interior the power to exclude several species of particular concern, as demonstrated above, as well as some other animals, it does not provide for the exclusion of plants, seeds, or plant pests.¹¹ This gap in the Lacey Act is partially closed by a host of federal statutes that, together, provide federal officials with power to exclude many kinds of harmful plant pests, seeds, and noxious weeds. These acts are the Plant Pest Act,¹² the Plant Quarantine Act,¹³ the Federal Noxious Weed Act of 1974,¹⁴ and the Federal Seed Act.¹⁵ In May 2000, Congress passed the Plant Protection Act, which consolidated and revised the Plant Quarantine Act, the Plant Pest Act, the Federal Noxious Weed Act, aspects of the Department of Agriculture Organic Act, and several less prominent acts.¹⁶

Second, the Lacey Act focuses on identifying harmful species with the purpose of limiting their importation. But introduction of new NIS, or harmful NIS, is only one aspect of the NIS problem. Many NIS have already been introduced, many have already caused great harm, and even the most stringent barriers to introduction of known harmful NIS will not keep some harmful NIS, known and unknown, from entering the country. A complete law regarding harmful NIS would address not only the identification of potentially harmful NIS, but also the review of proposed introductions not known to be harmful, and the proper response to harmful NIS already in place. In addition, a comprehensive legal response to NIS would address various education and research efforts to limit the cultural and scientific aspects that contribute to expanding or limiting the NIS problem.

The third major problem with the Lacey Act as the foundation for a complete strategy to deal with harmful NIS is that it authorizes the creation of a list of forbidden animals—a “black list” or “exclusion list”—but it does not authorize the

⁹18 U.S.C.A. § 42.

¹⁰An additional minor concern is that the listing powers may not include general ecological concerns, such as protection of ecosystem services, ecosystem function, or appearance. However, the list of concerns that are relevant to exclusion is sufficiently broad that the Secretary of Agriculture can probably find a listed reason to exclude a particular animal species of concern.

¹¹The original Lacey Act did not include fish, a gap that was filled by the Black Bass Act of 1926, 16 U.S.C.A. §§ 851 to 856, repealed Pub. L. No. 97-79, 9b1, 95 Stat. 1079 (1981), and later amendments to both the Lacey and Black Bass acts, including a substantial set of amendments in 1969. See Robert Anderson, *The Lacey Act: America's Premier Weapon in the Fight Against Unlawful Wildlife Trafficking*, 16 Pub. Land L. Rev. 27, 44-48 (1995) (amendments expanded coverage of Lacey Act to include amphibians, reptiles, mollusks, and crustaceans).

¹²7 U.S.C.A. §§ 150aa to 150jj.

¹³Plant Quarantine Act of 1912, 7 U.S.C.A. §§ 151 to 157.

¹⁴7 U.S.C.A. §§ 2801 to 2814.

¹⁵Federal Seed Act, 7 U.S.C.A. §§ 1551 to 1611.

¹⁶See Pub. L. No. 106-224, 114 Stat. 358 (June 20, 2000), codified at 7 U.S.C.A. §§ 7701 to 7772.

exclusion of animals whose threat is unknown.

Laws that are passed for a particular purpose or based on a specific understanding often change over time in light of shifts in knowledge or culture, yet they may still grant sufficient legal authority for government to respond to the newer demands and conceptions. Could the Secretary of the Interior simply declare that all species of animals and plants not previously approved are disapproved, and thus convert the “black” list to a “white” list?

Probably not. Both the text of 18 U.S.C.A. § 42 and the history of the Lacey Act suggest that Congress requires the Secretary of the Interior to make a particular finding that a particular species is “injurious to human beings, to the interests of agriculture, forestry, or to wildlife or the wildlife resources of the United States.”¹⁷ The Secretary of the Interior has issued regulations that appear to limit the importation of any live wildlife or eggs under the Lacey Act, but this broad assertion of authority has not been tested.¹⁸ Even if a court were to uphold this broad reading of the Lacey Act, the limitations of the Act as a general foundation for harmful NIS law would remain.

The May 2000 Plant Protection Act shows clear signs of Congress’ increasing awareness of the importance of NIS issues and the need for more coherent legislative responses. The Plant Protection Act provides a unitary framework for dealing with plant pests and noxious weeds. While the statement of findings recognizes that plant pests and noxious weeds threaten “the agriculture, environment, and economy of the United States,”¹⁹ and noxious weeds are defined to include “any plant or plant product that can directly injure or cause damage to . . . the natural resources of the United States . . . or the environment,”²⁰ it is nevertheless apparent that the principal focus of the Act is to protect against agricultural and other economic harms, since the environment is not a prominent concern in the remainder of the Act.²¹

The 2000 Plant Protection Act suggests the importance of mere reorganization

¹⁷One possible reading of the Lacey Act is that it leaves a technical gap in that there may be no authority for the federal government to limit introduction of species that threaten only wild lands. However, it is difficult to imagine a species that would impact wild lands but not wildlife or “wildlife resources.” There does not appear to be any instance of the federal government failing to list a species because it believed it lacked the authority to do so.

¹⁸Any importation or transportation of live wildlife or eggs thereof, or dead fish or eggs or salmonids of the fish family Salmonidae into the United States or its territories or possessions is deemed to be injurious or potentially injurious to the health and welfare of human beings, to the interest of forestry, agriculture, and horticulture, and to the welfare and survival of the wildlife or wildlife resources of the United States; and any such importation into or the transportation of live wildlife or eggs thereof between the continental United States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means whatsoever, is prohibited except for certain purposes and under certain conditions as hereinafter provided. . . .

50 C.F.R. § 16.3.

¹⁹Pub. L. No. 106-224, 402(1), codified at 7 U.S.C.A. § 7701.

²⁰Pub. L. No. 106-224, 403(10), codified at 7 U.S.C.A. § 7702.

²¹The agricultural and commercial focus of the Plant Protection Act is readily apparent from the comments of its sponsors. Speaking about the final version of the bill after consideration in conference, Rep. Charles Canady (R-Fla.) explained that the Plant Protection Act

is designed to address a very real problem facing American agriculture. The United States loses thousands of acres and billions of dollars in farm production each year due to invasive species. Exacerbating this serious problem are the outdated and fragmented quarantine statutes that govern interdiction of prohibited plants and plant pests. Our agricultural sector needs a modern, effective statutory authority that will protect our crops from these destructive invasive species.

[I]t was for this reason that I introduced the Plant Protection Act. This legislation, crafted in consultation with the USDA, will help to prevent the introduction and dissemination of invasive plants and pests by giving the Animal and Plant Health Inspection Service greatly enhanced investigatory and enforcement tools. The Plant Protection Act will streamline and consolidate existing statutes into one comprehensive law and eliminate outdated and ambiguous provisions. It will also boost deterrents against trafficking of prohibited species by increasing monetary penalties for smuggling, and it will provide USDA with a comprehensive set of investigatory tools and ensure transparency for our trading partners.

and simplification of laws that relate to harmful invasive species. However, the Plant Protection Act does not merely reorganize existing law. It expands the regulatory and enforcement powers over plant pests and noxious weeds, including new civil penalty structures.²² The Act also encourages a steady use of science,²³ the wide involvement of experts and stakeholders in policy-making, consideration of “systems approaches,” the development of integrated management plans on the basis of geographic and ecological regions, and the authorization of new types of classification systems. While some of these systematic concepts were evident in prior law, the new act joins them to regulatory and enforcement mechanisms and thus offers the hope for more effective, efficient, and informed federal plant pest and noxious weed policies.

Several provisions, however, plant their own substantial seeds for mischief. For example, the Act encourages the use of biological pest controls, finding that “biological control is often a desirable, low-risk means of ridding crops and other plants of plant pests and noxious weeds.”²⁴ Biological controls are themselves invasive species—additional biological pollution.²⁵ Congress does not seem to have considered this fact, or the very mixed record of biological controls over the past century.²⁶

Congress chose to create a strong federal preemption of state efforts to regulate plant pests and noxious weeds.²⁷ States and political subdivisions are forbidden to regulate “any article, means of conveyance, plant, biological control organism, plant pest, noxious weed, or plant product” in an effort to control, eradicate, or prevent the introduction of plant pests, noxious weeds, or biological control organisms.²⁸ States and local subdivisions are also barred from regulating the interstate commerce of these kinds of organisms when there are already federal regulations regarding these organisms.²⁹

Given the varied needs of different states, most notably those with highly unique and susceptible ecosystems, such as Hawaii, these are extraordinary and unwise preemption provisions that go far beyond prior law. Whether or not these preemption provisions prove to be harmful will depend on how courts and agencies interpret the provision that allows regulation of interstate commerce when regulations “are

Conference Report on H.R. 2559, 146 Cong. Rec. H3816-01, 3820 (May 25, 2000).

²²In setting ranges for civil penalties, Congress included several unusual factors, including “ability to pay” and the “effect on ability to continue to do business.” See 7 U.S.C.A. § 7734(b).

²³The references to the use of science have a dual-edged quality. For example, § 412(b) provides that “[t]he Secretary [of Agriculture] shall ensure that the processes used in developing regulations. . . governing consideration of import requests are based on sound science and are transparent and accessible.” 7 U.S.C.A. § 7712(b). The reference to “sound” science may be largely rhetorical; it may also place a burden of scientific proof whereby uncertainty and risk favor continued commerce or the status quo rather than action (or regulation). Other examples of “braking” actions by Congress in the Plant Protection Act include the requirement of “least drastic action” by the government with respect to threats from new plant pests and noxious weeds. 7 U.S.C.A. § 7714(c)(2).

²⁴See, e.g., 7 U.S.C.A. § 7701(2), (5). Further mischief may be caused by defining a “biological control organism” as “any enemy, antagonist, or competitor used to control a plant pest or noxious weed” since this definition does not distinguish between “classical” biological controls, where the control agent has evolved with the target in its home range, and the use of biological agents against unrelated targets. 7 U.S.C.A. § 7702(2). Compare Marc Miller & Gregory Aplet, *Biological Control: A Little Knowledge Is a Dangerous Thing*, 45 Rutgers L. Rev. 285 (1993) (criticizing the increasing proposals for non-classical biological controls).

²⁵Marc Miller & Gregory Aplet, *Biological Control: A Little Knowledge Is a Dangerous Thing*, 45 Rutgers L. Rev. 285 (1993).

²⁶Marc Miller & Gregory Aplet, *Biological Control: A Little Knowledge Is a Dangerous Thing*, 45 Rutgers L. Rev. 285 (1993).

²⁷Pub. L. No. 106-224, 436, codified at 7 U.S.C.A. § 7756.

²⁸7 U.S.C.A. § 7756(a).

²⁹7 U.S.C.A. § 7756(b)(1).

consistent with” federal regulations, and how sympathetic and wise the Secretary of Commerce will be in response to state requests for waivers based on “special need.”³⁰

Some federal laws promote harmful NIS, and make it difficult or impossible for federal or state authorities to deal with important aspects of the harmful NIS problem. One example is the Wild Free-Roaming Horses and Burros Act, which protects some feral horses and burros from elimination or control.³¹ A less clear but perhaps more important example is the sum of trade laws and international agreements that may place limits on the kinds of inspections and regulations the United States and its states can create for detection of harmful NIS.

What other federal laws might be used to fill in the requirements for a general law that responds to harmful NIS?³²

§ 22:7 U.S. legal authority—National Invasive Species Act: Big name, narrow scope

If awards were given for act titles, then anyone concerned with the threat from harmful NIS would give the grand prize to two federal statutes: The National Invasive Species Act (NISA) of 1996¹ and the Alien Species Prevention and Enforcement Act of 1992.²

NISA reauthorized a 1990 federal statute with a less encompassing but more accurate title: the Non-Indigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990.³ The NANPCA focused on one place (the Great Lakes), on one pathway (ballast water), and was driven by concerns about one NIS (zebra mussel). It was a statute designed to organize state and federal forces against the zebra mussel and other NIS that had been, and might be, introduced through ballast water. The Act directed the U.S. Army Corp of Engineers to develop a research program for the control of zebra mussels.⁴ (Clearly, Congress understood the invasion metaphor in this specific context.) The NANPCA created a federal interagency Aquatic Nuisance Species Task Force to reduce risk from harmful NIS. The Task Force was charged with assessing aquatic nuisance species threats to “the ecological characteristics and economic uses of U.S. waters other than the Great Lakes.”⁵

In 1996 NISA expanded the focus of NANPCA to mandate regulations to prevent introduction and spread of aquatic nuisance species.⁶ In NISA, Congress encouraged the federal government to negotiate with foreign governments to develop an

³⁰7 U.S.C.A. § 7756(b)(2)(A), (B). A special waiver for a state or political subdivision requires support by “sound scientific data or a thorough risk assessment.” These are high and costly standards in the face of immediate and short-term threats, and may require substantial assistance by the federal government if the waiver will be in fact a way to take account of quite varied local needs and threats.

³¹Wild Free-Roaming Horses and Burros Act of 1971, 16 U.S.C.A. § 1334.

³²A large number of more focused federal laws dealing with specific invasive species problems might be used to defend particular federal government activities regarding harmful invasive species. Examples include the Virus-Serum-Toxin Act, 21 U.S.C.A. §§ 151 to 158, and various forestry acts, both national and region-specific.

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¹16 U.S.C.A. §§ 4701 to 4715.

²39 U.S.C.A. § 3015.

³Pub. L. No. 106-646, 104 Stat. 4762 (1990), codified in 16 U.S.C.A. §§ 4701 to 4715, reauthorized by Pub. L. No. 104-332, 110 Stat. 4073 (1996).

⁴Pub. L. No. 106-646, 104 Stat. 4762 (1990), codified in 16 U.S.C.A. §§ 4701 to 4715, reauthorized by Pub. L. No. 104-332, 110 Stat. 4073 (1996).

⁵16 U.S.C.A. § 4712(a)(2).

⁶National Invasive Species Act of 1996, Pub. L. No. 104-332, 110 Stat. 4073, 4091, codified at 16 U.S.C.A. §§ 4701 et seq.

international program for preventing NIS introductions through ballast water. The geographical scope of the Act was expanded as well, to include funding authorization for research on aquatic NIS in the Chesapeake Bay, San Francisco Bay, Honolulu Harbor, and the Columbia River system.⁷

As of March 2003, a bill to reauthorize NISA has been introduced in the Senate and referred to committee.⁸ The NISA of 2003 proposes to require mandatory ballast water regulations, and to encourage both further development of ballast water treatment and the use of best available technologies by the shipping industry, though with substantial lag time for adoption.⁹ Senator Susan Collins (R-Maine) introduced the bill with the following observations:

As with national security, protecting the integrity of our lakes, streams, and coastlines from invading species cannot be accomplished by individual States alone. We need a uniform, nationwide approach to deal effectively with invasive species. . . .

The [NISA] of 2003 is the most comprehensive effort ever to address the threat of invasive species. By authorizing \$836 million over 6 years, this legislation would open numerous new fronts in our war against invasive species. The bill directs the Coast Guard to develop regulations that will end the easy cruise of invasive species into U.S. waters through the ballast water of international ships, and would provide the Coast Guard with \$6 million per year to develop and implement these regulations.

The bill also would provide \$30 million per year for a grant program to assist State efforts to prevent the spread of invasive species. It would provide \$12 million per year for the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service to contain and control invasive species. Finally, the Levin-Collins bill would authorize \$30 million annually for research, education, and outreach.

The most effective means of stopping invading species is to attack them before they attack us. We need an early alert, rapid response system to combat invading species before they have a chance to take hold. For the first time, this bill would establish a national monitoring network to detect newly introduced species, while providing \$25 million to the Secretary of the Interior to create a rapid response fund to help States and regions respond quickly once invasive species have been detected. This bill is our best effort at preventing the next wave of invasive species from taking hold and decimating industries and destroying waterways in Maine and throughout the country.¹⁰

NISA may well be a good piece of legislation for responding to threats from aquatic invasive species introduced in ballast water; if a version anything like the proposed reauthorization is enacted the legislation will be even better.¹¹ The increase in authority and scope from the NANPCA to NISA in 1996 suggests an increasing

⁷Pub. L. No. 104-332, 2(c), amending 16 U.S.C.A. § 4712.

⁸S. 525, 108th Cong. (2003).

⁹149 Cong. Rec. S3179 (daily Mar. 5, 2003). Senator Levin, one of the principal sponsors, explained ballast water treatment requirements in the bill as follows:

I understand that ballast water technologies are being researched and are ready to be tested onboard ships. These technologies include ultraviolet lights, filters, chemicals, deoxygenation, and several others. Each of these technologies has a different pricetag attached to it. It is not my intention to overburden the maritime industry with an expensive requirement to install technology. In fact, the legislation states that the final ballast water technology standard must be based on "best available technology economically achievable." That means that the EPA must consider what technology is available, and if there is not economically achievable technology available to a class of vessels, then the standard will not require ballast technology for that class of vessels, subject to review every 3 years. I do not believe this will be the case, however, because the approach creates a clear incentive for treatment vendors to develop affordable equipment for the market. Since ballast technology will be always evolving, it is important that the EPA review and revise the standard so that it reflects what is the best technology currently available and whether it is economically achievable. Shipowners cannot be expected to upgrade their equipment upon every few years as technology develops, however, so the law provides an approval period of at least 10 years.

Id. at S3179.

¹⁰149 Cong. Rec. S3179-80 (daily ed. Mar. 5, 2003).

¹¹*See* Union of Concerned Scientists, The National Invasive Species Act (Aug. 2002) (supporting reauthorization efforts to strengthen NISA), available at <http://www.ucsusa.org/publication.cfm?publica>

awareness on the part of Congress about the complexity of NIS issues, even in the focused context of the ballast water pathway. The proposed expansion of authority in 2003 and the range of bipartisan sponsorship for the bill suggests that Congress is likely to further expand the mandates and authorities with regard to aquatic invasive species, with a particular emphasis on regulating the introduction of NIS through ballast water.

But NISA fails to suggest a general model for responding to harmful NIS. The 1996 version demonstrates that Congress did not then recognize the NIS problem to be the serious problem that its own research agency, the OTA, had described only three years earlier in its path-breaking report. The reauthorization of NISA in 2003, if it succeeds, will be evidence of Congress' awareness of the nature and scope of the NIS problem, at least in the area of aquatic species.

The second linguistically promising federal statute is the Alien Species Prevention and Enforcement Act (ASPEA) of 1992.¹² Unfortunately, the major (and useful) purpose of this act, despite its grand title, was simply to confirm the authority to make illegal the shipment through the mail of otherwise illegal organisms, including those species identified under the Lacey Act, the Plant Pest Act, and the Plant Quarantine Act. ASPEA does not itself create any new categories of organisms that are illegal to ship, nor does it create any presumptions or institutions to help in responding to harmful NIS.

Individual members of Congress have shown increasing awareness of threats specific to their jurisdictions and especially agricultural, commercial, and industrial interests with strong concerns about harm from invasive species. Thus, in the first session of the 108th Congress alone, Congress passed the Nutria Eradication and Control Act of 2003¹³ and introduced the Tamarisk Research and Control Act of 2003,¹⁴ the Salt Cedar Control Demonstration Act,¹⁵ and the Noxious Weed Control Act of 2003.¹⁶

§ 22:8 U.S. legal authority—General environmental policy acts

There are at least two major federal environmental policy statutes and a set of public lands statutes that might apply to harmful NIS in some situations. The National Environmental Policy Act¹ (NEPA) requires federal government agencies to assess the environmental impact of their actions through the promulgation of an environmental impact statement (EIS). Yet many actions of the federal government that seem as if they could or should trigger EIS requirements, in fact, do not, due to both statutory and regulatory interpretations that limit NEPA to “major” government actions that “significantly” affect the quality of “the human environment.”²

Claimants have argued that the federal government has failed to take account of

¹ [tionID=383](#) (last visited June 5, 2003).

² 39 U.S.C.A. § 3015 note.

³ Pub. L. No. 108-16 (signed into law on Mar. 23, 2003).

⁴ H.R. 695, 108th Cong. (2003).

⁵ S. 1051, 108th Cong. (2003).

⁶ S. 144, 108th Cong. (2003).

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¹ 42 U.S.C.A. §§ 4321 to 4370d, ELR Stat. NEPA §§ 2 to 209.

² 42 U.S.C.A. § 4332(c) provides:

- (C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—
 - (i) the environmental impact of the proposed action,
 - (ii) any adverse environmental effects which cannot be avoided should the proposal be imple-

the impact of invasive species under NEPA.³ But even an expanded interpretation of NEPA to apply to as many federal actions as possible regarding NIS would cover only a modest portion of the full range of harmful NIS issues.⁴ NEPA is primarily directed at the actions of federal agencies, and therefore would not apply to the myriad actions of individuals relevant to harmful NIS, or to the actions of state and local authorities. Moreover, NEPA assumes the possibility of expertise in recognizing and assessing future environmental harms from present actions. In the case of potentially harmful NIS, this kind of information and expertise often may not be present, and the policy issue will then turn on legal presumptions and risk preferences in the face of great uncertainty. More importantly, even when NEPA applies, it only requires analysis of environmental impacts, but does not itself impose substantive barriers, preferences, or limits on government action.⁵

A second major federal environmental statute with some possible application to

- mented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Id. The regulations promulgated under the authority of NEPA chose to emphasize the requirements of "major" actions "significantly" affecting the environment. However, the current regulations suggest that intentional applications of biological control agents do trigger EIS requirements. *See* 7 C.F.R. § 520.7:

§ 520.7 Preparation of an Environmental Impact Statement (EIS).

- (a) Actions requiring EIS. An EIS will normally be prepared for
 - (1) Proposals for legislation which are determined to be a major Federal action significantly affecting the quality of the human environment; or
 - (2) Other major Federal actions significantly affecting the quality of the human environment. In the experience of ARS, an environmental impact statement shall normally be required in situations when a research project has advanced beyond the laboratory and small plot testing to full scale field testing over a very large area and involving the introduction of control agents.

Regulations also provide a definition of what constitutes a "major" federal action. *See* 40 C.F.R. § 1508.18:

"Major Federal action" includes actions with effects that may be major and which are potentially subject to Federal control and responsibility. Major reinforces but does not have a meaning independent of significantly (1508.27). Actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.

- (a) Actions include new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals (1506.8, 1508.17). Actions do not include funding assistance solely in the form of general revenue sharing funds, distributed under the State and Local Fiscal Assistance Act of 1972, 31 U.S.C. §§ 1221 et seq., with no Federal agency control over the subsequent use of such funds. Actions do not include bringing judicial or administrative civil or criminal enforcement actions. . .

Id.

³*See* San Francisco Baykeeper v. United States Army Corps of Eng'rs, 219 F. Supp. 2d. 1001, 1016 (N.D. Cal. 2002) (Corps of Engineers not required to describe potential severe consequences of invasive species introduction through ballast water releases for two Port of Oakland construction projects because "because there was no 'credible scientific evidence' that such impacts would occur"); National Parks Conservation Ass'n v. United States Dep't of Transp., 222 F.3d 677, 30 Env'tl. L. Rep. 20787 (9th Cir. 2000) (upholding sufficiency of "hard look" at alien species in environmental impact statement for expansion of Maui airport).

⁴*See* Jonathan Cosco, *NEPA for the Gander: NEPA's Application to Critical Habitat Designations and Other "Benevolent" Federal Action*, 8 Duke Env'tl. L. & Pol'y F. 345 (1998).

⁵*See, e.g.,* Victor Flatt, *The Human Environment of the Mind: Correcting NEPA Implementation by Treating Environmental Philosophy and Environmental Risk Allocation as Environmental Values under NEPA*, 46 Hastings L.J. 85 (1994); Bill Lockhart, *NEPA: All Form, No Substance?*, 14 J. Energy Nat. Resources & Env'tl. L. 415 (1994); Donald Zillman & Peggy Gentles, *NEPA's Evolution: The*

harmful NIS issues is the Endangered Species Act (ESA).⁶ The ESA might apply whenever a government or private action threatens an endangered species. The ESA might also lead to direct actions against harmful NIS in the development of recovery plans for listed species. Since harmful NIS have been identified as a significant source of ecosystem change (which may lead to pressures on rare or endangered species), and in some contexts as a direct extinction threat through predation, competition, or displacement, the ESA might bar some introductions or lead to some efforts at removal.

The situations where the powerful effects of the ESA apply, however, are likely to be few. If the ESA applies at all in terms of introductions, it will most likely apply only to intentional introductions of NIS, and only to those introductions where a nexus can be found between the NIS and a listed species. Perhaps a creative argument under the ESA could focus on the risk of introducing harmful NIS that could have a substantial impact on a listed species. Thus, a claim might be made that particular activities (such as use of wood packing materials or whole log imports or release of ballast water) provide a sufficient risk to a listed species to come within regulation under a recovery plan or a voluntary habitat conservation plan (HCP), but courts might well find such links too distant to support such policies.⁷ More directly, a recovery plan for a species listed under the ESA can involve control of existing harmful NIS. While control of NIS is apparently a common feature of recovery plans according to the OTA report, implementation of recovery plans, at least with respect to components related to harmful NIS, has been poor.⁸

In at least one prominent case the federal courts have several times upheld an order to the Hawaiian Department of Land and Natural Resources to remove non-indigenous goats and sheep that threatened the endangered palila bird. The unlikelihood of the ESA and recovery plans becoming a major mechanism for control of harmful NIS is suggested not only by the limited numbers of species listed under the ESA, but by the very caption of the federal case: *Palila (Psittirostra bail leui), an endangered species v. Hawaii Department of Land and Natural Resources*.⁹ Thus, while the ESA creates government obligations and provides government powers beyond other statutes, for the general range of harmful NIS these obligations and powers are in practice fairly limited.

Another broad class of federal laws that provide authority to federal agencies that have at times been used for regulation and policy with respect to harmful invasive species are the federal public lands laws, especially the Multiple-Use Sustained-

Decline of Substantive Review, 20 Env'tl. L. 505 (1990); William Rodgers, *NEPA at Twenty: Mimicry and Recruitment in Environmental Law*, 20 Env'tl. L. 485 (1990); Nicholas Yost, *NEPA's Promise—Partially Fulfilled*, 20 Env'tl. L. 533 (1990).

⁶16 U.S.C.A. §§ 1531 to 1543, ELR Stat. ESA §§ 2 to 18.

⁷*San Francisco Baykeeper v. United States Army Corps of Eng'rs*, 219 F. Supp. 2d. 1001, 1016 (N.D. Cal. 2002) (upholding Corps of Engineers finding that Oakland port projects leading to additional release of ballast water not likely to jeopardize species listed under the ESA).

⁸OTA Report, at 187.

⁹*Palila (Psittirostra bairdii), an endangered species v. Hawaii Dep't of Land & Natural Res.*, 852 F.2d 1106, 18 Env'tl. L. Rep. 21119 (1998) (*Palila II*); *Palila (Psittirostra bairdii), an endangered species v. Hawaii Dep't of Land & Natural Res.*, 639 F.2d 495, 11 Env'tl. L. Rep. 20446 (9th Cir. 1981) (*Palila I*). The power of the federal government to issue regulations under the ESA that include protection not just of endangered species but of the habitats that support them was upheld by the U.S. Supreme Court in *Babbitt v. Sweet Home Chapter of Communities for a Great Or.*, 515 U.S. 687, 25 Env'tl. L. Rep. 21194 (1995). See Ray Vaughan, *State of Extinction: The Case of the Alabama Sturgeon and Ways Opponents of the Endangered Species Act Thwart Protection for Rare Species*, 46 Ala. L. Rev. 569 (1995). However, in *Sweet Home*, Justice Sandra Day O'Connor questioned whether the link between harm by the feral sheep to a plant that protects the palila bird was too tenuous to support the requirement of a "taking" under ESA. 515 U.S. at 713-14 (O'Connor, J., concurring) (citing *Palila II*, 852 F.2d at 1106).

Yield Act of 1960,¹⁰ the National Forest Management Act of 1976,¹¹ and the Federal Land Policy and Management Act of 1976.¹² These acts, and related historical and contemporary legislation governing grazing, timber, and other uses of federal lands, provide a broad array of authorities and responsibilities with respect to public lands. Similar legislation aimed at the governance of smaller federal land units includes the National Wildlife Refuge System Administration Act.¹³ In addition, the powers granted under these sweeping public land laws may be magnified further still, and extended to some activities on state and private lands, under the expansive interpretation of the U.S. Constitution's "Property Clause," which provides that "[t]he Congress shall have power to. . . make all needful rules and regulations respecting the Territory or other property belonging to the United States."¹⁴

In addition to these major federal environmental statutes, a host of more focused environmental and non-environmental laws also have some relevance to harmful NIS. For example, the Wild Bird Conservation Act of 1992¹⁵ regulates the importation of some wild birds, and thus might limit both the introduction of birds that pose a special risk of becoming harmful NIS should they escape, and might as well reduce the chance of accidental introduction of bird diseases through careless importation of wild birds.¹⁶ Other pieces of legislation, seemingly utterly unrelated to NIS issues on their surface, include a handful of odd provisions, some with very direct relevance. For example, the Violent Crime Control and Law Enforcement Act of 1994 includes a provision authorizing the U.S. Attorney General to convene a multi-agency, federal, and state "law enforcement task force in Hawaii to facilitate the prosecution of violations of Federal laws, and laws of the State of Hawaii, relating to the wrongful conveyance, sale, or introduction of non-indigenous plant and animal species."¹⁷

At this point in our review of federal U.S. authority relating to harmful NIS, a reader might ask why analysis of any additional laws is necessary. If the most direct federal legislation (the various blacklist acts) and the most grandly titled legislation (NISA and ASPEA) and the most sweeping environmental legislation (NEPA and ESA) together leave enormous gaps in terms of government authority to respond to harmful NIS, then why look at less direct laws? Why not declare analytic victory and substantive defeat and move on to an assessment of what kinds of new legal authority might be appropriate?

If only the analytic task were so easy! Tables 2 and 3, taken from the OTA report, suggest one reason why considerable additional analysis is required to understand the federal U.S. NIS legal picture. These tables show 21 different federal agencies that deal with some aspect of harmful NIS. This multitude of government actors suggests (though alone it does not prove) that there must be far greater author-

¹⁰16 U.S.C.A. §§ 528 to 531.

¹¹16 U.S.C.A. §§ 1600 to 1687, ELR Stat. NFMA §§ 2 to 16.

¹²43 U.S.C.A. §§ 1701 to 1785, ELR Stat. FLPMA §§ 102 to 603.

¹³16 U.S.C.A. §§ 668dd to 668ee.

¹⁴U.S. Const. art. IV, § 3. *See Kleppe v. New Mexico*, 426 U.S. 529, 6 Env'tl. L. Rep. 20545 (1976) (upholding the constitutionality of the Wild Free-Roaming Horses and Burros Act, and its application on private lands that affect public lands).

¹⁵16 U.S.C.A. §§ 4901 to 4916.

¹⁶16 U.S.C.A. §§ 4901 to 4916.

¹⁷Pub. L. No. 103-322, 108 Stat. 1796 (1994). The task force was charged with facilitating prosecution of federal and state laws relating to NIS, recommending ways to strengthen law enforcement regarding NIS "to prevent introduction of non-indigenous plant and animal species," Pub. L. No. 103-322 320108, codified at 42 U.S.C.A. § 14221, and reporting to various congressional committees and federal agencies. What made Congress in 1994 think that criminal laws were avenue through which to deal with harmful NIS?

ity to deal with NIS than is described by the handful of statutes dealing explicitly with narrow aspects of the NIS problem. This long list of federal government actors also suggests that perhaps the sum of federal legal authority to deal with NIS may be great enough to respond to most NIS problems after all.

Table 22.2

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Table 6-2—Areas of Federal Agency Act vity Related to NIS

Agency ^a	Movement into U.S.			Interstate movement within U.S.		Regulate product content or labeling	Control or eradication programs	Fund or do introductions	Federal land management			Aquaculture development	Biocontrol development
	Restrict	Enhance	Enhance	Restrict	Enhance				Prevent eradication or control	Introduce or maintain	Prevention eradication control		
APHIS	✓			✓		✓	✓	✓	✓		✓		✓
AMS						✓							
FAS													
USFS							✓	✓	✓	✓	✓	✓	
ARS	✓							✓	✓	✓	✓		
SCS		✓						✓	✓		✓		
ASCS								✓	✓		✓		
CSRS								✓	✓		✓		
FWS	✓			✓		✓	✓	✓	✓	-2	✓	✓	✓
NPS							✓	✓	✓	-7	✓		✓
BLM							✓	✓	✓	-7	✓		✓
BIA							✓		✓				
BOR							✓	✓	✓		✓		
NOAA	✓						✓	✓	✓		✓	✓	
DOD	✓						✓	✓	✓		✓		
EPA	✓	✓				✓	✓		✓	-7	✓		
PHS	✓								✓		✓		
Customs	✓								✓		✓		
USCG	✓												
DOE									✓				
DEA	✓								✓				

^a For acronyms of federal agencies see box b-A.^b Monitors animal diseases abroad.^c Monitors spread of human disease vectors within the United States.^d Regulates experimental releases of microbial pesticides.^e DOE lacks policies on NIS.

SOURCE: Office Tech Assessment, 1993.

Table 22.3

172 Harmful Non-Indigenous Species in the United States

Table 6-3-Federal Coverage of Different Groups of Organisms^a

	Movement into U.S.	Interstate movement within U.S.	Regulate product content or labeling	Control or eradication programs	Federal land management	Fund or do research	Assist industry uses
	Restrict	Enhance	Restrict	Enhance	Prevent eradication or control	Introduce or maintain	Prevention control eradication species
Plants	APHIS ^b DOD DEA	ARS ^c DoD Customs	APHIS ARS SCS ^c AMS DOD ^d AMS BOR NOAA DOD	APHIS AMS BOR NOAA DOD	USFS FWS NPS BLM DOD	FWS NPS DOD	APHIS ^b ARS ^c SCS ^c SDS CSRS FWS NPS BLM BOR DOD
Terrestrial vertebrates	APHIS FWS DOD PHS Customs	APHIS FWS	FWS	APHIS FWS	FWS NPS	USFS FWS NPS BLM DOD	APHIS FWS NPS
Insects (and arachnids)	APHIS FAS ARS DOD PHS Customs	ARS DOD ^d APHIS ARS DOD PHS	ARS ^b DOD ^b	APHIS USFS	USFS NPS ^b BLM ^b	USFS ^d NPS ^d BLM ^d	APHIS ^d USFS ^d ARS ^d NPS ^d DOD ^d PHS
Fish	FWS Customs USCG	FWS	FWS	FWS BOR	NPS BLM	USFS FWS NPS BLM DOD	ARS ^b CSRS ^b FWS ^b NOAA ^b
Invertebrates (non-insect)	APHIS ARS FWS DOD PHS Customs USCG	APHIS FWS	FWS	APHIS	FWS	USFS ARS ^b CSRS ^b FWS ^b NOAA ^b USCG	ARS ^b CSRS ^b DOD ^b
Microbes	APHIS FAS ARS FWS NOAA DOD EPA PHS Customs USCG	APHIS ARS ^b DOD ^b	EPA	APHIS USFS FWS	USFS NPS	USFS ^d NPS ^d	APHIS ^d USFS ^d ARS ^d CSRS ^d FWS ^d NPS ^d NOAA ^d USCG

^a For acronyms of Federal agencies see box 6-A.^b Pests move unintentionally with equipment or due to construction.^c Plants for agriculture, horticulture, or soil conservation.^d Biological control agents.^e Aquaculture.

SOURCE: Office of Technology Assessment, 1993.

§ 22:9 U.S. legal authority—General environmental policy acts—Federal agency legal powers

The 21 government agencies identified by the OTA fall under the cabinet-level direction of 10 different government departments.¹ The most important of these agencies for dealing with NIS, including the Animal and Plant Health Inspection Service (APHIS), the Agricultural Research Service (ARS), the U.S. Forest Service (USFS), the Fish and Wildlife Service (FWS), and the National Park Service (NPS), all fall within the authority of two departments—the U.S. Department of Agriculture (USDA) and the U.S. Department of the Interior (DOI).

Federal government agencies get their power from a number of sources. One source of authority is the original or so-called “organic” acts that generally create a government department or agency and provide it with particular responsibilities and authority. Another common source of authority is a statute, such as the Lacey Act or Plant Pest Act or the other statutes described in previous sections, that direct the agency, or executive generally, to act in some way—whether to achieve a goal, or respond to a problem, or develop procedures, or whatever.² A third source of authority derives from appropriations acts, which can explicitly or implicitly (by appropriating funds for specific purposes) provide government agencies with additional substantive authority.³

For example, and of most relevance to control of harmful NIS, the USDA finds its general authority in legislation known as The Organic Act of 1944.⁴ The general provisions are often expanded and modified by later legislation, including the various substantive acts such as the new Plant Protection Act. Thus, over time, general concepts recognized in organic and other general pieces of legislation can be expanded to include ideas such as whether a plant pest is native or non-indigenous. As early as 1957 Congress recognized that some plant pests are alien or “imported.”⁵

Congress creates some agencies, while others are created by the cabinet level officers under the general authority of the department as a whole. When Congress creates a new agency, then that agency is likely to have its own organic (originating) statute. For example, the NPS, while part of the DOI, has its own National Park Service Organic Act, first passed in 1916.⁶ The organic statutes for particular agencies might provide indirect authority for dealing with harmful NIS. For example, the National Park Service Organic Act directs the NPS to:

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¹The cabinet level departments that deal in some way with NIS issues include the U.S. Department of Agriculture, the U.S. Department of the Interior, the U.S. Department of Commerce, the U.S. Department of Defense, the U.S. Environmental Protection Agency, the U.S. Department of Health and Human Services, the U.S. Treasury, the U.S. Department of Transportation, and the U.S. Department of Justice.

²In addition to the statutes described in the prior section—those with substantial and direct links to policy regarding harmful NIS—there are a large number of more or less obscure statutes that provide some authority that might be said to expand an agency’s powers to deal with some aspect of the NIS problem. One example might be the Cooperative Forestry Assistance Act of 1978, which makes the Forest Service responsible for identifying and controlling forest pests. *See* 16 U.S.C.A. §§ 2101 to 2114, and 16 U.S.C.A. § 1606.

³The federal budgetary process is extremely complex. There are actually two required bills before any actual expenditure of funds, first a bill that “authorizes” expenditures, which may be part of a substantive act, and then a later bill that actually appropriates funds.

⁴7 U.S.C.A. §§ 147a et seq.; 7 U.S.C.A. §§ 428a et seq.

⁵1957 Amendments. Subsection (a), Pub. L. No. 85-36 added “insect pests, plant diseases, and nematodes, such as imported fire ant, soybean cyst nematode, witchweed, spotted alfalfa aphid” following “or to prevent or retard the spread of.”

⁶16 U.S.C.A. §§ 1 to 4, 22, 43.

promote and regulate the use of the Federal areas known as national parks, monuments, and reservations. . . to conserve the scenery and the natural and historic objects and the wild life [sic] therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.⁷

When agencies are created within the executive branch, Congress will both appropriate funds directed towards particular offices, and otherwise grant specific additional authority to those particular agencies. For example, there is no general authorizing act for APHIS,⁸ which is the most important federal agency for preventing harmful NIS introductions, but Congress has granted APHIS authority to contract for services to be performed outside the United States.⁹

Government authority to respond to harmful NIS arises from at least one additional source, which is international law that is reflected in treaties signed by the United States. Perhaps the best example of such legal authority is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),¹⁰ which provides additional authority for border inspections and creates an independent basis (indeed, an independent obligation), even in the absence of listing a species under one of the “blacklist” acts, for exclusion. The OTA report lists seven treaties with direct effects on harmful NIS and seven treaties with indirect effects on harmful NIS, including CITES.¹¹

Apparent government authority to deal with harmful NIS appears in two additional settings: regulations and rules issued by relevant government agencies, and the activities of interagency “working groups” or councils. On the one hand, the rules and regulations of government agencies can provide the most specific illustrations of government response to harmful NIS. For example, regulations issued by the National Oceanic and Atmosphere Administration (NOAA), which has a policy role regarding various coastal resources, forbid “any person” from “introducing or releasing an exotic species of plant, invertebrate, fish, amphibian, or mammals” into the Florida Keys National Marine Sanctuary.¹² But regulations can also encourage the introduction of NIS, and even harmful NIS. For example, USDA regulations for a conservation reserve program allows “practices specific in the conservation plan that meet all standards needed to cost-effectively establish permanent vegetative or water cover, including introduced or native species of grasses and legumes, forest

⁷16 U.S.C.A. §§ 1 to 4, 22, 43.

⁸General authority for APHIS is specified in a regulation in which the Secretary of Agriculture delegates relevant authority from various plant protection and pest control statutes. *See* 7 C.F.R. § 371.3.

⁹7 U.S.C.A. § 2277 provides:

Funds available to the Animal and Plant Health Inspection Service (APHIS) under this and subsequent appropriations shall be available for contracting with individuals for services to be performed outside of the United States, as determined by APHIS to be necessary or appropriate for carrying out programs and activities abroad. . . .

This provision was enacted in 1991. *See* Pub. L. No. 102-142, tit. VII, S. 737, 105 Stat. 915 (1991). The provision echoed similar authority first granted in a 1990 appropriation act. *See* Pub. L. No. 101-506, tit. VI, S. 641, 104 Stat. 1350 (1990).

¹⁰27 U.S.T. 1987, T.I.A.S. No. 8249, 993 U.N.T.S. 243 (Mar. 1973).

¹¹*See* OTA Report, at 295. International agreements may also be a source of limitation on a country’s power to develop domestic environmental policy. For example, world trade agreements might restrict NIS policies, such as comprehensive import restrictions and review, that were deemed a discriminatory or excessive restraint on free trade. *See* Marc L. Miller, *NIS, WTO, SPS, WIR: Does the WTO Substantially Limit the Ability of Countries to Regulate Harmful Nonindigenous Species?*, 17 *Emory Int’l L.J.* 1059 (2003).

¹²15 C.F.R. § 922.163.

trees, and permanent wildlife habitat. . . .”¹³

Similarly, interagency working groups, which may also be inter-jurisdictional, and which may (or may not) be authorized specifically by statute, such as the Aquatic Nuisance Species Task Force, and the Federal Interagency Committee for Management of Noxious and Exotic Weeds (FICMNEW), are often the groups with the most direct and substantial interest in harmful NIS.

I refer to both the authority implicit in regulations and the authority in working groups as “apparent” because such regulations and groups can exercise only existing sources of legal authority; they cannot create new legal authority. Where substantial possible sources of authority exist, this may be a distinction without a difference. Moreover, to the extent that interagency working groups do not conduct activities that anyone can challenge, the lack of explicit legal authority may have no practical effect. To the extent, however, that one central question is what legal authority exists to deal with harmful NIS, regulations and working groups are not a source of such authority; indeed, they are not even evidence that such authority exists. Often agencies recognizing the general problem of invasive species or particular problems that appear to be within the agency’s jurisdiction will not recognize or will sidestep questions of legal authority.¹⁴

If this combination of substantive statutes, general agency organic acts, various appropriations provisions, and binding international agreements have allowed 21 federal agencies to respond to varying degrees and in varying ways to harmful NIS, again an observer might fairly say: “Sure, this is a legal mess, but the total is, at least, the sum of the parts, and perhaps the parts, all together, make a working machine.” If this were so, the legal mess would be a lawyer’s quibble, and in the United States at least, those concerned about harmful NIS could focus solely on increasing appropriations and encouraging the various agencies to do more and to do what they do better.

A complete answer to that question requires a closer analysis than the scope of this chapter or the available literature can provide. A partial answer, however, is easy to provide. If the question is changed from “what are these myriad agencies doing?” to “what would we want government agencies to do in response to harmful NIS?” then the gaps are revealed. That there may not be adequate federal legal authority to respond to the full range of issues raised by harmful NIS is suggested by a close examination of one other very important, and very odd kind of legal animal: two presidential Executive Orders directly addressed to the problems of harmful NIS.

§ 22:10 U.S. legal authority—Executive orders addressing harmful NIS

A judge, like an executive adviser, may be surprised at the poverty of really useful and unambiguous authority applicable to concrete problems of executive power as they actually present themselves. Just what our forefathers did envision, or would have envisioned had they foreseen modern conditions, must be divined from materials almost as enigmatic as the dreams Joseph was called upon to interpret for Pharaoh.¹

Two Executive Orders, one issued by President Carter in 1977 and the other is-

¹³7 C.F.R. § 1410.23.

¹⁴*See, e.g.*, U.S. EPA, Henry Lee & John Chapman, Non-Indigenous Species—An Emerging Issue for the EPA: Volume 1—Region/ORD Non-Indigenous Species Workshop Reports; Volume 2—A Landscape in Transition: Effects of Invasive Species on Ecosystems, Human Health, and EPA Goals (2001), available at http://www.epa.gov/owow/invasive_species/ (last visited June 8, 2003).

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¹Justice Robert H. Jackson, *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 634 (1952) (concurring).

sued by President Clinton in 1999, directly address the problem of harmful NIS.

Executive Orders are an odd species of law, issued on occasion by the president.² They direct one or more federal agencies to act in a particular policy direction specified by the President. Executive Orders do not themselves create new government powers, and they cannot: legislative power is vested in the legislative branch (the Congress). The President can, however, rely on powers already vested in the executive branch by Congress, and those limited powers constitutionally committed to the president.

Why assess the effect of Executive Orders if they cannot create new legal authority? First, as the mass of possible legal authority in the prior sections suggests, the limits of the current authority remain unclear, and simply asserting greater authority might become a basis for some court (if a government action were properly challenged) to find authority in fact. Second, both Executive Orders on invasive species draw on the full range of available legal authority; in other words, they assert the maximum available authority in support of federal NIS efforts. This assertion of maximum authority highlights the necessity of understanding the greatest possible reach of current laws, at least in the absence of possible new or additional authority that might clarify current law, expand it, or fill gaps. Third, and related to the prior point, often the issue with regard to a problem with harmful NIS is not one of authority but of action, and of budgetary allocations, and in a unitary executive branch Executive Orders are the policy command of the president (at least in theory).

§ 22:11 U.S. legal authority—Executive orders addressing harmful NIS—Executive Order 11987 (1977) (Carter): Dramatic, ignored, defunct

President Carter issued Executive Order 11987 on May 24, 1977.¹ Although Executive Order 11987 has been entirely supplanted by Executive Order 13112, issued by President Clinton in 1999, it is still quite useful to review the fortunes of 11987, as it provides several lessons that might offer Executive Order 13112 a different and better fate.

Executive Order 11987 is an astounding document, as striking and unexpected, though not nearly as profound, as Charles Elton's classic book *The Ecology of Invasions By Plants and Animals*.² Some aspects of harmful NIS were of course part of public policy and debate by 1977, but NIS as a general issue had yet to strike public and political consciousness. For example, according to Devine the first effort to control any invasive plant in the Florida Everglades did not occur until 1969.³

Executive Order 11987 is not only unexpected because of its topic, but also because of its brevity, its clarity, and its more local, political timing. Executive Order 11987 is one page long. Discussions about it began within the White House only weeks after Carter took office in January 1977, and the Order itself was issued as part of the

²Michael Stokes Paulsen, *The Most Dangerous Branch: Executive Power to Say What the Law Is*, 83 Geo. L.J. 217, 220 (1995); Ronald Turner, *Banning the Permanent Replacement of Strikers By Executive Order: The Conflict Between Executive Order 12954 and the NLRA*, 12 J. of Law & Pol. 1, n.29 (Winter 1995) (Executive Orders "were not numbered until 1907 when the State Department organized all executive orders (including old orders on file) and numbered them consecutively; the designation Executive Order 1 went to an order issued by President Abraham Lincoln. Frank Cross, *Executive Orders 12291 and 12498: A Test Case in Presidential Control of Executive Agencies*, 4 J.L. & Pol'y 483, 484 n.5 (1988).").

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¹Exec. Order No. 11987, 3 C.F.R. § 116.

²Charles Elton, *The Ecology of Invasions by Animals and Plants* 31-32 (1958).

³Robert Devine, *Alien Invasion: America's Battle with Non-Native Plants and Animals* 166 (1998).

first public policy statement on the environment by the Carter Administration. The heart of the Order provides the following authorities:

- (a) Executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration; and, shall encourage the States, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States.
- (b) Executive agencies, to the extent they have been authorized by statute to restrict the importation of exotic species, shall restrict the introduction of exotic species into any natural ecosystem of the United States.⁴

The short Executive Order included at least one other visionary aspect: it directed executive agencies to prevent the export of native (U.S.) species “for the purpose of introducing such species into ecosystems outside the United States where they do not naturally occur.”⁵ President Carter was not just concerned with U.S. ecosystems; he was concerned with the threat of NIS to the naturalness of all ecosystems.

Where did President Carter get the good idea that NIS were a bad idea? The answer, which emerges from a careful study of the Carter Presidential Papers, is that the interest of a handful of political advisors on the NIS issue, as well as Carter’s own sensitivity to the impact of alien species, having lived in a farming area. This individual interest on the part of advisors and Carter himself was bolstered by the need to find early environmental initiatives that did not have substantial budget implications, since the funding decisions for Carter’s first year in office had largely been set by the previous Congress and administration. The background statement issued with the release of the Executive Order included language that in its directness continues to help focus attention on harmful NIS issues even today, 27 years later. President Carter issued the Executive Order as part of an environmental message. The press covered the message, but largely ignored the exotic species Executive Order.

Executive Order 11987 had several dramatic flaws that proved ultimately fatal to its virtues. The most significant flaw was that the Executive Order included no complete procedure for implementing its policy directive. The order did direct the Secretary of the Interior, in consultation with the Secretary of Agriculture and other agencies, to “develop and implement, by rule or regulation, a system to standardize and simplify the requirements, procedures, and other activities appropriate for implementing” the order. The lack of specificity in this procedural language—in contrast to the strong substantive principles of the order—made this provision more harmful than helpful.

Executive Order 11987 disappeared from policy as dramatically as it first appeared. A September 15, 1977, memorandum written by the Council on Environmental Quality (CEQ) summarized the response of all federal agencies to the various aspects of the May 23, 1977, environmental message. Tucked away in this memorandum were a few lines on the question of the DOI’s response to the directive to “develop legislation to restrict the impact of exotic plants and animals into the U.S.” The memorandum stated that “legislation is being developed with Agriculture,” that agency progress was “adequate,” and in what appears to be the final White House file entry on the subject, the “CEQ Progress Evaluation,” that there were “delays in interagency meetings and in focus on problems.”

Another flaw was that Executive Order 11987 defined “exotic species” to mean plants and animals “not naturally occurring, either presently or historically, in any

⁴See Exec. Order No. 11987, 3 C.F.R. § 116.

⁵Exec. Order No. 11987, 3 C.F.R. § 116.

ecosystem of the United States,” while “native species” were those that did occur “in any ecosystem of the United States.” These are political, not ecological boundaries. Executive Order 11987 simply did not recognize that movement of organisms among states and within states could cause problems similar to the introduction of organisms from abroad.⁶

A third problem with Executive Order 11987 was that it focused only on introductions into “natural ecosystems.” While such a limitation reduced, to some extent, possible conflicts with commercial interests in industries such as agriculture and horticulture, the line between introductions in disturbed or artificial ecosystems on one hand and “natural” systems on the other may not be wise as a matter of science or policy. To the extent harmful NIS occur on disturbed or artificial land, and then move to more natural systems, and to the extent that the economic, ecological, or aesthetic harm is to disturbed or artificial systems, Executive Order 11987 may have created a barrier to proper regulation and policy.

A fourth flaw in Executive Order 11987 was the extent to which it focused only on new NIS introductions—the “release, escape, or establishment”—and seemed to ignore the possibility of reducing harm from the many NIS already established. Executive Order 11987 was issued 15 years before the OTA report, and the White House files and public statements suggest concerns for “hundreds” rather than the many thousands of NIS already in the United States. Still, even the most aggressive rules on new introductions would do little to stop the continuing and expanding harm from prior introductions, or from the inevitable occasional introductions that will occur even in a strict regulatory framework. The absence of a direct policy statement on established NIS is surprising to the extent that the signing statement and supporting executive branch documentation highlighted the harms from established invaders.

A fifth point about Executive Order 11987 is not so much a flaw as a warning sign not to read the currently legal authority too optimistically. While federal statutory legal authority to respond to harmful NIS has expanded somewhat since 1977, much of the legal framework, including the various “blacklist” acts and NEPA, were in place in 1977. The Carter White House files include several memoranda written in response to drafts that were circulated to cabinet and environmental agencies expressing support for the exotic species policy but doubts about whether available legal authority could support even the import and export issues that were the focus of the order.

The recognition among scientists, politicians, lawyers, and the public of the problems posed by harmful NIS has increased enormously since 1977, as suggested by the newspaper citation analysis in this chapter. Sophistication about the pitfalls of various kinds of administrative process is also considerably greater among lawyers now than 20 years ago. It is wrong, I think, to judge Executive Order 11987 as anything other than a truly bold, but ultimately ineffectual, statement of wise policy, unfortunately ahead of its time.

§ 22:12 U.S. legal authority—Executive orders addressing harmful NIS—Executive Order 13112 (1999) (Clinton): Hopeful, bureaucratic

What difference has 20 years made on executive policy? For one thing, Executive

⁶The OTA Report reads these definitions as being “sufficiently vague to allow a species presently in one U.S. ecosystem to be ‘exotic’ in other U.S. ecosystems.” OTA Report, at 167. I find this argument highly implausible, both because the language does not seem very “vague” in referring to “any ecosystem in the United States” and because in the face of ambiguous language a court would be likely to interpret the key terms in light of the “legislative history” (here the “executive history”) which focused, with illustrations, only on introductions from outside the United States.

Order 13112,¹ promulgated by President Clinton on February 3, 1999, is a longer and more complex document, substantively and procedurally, than Executive Order 11987, which it replaced. Executive Order 13112 states its goal as preventing “the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.”²

In some ways the policy goals are more sweeping than Executive Order 11987. Executive Order 13112 includes control of existing invasive species as one of its primary goals. “Alien species” is defined in ecological, not political terms, as “with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.”³ Furthermore, “introduction” is defined to include “intentional and unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.”

So far, so good. But Executive Order 11987 fell at least in part on its lack of process. How does Executive Order 13112 pursue this goal? Section 2 of the new Executive Order directs

[e]ach federal agency. . . to the extent practicable and permitted by law to use its programs and authority, subject to available funds, to pursue the following objectives:

- (i) to prevent the introduction of invasive species
- (ii) to detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner
- (iii) to monitor invasive species populations accurately and reliably
- (iv) to provide for restoration of native species and habitat conditions in ecosystems that have been invaded
- (v) to conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and
- (vi) to promote public education on invasive species and the means to address them⁴

The policy directive to all federal agencies whose actions may affect NIS is sweeping. Unfortunately, saying “everyone” has responsibility is a little like saying no one has responsibility. If the order stopped here, it would be only a more sophisticated, complete and current version of the Carter effort 22 years earlier.

However, Executive Order 13112 also creates an Invasive Species Council, made up of all cabinet officers with significant responsibility for NIS.⁵ The council was required to issue an Invasive Species Management Plan within 18 months. The council is advised by an Advisory Committee whose responsibility is to “recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives” of the management plan.⁶

Executive Order 13112 uses many of the hottest federal management tricks in the book. The interagency council made up of cabinet officers places responsibility as high as it can go. Involving a wide range of cabinet level officers increases the likelihood of a full airing of views, revelation of conflicts, and perhaps consistency, effi-

[Section 22:12]

¹64 Fed. Reg. 6183 (1999).

²64 Fed. Reg. 6183 (1999).

³64 Fed. Reg. 6183 (1999).

⁴64 Fed. Reg. 6183 (1999).

⁵A possible exception to the list of relevant cabinet level officers is the U.S. Attorney General, who has responsibility for enforcing criminal laws regarding NIS.

⁶64 Fed. Reg. 6184.

ciency, and success of enforcement. Requiring a plan provides a device for action and commentary. Creating an advisory committee increases the chance of expert input and invests a number of people and organizations outside the government in the details of the council's work.

§ 22:13 U.S. legal authority—The National Invasive Species Management Plan (January 18, 2001): Fail to plan, plan to fail

The National Invasive Species Council issued its first draft management plan on July 10, 2000.¹ This first draft management plan was long (63 pages) and completely incoherent. It called for more funding and staff, but did not delineate either the problems or the solutions with any clarity.² It was a model of bureaucracies run amok.

The second draft management plan, issued on October 2, 2000,³ was completely rewritten, and the main body of the text was half the length of the first draft, but with far greater substantive content. That plan, issued shortly before the 2000 presidential election and in the sunset of the Clinton Administration, was formally adopted by the cabinet officers making up the National Invasive Species Council on January 18, 2001, two days before the inauguration of President George W. Bush.⁴ (By the time the plan appeared in print in October 2001, it was the Bush cabinet members on the Council that appeared to a quick reader to be the plan's author.)

The 80-page *National Invasive Species Management Plan*, bearing the formal title *Meeting the Invasive Species Challenge*, is replete with specific goals for the Council and for specific federal agencies, often with target dates attached. It is highly ambitious in detail if modest (indeed unclear) in ultimate aim. The spirit of the plan—hopeful, bureaucratic, non-specific—can be illustrated with just a few goals for the Council itself:

1. By April 2001, the Council will establish a transparent oversight mechanism for use by Federal agencies in complying with the Order and reporting on implementation. The oversight mechanism will employ an interactive process that engages public involvement. . . .
2. By January 2002, the Council will conduct an evaluation of current legal authorities relevant to invasive species. The evaluation will include an analysis of whether and how existing authorities may be better utilized. If warranted, recommendations will be made for changes in legal authority.
3. Starting in October 2001, each member Department of the Council shall submit an annual written report summarizing their invasive species activities, including a description of their actions to comply with the Order, budget estimates, and steps in implementing the Plan. These reports will be used in preparing

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¹National Invasive Species Council, United States Invasive Species Draft Management Plan: Preparing for the Future (2000), available at <http://www.invasivespecies.gov/council/draft711.pdf> (last visited June 10, 2003).

²See, e.g., National Invasive Species Council, United States Invasive Species Draft Management Plan: Preparing for the Future 17 (2000).

It will likely take several years to develop specific programs to phase in [a more effective approach]. Substantial additional funding and staff will also be necessary. These costs must be considered in the context of the additional costs required to implement the fully existing laws and the substantial costs of future invasions that will be avoided through implementation of a more effective approach.

³National Invasive Species Council, Meeting the Invasive Species Challenge (Draft Management Plan) (Oct. 2, 2000), available at <http://www.invasivespecies.gov/council/draft1002.pdf> (last visited June 10, 2003).

⁴National Invasive Species Council, Meeting the Invasive Species Challenge (2001), available at <http://www.invasivespecies.gov/council/mpfinal.pdf> (last visited June 10, 2003).

the invasive species cross-cut budget and will help the Council in drafting the biannual updates to the year Management Plan.

4. By January 2002, the Council will prepare an analysis of barriers to coordinated and joint actions among Federal agencies, including legal and policy barriers and barriers relating to the transfer and pooling of funds for invasive species projects. The analysis will include consideration of a standard Memorandum of Understanding that would allow interagency transfer of funding for invasive species actions identified in the Plan.
5. By July 2002, the Council will identify at least two major invasive species issues, regulations, or policies where coordination is inadequate and will take action that fixes the problem.
6. Beginning with Fiscal Year (FY) 2003, and each year thereafter, the Council will coordinate and provide to the Office of Management and Budget (OMB) a proposed cross-cut budget for Federal agency expenditures concerning invasive species, and in particular will address implementation of the actions recommended in this and future editions of the Plan. The cross-cut budget will take into account views of the Advisory Committee, States, and the full range of stakeholders. In addition, it will be used as a tool for planning and coordination, giving emphasis to funding priorities to implement action items.
7. By January 2003, and every 2 years thereafter, the Council will give a report on success in achieving the goals and objectives of the current Plan, and issue an updated Plan. These updates and reports will be prepared in consultation with the Advisory Committee and through mechanisms securing comment from stakeholders and the general public. . . .⁵

Despite their generality, most and perhaps all of these goals have not been met. It would have been optimistic to think that even a majority of these goals could be met if the plan had appeared at the start or in the middle of a new administration. But the shift to an administration where the Council included Secretary of the Interior Gail Norton as a co-chair and Secretary of Defense Donald Rumsfeld and Secretary of State Colin Powell, among other cabinet officers, as members, made any progress on this plan unlikely.

Two general problems with the Invasive Species Management Plan stand out beyond its hyperactive, overstructured, action-item nature. The first is the extent to which the plan continues to define the invasive species problem largely in terms of current federal agency jurisdiction and authority, rather than as a cross-cutting issue for the federal government (and of immense relevance to states, localities, and private actors). Second, the draft does not include or require any measures of current collective harm and therefore offers no basis other than expenditure of energy and money for determining whether the policies proposed are effective or as efficient as possible. In the words of the old school-room saying, “fail to plan, plan to fail.”

The U.S. General Accounting Office (GAO) issued a report in October 2002 that concurs with these concerns.⁶

While the National Invasive Species Council’s 2001 management plan, *Meeting the Invasive Species Challenge*, calls for actions that are likely to help control invasive species, it lacks a clear long-term outcome and quantifiable performance criteria against which to evaluate the overall success of the plan. . . . [T]he only available performance measure that can be used to assess overall progress is the percentage of planned actions

⁵National Invasive Species Council, *Meeting the Invasive Species Challenge* 27-28 (2001).

⁶U.S. GAO, Report to Executive Agency Officials, *Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem* (2002), available at <http://www.gao.gov/new.items/d031.pdf>. I write that the GAO report “concurs” with the views in this chapter since GAO staff both discussed these issues with me in several telephone conversations and read an earlier substantial draft of this chapter.

that have been completed by the due dates set in the plan. By this measure, implementation has been slow. Specifically, the council departments have completed less than 20[%] of the planned actions that were called for by September 2000. . . . [W]hile the national management plan calls for many actions that would likely contribute to preventing and controlling invasive species, even if the actions in the plan were more fully implemented their effect would be uncertain because they typically do not call for quantifiable improvements in invasive species management or control.

The national management plan does not clearly define a long-term outcome or measures of success as are called for by sound management principles. The executive order states that the management plan shall “detail and recommend performance-oriented goals and objectives and specific measures of success for federal agency efforts concerning invasive species.” Consistent with that requirement, the council and its advisory committee adopted as one of their guiding principles that efforts to manage invasive species are most effective when they have goals and objectives that are clearly defined and prioritized. . . .

However, the council did not articulate in the plan a long-term outcome or condition toward which the federal government should strive. For example, the plan does not contain overall performance-oriented goals and objectives, such as reducing the introduction of new species by a certain percentage or halting the spread of established species on public lands. Instead, the plan contains an extensive list of actions that, while likely to contribute to preventing and controlling invasive species, are not clearly part of a comprehensive strategy.⁷

In earlier reports to Congress and Executive branch officials in August 2000 and July 2001, the GAO had reported about the delay in developing federal policy under Executive Order 13122 and about the need for better rapid response capabilities, authority and funding across federal agencies.⁸

But in fairness to the drafters, even if the plan had been much better written, with measures of success and more clearly prioritized goals, the likelihood of great progress would be relatively slight given the horrible political timing, the environmental sympathies of the Bush Administration, and the terrible cloud of September 11, 2001, and the several wars that have followed. It is more than a little difficult to imagine Donald Rumsfeld asking for the invasive species report following the update on the invasion of Baghdad.

Much of the success of any federal U.S. invasive species policy, but especially a policy emerging from within the executive branch, will turn on the attitudes of executive branch officials and funding and other direction and encouragement from Congress. At the present time, it is only the increasing, widespread recognition of the threat from invasive species that prevents a prediction that the National Invasive Species Council and Management Plan will follow the path of Carter’s 1977 Executive Order into oblivion.

One intriguing congressional twist to federal policy appeared in 2003 in the form of bills introduced in both the U.S. House of Representatives and the Senate that

⁷U.S. GAO, Report to Executive Agency Officials, *Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem* 28 (2002).

⁸The GAO has responded to a series of requests from legislators on invasive species issues. In August 2000, the GAO described current federal and state funding for dealing with invasive species, and noted that a year and a half after President Clinton signed Executive Order No. 13112 “[t]he Invasive Species Council has been slow in getting off the ground,” and had yet to name people to two of four permanent staff positions. U.S. GAO, Report to Congressional Committees, *Invasive Species: Federal and Selected State Funding to Address Harmful, Non-Native Species* (2000) (GAO/RCED-00-219), available at <http://www.gao.gov/new.items/rc00219.pdf> (last visited June 10, 2003). In July 2001, the GAO focused on the need for a more coherent national rapid response strategy. U.S. GAO, Report to Congressional Requesters, *Invasive Species: Obstacles Hinder Federal Rapid Response to Growing Threat* (2001) (GAO-01-724), available at <http://www.gao.gov/new.items/d01724.pdf> (last visited June 10, 2003).

would codify and in some important ways modify Clinton's Executive Order 13112.⁹ Rep. Vernon Ehlers (R-Mich.) introduced H. 266, the House version of the bill, on January 8, 2003. He explained the bill:

[The] authority [of the National Invasive Species Council] to coordinate the actions of Federal agencies has been limited. The General Accounting Office (GAO) recently recognized this problem. . . . GAO recommended that the Council study whether or not a lack of legislative authority has hampered its mission. . . .

[H.R. 266 gives] the Council a clear statutory mandate. . . . It also makes the Council an independent entity within the Executive Branch. . . .

[T]he Council must submit an annual list of the top priorities in several different areas related to addressing the threat posed by invasive species. . . . The legislation also calls on the Office of Management and Budget to develop a crosscut budget of all invasive species efforts in the Federal government. This is a necessary tool for the Council to coordinate efforts among the various Federal agencies.¹⁰

Perhaps codifying the responsibilities of Executive Order No. 13112 would increase the change of substantial policy action; certainly it would reduce or eliminate ambiguities with regard to whether existing legal authority supported all of the actions specified in the Executive Order. In addition, in codifying the order Congress would put itself on notice to expect annual requests for funding to support NIS policies. If Congress is serious about invasive species, however, it will set clearer standards and measures, place clearer responsibility on the president and specific cabinet agencies, require far more specific reports, and commit more substantial funds to the area.

Specific agencies have made some visible progress as well on NIS issues, though typically what is evident from *Federal Register* notices and information on department web sites are developments on single topics or in response to identified species. At each agency, progress has been a fraction of the systematic and detailed agency-specific requirements listed in the management plan. For example, APHIS has been moving towards implementing a solid wood packing material regulations.¹¹ Solid wood packing material has been the subject of public concern based largely on invasions of the Asian longhorned beetle in New York City; solid wood packing material has also been the subject of guidelines issues by the International Plant Protection Convention (IPPC),¹² a multilateral convention to which the United States is a signatory. Similarly, following public concern and the directives of the National Invasive Policy Act of 1996, the Coast Guard has continued its efforts to pursue effective regulations and voluntary compliance with ballast water treatment and releases.¹³ There is little evidence that federal agencies are living up to § 2 of Executive Order No. 13112 or the demands of the Management Plan.

⁹S. 535; H.R. 266, 108th Cong. (2003). The bills, creatively titled the "National Invasive Species Council Act," have been referred to committees and have only a few sponsors.

¹⁰H.R. 266, 149 Cong. Rec. E42 (daily ed. Jan. 8, 2003).

¹¹U.S. Department of Agriculture, APHIS, 68 Fed. Reg. 27480 (May 20, 2003) (proposed rule). Issues registering on the federal agenda often generate prior or contemporaneous action in the most severely effected states. States enacting ballast water legislations since 1999 include Alaska (1999), California (1999), Illinois (1999), Maryland (2002), Michigan (1999), Oregon (2001), Washington (2002), and Wisconsin (2001). See Eric Reeves, Analysis of Laws and Policies Concerning Exotic Invasions of the Great Lakes 1 (1999), available, along with other documents related to NIS issues in the Great Lakes, at http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314---,00.html (last visited July 8, 2003).

¹²United Nations Food and Agriculture Organization (FAO), International Plant Protection Convention New Revised Text Art. II (1997) (approved by FAO Conference at its 29th Session in Rome).

¹³See, e.g., United States Department of Transportation, Coast Guard, Implementation of the National Invasive Species Act of 1996, 64 Fed. Reg. 26672 (May 17, 1999) (interim rule).

§ 22:14 State legal authority regarding harmful NIS

For many states, the range of actual and possible legal authority with regard to harmful NIS presents a picture as complicated as the federal situation. Indeed, inherent in any assessment of state legal authority is the additional dimension of limitations (if any) posed by federal law, and the very interesting and complicated questions raised by multi-state, regional, and state and federal compacts, working groups, and parallel or joint state and federal policy implementation.

To make matters even more complicated, some federal laws specifically provide authority to assist and work with particular states. For example, the Hawaii Tropical Forest Recovery Act of 1992¹ included provisions designed to help Hawaii both protect native species and control non-native species. Other federal laws, including the Lacey Act, provide for federal enforcement of policy decisions made under state law. Still other federal laws have provisions encouraging (but not necessarily mandating) various state policies with respect to NIS. In this overview, I seek only to present the framework for understanding state NIS law generally, and to highlight some of the substantial variations among states in their legal response to harmful NIS.

States retain general power to do whatever they want with state lands. One obvious limitation on this applies to federal lands within state boundaries, a situation especially relevant to states in the West. Another obvious limitation on state lands policies applies to private lands, where an independent set of constitutional and statutory limitations together make up recognized private property rights. Still, as both a theoretical and a practical matter, U.S. states have an enormous range of power to prohibit, ignore, or even encourage harmful NIS within their borders.

In fact, state legal authority addressing harmful NIS varies enormously. Several states have substantial legal structures in place; others have substantial but incomplete legal and administrative structures, while still others seem hardly to have noticed the issue of harmful NIS at all. The OTA report summarized the law in all 50 states as of the early 1990s.²

- States prohibit importation and/or release of a median of only eight potentially harmful fish and wildlife species or groups. In a survey of state fish and wildlife agency officials, about one-third responded that their lists are too short.
- About one-quarter of the states lack legal authority over importation and/or release of one or more of the five major vertebrate groups (mammals, birds, fish, reptiles, and amphibians). Also, about 40 percent of state agencies would like to receive additional regulatory authority from their state legislatures.
- Among those states that do not have decision-making standards for approval of importation and/or release of non-indigenous fish and wildlife, none legally requires adherence to a scientific protocol when considering a proposal. A few states mandate scientific studies for certain proposals. About one-half the states require a general determination of potential impacts, defined broadly enough to include all ecological impacts. The rest lack vigorous decision-making standards.
- Most state agencies rate their own implementation and enforcement resources (staff, funding, or others) as “less” or “much less” than adequate; on average, they would like increases of resources of about 50 percent to meet their responsibilities.
- Several states present exemplary approaches to managing non-indigenous fish and wildlife. On the other hand, many states are under-regulating in several important respects. Overall, states are not adequately addressing non-indigenous fish and

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¹Pub. L. 102-574, 106 Stat. 4593, codified at 16 U.S.C.A. §§ 4502 to 4503.

²OTA Report, at 201-31. The report lists key state statutes and regulations state by state, though unfortunately not in citation forms that are easy to use. *Id.* at 222-23.

wildlife concerns.³

Which states have “exemplary” approaches to managing NIS? A few states employ a “clean list” approach to new NIS introductions. The OTA Report identifies Hawaii as the only state with a complete presumption against importation or release, and several other states—Florida, Georgia, Idaho, Kentucky, and Vermont—as states with partial “clean list” approaches. Most states have a “dirty” or “black” list approach, following the federal lead. The OTA provides a surprisingly long list of states that, it says, have no prohibitions whatsoever on importation or release, including Arizona, California, Massachusetts, and New Mexico; states with few restrictions include Nevada, New Jersey, Texas, and Virginia, though it is likely that most or all of these states have modified their policies on invasive species since the early 1990s, when the OTA did its research.

The accounting of state laws is incomplete without a full examination of what state agencies actually do, and what kind of funds they have with which to do it. The best illustration of state legislation appears in the 2002 volume from the Environmental Law Institute titled *Halting the Invasion: State Tools for Invasive Species Management*.⁴

States have been changing their laws relating to NIS over the past decade, as awareness of NIS issues has increased, and in light of the emergence of state-level plant pest councils and federal and state policy groups such as the Aquatic Nuisance Species Task Force and FICMNEW.⁵ For example, Minnesota was listed in the OTA Report as a state whose basic legal approach to NIS was a “blacklist” approach, and which listed more than five identified species or groups, *i.e.*, it was among the states that appeared on this measure to be more aware of harmful NIS.⁶ But in 1996, Minnesota passed a statute making it one of the states most aggressive in excluding harmful NIS. The new Minnesota laws create a strong white list approach. The Commissioner of Agriculture is directed to classify all exotic species as prohibited, unlisted, or unregulated.⁷ Listing is to be based on the following criteria:

Subd. 2. Criteria. The commissioner shall consider the following criteria in classifying an exotic species under this chapter:

- (1) the likelihood of introduction of the species if it is allowed to enter or exist in the state
- (2) the likelihood that the species would naturalize in the state were it introduced
- (3) the magnitude of potential adverse impacts of the species on native species and on outdoor recreation, commercial fishing, and other uses of natural resources in the state
- (4) the ability to eradicate or control the spread of the species once it is introduced in the state; and

³OTA Report, at 208-09.

⁴Environmental Law Institute, *Halting the Invasion: State Tools for Invasive Species Management* (2002). The most current and complete list of state invasive species laws can be found at the Northeast Midwest Institute. See Northeast Midwest Institute, *Invasive Species State Laws*, at <http://www.nemw.org/ANSstatelaws.htm>.

⁵See, *e.g.*, National Conference of State Legislatures, Environment, Energy and Transportation Program, *Invasive Species Internet Report* (2001), at <http://www.ncsl.org/programs/ESNR/invaspecies.htm> (last visited June 10, 2003).

⁶Focusing on whether a state has a “black list” or “white list” or no list to introductions looks at only one of several relevant dimensions in dealing with harmful NIS. Perhaps the assumption is that if a state does not try to keep out harmful NIS, it is unlikely to be a leader in responding to NIS already in place.

⁷Minn. Stat. Ann. § 84D.04.

(5) other criteria the commissioner deems appropriate⁸

Unlisted exotic species may not be introduced until the Commissioner of Agriculture has determined that the species is appropriate.⁹ Regulated exotic species can only be introduced after obtaining a permit from the commissioner.¹⁰ A person that allows introduction of an exotic species must notify the commissioner within 48 hours of learning of the introduction, and make every reasonable attempt to recapture or destroy it.¹¹ The person who allows release is liable for costs incurred by the state in capture or control of the animal “and its progeny.”¹² A person who allows introduction and does not provide notice or make an attempt to recapture is subject to minor criminal sanctions.¹³

The new Minnesota law concerning NIS looks to be as strong as any state. These provisions focus on introductions, and therefore do not describe a complete law regarding harmful NIS. The success of these provisions will depend on the administrative decisions made under the law, the willingness of citizens to follow the law, and the funding and support provided by the state legislature for the NIS review process.

Another dimension of state legal authority with respect to harmful NIS is that states will often have multiple agencies, offices, committees, and councils with authority over various aspects of the NIS problem. Because of the severity of NIS issues in Hawaii, for example, there is somewhat more literature on law and policy in the state, typified by an excellent 1992 report by the Nature Conservancy of Hawaii and the NRDC. This chapter includes a chart, reprinted here as Table 21.4, that illustrates the number of state agencies involved with harmful NIS in Hawaii. The chart also suggests the extent to which these state agencies interact or at least overlap with the many federal agencies involved in NIS issues.

Hawaiian law regarding harmful NIS law is among the strongest in the United States, no doubt due to the enormous impact NIS have had in Hawaii, as on many other islands. For example, Hawaiian law includes a general prohibition on the introduction of animals until they are evaluated and placed on a list of conditionally approved, restricted, or prohibited animals by the Hawaii Board of Agriculture.¹⁴

Table 22.4: Hawaii’s Control System

<u>Discovery</u>	<u>Identification and Prescrip- tion</u>	<u>Treatment and Monitoring</u>
INSPECTIONS AND MONI- TORING	AGRICULTURAL PESTS	AGRICULTURAL PESTS
HDOA/PQ	HDOA/PPC	HDOA/PPC
DOH/VCB	HSPA	HSPA
UHCES	BPBM	UHCES
	UHCES	USDA/ADC
	Private Growers	USDA/ARS
		Private Growers

⁸Minn. Stat. Ann. § 84D.04, sub. 2.

⁹Minn. Stat. Ann. § 84D.06.

¹⁰Minn. Stat. Ann. § 84D.07.

¹¹Minn. Stat. Ann. § 84D.08.

¹²Minn. Stat. Ann. § 84D.08.

¹³Minn. Stat. Ann. § 84D.13.

¹⁴Haw. Rev. Stat. Ann. § 150A-6.2 (“Any animal that is not on the lists of conditionally approved, restricted, or prohibited animals shall be prohibited until the board’s review and determination for placement on one of these lists.”). *See also* Haw. Rev. Stat. Ann. tit. 11, ch. 150A.

<u>Discovery</u>	<u>Identification and Prescrip- tion</u>	<u>Treatment and Monitoring</u>
AREA SURVEYS	NATURAL AREA PESTS	NATURAL AREA PESTS
HDOA/PPC	DLNR/DAR	HDPA/PQ
DLNR/DOFAW	USFWS	HDOA/PPC
USFWS	NPS	DLNR/DOFAW
NPS	USFS	DLNR/DAR
BPBM	BPBM	USDA/ADC
TNCH	TNCH	USFWS
HSPA	FCC	NPS
	Private Land Owners	TNCH
		FCC
		Private Land Managers
INCIDENTAL DETECTIONS	HUMAN HEALTH PESTS	HUMAN HEALTH PESTS
HDOA/PC	DOH	DOH
HDOA/PPC		
DLNR/DOFAW		
DLNR/DAR		
UHCES		
USFWS		
NPS		
TNCH		
BPBM		
HSPA		
Private Growers		
Private Biologists		
Private Land Owners		
Untrained Public		

In addition to a strong policy and administrative structure supporting exclusion of NIS, Hawaiian law is striking for its aggressive recognition of the need to survey its lands for areas that are relatively pristine, as well as for those that have been harmed by NIS, and then to follow up by protecting the pristine lands and responding to invasions. The additional dimensions of a complete NIS law, including the identification of invasions and the mechanisms for responding to new invasions, as well as those already in place in Hawaii, seem to be absent from the law of many other states. The spirit, and perhaps the actual text of Hawaii Revised Statutes § 152-6 (with NIS substituted for “noxious weed”), might serve as a model for other states and the federal system:

§ 152-6 Duties of the department; noxious weed control and eradication.

- (a) The department shall maintain a constant vigilance for incipient infestations of specific noxious weeds on islands declared reasonably free from those weeds, and shall use those procedures and methods to control or eradicate the infestations of noxious weeds as are determined to be feasible and practicable
- (b) When the department determines that an infestation of a certain noxious weed exists on an island declared reasonably free from the weed, the department shall immediately conduct investigations and surveys as are necessary to determine the feasibility and practicability of controlling or eradicating the infestation. The department may also conduct investigations and surveys to determine the feasibility and practicability of controlling widespread noxious weed infestations. The methods of control or eradication adopted by the department for any noxious

- weed infestation shall cause as little damage to crops and property as possible
- (c) Upon determining that control or eradication of an infestation is practicable and feasible, the department shall immediately serve notice, either oral or written, on both the landowner of the property and the occupant of the property on which the infestations exist. . . . The notice shall set forth all pertinent information with respect to the infestation and notify the landowner and the land occupant of the procedure and methods of control or eradication
 - (d) Upon the department's notification pursuant to subsection (c) above, the department may enter into a cooperative agreement with the landowner and land occupier for the control or eradication of the noxious weed infestation
 - (e) Upon the department's notification pursuant to subsection (c) above, the department may entirely undertake the eradication or control project when it has been determined that the owner, occupier, or lessee of the land on which the noxious weed infestation is located will not benefit materially or financially by the control or eradication of the noxious weed; or when the noxious weed infestation is on state-owned land not leased or under control of private interest.¹⁵

Islands are special engines of endemism; they also tend to be especially vulnerable to invasion. It is not surprising, therefore, that Hawaii's laws regarding alien species are more developed than in most states, and that there is a steady stream of proposed legislation in the Hawaiian legislature responding, typically, to particular invasions.¹⁶ Indeed, the Hawaiian legislature has enacted more than 20 new laws dealing with invasive species since 2001.

A complete analysis of state NIS laws is beyond the scope of this chapter. A complete analysis would require a state-by-state assessment not only of current laws, but also of current policies and budget allocations. This short survey, the available literature, and a sampling of state statutory and regulatory provisions provides sufficient information to conclude that states vary considerably in their response to invasive species, with most trailing behind the federal government in terms of their legal awareness of harmful NIS issues. This short review confirms that, the intriguing provisions in Hawaii and Minnesota notwithstanding, a complete legal response does not exist in even the most progressive states.¹⁷

¹⁵Haw. Rev. Stat. Ann. § 152-6.

¹⁶*See, e.g.*, Haw. H.B. No. 1949, House Draft 2 (Mar. 3, 2000) (Rep. Brian Schatz, D-25th Dist.) (a bill addressing alien aquatic organisms); Haw. H.B. No. 2973, House Draft 2 (Haw. 2000) (Rep. Joseph Souki, D-8th Dist.) (a bill making appropriations for alien miconia eradication).

¹⁷Perhaps a complete legal response to harmful NIS could be cobbled together from the most thoughtful provisions from among the states and federal system, but this exercise does not seem more useful or promising than addressing directly the most common gaps in federal and state law.

Table 22.5: State Invasive Species Laws¹⁸

	General Non-Specific NIS Laws	Agriculture Farming, Nurseries, Ranching, Commerce	Forestry	Fisheries	Other Industries	Sporting and Pet	Environmental Protection	Total Laws Listed
Alabama	X	X						2
Alaska		X		X	X		X	2
Arizona		X						1
Arkansas		X						2
California	X	X		X	X	X	X	24
Colorado		X						2
Connecticut								0
Delaware		X						5
Florida	X	X		X	X		X	3
Georgia		X						1
Hawaii	X	X		X	X	X	X	9
Idaho	X	X						5
Illinois		X		X	X		X	7
Indiana		X			X		X	2
Iowa		X						4
Kansas		X						19
Kentucky		X						1
Louisiana		X						1
Maine		X	X	X	X		X	4
Maryland		X			X		X	3
Massachusetts		X					X	3
Michigan	X	X	X		X		X	10
Minnesota		X	X		X		X	7
Mississippi		X						1
Missouri	X	X						3
Montana		X						1

¹⁸Northeast Midwest Institute, Invasive Species State Laws, at <http://www.nemw.org/ANSstatelaws.htm> (as of March 2003).

	General Non-Specific NIS Laws	Agriculture Farming, Nurseries, Ranching, Commerce	Forestry	Fisheries	Other Industries	Sporting and Pet	Environmental Protection	Total Laws Listed
Nebraska	X	X				X		6
Nevada		X				X		6
New Hampshire		X		X	X		X	4
New Jersey		X				X		4
New Mexico	X	X						4
New York		X		X	X		X	5
North Carolina	X	X						4
North Dakota		X						3
North Dakota	X	X						4
Ohio		X						1
Oklahoma		X						6
Oregon	X	X			X		X	1
Pennsylvania		X						2
Rhode Island		X			X		X	3
South Carolina		X						4
South Dakota		X						3
Tennessee		X						2
Texas		X		X	X		X	5
Utah	X	X					X	7
Vermont		X				X	X	4
Virginia		X			X		X	6
Washington	X	X		X				1
West Virginia		X						4
Wisconsin		X			X		X	2
Wyoming		X						

§ 22:15 Gaps in U.S. NIS laws

What *should* the law say about non-indigenous species? What role should government play in regulating NIS? What should the goals of NIS law be? What is the best way to achieve these goals?

This chapter began by asking whether there is any way to resolve the apparent paradox of a legal world with a huge amount of potentially relevant law and very little law that attacks the invasive species issue head-on or comprehensively. One resolution of this apparent paradox was to suggest that it is not a paradox at all when the question is expanded from “what laws exist?” to “what can (or cannot) be done under the laws that exist?” To make a similar point, there is no “much law”/“little law” paradox if the issue of invasive species has yet to be conceived in a unified or coherent fashion, though parts of the issue have been recognized. Indeed, if the issue of harmful invasive species has emerged clearly in U.S. public discourse only in the past decade, the odd incident of the Carter Executive Order in 1977 notwithstanding, then it would be even more surprising—perhaps more of a paradox—for there to be comprehensive legislation yet. Laws are rarely ahead of their time; it is hard enough to draft laws that adequately match the needs of their time.

While the present legal situation regarding harmful invasive species may well be more familiar and common as a matter of the evolution of legal regimes for other issues and areas, that recognition does not obviate the need to consider the continued wisdom of the current framework. In other words, the increasing recognition of a large and coherent problem with harmful invasive species (coherence here does not mean simple, just “connected,” or “understood as a whole”) poses two fair challenges to the many piecemeal laws on the books: first, do the present array of laws address all essential aspects of policy and administration with respect to harmful invasive species, and second, whether or not the current laws address all (or most) essential issues, should the legal regime nonetheless be reworked into a simpler, more coherent, and more unified framework?

This final part identifies some of the important gaps in the collective set of current NIS laws and suggests critical issues that a good NIS law would address. It identifies three major problems with current U.S. NIS law: lack of vision, lack of completeness, and lack of coherence. It concludes with some initial reflections on the virtues of simpler and more coherent laws.

§ 22:16 Gaps in U.S. NIS laws—The vision gap: NIS and natural ecosystems

It is good when legal systems recognize that some NIS are harmful, as most if not all U.S. legal systems now do. But perhaps it is equally important that legal systems recognize that indigenous organisms and complete, functional, natural ecosystems populated by indigenous species have a special place and a special priority in policymaking. The important insight that NIS can cause enormous economic, ecological and aesthetic harms may lead policy-makers to focus on exclusion and control—to deal with the threats and negative consequences. A complete NIS law, though, would include a positive conception of ecological place. Especially for areas that are more natural and more wild, laws should express a general preference for indigenous over non-indigenous species, and treat even familiar non-indigenous species as exceptions to a favored norm.

The issues with respect to less wild and less natural areas, and especially with respect to agricultural land, are quite different. It would be awkward, to say the least, to apply a presumption against alien species to such systems, which are almost entirely defined by introduced species, themselves highly modified through selective

breeding and, now, through direct genetic modification. For agricultural areas, and perhaps in many other artificial or highly disturbed settings (homes, cities, and perhaps urban parks), a different set of presumptions with regards to alien species might apply. In such settings, the primary question might be the risk of alien species in those artificial contexts escaping into more natural or wild areas, or otherwise causing identifiable economic, ecological or aesthetic harms.

Current federal law reveals multiple visions, some antagonistic to harmful NIS, some neutral, and some actually supportive of alien species introductions and protective of even harmful NIS now in place, even in more natural and more wild areas. In the new Executive Order No. 13112 there appears to be a general policy preference for indigenous over non-indigenous species where the order directs federal agencies to “provide for restoration of native species and habitat conditions in ecosystems that have been invaded.” But Executive Order No. 13112 also limits its concerns to harmful NIS, and states no general policy against alien species even in more natural and more wild areas.

There are many different ways to state positive conceptions of the role of indigenous species and natural ecosystems. It would help in the design and implementation of wise NIS law and policies if there were some stated goal. Of course there are enormous philosophical and practical problems in almost any definition based on what is “natural” and what is “wild,” given the pervasive effects of human presence and activities for long periods in much of the United States.¹ Perhaps invasive species laws need a principle of direction as much as one of destination. Perhaps an invasive species law would be a place to include, in a statement of principles, and at least with regards to more natural and more wild areas, Aldo Leopold’s land ethic: “A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”²

To point to a “vision gap” in current NIS laws may seem fairly abstract, and might suggest that the NIS problem—or at least its legal dimensions—is not so important after all. However, in the absence of some general statements of principle and identification of the goals to be achieved, it is hard to state coherent and complete legal or policy provisions, or to implement complex and wide-ranging laws, over time and place.

§ 22:17 Gaps in U.S. NIS laws—The knowledge gap

There may be no environmental issue of similar importance that is as little recognized to be a problem by the general public. This is true even as public awareness, in the form of an increase in news coverage, increases. The news stories are, for the most part, related to specific invasive species; they are not about, and often do not reflect, a more general concern with invasive species as a class of problem.

The reasons for the relatively low standing of NIS issues are many and subtle. First, NIS problems are hard to see: it requires knowledge to differentiate between a native and invasive species, and to differentiate between harmful and benign alien species. When people look at their pets and their houseplants and their

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¹See Gregory Aplet, *On the Nature of Wildness: Exploring What Wilderness Really Protects*, 76 Denv. U. L. Rev. 347 (1999).

²Aldo Leopold, *A Sand County Almanac* 262 (1966). See Eric T. Freyfogle, *The Land Ethic and Pilgrim Leopold*, 61 U. Colo. L. Rev. 217 (1990). See also Bradley Karkkainen, *Biodiversity and Land*, 83 Cornell L. Rev. 1 (1997); J.B. Ruhl, *Biodiversity Conservation and the Ever-Expanding Web of Federal Laws Regulating Nonfederal Lands: Time for Something Completely Different?*, 66 U. Colo. L. Rev. 555 (1995); A. Dan Tarlock, *Local Government Protection of Biodiversity: What Is Its Niche?*, 60 U. Chi. L. Rev. 555 (1993).

gardens, they do not usually think of these organisms as non-indigenous. The problem of NIS, therefore, is a problem in part of psychology (what is “seen”) and in part of culture (what practices are considered proper).¹

But many kinds of pollution other than biological pollution are non-obvious. The harms from other kinds of pollution may be easier, however, to perceive, especially when those harms are directly to human health. In addition, there are more accessible measures for other kinds of pollution, both in technical literature (assessing the risks from different pollutants) and in public and policy discourse (focusing on “smog days” or “superfund sites”).

A complete NIS law would include both authority and process for expanding knowledge about NIS. NIS laws should mandate the development of ready measures for assessing the costs and the benefits of NIS and of the activities (such as trade, travel and horticulture) that may indirectly introduce harmful NIS.

The lack of knowledge extends beyond public awareness to basic science and wise conservation policy. Basic scientific questions that have been answered only in rough and preliminary terms include: How many NIS are there in the United States, and in each of the states? What are the pathways and rates of new introductions?² Which NIS impose the greatest harm, and which NIS pose the greatest risk of harm over time? What are the most effective mechanisms for responding to different NIS? What are the most effective methods for reducing the rate of introductions? What standards should be applied to intentional introductions, including introductions in agricultural settings, of biological controls,³ and of genetically engineered organisms?

Among the most important knowledge gaps address policy issues—applied biological and social science—that might establish a list of priorities with respect to NIS for each available policy dollar, as well as a sound basis for determining a proper total level of resources for NIS issues. It is easy to come up with long lists of invasive species and the various kinds of harm they cause. It is harder to determine a “top 10” list, because that requires an understanding of facts and a choice about values, neither of which exists in most U.S. contexts. It is harder still to determine whether the first priority is to respond to the most costly current invaders, or the most threatening future invaders, or the potential of new introductions, each of which requires a substantial knowledge base, and each of which may require very different administrative processes.

Therefore, a top priority for sound policy development is expanding the knowledge base about these multiple dimensions of the NIS problem, and developing management tools such as measures to assess the priorities across a huge number of needs and demands. Like hurricanes and earthquakes, it would serve sound policy purposes if we knew that a particular NIS (widespread or not yet an invader) was a

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¹See John Heinz Center for Science, Economics and the Environment, State of the Nation’s Ecosystems: Measuring the Lands, Waters and Living Resources of the United States 76, 145, 169-70, 204, 222, 251, 261-62 (2002) (wisely suggesting that the presence of non-native species are one measure of ecological health; asks the misguided question “whether there is a time (e.g., 50 or 100 years) after which an introduced species is considered to be native”).

²See generally National Research Council, Committee on the Scientific Basis for Predicting the Invasive Potential of Non-Indigenous Plants and Plant Pests in the United States, Predicting Invasions of Non-Indigenous Plants and Plant Pests (2002), available at <http://www.nap.edu/books/0309082641/html/> (last visited June 10, 2003).

³With Greg Aplet I have previously expressed hesitation about treating biological controls as anything other than invasive species, even if the cost/benefit and risk calculations come out in their favor many times. See Marc Miller & Gregory Aplet, *Biological Control: A Little Knowledge Is a Dangerous Thing*, 45 Rutgers L. Rev. 285 (1993).

“class 5” (or whatever scale was selected) and therefore deserved a particular priority response. Like many other aspects of environmental oversight, it would help to have regular reports, and a basis for establishing changes in the NIS problem over time.

§ 22:18 Gaps in U.S. NIS laws—The crisis response gap

Current U.S. NIS laws are strongest, in general, at providing government agencies with power to exclude particular identified species, and to conduct various kinds of searches at points and through mechanisms of entry and transport. If a war metaphor is justified with respect to NIS—and the familiar and well-established language of invasions and invasiveness suggests the metaphor may be more useful here than in some contexts—then the law and policy should match the metaphor. Current law focuses on the front lines, but pays too little attention to the enemies that have already arrived, and are spreading within.

Among the gaps in most current U.S. laws are substantive and structural provisions aimed at identifying NIS that have been introduced, and responding to those invasions.¹ Like crime reports and the myriad other reports provided by the government to mark and measure important social and physical facts, the authority, tools, and procedures should exist to produce steady information and reports on the NIS problem. The authority should also exist to respond quickly, especially in circumstances where a quick response to a limited invasion might succeed at total suppression, while a delayed response might leave far more restricted options. In other words, a good law would authorize and fund an alien species strike force.

Information about NIS introductions and invasions is critical for assessing the proper response. While federal and state government agencies have found the authority to respond to particular invasions, only Hawaii appears to have a statute in place that creates an obligation to identify new invasions and respond to them. Explicit statutory authority should support both rapid and long-term strategic responses, depending on the scope of the invasion, the risk of harm from and nature of the invasive species, and the availability of control mechanisms.

Another surprising gap in U.S. NIS law involves intentional NIS introductions. Intentional NIS introductions arise in a wide variety of settings. Some of those settings may have notably higher risks for harm than others. In terms of current gaps, some harmful NIS continue to be sold even after their harmful properties are widely recognized, and even after regulatory efforts to control their spread are already in place. Purple loosestrife (*Lythrum salicaria*) is just one common example of such continued commercial distribution in the face of enormous evidence of harmful impacts.

A legal framework should exist for the regularized assessment of all proposed introductions, including the introduction of biological controls and genetically engineered organisms. Decisions about intentional introductions should be made based on explicit, public standards, and public processes.

§ 22:19 Gaps in U.S. NIS laws—Enlisting the citizenry: The role of public education

Again, the war metaphor may come to the aid of good lawmaking. A culture and

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¹See U.S. GAO, Report to Congressional Requesters, *Invasive Species: Obstacles Hinder Federal Rapid Response to Growing Threat* (2001) (GAO-01-724) (“A major obstacle to rapid response is the lack of a national system to address invasive species. . . . Without such a system, obstacles to rapid response are less likely to be addressed and invasive species will continue to fall through the cracks.”).

community that does not distinguish between indigenous and NIS is one less likely to recognize or care about *harmful* NIS. When institutions and individuals who should know better—such as zoos and botanical gardens and fishing enthusiasts and nurseries—promote NIS, they illustrate the importance of encouraging a much broader understanding of the threats posed by harmful NIS.¹

NIS laws can create extensive regulatory structures for assessing intentional introductions; they can also create formal civil or criminal liability for intentional and unintentional introductions. Such liability may be especially important with respect to the complex issues associated with intentional introductions for agricultural, pest control, horticulture, and sporting interests. But over time, better education about the threat of harmful NIS, including the training of citizens to help to identify invasive species, may do more to lower the rate of introductions than formal regulatory or liability provisions for the individuals whose harmful behavior can be traced. (The point is not that regulatory and liability provisions are inappropriate, but that public awareness and education may be just as important.)

§ 22:20 Gaps in U.S. NIS laws—Coherence in law

What determines whether an aspect or social policy is addressed by one law, ten laws, or no law at all? What is the proper scope of law in any particular area? There are no absolute answers to these questions. Indeed, as a scholarly field, theories of legislation and lawmaking are fairly impoverished. However, when the history of an area and the habits of lawmaking have led to the promulgation of many related laws, it is probably a good time to consider whether there are logical or policy advantages to having fewer and more coherent laws in the area.

It is hard to imagine an area of law or policy more convoluted than the laws regarding harmful NIS, yet with great legal and knowledge gaps on key issues. This divergence framed the paradox noted at the beginning of this chapter. Pressures have already been brought to bear recently on the array of plant pest and noxious weed acts—one important piece of the much larger harmful invasive species puzzle—which led to the enactment of a new Plant Protection Act and the supplanting of one set of prior statutes. But continued divergence across the broader, coherent range of issues that describe the harmful invasive species problem provides a strong argument in favor of adopting a “uniform” or “organic” or “model” act.

The alternative to conceptualizing a uniform NIS statute is to assess particular problems with various combinations of the current laws in force. The difficulty of this exercise is proportional to the number of relevant laws, to their uncertain scope, and to the absence of some clear statement of goals or measures against which to test the current legal provisions. This chapter has identified some of the typical gaps in current U.S. NIS laws. The OTA Report and other publications have pointed to a variety of other gaps in federal and state law. This chapter has also noted the possibility that the limits of current federal legal authority may be more likely to be tested given the promulgation of the new Executive Order No. 13112 that relies on all available legal authority to support its policy directives.

During the past decade, Congress and executive branch agencies have appeared willing to respond to particular NIS issues, most notably in Executive Order No. 13112, and in statutes such as the Plant Pest Act. States, to varying degrees, also seem to be directing increasing political attention to harmful NIS. Both the federal and state governments could continue along this path, adding specific legal author-

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¹Zoos often sell seeds for plants from faraway places in giftshops. At some zoos, signs point out alien plants, and encourage use of plants appropriate to climate (but not necessarily appropriate to the local ecosystem).

ity when needs arise, and encouraging appropriate funding within program, agency, and budget lines that are already established.

One argument in favor of working only with the idea of modifying current legal authorities is that there are many programs in place, and established understandings, under the existing laws. However, a new, organic NIS law would not necessarily need to replace current authorities, but could address general goals and priorities, set presumptions, and fill the kind of large gaps noted in this chapter, including various survey and reporting requirements that would help to increase the political and public awareness of NIS issues.¹ Such a core NIS law, for which there is no model currently in the United States, could dramatically help to increase awareness of NIS issues. A core law could also assist in explaining to Congress and state legislatures the funding priorities and demands for a wise response to harmful NIS.

A core NIS law could link pieces of the harmful NIS puzzle now left separate or un-addressed. It could link issues of intentional and accidental introduction on new NIS, assessment of NIS already released, and various control programs. A core NIS law could also assist in structuring NIS policies around ecological rather than political borders. In the area of intentional introductions, a core NIS law could provide a framework for considering and comparing the benefits and costs of introducing non-indigenous but naturally evolving species, and those that are the product of genetic engineering.

An additional argument in favor of a new core NIS law is the growing evidence that the National Invasive Species Council has failed to demonstrate any substantial capacity to develop, implement, review and report on new policies that can make a difference. Indeed, it does not seem that the Council has a sensible measure of “difference” it is trying to make. A locus of knowledge and policy on NIS is probably a good idea, but the political assumptions, authorities and hopes behind the creation of the Council have not been enough to deliver real progress. Don Schmitz and Daniel Simberloff have suggested the creation of a Center for Biological Invasions, an additional independent agency, modeled after the Centers for Disease Controls, to address the massive knowledge and coordination problems raised by invasive species.²

A new core NIS law would demand the attention of all the political branches, the many interested private industries and individuals, and the public, and would increase the chance that the threat from invasive species will be contained. Every senator and representative with a concern about some particular invasive species should now see that the problem is unlikely to be addressed well, and new problems avoided, without the larger context, structure, and knowledge that better laws and institutions could provide.

§ 22:21 Conclusion

Harmful NIS, and NIS generally, may present the single most important environmental issue overlooked, relative to its importance, in current law and policy. It may seem odd that an area of law that takes 50 pages to sketch and for which there is a “national plan” is an area strongly in need of new and better law. But that seems to be the case.

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¹Keith Pitts & Marc Miller, Interim Report: Policy and Regulation Working Group of the National Invasive Species Council (2000), available at <http://www.invasivespecies.gov/council/PR%20interim%20final2%20703.doc> (last visited June 2003).

²Don Schmitz & Daniel Simberloff, Issues in Science and Technology Online, Needed: A National Center for Biological Invasions (2001), at <http://www.nap.edu/issues/17.4/schmitz.htm> (last visited June 10, 2003).

Even if lawyers might find the building blocks they need in current law to defend current or proposed government actions, no ecologist or policymaker would think a set of laws so fractured and designed for other purposes provides a wise foundation for NIS law and policy. Nor should any lawyer be satisfied with a legal framework that is so difficult to describe, understand, and apply. And no one, legislator, lawyer, scientist, or citizen, should be satisfied with federal government's record thus far in preventing, identifying, or responding to invasive species.

APPENDIX 22A

Presidential Executive Orders on NIS

a. Executive Order 11987 (May 24, 1977) (Jimmy Carter) 42 Fed. Reg. 26969 (E.O. 11987 was replaced by E.O. 13112).

Exotic Organisms

By virtue of the authority vested in me by the Constitution and the statutes of the United States of America, and as President of the United States of America, in furtherance of the purposes and policies of the Lacey Act and the National Environmental Policy Act of 1969, it is hereby ordered as follows:

Section 1. As used in this Order:

- (a) “United States” means all of the several States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the Virgin Islands, Guam, and the Trust Territory of the Pacific Islands
- (b) “Introduction” means the release, escape, or establishment of an exotic species into a natural ecosystem
- (c) “Exotic species” means all species of plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States
- (d) “Native species” means all species of plants and animals naturally occurring, either presently or historically, in any ecosystem of the United States

Section 2.

- (a) Executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration; and, shall encourage the States, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States
- (b) Executive agencies, to the extent they have been authorized by statute to restrict the importation of exotic species, shall restrict the introduction of exotic species into any natural ecosystem of the United States
- (c) Executive agencies shall, to the extent permitted by law, restrict the use of Federal funds, programs, or authorities used to export native species for the purpose of introducing such species into ecosystems outside the United States where they do not naturally occur
- (d) This Order does not apply to the introduction of any exotic species, or the export of any native species, if the Secretary of Agriculture or the Secretary of the Interior finds that such introduction or exportation will not have an adverse effect on natural ecosystems

Section 3. The Secretary of the Interior, in consultation with the Secretary of Agriculture and the heads of other appropriate agencies, shall develop and implement, by rule or regulation, a system to standardize and simplify the requirements, procedures and other activities appropriate for implementing the provisions of this Order. The Secretary of the Interior shall ensure that such rules or regulations are in accord with the performance by other agencies of those functions vested by law, including this Order, in such agencies.

b. Executive Order 13112 (February 3, 1999) (William J. Clinton) 64 Fed. Reg. 6183

Invasive Species

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Environmental Policy Act of 1969, Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, Lacey Act, Federal Plant Pest Act, Federal Noxious Weed Act of 1974, Endangered Species Act of 1973, and other pertinent statutes, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause, it is ordered as follows:

Section 1. Definitions.

- (a) “Alien species” means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem
- (b) “Control” means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions
- (c) “Ecosystem” means the complex of a community of organisms and its environment
- (d) “Federal agency” means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104
- (e) “Introduction” means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity
- (f) “Invasive species” means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health
- (g) “Native species” means, with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem
- (h) “Species” means a group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms
- (i) “Stakeholders” means, but is not limited to, State, tribal, and local government agencies, academic institutions, the scientific community, nongovernmental entities including environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners
- (j) “United States” means the 50 States, the District of Columbia, Puerto Rico, Guam, and all possessions, territories, and the territorial sea of the United States

Sec. 2. Federal Agency Duties.

- (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law
 - (1) identify such actions
 - (2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to
 - (i) prevent the introduction of invasive species
 - (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner
 - (iii) monitor invasive species populations accurately and reliably
 - (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded
 - (v) conduct research on invasive species and develop technologies to

- prevent introduction and provide for environmentally sound control of invasive species; an
- (vi) promote public education on invasive species and the means to address them; an
- (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions
- (b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations

Sec. 3. Invasive Species Council.

- (a) An Invasive Species Council (Council) is hereby established whose members shall include the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Transportation, and the Administrator of the Environmental Protection Agency. The Council shall be co-chaired by the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Commerce. The Council may invite additional Federal agency representatives to be members, including representatives from subcabinet bureaus or offices with significant responsibilities concerning invasive species, and may prescribe special procedures for their participation. The Secretary of the Interior shall, with concurrence of the co-chairs, appoint an Executive Director of the Council and shall provide the staff and administrative support for the Council
- (b) The Secretary of the Interior shall establish an advisory committee under the Federal Advisory Committee Act to provide information and advice for consideration by the Council, and shall, after consultation with other members of the Council, appoint members of the advisory committee representing stakeholders. Among other things, the advisory committee shall recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order. The advisory committee shall act in cooperation with stakeholders and existing organizations addressing invasive species. The Department of the Interior shall provide the administrative and financial support for the advisory committee

Sec. 4. Duties of the Invasive Species Council.

The Invasive Species Council shall provide national leadership regarding invasive species, and shall:

- (a) oversee the implementation of this order and see that the Federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective, relying to the extent feasible and appropriate on existing organizations addressing invasive species, such as the Aquatic Nuisance Species Task Force, the Federal Interagency Committee for the Management of Noxious and Exotic Weeds, and the Committee on Environment and Natural Resources
- (b) encourage planning and action at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Manage-

- ment Plan in section 5 of this order, in cooperation with stakeholders and existing organizations addressing invasive species
- (c) develop recommendations for international cooperation in addressing invasive species
 - (d) develop, in consultation with the Council on Environmental Quality, guidance to Federal agencies pursuant to the National Environmental Policy Act on prevention and control of invasive species, including the procurement, use, and maintenance of native species as they affect invasive species
 - (e) facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health
 - (f) facilitate establishment of a coordinated, up-to-date information-sharing system that utilizes, to the greatest extent practicable, the Internet; this system shall facilitate access to and exchange of information concerning invasive species, including, but not limited to, information on distribution and abundance of invasive species; life histories of such species and invasive characteristics; economic, environmental, and human health impacts; management techniques, and laws and programs for management, research, and public education; and
 - (g) prepare and issue a national Invasive Species Management Plan as set forth in section 5 of this order

Sec. 5. Invasive Species Management Plan.

- (a) Within 18 months after issuance of this order, the Council shall prepare and issue the first edition of a National Invasive Species Management Plan (Management Plan), which shall detail and recommend performance-oriented goals and objectives and specific measures of success for Federal agency efforts concerning invasive species. The Management Plan shall recommend specific objectives and measures for carrying out each of the Federal agency duties established in section 2(a) of this order and shall set forth steps to be taken by the Council to carry out the duties assigned to it under section 4 of this order. The Management Plan shall be developed through a public process and in consultation with Federal agencies and stakeholders
- (b) The first edition of the Management Plan shall include a review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species, including those for identifying pathways by which invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species. If recommended measures are not authorized by current law, the Council shall develop and recommend to the President through its co-chairs legislative proposals for necessary changes in authority
- (c) The Council shall update the Management Plan biennially and shall concurrently evaluate and report on success in achieving the goals and objectives set forth in the Management Plan. The Management Plan shall identify the personnel, other resources, and additional levels of coordination needed to achieve the Management Plan's identified goals and objectives, and the Council shall provide each edition of the Management Plan and each report on it to the Office of Management and Budget. Within 18 months after measures have been recommended by the Council in any edition of the

Management Plan, each Federal agency whose action is required to implement such measures shall either take the action recommended or shall provide the Council with an explanation of why the Action is not feasible. The Council shall assess the effectiveness of this order no less than once each 5 years after the order is issued and shall report to the Office of Management and Budget on whether the order should be revised

Sec. 6. Judicial Review and Administration.

- (a) This order is intended only to improve the internal management of the executive branch and is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any other person
- (b) Executive Order 11987 of May 24, 1977, is hereby revoked
- (c) The requirements of this order do not affect the obligations of Federal agencies under 16 U.S.C. 4713 with respect to ballast water programs
- (d) The requirements of section 2(a)(3) of this order shall not apply to any action of the Department of State or Department of Defense if the Secretary of State or the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy or national security reasons

Chapter 23

Coastal and Ocean Protection*

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I. OVERVIEW AND BACKGROUND

§ 23:1 Executive Summary

Coastal and ocean degradation caused by pollution, industrial and commercial development, and ocean dumping became major environmental issues in the 1960s and early 1970s. Public awareness of ocean problems was heightened by oil spills, “dead seas” created by the dumping of dredge spoil and sewage sludge, and numerous scientific reports detailing the environmental decline of coastal areas. In response, the U.S. Congress considered and approved a number of remedial measures to protect coasts and estuaries, including federal assistance to states to develop coastal zone management plans, new water pollution and ocean dumping controls, and the creation of programs to establish estuarine and marine sanctuaries.

The Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA)¹ authorized a trio of programs to protect and restore ocean ecosystems. The Act regulated the dumping of wastes in ocean waters, launched a study of the long-term impacts of humans on marine ecosystems, and created a Marine Sanctuaries Program for the “purpose of preserving or restoring . . . [marine] areas for their conservation, recreational, ecological, or esthetic values.”² Early proponents of marine sanctuaries envisioned a system of protected ocean areas analogous to those established for national parks and wilderness areas.

The concept of a marine wilderness preservation system was raised in 1966 in *Effective Use of the Sea*, a report prepared by President Lyndon Johnson’s Science Advisory Committee.³ The Advisory Committee recommended a permanent system of marine preserves similar in purpose and design to that established for terrestrial wilderness areas under the Wilderness Act. Like wilderness areas, marine preserves were to be areas managed for the purpose of maintaining the ocean’s natural characteristics and value, and human uses that were deemed compatible with this standard would be allowed.

[Section 23:1]

¹Marine Protection, Research, and Sanctuaries Act of 1972, Pub. L. No. 92-532 § Title III, 86 Stat. 1052 (1972).

²Marine Protection, Research, and Sanctuaries Act of 1972, Pub. L. No. 92-532 § 302.

³Panel on Oceanography, President’s Science Advisory Committee, *Effective Use of the Sea* (1966).

Unfortunately, the Sanctuaries Program did not follow the model of the National Wilderness Preserve System and proved to be highly unstable. For much of its history, the Sanctuaries Act has been a work in progress. A fundamental reason for the law's plasticity has been the ambiguity surrounding the Act's intent. Is the overriding purpose of the Act the preservation and protection of marine areas, or is it the creation of multiple use management areas in which preservation use has to contend with every other use, even exploitive ones like oil and gas extraction?

Congress failed to clearly and definitively answer this question at the outset, and in fact gave conflicting signals. The original law and accompanying legislative history were incongruous in that the law directed the Secretary of Commerce, acting through the National Oceanographic and Atmospheric Administration (NOAA), to establish sanctuaries for preservation and restoration purposes, but the House of Representatives' legislative history encouraged both preservation and extractive uses in sanctuaries. This ambiguity produced confusion and led to implementation difficulties, which in turn triggered periodic efforts by NOAA and Congress to clarify the Act's purposes and provisions.

Over time, Congress confirmed "multiple use" as a significant purpose of the Act and diminished the Act's preservation mission. Although amended numerous times over 30 years, the statute remains incongruous, calling for both preservation and multiple use. Although key areas of the oceans and Great Lakes have been protected in varying degrees in the 13 sanctuaries established since 1972, the Sanctuaries Program has yet to produce a comprehensive national network of marine conservation areas that restores and protects the full range of the nation's marine biodiversity, nor does it have a credible strategy to do so.

Early Sanctuary Bills

In 1967, several members of Congress, including Representatives Hastings Keith of Massachusetts and Phil Burton and George E. Brown, Jr., of California, introduced bills to direct the Secretary of the Interior to study the feasibility of a national system of marine sanctuaries patterned after the wilderness preservation system.⁴ A principal factor prompting this legislation was the desire to protect special marine places from harmful industrial development, especially oil and gas development. At the time, the hydrocarbon industry was rapidly expanding its operations offshore.

Sanctuary study bills received a hearing in 1968 by the House Merchant Marine and Fisheries Committee (House MMFC), but were opposed by the Department of the Interior (DOI) on grounds that existing law permitted Interior to manage the ocean for multiple uses, including environmental protection, and that sanctuaries might restrict offshore energy development. Nevertheless, several members of the House continued to promote study legislation in the next two congresses.

A second strategy for protecting ocean places was concurrently advanced by members of the California delegation who proposed to designate areas on the outer continental shelf (OCS) of California where oil drilling would be prohibited. In 1968, bills were introduced in the House and Senate to ban drilling in a section of waters near Santa Barbara. Following the massive oil spill from a ruptured well in the Santa Barbara Channel in 1969, Senator Alan Cranston became the most vocal advocate of prohibiting drilling at a number of places along the California coast. The DOI opposed these bills as well, claiming that new drilling guidelines and procedures implemented after the Santa Barbara accident would be sufficient to prevent future spills. The Senate and House Interior and Insular Affairs Committees, which had authority over the OCS minerals leasing program, were sympathetic to the DOI's

⁴See, e.g., H.R. 11584, 90th Cong. (1967); S. 2415, 90th Cong. (1967).

concerns and declined to set aside no-drilling areas.

A third approach for protecting ocean areas was spawned by concern about the impacts of waste dumping in the ocean, which at the time was virtually unregulated. Oil-covered beaches, closed shellfish beds and “dead seas” around ocean dumpsites prompted the introduction of bills in 1969 and 1970 to regulate ocean dumping comprehensively. A 1970 report of the newly formed Council on Environmental Quality called for comprehensive legislation to regulate ocean dumping, but was silent on the need for a marine sanctuary system.⁵ Given the DOI’s position on offshore oil development, this was not surprising.

Despite the Nixon Administration’s opposition to marine sanctuaries, the House Merchant Marine and Fisheries Committee was determined to act. As it turned out, the ocean dumping crisis gave the committee the opening it needed. As the 91st Congress drew to a close, momentum for an ocean dumping law had become unstoppable.

1972 Act

In June of 1972, the House Merchant Marine and Fisheries Committee unanimously reported an ocean dumping bill, the Marine Protection, Research and Sanctuaries Act, which contained titles on ocean dumping, marine research and sanctuaries. The sanctuaries title (Title III) was an amalgam of concepts from various bills pending before the committee and new ones forged in executive session. Although the sanctuary title proposed to preserve and restore ocean areas, *it did not mirror the Wilderness Act*, as had been recommended by the President’s Science Advisory Committee. Furthermore, *it lacked any prohibitions on industrial development, including energy development, within designated sanctuaries*, one of the principal goals originally sought by Rep. Keith and others.

The House MMFC bill provided the Secretary of Commerce with broad discretionary authority to designate marine sanctuaries in coastal, ocean, and Great Lakes waters for the purposes of preserving and restoring an area’s conservation, recreational, ecological, or esthetic values. The Secretary was given two years to make the first designations, and was to make others periodically thereafter. The Secretary also was given broad and complete power to regulate uses within sanctuaries and to ensure they were consistent with the sanctuary’s purposes; no uses were specifically prohibited. The Sanctuaries Program was authorized for three years and given annual budget authority of up to \$10 million.

The ocean dumping bill passed the House by a vote of 300 to 4 on September 9, 1971 with the sanctuaries title intact, despite continued opposition of the Nixon Administration. The Senate Commerce Committee was not supportive of marine sanctuaries and deleted the program from its version of the ocean dumping bill. Nevertheless, the House-Senate conference committee on the dumping bill ultimately agreed to accept the House sanctuary title, with only minor changes. President Richard Nixon signed the measure on October 23, 1972.

The Rise of Multiple Use

During floor debate on the 1972 law, House members of the Merchant Marine and Fisheries Committee went to great lengths to explain that the Act was not purely a preservation statute and that multiple use of sanctuaries was expected. Even extractive activities like oil and gas development were seen as potentially compatible with the statute’s preservation and restoration purposes. Taking the cue, NOAA moved the Program in the direction of multiple use in the first regulations issued in 1974.

⁵Message from the President of the United States Transmitting a Report of the Council on Environmental Quality on Ocean Dumping, H.R. Doc. No. 91-399 (1970).

Between 1972 and 1979, little money was spent to develop the Program. Two small, non-controversial national marine sanctuaries (NMSs) were designated in 1975, the USS Monitor, off North Carolina, and Key Largo, in Florida. Once implementation began in earnest under the Carter Administration, controversies erupted over the scope, requirements, and impact of the Program as NOAA attempted to designate larger areas such as Flower Garden Banks, Channel Islands, Georges Bank, and Farallon Islands. The Carter Administration was ultimately successful in the designation of four sanctuaries (Channel Islands, Gulf of the Farallones, Gray's Reef, and Looe Key).

Oil and commercial fishing industries in particular developed a growing antipathy toward the Act because of its potential to infringe upon their activities. The oil industry sought to have oil development routinely allowed in sanctuaries as an acceptable multiple use; the fishing industry sought to prevent sanctuaries from restricting their access to fishing grounds. From roughly 1977 to 1986, commercial fishing and oil interests and their congressional allies led a counterattack against the Program that challenged the sanctuaries law's very existence. Battles over individual sanctuary proposals fueled the broader attack against the Act. Barring repeal of the Act, the oil and fishing industries wanted to limit its application and water down its preservation purpose. In this they were largely successful. By 1984, NOAA and Congress had made a series of regulatory and legislative decisions that emphasized balancing preservation with other human uses of sanctuaries. In short, multiple use became the preferred management goal for sanctuaries. As applied by NOAA, the multiple use doctrine has made it extremely difficult to establish use-specific zones for such activities as preservation, recreational fishing, diving, etc.

Reemphasizing Preservation

The Sanctuaries Program suffered greatly during President Ronald Reagan's term.

Beset with the active opposition from the administration, the existing programs suffered. Staff positions went unfilled, and critics charged that management programs at existing sanctuaries languished. Funding levels stabilized at the beginning of the Reagan era but then actually declined during his second term. The levels of funding requested by the administration were even lower; Congress repeatedly allocated more money than the administration estimated was necessary. Most discouragingly for program advocates, NOAA designated no new sites other than Fagatele Bay, allowed the designation process for others to stagnate, and even removed Monterey Bay from the list of proposed sites.⁶

Meanwhile, a series of marine pollution events continued to highlight the broad need for marine protection. These included algal blooms, mass dolphin deaths, medical waste that washed up on the Atlantic Coast, and the crash of an ore carrier and a car carrier, which resulted in a spill of copper ore and bunker fuel oil adjacent to the Channel Islands NMS.

Of the 29 candidate sites NOAA had identified in 1983, only the tiny Fagatele Bay off American Samoa had been designated as of 1988. Congressional frustration over the lack of designations led to a new phase of the Program, in which Congress played an active role promoting new designations. The first congressional designation, Florida Keys NMS (1990), was followed by three designations in 1992: the Hawaiian Islands Humpback Whale Sanctuary, the Monterey Bay NMS, and the Stellwagen Bank NMS. Ironically, Congress had to bypass the Act in order to legislatively designate the Florida Keys and Monterey Bay sanctuaries, in which oil

⁶Dave Owen, *The Disappointing History of the National Marine Sanctuaries Act*, 11 N.Y.U. Env'tl. L.J. 711, 728 (2003).

extraction was prohibited. Congress also legislatively prohibited oil extraction at NOAA-designated sanctuaries: the Cordell Bank NMS (1989) and the Olympic Coast NMS (1992).

Congress amended the Act in 1988, 1992, 1996, and 2000 with the intent of strengthening the Act's preservation mission. However, because Congress failed to revise other provisions of the law that emphasize multiple use, the impact of these changes has been modest. More recently, with the 2000 Amendments, Congress authorized a temporary moratorium on designation of new sanctuaries until existing ones are better managed and studied. This has thrown a blanket of uncertainty over the system's growth.

Unfilled Mandate

Having precipitated numerous sanctuary designation battles, suffered stop-and-go implementation, and been the subject of repeated regulatory and legislative amendments over three decades, how effective has the Act been in achieving its preservation purpose?

The Sanctuaries Act has been used to set aside a number of key places, and to protect them from oil development and certain other harmful activities. Although sanctuaries are managed for multiple use, some preservation zones have been established in a limited number of sanctuaries (e.g., Florida Keys, Fagatele Bay, Channel Islands). Sanctuaries have also served as focal points for educating the public about marine conservation, and as platforms for further protection initiatives. Since about 2002 we have seen a greater emphasis on Underwater Cultural Heritage conservation by NOAA and the National Marine Sanctuaries Program through efforts to document and preserve shipwrecks and other historically significant items on the sea floor.

Nevertheless, there are still large swaths of the nation's oceans that have no sanctuaries. A look at a map will show blank spaces off many coastal states. No sanctuaries have been designated in the Caribbean or in the North Pacific. There are just three sanctuaries along the entire Atlantic seaboard, one in South Florida, and one in the Gulf of Mexico. On the west coast, California has four sanctuaries and Washington one, but Oregon and Alaska have none. Even Georges Bank, the area Rep. Keith set out to protect when he introduced sanctuary legislation in 1967, is missing from the system.

Lacking the singular preservation focus of the Wilderness Act, the Sanctuaries Act has proved to be an unreliable vehicle for inventorying, identifying, and preserving the full array of the nation's marine resources and special places in a comprehensive national system. After 48 years, the 14 sanctuaries comprise not even 0.4% of U.S. oceans. Moreover, some of these areas are inadequately protected from degrading or destructive uses such as overfishing, bottom habitat destruction and pollution.⁷

Conclusion

While it is technically possible that the Sanctuaries Act could be employed to designate sanctuaries that are preservationist in nature, in reality the Act's conflicting goals of preservation and multiple use, its discretionary and open-ended nature, its lack of clear definitions and protection standards, and its multiple intervention points for stakeholders, collectively burden the Program with enormous implementation difficulties and inefficiencies. At present, the Sanctuaries Act is so constrained by its own architecture that it stands little chance of creating the comprehensive

⁷See Table 23.1 for more information on the size of each sanctuary and the size of the entire system.

system of marine preservation areas envisioned by its earliest proponents, who hoped to create a system of marine wilderness preserves analogous to the National Wilderness Preservation System. Meanwhile, most of the nation's ocean waters have been left open to extractive and commercial uses of all kinds. As a result, progress toward protecting and preserving America's ocean resources and ecosystems has been nowhere near what was needed during the last 30 years to prevent the serious degradation and destruction of marine species and ecosystems.

In order to be effective in facilitating the establishment of a comprehensive national system of marine preservation areas, the Sanctuaries Act would have to undergo substantial amendment. Alternatively, Congress could provide separate authority for an exclusive system of marine preservation areas to encompass any area of ocean that meets the new system's preservation and protection criteria. This was precisely the approach taken by the Wilderness Act, which superimposed a wilderness-overlay on existing parks, refuges, forests, and public lands to identify qualified wilderness areas. Whichever approach is chosen, a bold, vigorous and systematic effort will be needed during the next 10 years to identify and preserve America's significant marine ecosystems and features before they are irretrievably degraded or lost.

As of 2015, there have been no amendments or updates of the National Marine Sanctuaries legislation to address its well-known flaws and rationalize its internally conflicting legislative history. In the meantime, in June 2014, following an extensively public and transparent design process for nominations, the National Marine Sanctuaries Program issued a federal ruling and began soliciting communities to nominate "their most treasured places in our marine and Great Lakes waters for consideration as national marine sanctuaries."

§ 23:2 Introduction

In 1971, in testimony before the Senate Subcommittee on Oceanography, Jacques Cousteau warned Congress that the world faced the destruction of the ocean from pollution, overfishing, extermination of species, and other causes. Cousteau called for immediate action on several fronts to reverse the situation. Cousteau was one of several well-known scientists that helped birth the environmental movement, but as the voice of the ocean, he was without peer. Cousteau's testimony made an indelible impression on many members of Congress and confirmed the need for ocean protection legislation already under consideration. Time after time his views would be mentioned in congressional speeches, testimony, reports, and debate.

The following year, the floodgates of environmental legislation opened. Congress passed a number of environmental laws, among them the MPRSA. The Act regulated the dumping of wastes in ocean waters, launched a study of the long-term impacts of humans on marine ecosystems, and created a Marine Sanctuaries Program for the "purpose of preserving or restoring . . . [marine] areas for their conservation, recreational, ecological, or esthetic values."¹

The original Sanctuaries Act and its accompanying legislative history were incongruous in that the law directed the Secretary of Commerce, acting through NOAA, to establish sanctuaries *for preservation and restoration purposes*, but the House of Representatives legislative history encouraged both preservation and extractive uses in sanctuaries. Later amendments codified multiple use as a major purpose of the Act, notwithstanding language citing "resource protection" as the Act's "primary objective." This ambiguity produced confusion and led to enormous

[Section 23:2]

¹Marine Protection, Research, and Sanctuaries Act § 302.

implementation difficulties, as ocean users, especially the oil and commercial fishing industries, battled conservationists over candidate sanctuaries, the terms of individual designations, and revisions to management plans.

Not surprisingly under these circumstances, the Sanctuaries Program has failed to achieve a comprehensive national network of marine preservation areas that restores and protects the full range of the nation's marine resources. While 13 valuable sanctuaries have been established in 30 years, they cover less than 0.4% of U.S. waters. It is well known that many significant marine areas and resources are missing from the sanctuary system.²

Meanwhile, the degradation of the ocean that Cousteau warned of and that Congress sought to prevent when it passed the Sanctuaries Act and other marine conservation laws is rapidly coming to pass. Although progress has been made on some fronts, such as bans on the dumping of toxic wastes in the ocean and better protection for marine mammals, other problems have worsened. Some examples:

- Only commercial fish species are assessed (by-catch and such generally are not), and of the U.S. fish populations that have been assessed 40% of are in trouble (24% are considered overfished or are being fished unsustainably, and an additional 16% are in a process of being rebuilt;
- Bottom trawls are pulverizing deep sea corals and sponges;
- Many thousands of farmed fish escape from their pens annually, competing with wild fish for food and interbreeding with wild stocks;
- Atmospheric CO₂ has risen by about 40% above pre-industrial levels, and the ocean has absorbed about 1/3 of human caused emissions of CO₂ annually, thereby making seawater more acidic; decreasing surface water pH by 0.1 units, equivalent to a 30% increase in ocean acidity;
- More than 175 alien marine species have invaded San Francisco Bay;
- In May 2013, a NOAA assessment finds 36 sunken vessels scattered across the U.S. seafloor could pose an oil pollution threat to the nation's coastal and marine resources;
- 100 million tons of plastic that already litter beaches, reefs, and bays before being broken down into toxic micro-debris consumed by fish and, eventually, humans;
- Due to climate change the ocean is becoming warmer and thus storms are more frequent and more intense;
- Cruise ships are dumping millions of gallons of sewage, ballast water, and other pollution into the ocean annually;
- Anoxic dead zones have been created in a number of coastal areas;
- Smalltooth sawfish were the first species listed as an endangered marine fish species; and
- Various species of seabirds, sea turtles, and marine mammals have severely depleted populations due to their being caught as bycatch in commercial fisheries.³

And yet, a healthy ocean is critical to our nation:

- \$700 billion of the annual U.S. Gross National Product originates in coastal areas
- Over 50% of the U.S. population lives within 50 miles of the coast

²See, e.g., Dave Owen, *The Disappointing History of the National Marine Sanctuaries Act*, 11 N.Y.U. Envtl. L.J. 711, 745-47 (2003).

³P.K. Dayton et al., *Pew Oceans Commission, Ecological Effects of Fishing in Marine Ecosystems of the United States* (2002); *Pew Oceans Commission, America's Living Oceans: Charting a Course for Sea Change* (2003).

● Nearly 80% of U.S. imports & export freight is transported through seaports. Although the Sanctuaries Act was passed with the intent of preserving places in the sea from destruction, the Act's multiple use provisions have made it difficult to create inviolate sanctuaries where no extraction of living or nonliving resources is allowed. Scientific thinking about conserving ocean ecosystems was in its infancy at the time the Sanctuaries Act was passed, but has evolved substantially since. Today, scientists around the world are calling for the establishment of networks of marine reserves—areas exempt from all extractive or harmful activities, including commercial and recreational fishing—as a necessary tool for conserving marine biodiversity, restoring and preserving the integrity of marine ecosystems, and maintaining sustainable fisheries.⁴ Increasingly, nations are heeding this advice.

Given the law's multiple use mandate, NOAA has moved cautiously to create fully protected marine reserves in sanctuaries. Prior to 1992, only small areas within a few uncontroversial sanctuaries were protected from all extractive uses. When it established the Florida Keys NMS in 1990, Congress directed NOAA to consider zoning of the sanctuary as a method for creating “no-take” reserves.⁵ Although NOAA's reserve initiative in the Keys drew vociferous opposition from some commercial and recreational fishing interests, agreement was eventually reached to establish 24 reserves covering less than 1% of the sanctuary. A more recent attempt by NOAA in partnership with the State of California to establish no-take reserves comprising 26% of the Channel Islands NMS is still in progress. Marine reserve initiatives at other sanctuaries have not been launched due to hostile political forces and lack of countervailing conservation advocacy.

About a decade ago, the Sanctuaries Act was again buffeted by the winds of change. As concern about the state of the world's oceans builds once again, two national commissions, one private and one governmental, have been launched to recommend corrective action. The Pew Oceans Commission, established by the Pew Charitable Trusts, issued its report in June 2003.⁶ Among other things, the report called for national legislation to create a system of fully protected marine reserves. The National Commission on Ocean Policy's report was released in April 2004. In the ensuing debate over the reports' recommendations, questions invariably will be asked about the role of marine reserves as an ocean conservation strategy. Questions also will be raised about the Sanctuaries Act. Should the United States establish a system of fully protected marine reserves? What kinds of uses of the reserves should be allowed? How can this be accomplished? Does the Sanctuaries Act provide sufficient authority for marine reserves or preventing conflicting uses? How could the Sanctuaries Act be changed or supplemented to meet current conservation needs?

Answering these questions requires an understanding of the history and evolution of the Sanctuaries Act. This understanding is not easily obtained. In its relatively short life of 32 years, the Act has been substantively amended six times, changing from a two-page law to one over 30 pages in length. Successive committee staffs have left an ever-growing body of legislative material to digest. Although many articles and reports have been written about the Sanctuaries Program, none have focused in detail on the Act's legislative history and evolution.

The purposes of this chapter are to provide a broad overview of the Sanctuaries Act's history and preservation provisions, and to hazard an explanation of how and why the Sanctuaries Act has fallen short as a preservation measure. We do not attempt an exhaustive explanation of every provision of the Act. Rather, our central

⁴*See, e.g.,* The Science of Marine Reserves, Ecological Applications (Feb. 2003).

⁵Pub. L. 101-605 § 7(a)(2) (1990).

⁶Pew Oceans Commission, *America's Living Oceans: Charting a Course for Sea Change* (2003).

focus is on the preservation intent of the law and how it has been advanced or hindered by events and successive amendments.

This chapter is based principally on written sources, which reveal the key stepping stones of the Act's evolution. Explanations of why particular regulations or legislative actions were taken are harder to come by. Written explanations were often vague, incomplete, or absent. Deciphering the motivation and intent of every person that ever "touched" the Act was not attempted. In cases where we were able to query some of the principals, faded memories were a problem.

Part II discusses the emergence of marine sanctuaries legislation in the late 1960s as a vehicle for preserving special marine areas and resources by protecting them from degradation and destruction from industrial uses. Part III traces how the early legislative concepts were blended and reshaped by the House Committee on Merchant Marine and Fisheries to produce the law enacted in 1972. Parts IV and V trace the law's evolution during the last 32 years and discuss the significance of these changes to the statute's preservation purpose. Part VI draws some conclusions about the value of the Sanctuaries Act today, and what it has achieved. Part VII sums up our findings.

II. EARLY SANCTUARY LEGISLATION

§ 23:3 Background

Throughout the 1960s and 1970s, there was growing public concern in the United States and the world about humanity's impact on the environment. Virtually every human effect came under examination, including extinction of species, air and water pollution, and ocean degradation. Fueled by media coverage of polluted water bodies, toxic threats to humans and the disruption of the natural ecology, public concern was galvanized in 1970 by Earth Day, the birthday of the modern environmental movement. In the United States, the executive and legislative branches responded by enacting a number of laws that ushered in a new era of environmental protection.

The flowering of environmental legislation in the 1970s was partly an outgrowth of earlier congressional concerns and partly the product of new knowledge and understanding. As early as the mid-1960s, congressional committees had acted on a number of fronts to develop new conservation and environmental protection policies. In the terrestrial domain, laws were enacted to conserve America's diminishing wildlife and outdoor recreation lands and wild areas. These included the Endangered Species Act, the Land and Water Conservation Fund Act, and the Wilderness Act.¹

In the marine realm, Congress was especially concerned about the degradation of America's estuaries from pollution, dredging, and shoreline development. Oil spills and the ocean dumping of dredge spoil and other wastes captured attention due to a number of well-publicized pollution incidents. Industrial development in coastal and offshore waters also became an issue as the oil industry sought to expand offshore, seabed-mining schemes were discussed, and deepwater ports proposed. In totality, pollution and coastal development were recognized as a significant threat to traditional uses of the ocean, such as fishing and recreation, as well as to the overall health of the marine environment.

The threat of coastal and ocean degradation helped precipitate several pieces of study legislation. The Clean Water Restoration Act of 1966, whose purpose was to

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¹Endangered Species Act of 1973, 16 U.S.C.A. § 1533 to 1544 (1973); Land and Water Conservation Fund Act of 1965, 16 U.S.C.A. §§ 4601-4 to 4601-11 (1964, as amended); Wilderness Act of 1964, 16 U.S.C.A. § 1121 (note), 1131-36 (1964).

improve the nation's water pollution control program, mandated a study of estuarine pollution and executive branch recommendations for an "effective national estuarine management program."² As the estuarine pollution study was being conducted, the House Subcommittee on Fisheries and Wildlife Conservation, chaired by John Dingell (D-MI), considered the need for a national system of estuaries similar to those that protected other national resources like parks and refuges. In 1968, Congress passed the Estuary Protection Act, which required the Secretary of the Interior to study and inventory the nation's estuaries and to submit recommendations "on the feasibility and desirability of establishing a nationwide system of estuarine areas, the terms . . . to govern such system, and the designation and acquisition of any specific estuarine areas of national significance which he believes should be acquired by the United States."³

A parallel congressional interest of the time was oceanographic research. Commencing in the 1950s, a small group of scientists and policy makers in Congress and the executive branch began working to strengthen the nation's oceanographic research program, inspired at least in part by the astounding popularity of Rachel Carson's *The Sea Around Us* more than a decade before. Spurred by defense concerns, national pride, and recognition that the ocean was a relatively unexplored and untapped resource of immense potential, the oceanographic community engaged in a decade-long debate about how to improve oceanographic research. The major focus of debate was exploration and exploitation of ocean resources, not environmental conservation. However, as public concern about the environment grew, the oceanographic issue expanded to incorporate coastal conservation as a major theme.

The oceanography debate culminated in the enactment of The Marine Resources and Engineering Development Act of 1966.⁴ The Act declared a new policy "to develop, encourage, and maintain a coordinated, comprehensive, and long-range national program in marine science."⁵ The Act established a Commission on Marine Sciences, Engineering and Resources (also referred to as the Stratton Commission after its chairman, Julius Stratton) to conduct a study and recommend a plan for a "national oceanographic program that will meet the present and future national needs."⁶ The Act created a temporary National Council on Marine Resources and Engineering Development to advise and assist the President in day-to-day marine policy and program coordination.⁷ In its 1969 report, the Stratton Commission recommended establishment of a new ocean agency, which was fulfilled with the creation of NOAA in 1970, and creation of a national coastal zone management program, which was realized with passage of the Coastal Zone Management Act of 1972.⁸

§ 23:4 The Sanctuary Idea

A variety of studies and reports, one of which played a seminal role in the development of marine sanctuary legislation, punctuated the long-running oceanography debate. Contemporaneous with congressional consideration of the Marine Resources and Engineering Development Act, the President's Science Advisory Committee formed a Panel on Oceanography to prepare an assessment of marine science and

²Clean Water Restoration Act, 89 Pub. L. 753 (1966).

³16 U.S.C.A. § 1222(c); Estuary Protection Act, 16 U.S.C.A. § 1221 to 1226 (1968).

⁴Marine Resources and Engineering Development Act of 1966, 33 U.S.C.A. § 1101 to 1108 (1966).

⁵33 U.S.C.A. § 1101(a).

⁶33 U.S.C.A. §§ 1104, 1105.

⁷33 U.S.C.A. §§ 1102, 1104.

⁸Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action* (1969); Coastal Zone Management Act of 1972, 16 U.S.C.A. §§ 1451 et seq. (1972).

technology needs. The Panel's report, *Effective Use of the Sea*, was released in June 1966 by President Johnson.¹ The report called for establishment of a national ocean program, the objective of which was "effective use of the sea by man for all purposes currently considered for the terrestrial environment: commerce; industry; recreation and settlement; as well as knowledge and understanding."²

Although much of the Advisory Committee's report focused on exploring, developing, and understanding the oceans, the Committee presciently recognized the growing threat of what it called "environmental modification," and particularly the need to preserve the near-shore environment:

Continuing population growth combined with increased dependence on the sea for food and recreation means that modification of marine environments will not only continue, but will drastically increase . . . We are far from understanding most short-range and all long-range biological consequences of environmental modification.

These considerations suggest that we now need to preserve the quality of as much of the unmodified or useful marine environment as we can and to restore the quality of as much of the damaged environment as possible. Delay will only increase the cost in money, time, manpower, resources and missed opportunities.³

The most pervasive inadvertent modification, the Panel concluded, is pollution in all its forms. We have learned from our experience with river and lake pollution, said the Panel, that we "should not make similar mistakes as we inhabit and exploit the oceans."⁴

The report identified habitat destruction as a major issue: "Habitat destruction by improper fishing techniques have [sic] affected our biological resources."⁵ It also recognized the serious problems caused by channel dredging, shoreline modification and the filling in of marshes. "These modifications are occurring in estuaries which are important natural resources for recreation and food production. These areas are nursery grounds for many marine organisms. How severely these and other environmental alterations affect the biota is unknown."⁶

In sum, the Panel on Oceanography identified two issues that would grow in importance in following years and have yet to be adequately resolved: the protection and restoration of estuaries and coastal waters to preserve their natural values, and control of water pollution. The Panel recommended five broad "courses of action" by the federal government, two of which were relevant to subsequent marine sanctuary legislation:

1. Establish a system of marine wilderness preserves as an extension to marine environments of the basic principle established in the Wilderness Act of 1964 . . . that "it is the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." In the present context, specific reasons for such preserves include:

[Section 23:4]

¹Panel on Oceanography, President's Science Advisory Committee, *Effective Use of the Sea* (1966).

²Panel on Oceanography, President's Science Advisory Committee, *Effective Use of the Sea*, at viii (1966).

³Panel on Oceanography, President's Science Advisory Committee, *Effective Use of the Sea*, at 16 (1966).

⁴Panel on Oceanography, President's Science Advisory Committee, *Effective Use of the Sea*, at 17 (1966).

⁵Panel on Oceanography, President's Science Advisory Committee, *Effective Use of the Sea*, at 17 (1966).

⁶Panel on Oceanography, President's Science Advisory Committee, *Effective Use of the Sea*, at 17-18 (1966).

- (a) Provision of ecological baselines against which to compare modified areas.
 - (b) Preservation of major types of unmodified habitats for research and education in marine sciences.
 - (c) Provision of continuing opportunities for marine wilderness recreation.
2. Undertake large-scale efforts to maintain and restore the quality of marine environments. Goals of these efforts should include increasing food production and recreational opportunities and furthering research and education in marine sciences. A multiple-use concept should be evolved for marine environments analogous to that used for many Federal land areas . . . It should be emphasized that this concept includes the recognition that for some areas, such as wilderness, only one use is possible.⁷

In referencing the Wilderness Act, the Panel explicitly endorsed the preservation of marine areas and resources in their natural condition as a legitimate goal. The Wilderness Act, enacted in 1964, established a National Wilderness Preservation System to be composed of federally-owned areas designated by Congress as “wilderness.”⁸ Wilderness areas are “administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness.”⁹ The Act defines a wilderness area as a place

where the earth and its community of life are untrammelled by man, where man is a visitor who does not remain. An area of wilderness is further defined to mean . . . an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions . . .¹⁰

The Wilderness Act prohibits commercial uses of wilderness, but some pre-existing commercial uses may be allowed to continue in certain areas.¹¹ Recreational uses of wilderness deemed compatible with maintaining its primeval character are allowed, including recreational hunting and fishing.¹² Since about 2012, there has been an increasing focus on the potential the Act has for designation of “wilderness” in the ocean. If such designation were to happen, would the National Marine Sanctuary Program manage it?

The President’s Science Advisory Committee clearly viewed marine wilderness as a distinct type of ocean use within a broader multiple use framework. Although the report was silent on how the recommended marine multiple use management system should work, the concepts of marine wilderness preserve and multiple use management would play significant roles in shaping the debate on marine sanctuaries legislation.

§ 23:5 Sanctuaries Legislation in the 90th Congress, 1967-1968—Overview

Concurrent with congressional activity on estuaries and marine science issues, several members of the House introduced bills in 1967 to establish marine sanctuaries as a means of protecting their states’ coastal and ocean resources from oil and gas development activities on the Outer Continental Shelf. In July, Representatives Phil Burton (D-CA) and George Brown, Jr. (D-CA) proposed identical bills to autho-

⁷Panel on Oceanography, President’s Science Advisory Committee, *Effective Use of the Sea*, at 18 (1966).

⁸Wilderness Act, 16 U.S.C.A. § 1131 to 1136.

⁹16 U.S.C.A. § 1131(a).

¹⁰16 U.S.C.A. § 1131(c).

¹¹16 U.S.C.A. § 1133.

¹²16 U.S.C.A. § 1131(a).

size a feasibility study of a Santa Barbara Channel marine sanctuary to be completed within two years. Their legislation established a moratorium on *all* “industrial development” in the Channel until the study was completed.¹

The citizens of Santa Barbara long had been concerned about the effects on Santa Barbara County’s scenic beauty and tourism economy of offshore oil drilling in the Channel. The State of California had banned minerals extraction in State waters off Santa Barbara in 1955 by creating a so-called oil sanctuary where drilling is forbidden.² The federal government began selling mineral leases in federal waters in the Channel in 1967. In recognition of the coast’s environmental values, the federal government established a no-drilling buffer zone that extended two miles seaward from the Santa Barbara oil sanctuary, but proceeded to offer leases outside the zone. By early 1968, 72 federal leases had been sold for in excess of \$600 million.³ The Burton-Brown bills were solidly responsive to constituents’ preference for protection, and were clearly an attempt to forestall oil development in federal waters off Santa Barbara until such protections could be made primary.

A few days after the Burton and Brown bills were filed, Rep. Hastings Keith (R-MA) introduced a bill to authorize a study of the desirability and feasibility of establishing a national system of marine sanctuaries, including a study of Georges Bank in New England as a candidate site.⁴ The Keith bill provided for a moratorium on new minerals exploration and development on the Outer Continental Shelf in all study areas, and called for voluntary agreements between governmental bodies to prevent “industrial development” while studies were being conducted.⁵ Keith became interested in protecting Georges Bank after a seismic explosion detonated in the course of oil exploration caused a large fish kill in September 1966.⁶ Keith represented the coastal area of Cape Cod and was particularly concerned about protecting the Georges Bank fishery from energy development. As a member of the House Merchant Marine and Fisheries Committee, he was well positioned to play an active role in shaping sanctuaries legislation.

Eight more sanctuary study bills were introduced in 1967 by House members from the east and west coasts.⁷ Some of the bills were identical to the Keith and Burton-Brown measures. Others differed slightly, specifying different areas for sanctuary study, such as Plum Island, New Hampshire, and Point Lobos and Pfeiffer-Big Sur, Monterey County, California. In the Senate, Sen. Edward Brooke (R-MA) introduced a measure identical to Keith’s.⁸

The eleven House bills were referred to the House Committee on Merchant Marine and Fisheries, which became the driving force for marine sanctuaries legislation. The Oceanography Subcommittee, chaired by Rep. Alton Lennon (D-NC), held three

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¹H.R. 11460, 90th Cong. (1967); H.R. 11469, 90th Cong. (1967).

²Cunningham-Shell Tidelands Act, 1955 Cal. Stat. Ch. 1724.

³Santa Barbara Oil Spill: Hearing on S. 1219 Before the Subcommittee on Minerals, Materials, and Fuels of the Senate Committee on Interior and Insular Affairs, 91st Cong., at 47 (testimony of Hollis Dole, Asst. Sec. of the Interior for Mineral Resources) (1969) [hereinafter Senate Hearing 1969].

⁴H.R. 11584.

⁵H.R. 11584, § 4(a), (b).

⁶Oceanography Legislation: Hearing on H.R. 11460, 11469, 11584, 11769, 11812, 11868, 11984, 11987, 11988, 12007, and 13150 Before the Subcommittee on Oceanography of the House Committee on Merchant Marine and Fisheries, 90th Cong., at 43 (1968) [hereinafter House Hearing 1968].

⁷H.R. 11769, 90th Cong. (1967); H.R. 11812, 90th Cong. (1967); H.R. 11868, 90th Cong. (1967); H.R. 11984, 90th Cong. (1967); H.R. 11987, 90th Cong. (1967); H.R. 11988, 90th Cong. (1967); H.R. 12007, 90th Cong. (1967); H.R. 13150, 90th Cong. (1967).

⁸S. 2415.

days of hearings on the study bills in April 1968.⁹ Reps. Keith, Brown, and 10 other members of Congress testified in support of sanctuary legislation, as did nonprofit conservation organizations, the Massachusetts fishing industry, the state of Massachusetts, and several scientific organizations.

Although the DOI and other executive agencies said they favored the objectives of the bills, they opposed enactment on several grounds.¹⁰ Interior's most telling objection to the bill, and one that would continue to dog sanctuary legislation, was opposition to restrictions on offshore energy development. The DOI said the moratorium on offshore minerals extraction in sanctuary study areas would deny the government revenue from oil and gas lease sales and the public an energy supply.¹¹ Furthermore, DOI claimed the bill was not needed because it already had general authority under existing wildlife laws to conduct resource studies like those called for by the sanctuaries bills, and that under the Outer Continental Shelf Lands Act, it had the authority to achieve multiple-use management of the Outer Continental Shelf.¹²

Because of the administration's opposition to sanctuary legislation, and the desire of the chairman of the Oceanography Subcommittee to get the views of the Stratton Commission and the National Council on Marine Resources, Lennon's subcommittee took no further action in 1968. In the Senate, there was no action on Sen. Brooke's bill.

§ 23:6 Sanctuaries Legislation in the 90th Congress, 1967-1968—Detailed Provisions of Early Bills

The Problem

The intent of Rep. Keith and other sanctuary bill sponsors was to preserve portions of the tidelands and ocean waters for their natural values and to protect these areas from incompatible commercial and industrial uses, particularly oil development. In the statement accompanying his 1967 legislation, Keith said the purpose of his bill was to "save distinctive offshore areas of the United States," and that as "exploitation of the ocean's riches progresses, it is essential to give some enduring protection to sections of the offshore marine environment in a natural or near-natural condition."¹ Over the next several years, Keith would repeatedly refer to the need to protect valuable fisheries from the effects of oil and gas development. For example, at the 1968 House hearings, Keith noted that oil drilling "could have a tremendously disruptive effect on the ecology and the present resource use of a vast stretch of ocean."²

Similarly, Rep. Brown testified:

We recognize that the quality of our ocean environment can be seriously impaired by unplanned industrial development offshore, and the pollution it creates. It follows that we must dedicate a system of ocean sanctuaries that can preserve a [broad] variety of marine plant and animal communities.³

Representative Burt Talcott (R-CA), who had introduced one of the study bills, said:

⁹House Hearing 1968.

¹⁰*See, e.g.*, House Hearing 1968, at 89, 129.

¹¹House Hearing 1968, at 131.

¹²House Hearing 1968, at 34 (letter by Stanley Cain).

[Section 23:6]

¹113 Cong. Rec. 19481 (daily ed. July 19, 1967) (statement of Rep. Keith).

²House Hearing 1968, at 43.

³House Hearing 1968, at 73.

“We must set aside some of our abundant marine areas before they are wasted or exploited.”⁴ In short, marine sanctuaries were needed as an antidote to unrestrained coastal development.

Policy Response

To secure the protection they sought for local places, sanctuary sponsors envisioned a national system of sanctuaries set aside for uses they considered compatible with preservation of the natural environment. The Burton-Brown bill directed the Secretary to discuss the applicability of the Santa Barbara sanctuary feasibility study “to other areas along the coastal waters of the United States with similar values and the feasible and desirable means of creating a marine wilderness system as an extension to marine environments of the basic principles established in the Wilderness Act,” language that directly reflected the recommendation of President Johnson’s Science Advisory Committee.⁵

Keith’s bill declared that

it is the policy of the Congress, through a system of marine sanctuaries, to preserve, protect, encourage balanced use, and where possible, restore, and make accessible for the benefit of all the people, selected parts of the Nation’s natural tidelands, outer continental shelf, seaward areas, and land and waters of the Great Lakes, which are valuable for sport and commercial fishing, wildlife conservation, outdoor recreation, and scenic beauty.⁶

In his bill introduction statement, Rep. Keith referred to the system as a “national system of marine wilderness preserves.”⁷ But instead of establishing a national marine wilderness preserve system outright (as the Wilderness Act did for terrestrial areas), and immediately designating as marine sanctuaries certain areas such as Georges Bank, Keith sought the Secretary of the Interior’s opinion on the most desirable and feasible means of establishing a national sanctuary system.⁸ In sum, both the Keith and Burton-Brown study bills represented a preliminary step toward the creation of a marine analog to the wilderness system, and the lineage of their bills may be traced directly to the President’s Science Advisory Committee’s recommendation.

Management of Sanctuaries

Given the study approach taken by the sponsors, it is not surprising that none of the bills specified exactly how sanctuary areas were to be established and managed to preserve desired values. These details were to be studied and decided later. However, to preserve future options, the Keith bill mandated a moratorium on new minerals exploration and development activities in sanctuary study areas until the Secretary submitted the report.⁹ A similar development moratorium was specified in the Burton-Brown bill, but it applied only to the Santa Barbara area.¹⁰

Under the philosophy of the time, it was assumed that the ocean should be managed for multiple uses. Because there was no overarching legal authority or central agency to regulate or zone competing uses within the ocean, it was recognized by sanctuary bill sponsors that industrial and commercial uses would continue to

⁴House Hearing 1968, at 78.

⁵H.R. 11460, § 2(d); H.R. 11469, § 2(d).

⁶H.R. 11584, § 2.

⁷113 Cong. Rec. 19481.

⁸H.R. 11584.

⁹H.R. 11584, § 4(a).

¹⁰H.R. 11460, § 1(d); H.R. 11469, § 1(d).

degrade and destroy natural values and resources with impunity and increasing frequency unless action was taken.

None of the sanctuary bills of the 90th Congress explicitly mentioned multiple use as a *purpose* of sanctuaries. The Keith and Burton-Brown bills directly specified or indirectly implied that in identifying sanctuaries for potential designation, the Secretary should consider the values and alternative uses of an area before deciding which sites should be designated.¹¹ Keith's bill declared it the policy of Congress to "preserve, protect, encourage balanced use, and where possible, restore and make accessible" sanctuaries that are "valuable for *sport and commercial fishing, wildlife conservation, outdoor recreation, and scenic beauty*."¹² The Burton-Brown bill sought to protect similar values in the Santa Barbara Channel.¹³ There was no mention in either bill of industrial or commercial uses being allowed in sanctuaries, except for commercial fishing. Furthermore, the idea that commercial fishing might sooner or later pose a threat to sanctuary resources or conflict with uses like wildlife conservation was not considered.

Keith explained he was not interested in blocking industrial development everywhere in the ocean, noting that "industrial and commercial development can go hand in hand with fishing, recreational, conservation, and scientific uses of the seas-if we are wise enough to see that these uses are made compatible with each other."¹⁴ In other words, Keith was for rational planned use of the ocean that would avoid some of the mistakes of development on land. Given his expressed desire to protect areas of the ocean from "damage or destruction by industrial exploitation," Keith seemed to mean that oil development could occur in some areas of the ocean, while other areas (our national sanctuaries) would be protected from oil.¹⁵

At the House hearing, Keith characterized his bill as a balanced approach to resource management. The bill

seeks to encourage balanced, compatible uses of our offshore waters-first by identifying alternative uses, and then by ensuring compatibility among these competing values and resources

The study called for in the bill would determine the likely impact of new industrial activities on the other natural resources and values of certain marine environments. It would determine whether some kind of "ocean zoning" is necessary to make these various uses compatible, and whether certain portions of our offshore environments should be sanctuary areas, closed to new industrial activities . . .¹⁶

However, other statements made by Keith could be interpreted to support multiple use sanctuaries. Noting that his bill did not define the term marine sanctuary, Keith testified:

A marine sanctuary area would be an ocean area which is especially distinctive for its commercial fishing uses, and for its scenic, recreation, and wildlife conservation values. In such an area, the Secretary of the Interior would be authorized to *restrict, prohibit, or prescribe the conditions under which industrials [sic] activities could be carried on, including the mining of gas or oil deposits*.¹⁷

The idea that mineral extraction *might occur* in sanctuaries was inconsistent with the overall thrust of Keith's introductory statement and with his bill, which was

¹¹H.R. 11460, § 2; H.R. 11469, § 2; H.R. 11584, § 5.

¹²H.R. 11584, § 2 (emphasis added).

¹³H.R. 11460, § 2; H.R. 11469, § 2.

¹⁴113 Cong. Rec. 19481.

¹⁵113 Cong. Rec. 19481.

¹⁶House Hearing 1968, at 43.

¹⁷House Hearing 1968, at 43 (emphasis added).

silent on the issue. Furthermore, Keith's proposed definition never was included in any of his subsequent bills, and he continued to argue for the protection of the Georges Bank fishery from oil development. Why he offered the definition is not known; it may have been an attempt to dampen DOI opposition by giving agency officials broader discretion to manage a sanctuary, all the while assuming that there was little chance that oil development would be found compatible with valuable fisheries. Alternatively, it may reflect Keith's thinking at that moment. Regardless of Keith's reasons, the idea that sanctuaries *might include industrial activities within their borders* was on the table. Eventually, it would weigh heavily in the shaping of the 1972 law.

Relation to Other Laws-Consultation

The argument advanced by the DOI that its existing legal authorities for management of wildlife and the Outer Continental Shelf were sufficient to protect the marine environment obviously was not convincing to representatives who already had determined that new preservation authority was needed. The DOI claimed that it could protect marine ecology and develop oil using a multiple use approach to resource management, and that the Outer Continental Shelf Lands Act enabled it to do both.¹⁸ At the hearing on the sanctuary bills, Keith specifically noted that existing laws had been considered in the development of his legislation, and that his bill filled a gap.¹⁹ Although sanctuary bill sponsors did not believe Interior would protect special places from oil development, they did recognize the importance of consulting with Interior, other agencies and the public on the design of the sanctuaries program, and included consultation and public hearings provisions in their bills.²⁰

§ 23:7 Sanctuaries Legislation in the 90th Congress, 1967-1968—An Alternative Ocean Protection Strategy

While the Oceanography Subcommittee was considering sanctuary proposals, several members of Congress from California proposed to protect marine areas from oil development on a site-by-site basis. In April 1968, Sen. Thomas Kuchel (R-CA) and Rep. Charles Teague (R-CA) introduced identical measures to prohibit mineral exploration and development in the federal no-leasing buffer zone that lay adjacent to the state's Santa Barbara oil sanctuary.¹ In the statement accompanying his bill, Kuchel said his purpose was to make the administratively-established federal buffer zone "semi-permanent," to protect the scenic values of the coast from the unsightly oil-drilling structures.² (Curiously, Kuchel made no mention of the potential for oil pollution from oil wells located outside the buffer zone.) The fact that California legislators saw fit to introduce bills to ban oil development in federal waters off Santa Barbara was further evidence of the lack of confidence in the DOI's ability to protect the environment under existing laws.

The Kuchel and Teague bills were referred to the Interior and Insular Affairs Committees of the Senate and House, which had jurisdiction over the Outer Continental Shelf minerals program. No hearings were held on either bill in 1968. Similar oil development prohibition bills would be introduced in subsequent congresses, but ultimately, this line of attack reached a dead end because neither

¹⁸House Hearing 1968, at 131-32.

¹⁹House Hearing 1968, at 135-37.

²⁰*See, e.g.*, H.R. 11460; H.R. 11469; H.R. 11584.

[Section 23:7]

¹H.R. 16421, 90th Cong. (1968); S. 3267, 90th Cong. (1968).

²114 Cong. Rec. 8528 (1968) (statement of Sen. Kuchel on introduction of S. 3267).

the House nor Senate Interior Committees were willing to close portions of the Outer Continental Shelf to mineral leasing.

§ 23:8 Sanctuaries Legislation in the 90th Congress, 1967-1968— Conclusion/Significance

At the close of the 90th Congress, two strategies had been proposed to protect special marine places from development. One was to have the Secretary of the Interior study the feasibility of a national system of sanctuaries and identify for further consideration by Congress any places that merited protection. The other was to ban oil development on the Outer Continental Shelf on a site-by-site basis. The intent of the Keith and Burton-Brown study bills was to eventually establish a marine analog to the National Wilderness Preservation System, as had been recommended by President Johnson's Science Advisory Committee. Perhaps because they were treading on new and unfamiliar territory, the sponsors moved cautiously, seeking a study of the feasibility and desirability of their idea, rather than establishing a permanent national system outright as Congress did under the Wilderness Act.

By creating sanctuaries, the sponsors sought to prevent industrial development from harming resources and conflicting with uses of the sea they deemed acceptable. The uses the sponsors wished to protect included sport and commercial fishing, wildlife conservation, recreation, maintenance of scenic beauty, and ecological research. For the most part, these uses were the same kinds of uses allowed in terrestrial wilderness areas, the exception being commercial fishing. Importantly, sanctuary proponents did not view commercial fishing as a threat to the other values they sought to protect.

In contrast, the intent of Kuchel and Teague was more limited in scope. They sought only to protect Santa Barbara from the negative effects of offshore oil development by restricting new oil activity. Both strategies, however, posed a direct challenge to the offshore oil development program, and as such, drew strong opposition from the oil industry, congressional committees with authority over OCS leasing, and the DOI, which managed the offshore minerals program. Until this opposition could be dealt with, there would be no marine sanctuaries bill.

§ 23:9 Legislation in the 91st Congress, 1969-1970—Overview

Interest in ocean protection and marine sanctuaries legislation grew substantially in the 91st Congress as a large oil spill off Santa Barbara and other pollution incidents heightened the need for action. Also, three reports on coastal and marine management were issued during this period, and ocean dumping became a major issue. At least 21 bills dealing with marine sanctuaries to some degree were introduced in the 91st Congress, 18 in the House and three in the Senate. As more legislators took up the issue, so too did the number of approaches and combinations of approaches for protecting ocean places. In addition to sanctuary study bills, measures were introduced to ban oil development in *all* federal waters off Santa Barbara and other places along the California coast, and to establish areas in the ocean where ocean dumping would be prohibited for the protection of marine ecology.

§ 23:10 Legislation in the 91st Congress, 1969-1970—Impetus for Action— Santa Barbara Oil Spill

On January 28, 1969, an oil well on a federal lease site in the Santa Barbara Channel ruptured, eventually spilling 3.3 million gallons of oil, and polluting miles of California shoreline. It took months to bring the leak under control. The event received heavy media coverage and brought home the vulnerability of the U.S.

coastline to massive oil spills such as had occurred in 1967 when the oil tanker *Torrey Canyon* ran aground on England's southern coast. In addition to supervising the Santa Barbara cleanup, the DOI revised its well operation guidelines in an attempt to prevent future spills. On March 3, 1969, Secretary of the Interior Walter Hickel converted the 21,000-acre federal no-lease buffer zone in the Channel into a permanent Santa Barbara Ecological Preserve.¹ Hickel withdrew from leasing another 34,000 acres in the Channel as an additional buffer zone between the coast and federal lease sites.²

Nevertheless, the Santa Barbara spill's impact continued to reverberate in Congress as an event not to be repeated. Subsequent oil spills in San Francisco Bay, Long Island Sound, the Gulf of Mexico, and elsewhere reinforced the peril of oil. In 1968 alone, the U.S. Coast Guard reported 714 cases of oil pollution, and the Federal Water Pollution Control Administration identified 180 significant oil spills.³

In addition to oil pollution, degradation of the ocean from the unregulated dumping of sewage, dredge spoils, and toxic and radioactive wastes gained major attention during the late 1960s and 1970s. At the time, the ocean served as a cost-free dumping zone for government and industry. In story after story, the media catalogued a host of pollution incidents and impacts, such as the "dead sea" off New York and New Jersey created by waste dumping, mercury contamination in fish and related poisoning of humans, the closure of ocean beaches and shellfish beds because of bacterial contamination, diseased estuaries, thermal pollution of Biscayne Bay, and the dumping of nerve gas and oil wastes off Florida. "The oceans are in danger of dying," Jacques Cousteau told *Time* magazine.⁴ The following year, Cousteau testified before the Senate that "we are facing the destruction of the ocean by pollution and by other causes."⁵

§ 23:11 Legislation in the 91st Congress, 1969-1970—Coastal Management Reports

The startling and graphic nature of environmental catastrophes during the period underscored the conclusions of several reports that Congress had commissioned on marine sciences and resources. In January 1969, the Stratton Commission released *Our Nation and the Sea*.¹ The report focused on the "wise and orderly use" of the ocean, but also recognized growing environmental problems. The Commission recommended the consolidation of federal ocean activities in a new agency, NOAA, whose mission would be to coordinate and implement a national oceans program.² The report also recommended creation of a new system for protecting and managing the coastal zone with states having lead responsibility.³ "The guiding principles" for coastal zone management, said the report, "should include the concept of fostering

[Section 23:10]

¹Senate Hearing 1969, at 47.

²Senate Hearing 1969, at 47.

³Spilled Oil: Growing Hazard to Coasts, U.S. News & World Rep., Mar. 16, 1970, at 11.

⁴The Dying Oceans, *Time*, Sept. 28, 1970, at 64.

⁵Hearing Before the Subcommittee on Oceans and Atmosphere of the Senate Committee on Commerce, 92d Cong., at 3 (1971).

[Section 23:11]

¹Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action* (1969).

²Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 230 (1969).

³Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 57 (1969).

the widest possible variety of beneficial uses so as to maximize net social return.”⁴

There was no mention of marine sanctuaries in the Stratton Commission’s report, but as part of the new coastal management system, the Commission recommended that the DOI, through the two estuary studies then in progress, “identify areas to be set aside as sanctuaries to provide natural laboratories for ecological investigations.”⁵ Spurring this recommendation was recognition of the “diminishing number of relatively unaltered areas where natural processes can be observed.”⁶ Thus, the Commission envisioned estuarine sanctuaries as research sites “for conduct of studies necessary to establish a proper base from which the effects of man’s activities can be determined and ultimately predicted.”⁷

In November 1969, the DOI submitted *The National Estuarine Pollution Study* to Congress.⁸ The report concluded that the nation’s estuaries were being degraded and destroyed because of institutional failures and society’s inability to recognize the non-commercial values of estuaries such as fish and wildlife habitat, recreation, and esthetics.⁹ The DOI recommended new legislation to promulgate a national policy and program to deal with the situation, again with States in the lead.¹⁰ Interior recommended

achievement of the best use of the values of the estuarine and coastal zones through a balance between: (a) multi-purpose development; (b) conservation; and (c) preservation over the short and long-range. Priority consideration should be given to those resources and uses which are estuarine-dependent.¹¹

Noting the failure of governments to achieve “a proper balance” between development and preservation and conservation of estuary resources, the DOI concluded that

[t]he principal goal of the national program is the use of the estuarine and coastal zone for as many beneficial purposes as possible, and where some uses are precluded, to achieve that mix of uses which society . . . deems most beneficial.¹²

The report also called for

maximum multiple use of the estuarine resource. The primary objective of technical management is to achieve the best combination of uses to serve the needs of society while protecting, preserving, and enhancing the biophysical environment for the continuing benefit of present and future generations.¹³

Although the report highlighted the need to “reduce to an acceptable minimum the

⁴Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 57 (1969).

⁵Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 65 (1969).

⁶Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 10 (1969).

⁷Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 10 (1969).

⁸Federal Water Pollution Control Administration, *National Estuarine Pollution Study: Volumes I-III* (1969).

⁹Federal Water Pollution Control Administration, *National Estuarine Pollution Study: Volumes I-III* (1969).

¹⁰Federal Water Pollution Control Administration, *National Estuarine Pollution Study*, at III-3 (1969).

¹¹Federal Water Pollution Control Administration, *National Estuarine Pollution Study*, at III-6 (1969).

¹²Federal Water Pollution Control Administration, *National Estuarine Pollution Study*, at III-7 (1969).

¹³Federal Water Pollution Control Administration, *National Estuarine Pollution Study*, at II-62

adverse effect of man's use of the estuaries and coastal areas" and cited the need to "accept preservation" as one means to that end, there was no mention of either estuarine or marine sanctuaries as desirable preservation tools.¹⁴ Nor did the report identify particular estuaries that should be set aside for research purposes as the Stratton Commission had recommended.

The DOI's second report, the *National Estuary Study* was released in January 1970.¹⁵ Prepared by the U.S. Fish and Wildlife Service, the report recommended that the DOI "should initiate a program designed expressly to provide for the protection and restoration of the natural values of estuaries . . . We should proceed now to halt and reverse the grim trend of estuary degradation."¹⁶ The "principal thrust of the report" was to "focus attention on the urgent need to preserve and restore" the natural values of estuaries. The report endorsed the DOI's earlier conclusion that states should be primarily responsible for establishing coastal zone management programs, but did not make specific recommendations for federal actions to help States establish protective programs for estuarine resources.¹⁷

In response to its statutory mandate to provide Congress with recommendations on a national estuary system, possibly to include federally acquired sites, the DOI dodged, saying that it needed more time to develop suggestions.¹⁸ It also declined to identify "significant" estuaries, arguing instead that all estuaries were important for one or more reasons and deserved better management and protection.¹⁹ Interior did not identify estuarine sanctuaries for research purposes, nor did it address the concept of marine sanctuaries in its summary volume of the report.

Collectively, the three studies served to justify the need for a new system of coastal management in which states would be the lead actors. All three reports recommended a policy of balanced multiple use of the coastal zone, but recognized that establishment of preservation areas was part of the multiple use approach. Congress responded by passing the Coastal Zone Management Act of 1972, authorizing federal assistance to states for managing their coasts.²⁰ However, the House Merchant Marine and Fisheries Committee did not see state coastal zone management plans as sufficient in themselves to preserve ocean places. Thus, despite the Nixon Administration's lack of interest, consideration of marine sanctuaries legislation continued on a parallel track with the Coastal Zone Management Act.

§ 23:12 Legislation in the 91st Congress, 1969-1970—Sanctuary Bill—Approaches

Study Bills and Designation Bills—House

Several days after the Santa Barbara well rupture in 1969, Keith reintroduced his marine sanctuary study bill, noting that had his legislation been enacted in the

(1969).

¹⁴Federal Water Pollution Control Administration, *National Estuarine Pollution Study*, at III-7 (1969).

¹⁵Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries, *National Estuary Study: Volume 1* (1970).

¹⁶Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries, *National Estuary Study: Volume 1*, at 2 (1970).

¹⁷Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries, *National Estuary Study: Volume 1*, at 2 (1970).

¹⁸Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries, *National Estuary Study: Volume 1*, at 2 (1970).

¹⁹Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries, *National Estuary Study: Volume 1*, at 4 (1970).

²⁰Coastal Zone Management Act, 16 U.S.C.A. § 1451 to 1465, ELR Stat. CZMA §§ 302-319.

90th Congress, the spill might have been prevented.¹ Also reintroduced was Brown's bill to study a sanctuary in the Santa Barbara Channel, and a Talcott measure to study other coastal areas in California for possible designation.²

The national focus on oil spills prompted a tactical maneuver by Rep. Keith. On February 20, 1969, a few days before the House Merchant Marine and Fisheries Committee (House MMFC) was to conduct hearings on oil pollution, Keith introduced a bill to control oil pollution from vessels, which included his sanctuary study proposal as a separate title.³ At the hearings, Keith again noted that the Santa Barbara spill might have been prevented had the Santa Barbara area been studied and set aside "for a higher purpose than oil exploration and the operation of oil wells."⁴ Keith emphasized the need to protect the Georges Bank fishery, already depleted by Russian fishing, from further harm by oil pollution.⁵ He also made clear that his study bill called for cessation of new oil activities in sanctuary study areas, but left it up to Congress to decide which areas to protect permanently and how to protect them. In response to Secretary Hickel's decision to create a no-drilling ecological reserve off Santa Barbara, Keith suggested to the Secretary that other coastlines of the country comparable to Santa Barbara's in value also might deserve sanctuary status to protect established uses such as fisheries and recreation.⁶

Keith's idea of attaching the sanctuary study to oil pollution control legislation went nowhere. Furthermore, no House hearings were held on any sanctuary study bills during the 91st Congress. A major reason for the lack of action was the continuing opposition by the Interior Department and the oil industry. The DOI counseled delay on the bills until various reports on marine and estuary issues were received, including a study on ocean dumping that the Nixon administration had initiated.⁷

Undeterred, Keith came up with yet another proposal. In October 1970, during the waning months of the 91st Congress, Keith introduced a bill to congressionally designate a Cape Cod National Marine Sanctuary in waters adjacent to the Cape Cod National Seashore.⁸ Keith's bill came down solidly against oil development. It prohibited mineral extraction and the erection of any structure within the sanctuary.⁹ It also prohibited "any . . . activity which would seriously alter or endanger the ecology or the appearance of the ocean, or of the land beneath the water."¹⁰ The bill allowed commercial fishing and sport and recreational activities within the sanctuary "as long as they are carried on in accordance with sound conservation practices" as determined by the Secretary of the Interior.¹¹ No hearings occurred on the bill.

Study Bills and Designation Bills-Senate

[Section 23:12]

¹115 Cong. Rec. 2441 (daily ed. Feb. 3, 1969) (statement of Rep. Keith).

²H.R. 5956, 91st Cong. (1969); H.R. 8033, 91st Cong. (1969).

³H.R. 7325, 91st Cong. § 201 (1969).

⁴Hearings Before the House Committee on Merchant Marine & Fisheries, 91st Cong., at 30 (1970).

⁵Hearings Before the House Committee on Merchant Marine & Fisheries, 91st Cong., at 30-31 (1970).

⁶Hearings Before the House Committee on Merchant Marine & Fisheries, 91st Cong., at 188 (1970).

⁷117 Cong. Rec. 31134-35 (1971).

⁸H.R. 19636, 91st Cong. (1970).

⁹H.R. 19636, § 3(1)-(3).

¹⁰H.R. 19636, § 3(4).

¹¹H.R. 19636, § 3.

Sanctuary study legislation drew little interest in the Senate. Senator Brooke had again introduced the Keith measure early in the session.¹² In June 1969, Sen. Muskie (D-ME), chairman of the Subcommittee on Air and Water Pollution, after being contacted by Keith, introduced a modified version of the Keith bill.¹³ Muskie's bill, The Marine Resources Preservation Act, called for the study of sites as potential "marine preserves."¹⁴ The Muskie bill differed from Keith's in that it did not prohibit oil exploration and development in study areas, but did *prohibit minerals exploration and development in preserves subsequently designated by Congress*.¹⁵

In the spring of 1970, the Senate Subcommittee on Oceanography, chaired by Sen. Ernest Hollings (D-SC), held hearings on several coastal zone management bills and the Muskie bill.¹⁶ However, the hearings focused on the creation of a grant program for states to better manage their coastal zones, as recommended by the Stratton Commission, and paid scant attention to the Muskie legislation. Senator Brooke's sanctuary study bill, which had been referred to the Senate Commerce Committee, was not considered at the hearing.

Sanctuaries from Oil Drilling

With the need for action heightened by the Santa Barbara oil spill, members of the California delegation continued to refine their strategy of protecting ocean places by prohibiting oil and gas development on the Outer Continental Shelf. Senator Alan Cranston (D-CA), who replaced Kuchel, became the lead champion for stopping federal oil and gas leasing along the California coast. One month after the Santa Barbara spill, Cranston introduced legislation to terminate drilling for oil and gas on all federally leased areas in the Santa Barbara Channel, and to suspend drilling on all other leased areas off California pending completion of a study "to determine methods of drilling for, producing, and transporting oil . . . which will remove the threat of pollution and other damage to the environment and the ecological community."¹⁷ Sen. George Murphy (R-CA) and Rep. Teague also introduced lease prohibition bills.¹⁸

On May 19, 1969, the Senate Subcommittee on Minerals initiated what would turn into a series of hearings on the Cranston bill and similar legislation.¹⁹ Calling the Santa Barbara blowout an example of a general and growing threat of pollution, Cranston said he sought to preserve the unique beauty of the Santa Barbara coastline and to prevent further repetitions of the Santa Barbara disaster by banning further offshore oil development.²⁰ Besides, he noted, if a national emergency arose in the future, the Channel's oil could be tapped, hopefully with greatly improved technology.²¹

Like the sanctuary bills, Cranston's measure was opposed by the DOI as

¹²S. 1592, 91st Cong. (1969).

¹³S. 2393, 91st Cong. (1969).

¹⁴S. 2393, 91st Cong. (1969).

¹⁵S. 2393, § 4.

¹⁶Hearings on S. 2802, 2393, 3118, 3183, and 3460 Before the Subcommittee on Oceanography of the Senate Committee on Commerce, 91st Cong. (1970).

¹⁷S. 1219, 91st Cong. (1969).

¹⁸H.R. 14618, 91st Cong. (1969); H.R. 7074, 91st Cong. (1969); S. 2516, 91st Cong. (1969).

¹⁹Santa Barbara Oil Spill: Hearing on S. 1219 Before the Subcommittee on Minerals, Materials, and Fuels of the Senate Committee on Interior and Insular Affairs, 91st Cong., at 47 (testimony of Hollis Dole, Asst. Sec. of the Interior for Mineral Resources) (1969).

²⁰Senate Hearing 1969, at 8-15.

²¹Senate Hearing 1969, at 15.

“unnecessary.”²² Secretary Hickel already had created a permanent ecological preserve and a new buffer zone of some 34,000 acres and was taking steps to prevent future incidents.²³ Interior officials also expressed concerns about compensation costs for terminated leases and the loss of an energy supply at a time of shortage.²⁴ Testifying for the administration, Assistant Secretary of the Interior Hollis Dole noted that the DOI had an obligation to develop the mineral resources of the nation and to consider “environmental factors. . . The balance of national needs guides all of our decisions,” testified Dole.²⁵

In October 1969, Cranston took another tack, introducing the California Marine Sanctuaries Act.²⁶ The measure, cosponsored by Sens. Murphy, Muskie, and Gaylord Nelson (D-WI), declared it the policy of Congress to preserve, protect, and restore portions of the California shoreline and coastal waters.²⁷ The bill directed the Secretary of the Interior to suspend further minerals leasing in federal waters adjacent to any area of state territorial waters where California had by law prohibited exploration and extraction of oil, gas or any other mineral.²⁸ Reps. Teague, Talcott, Burton, Charles Gubser (R-CA), and Paul “Pete” McCloskey (R-CA) introduced identical companion measures in the House.²⁹

In his statement accompanying the bill, Cranston argued that federal law should be at least as stringent as local laws designed to protect the environment, “for without federal conformity, State laws may be useless. . .”³⁰ As California already had set aside seven so-called oil sanctuaries in state waters in which oil drilling was prohibited, he argued, the federal government should respect these actions and not undercut them by leasing the Outer Continental Shelf areas contiguous to the state sanctuaries.³¹ Federal leasing could still occur along other portions of the California coastline.

Yet Sen. Muskie offered another approach for protecting Santa Barbara. In February 1970, Muskie introduced legislation to terminate oil production in the Santa Barbara Channel, establish an ecological reserve for “scientific, recreational, fish and wildlife conservation and other similar uses,” and to withdraw all other Outer Continental Shelf lands in the Channel from minerals production, holding them in reserve until Congress decided otherwise.³²

The Senate Subcommittee on Minerals held more hearings on the various Santa Barbara protection bills on March 13 and 14, 1970 in Santa Barbara, and again on July 21 and 22 in Washington, D.C.³³ Sen. Frank Moss (D-UT), the subcommittee chairman, playing, he said, the Devil’s Advocate, expressed three concerns about

²²Senate Hearing 1969, at 44.

²³Senate Hearing 1969, at 47.

²⁴Senate Hearing 1969, at 47-48.

²⁵Senate Hearing 1969, at 44.

²⁶S. 3093, 91st Cong. (1969).

²⁷S. 3093, § 2.

²⁸S. 3093, § 3.

²⁹H.R. 14618; H.R. 14666, 91st Cong. (1969); H.R. 14754, 91st Cong. (1969); H.R. 14787, 91st Cong. (1969); H.R. 15139, 91st Cong. (1969).

³⁰115 Cong. Rec. 32143 (1969).

³¹115 Cong. Rec. 32143 (1969).

³²S. 3516, 91st Cong. (1970).

³³Santa Barbara Oil Pollution: Hearing on S. 1219, 2516, 3351, and 3516 Before the Subcommittee on Minerals, Materials and Fuels of the Senate Committee on Interior and Insular Affairs, 91st Cong. (1970) [hereinafter Senate Hearing March 1970 on Santa Barbara Oil Pollution]; Santa Barbara Oil Pollution: Hearing on S. 1219, 2516, 3351, 3516, 4017, and 3093 Before the Subcommittee on Minerals, Materials, and Fuels of the Senate Committee on Interior and Insular Affairs, 91st Cong.

stopping oil production off California: (1) the dilemma of balancing demands on natural resources with environmental preservation, and more specifically the nation's need for energy supplies; (2) loss of revenue to the federal Treasury; and (3) the large number of existing laws that control offshore oil and gas exploration and whether additional place-specific authority was really needed.³⁴ By and large, witnesses from the state, local governments, environmental organizations, and private citizens supported the Cranston measures.

By the July hearing, the Nixon Administration had developed a compromise proposal. Introduced by Sen. Murphy, the bill established a national energy reserve of approximately 198,000 acres in the federal portion of the OCS and terminated 20 existing leases. Drilling in the reserve could only be authorized by the President.³⁵ The Union Oil Company, one of the lease-holders and operator of the ruptured well, opposed all bills.³⁶ Ultimately, no action was taken on Cranston's or Murphy's bills by the Senate. As Sen. Moss had hinted, the Senate Interior Committee was simply not willing to prohibit offshore oil development and pay compensation for terminated leases.

In the House, hearings were held in September 1970 on the administration's bill and on related measures, including a Teague bill.³⁷ But the House Interior Committee was no more inclined to act than the Senate committee, and the measures died.

Ocean Dumping Bills

A third ocean protection strategy that emerged during the 91st Congress was to designate areas where ocean dumping is prohibited in order to protect ocean wildlife and ecology. Ocean dumping, which was basically unregulated, had become a high priority issue for the Nixon administration and the Congress, along with other forms of pollution. In his environmental message of April 15, 1970, President Nixon directed the Council on Environmental Quality to prepare a study of the dumping issue.³⁸

While the study was being prepared, the House MMFC considered a variety of ocean dumping measures, some of which incorporated the sanctuary concept. In March 1970, Rep. John Murphy (D-NY), a member of the committee, introduced a bill to require the Secretary of the Interior to establish "marine sanctuaries" in areas "which he determines should be preserved and protected as necessary to a balanced marine ecology and in particular those waters and submerged lands areas necessary in connection with the mating and spawning of species of fish, shellfish, and marine animal and plant life."³⁹ Waste discharges of all kinds would be prohibited in the designated sanctuaries.⁴⁰

Later that year, Murphy introduced another bill to amend the Fish and Wildlife Coordination Act to require the Secretary of the Interior to conduct a two-year study to identify areas in navigable, coastal and offshore waters where wastes could be

(1970) [hereinafter Senate Hearing July 1970 on Santa Barbara Oil Pollution].

³⁴Senate Hearing March 1970 on Santa Barbara Oil Pollution, at 10-11.

³⁵Senate Hearing July 1970 on Santa Barbara Oil Pollution, at 370-71.

³⁶Senate Hearing July 1970 on Santa Barbara Oil Pollution, at 341-43.

³⁷Hearing on H.R. 18159 and Related Bills before the Subcommittee on Mines and Mining of the House Committee on Interior and Insular Affairs, 91st Cong. (1970); H.R. 4047, 91st Cong. (1970).

³⁸President Richard Nixon, Direct CEQ to Prepare a Study of the Dumping Issue, Environmental Message (1970).

³⁹H.R. 16427, 91st Cong. (1970).

⁴⁰H.R. 16427, § 2.

“safely discharged.”⁴¹ Dumping would be prohibited outside the discharge areas. In determining which areas to designate as safe discharge sites, the Secretary was to “consider all ecological and environmental factors, including . . . the effect of such discharging on the marine and wildlife ecology.” Other members introduced measures to ban all dumping in the New York Bight and to establish national standards for the dumping of ocean wastes that might be harmful to wildlife or the ecology of coastal waters.⁴²

Hearings were held by the House Subcommittee on Fisheries and Wildlife Conservation, chaired by John Dingell, on July 27-28 and September 30, 1970 on Murphy’s safe discharge bill and other measures to protect ocean wildlife.⁴³ Although the subcommittee did not review sanctuary study bills, the hearings highlighted that there are places in the sea worth protecting for their ecological values. Concurrent with the hearings, Rep. Paul Rogers (D-FL), another member of the Merchant Marine and Fisheries Committee, introduced legislation to require the Secretary of the Interior to designate areas of waters and submerged lands where, because of ecological considerations, waste materials “cannot be safely discharged,” the mirror opposite of Murphy’s approach.⁴⁴

Council on Environmental Quality Report

The Council on Environmental Quality (CEQ) undertook, at President Nixon’s urging, a comprehensive report on the problem of ocean dumping and pollution. In his memoirs, Russell Train, CEQ’s first chairman, remembered the report as the first time the potential policy power of CEQ was deployed on behalf of a major international issue with the goal of achieving legislative success.

On October 7, 1970, President Nixon forwarded the CEQ’s report, *Ocean Dumping, A National Policy*, to Congress.⁴⁵ In his accompanying message, President Nixon wrote: “Pollution is now visible on the high seas—long believed beyond the reach of man’s harmful influence. In recent months, worldwide concern has been expressed about the dangers of dumping toxic wastes in the ocean.”⁴⁶ Nixon promised to submit legislation to the 92nd Congress “to ban the unregulated dumping of all materials in the oceans and to prevent or rigorously limit the dumping of harmful materials.”⁴⁷ This legislation was seen as complementary to other administration legislation submitted in November 1969 “to provide comprehensive management by the states of their coastal zone land and waters.”⁴⁸

The CEQ report identified 246 disposal sites in the ocean, of which 50% were in the Atlantic, 28% in the Pacific, and 22% in the Gulf of Mexico.⁴⁹ CEQ recommended that the U.S. Environmental Protection Agency (EPA) be given authority to set up a permit process for the transportation and dumping of wastes, ban the dumping of certain materials and designate safe dumping sites, and establish penalties for violators. The report did not discuss marine sanctuaries, but it did recommend that

⁴¹H.R. 17603, 91st Cong. (1970); H.R. 17843, 91st Cong. (1970); H.R. 17879, 91st Cong. (1970).

⁴²H.R. 18454, 91st Cong. (1970); H.R. 18592, 91st Cong. (1970); H.R. 18593, 91st Cong. (1970); H.R. 18621, 91st Cong. (1970); H.R. 18641, 91st Cong. (1970); H.R. 18796, 91st Cong. (1970).

⁴³Dumping of Waste Material: Hearing on H.R. 15827, 15828, 15829, 16229, 17603, 17843, 17879, 18043, 18454, 18592, 18593, 18621, 18641, and 18796 Before the Subcommittee on Fisheries and Wildlife Conservation of the House Committee on Merchant Marine and Fisheries, 91st Cong. (1970).

⁴⁴H.R. 19359, 91st Cong. (1970).

⁴⁵H.R. Doc. No. 91-399.

⁴⁶H.R. Doc. No. 91-399, at i.

⁴⁷H.R. Doc. No. 91-399, at i.

⁴⁸H.R. Doc. No. 91-399, at i.

⁴⁹H.R. Doc. No. 91-399, at 1.

EPA protect biologically valuable areas in the process of regulating dumping: “High priority should be given to protecting those portions of the marine environment which are biologically most active, namely the estuaries and the shallow near shore areas in which many marine organisms breed or spawn. These biologically critical areas should be delimited and protected.”⁵⁰

In discussing research needs, CEQ recommended that “marine research preserves should be established to protect representative marine ecosystems for research and to serve as ecological reference points-baselines by which man-induced changes may be evaluated.”⁵¹ This echoed the Stratton Commission’s call for the establishment of “representative coastal and estuarine sites . . . as natural preserves for conduct of studies necessary to establish a proper base from which the effects of man’s activities can be determined and ultimately regulated.”⁵²

Combination Bills

With so many ocean protection strategies on the table, it was only a matter of time until they began to be combined and blended. Shortly after the release of the CEQ report, Rep. Louis Frey (R-FL) introduced legislation to regulate ocean dumping, prohibit oil development, and establish a “system of marine sanctuaries.”⁵³ Frey’s bill declared that “many estuaries of the Nation are being subjected to severe ecological degradation through unregulated dumping,” and that portions of the tidelands and ocean waters “should be preserved as marine sanctuaries where *industry development and extraction of the nonliving resources of the seabed and subsoil thereof and dumping of any kind should be prohibited.*”⁵⁴ The Frey bill directed the Secretary of Commerce to “designate as marine sanctuaries those areas . . . which the Secretary determines should be preserved or restored for their recreation, conservation, ecologic, or esthetic values,” and to make initial designations within two years and periodically thereafter.⁵⁵

Frey explained his bill as follows:

Most dredge spoil is dumped relatively inshore, where it may contaminate valuable breeding grounds for shellfish and fish species generally. In view of this, it seems entirely logical to relate the problem of ocean-dumping to the broader problem of preserving certain eco-systems within the coastal zone areas . . . While a number of bills currently being considered . . . provide for the designation of safe areas where dumping may be conducted, it seems to me more reasonable to concentrate on determining which areas of our marine environment are most valuable and setting them aside as sanctuaries. This approach is somewhat analogous to the wilderness system, which attempts to preserve in their natural state the most valuable of our remaining untouched land areas.⁵⁶

As if to underscore Frey’s point, on December 2 a large quantity of oil sludge was dumped 50 miles off Florida’s Atlantic coast by the U.S. Navy, occasioning yet another congressional hearing, this one in the Senate.⁵⁷

§ 23:13 Legislation in the 91st Congress, 1969-1970—Conclusion

⁵⁰H.R. Doc. No. 91-399, at vi.

⁵¹H.R. Doc. No. 91-399, at vii.

⁵²Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea: A Plan for National Action*, at 10 (1969).

⁵³H.R. 19763, 91st Cong. (1970).

⁵⁴H.R. 19763, § 1 (emphasis added).

⁵⁵H.R. 19763, § 9.

⁵⁶116 Cong. Rec. 37137-38 (1970) (statement of Rep. Frey, Jr. on introduction of H.R. 19763).

⁵⁷*Oil Sludge Dumping Off the Florida Coast: Hearing Before the Subcommittee on Air and Water Pollution of the House Committee on Public Works*, 91st Cong. (1970).

At the close of the 91st Congress, multiple approaches for protecting the ocean lay on the table. The sanctuary study bills proposed by Brown and Keith to save ocean places from industrial development and manage them for compatible uses had not advanced. The Senate Committee on Commerce had shown little interest in sanctuary legislation. Its efforts were focused on coastal zone management legislation, which included a modest program to create estuarine sanctuaries where research would be conducted in support of coastal management needs.

Following the Santa Barbara oil spill, the drive to ban oil development along parts of California's coast had grown in intensity, but to the frustration of Senator Cranston and others, hearings had not resulted in action by either the Senate or House Interior committees.

Intensifying concern about ocean pollution generated yet another rationale for conserving ocean places: protecting ecologically important areas and their wildlife from waste dumping. It was probably inevitable that the various strategies to protect ocean places would be combined, as they were in Rep. Frey's bill.

Regardless of approach, the basic intent of sanctuary proponents was essentially the same: to preserve the natural values (and related compatible uses) of special marine places by protecting them from industrial development and pollution. In particular, the bills sought to protect cherished areas like George's Bank and Santa Barbara for their scenic, wildlife, fishery, ecological, scientific research, and recreational values. Keith, Brown, Frey, and others envisioned a marine sanctuary system analogous to that established for terrestrial wilderness areas by the Wilderness Act. Without a marine preservation system, proponents feared the eventual destruction of unique ocean resources as had occurred to America's forest and prairies.

However, the analogy between sanctuaries and wilderness areas was not a perfect one. Whereas the Wilderness Act generally prohibits commercial activities in wilderness areas, marine sanctuary study bills treated commercial fishing as a compatible use that should be allowed in sanctuaries. There was little, if any, recognition that overfishing was, or might become, a threat to sanctuary resources or could conflict with other uses.

The major obstacles to sanctuary legislation continued to be the DOI and the oil industry, both of whom opposed restrictions on offshore oil development. Although the Santa Barbara blowout and other oil spills had drawn attention to the dangers of offshore energy development, there was no consensus on remedies. A strong countervailing concern at the time was the need to develop more domestic energy supplies. Other factors contributing to the lack of action included the referral of sanctuary legislation to two different committees in each congressional body, always a recipe for delay; the sheer volume of marine studies and recommendations that had emerged at roughly the same time and that had to be digested and harmonized; and the flowering of other environmental issues that demanded congressional attention.

Although the Nixon Administration continued to oppose marine sanctuaries, many House members, including some on the House Merchant Marine and Fisheries Committee, were determined to act. As it turned out, the ocean-dumping crisis gave them the opportunity they needed. As the 91st Congress drew to a close, ocean-dumping legislation moved to center stage.

III. THE 1972 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT OF 1972

§ 23:14 Background

With the release of the CEQ report on ocean dumping, momentum for an ocean dumping law became unstoppable. On the first day of the 92nd Congress, 17 bills to

regulate ocean dumping were introduced in the House.¹ President Nixon's draft ocean dumping bill, an outgrowth of the CEQ report, was forwarded to Congress on February 8 and introduced in both houses.²

Meanwhile, sanctuary proponents continued to act on several fronts. Early in the session, Rep. Keith introduced his sanctuary study bill (unchanged from previous versions) and his Cape Cod sanctuary designation measure.³ Reps. Murphy and Rogers reintroduced bills to protect marine ecology from waste dumping.⁴ And Rep. Frey introduced a new version of his bill to regulate dumping and establish marine sanctuaries.⁵

In the Senate, Sen. Cranston continued his campaign to ban oil and gas development in the Santa Barbara Channel and other areas along the California coast. On January 27, 1971, he introduced legislation to terminate oil leases in the Santa Barbara Channel and to establish a permanent Federal Ecological Preserve.⁶ In April, he introduced a series of bills to establish "marine sanctuaries from leasing" in federal waters at six other areas along the California coast.⁷ All of Cranston's bills were referred to the Senate Interior Committee, which dutifully gave him a hearing, but took no action.⁸

§ 23:15 House Action

The House Merchant Marine and Fisheries Committee held hearings on ocean dumping bills in early April 1971.¹ Although the principal focus of the hearings was the regulation of ocean dumping, the Murphy, Rogers, and Frey bills were formally considered. Rep. Keith did not testify, but did ask a few questions about sanctuaries, as did other committee members.

The administration's witnesses urged passage of the President's ocean dumping bill, which aimed to put EPA in charge of issuing permits for the dumping of certain wastes. Russell Train, chairman of the CEQ, told the panel that the administration's bill gave the EPA Administrator authority to identify areas where dumping would

[Section 23:14]

¹H.R. 285, 92d Cong. (1971); H.R. 336, 92d Cong. (1971); H.R. 337, 92d Cong. (1971); H.R. 548, 92d Cong. (1971); H.R. 549, 92d Cong. (1971); H.R. 805, 92d Cong. (1971); H.R. 807, 92d Cong. (1971); H.R. 808, 92d Cong. (1971); H.R. 983, 92d Cong. (1971); H.R. 1085, 92d Cong. (1971); H.R. 1095, 92d Cong. (1971); H.R. 1329, 92d Cong. (1971); H.R. 1381, 92d Cong. (1971); H.R. 1382, 92d Cong. (1971); H.R. 1383, 92d Cong. (1971); H.R. 1661, 92d Cong. (1971); H.R. 1674, 92d Cong. (1971).

²H.R. 4247, 92d Cong. (1971); H.R. 4723, 92d Cong. (1971); H.R. 5239, 92d Cong. (1971); H.R. 5268, 92d Cong. (1971); H.R. 5477, 92d Cong. (1971); H.R. 6771, 92d Cong. (1971); S. 1238, 92d Cong. (1971).

³H.R. 4568, 92d Cong. (1971); H.R. 4567, 92d Cong. (1971).

⁴H.R. 285; H.R. 1095.

⁵H.R. 4359, 92d Cong. (1971); H.R. 4360, 92d Cong. (1971); H.R. 4361, 92d Cong. (1971).

⁶S. 373, 92d Cong. (1971).

⁷S. 1446, 92d Cong. (1971); S. 1447, 92d Cong. (1971); S. 1448, 92d Cong. (1971); S. 1449, 92d Cong. (1971); S. 1450, 92d Cong. (1971); S. 1451, 92d Cong. (1971); S. 1452, 92d Cong. (1971).

⁸Bills to Create Marine Sanctuaries from Leasing Pursuant to the Outer Continental Shelf Lands Act in Areas Off the Coast of California Adjacent to State-Owned Submerged Lands in Which Such State Has Suspended Leasing for Mineral Purposes: Hearings Before the Subcommittee on Minerals, Materials, and Fuels of the Senate Committee on Interior and Insular Affairs, 92d Cong. (1971).

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¹Hearings Before the Subcommittees on Fisheries and Wildlife and on Oceanography of the House Committee on Merchant Marine and Fisheries, 92d Cong. (1971) [hereinafter House Hearing 1971].

not be permitted, implying this achieved the same objective as sanctuaries.² He also noted that the sanctuary concept involved more than just dumping considerations, and urged that sanctuaries be considered in separate legislation.³ William Ruckelshaus, the EPA Administrator, testified that EPA was in complete accord that certain critical marine areas should be protected from dumping.⁴

The DOI did not raise concerns about sanctuaries in its submitted written views, but other agencies did.⁵ The State Department expressed concern about the designation of sanctuaries in international waters, and the Navy over conflicts sanctuaries might pose for military activities.⁶ In general, however, the administration raised no concerted defense against sanctuaries, a position that would change as sanctuary legislation progressed.

Shortly after the hearings ended, the Merchant Marine and Fisheries Committee commenced a series of executive sessions to develop a final ocean-dumping bill. It was during the course of these deliberations that a marine sanctuaries provision was added. A preview of the sanctuaries title came on June 17, when Rep. Alton Lennon (D-NC), chairman of the Oceanography Subcommittee, introduced a measure to establish a National Coastal and Estuarine Zone Management Program and a Marine Sanctuaries Program; Rep. Keith cosponsored the Lennon measure.⁷ The sanctuaries provision of Lennon bill's was almost identical to that included in Title III of the committee's ocean dumping bill, H.R. 9727, which was introduced a few days later on July 13 by Leonard Garmatz (D-MD), chairman of the House Merchant Marine and Fisheries Committee.⁸

The Garmatz bill, entitled The Marine Protection, Research and Sanctuaries Act, was a three-part measure that established a regulatory scheme for ocean dumping, a comprehensive research program to investigate the short and long term effects of pollution on the ocean, and a marine sanctuaries program.⁹ The committee viewed the three titles as complementary.¹⁰

The sanctuaries title (Title III) was an amalgam of old and new concepts. Title III provided the Secretary of Commerce with broad discretionary authority to designate in coastal, ocean and Great Lakes waters those marine sanctuaries he determined were necessary for the purposes of preserving and restoring an area's conservation, recreational, ecological, or esthetic values. The Secretary was given two years to make the first designations and was to make others periodically thereafter. In established sanctuaries, the Secretary had broad and complete power to regulate uses and ensure they were consistent with the sanctuary's purposes. The Sanctuaries Program was authorized for three years and given annual budget authority of up to \$10 million.

Title III was a decided shift away from earlier sanctuary concepts. The committee bill *did not mirror the Wilderness Act by establishing a marine wilderness preserve system*, as had been recommended by President Johnson's Science Advisory Committee. Perhaps more striking, *it lacked any prohibitions on industrial development, including oil development, in sanctuaries*, one of the principal goals of Keith,

²House Hearing 1971, at 164, 167-68.

³House Hearing 1971, at 164, 169-70.

⁴House Hearing 1971, at 95, 99.

⁵House Hearing 1971, at 107-09.

⁶House Hearing 1971, at 111-13.

⁷H.R. 9229, 92d Cong. (1971).

⁸H.R. 9727, 92d Cong. (1971).

⁹H.R. 9727, 92d Cong. (1971).

¹⁰To Regulate the Dumping of Material in the Oceans, Coastal, and Other Waters, and for Other Purposes, H.R. Rep. No. 92-361, at 15 (1971) (on H.R. 9727).

Frey, and others.

The committee unanimously reported H.R. 9727 on July 17. House floor debate began September 8, and the bill passed the House by a vote of 300 to 4 on September 9. Members unhappy with the way the sanctuaries title treated offshore oil raised two significant challenges to the bill on the floor. One group, led by Reps. Norman Lent (R-NY) and Teague, objected to the absence of prohibitions on oil development, while the other, led by Interior Committee chairman, Wayne Aspinall (D-CO), and supported by the Nixon Administration, feared the bill would restrict offshore energy development, even though it contained no prohibitions on oil drilling.¹¹ Aspinall also claimed the bill infringed upon his committee's jurisdiction because it affected the OCS leasing program. A Lent-Teague amendment to expressly prohibit oil drilling in sanctuary study areas and designated sanctuaries was defeated.¹² Aspinall's attempt to delete the entire sanctuaries title also failed.¹³

§ 23:16 Action in Senate

The Senate Commerce Committee, which had shown little interest in marine sanctuaries legislation prior to the 92nd Congress, remained unengaged. The committee's top ocean priorities in the 92nd Congress were research, control of ocean pollution, and coastal zone management. In March and April 1971, the Senate Subcommittee on Oceans and Atmosphere, chaired by Sen. Ernest Hollings, held hearings on the administration's ocean dumping bill and a Hollings measure to foster oceanic research and development programs.¹ The Hollings bill included a provision to authorize grants to coastal states for acquisition, development, and operation of estuarine sanctuaries for research purposes as had been recommended by the Stratton Commission.² Marine sanctuaries were not considered at the hearing.

The House-passed ocean dumping bill was received in the Senate on September 10 and referred jointly to the Committees on Commerce and Public Works, both of which claimed jurisdiction over water pollution in the oceans.³ Commencing September 15, and continuing into October, the Senate Commerce Committee marked up its version of the bill and engaged in discussions with the Public Works Committee to harmonize the bill's content with other pollution laws.

The sanctuaries title was deleted at the outset of the Commerce Committee's mark-up process. The Commerce Committee's version of the ocean-dumping bill was reported with the concurrence of Public Works Committee on November 12.⁴

In its report on the bill, the Commerce Committee acknowledged the value of marine sanctuaries for certain purposes:

The Committee believes that the establishment of marine sanctuaries is appropriate where it is desirable to set aside areas of the seabed and the superjacent waters for scientific study, to preserve unique, rare, or characteristic features of the oceans, coastal, and other waters, and their total ecosystems. In this we agree with the Members of the House of Representatives. Particularly with respect to scientific investigation, marine sanctuaries would permit baseline ecological studies that would yield greater knowledge

¹¹117 Cong. Rec. 30853, 31137-38, 31144, 31147 (1971).

¹²117 Cong. Rec. 30853, 31137-38, 31144, 31147 (1971).

¹³117 Cong. Rec. 30853, 31137-38, 31144 (1971).

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¹Ocean Waste Disposal: Hearing on S. 307, 1082, 1238, and 1286 Before the Subcommittee on Oceans and Atmosphere of the Senate Committee on Commerce, 92d Cong. (1971).

²S. 307, 92d Cong., § 410 (1971).

³H.R. 9727, 92d Cong. (1971).

⁴S. Rep. No. 92-451 (1971) (on H.R. 9727).

of these preserved areas both in their natural state and in their altered state as natural and manmade phenomena effected change.⁵

However, the Committee explained it had deleted the sanctuaries title because “the principal purposes for which marine sanctuaries should be established would not be accomplished by the proposed [House] legislation.”⁶ The Committee rejected the bill because (1) the United States did not have authority under international law to establish sanctuaries beyond its territorial limits; (2) marine sanctuaries in international waters would be ineffective as the United States could not control the actions of foreign nationals on the high seas portion of a sanctuary; (3) new authority was not needed to regulate the exploitation of seabed resources because OCSLA already provided this authority; and (4) assertion of authority over portions of the high seas for sanctuaries undermined the nation’s self-interest in maintaining narrow geographical claims over the world’s oceans as a tenant of its foreign policy.⁷

The Senate’s ocean dumping bill passed on November 24 by a vote of 73 to 0, but not without controversy over its lack of a marine sanctuaries title.⁸ Sen. Nelson offered an amendment to restore the House sanctuary language⁹ and to invoke a moratorium on oil and gas leases off the east coast until the Secretary of the Interior made his first sanctuary designations.¹⁰ Nelson wished to avoid Santa Barbara-like disasters from harming the east coast.¹¹

Both the Nixon Administration and the Senate Commerce Committee opposed Nelson’s amendment to restore the sanctuaries title, using many of the same arguments Interior and other agencies had raised against the House bill.¹² Sen. Hollings reiterated the committee’s concerns about marine sanctuaries, particularly the extension of U.S. jurisdiction into international waters.¹³ That, he said, was the Nelson amendment’s “fatal flaw.”¹⁴

Hollings bolstered his opposition with another argument: The amendment was not needed because the Commerce Committee already had acted to establish *estuarine sanctuaries* when it approved legislation to create a Coastal Zone Management program.¹⁵ Estuarine sanctuaries complied with international law in that they were only to be established within the three-mile territorial limit of the United States. Estuarine sanctuaries were needed, said Hollings, to provide a “rational basis for intelligent management of coastal and estuarine areas.”¹⁶ The Commerce Committee, explained Hollings, envisioned “such sanctuaries as natural areas set aside primarily to provide scientists with the opportunity to make baseline ecological measurements . . . Such sanctuaries should not be chosen at random, but should reflect regional differentiation and a variety of ecosystems so as to cover all significant natural variations.”¹⁷ This view echoed the Stratton Commission and CEQ’s recommendations for a system of marine research reserves.

⁵S. Rep. No. 92-451 (1971).

⁶S. Rep. No. 92-451, at 15.

⁷S. Rep. No. 92-451, at 15.

⁸117 Cong. Rec. 43078 (1971).

⁹117 Cong. Rec. 43056-57 (1971).

¹⁰117 Cong. Rec. 43217-19 (1971).

¹¹117 Cong. Rec. 43218.

¹²117 Cong. Rec. 43061-62.

¹³117 Cong. Rec. 43057-58.

¹⁴117 Cong. Rec. 43057-58.

¹⁵117 Cong. Rec. 43057-58.

¹⁶117 Cong. Rec. 43057.

¹⁷117 Cong. Rec. 43057.

Sen. Gordon Allott (R-CO), the ranking minority member of the Interior Committee, supported the Commerce Committee and administration views that ample authority existed under the Outer Continental Shelf Lands Act to regulate minerals leasing on the Outer Continental Shelf.¹⁸ Furthermore, he argued that giving the Secretary of Commerce the authority to lock up offshore energy resources in sanctuaries, before the Interior Committee's pending national energy study was completed, said Allott, was premature.¹⁹

Nelson withdrew his amendment after considering the objections of the Commerce Committee and receiving assurances from the chairmen of the Commerce, Interior, and Public Works Committees that a joint committee hearing would be held on the subject the following year.²⁰ Shortly before the Congress adjourned, Nelson introduced his withdrawn amendment as a separate bill, but the promised hearings were never held.²¹ Nelson also introduced another bill that provided for a two-year study of the probable effects of new or additional mineral leasing and development in the OCS and Great Lakes on the "ecological, esthetics, recreation, resource, and scientific values of and related to such areas."²² Until the report was submitted, the bill would prevent minerals leases from being issued in the OCS.²³

Conference Committee

The Conference Committee named to resolve differences between the House and Senate ocean dumping bills immediately hit a snag that tied up action for almost a year. The issue in disagreement concerned which agency would regulate dredge spoil dumping, EPA or the U.S. Army Corps of Engineers.²⁴ It took until late 1972 to resolve the issue and issue the conference report.²⁵ The compromise bill that finally emerged included Title III as passed by the House with a few changes. Among other things, these included an expansion of the waters subject to sanctuary designation and changes in the enforcement provisions. The Senate and the House both approved the conference report on October 13th.²⁶ The MPRSA of 1972 was signed by President Nixon on October 23, 1972, despite the administration's unhappiness with the sanctuaries title.

§ 23:17 Provisions of the Sanctuary Title

The sanctuaries title that ultimately passed the Congress was a hybrid of various legislative concepts that preceded it and compromises forged in the committee's executive sessions. Title III did not fully implement the recommendation of President Johnson's Science Advisory Committee for a national marine wilderness preserve system modeled after the standards and principles of the Wilderness Act. For example, the Act did not formally establish a national sanctuary system or designate the first set of sanctuaries, as did the Wilderness Act for terrestrial wilderness areas.

Furthermore, the Act did not define what a marine sanctuary is, provide specific guidance on how the system was to be developed or how big it should be, or specify

¹⁸117 Cong. Rec. 43058-59.

¹⁹117 Cong. Rec. 43058-59.

²⁰117 Cong. Rec. 43057-58.

²¹S. 2971, 92d Cong. (1971).

²²S. 2973, 92d Cong. (1971).

²³S. 2973, 92d Cong. (1971).

²⁴118 Cong. Rec. 13401 (1972).

²⁵H.R. Conf. Rep. No. 92-1546 (1972).

²⁶118 Cong. Rec. 35842, 36045 (1972).

the uses that would be allowed or prohibited. Rather, Title III gave the Secretary of Commerce broad *discretionary authority* to preserve ocean places on a case-by-case basis if the Secretary determined sanctuary designations were “necessary for the purpose of preserving or restoring” marine areas for their “conservation, recreational, ecological, or esthetic values.” The Secretary was directed to make the first designations within two years and periodically thereafter, and to manage sanctuaries consistent with their designated purposes.

At least some members considered the Program experimental. Rep. Dingell, one of the bill’s floor managers, said that the Program may be extended after its three-year authorization period, “depending upon how effectively it has been carried out.”¹ The life of the Program was limited to two fiscal years after the fiscal year in which it was enacted, meaning the Program would require periodic reauthorization.² In contrast, the Wilderness Act had permanent authority.

§ 23:18 Provisions of the Sanctuary Title—Problem Addressed

The problem Title III attempted to address was fundamentally the same as that identified in the earliest sanctuary bills: the need to preserve places in the ocean with special values from industrial development. In its report on the bill, the Committee stated:

Title III deals with an issue which has been of great concern to the Committee for many years: the need to create a mechanism for protecting certain important areas of the coastal zone from intrusive activities by man. This need may stem from the desire to protect scenic resources, natural resources or living organisms; but it is not met by any legislation now on the books . . . The pressures for development of marine resources are already great and increasing. It is never easy to resist these pressures and yet all recognize that there are times when we may risk sacrificing long-term values for short-term gains. The marine sanctuaries authorized by this bill would provide the means whereby important areas may be set aside for protection and may thus be insulated from the various types of “development” which can destroy them.¹

Rep. Dingell referred to Title III as a “badly needed” tool “with which we may begin to repair some of the damage that has been done to the oceans in the past, and can protect important areas from further impairment.”² In short, preservation and restoration was professed to be the Act’s primary goal.

§ 23:19 Provisions of the Sanctuary Title—Purpose and Policy, Goals and Deadlines

Consistent with the Committee’s preservation intent, Title III authorized the Secretary of Commerce, after consulting with other federal agencies, to “designate as marine sanctuaries those areas . . . which he determines necessary for the purpose of *preserving or restoring such areas for their conservation, recreational, ecological or esthetic values.*”¹ Sanctuaries could be designated within ocean, coastal, and other waters “as far seaward as the outer edge of the Continental Shelf . . . other coastal waters where the tide ebbs and flows,” and the Great Lakes and their connecting

[Section 23:17]

¹118 Cong. Rec., at 36045.

²118 Cong. Rec., at 31132 § 304.

[Section 23:18]

¹H.R. Rep. No. 92-361, at 15.

²117 Cong. Rec. 30853.

[Section 23:19]

¹117 Cong. Rec., at 31132 (emphasis added).

waters.²

No specific marine areas were identified for designation or inventory, as had occurred for wilderness areas under the Wilderness Act, and no size limits were specified. Although the Secretary could designate as many or as few sanctuaries as he or she saw fit, Congress clearly expected the Secretary to execute the Program with dispatch because it directed that the initial designations be made within two years and periodically thereafter. According to the Committee:

The reasons for designating a marine sanctuary may involve conservation of resources, protection of recreational interests, the preservation or restoration of ecological values, the protection of esthetic values, or a combination of any or all of them. It is particularly important therefore that the designation clearly states the purpose of the sanctuary and that the regulations in implementation be directed to the accomplishment of the stated purpose.³

The bill's preservation purpose was not as strongly reflected in the Act's policy and provisions as it could have been. For example, unlike earlier sanctuary bills, the Act did not expressly prohibit oil drilling, pollution discharges, or other development uses within sanctuary study areas or designated sanctuaries. Neither was there any language specifying the particular uses to be allowed in sanctuaries once established. Instead of precise guidance, the Act gave the Secretary broad discretionary authority to decide exactly what kind of preservation was to be afforded each area (*see* discussion on management in § 20:22). To a large degree, the Committee intended the Secretary to resolve existing or potential use conflicts through required consultations with federal agencies prior to a sanctuary's designation. "In any case where there is no way to reconcile competing uses, it is expected that the ultimate decision [to designate a sanctuary or not] will be made at a higher level in the Executive branch."⁴

More significantly, during House floor debate, committee members described the Act as giving dual or balanced emphasis to preservation and multiple use of sanctuaries, *including exploitative uses*, even though *the Act was silent on multiple use*.⁵ But if sanctuaries were to be multiple use areas, preservation and restoration could hardly be the Act's singular goal. Thus, from the start, the Act's preservation purpose was muddled by the House's interpretive guidance. Because of its long-term importance to the evolution of the Act, the preservation versus multiple use debate is dealt with extensively here.

§ 23:20 Provisions of the Sanctuary Title—Preservation vs. Multiple Use Focus

In explaining the bill and opposing the amendments offered by Lent and Aspinall, the House bill's floor managers and other committee members made extensive remarks about the bill's purpose and management provisions. The debate was confusing. Statements were made that were incomplete, ambiguous, internally contradictory, contradictory of other statements, and at times at odds with the plain meaning of the statute and committee report. The overall thrust of the argument put forth by the bill's managers was that although Title III intended to protect special places in the ocean to preserve long-term values, the Secretary was to pursue this goal with a balanced approach, meaning that both preservation and

²117 Cong. Rec., at 31132.

³H.R. Rep. No. 92-361, at 27.

⁴H.R. Rep. No. 92-361, at 27.

⁵*See, e.g.*, 117 Cong. Rec. 30853, 30855 (statement of Rep. Mosher), 20858 (statement of Rep. Keith).

development uses could occur within the same sanctuary if the Secretary decided they should.

Especially important are the statements made by the bill's floor managers: Reps. Dingell and Lennon on the Democratic side and Tom Pelly (R-WA) and Charles Mosher (R-OH) for the Republicans. Rep. Dingell spoke first. Citing the Santa Barbara spill, Dingell noted the human propensity to "sacrifice long-term values for short-term gain."¹ Dingell called Title III "an expeditious means of protecting important values . . . In Title III we do no more than provide the tools with which to preserve important assets for generations yet unborn."² Rep. Lennon, the chairman of the Oceanography Subcommittee, which helped shape the bill, said that Title III "provides a scheme whereby areas may be preserved or restored in order to insure their maximum overall potential, and would in effect provide for rational decisions on competing uses in the offshore waters."³

Rep. Mosher, the floor manager for the Republicans, addressed the multiple use issue head on. Mosher said that the purpose of Title III "is to insure the highest and best use of this national asset [the oceans]."⁴ Mosher assured his colleagues that he was not against using the sea's resources, living or mineral, but that "development must be conducted with an understanding and awareness of its consequences."⁵ He went on to say:

These various uses of the oceans, the water column, and the seabed can exist in harmony. They are not mutually exclusive nor [sic] incompatible. Experience with offshore platforms in the Gulf of Mexico has proven, for example, that a net increase in the fish population generally results.

The report of your committee makes it abundantly clear that the designation of a marine sanctuary is not intended to rule out multiple use of the sea surface, water column or seabed. Any proposed activity must, however, be consistent with the overall purpose of this title. An inconsistent use, in my opinion, would be one which negates the fundamental purpose for which a specific sanctuary may be established.

This title . . . is intended to insure that our coastal ocean waters are utilized to meet our total needs from the sea. Those needs include recreation, resource exploitation, the advancement of knowledge of the earth, and the preservation of unique areas. All are important.

This title is not designed to terminate the use of our coastal waters to meet any of these needs.⁶

Rep. Keith, who had sought to protect Georges Bank from oil development since 1967, explained that "the original marine sanctuaries concept [which he had championed] has been changed from one which would have called for a complete oil drilling moratorium to one which would permit drilling within the purposes of this title."⁷ Elaborating further on multiple use, Keith argued that preservation and development uses should be "balanced":

Certainly we do not intend, here, to punish consumers by denying them the necessary food and energy of the sea and seabed. Neither do we intend to be so responsive to the mineral interests that we adversely affect the essential protein resources of the sea.

[Section 23:20]

¹117 Cong. Rec., at 30855, 20858.

²117 Cong. Rec., at 30855, 20858.

³117 Cong. Rec., at 30857 (statement of Rep. Lennon).

⁴117 Cong. Rec., at 30855.

⁵117 Cong. Rec., at 30855.

⁶117 Cong. Rec., at 30855.

⁷117 Cong. Rec., at 30858.

I certainly believe in the dual usage concept for our coastal ocean waters. But I also believe such dual usage must be balanced. Neither usage should be permitted to destroy the other. In short, we need the oil and gas and we need the fish. Our bill recognizes this key fact. And it provides the proper safeguards to preserve that balanced basis.

I must admit that the word, "sanctuaries," carries a misleading connotation. It implies a restriction and a permanency not provided in the title itself.

Title III simply provides for an orderly review of the activities on our Continental Shelf. Its purpose is to assure the preservation of our coastal areas and fisheries, and at the same time assuring such industrial and commercial development as may be necessary in the national interest. .

It provides for multiple usage of the designated areas. It provides a balanced, even-handed means of prohibiting the resolution of one problem at the expense of the other. It guards against "ecology of the sake of ecology." It also guards against the cynical philosophy that the need for oil is so compelling that it justifies the destruction of the environment.⁸

In sum, Keith explained the Act as one providing for multiple uses within sanctuaries, including oil development, but with "proper safeguards," referring presumably to the Act's provision that requires the Secretary to regulate sanctuary uses and to certify that uses authorized under other laws are consistent with the purposes of the title and with individual sanctuary regulations.⁹

In responding to Rep. Aspinall's fears that Title III would lock up the oceans from oil and gas development, Rep. Pelly backed Mosher's and Keith's claims that the Act was not intended to be used to block oil development.

Let me reemphasize the fact that marine sanctuaries. . . are not intended to prevent legitimate uses of the sea. They are intended to protect unique areas of the ocean bordering our country. How many such marine sanctuaries should be established remains to be determined. It is likely that most of them will protect sections of our national seashores. A sanctuary is not meant to be a marine wilderness where man will not enter. Its designation will insure very simply a balance between uses.¹⁰

Pelly went on to argue that mere designation of a sanctuary did not prohibit current or prospective oil development. While oil and gas activities could conceivably be banned under the provision allowing the Secretary to regulate uses inconsistent with sanctuary purposes, Pelly did not envision that this would "frequently be the case."¹¹

Later in the debate, an amendment was offered by Reps. Lent and Teague to prohibit new oil and gas exploration and development activities in areas being studied for sanctuary status and all energy development in designated sanctuaries.¹² Lent argued that Title III was only a partial solution to coastal degradation because it did not specifically deal with offshore oil development, the biggest threat to the coastal areas and values the bill sought to protect. "If there is any activity that can be judged more totally incompatible with the concept of marine sanctuaries . . . it must be the offshore drilling of oil," argued Lent.¹³ In response, Pelly said:

Your committee considered this most carefully and rejected the concept [of proscribing oil development]. We are, as I have indicated, in favor of a balanced and rational use of the oceans, not an exclusive use for any one industry or group.

Offshore oil can be produced safely, and it is needed to meet our growing energy

⁸117 Cong. Rec., at 30858.

⁹117 Cong. Rec., at 30858.

¹⁰117 Cong. Rec., at 31136.

¹¹117 Cong. Rec., at 31136.

¹²117 Cong. Rec., at 31138.

¹³117 Cong. Rec., at 31138.

requirements. It is not a sacred cow, however, and is subject to the National Environmental Policy Act.

Moratoriums are not the answer. We cannot bury our heads in the sand.¹⁴

Rep. Keith explained that although his constituents were adamantly opposed to further oil and gas activities off the Massachusetts coast, he could not support the Lent-Teague amendment, which was similar to one he had advanced in his own bills, because the President would veto the Act if it restricted oil development.¹⁵ Lennon also spoke against the Lent-Teague amendment, saying that the Secretary should not be constrained from deciding that oil drilling is “consistent with sanctuary designation.”¹⁶ Toward the end of the debate, Lennon submitted for the record a list of committee-prepared questions and answers to “clarify certain points on the bill.”¹⁷ These represent perhaps the most carefully crafted expression of the Merchant Marine Committee’s legislative intent:

1. Title III was included to extend “protections to specific areas which need preservation or restoration by providing a process through which rational choices as to competing uses of those areas may be made.”
2. The committee opposed prohibitions on oil and gas development in study areas because studies could take a long time and might not result in a designation; thus restriction on industrial development or oil exploration would be “undesirable.”
3. Oil development in sanctuaries should not be prohibited by the Act. The Secretary of Commerce should have the flexibility to certify oil development as consistent with the sanctuary’s purpose:

While in most cases oil exploitation activities would probably be inconsistent with the purpose of a sanctuary and, therefore, could not be certified under present language as consistent, there might be some instances where this would not necessarily be the case Therefore, to automatically forbid oil exploration in any sanctuary no matter whether it really violated the purposes of the sanctuary, would be inconsistent with the purposes of the Act and would remove from the Secretary the desirable flexibility now provided.¹⁸

In sum, during floor debate, members of the Merchant Marine and Fisheries Committee infused a sparsely drawn Act with added meaning beyond its plain meaning. Despite the statute’s clear preservation and restoration purpose, and the “safeguard” provision enabling the Secretary to prohibit uses inconsistent with these purposes, the Act was explained on the House floor as one intended to encourage or even actively promote multiple use of sanctuaries for both preservation and *resource exploitation purposes*.

§ 23:21 Provisions of the Sanctuary Title—Designation Process

In contrast to the Wilderness Act, which provides explicit guidance on the survey, identification, nomination, and designation by Congress of wilderness areas, the MPRSA delegated most of these details to the executive branch. The committee report stated that the Secretary may develop “preliminary information” on potential sanctuaries “in any manner he sees fit; however a scheme for processing preliminary information is considered necessary if the process is to be responsive to the

¹⁴117 Cong. Rec., at 31143.

¹⁵117 Cong. Rec., at 31144.

¹⁶117 Cong. Rec., at 31143-44.

¹⁷117 Cong. Rec., at 31157.

¹⁸117 Cong. Rec., at 31157.

public interest and need, and the Secretary is expected to publish such a scheme.”¹

Whereas the Wilderness Act requires wilderness areas to be designated by Congress, the sanctuaries law gives that power to the Secretary. There is no discussion in the record of why Congress delegated the power to designate to the Secretary. However, creating a program whose implementation rested heavily with the executive branch put the Program’s fate in the hands of the power that opposed the Program, and was thus most likely to go slowly. Another factor may have been that the Merchant Marine and Fisheries Committee gave the designation authority to the executive branch because this followed the model of how national wildlife refuges were created.²

The Sanctuaries Act required the Secretary to consult with federal agencies and allow them to comment on proposed designations, and to hold public hearings to solicit the views of interested parties before making a designation.³ In the case of sanctuary proposals that encompass state territorial waters, the Secretary was to consult with state officials.⁴ Governors had the power to veto inclusion of any portion or all of state waters within a sanctuary within 60 days of its designation.⁵ For sanctuaries that included extraterritorial waters (waters outside three miles), the Secretary of State was directed to enter into negotiations with foreign governments to conclude protection agreements and “promote the purposes” for which the sanctuary was established.⁶

The sanctuary designation process would prove to be a problem once implementation got underway. Congress later would spend a good deal of time providing further guidance and clarifying its own role in the process.

§ 23:22 Provisions of the Sanctuary Title—Management and Protection Standards

The Act gave the Secretary broad regulatory power for the management and protection of designated sanctuaries:

[T]he Secretary . . . shall issue necessary and reasonable regulations to control any activities permitted within the designated marine sanctuary, and no permit, license, or other authorization issued pursuant to any other authority shall be valid unless the Secretary shall certify that the permitted activity is consistent with the purposes of this title and can be carried out within the regulations promulgated under this section.¹

In other words, under the plain meaning of the statute, the Secretary had clear authority to establish sanctuaries that preserved resources for specified preservation and restoration purposes, and regulate or ban uses that were inconsistent with the Act’s purposes.²

Although the Secretary of Commerce’s powers were broadly cast and clearly preservationist in intent, the Secretary’s potential to block development uses of the ocean, such as offshore oil development, helped generate opposition to the Act by

[Section 23:21]

¹H.R. Rep. No. 92-361, at 28.

²Interview with Daniel Ashe, National Marine Sanctuaries Program History (June 13, 2003).

³117 Cong. Rec. 31132.

⁴117 Cong. Rec. 31132.

⁵117 Cong. Rec. 31132.

⁶117 Cong. Rec. 31132.

[Section 23:22]

¹117 Cong. Rec. 31132.

²117 Cong. Rec. 31132.

the Nixon Administration and members of Congress who supported the offshore oil development program. In the floor debate on multiple use, Merchant Marine Committee members frankly acknowledged the provision to certify uses as a “safeguard,” but simultaneously undermined its future use by advising executive branch implementers of the law to focus on creating sanctuaries where preservation and development uses were balanced; hence, no conflicts would theoretically exist and the provision would not need to be applied. Even so, the floor guidance was insufficient to save the Act from controversy. The safeguard provision would be one of the first provisions of the law to be changed.

§ 23:23 Provisions of the Sanctuary Title—Relation to Other Laws

Title III contained no specific provisions regarding its relationship to other federal laws. Despite the objection of the DOI that it had authority under the National Environmental Policy Act and OSCLA to protect the environmental values of the ocean that were to be protected under Title III, the committee clearly believed the sanctuaries title filled a gap in ocean protection. Noting that the Merchant Marine and Fisheries Committee had considered sanctuary bills for several years, Dingell said: “The Congress has been continually impressed with the fact that we have had no policy for the protection of these areas in the offshore lands which have significant ecological, environmental, and biological values.”¹

In terms of the Act’s effects on existing federal programs, the committee assumed that the required consultation among federal agencies and states would resolve any conflicts and provide coordination:

The consultation process is designed to coordinate the interests of various Federal departments and agencies, including the management of fisheries resources, the protection of national security and transportation interests, and the recognition of responsibility for the exploration and exploitation of mineral resources. It is expected that all interests will be considered, and that no sanctuary will be designated without complete coordination in this regard.²

In response to charges by the DOI and members of the Interior Committee that Title III would interfere with energy production under the OSCLA and lock up offshore oil deposits, Dingell disagreed, saying it “is not the intent of the Committee on Merchant Marine and Fisheries to halt drilling or other mineral exploration.”³ Several other House members made the same point during discussion of multiple use.⁴ Although the DOI and the Nixon Administration were unable to derail passage of the Act, the issue of the law’s relationship to the offshore leasing program would arise over and over again.

§ 23:24 Provisions of the Sanctuary Title—Conclusion

As enacted, the sanctuaries law only partially achieved the preservation intent of its original legislative champions. Reps. Keith, Brown, and others initially envisioned a system of marine wilderness preserves analogous to that of the National Wilderness Preservation System. Sanctuaries were proposed as a tool for preserving the environmental integrity of special marine areas and managing them for human uses deemed compatible with the natural environment, such as wildlife conservation and commercial and sport fishing. Industrial and commercial develop-

[Section 23:23]

¹117 Cong. Rec. 31146.

²H.R. Rep. No. 92-361, at 27.

³117 Cong. Rec. 31146.

⁴*See, e.g.*, 117 Cong. Rec. 31140.

ment that conflicted with the preservation purposes and desired uses of sanctuaries would be precluded.

But the analogy was not a perfect one. Whereas the Wilderness Act allowed recreational hunting and fishing in wilderness areas, sanctuary proponents saw no problem with allowing commercial fishing in sanctuaries even though it potentially posed a significant threat to sanctuary resources and might conflict with other uses. Preservation of fishery resources was one intended outcome of the Act, and the potential for conflict was simply never raised.

The Sanctuaries Act that passed in 1972 represented a significant modification of the original vision. Although drafted as a preservation and restoration measure, the House floor debate signaled that sanctuaries were to be multiple use areas in which all uses could be considered, even industrial ones, as part of the designation process. Furthermore, rather than establish a national sanctuary system outright with attendant guidance on how the system was to be built, Congress instead created a three-year program under which the Secretary of Commerce had discretion to designate as few or as many sanctuaries as he or she saw fit. In short, the Act gave enormous power to the executive branch to invent a place-based ocean conservation program underpinned by congressional guidance that was both ambiguous and sketchy.

What constitutes a marine sanctuary? What specific resources or places does the Act attempt to preserve? How would they be identified? What exactly does multiple use mean? Can any uses be excluded from a sanctuary? These and other questions would arise again and again as the law evolved over the next 30 years and as interest groups jostled with conservationists over virtually every major sanctuary proposal.

IV. THE RISE OF MULTIPLE USE, 1973-1986

§ 23:25 Background

Implementation of the National Marine Sanctuaries Act (NMSA), as Title III of the Marine Protection, Research and Sanctuaries Act came to be known, was slow to gain momentum. NOAA, the agency in the Commerce Department to which the Program was delegated, was scarcely two years old and still getting its sea legs when the Sanctuaries Act was passed. The Nixon administration's opposition to the Act was still warm, particularly at Interior. Equally problematic was the lack of clear and specific guidance from Congress on key points, such as designation priorities and which uses to allow in sanctuaries. The inherent difficulty of getting a new, unwanted program off the ground was compounded by a statute that emphasized preservation, but whose legislative history stressed multiple use of sanctuaries. In which direction was NOAA supposed to lean, and how far?

In its first program regulations, issued in 1974, NOAA signaled its intent to follow the House's lead and move the Program in the direction of multiple use sanctuaries. Initially, designations were few, as little money was spent to develop the Program. Once implementation began in earnest under the Carter Administration, controversies erupted over the scope, requirements and impact of the Program as NOAA attempted to designate areas such as Flower Garden Banks, Channel Islands, Georges Bank, and Farallon Islands.

Some observers and members of Congress became frustrated in general with the workability of the regulations. Oil and commercial fishing industries in particular developed a growing antipathy toward the Act because of its potential to infringe upon their activities. The oil industry sought to have oil development allowed in sanctuaries as an acceptable multiple use, and the fishing industry did not want sanctuaries to restrict their customary practices. From roughly 1977 to 1986, these

industries and their congressional allies led a counterattack against the Program that challenged the law's very existence. Barring repeal of the Act, the oil and fishing industries sought to limit the law's application by watering down its preservation purpose. In this they were largely successful. By 1984, NOAA and Congress had made a series of decisions that essentially refocused the Act's purpose from preserving and protecting places for their distinctive natural values to balancing preservation with other human uses. In short, multiple use sanctuaries became the defining paradigm of the Program.

§ 23:26 First Regulations, 1974

As a new agency cobbled together with units from other departments, NOAA had little experience managing ocean places for preservation purposes. In late 1973, NOAA hosted a national workshop to obtain advice on how to implement both the Marine Sanctuaries Program and the estuarine sanctuaries program, which had been authorized by the Coastal Zone Management Act (CZMA).¹ The workshop brought together members of state and federal agencies, conservation organizations, and industry/user groups. Participants generally felt that the marine sanctuary legislation provided less guidance and focus of purpose than the more narrow and specific estuarine sanctuary provisions of the CZMA. Among other things, the workshop explored the need for different kinds of marine sanctuaries, including a multiple use class; the desirability of frequent review of each sanctuary to determine if the purposes for which it was designated were still valid; and the need for regulated activities to be declared prior to designation so that cooperating states would understand what they were agreeing to.

Building off of the workshop's results, regulations for the Marine Sanctuaries Program were issued in June 1974.² The regulations established the policy and objectives of the Program, the kinds of areas that could be designated, a designation process, and procedures to enforce sanctuary regulations.

§ 23:27 First Regulations, 1974—Program Purpose and Multiple Use

The regulations reaffirmed the 1972 Act's clearly stated purpose of preserving or restoring certain areas for their conservation, recreational, ecological, or esthetic values.¹ The regulations identified five types of sanctuaries: habitat areas, species areas, research areas, recreational and esthetic areas, and areas with "unique or nearly one of a kind geological, oceanographic, or living resource feature[s]."² This provision appears to have originated in the 1973 workshop, which had suggested that NOAA create a range of sanctuary types.³

NOAA's regulations did not elaborate on the Act's restoration purpose. Under what circumstances and how would degraded marine areas be restored and to what condition? The failure to address restoration was a curious omission, given the fact that restoring coastal and ocean areas was a major theme of congressional discus-

[Section 23:26]

¹Marine and Estuarine Sanctuaries, Proceedings of the National Workshop on Sanctuaries (M.P. Lynch et al. eds., 1974).

²39 Fed. Reg. 23254 (1974); Robert R. Kifer, Comments: NOAA's Marine Sanctuary Program, 2 Coastal Zone Management J. 177, 179 (1975).

[Section 23:27]

¹39 Fed. Reg. 23254 (1974).

²39 Fed. Reg. 23254, 23256 (1974).

³Marine and Estuarine Sanctuaries, Proceedings of the National Workshop on Sanctuaries 39 (M.P. Lynch et al. eds., 1974).

sions of the period, as well as a specific purpose of the Act. NOAA never seriously addressed the restoration purpose before being repealed by Congress in 1984.

Instead of establishing a sanctuary category for multiple use, as had been discussed in the workshop, the 1974 regulations specified that “multiple use of marine sanctuaries . . . will be permitted [in all sanctuary types] to the extent the uses are compatible with the primary purposes of the sanctuary.”⁴ Multiple use was defined to mean

the contemporaneous utilization of an area or reserve for a variety of compatible purposes to the primary purpose so as to provide more than one benefit. The term implies the long-term, continued uses of such resources in such a fashion that one will not interfere with, diminish, or prevent other permitted uses.⁵

In responding to public comments about the multiple use provisions, NOAA explained:

The question of multiple use will need to be examined on a case by case basis. The legislative history of the Title clearly indicates that *multiple use of each area should be maximized consistent with the primary purpose*. Additionally, the statute clearly indicates, as a safeguard that “no permit, license, or other authorization issued pursuant to any other authority shall be valid unless the Secretary (Administrator) shall certify that the permitted activity is consistent with the purposes of this title and can be carried out within the regulations promulgated.”⁶

There are two points to be drawn. First, while several statements made on the House floor clearly pushed implementation in the direction of multiple use, nowhere does the record show that multiple use was to be *maximized consistent with the Act's stated purposes*. Rather, the maximization emphasis was NOAA's interpretation of how it was supposed to implement the Act. One of the early managers of the Sanctuaries Program, Robert Kifer, summarized his understanding of Congress' concept of sanctuaries as follows:

There are areas of the ocean that should be preserved for various purposes and once a purpose has been identified for a given sanctuary, the ensuing regulations should not reach beyond controlling those activities that will interfere or destroy the values of the primary purpose. *Thus, multiple compatible use should be encouraged.*⁷

Kifer's use of “encouraging” rather than “maximizing” multiple use is a subtle but significant difference of emphasis. Encouragement implies support or stimulation of compatible uses, whereas maximization connotes that the agency would permit uses to their fullest extent and assign them the “highest possible importance.”⁸ Even within NOAA, therefore, there can be seen disagreement about what the Act intended regarding multiple use. An alternative interpretation of the House debate record is that while multiple use *could* be allowed, it was not mandated or required to be “maximized,” and therefore was not intended to trump or diminish the Act's preservation and restoration purposes.

Second, NOAA acknowledged that multiple use was constrained by the so-called safeguard provision of the Act which specified that the Secretary had the power to regulate any activities in sanctuaries and that *all uses authorized under other authorities were considered invalid* unless the Secretary took reasoned action to certify them as “consistent” with the purposes of the Act and sanctuary regulations.

⁴39 Fed. Reg. 23254, 23255 (1974).

⁵39 Fed. Reg. 23254, 23256.

⁶39 Fed. Reg. 23254, 23255 (emphasis added).

⁷Robert R. Kifer, Comments: NOAA's Marine Sanctuary Program, 2 Coastal Zone Management J. 177, 178 (1975) (emphasis added).

⁸American Heritage Dictionary of the English Language (4th ed. 2000).

This default provision on other uses, when combined with the Secretary's broad regulatory authority over sanctuaries, gave the Secretary complete authority to decide sanctuary uses. As it turned out, the 1974 regulations represented the high-water mark of the Secretary's preservation and protection powers under the Act. Proposals to reduce these powers began appearing as early as 1978 (see below).

As David Tarnas notes, "The conflicts between the agency's multiple-use management approach and the program's goal of preservation" raised "an important controversial issue for the program," one that remains to this day.⁹ NOAA's regulations clearly reflected Congress' own ambiguity about the Program, but leaned toward embedding multiple use. NOAA now deemed the Act's preservation and restoration purposes "primary." Multiple uses were to be maximized consistent with the primary purposes, subject only to the Secretary's power to restrict inconsistent uses. In short, multiple use had been subtly upgraded to being a purpose of the Program, albeit a secondary one.

§ 23:28 First Regulations, 1974—Nomination and Designation Process

The 1972 Act directed Commerce to develop guidelines for designating sanctuaries, but was silent on the number and location of sanctuaries and other details. One of the few clues given about the scope of the Program was Rep. Pelly's remark that sanctuaries are "intended to protect unique areas of the ocean bordering our country," and that most sanctuaries would likely "protect sections of our national seashores."¹ The lack of definitive congressional guidelines for the Program proved to be a significant problem for NOAA, which struggled to invent a coherent and efficient designation process that could survive local pressure from economic interest groups.

NOAA established a loose system whereby any member of the public, as well as government officials, could make nominations.² Only the barest of information on an area was required, and there were no specific standards a nomination had to meet. A nomination was subject to preliminary review by interested agencies to determine *feasibility*, but again no criteria were provided. No mention was made of justifying the need for a designation or showing that it would achieve stated purposes. If a nomination were deemed feasible, a more in-depth study would be made. Among other things, the in-depth study was to include an analysis of "how the sanctuary will impact on the present and potential uses, and how these uses will impact on the primary purpose for which the sanctuary is being considered." If the study were favorable, a Draft Environmental Impact Statement and proposed regulations would be prepared, a public hearing held, and a consultation undertaken with other federal agencies before designation. Finally, the Secretary would designate the area with a clear statement of the sanctuary's purpose, and issue regulations and guidelines for its management. A "revision" of a sanctuary could only be made by the same procedure as the nomination.

The open-ended nature of the nomination process fueled early concern by industry that "overly large areas of the coastal waters" might become marine sanctuaries.³ In responding to this concern, NOAA stated: "It is not expected . . . that large areas of the oceans and coastal waters will be designated as marine sanctuaries, and all activity prohibited or drastically reduced. It is expected that sanctuaries will be only

⁹David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 277 (1988).

[Section 23:28]

¹117 Cong. Rec. 31136.

²39 Fed. Reg. 23254, 23256-57.

³39 Fed. Reg. 23254, 23256-57.

large enough to permit accomplishment of the purposes specified in the Act.”⁴ Nevertheless, concern about the number and size of marine sanctuaries would soon intensify.

§ 23:29 Designation of U.S.S. Monitor and Key Largo National Marine Sanctuaries

With regulations in place, nominations began to trickle in. Two small sanctuaries were designated by the Ford Administration in 1975, an area one mile in diameter surrounding the wreck of the U.S.S. Monitor off North Carolina, on January 30, and about 75 square nautical miles of threatened coral reefs off Key Largo, Florida, on December 18. Neither of these sites had a major impact on ocean users; hence they drew no significant opposition.¹

The Monitor designation prohibited activities likely to damage the wreck, such as anchoring, salvage, diving, seabed drilling, trawling, or discharging of waste.² The regulations for the Key Largo sanctuary controlled or prohibited uses within the following categories: removal or destruction of natural features and marine life; dredging, filling, excavating and building activities; discharge of refuse and polluting substances; archaeological and historic substances; damage to markers and other signs; fishing; scuba diving and skin diving; operation of watercraft; photography; advertising or publicity; and explosives and dangerous weapons.³ Within the category of fishing, hook and line fishing and some trap fishing was allowed, while poisons, electric charges, and similar methods were prohibited. Additionally, the regulations stated that no more than 20% of the sanctuary would be completely closed to fishing or “set aside as control areas for research.”⁴

§ 23:30 President Carter’s Sanctuary Initiative

Although NOAA had begun review of a few additional sites, the Program was largely dormant until President Jimmy Carter took office. Congress had authorized appropriations of \$10 million per fiscal year for the Program, but the funds were neither requested by the Secretary of Commerce nor appropriated. After seven years of minimal funding from other NOAA sources, the Program finally received a line item appropriation of \$0.5 million in 1979.¹

Shortly after taking office, President Carter significantly raised the Program’s profile. In his 1977 Message to Congress on the Environment, Carter instructed the Secretary of Commerce “to identify possible sanctuaries in areas where development appears imminent, and to begin collecting the data necessary to designate them.”² He also directed the Secretary of the Interior to cooperate with the Secretary of Commerce’s effort in areas where offshore “leasing appears imminent.”³

During Carter’s tenure, the nation was faced with an energy shortage and dwindling commercial fish stocks. Both situations prompted increased congressional

⁴39 Fed. Reg. 23254, 23256-57.

[Section 23:29]

¹H.R. Rep. No. 95-325, pt. 1, at 11 (1977) (on HR 4297).

²Monitor Marine Sanctuary Final Regulations, 40 Fed. Reg. 21706, 21707 (May 19, 1975).

³Key Largo Coral Reef Marine Sanctuary Interim Regulations, 41 Fed. Reg. 2378 (Jan. 16, 1976).

⁴41 Fed. Reg. 2378.

[Section 23:30]

¹H.R. Rep. No. 96-894, pts. 1 & 2, at 8 (1980) (on H.R. 6616).

²President Carter’s Message to Congress, reprinted in 7 ELR 50057, 50063 (May 1977).

³President Carter’s Message to Congress, reprinted in 7 ELR 50057, 50061 (May 1977).

concern for the needs of the oil and fishing industries. The 1973 oil embargo and the 1979 Iran hostage crisis and oil cut-off resulted in significant fuel shortages, which in turn led to a national push for self-sufficiency in oil production. The number of offshore oil and gas leases on the OCS more than doubled between 1972 and 1978.⁴ In 1978, Congress amended the Outer Continental Shelf Lands Act to authorize preparation and implement of a five-year plan for oil and gas leasing, putting the oil industry on a collision course with the fledgling Sanctuaries Program.⁵

The U.S. commercial fishing industry was in crisis due to obsolete technology and the overfishing of stocks. For example, “by 1975, all the major commercial species of the Bering Sea region were considered fully exploited or over-exploited, including the two most abundant species—Pollock and yellowfin sole—as well as King crab and shrimp.”⁶ New England catches also were in decline. The Magnuson Fishery Conservation and Management Act was passed in 1976 to address fish population declines caused in large part by fishing by foreign fishing fleets in U.S. waters. The goals of the Magnuson Act included the phase-out of foreign fishing, expansion of U.S. fleet capacity, and improved management of fish populations under the leadership of newly created regional fishery management councils composed of industry and government representatives. Although the Sanctuaries Act had originally had been advanced by Keith and others as a mechanism for protecting fisheries, fishing interests soon determined that the Act could be a double-edged sword capable of reducing their fishing, as well as protecting fishing grounds from harmful industrial development.

Meanwhile, several marine pollution events continued to highlight the need to protect ocean and estuarine areas. These included kepone contamination of Chesapeake Bay, dolphin die-offs along the New Jersey coast, and sewage washing up on Long Island beaches. There were also two oil tanker spills, one in the Gulf of Mexico and one off of France, which reconfirmed the threat offshore oil operations and tanker traffic posed to the marine environment.⁷

NOAA reorganized in 1977 and transferred the Sanctuaries Program from the Office of Coastal Zone Management to a newly created Office of Ocean Management, whose sole purpose was managing the Program.⁸ In the wake of President Carter’s message, NOAA issued a *Plan to Implement the President’s Mandate to Protect Ocean Areas from the Effects of Development*, solicited sanctuary recommendations, and issued draft site selection criteria by which the nominations would be judged.⁹ By February 1, 1978, 169 nominations had been received, including those for Monterey Bay, Channel Islands, and Point Reyes-Farallon Islands.¹⁰ Forty-five of the nominations were for sites in Alaska, none of which were smaller than 7,550 square nautical miles in size. An additional 100 nominations were submitted by various

⁴Michael C. Blumm & Joel G. Blumstein, *The Marine Sanctuaries Program: A Framework for Critical Areas Management in the Sea*, 8 ELR 50016, 50016-17 (March 1978) (reprinted in full in Senate Hearing No. 95-65).

⁵Susan Harvey, *Title III of the Marine Protection, Research and Sanctuaries Act: Issues in Program Implementation*, 11 Coastal Management 169 (1983); *The Outer Continental Shelf Lands Act of 1953*, 43 U.S.C.A. § 1331 et seq. (1953).

⁶Dave Batker & Ken Stump, *Sinking Fast: How Factory Trawlers Are Destroying U.S. Fisheries and Marine Ecosystems*, A Greenpeace Report (1996) ch. 2, n.22.

⁷Authorizations for the Marine Protection Research, and Sanctuaries Act of 1972: Hearings Before the Senate Committee on Commerce, Science, and Transportation, 95th Cong., at 1 (statement of Sen. Hollings) (1978) [hereinafter Senate Hearing 1978].

⁸Senate Hearing 1978, at 17.

⁹Senate Hearing 1978, at 18; Michael C. Blumm & Joel G. Blumstein, *The Marine Sanctuaries Program: A Framework for Critical Areas Management in the Sea*, 8 ELR 50016, 50025 (March 1978).

¹⁰S. Rep. No. 95-886, at 3 (1978).

Regional Fishery Management Councils, but were withdrawn because two Councils opposed the action.¹¹

§ 23:31 The 1978 Reauthorization

The gush of nominations and NOAA's renewed vigor in proposing candidate sanctuaries brought the Program under scrutiny from the public at large, ocean industries, and Congress. Depending on the area involved, commercial fishing interests or the oil industry viewed the Program as a serious threat and began agitating to limit its scope. Both the House and Senate conducted hearings in 1978 on the Program's reauthorization and reported amendments to the Act, which, though not enacted, set the stage for changes in NOAA's regulations in 1979 and congressional amendments in 1980. Among the issues considered during the 1978 hearings were: the role of public apathy in the dormancy of the Program, multiple use, the effects of designations on extractive industries, who should designate sanctuaries, and the consultative role of the Regional Fishery Management Councils.

§ 23:32 The 1978 Reauthorization—Public Involvement

Influencing the reauthorization debate was an article by two attorneys with the Center for Natural Areas summarizing the history of the Program and analyzing its strengths and weaknesses. The article gained currency on Capitol Hill and was reprinted in full in the Senate Commerce Committee's 1978 reauthorization hearing.¹ Attorneys Michael Blumm and Joel Blumstein concluded that one of the reasons for the Program's dormancy in its first five years was lack of significant public involvement, which in turn was in part due to a lack of clear prescribed standards for assessing whether nominated sites were worthy of designation.² They argued that the lack of standards meant that the public had been disinterested in submitting nominations and distrustful of the designation process.

Attempts by NOAA to regulate current and future uses of particular areas naturally generated both concern and interest among affected agencies and user groups. To deal with concerns that the designation process was flawed because other agencies and parties were not being consulted on the final draft of the designation document, from which they could ascertain its actual effects, the House and Senate reauthorization bills³ required the Secretary to identify in the designation document: the geographic area to be included, the characteristics of the area that give it special value, and the types of activities that would be subject to regulation.⁴ These provisions, explained a House committee report, will provide for the President, other Federal agencies, and the Governor of an effected [sic] State a specific indication of the purposes of a marine sanctuary and the nature of the regulations which will be adopted by the Secretary of Commerce, including all activities which necessarily will be regulated within the marine sanctuary, prior to the designation.⁵

§ 23:33 The 1978 Reauthorization—Multiple Use

¹¹S. Rep. No. 95-886, at 3 (1978).

[Section 23:32]

¹Senate Hearing 1978, at 45-63; Michael C. Blumm & Joel G. Blumstein, *The Marine Sanctuaries Program: A Framework for Critical Areas Management in the Sea*, 8 ELR 50016, 50016 (March 1978).

²Senate Hearing 1978, at 47; Michael C. Blumm & Joel G. Blumstein, *The Marine Sanctuaries Program: A Framework for Critical Areas Management in the Sea*, 8 ELR 50016, 50018 (March 1978).

³H.R. 10661, 95th Cong. (1978).

⁴H.R. Rep. No. 95-1145, pt. 2 (1978).

⁵H.R. Rep. No. 95-1145, at 8.

Blumm and Blumstein applauded the June 1974 regulations' choice of the term "compatible use," opining that it "not only serves to carry out the congressional intent, as expressed in the legislative history of Title III, it also serves to mitigate the concerns of development interests and others for whom the term 'sanctuary' connotes the restriction of all uses."¹

Contrary to the Blumm and Blumstein conclusion that the multiple use debate was totally settled, Sen. Hollings, chairman of the Senate Committee on Commerce, Science, and Transportation, engaged Samuel Bleicher, the director of NOAA's Office of Ocean Management, in a strongly worded debate on the role of multiple-use. Bleicher testified that the goal of the office was:

to help assure that ocean resources are used for the maximum public benefit with minimum conflict among resource uses or environmental damage . . . Nor are marine sanctuaries pristine areas where human uses are severely restricted or excluded. This inference has often been drawn from the term "sanctuary," although the law itself contains no such limitations . . . Inevitably [there will be] multipleuse [sic] areas where even hard mining, and oil and gas development may be allowed in varying degrees.²

Hollings, who had been a member of the congressional conference committee that approved the House version of the 1972 Act, vehemently argued against comprehensive or multiple use activity in sanctuaries, going so far as to say, "we used the word 'sanctuary' and we did not intend it to mean multiple use, or oil and gas development. If we weren't going to protect the environment and its distinctive nature, there wasn't any need to have the sanctuaries."³ Nevertheless, no formal clarification of the Act's purposes or the role of multiple use management emerged from the Senate.

§ 23:34 The 1978 Reauthorization—Safeguard Provision

Also considered during the deliberations of 1978 was the Act's so-called safeguard provision, which enabled the Secretary to regulate uses in sanctuaries permitted under other authorities by treating these uses as *invalid* until the Secretary declared them consistent with sanctuary purposes. No congressional guidance was given in 1972 on the way this power was to be exercised. Did it, for example, mean that upon designation all uses had to cease until ruled on by the Secretary?

Both the House and Senate bills reversed the safeguard provision by providing that "all permits, licenses, and other authorizations issued pursuant to any other authority shall be *valid* unless such [designation] regulations otherwise provide."¹ While in theory the new language still allowed the Secretary to invalidate any permits he chose at the time he designated a sanctuary, the burden of proof had shifted. The Secretary would have to demonstrate why a permit or other authorization was invalid and should be disallowed, rather than which permits were consistent with the sanctuary's purpose and therefore valid.² The possibility was therefore greater that harmful uses could slip through the cracks and be allowed because the Secretary was under-funded, overworked, or had misjudged the impacts of uses. The

[Section 23:33]

¹Senate Hearing 1978, at 50-51; Michael C. Blumm & Joel G. Blumstein, *The Marine Sanctuaries Program: A Framework for Critical Areas Management in the Sea*, 8 ELR 50016, 50021-22 (March 1978).

²Senate Hearing 1978, at 17.

³Senate Hearing 1978, at 22.

[Section 23:34]

¹H.R. 10661 § 4 (emphasis added); S. 2767, 95th Cong. (emphasis added) (1978).

²H.R. Rep. No. 95-1145, pt 2.

precautionary principle, based on taking no action unless it is determined the action would cause minimal or no harm, was therefore reversed.

The Senate Commerce Committee explained its action as follows:

one problem with the original title III is that in designating a sanctuary the Secretary of Commerce automatically and perhaps inadvertently may assume authority to regulate all activities within a sanctuary: all other statutes may be superseded within the designated site. While the committee believes the Secretary should have the authority necessary to regulate activities within a marine sanctuary, it also believes the Secretary should have discretion to select which activities to propose regulating under title III and which one [sic] to propose exempting from this regulation.³

This comment seems to highlight a two-fold Committee concern: that the Secretary had been given authority over all uses and would have to make decisions to return that authority to the pertinent agencies; and that the Secretary had been given power over numerous other authorities, which was viewed as excessive control over other programs. The proposed reversal of the safeguard provision was heavily influenced by concerns that sanctuaries might adversely affect commercial fishermen. Sen. Warren Magnuson (D-WA) went so far as to suggest eliminating altogether the Secretary's power over commercial fishing in sanctuaries.⁴ However, Sen. Ted Stevens (R-AK), who also sought to protect commercial fishing, acknowledged that there are places where fishermen should be "shut out," such as areas of tropical coral where boat anchors could cause damage, and that the Sanctuaries Program should therefore retain some power to regulate fishing.⁵ Under the new Senate proposal, the Secretary could only regulate activities that he declared he needed to regulate at the time a sanctuary was designated.

§ 23:35 The 1978 Reauthorization—Power to Designate

An issue addressed by the Senate, but not the House, was whether the Secretary of Commerce, as provided in the Act, or Congress should formally designate marine sanctuaries. There had been little recorded discussion of why Congress did not retain the designation power for itself when the Act was passed in 1972, as it did for national parks and terrestrial wilderness areas. As the potential scope and impact of the Program became known, some members of Congress became alarmed. Program Director Bleicher testified that he hoped the Marine Sanctuaries Program would designate five sanctuaries during 1978 and a total of 25 to 30 sanctuaries by 1983.¹ Many of these intended sanctuaries were in oil and gas rich areas, such as the Gulf of Mexico and off California and Alaska, or encompassed significant fishing grounds.

The Senate-reported bill would have required all designations larger than 1,000 square nautical miles to be authorized by Congress because large designations involve "major policy issues with wide-ranging environmental and economic implications."² Sen. Stevens was the proponent for this change, modeling the Senate's provision after the Wilderness Act, which requires Congress to designate

³S. Rep. No. 95-886, at 5.

⁴Senate Committee on Commerce, Science and Transportation. Executive Session No. 42, 95th Cong., at 69 (1978) [hereinafter Unpublished Senate Hearing 1978].

⁵Unpublished Senate Hearing, at 62-63.

[Section 23:35]

¹Senate Hearing 1978, at 18-19.

²S. Rep. No. 95-886, at 4.

all wilderness areas.³ At a May 1978 hearing that preceded the reauthorization hearing, Stevens said he was “disturbed about the size” of many of the nominations, including the 17,000 square nautical miles on George’s Bank, 4,530 square nautical miles around the Channel Islands, and 5,588 square nautical miles off San Diego, all of which paled in comparison to Alaska nominations, which ranged from 7,550 to over 75,000 square nautical miles.⁴ Stevens feared that human uses, particularly commercial fishing, would be prohibited in the sanctuaries even when they were compatible with the purposes for which a sanctuary was designated.⁵ Sen. Harrison Schmitt (R-NM) noted that such large sanctuaries also could shut out oil development.⁶ Sen. Magnuson offered another solution to reign in the Secretary which, though not adopted, ultimately won out in the next Congress.⁷ Magnuson suggested that Congress do “what we have been doing on a lot of the bills, that the Secretary shall report to the Congress [on his intent to designate a sanctuary], and if either House doesn’t disapprove, within a 60 day period, it becomes effective.”⁸

§ 23:36 The 1978 Reauthorization—Consultation by the Regional Fishery Management Councils

A final provision of the Senate bill required NOAA to consult with the Regional Fisheries Management Councils concerning proposed designations.¹ The Councils, almost completely composed of government officials and fishermen, were charged under the Magnuson Fishery Management and Conservation Act with conserving and managing federal fisheries. Stevens raised an amendment to include consultation with the Councils after hearing that the Act “require[d] consultation with the Secretaries of Transportation, Interior and other agencies,” including the Secretary of Commerce.² There was no discussion of Stevens’ proposal, and the committee approved it without objection.

§ 23:37 The 1978 Reauthorization—Conclusion

The 1978 reauthorization bills failed to be enacted “for reasons beyond the control of either authorizing committee.”¹ Many of the ideas developed during hearings, however, remained influential. The problems and ideas raised during the 1978 discussion signaled congressional discontent with the direction of the Program. As the Program picked up interest and momentum, Congress began backpedaling from the preservation purposes they had approved in 1972. NOAA, sensing that the tide had turned, continued to do what it could through the regulatory process to deal with the issues raised in the reauthorization process and implement changes that tracked Congress’ desires.

§ 23:38 Flower Garden Banks Controversy

While the 1979 regulations were in the public comment phase, NOAA published

³Unpublished Senate Hearing 1978, at 61-62.

⁴Unpublished Senate Hearing 1978, at 61.

⁵Unpublished Senate Hearing 1978, at 61-62.

⁶Unpublished Senate Hearing 1978, at 70.

⁷Unpublished Senate Hearing 1978, at 69.

⁸Unpublished Senate Hearing 1978, at 70.

[Section 23:36]

¹Unpublished Senate Hearing 1978, at 72.

²Unpublished Senate Hearing 1978, at 71-72.

[Section 23:37]

¹126 Cong. Rec. 10772 (1980) (statements of Reps. Murphy and Studds on H.R. 6616).

proposed regulations and a draft environmental impact statement for the Flower Garden Banks marine sanctuary, a 0.6 square nautical mile area of coral reefs about 100 miles off the coasts of Texas and Louisiana.¹ The NOAA proposal included a moratorium on new oil and gas development for five years within the sanctuary, an idea that was vigorously argued against by both industry and the Department of the Interior. In response, Rep. John Breaux (D-LA), a member of the House Merchant Marine and Fisheries Committee, introduced a bill to repeal the Marine Sanctuaries Program title of the MPRSA, citing NOAA's handling of Flower Garden Banks as an example of why the Act should be repealed.² NOAA's proposed oil and gas moratorium was seen by Breaux as "inconsistent with a well-conceived program for increased domestic hydrocarbon development."³ Breaux asserted that the Department of Commerce had failed to look at relevant, authoritative studies about the effects of oil exploration and development and had instead relied on personal communications and unpublished documents in reaching its decision.⁴ Breaux's opposition to the Flower Garden Banks sanctuary led to the stagnation of its designation, until it was removed in 1982 from the list of areas under consideration.

Breaux also criticized the Program because of what he saw as: its redundancy with other authorities "such as that provided by the Outer Continental Shelf Lands Act (OCSLA), the Clean Water Act, and the Fishery Conservation and Management Act (FCMA), among many others;" its failure to provide additional protections to those already available under other laws; its overly broad language that accomplished no goal other than duplicative effort and regulation; and the lack of congressional guidance to guide the Program in a clear direction.⁵ Although Breaux's bill to shut down the entire Program went nowhere, it signaled his role in coming years as one of the most vocal and influential opponents of the Program.

§ 23:39 1979 Regulations

NOAA finalized its new Program regulations in July 1979. The regulations were a significant departure both from the 1974 regulations and from the language and intent of the 1972 Act, in that they gave those with an economic stake in use of sanctuaries' resources significant leverage. As implemented by the 1979 regulations, the Act was no longer viewed as a preservation statute, but rather as a statute that *balanced preservation and human uses* in sanctuaries. Among other things, the regulations reformulated NOAA's approach to uses of sanctuaries; altered the way the Act's safeguard provision was applied; revised the site selection criteria proposed in 1977 to screen nominations; and created a List of Recommended Areas (LRA) from which to select candidate sanctuaries.¹

§ 23:40 1979 Regulations—Program Purposes and Multiple Use

The Program purposes set forth in the 1979 regulations were not all that different

[Section 23:38]

¹Flower Garden Banks Proposed Regulations, 44 Fed. Reg. 22081 (April 13, 1979).

²H.R. 5018, 96th Cong. (1979).

³125 Cong. Rec. 21665 (1979) (statement of Rep. Breaux).

⁴125 Cong. Rec. 21665 (1979).

⁵125 Cong. Rec. 21665 (1979). Despite these vehement objections to the entire program, Breaux was a cosponsor of H.R. 10661 in 1978 and H.R. 2519 in 1979 and voted for H.R. 6616, which contained identical language to H.R. 10661 and H.R. 2519, and whose language was substituted into the Senate bill (S. 1140), which eventually was enacted as the 1980 NMSA Amendments.

[Section 23:39]

¹Announcement of Initial List of Recommended Areas, 44 Fed. Reg. 62552 (Oct. 31, 1979).

from those in the 1974 regulations. NOAA stated that “protection of natural and biological resources” was the primary emphasis of the Program.¹ Although the definition of multiple use was dropped, the concept was very much alive in another guise:

Human activities will be allowed within a designated sanctuary to the extent that such activities are *compatible* with the purposes for which the sanctuary was established, based on an evaluation of whether the *individual or cumulative impacts of such activities may have a significant adverse effect* on the resource value of the sanctuary.²

This language was broad and vague enough to support an array of interpretations as it was applied, but clear enough that in order to exclude uses, NOAA would have to prove likely adverse effects. A big difference between the new compatibility standard and the 1974 definition was that the new standard only restricted uses that may have a “significant adverse” impact, whereas the 1974 multiple use definition called for “long-term, continued uses of . . . resources in such a fashion that one will not interfere with, diminish, or prevent other permitted uses.”³ Whereas the 1974 definition merely required NOAA to show *some level* of interference with, or diminution of, another use in order to disallow a proposed use, the 1979 standard required proof of a *significant, adverse* impact. Under this narrower definition, more uses could be allowed.

The issues of the Act’s redundancy and the appropriateness of oil and gas development within sanctuaries continued to simmer. Industry opposition to NOAA’s proposed blanket bans on oil and gas development at several candidate sites (including Channel Islands, Flower Garden Banks, and Georges Bank) in the late 1970s was so intense that a 1983 article by a NOAA employee in *Coastal Zone Management Journal* suggested that “the controversy provoked by the original proposal [to ban oil and gas in the Channel Islands sanctuary] may effectively ward against future regulatory proposals which impose a blanket prohibition on an individual activity.”⁴

Facilitation of multiple use in sanctuaries also was enhanced by NOAA’s interpretation of the Act’s provision concerning what uses the Secretary could regulate. The 1979 regulations adopted the language of the un-enacted 1978 House and Senate bills, which limited the Secretary’s power of regulation to those activities specifically included in the terms of the designation document.⁵ While this technically left intact the Secretary’s ability to regulate or prohibit any or all uses when a sanctuary was designated, it opened the door to the future erosion of the safeguard by requiring the Secretary to name up front all activities that he wished to regulate. A lack of foresight on the part of the Secretary as to what uses might need regulation or prohibition could lead to damaging delays in protection, because the 1979 regulations specified that the entire time-intensive designation process needed to be repeated in order to amend any of the sanctuary’s terms of designation.

NOAA explained that the new language “clearly provides that compatible activities may take place in a sanctuary . . . [NOAA] does not agree . . . that no human activities should be allowed. NOAA’s interpretation is supported by the legislative

[Section 23:40]

¹Designation and Management of Marine Sanctuaries, 44 Fed. Reg. 44831, 44837 (July 31, 1979).

²44 Fed. Reg. 44831, 44837 (emphasis added).

³Marine Sanctuaries Regulations, 39 Fed. Reg. 23254, 23256 (June 27, 1974).

⁴Susan Harvey, Title III of the Marine Protection, Research and Sanctuaries Act: Issues in Program Implementation, 11 Coastal Management 169, 179 (1983).

⁵44 Fed. Reg. 44831, § 922.26; H.R. 10661; S. 2767.

history of the Act.”⁶ NOAA further explained that it saw the change as advantageous “in terms of providing clarity to potential users and, generally, of reduced bureaucracy, in not [restricting uses] unless necessary.”⁷

§ 23:41 1979 Regulations—Site Selection Criteria and the List of Recommended Areas

Another major change in the 1979 regulations was a new set of criteria and procedures for the nomination and designation of sanctuaries. In response to calls for clear standards and more public notification and input, NOAA created a List of Recommended Areas (LRA) to catalog nominated sites that had been selected by NOAA for potential further study.¹ As before, anyone could nominate an area for sanctuary status. NOAA would then screen the nomination and include it on the LRA only if it contained one or more of the following:

1. Important habitat;
2. A marine ecosystem of exceptional productivity;
3. An area of exceptional recreational opportunity relating to its distinctive marine characteristics;
4. Historic or cultural remains of widespread public interest; or
5. Distinctive or fragile ecological or geologic features of exceptional scientific research or educational value.²

The listing of a site on the LRA was a prerequisite to further consideration but not a guarantee it would be designated. While the factors for selecting valid nominations were based on resource protection and preservation, the process of naming areas as “active candidates” was far less singular in purpose. Active candidates were to be chosen based on a number of factors, including:

1. The significance of the site’s resources;
2. *The extent to which the means are available to conduct the required Public Workshop(s) within 6 months of selection as an Active Candidate;*
3. *Severity and imminence of existing or potential threats to the resources including cumulative effect of various human activities that individually may be insignificant;*
4. *The ability of existing regulatory mechanisms to protect the values of the site;*
5. The significance of the area to research opportunities;
6. The value of the area in complementing other areas of significance to public or private programs with similar objectives, such as the CZM programs;
7. The esthetic qualities of the area;
8. *The type and estimated economic value of the natural resources and human uses within the area which may be foregone as a result of marine sanctuary designation, taking into account the economic significance to the nation of such resources and uses and the probable impact on them of regulations designed to achieve the purposes of sanctuary designation; and*
9. The economic benefits to be derived from protecting or enhancing the resources within the sanctuary.³

These requirements undercut the Program’s preservation purpose in several ways.

⁶44 Fed. Reg. 44831, 44833.

⁷44 Fed. Reg. 44831, 44838.

[Section 23:41]

¹44 Fed. Reg. 44831, 44836.

²44 Fed. Reg. 44831, 44838.

³44 Fed. Reg. 44831, 44838-39 (emphasis added).

Even if a site's resources were judged significant, NOAA could avoid responsibility for protecting the area by claiming lack of budget (factor 2) or determining that the area or its resources were able to be protected by other agencies (factor 4), as they did in 1981 with Georges Bank (*see* § 20:42) and subsequently with Norfolk Canyon, Ten Fathom Ledge/Big Rock, and Flower Garden Banks, among others. The 1979 regulations also threatened to turn the designation process into a cost-benefit analysis (factor 8) that explicitly allowed negative economic impacts of a designation potentially to trump the need for protection. While the Act gave broad discretion to the Secretary to determine whether to designate a sanctuary and how to do it, the Act itself made no mention of balancing economic use with preservation or prohibiting the designation of areas that would negatively impact economic uses or benefits. Both the legislative history and the VIMS workshop had raised the balancing concept in the context of multiple use. NOAA's 1979 regulations were the first to implement the concept.

§ 23:42 Controversy over the Act's Purpose and Scope

Concerns raised during the 1978 reauthorization debate about the Sanctuaries Program's purpose and scope continued to percolate. The first LRA was published in October 1979. Although NOAA had reduced the number of recommended sites to 69 from the more than 170 nominations, industry saw the LRA as a threatening blueprint for the Sanctuaries Program, and there was concern that some sites had been nominated solely to stop potential or planned oil and gas development.¹ Additionally, seven sites were identified as active candidates: Flower Garden Banks, Northern Channel Islands and Santa Barbara Island, Monterey Bay, Point Reyes/Farallon Islands, Looe Key, St. Thomas, and Gray's Reef.²

The very end of Carter's presidency saw publication of proposed rules for a 1,258 square nautical mile Channel Islands sanctuary,³ Point Reyes/Farallon Islands sanctuary (later renamed the Gulf of the Farallones),⁴ Looe Key sanctuary,⁵ and Gray's Reef sanctuary,⁶ and the proposed designation of a St. Thomas sanctuary.⁷ Fishing was regulated in Looe Key, where fish traps, spearguns, and poisons were banned and regulations were placed on lobster traps in one area of the sanctuary,⁸ and in Gray's Reef, which required sanctuary permits in order to trawl, use wire fish traps, or explosives.⁹ The proposed Channel Islands regulations prohibited exploration or development on *new* oil and gas leases, and those for the Farallones prohibited *all* oil and gas activity.¹⁰ NOAA's proposed moratorium on new oil and gas exploration in the proposed Flower Garden Banks site also remained

[Section 23:42]

¹David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 282 (1988).

²44 Fed. Reg. 62552.

³Channel Islands Proposed Regulations, 44 Fed. Reg. 69970 (Dec. 5, 1979).

⁴Point Reyes-Farallon Islands Proposed Regulations, 45 Fed. Reg. 20907 (Mar. 31, 1980).

⁵Looe Key Proposed Regulations, 45 Fed. Reg. 33645 (May 20, 1980).

⁶Gray's Reef Proposed Regulations, 45 Fed. Reg. 39507 (June 11, 1980).

⁷St. Thomas Sanctuary Proposed Regulations, 46 Fed. Reg. 33530 (June 30, 1981).

⁸Looe Key Sanctuary Final Regulations, 46 Fed. Reg. 7946, 7950 (Jan. 26, 1981).

⁹Gray's Reef Sanctuary Final Regulations, 46 Fed. Reg. 7942, 7946 (Jan. 26, 1981).

¹⁰Channel Islands National Marine Sanctuary Final Regulations, 45 Fed. Reg. 65198, 65204 (Oct. 2, 1980); 46 Fed. Reg. 7940.

unresolved.¹¹

Between September 1980 and January 1981, when he left office, President Carter designated four sanctuaries: Channel Islands NMS (1,258 nm²) on September 22, 1980, Gulf of the Farallones NMS (948 nm²), Gray's Reef NMS (17 nm²), and Looe Key NMS (5.32 nm² which is now part of the Florida Keys NMS) all on January 16, 1981. Industry uproar led to the new Reagan Administration requiring a regulatory impact analysis before the oil ban provisions of the proposed regulations could become effective. Finally, in March 1982, the final regulations for both Channel Islands and Farallon Islands were issued with the oil and gas prohibitions intact.¹²

At about the same time, NOAA removed Georges Bank from active status. Georges Bank had been elevated to active candidacy a mere two months prior to it being removed. The Conservation Law Foundation and a number of fishing organizations, in response to the offering for the sale of an OCS lease on the Bank by the DOI, had nominated the 15,100 square nautical mile site. NOAA worked out a deal with DOI and EPA that "added a variety of environmental safeguards to protect the Bank."¹³ The safeguards, however, were far less than the protections that NOAA had been touting as necessary.¹⁴ The stated reason given by NOAA for removing the site from active status was that existing management programs were adequately protecting the site's resources. Thus, Georges Bank became the first casualty of the 1979 site selection criteria, particularly the site selection factor concerning the "ability of the existing regulatory framework to protect the resources" and the provision requiring consultation with other agencies.¹⁵ There also is some evidence that the site was removed from active candidacy because President Reagan had indicated that he would not approve the designation.¹⁶ Although temporarily sidetracked, Georges Bank would re-emerge as an active candidate a few years later.

The battles over Georges Bank, Channel Islands, Flower Garden Banks, and Farallon Islands demonstrate how controversial the issues of oil and gas development within marine sanctuaries were, the success of NOAA in influencing policies of other agencies, and the role of multiple use within sanctuaries. The battles also show how the new regulatory designation procedures could be used to excuse inaction by the agency under certain circumstances. Finally, these cases demonstrated the varied power of conservation coalitions. At Channel Islands and Farallon Islands, they defeated the oil industry, but could not keep oil development completely out of Flower Gardens.

§ 23:43 1980 Amendments

With the start of the 96th Congress, and as controversies over sanctuary proposals raged, Congress renewed its attempt to amend the Act. According to Rep. Gerry Studds (D-MA), the "agency has amended its regulations to implement the intended changes [of the failed 1978 bills] as much as possible under existing law, while the

¹¹Flower Garden Banks Marine Sanctuary Proposed Rule, 45 Fed. Reg. 43205 (June 26, 1980).

¹²47 Fed. Reg. 18588 (Apr. 30, 1982).

¹³Reevaluation of Elevating Georges Bank to Active Candidate Status, 46 Fed. Reg. 58136 (Nov. 30, 1981).

¹⁴Daniel P. Finn, *Interagency Relationships in Marine Resource Conflicts: Some Lessons from OCS Oil and Gas Leasing*, 4 Harv. Envtl. L.J. 359, 370 (1980).

¹⁵Daniel P. Finn, *Interagency Relationships in Marine Resource Conflicts: Some Lessons from OCS Oil and Gas Leasing*, 4 Harv. Envtl. L.J. 359, 370 (1980); Susan Harvey, *Title III of the Marine Protection, Research and Sanctuaries Act: Issues in Program Implementation*, 11 Coastal Management 169 (1983); 46 Fed. Reg. 58136.

¹⁶Daniel P. Finn, *Interagency Relationships in Marine Resource Conflicts: Some Lessons from OCS Oil and Gas Leasing*, 4 Harv. Envtl. L.J. 359, 378 (1980).

Congress has not yet completed amending the law to require the new regulations.”¹ Studds’ goal was to reconcile the two. The 1978 House bill, as amended by Studds, was the basis for a Senate bill introduced by Sen. Cannon in late 1979 and for Studds’ new bill, introduced in early 1980. A final version of the two bills was enacted in August 1980.²

The 1980 Amendments complemented NOAA’s actions to facilitate multiple uses of sanctuaries and codified several of NOAA’s 1979 regulations. Among other things, the amendments altered the designation process to require that more and earlier information be given about the area under consideration, including the reason for designation, and the types of activities subject to regulation; required any changes to the terms of a designation to go through the lengthy designation process anew; reversed the safeguard provision, making all sanctuary uses authorized under other laws valid unless the Secretary enacted regulations to restrict or prohibit them; and gave Congress the power to formally disapprove of designations.³

§ 23:44 1980 Amendments—Terms of Designation

The 1980 Amendments required any revision of a sanctuary’s designation terms to follow the same process as a new designation. While there was no recorded discussion of the provision by Congress, it seems to address concerns about informing the public, other agencies, and state governors about what a sanctuary would mean to them.¹ Without this requirement, there was a lack of assurance to a party that designation negotiations and compromises would not be disregarded at the last instant by NOAA. The 1980 Amendments, therefore, ensured the continued participation of those consulted for the original designation proposal and helped to increase accountability and accurate expectations. However, by requiring changes to go through the entire process rather than a simplified, shortened version, the provision has been a significant deterrent to changing the terms of designation. The provision has increased public “buy-in” of the Sanctuaries Program, but has also created a disincentive for NOAA to promptly address changes in circumstances or knowledge, because of the expensive and time-consuming process required for any changes to a sanctuary’s designation terms.

§ 23:45 1980 Amendments—Multiple Use and the Safeguard Provision

As the authorizing committees had debated but failed to achieve in 1978, the 1980 Amendments reversed the “safeguard provision” over multiple use, giving other agencies a greater sense of security that their programs would not necessarily be affected by the Secretary of Commerce’s designation of sanctuaries. The provision now read:

The Secretary, after consultation with other interested Federal and State agencies, shall issue necessary and reasonable regulations to implement the terms of the designation and control the activities described in it, *except that all permits, licenses, and other authorizations issued pursuant to any other authority shall be valid unless such regula-*

[Section 23:43]

¹126 Cong. Rec. 10772.

²S. 1140, 96th Cong. (1979); H.R. 6616, 96th Cong. (1980); Pub. L. 96-332, 94 Stat. 1057 (1980) [hereinafter 1980 NMSA Amendments].

³1980 NMSA Amendments.

[Section 23:44]

¹1980 NMSA Amendments § 2(2).

tions otherwise provide.¹

The House Report on the bill from which the 1980 Amendments were derived emphasized the appropriateness of multiple use, as opposed to more restrictive management methods such as “total management,” and the need to inform people in advance of designation about which uses would be regulated.² The committee also expressed the intent that the Secretary, in carrying out the Program,

avoid duplicative regulatory authority and additional layers of bureaucracy where existing law and regulations provide sufficient protection . . . While current law requires the Secretary to assume authority for total management of marine sanctuaries, the amendment provides for more sophisticated techniques, including multiple-use management, dominant-use management, and partial management.³

Although the committee did not define the various management techniques mentioned, it seems to have meant that, whereas the safeguard provision of the 1972 Act had placed all authority on the Secretary unless he renounced it (total management), the revised safeguard provision allowed him to choose which uses to regulate without having to act to renounce those he wanted to ignore. There were intense interagency fights occurring during this time period, e.g., with regard to anchoring and oil development in the Flower Garden Banks and oil and gas development in Georges Bank. The reversal of the safeguard provision seems to have been viewed as a means of reducing secretarial involvement in other agencies’ decisionmaking, unless warranted by the needs of a particular sanctuary. By reducing the Secretary’s involvement, the committee seemed to view the new provision as reducing the layers of bureaucratic control over marine resources.

§ 23:46 1980 Amendments—Congressional Power of Disapproval

The debate over whether Congress should designate sanctuaries was addressed in 1980 when Congress gave itself the express power to formally object to a designation, as Senator Magnuson had suggested in 1978.¹ If Congress disagreed with a designation, it could pass a joint resolution of disapproval within 60 days of the designation’s publication in the *Federal Register*.² The resolution, however, was still subject to the approval of the President.³ This power went unused and was dropped from the Act in 1992. Apparently, by then, a resolution of disapproval was seen as redundant to Congress’ ability to disapprove or amend sanctuary designations and management plans through traditional legislative procedures.⁴

§ 23:47 1980 Amendments—Conclusion

Once NOAA got down to implementing the 1972 Act, the difficulty of protecting ocean places and regulating conflicting uses became apparent. NOAA proposals to prohibit new oil development in several sanctuaries generated intense controversies on the east, Gulf, and west coasts. Fishermen also quickly came to see the Act as a threat after numerous large areas were nominated. Instead of defending the Act’s

[Section 23:45]

¹1980 NMSA Amendments § 2(2) (emphasis added).

²H.R. Rep. No. 96-894, pts. 1 and 2, at 12.

³H.R. Rep. No. 96-894, pts. 1 and 2, at 12.

[Section 23:46]

¹Unpublished Senate Hearing 1978, at 70.

²This was changed from a concurrent resolution in 1984 to address constitutional issues.

³1980 NMSA Amendments § 2(3); 1984 NMSA Amendments § 304(b)(A).

⁴H.R. Rep. No. 102-565 (1992) (on H.R. 4310).

preservation mandate and clarifying the Program's scope and objectives, Congress facilitated multiple uses of sanctuaries and increased oversight of the Program to achieve greater acceptance by users, the public, the states and other agencies. This process of accommodation would continue until the late 1980s.

§ 23:48 1982-83 Further Program Revisions: The Program Development Plan

The 1979 regulations and the LRA, in combination with the 1980 Amendments, failed to quiet controversy. NOAA therefore undertook yet another overhaul of the designation process in an attempt to gain more support for the Program. In January of 1982, NOAA completed a Program Development Plan (PDP) for sanctuaries. "In many ways, the sanctuary program's PDP and emphasis on representative sites, for instance, reflected the most progressive thinking among marine protected area scientists at the time." The PDP, according to another observer, represented "a shift in emphasis from curtailment of activities within a sanctuary by regulation to promotion of sanctuary resources via comprehensive management. The concept of management has been broadened to include research activities, public access, and interpretive programs within sanctuary boundaries."¹ With small modifications, the process set up by the PDP is still in use today.

§ 23:49 1982-83 Further Program Revisions: The Program Development Plan—Program Goals

The PDP declared four goals, which "expand on the [Program's] mission by establishing specific designation purposes":

1. enhancement of resource protection through the implementation of a comprehensive, long-term multiple use management plan tailored to the specific resources;
2. promotion and coordination of research;
3. enhancement of public awareness, understanding, and wise use of the marine environment; and
4. provision for multiple compatible public and private uses of special marine areas.¹

While resource protection "is primary and will be the principle focus in each designated sanctuary," the other goals would not all be emphasized at every site, with a sanctuary perhaps only responding to one or two of the goals.²

§ 23:50 1982-83 Further Program Revisions: The Program Development Plan—Designation

In a further attempt to tighten the nomination process, the PDP replaced the

[Section 23:48]

¹Susan Harvey, Title III of the Marine Protection, Research and Sanctuaries Act: Issues in Program Implementation, 11 Coastal Management 169, 187-88 (1983).

[Section 23:49]

¹Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 13 (1982); Marine Sanctuary Program Regulations, 48 Fed. Reg. 24296 (May 31, 1983).

²Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 13 (1982).

LRA with a Site Evaluation List (SEL).¹ Under the SEL process, NOAA assigned eight regional resource evaluation teams, one to each fishery management region, “to assist in the identification, evaluation, and recommendation of suitable sites for inclusion.”² After further review, the Secretary would determine which sites to add to the list and publish them in the *Federal Register*.³ Active candidates could only be drawn from the published list.⁴ New sites may be added only at periodic reviews or if new information comes to light about why a site should be included on the SEL.⁵

Each regional team was to recommend three to five sites per region from those nominated by the public or identified by the teams “which represent the most significant marine resource areas in the region.”⁶ More specifically, the teams were:

1. to identify significant marine and coastal ecological processes or features which are characteristic of the region;
2. to delineate discrete sites in which these major systems, processes, or features occur; and
3. to describe these areas in terms of resource and human-use value and potential user impacts.⁷

There is no mention of the teams considering either imminent threats to an area or an area’s importance to particular species or an entire ecosystem. The 1979 regulations had considered the value of a site’s resources, regardless of how representative it was to the biogeographical region of which the site was a part. The PDP, on the other hand, required areas to be identified based on the inclusion of regional characteristic features and processes. While important to ensure coverage of as many regional characteristics as possible in the Program, this meant that sites with resources already represented in other sanctuaries might be disregarded as duplicative.

Site identification criteria employed by the teams to make their recommendations included four categories: (1) natural resource values; (2) human-use values; (3) potential activity impacts; and (4) management concerns.⁸ In considering “management concerns” (criterion 4), the teams were required, “in cases where certain economic values are reduced or foregone,” to weigh the negative economic impact of designation “against the long-term benefits to society.”⁹ While it was consistent with the original preservation intent of the Act to consider the long-term benefits to be conveyed by a sanctuary designation, the PDP’s emphases on considering and weigh-

[Section 23:50]

¹Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 13 (1982).

²Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 21 (1982).

³Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 28 (1982).

⁴Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 28-29 (1982).

⁵Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 28 (1982).

⁶Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 28 (1982).

⁷Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 24 (1982).

⁸Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 24 (1982).

⁹Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan App. C-8 (1982).

ing economic impacts, which were acknowledged to be difficult to quantify and estimate, was a far cry from the intent of the 1972 Act's preservation and restoration purposes. Additionally, "several factors . . . complicate the ability to make a concise determination between costs and benefits," including long-term time scales, a black and white "either/or" dichotomy that made it difficult to assess the benefits to some uses of restricting others, and the high potential for incorrect assumptions that led to incorrect economic conclusions.¹⁰

Sites on the SEL must undergo additional scrutiny during an active candidate stage prior to designation. The priority in which they are "selected as active candidates and evaluated by NOAA for possible sanctuary designation . . . involves not only the initial site evaluation [results], but also a balancing of relevant policy considerations including: ecological factors; immediacy of need; timing and practicality; and public comment."¹¹ The open-ended nature of selection, combined with a lack of deadlines, made the process highly susceptible to special interest influence and delay. It was entirely possible that a recommended site might never be studied.

As part of its "ecological factors" analysis to choose active candidates,

NOAA considers a site's contribution to the overall system of national marine sanctuaries. Consideration of representation ensures that the system not only includes sites which adequately represent the diverse coastal, marine and Great Lakes ecosystems in the United States, but also contains the "best" examples among representative sites. A consideration of diversity ensures that the system is illustrative of a variety of ecosystem types Although areas that duplicate existing sanctuaries may be given lower priorities than areas not yet represented, Ray (1975b) notes that "(r)edundancy of sites is important in the establishment of a reserve system and is essential from the genetic and ecological points of view . . . to circumvent loss from natural catastrophes or the inadvertent activities of man."¹²

Consideration of a site's *representativeness* marked the first time that this factor was included in the designation process.

The intent of the SEL was to "resolve weaknesses in the use of the existing LRA," which received recommendations that "are accompanied by limited information on the site and may or may not represent the 'best' candidate for sanctuary consideration."¹³ The SEL specified clear site identification and evaluation criteria, public participation in the pre-designation process, and identification of "significant marine and coastal ecological processes or features which are characteristic of the region."¹⁴

The theory behind the SEL was that it would include the sites with the most important resources, and those in most need of protection, and would provide scientific support for candidate sites. The restrictions on the number of sites that each team could suggest meant that some sites that perhaps should have been included had to be left off the list. Additionally, sites have repeatedly been dropped from the list for financial rather than ecological reasons. Despite intentions in 1989 to update

¹⁰Susan Harvey, Title III of the Marine Protection, Research and Sanctuaries Act: Issues in Program Implementation, 11 Coastal Management 169, 188 (1983).

¹¹Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 30 (1982).

¹²Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 30-31 (1982).

¹³Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 19 (1982).

¹⁴Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 24 (1982).

the list, no sites have been added to the SEL since its creation.¹⁵

The consultation requirements and the detailed list of factors to consider were drafted to ensure that positive and negative impacts of setting an area aside were considered prior to a designation. Required consideration of the factors also resulted in an administrative record to clarify what information NOAA used or why it disregarded or overrode other information while making its decision. These amendments were therefore partly intended to increase the transparency of designation decisionmaking and to ensure that impacts to communities or industries would be considered, though not necessarily directive. It was hoped that such consideration and delineation of basic qualifications would increase public trust in the Program by offering better explanations, e.g., for why oil and gas development were prohibited in some sanctuaries and not others. A hostile administration could also easily use the provisions to hold up designations. This is in fact what happened to the Program.

§ 23:51 Implementing the SEL

The changes in the designation process created by the PDP were formalized in new regulations that were made final in May 1983, two months after the first proposed SEL was published in the *Federal Register* and just as Congress was gearing up for another round of amendments to the NMSA.¹ The regulations formalized the new program goals and the SEL process, including the economic requirements, but dropped reference to weighing impacts of designation against the long-term benefits. The failure to formalize this weighting provision meant that the emphasis on cost-benefit analysis was reduced from what it might have been. This was a minor boost for the preservation purpose of the Act.

While the old designation process had not been popular, the new process garnered vehement opposition in Alaska, particularly from commercial fishermen, when it was learned the evaluation team was thinking of recommending 10 of the 18 sites that had been nominated for the SEL in Alaska, far more than the three to five sites other teams had recommended.² Further exacerbating tensions was the fact that in 1980, 104 million acres of federal land had been set aside for parks, wilderness, and other conservation uses under the Alaska National Interest Lands Conservation Act. The prospect of a perceived “federal takeover” of large areas of ocean waters, too, was enough to make fishermen fight any nominations.³

The fact that the ocean waters past three miles from shore already were federally “owned” was no consolation to fishermen accustomed to enjoying unrestricted access to valuable free resources. The fear that national marine sanctuaries would mean the end of commercial fishing in designated areas had been fed by a mistake on the part of the company hired by NOAA to conduct the regional review: notice to the public asking for nominations and other input to assist the team went out in the middle of fishing season when most fishermen were far out to sea.⁴ Alarm also was expressed by Sen. Stevens⁵ about “the uncanny similarity between the proposed marine sanctuary sites and the [sites on the] five-year OCS lease schedule. . . . It’s

¹⁵Decision to Consider New Sites for Addition to the SEL, 54 Fed. Reg. 53432 (Dec. 28, 1989).

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¹48 Fed. Reg. 24296 (May 31, 1983).

²Reauthorization and Oversight of Title III: Hearings Before the Subcommittees on Oceanography and Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries, 98th Cong., at 23 (1983) [hereinafter House Hearings 1983].

³House Hearings 1983, at 36 (statement of Rep. Young).

⁴Eugene H. Buck & George H. Siehl, Congressional Research Service, National Marine Sanctuary Program: Regional Site Selection 25-26 (1983).

⁵What is left out of Sen. Stevens’ analysis was that the push for sites in areas up for federal OCS

apparent that the contract review group felt that only areas with strong oil and gas potential were worth consideration as marine sanctuaries.”⁶ On October 29, 1982, in response to pressure from members of Congress from Alaska, NOAA decided to exclude all Alaskan sites from the SEL development process.⁷ The effect of that decision has been, in essence, to exempt Alaska from the Marine Sanctuaries Program on a semi-permanent basis.

Monterey Bay was removed from consideration as an active candidate on December 20, 1983. The area had been nominated by the state of California in 1977 and had been the subject of public meetings and agency studies for six years. NOAA “acknowledge[d] that the Monterey site does have outstanding marine resources” but removed it from further consideration for three reasons: (1) “two other national marine sanctuaries in California (Channel Islands and Point Reyes-Farallon Islands) which protect similar marine resources and the Program’s policy established in 1980 to consider a diverse array of similar marine resources,” (2) “the proposed area’s relatively large size and the surveillance and enforcement burdens this would impose on NOAA,” and (3) “the wealth of existing marine conservation programs already in place in the [proposed] sanctuary area.”⁸ NOAA took the position that this rejection of the Monterey site meant that it would not be *reconsidered* until all other sites on the SEL had been considered.⁹

§ 23:52 1983-84: Renewed Congressional Attacks

Continued controversy over the Program’s scope and site designation terms at places like Flower Garden Banks provided the backdrop for a further dilution of the Act’s preservation purpose in the 1984 reauthorization process. As a result of the receptivity of some Congressmen to the fears of the oil and gas and fishery industries, the opponents of the Program had significantly more power than they had wielded during previous reauthorizations. This was all the more true because Rep. Breaux, who had previously introduced bills to abolish the NMSA, had become chairman in 1979 of the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, which shared jurisdiction over sanctuaries with the Oceanography Subcommittee.

That the Act was in for more change was foreshadowed by the introduction in early 1983 by Rep. Don Young (R-AK) of a bill to delete Title III of the MPRSA in its entirety.¹ Young stated that the Sanctuaries Program was “showing signs of turning into a monster,” and focused on the potential of the NMSA to “disrupt all

leasing came from the Alaskan state government liaison to the resource evaluation team. “Officials of the State of Alaska’s Department of Fish and Game who served as liaison with NOAA/SPD may not have foreseen what would occur if they were intent on determining how the NMSP might be helpful in gaining additional leverage for the State over Federal OCS oil and gas development.” Eugene H. Buck & George H. Siehl, Congressional Research Service, National Marine Sanctuary Program: Regional Site Selection 28 (1983).

⁶Eugene H. Buck & George H. Siehl, Congressional Research Service, National Marine Sanctuary Program: Regional Site Selection App. C (1983) (correspondence from Sen. Stevens to Secretary of Commerce, Oct. 1, 1982).

⁷Eugene H. Buck & George H. Siehl, Congressional Research Service, National Marine Sanctuary Program: Regional Site Selection 28 n.17 (1983) (citing an Oct. 29, 1982 letter from Acting Assistant Administrator William Matuszeski to Alaska Gov. Jay S. Hammond).

⁸Removal of Monterey Bay from Active Candidate Status, 48 Fed. Reg. 56252 (Dec. 20, 1983).

⁹132 Cong. Rec. 31136 (1986) (POM-856 from Legislature of CA).

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¹H.R. 1229, 98th Cong. (1983).

maritime activities in the [Exclusive Economic Zone] EEZ.”² He also said that, contrary to the congressional intent of the original bill for “a small system of marine sanctuaries,” numerous areas around the country had been proposed, including 18 sites in Alaska that “would have nearly surrounded Alaska’s coast,” and that “designation of significant numbers of marine sanctuaries, as proposed in the past, could seriously disrupt the continued development of the U.S. fishing industry.”³

The arguments raised by Reps. Breaux and Young could be summarized as: (1) existing laws can provide sufficient protection for the marine environment, therefore the Act is redundant; and (2) the law is so broad and lacking in clear standards and legislative history that it runs the risk of becoming a behemoth, withdrawing large parts of marine territory from oil and gas development or commercial fishing.

§ 23:53 1983-84: Renewed Congressional Attacks—The Charge of Redundancy

Breaux, as Chairman of the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, had commissioned the U.S. Government Accounting Office (GAO) in 1979 to investigate the Act’s redundancy.¹ Ironically, the results of the GAO report were completely contrary to the arguments that Breaux, Young, and others had voiced.

The GAO report, issued in March 1981, concluded that the NMSA

fills “gaps” in Federal regulatory authority affecting the protection of marine resources; that is, it can offer benefits not available under other Federal laws [including the Outer Continental Shelf Lands Act, the Antiquities Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Clean Water Act, the Endangered Species Act, and the Marine Mammal Protection Act]. These include:

- Protecting shipwrecks, marine artifacts, and underwater historical landmarks beyond the territorial sea.
- Protecting coral and coral resources from damage or disturbance (such as might be caused by recreational vessels anchoring on coral reefs).
- Protecting marine life or habitat not protected under wildlife protection laws but [which], because of their unique characteristics or locations, may be deemed worthy of special treatment.
- Protecting ocean waters beyond the territorial sea from the dumping of common trash and other substances not regulated under other laws.²

In addition to providing protection not afforded by other laws, the GAO cited the importance of the NMSA to “comprehensive area management” and in providing for “evaluation of overall impact from all activities in a particular area.”³ U.S. Court of Appeals for the First Circuit reached a similar conclusion, in a decision involving the proposed Georges Bank sanctuary:

While under the Marine Sanctuaries Act the land use options of the Secretary of Commerce are much the same as those of the Secretary of the Interior under the Outer

²129 Cong. Rec. 1496 (1983) (statement of Rep. Young).

³National Marine Sanctuaries, H.R. Rep. No. 98-187, pt. 1, Young, dissenting view (1983) (on H.R. 2062).

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¹U.S. GAO, Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not (1981).

²U.S. GAO, Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not 7 (1981).

³U.S. GAO, Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not 7 (1981).

Continental Shelf Lands Act, the management objectives are different. It is thus possible that different environmental hazards would result depending on which program was invoked. Under the latter Act, the emphasis is upon exploitation of oil, gas and other minerals, with, to be sure, all necessary protective controls. Under the Sanctuaries Act, the prime management objectives are conservation, recreation, or ecological or esthetic values. 16 U.S.C. 1432. Drilling and mining may be allowed, but the primary emphasis remains upon the other objects. The marked differences in priorities could lead to different administrative decisions as to whether particular parcels are suitable for oil and gas operations.⁴

The differences between the Outer Continental Shelf Lands Act and the Sanctuaries Act highlighted by the court are applicable between NMSA and other laws that tend to focus on a particular resource or use.

Title III authorizes the only Federal program to comprehensively manage and protect marine areas as units . . . Only under title III may an area of the ocean or other coastal waters be set aside for preservation and the activities in the area be limited to those that are consistent with and compatible to the basic preservation purpose.⁵

§ 23:54 1983-84: Renewed Congressional Attacks—Scope of the Program

The second argument for the abolition of the NMSA, that it risks becoming an unwieldy “monster,” was driven by reactions to the LRA and the SEL, which some saw as blueprints for prohibiting uses of vast areas of the ocean.¹ Representative Young, in introducing his bill to repeal the Act, referred to the danger evidenced by

a private contractor working for [NOAA who] proposed establishing 18 marine sanctuaries off Alaska that would have nearly surrounded Alaska’s coast. Although the Alaska proposal was dropped temporarily, NOAA is continuing to work on numerous sanctuaries throughout the rest of the country. Obviously, instead of looking at discrete areas that might merit some protection, NOAA is interested in creating a huge new Federal enclave, complete with attendant bureaucracy.²

That fear has never become a reality. In the over 30 years of the Program, only 13 sanctuaries have been designated, covering about 0.4% of the U.S. Exclusive Economic Zone, and the restrictions on uses in these sanctuaries are, on the whole, minimal.

§ 23:55 1984 Amendments

Regardless of the questionable validity of the arguments to abolish the Program, Breaux’s new position of power and a Reagan administration that would later be described by many, including Reps. Leon Panetta (D-CA) and Hertel (D-MI), as unsupportive of or hostile to the Program, led to more amendments.¹ Representative Young’s repeal effort did not carry the day, but did influence the ultimate result. The House Committee on Merchant Marine and Fisheries had to resolve divergent

⁴Massachusetts v. Andrus, 594 F.2d 872, 9 ELR 20169 (1st Cir. 1979).

⁵U.S. GAO, Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not 12 (1981).

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¹129 Cong. Rec. 1496.

²129 Cong. Rec. 1496.

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¹138 Cong. Rec. 20904 (1992) (statements of Reps. Studds, Young, Rahall, Davis, Jones, Panetta, Hughes, Mink, and Lancaster); The Current Status and Future Needs of the National Oceanic and Atmospheric Administration’s National Marine Sanctuary Program: Hearing Before the Subcommittees on Oceanography, Great Lakes and the Outer Continental Shelf of the House Committee on Merchant Marine and Fisheries, 102d Cong., at 2 (Rep. Hertel), 97 (reprinting in full the Marine Sanctuaries Review Team report) (1991).

bills introduced by Young, Breaux, and Norman D'Amours (D-NH).² The Senate bill, which was modeled after the D'Amours bill, was introduced by Sen. Robert Packwood (R-OR) and the bill was ultimately enacted in October 1984.³

The 1984 Amendments to the MPRSA significantly rewrote the law, changing it from an Act focused on preservation and restoration into one arguably equally interested in weighing “resource protection” with human uses.⁴ The continued backslide with regard to the Act’s preservation purpose was due in part to significant concessions won by commercial fishermen and the oil and gas industry: NOAA was limited by the amendments in its ability to regulate these industries’ activities. Among the most significant changes, the amendments altered the Program’s purpose from preservation and restoration to five newly stated purposes; abolished the “safeguard provision” over multiple use by removing the Secretary’s power to prohibit uses previously authorized under other laws; made the SEL the required designation process, with four standards that must be met and nine factors that must be considered prior to designation; required earlier and more thorough notification to the public and Congress of impending designations; gave the Regional Fishery Management Councils the power of drafting fishery regulations for sanctuaries; and enhanced enforcement authorities.

In addition, Congress again considered giving itself the power to designate sanctuaries, but ultimately rejected the idea. Given the intensity of dislike for the NMSA by some of Congress’ leaders, the fact that the Act was not further eroded or terminated can only be credited to the hard work of many Members of Congress and the advocacy of the Center for Environmental Education and Defenders of Wildlife.⁵ Passage of the amendments appears to have been facilitated by language that was ambiguous enough to be considered a gain both by those who supported the Sanctuaries Program’s attempt to protect natural marine resources and by those who were pushing for minimally-restricted or outright appeal of industrial, commercial, and recreational uses of the sanctuaries. Arguably the Program’s supporters could not have done better during these most difficult of years for the Act and should be credited with keeping the Program functioning. Nevertheless, the 1984 Amendments weakened several key areas of the NMSA.

§ 23:56 1984 Amendments—Program Purposes

The 1984 Amendments mimicked the Program’s purposes and policies as stated in the “goals” section of NOAA’s 1983 regulations. The new purposes and policies were:

- to identify areas of the marine environment of special national significance due to their resource or human-use values;
- to provide authority for comprehensive and coordinated conservation and management of these marine areas that will complement existing regulatory authorities;
- to support, promote, and coordinate scientific research on, and monitoring of, the resources of these marine areas;
- to enhance public awareness, understanding, appreciation, and wise use of the marine environment; and
- *to facilitate, to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas*

²H.R. 1229; H.R. 1633, 98th Cong. (1983); H.R. 2062, 98th Cong. (1983).

³S. 1102, 98th Cong. (1983).

⁴1984 NMSA Amendments.

⁵Telephone Interview with Michael L. Weber, National Marine Sanctuaries Program History (Mar. 11, 2004).

*not prohibited pursuant to other authorities.*¹

All but the first of the new purposes were influenced by NOAA regulations, and the final new purpose was lifted verbatim from Breaux's bill.²

Taken together, the new purposes are very weak: none specify that the primary purpose of the Program is to preserve special marine areas. Preservation is left out entirely, replaced by the fifth purpose's "primary objective of resource protection."³ While the preservation goal was sidelined, multiple use was raised to the forefront with the clear mandate to facilitate all public and private compatible uses.

§ 23:57 1984 Amendments—Abolishment of the Safeguard Provision over Multiple Use

The reauthorization hearings and committee reports gave extensive treatment to the role of multiple use in the Sanctuaries Program. The result was that the 1984 Amendments abolished the safeguard provision over multiple use. Whereas the 1980 Amendments had reversed the safeguard, meaning that all previous authorizations were valid unless the Secretary chose to regulate or prohibit them, the 1984 Amendments no longer allowed the Secretary to prohibit previously authorized uses at all.¹ While the Secretary could *regulate* such uses even if not mentioned in the designation terms, he *could no longer completely protect a sanctuary* from a particular use even if the use was known to be generally detrimental to achieving the purposes for which a sanctuary was designated, unless the designation terms gave him control over the use. The provision provided some assurance to oil and gas leaseholders and fishing permit holders that they would be able to pursue their extractive industries unmolested.

President Carter's designation of the Channel Islands sanctuary, with a prohibition on new oil activity, and the Gulf of the Farallones sanctuary, which prohibited all oil activity, was a loss for the oil and gas industry, which had been defeated by local alliances of conservation groups and fishing interests.² When President Reagan took office in January 1982, he appointed a new head of the agency in which the Sanctuaries Program resided, choosing Peter Tweedt, an official from the DOI's offshore oil drilling office in southern California. At one point, Tweedt confessed to conservationists that his mission was to terminate the Sanctuaries Program.³ Industry now felt comfortable making such statements as the following one it gave in a Senate hearing:

Our association believes it is a splendid idea to preserve the conservational, recreational, ecological, and aesthetic values for which the act was intended. In fact, the evolution of our society, I think, requires consideration of these values. At the same time, we believe it is an equally splendid idea to seek to find new accumulations of oil and gas . . . as a means of sustaining our economy . . . and further, to guarantee our national security . . . we believe we can operate in the marine environment safely without damage to

[Section 23:56]

¹1984 NMSA Amendments § 301(b) (emphasis added).

²H.R. 1633.

³1984 NMSA Amendments § 301(b).

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¹1980 NMSA Amendments § 2(2); 1984 NMSA Amendments § 304.

²Telephone Interview with Michael L. Weber, National Marine Sanctuaries Program History (Oct. 1, 2003).

³Telephone Interview with Michael L. Weber, National Marine Sanctuaries Program History (Mar. 11, 2004).

environmental values.⁴

In view of fierce pressure against the Act, conservation groups sought to keep the Sanctuaries Program alive and to maintain to the extent feasible its preservation objective. Conservationists also had to oppose efforts that would have completely turned the Program into an ocean area multiple use program, as the testimony of Michael Weber, representing the Center for Environmental Education, shows:

Regarding the multiple-use of sanctuary areas, the oil and gas industry, for instance, has consistently maintained that the program has impeded its ability to explore and develop petroleum reserves on the outer continental shelf. Yet what I said to these subcommittees two years ago still holds true. Oil drilling prohibitions resulting from national marine sanctuary designation affect less than one-tenth of one percent of the outer continental shelf. The industry has been very successful in having its concerns addressed in this program. They successfully halted consideration of sanctuary nominations for the Georges Bank, Flower Garden Banks and the Beaufort Sea. In concert with the Department of the Interior, they also succeeded in suspending the oil drilling prohibitions at the two California sanctuaries in a legally questionable manner (CRS) and subjected these prohibitions to a lengthy and expensive regulatory impact analysis. Therefore, we submit that there is very little, if any, actual effect upon the offshore oil and gas industry from the marine sanctuaries program.

The fishing community has also expressed concerns that the designation of a marine sanctuary will preclude them from important fishing areas. Currently only the Looe Key sanctuary regulates commercial fishing to any extent . . . To our knowledge, this prohibition . . . has not proved to be burdensome . . . Similar concerns were expressed by California fishermen when the proposal for two California sanctuaries first surfaced. As they have gained greater experience with the program, these fishermen have become supporters of the program and have recognized it as a means of providing protection of habitat critical to commercial fisheries.⁵

In discussing the purpose of the Sanctuaries Program, House and Senate floor and committee debates fairly consistently stated that the primary goal of sanctuaries is conservation and management of resources to be achieved by *controlling the allowed mix of uses*, despite little congressional consensus or clear direction regarding what uses were compatible. Representative John McKernan (R-ME) agreed with Rep. Breaux that “[w]e have not created another wilderness area system in which man’s activities are to be uniformly excluded. Instead, man’s activities are to be permitted, and in some cases, encouraged in marine sanctuaries to the extent that such activities do not detract from the integrity of the sanctuary.”⁶ Other members of Congress argued that the overriding objective is resource protection and that management should be conducted through multiple use.⁷

Representative Young said that the idea that nothing in the NMSA guarantees the continuation of commercial fishing in a sanctuary—a position expressed by the Secretary—would be seriously disruptive to the continued development of the U.S. fishing industry if, as proposed in the past, significant numbers of sanctuaries were designated.⁸ Representative Barbara Boxer (D-CA) noted that only a miniscule fraction of the OCS had been designated and that she continued to support the “historical emphasis on resource protection by excluding disruptive activities such as oil

⁴NOAA Ocean and Coastal Programs: Hearings before the Senate Committee on Commerce, Science, and Transportation, 98th Cong., at 42-43 (1983) [hereinafter Senate Hearings 1983].

⁵Senate Hearings 1983, at 75-77 (prepared statement of Michael Weber, Marine Habitat Director, Center for Environmental Education).

⁶130 Cong. Rec. 25427-46 (1984) (statements of Reps. Breaux, Molinari, Jones, D’Amours, Carper, and Boxer); House Hearings 1983.

⁷130 Cong. Rec. 25427, 25441-42 (statement of Rep. Jones); 127 Cong. Rec. 15532 (1981) (statements of D’Amours and Pritchard on H.R. 2449).

⁸H.R. Rep. No. 98-187, pt. 1, (dissenting view of Don Young).

and gas development.”⁹ Senator Packwood opined that the interests of a particular user group must never come above conservation of special areas, and that the Secretary must only listen to, but in no way give assurances to, user groups.¹⁰

In addition to Young and Stevens, the fishing community, outraged over the attempted implementation of the SEL in Alaska, also had a champion in Rep. McKernan. McKernan joined the fight over the Program when fishermen in his state became angered by NOAA’s consideration of the Frenchman’s Bay area. “The downeast fishermen believe that a marine sanctuary means another layer of fisheries management. I am convinced that their beliefs are justified because of some loose language that is contained within Title 3.”¹¹ It was this “loose language” and the avoidance of “disrupting on-going programs” with which the 1984 Amendments sought to deal.¹²

In line with its emphasis on multiple use of sanctuaries, Congress wanted to make sure that existing leases, permits, licenses, rights of subsistence use, and rights of access were respected “in recognition of the variety of uses within marine areas.”¹³ As of the 1984 Amendments, the Secretary had the authority to regulate uses authorized by other authorities prior to the date of a sanctuary’s designation, but could not prohibit them.¹⁴ The impact of the provision was to grandfather in certain uses even if they conflicted with resource protection. Again, the focus of the 1984 Amendments was on facilitating uses rather than preserving natural resources and ecosystems.

§ 23:58 1984 Amendments—Changes to the Designation Process

The 1984 Amendments substantially broadened the Act’s guidance on the designation process. The SEL designation process was codified with minor changes in the 1984 Amendments and is the process followed today. Congress added four standards that the Secretary must apply to proceed with the designation process, nine factors to consider, and explained that the required consultations with “interested parties” meant that the Regional Fishery Management Councils must be included.¹ The factors and consultations, like NEPA analyses, only require consideration of the listed elements or stated views/concerns of those consulted with, and do not mandate a particular conclusion.

In order to proceed with a designation, the Secretary was required to determine that “the designation will fulfill the purposes and policies” of the Act by finding that:

- “the area is of special national significance due to its resource or human-use values”;
- “existing State and Federal authorities are inadequate to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education”;
- “designation of the area as a national marine sanctuary will facilitate the objectives” in (3); and
- “the area is of a size and nature that will permit comprehensive and

⁹130 Cong. Rec. 25427, 25444-45 (1984) (statement of Rep. Boxer).

¹⁰130 Cong. Rec., at 28202-07 (statements of Reps. Stevens and Packwood).

¹¹House Hearings 1983, at 4 (statement of Rep. McKernan).

¹²130 Cong. Rec. 25427-28 (statement of Rep. Young).

¹³S. Rep. No. 98-280, at 7 (1983) (on S. 1102).

¹⁴1984 NMSA Amendments § 304(c).

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¹1984 NMSA Amendments § 303.

coordinated conservation and management.”²

The nine factors required by the amendments to be considered by the Secretary in determining if a site met the above standards were:

- the area’s natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecologically or commercially important or threatened species or species assemblages, and the biogeographic representation of the site;
- the area’s historical, cultural, archaeological, or paleontological significance;
- the present and potential uses of the area that depend on maintenance of the area’s resources, including commercial and recreational fishing, subsistence uses, other commercial and recreational activities, and research and education;
- the present and potential activities that may adversely affect the factors identified in subparagraphs [(1), (2), and (3)];
- the existing state and federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this title;
- the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities;
- the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism;
- the negative impacts produced by management restrictions on income-generating activities such as living and nonliving resources development; and
- the socioeconomic effects of sanctuary designation.³

As Senator Packwood noted, citing the Senate report on the bill, “the factors . . . are not themselves standards which must be met, but are only guidelines for the Secretary’s consideration.”⁴ The factors were intended to be considered in combination to help in determining whether the standards are met, and whether the Secretary could therefore make the determination that the designation would accomplish the program’s goals. While these standards and factors provided more guidance than had previously existed on what types of areas Congress considered appropriate for designation, their layered structure, additional undefined terms, and many focuses further entangled the designation process.

§ 23:59 1984 Amendments—Resource Assessment Report

As part of the designation process, the Secretary was required to submit to relevant House and Senate Committees draft regulations and an Environmental Impact Statement, including a Resource Assessment Report “documenting present and potential uses of the area, including commercial and recreational fishing, research and education, minerals and energy development, subsistence uses, and other commercial or recreational uses.”¹ This description of the new reporting requirement was the first time that Congress mentioned energy activities in the Act. While the description did not say that present or potential uses were appropriate in marine sanctuaries, this provision furthered the weighing of resource protection versus

²1984 NMSA Amendments § 303(a).

³1984 NMSA Amendments § 303(b).

⁴130 Cong. Rec. 28202, 28206 (1984) (statement of Sen. Packwood).

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¹1984 NMSA Amendments § 303(b)(3).

resource extraction by ensuring that an area's use for oil and gas were considered prior to designation.

§ 23:60 1984 Amendments—Size of Sanctuaries

The debate on the appropriate size of a sanctuary, which had waged for years, finally received some direction in the 1984 Amendments. NOAA's Program Development Plan stated, and Reps. Young and Breaux agreed, that the upper size limit should approximate that of the 1,258 square nautical mile Channel Islands NMS.¹ The 1984 Amendments, however, left out such explicit language and merely required designations to be "discrete," and that the Secretary consider the "manageability of the area."² Representative Young in particular was concerned about size limits because one site that had been considered for the SEL was an almost 81,000 square nautical miles area in the Bering Straits. The Senate Committee on Resources "viewed [this] as an unrealistic size for effective conservation and management."³

Representative Walter Jones (D-NC), chairman of the Merchant Marine and Fisheries Committee,⁴ tried to bring reality back into the discussion by emphasizing that "while the broad mandate has led to certain misunderstandings, it has not led, as some have suggested, to widespread misuse. In the program's 10-year history, only six sites have been designated, encompassing 1.5 million acres, or 0.15% of the entire Outer Continental Shelf."⁵ Representative Jones also reminded his colleagues that "[w]hile an area may be too large for comprehensive management, it is also possible that an area may be too small, and therefore, insufficient to control activities affecting sanctuary resources."⁶ According to Jones, "discrete" did not refer to size. Instead, Jones argued that the plain meaning of the word, "constituting a separate entity or individually distinct," was intended. He also stated that the term referred to "ecological considerations and to the stated preference that the sanctuary constitute an ecological unit with clearly definable boundaries."⁷ The Act itself remained silent on what was meant by the term.

§ 23:61 1984 Amendments—Consultations Prior to Designation

The 1984 Amendments clarified that consultations with agencies and other "interested parties" must occur *prior* to a decision to designate. Additionally, the amendments expanded the consultation requirement to include House and Senate committees of jurisdiction and appropriate State and local government entities, Regional Fishery Management Councils, and other interested persons.¹ The 1984 Amendments further involved the Secretary of the Interior in drafting the resource assessment section of the resource assessment report, garnering input on "any commercial or recreational resource uses in the area under consideration that are

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¹Office of Coastal Zone Management, National Marine Sanctuary Program: Program Development Plan 35 (1982); Cong. Rec.; 48 Fed. Reg. 24301 (May 31, 1983).

²1984 NMSA Amendments §§ 102, 303(a), (b).

³S. Rep. No. 98-280.

⁴Walter B. Jones, Sr. served as chairman of the House Committee on Merchant Marine and Fisheries from 1981 until 1992.

⁵130 Cong. Rec. 25427 (1984) (statement of Rep. Jones).

⁶130 Cong. Rec., at 25442.

⁷130 Cong. Rec., at 25441-42.

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¹1984 NMSA Amendments § 303(b)(2).

subject to the primary jurisdiction of the Department of the Interior.”² In reality, these consultations have meant that the designation process has been held up in negotiations as powerful agencies such as EPA and DOI try to convince NOAA to do their bidding.

§ 23:62 1984 Amendments—Regional Fishery Management Council Drafting of Fishery Regulations

In a move to mollify the concerns of the fishing industry over the impacts of sanctuaries on their freedom to fish where they pleased, the 1984 Amendments required that the Regional Fishery Management Councils have the opportunity to prepare draft fishing regulations for the sanctuaries.¹ The industry had sought to exempt fishing entirely from regulation within sanctuaries but were held in check by conservation groups and their Hill allies.² The regulations “shall be accepted and issued as proposed regulations by the Secretary unless the Secretary finds that the Council’s action fails to fulfill the purposes and policies of this title and the goals and objectives of the proposed designation.”³ The Councils’ role had been raised in Sen. Stevens’ concerns about the 1978 Senate bill.⁴ The heated Alaskan emotions resulting from the SEL debacle apparently led to the return of this provision, which had failed to gain traction during the 1980 Amendments. The fishing industry was the only user group to receive such preferred consultative treatment.

§ 23:63 1984 Amendments—Enhancement of Enforcement Authority and Capability

The 1984 Amendments expanded the enforcement authorities of the Secretary.¹ The amendments allowed the Secretary to make agreements with other federal departments, agencies, and instrumentalities to assist in enforcement of marine sanctuary regulations, on a reimbursable basis. The amendments also established set civil penalties of up to \$50,000 for violating regulations and allowed vessels used in the violation to be held *in rem*, and sold to help pay any penalty assessed. These provisions replaced the Act’s previously vague enforcement authorizations, enhanced the capacity of the Secretary to ensure that law enforcement vessels were enforcing the regulations, and provided a strong financial incentive not to violate the regulations.

§ 23:64 1984 Amendments—Congressional Designation

The one significant provision of Breaux’s bill that was not enacted by the 1984 Amendments would have required Congress, rather than the President, to designate sites based on the Secretary’s recommendations.¹ The reasons given for congressional designation were that all terrestrial special areas are designated by Congress,

²1984 NMSA Amendments § 303(b)(3).

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¹1984 NMSA Amendments § 304(a)(5).

²Telephone Interview with Michael L. Weber, National Marine Sanctuaries Program History (Mar. 11, 2004).

³1984 NMSA Amendments § 304(a)(5).

⁴S. 2767; Unpublished Senate Hearing 1978, at 71.

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¹1984 NMSA Amendments § 307.

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¹H.R. 1633 § 302(a).

Congress would be better able to ensure public participation by holding hearings, and the administration had been stepping away from Congress' intent by looking at potential sites that were too numerous and too large.² Reps. Boxer and D'Amours were the only people to give any recorded response to this provision of the bill. They expressed concern about politicizing the process with greater involvement of Congress, lengthening the designation process by an additional few years, and not adding any new power, given that Congress already had a veto power.³ In any event, the power of designation remained with NOAA.

§ 23:65 1984 Amendments—Conclusion

Program supporters in Congress and the conservation community were successful in preventing the Program's demise with the 1984 Amendments, which were the last push by the Program's critics to abolish it. In summary, the 1984 Amendments focused on expanding the input and consideration of industrial and commercial uses of sanctuaries, while diminishing the preservation purpose to one of "resource protection," and completely dropping reference to restoration. The purpose/policy to facilitate all compatible uses, the abolishment of the safeguard provision by restricting the Secretary's power to prohibit activities, and the required study of the socio-economic impacts that a designation would cause, all led to a further dilution of the preservation goal.¹ The focus of the Program was now linked to a cost-benefit analysis focused on human use and benefit rather than to a precautionary approach of preservation of important areas for their environmental values and characteristics.

§ 23:66 Program Results from 1984-1986

In keeping with the Reagan Administration's desire to scuttle the Program, NOAA's designation efforts were slow and often redundant. The only sanctuary designated during Reagan's eight years was the tiny Fagatele Bay off American Samoa in 1986.¹ The final regulations for the sanctuary prohibited several types of recreational fishing methods and all commercial fishing.²

While there was action taken to study sites such as Ten Fathom Ledge/Big Rock, North Carolina, and Norfolk Canyon, Virginia, results were minimal. In 1986, Norfolk Canyon, which had been studied for designation for years, joined Flower Garden Banks in the Gulf of Mexico (first considered for designation in April 1979) and Cordell Bank, California (declared an active candidate on June 30, 1983) as an active candidate, where it languished until finally withdrawn in 1997 due to financial constraints on the Program.³ Ten Fathom Ledge/Big Rock was studied for active candidacy in 1985, but in 1986 was put back on the SEL waiting list due to a lack of staff time and resources to deal with it.⁴

§ 23:67 Conclusion

²House Hearings 1983, at 5-7.

³House Hearings 1983, at 38-40.

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¹1984 NMSA Amendments § 301(b)(5).

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¹Fagatele Bay Designation, 51 Fed. Reg. 15878 (Apr. 29, 1986).

²51 Fed. Reg. 15878.

³Norfolk Canyon Active Candidacy & Suspension of Ten Fathom Ledge/Big Rock from Consideration as a Sanctuary, 51 Fed. Reg. 7097 (Feb. 28, 1986); Withdrawal of Norfolk Canyon as an Active Candidate, 62 Fed. Reg. 45233 (Aug. 26, 1997); 44 Fed. Reg. 22081; 48 Fed. Reg. 30178 (June 30, 1983).

⁴51 Fed. Reg. 7097 (Feb. 28, 1986).

If there had ever been any doubt about congressional intent on multiple use under the Sanctuaries Act, it was laid to rest during the 15-year period following enactment. Working in tandem, Congress and NOAA changed the direction of the Program by adding new goals and purposes that muddled the new primary purpose of protection, without providing clear requirements on how to assure that protection was actually achieved. The focus on multiple use, discussed by Congress prior to passage in 1972 but first included in implementation by NOAA in the 1974 regulations, enhanced the confusion over the Program's direction. The Act was significantly weakened, but kept from total abolishment, in 1984, when the safeguard over multiple use was all but destroyed by removing the power of the Secretary to terminate existing rights; by granting the fishery management councils unprecedented power through the ability to draft fishing regulations for sanctuaries; by the inclusion of a purpose requiring facilitation of compatible public and private uses; and by the consideration of economic impacts in the decision about whether to designate an area.

Additionally, the provision requiring any changes to the original terms of designation to go through the entire consultation and public input process has acted as a serious deterrent to addressing new problems in the sanctuaries. After the 1984 Amendments, the terms of designation were required to list all uses that might be regulated within the sanctuary. The combination of these two provisions means that sanctuaries are virtually unable to manage uses that the Secretary had not foreseen would be a problem at the time of designation. For example, commercial fishing was often exempted from sanctuary regulation. As more information has become available about the destruction done to seafloor habitats by fishing methods such as bottom trawling, sanctuaries are unable to protect their resources because they are unable to regulate fishing. An attempt to change the terms of designation to allow such regulation would be very time and money consuming, in a program already tight on both. The result has been a reluctance to change the terms of designation once they have been finalized.

As noted in the CRS Report:

The National Marine Sanctuary Program has undergone a complex evolution of both Congressional intent (evidenced in the original Act and subsequent reauthorization and amendment) and Administrative conduct (evidenced in the variety of statements of goals, purposes, mission, and philosophy of this program). Confusion between Congress and the Administration over the operation of the NMSP often is spawned by this complexity. There even appears to be some Administrative confusion over what goals and/or purposes best serve to guide this program.¹

V. REEMPHASIS ON PRESERVATION, 1987-2000

§ 23:68 Background

President Reagan's terms of office, according to David Owen,

may have been the program's nadir. Beset with the active opposition from the administration, the existing programs suffered. Staff positions went unfilled, and critics charged that management programs at existing sanctuaries languished. Funding levels stabilized at the beginning of the Reagan era but then actually declined during his second term. The levels of funding requested by the administration were even lower; Congress repeatedly allocated more money than the administration estimated was necessary. Most discouragingly for program advocates, NOAA designated no new sites other than Fagatele Bay, allowed the designation process for others to stagnate, and

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¹Eugene H. Buck & George H. Siehl, Congressional Research Service, National Marine Sanctuary Program: Regional Site Selection 34 (1983).

even removed Monterey Bay from the list of proposed sites.¹

Meanwhile, a series of marine pollution events continued to highlight the need for marine protection. These included algal blooms, mass dolphin deaths, medical waste that washed up on the Atlantic Coast, and the crash of an ore carrier and a car carrier, which resulted in a spill of copper ore and bunker fuel oil adjacent to the Channel Islands NMS.

Of the 29 sites placed on the SEL in 1983, the *only* site that had been designated by 1988 was the tiny Fagatele Bay, a record that Congress called “unacceptable.”² Congressional frustration over the lack of designations led to a new phase of the Program, one in which Congress played an active role in deciding which sites would be designated and under what conditions. Congress even resorted to bypassing the process it had created in order to designate four sanctuaries between 1990 and 1992. Congress amended the Act in 1988, 1992, 1996, and 2000 with the ostensible objective of strengthening the Act’s preservation mission. However, in so doing, it failed to revise the law’s multiple use objectives; thus the impact of the changes has been minimal. Furthermore, with the 2000 Amendments, Congress authorized a temporary moratorium on designation of new sanctuaries until existing ones are better managed and studied, throwing a blanket of uncertainty over the Program.

§ 23:69 The 1988 Amendments

The 1988 reauthorization process clearly reflected the frustration of Congress with the inaction of the Reagan Administration. While the 1988 Amendments did not go so far as to remove any of the troublesome provisions of earlier amendments, they reflected Congress’ renascent interest in the preservation mission of the Program, and gave it a needed jump start.¹ In addition to a number of changes to the management and enforcement provisions of the Act, the 1988 Amendments required the administration to designate four sites and issue prospectuses and studies on six more according to a set timetable.²

A number of bills dealing with various aspects of the Marine Sanctuaries Program were introduced in 1986 and 1987 in both House and Senate. In September 1986 and again in January 1987, Rep. Panetta introduced bills to designate Monterey Bay as a national marine sanctuary.³ In his introductory statement in 1986, Panetta said that the “decision [in 1983] to remove the bay from the list of active candidate sites was at best arbitrary, and at worst misguided. The reasons given by NOAA at the time bore little relationship to the facts involved.”⁴ Panetta listed and rebutted each argument that NOAA had advanced in 1983 as to why Monterey Bay was not suitable for designation: “It should be noted that nowhere in the Marine Sanctuaries Act is it contemplated that geographical distribution would be decisive in determining protection or that a coastline as extensive and varies as California’s

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¹Dave Owen, *The Disappointing History of the National Marine Sanctuaries Act*, 11 N.Y.U. Envtl. L.J. 711, 728 (2003) (footnotes omitted).

²H.R. Rep. No. 100-739, at 13, 14 (1988) (on H.R. 4208).

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¹Pub. L. 100-627, 102 Stat. 3213 (1988) [hereinafter 1988 NMSA Amendments].

²Pub. L. 100-627, 102 Stat. 3213 (1988).

³H.R. 5489, 99th Cong. (1986); H.R. 734, 100th Cong. (1987).

⁴132 Cong. Rec. 22356-57 (1986).

would be limited to the number of potential sanctuaries.”⁵ Panetta also argued that the two existing sanctuaries in California did *not* protect similar resources, as NOAA had claimed; that the exact size would not be determined until designation but would “certainly be smaller than the Channel Islands Sanctuary;” and that the resources of Monterey Bay faced increasing threats from coastal pollution.⁶ Panetta’s bill marked the first time in years that Congress expressed an interest in using its powers to designate areas on its own, bypassing the designation process it had fought so hard to perfect.

In addition to Panetta’s bills, there was a concerted effort by the California state legislature and congressional representatives to restrict oil and gas development off the northern California coast. Concerns about oil development off of California and Massachusetts had helped stimulate the passage of the original Act, yet protections from oil development had only been achieved in the Channel Islands and Gulf of the Farallones sanctuaries; Georges Bank was still entirely unprotected. In 1985, Sen. Cranston introduced legislation to impose an oil and gas leasing moratorium along parts of the California and Massachusetts coast.⁷

In September 1986, the California legislature laid before the U.S. Senate a petition that the northern California coast be “set aside as a marine sanctuary, where extraction of fossil fuels, minerals, and other nonrenewable materials, and the dumping or burning of toxic wastes, are forbidden and the protection of the marine environment and the needs of the commercial and sports fisheries are assured forever.”⁸ Rep. Robert Lagomarsino (R-CA) followed up on this proposal in early 1987 by introducing a bill, to “disallow the Secretary of the Interior from issuing oil and gas leases with respect to a geographical area located in the Pacific Ocean off the coastline of the State of California,” and in late 1987 with the Santa Barbara Channel Protection Act.⁹ The Santa Barbara Channel Protection Act would have established an “environmental protection zone” in which the Secretary of Transportation would establish standards for all vessels, including oil tankers, passing through the area. The bill would also have amended the NMSA to incorporate language similar to that proposed by Rep. Studds in a 1987 bill “to authorize the Secretary of Commerce to recover damages for the injury to or destruction of national marine sanctuary resources” and earmark the recovered damages for sanctuary protection programs.¹⁰ The impetus for the damages provision had been the 1984 groundings of the *Wellwood* in the Key Largo NMS and the *Puerto Rican* very near the Gulf of the Farallones NMS.¹¹ In both cases, legal settlements of \$22 million and \$1.7 million respectively were unavailable to reimburse the Sanctuaries Program for its extensive restoration or response costs, because the monies were required to go into the general Treasury coffers.¹²

Legislation sponsored by Rep. Mike Lowry (D-WA) and Sen. Hollings formed the basis for the Program’s reauthorization in 1988.¹³ The resulting amendments set a time-deadline for NOAA review of candidate sites, created a permit program to regulate special uses of sanctuaries, and mandated designation of four sites and

⁵132 Cong. Rec. 22356-57 (1986).

⁶132 Cong. Rec. 22356-57 (1986); H.R. 5489 § 2(2).

⁷S. 734, 99th Cong. (1985); 131 Cong. Rec. 6178-79 (1985) (statement of Sen. Cranston).

⁸132 Cong. Rec. 31136 (1986) (POM-856 from Legislature of CA).

⁹H.R. 3772, 100th Cong. (1987).

¹⁰H.R. 3772, 100th Cong. (1987).

¹¹H.R. Rep. No. 100-739.

¹²H.R. Rep. No. 100-739.

¹³H.R. 4208, 100th Cong. (1988); H.R. 4210, 100th Cong. (1988); S. 2767, 100th Cong. (1988).

prospectuses or studies of six more areas.¹⁴

Members of the House and Senate voiced extreme criticism of the administration's management of the Program.

Testimony . . . has demonstrated that program implementation has been unacceptably slow. . . . only one new site covering 163 acres has been designated. Other sites are languishing within NOAA, with no clear indication when critical decisions will be made. . . . A glance at NOAA's Site Evaluation List (SEL) provides further evidence of programmatic atrophy. Of the 29 sites placed on the SEL in 1983, NOAA has not completed consideration of a single site. . . . The Committee considers the Administration's record of considering and designating new sites over the past four years unacceptable. . . . there has been an evident lack of administrative will.¹⁵

My friend from Washington [Rep. Lowry] deserves high praise for recognizing the need to override the intransigence of the NOAA officials who have for too long sought to tear down and destroy the program they were charged with nurturing.¹⁶

I believe this legislation is necessary to provide a renewed sense of direction to our National Marine Sanctuaries Program, particularly with respect to the long-term goal of establishing consistent authority in the conservation and protection of our nationally significant marine resources.¹⁷

§ 23:70 The 1988 Amendments—30-Month Deadline

In an attempt to speed up the seemingly interminable studies of candidate sites, Congress required the Secretary either to issue a notice of designation for a proposed site within 30 months of publishing the notice declaring the site an active candidate, or to publish a notice in the *Federal Register* explaining why no designation notice has been issued.¹ This requirement to act was spurred by the plight of sites such as Cordell bank, Monterey Bay, Georges Bank, and the many others that had been floating in and out of active candidacy for years, often with no notice given as to why they were not designated.

§ 23:71 The 1988 Amendments—Special Use Permits

While multiple use compatible with resource protection had been declared as a purpose of the Act in 1984, “nonetheless, questions of when, to what extent, and under what conditions, public and private uses of sanctuary resources are appropriate have presented a continually difficult issue for sanctuary managers.”¹ The 1988 Amendments established a system of special use permits to regulate access to and use of sanctuary resources. The need for these permits was raised by the increased interest in commercial use of sanctuaries (e.g., recreational diving, whale watching, boat tours) and the failure of NOAA to issue final regulations implementing the 1984 Amendments. Existing regulations only authorized permits for research, education, and salvage activities and left the agency with no clear means of controlling new concessions and other uses not contemplated at the time of designation.²

¹⁴1988 NMSA Amendments.

¹⁵H.R. Rep. No. 100-739, at 13-14 (the committee neglected to note that Fagatele Bay had been one of the 29 sites on the SEL and was designated as a sanctuary by NOAA on April 29, 1986, see 51 Fed. Reg. 15878 (1986)).

¹⁶134 Cong. Rec. 18857 (1988) (statement of Rep. Studds).

¹⁷134 Cong. Rec., at 22872-75 (statement of Rep. Hollings).

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¹1988 NMSA Amendments §§ 201-202.

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¹H.R. Rep. No. 100-739, at 16-17.

²H.R. Rep. No. 100-739, at 16-17.

§ 23:72 The 1988 Amendments—Mandated Designations

Perhaps the most significant provisions of the 1988 Amendments, in terms of the precedent they set, were provisions requiring the Secretary to issue notices of designation, submit prospectuses, and conduct studies of particular sites. The amendments required designation by set dates for Cordell Bank, Flower Garden Banks, Monterey Bay, and the Western Washington Outer Coast.¹ The Secretary also was required to submit a prospectus to Congress on Stellwagen Bank and the Northern Puget Sound, and to conduct studies on the appropriateness for designation of the American Shoal, Sombrero Key, and Alligator Reef within the Florida Keys, and Santa Monica Bay, CA.² Finally, a provision was inserted to require the Secretary to complete a report jointly with the Secretary of Transportation on safety in the Channel Islands NMS, including proposals to prevent and respond to future oil pollution incidents in or affecting the sanctuary.³ “While I feel that it is unfortunate that we, in Congress, must legislate these designations, it is the only way I know that we can move the program along,” said Sen. Hollings.⁴

The California sites had been considered for years, and were highlighted for action in part on Sen. Pete Wilson’s (R-CA) suggestion.⁵ Wilson had identified the three sites as “some of the most critical and important marine habitat off all of California.”⁶ Two of the three had also had long, fruitless experiences mired in the designation process. Monterey Bay, “despite strong public and State governmental support . . . was suspended [as an active candidate] by NOAA in December 1983, without any opportunity for public comment.”⁷ Cordell Bank had been nominated in 1981, made an active candidate in 1983, and been formally proposed for designation in 1987. During the year between its proposal and the enactment of the 1988 Amendments, however, no further action had been taken on the site’s designation. According to Sen. Cranston, the requirement for study of Santa Monica Bay was made due to its extreme popularity as a recreation site and its need for preservation.⁸ “The intent of Congress has been made clear—sensitive marine habitat such as can be found off the coast of California should be protected as a marine sanctuary. If the administration won’t take the initiative, then this responsibility falls to Congress.”⁹

The other sites mentioned by the amendments had all experienced similar inaction. Flower Garden Banks had not been reconsidered as an active candidate since 1983, despite the fact that the Gulf of Mexico Fishery Management Council and the State Department had reversed their earlier objections to designation.¹⁰ Stellwagen Bank, the Washington Outer Coast and Northern Puget Sound had languished on the SEL since 1983, with no sign of action being taken by NOAA.¹¹ It was hoped that the 1988 Amendments would counter the “programmatic atrophy” of

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¹1988 NMSA Amendments § 205.

²1988 NMSA Amendments § 206.

³H.R. Rep. No. 100-739, at 18; 1988 NMSA Amendments § 209.

⁴134 Cong. Rec. 22872.

⁵S. 2737, 100th Cong. (1988).

⁶134 Cong. Rec. 21922-23 (1988) (statement of Rep. Wilson).

⁷H.R. Rep. No. 100-739, at 14.

⁸134 Cong. Rec. 29942-44 (1988) (statements of Sens. Byrd and Cranston).

⁹134 Cong. Rec., at 21922.

¹⁰H.R. Rep. No. 100-739, at 13-14.

¹¹H.R. Rep. No. 100-739, at 14.

the 1980s.¹²

The House Merchant Marine and Fisheries Committee concluded among other things that the lack of designations had resulted because “the President has not recommended and Congress has not provided adequate funding to support the necessary research, surveys and staffing levels” and “there has been an evident lack of administrative will within NOAA to complete the designation process.”¹³ So, in addition to mandating more sites for study, Congress increased funding authorizations and required that annual budget submissions be divided into Program functions, so that Congress would have a better handle on whether requests were for designation, management or enforcement.¹⁴

§ 23:73 Meeting Designation Deadlines

Regardless of its new deadlines, the Reagan Administration failed to meet the congressional mandate and continued to drag its feet on several of the sites. In May 1989, five months after the deadline set by the 1988 Amendments, President George H.W. Bush designated Cordell Bank, where oil development was a major issue.¹ Despite the House MMFC having heard testimony in 1988 that urged it “to establish a ban on oil and gas development within Cordell Bank, the Committee initially deferred this issue to NOAA.”² The terms of designation, however, only prohibited oil and gas leasing within 13.7 square nautical miles of the 300 square nautical mile sanctuary.³ The draft environmental impact statement had inexplicably not even considered banning oil and gas development within the entire sanctuary. The final environmental impact statement (FEIS) had found that “hydrocarbon exploration, development, and production activities could threaten Sanctuary resources (impacts from seismic exploration, oil discharges from accidental spills including well blow-outs, and on-site discharges of drill cuttings and drilling muds),” but opined that it was not necessary to ban oil and gas in the entire sanctuary at that time.⁴

In response to the FEIS, public comments and a letter from the EPA were submitted “stating that, based on information in the FEIS, a Sanctuary-wide ban on hydrocarbon development appeared to be the environmentally preferable alternative.”⁵ Pressure from conservation organizations and the public and EPA’s contradiction of NOAA’s findings led NOAA to issue a proposed rule to ban oil and gas activities within the rest of the sanctuary, at the same time that it designated the sanctuary with a limited ban.⁶

Congress, unhappy with the additional delays and uncertainty in achieving a complete ban on hydrocarbon development, stepped in again and by statute prohibited exploration, development, or production of oil, natural gas, or minerals in the entire Cordell Bank NMS.⁷ As the Committee on Merchant Marine and Fisheries said in its report on the issue,

In a nation which leads the world in energy consumption and relies on imported oil for

¹²H.R. Rep. No. 100-739, at 14.

¹³H.R. Rep. No. 100-739, at 14.

¹⁴H.R. Rep. No. 100-739, at 14-15; 1988 NMSA Amendments §§ 205, 206, 209.

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¹1988 NMSA Amendments § 205(a)(1); 54 Fed. Reg. 22413 (1989).

²H.R. Rep. No. 101-110, pt. 1, at 5 (1989) (on H.J. Res. 281).

³54 Fed. Reg. 22413 at 22417 (1989).

⁴H.R. Rep. No. 101-110, pt. 1, at 5; 54 Fed. Reg. 22413 at 22417 (1989).

⁵54 Fed. Reg. 22413 (1989).

⁶54 Fed. Reg. 22413 (1989).

⁷Pub. L. 101-74, 103 Stat. 554 (1989).

nearly on-half of its supplies, and off the coast of a State that is a leading energy consumer, such decisions cannot be made lightly. However, in the case of Cordell Bank, the Committee has decided it is prudent to “Just Say No.” . . . The Committee believes that leaving the question of oil and gas regulation open-ended sends ambiguous signals to the oil and gas industry.⁸

Of the other required designations, Flower Garden Banks was to have been designated by NOAA by March 31, 1989, yet designation did not occur by NOAA until December 5, 1991.⁹ The moratorium on oil and gas that had been proposed in 1979 was nowhere to be seen in the final designation, which allowed leasing and exploration to continue in some areas of the sanctuary. Monterey Bay was to have been designated by December 31, 1989, but did not see protection until Congress gave up on NOAA and designated it in 1992.¹⁰ The Western Washington Outer Coast, which was to have been designated no later than June 30, 1990, was not designated until 1994 as the Olympic Coast NMS.¹¹ Congress’ attempts to guide the administration proved to be a dismal failure, with NOAA ignoring specific timetables.

§ 23:74 Florida Keys NMS Designation by Congress

The years leading up to the Florida Keys designation had shown the need for urgent action to stem vessel groundings, of which there had been three significant and recent ones, and declines in water quality. Bills to designate the Keys were introduced in November 1989 by Reps. Dante Fascell (D-FL) and Jones, and by Sen. Bob Graham (D-FL) in March 1990.¹ According to Sen. Graham, there was “broad support for this legislation from both commercial users, recreational users, and environmentalists.”² After discussion and amendment, these bills led the way to another Fascell-sponsored measure, which was enacted less than a month later, on November 16, 1990.³

Among its extensive area, the sanctuary incorporated the already existent Key Largo and Looe Key sanctuaries, along with Alligator and Sombrero Reefs, and American Shoal, which Congress had told NOAA to study for designation back in 1988.⁴ The law also:

- codified a Coast Guard “area to be avoided,” directing commercial vessels around rather than over the reef;
- prohibited all mineral and hydrocarbon leasing, exploration, development, and production;
- ordered the Secretary of Commerce to prepare a comprehensive management plan within 30 months, in consultation with appropriate federal, state, and local government authorities, and with the Advisory Council established by the Act;
- established an Advisory Council to assist the Secretary in the development and implementation of the Sanctuary’s comprehensive management plan,

⁸H.R. Rep. No. 101-110, pt. 1, at 6-7.

⁹Flower Garden Banks Sanctuary Designation and Regulations, 56 Fed. Reg. 63634 (Dec. 5, 1991).

¹⁰Pub. L. 102-587, 106 Stat. 5039 § 2203 (1992) [hereinafter 1992 NMSA Amendments].

¹¹Designation of Olympic Coast Sanctuary, 59 Fed. Reg. 24586 (May 11, 1994).

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¹H.R. 3719, 101st Cong. (1990); S. 2247, 101st Cong. (1990).

²136 Cong. Rec. 3774 (1990) (statement of Sen. Graham).

³Florida Keys National Marine Sanctuary and Protection Act, Pub. L. 101-605, 104 Stat. 3089 (1990) [hereinafter Florida Keys National Marine Sanctuary Act].

⁴1988 NMSA Amendments § 206.

- including conclusions on zoning; and
- required the Administrator of the EPA and the Governor of Florida to develop a comprehensive water quality protection program in consultation with the Secretary of Commerce.⁵

The goals of the comprehensive management plan were to:

1. facilitate all public and private uses of the Sanctuary consistent with the primary objective of Sanctuary resource protection;
2. consider temporal and geographic zoning, to ensure protection of Sanctuary resources;
3. incorporate regulations necessary to enforce the elements of the comprehensive water quality program;
4. identify needs for research and establish a long-term ecological monitoring program;
5. identify alternative sources of funding needed to fully implement the plan's provisions and supplement appropriations;
6. ensure coordination and cooperation between Sanctuary managers and other Federal, State, and local authorities with jurisdiction within or adjacent to the Sanctuary; and
7. promote education, among users of the Sanctuary, about coral reef conservation and navigational safety.⁶

The emphasis on the protection of sanctuary resources and the provisions on zoning and long-term ecological monitoring served to focus sanctuary management on preservation rather than multiple uses. As the Wilderness Society said in their letter of support to Sen. Graham, "This legislation charts a course toward real protection for the Florida Keys coral reef resource . . . your legislation may well become a model for future marine designations elsewhere in the United States."⁷ Although Congress had included several innovative provisions, such as the water quality protection program, the Advisory Council, and the concept of zoning, these provisions were specific to the Florida Keys sanctuary. It remained to be seen whether Congress would apply them to the entire Program.⁸

§ 23:75 The 1992 Amendments

By 1992, public support for the Sanctuaries Program had increased. This was in part because of campaigns by conservation groups to highlight the sanctuaries as part of the solution to preventing a repeat of the recent events such as the devastating *Exxon Valdez* oil spill, freighter groundings in the Florida Keys, and two major oil spills off the Olympic Coast.¹ Additionally, biodiversity conservation was a topic of increasing international attention. Stellwagen Bank was threatened by proposals

⁵Florida Keys National Marine Sanctuary Act.

⁶Florida Keys National Marine Sanctuary Act § 7(a).

⁷136 Cong. Rec. 3774, 3776.

⁸*See, e.g.*, 136 Cong. Rec. 18706 (1990) (statement of Rep. Arlan Strangeland (D-MN)).

[Section 23:75]

¹The Current Status and Future Needs of the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program: Hearing Before the Subcommittees on Oceanography, Great Lakes and the Outer Continental Shelf of the House Committee on Merchant Marine and Fisheries, 102d Cong. at 92 (1991) (reprinting in full the Potter and Ray and Ray reports) [hereinafter House Hearing 1991]; Current Status and Future Needs of the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program: Hearing Before the Subcommittees on Oceanography, Great Lakes and the Outer Continental Shelf and Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries, 102d Cong., at 20, 84, 145 (testimony of Andrew Palmer, AOC, and letter by Gov. Booth Gardner of Washington to Secretary of

for a floating casino, sand and gravel mining, and an EPA proposal for a disposal site only 12 miles west of the proposed sanctuary borders.²

Also generating interest were two reports on the Program released prior to the start of the 1992 reauthorization process; both called for substantial change and lauded the Program as necessary and effective at protection.³ The report by G. Carleton Ray and M.G. McCormick-Ray, *A Future for Marine Sanctuaries*, provided fodder for further discussions on the program's scope and goals. The Rays found that the Program suffered from a "lack of sufficient leadership, support, personnel, expertise, and influence, to carry out even its existing statutory mission. That is, the Congress has placed demands on the Program greater than the institution designated to carry them out."⁴ The report also suggested that an emphasis be placed on defining and creating a "'nationally significant' sanctuary system."⁵

On the heels of the Rays' report, NOAA's Assistant Administrator formed the Marine Sanctuaries Review Team to make recommendations on ways to improve the Program. The Review Team issued its report in February 1991.

In general, the panel has concluded that this program affords this Administration a rare opportunity to take important and bold steps to protect and enhance these important parts of our heritage, and in the process, to create a model for the rest of the world of how to respond to this challenge . . .

In the past, NOAA's administration of the Marine Sanctuaries Program has lacked leadership, focus, resources and visibility, and the program has suffered for it. It has generally been treated as the runt of the NOAA litter, receiving only occasional pats on the head as executive and legislative attention was focused on its larger and better endowed siblings.⁶

The Review Team suggested a \$30 million budget, shortening the designation process, creating a clear vision statement, securing representation of all 12 marine biogeographical provinces, implementing comprehensive and coordinated inter-agency management by zoning and other methods, and creating user fees similar to the National Park Service's "Golden Eagle Passport" to help support the Program.⁷ The report rejected calls to change the name of the Program, arguing that no clear and compelling reason existed, and that such a change would cause additional public confusion.⁸

With substantial guidance and interest, the authorizing committees substantially re-wrote the Act. Reps. Hertel and Studds and Sen. John Kerry (D-MA) each introduced sanctuary bills that were relatively similar.⁹ The final language of the public law drew from all of them, but predominantly from the House bills.¹⁰ Among other changes, the 1992 Amendments:

- Added four new program purposes to the five that already existed;
- Allowed for designations to be made when existing state and Federal authorities needed to be *supplemented*, not just when they are *inadequate*;

Commerce, Dec. 31, 1991, re: formal comments on the DEIS for the Olympic Coast NMS) (1992) [hereinafter House Hearing of 1992]; S. Rep. No. 102-411, at 2 (1992) (on S. 2788).

²House Hearing 1992, at 30; House Hearing 1991, at 25.

³House Hearing 1991, at 87, 146.

⁴House Hearing 1991, at 156.

⁵House Hearing 1991, at 158.

⁶House Hearing 1991, at 99.

⁷House Hearing 1991, at 87.

⁸House Hearing 1991, at 120.

⁹H.R. 5617, 102d Cong. (1992); H.R. 4310, 102d Cong. (1992); H.R. 4409, 102d Cong. (1992); S. 2788, 102d Cong. (1992).

¹⁰1992 NMSA Amendments.

- Required a site's contribution to "maintenance of critical habitat of endangered species" to be one of the factors considered in the study process;
- Required interagency cooperation on activities either within or outside sanctuaries that "are likely to destroy, cause the loss of, or injure any sanctuary resource";
- Required management plan reviews for each sanctuary every five years;
- Granted NOAA authority to create Sanctuary Advisory Councils (SACs) to assist in the management of the sanctuaries, based on the success of the Florida Keys Council; and
- Designated the Hawaiian Islands Humpback Whale, Monterey Bay, and Stellwagen Bank National Marine Sanctuaries.¹¹

The overall direction of the 1992 Amendments can be characterized as a move towards preservation, but again, Congress failed to remove multiple use and other conflicting provisions.

§ 23:76 The 1992 Amendments—Program Purposes

Reflecting a diversity of views in Congress on the purpose of the Program, the amendments revised the 1984 purposes and added four more purposes in an attempt to clarify the intent of the Act.¹ Congress stated that the purpose of the Program is to identify *and designate* areas of special *national significance* (rather than just identifying special areas).² While the purposes of enhancing public awareness and the facilitation of all public and private uses were left intact and unchanged, the four new purposes were:

1. "develop and implement coordinated plans for protection and management of these areas" with appropriate agencies, governments, organizations, and other interests "concerned with the continuing health and resilience of these marine areas";
2. "create models of, and incentives for, ways to conserve and manage these areas";
3. "cooperate with global programs encouraging conservation of marine resources"; and
4. "maintain, restore, and enhance living resources by providing places for species that depend upon these marine areas to survive and propagate."³

The second of the new purposes was a lofty goal that conceivably could allow the Sanctuaries Program to become a guiding light for management of protected marine areas. The inclusion of a provision that authorized the Secretary to create Sanctuary Advisory Councils patterned after the success of the Florida Keys Council is an example of the beneficial way the Program can be used to test innovative management techniques.

The fourth purpose emphasized protection of species' habitats because "protection of these special areas can contribute to maintaining a natural assemblage of living resources for future generations," and because the areas may possess qualities, which give them international significance in addition to national significance.⁴ This provision opened the door (again) to wildlife sanctuaries. NOAA itself had envisioned

¹¹1992 NMSA Amendments.

[Section 23:76]

¹1992 NMSA Amendments § 2101(b).

²1992 NMSA Amendments § 2101(b).

³1992 NMSA Amendments § 2101(b)(6)-(9).

⁴1992 NMSA Amendments § 2101(a)(1), (4).

wildlife-oriented sanctuaries in its 1974 regulations, but this concept had disappeared in the interim.

§ 23:77 The 1992 Amendments—Expansion of Consulted Parties and NOAA Influence on Other Agencies’ Actions

To ensure implementation of coordinated plans, the amendments included several new consultation requirements. The involvement of the Secretary of Interior in the drafting of the resource assessment report during the consideration for designation was broadened, to include consultation with the Secretaries of Defense and Energy and the Administrator of EPA on “any past, present, or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary.”¹ The requirement to allow the federal Regional Fishery Management Councils to draft fishing regulations was also broadened, requiring cooperation with other appropriate fishery management authorities such as state and local managers.²

The amendments also made *any Federal agency action* subject to consultation with the Secretary of Commerce, *even if it occurs outside of a sanctuary*, if the action is likely to “destroy, cause the loss of, or injure any sanctuary resource.”³ As part of this consultation, the acting agency must provide the Secretary of Commerce with a written statement describing the action and its potential effects on sanctuary resources and must consider the Secretary of Commerce’s recommended alternatives. If the acting agency decides not to adhere to the Secretary’s recommendations, it must provide a written statement giving reasons for acting otherwise.⁴

The House report added further clarity to the consultation provision, specifying that the term “agency action” is intended to be broadly applied to direct actions, and licenses, permits, and other authorizations issued by federal agencies to third parties. The committee intended “that agency actions encompass all actions that are reasonably likely to affect sanctuary resources while those resources are within sanctuary boundaries, including the cumulative and secondary effects of such actions.”⁵

The committee noted that some sanctuary “resources, such as fish, move in and out of a sanctuary, and thus, may be physically injured or destroyed by lawful activities outside the boundaries of that sanctuary. The [c]ommittee intends that “the prohibition on damaging sanctuary resources” apply to: (1) activities inside sanctuary boundaries affecting sanctuary resources that occur within the boundaries of a sanctuary; and (2) activities outside sanctuary boundaries that affect sanctuary resources while those resources are within the sanctuary.”⁶ Rep. Young explained that “we are not attempting to prohibit activities such as commercial fishing that occur outside of a sanctuary, even though those same fish may be found in the sanctuary.”⁷ While only a power of consultation and not a mandate that any particular action be taken, the review provision was the first time that sanctuaries were given any influence over activities outside their borders.

The 1992 Amendments about interagency consultation and review of agency actions reflected a growing interest in protecting sanctuary resources. Interagency

[Section 23:77]

¹1992 NMSA Amendments § 2103(b)(2)(B).

²1992 NMSA Amendments § 2104(a)(3)(B).

³1992 NMSA Amendments § 2104(d) (emphasis added).

⁴1992 NMSA Amendments § 2104(d).

⁵H.R. Rep. No. 102-565, at 12.

⁶H.R. Rep. No. 102-565, at 14.

⁷138 Cong. Rec. 20904 (1992).

cooperation was raised at this point in time in part because Rep. Studds, who was chairman of the Subcommittee on Fisheries and Wildlife Conservation and the Environment, was personally engaged in the debate over designating Stellwagen Bank. NOAA had been able to wield little power in fighting a proposed sewage outfall that would discharge only 12 miles west of the proposed Stellwagen Bank sanctuary boundary, or in blocking a potential sand and gravel mining operation within the proposed sanctuary. Another problem was the disposal near Stellwagen Bank of contaminated dredge spoils from the Boston harbor area.⁸ Led by Studds, Congress cited Stellwagen as an example of why NOAA needed a clarified role and more influence in other agencies' actions that might affect sanctuaries.⁹

§ 23:78 The 1992 Amendments—Multiple Use

The Marine Sanctuaries Review Team argued that multiple use, while raised during early NMSA debate, was never adequately explained, “nor were the ambiguities in the concept ever discussed, still less resolved.”¹ Instead of applying an ill-defined multiple use approach, the report suggested using zones to separate areas of strict preservation from areas where various uses can be accommodated.² Ray and Ray argued, similarly, that the sanctuaries can be a model for greater ocean management by providing “replenishment areas” for fisheries, where no fishing is allowed.³

Congressional views on what uses should be allowed in sanctuaries seem to depend primarily on the particular issues affecting a representative's local sanctuary rather than on a coherent national vision for the entire sanctuary system. For example, Rep. Studds was one of the most vocal, frustrated by what he saw as delay tactics to prevent designation of Stellwagen and protect certain private user interests. He was outraged that sand and gravel mining would even be considered in Stellwagen Bank, as habitat protection was part of the very reason for establishing the sanctuary.⁴ Reps. Panetta, Fascell, and Hertel were also frustrated by the administration's delays and its consideration of oil and gas activities in Monterey Bay.⁵ Representative Panetta went so far as to say that he thought oil and gas drilling and sanctuaries were “diametrically opposed to each other.”⁶

The general sense from statements by Congressmen during this time is that there are some uses that are unacceptable in sanctuaries because they risk damaging the resources that were at the heart of designations. While this would be the logical meaning of the Act's purpose of facilitating all *compatible* uses, NOAA had routinely considered allowing potentially damaging uses in sanctuaries during the designation process, e.g., the consideration of sand and gravel mining in Stellwagen and of oil and gas development in Monterey Bay. Despite the numerous pro-protection statements made on the House and Senate floor and in committee reports and hearings, no changes were made to guide NOAA in what uses to allow in sanctuaries. Multiple use remained undefined in the Act and the purpose of facilitating compatible uses remained unchanged. So, too, did the provision allowing Regional Fishery

⁸138 Cong. Rec. 12550 (1992); House Hearing 1991, at 3, 25 (statements of Reps. Studds and DeConti).

⁹House Hearing 1992; 138 Cong. Rec. 12550 (1992).

[Section 23:78]

¹House Hearing 1991, at 97.

²House Hearing 1991, at 120-21.

³House Hearing 1991, at 147.

⁴House Hearing 1992, at 30.

⁵138 Cong. Rec. 14701-02 (1992) (statement of Rep. Leon Panetta on H.R. 4310); House Hearing 1991, at 1-2, 5-8.

⁶House Hearing 1991, at 10.

Management Councils to propose draft fishing regulations in sanctuaries.

§ 23:79 The 1992 Amendments—Management Plan Reviews

Without recorded discussion, Congress included a provision to require sanctuary management plans to be reviewed every five years:

Not more than five years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding five years, the Secretary shall evaluate the substantive progress toward implementing the management plan and goals for the sanctuary, especially the effectiveness of site-specific management techniques, and shall revise the management plan and regulations as necessary to fulfill the purposes and policies of this title.¹

The importance of this provision is that it mandates occasional review and updates, but some have questioned the frequency of the reviews:

The requirement for management plan reviews provides flexibility to account for new scientific understandings and management. But, the five year review cycle called for in the Sanctuaries Act means that protections within Sanctuaries are not necessarily long-lasting. In contrast, the Wilderness Act allows for review but does not require it. Similarly, Congress has required that the management plans for National Forests undergo review only once every 10 to 15 years. This builds in a degree of stability to the management plan. It allows enough time for ecosystems to begin showing some response to protections before such protections are reviewed.²

In addition, if a review determines that large changes need to occur, such as to regulate fishing when such power had not been reserved in the designation terms, then the entire process of public review, agency consultation, and development of an environmental impact statement has to be gone through again to implement the change. This suggests that the real problem may be with the Act's provision requiring changes to the designation terms to undergo lengthy review, rather than with the five-year review. However, requiring a review every five years is probably unrealistic given that the time it takes to conduct a review is so lengthy.

§ 23:80 The 1992 Amendments—Sanctuary Advisory Councils

The 1992 Amendments made Sanctuary Advisory Councils optional for all sanctuaries.¹ The SACs were intended to “provide assistance to the Secretary regarding the designation and management of national marine sanctuaries.”² In designating the Florida Keys NMS, Congress had mandated the Secretary to create such a council with 15 members from various interest and conservation groups, to assist in development and implementation of the sanctuary's management plan.³ The 1992 Amendments, however, gave the Secretary complete discretion as to how many members came from which agency or interest group, with no requirement for representation for a particular group.⁴ Additionally, the Councils were removed from the purview of the Federal Advisory Committee Act (FACA) in the hopes of streamlin-

[Section 23:79]

¹1992 NMSA Amendments § 2104(d).

²The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* (2003) (unpublished manuscript, on file with the Marine Conservation Biology Institute).

[Section 23:80]

¹1992 NMSA Amendments § 2112.

²1992 NMSA Amendments § 2112.

³1992 NMSA Amendments § 9.

⁴1992 NMSA Amendments § 2212 (§ 315(b)).

ing their appointment, which had been time-consuming in the Florida Keys.⁵ While exempting the councils from FACA, provisions for “good government,” such as a requirement for public participation, were included in the Sanctuaries Act.⁶

§ 23:81 The 1992 Amendments—Funding for the Program

The reports and testimony before Congress of both the NOAA Marine Sanctuaries Review Team and the Rays highlighted the tremendous problem of the Program’s inadequate funding.¹ As time went on, it became all too apparent that designation and management costs were far greater than those anticipated in 1984. It wasn’t until 1994 that the Program’s authorizations for appropriations again topped \$10 million.² By then, however, there were 12 sanctuaries requiring management, education, and enforcement. The Program was estimated to need over \$30 million just to deal with current sanctuaries, let alone take on the expense of new designations.³ These budgetary constraints had meant that places deemed to be valid “special places” had gone unprotected because of the Program’s budget woes. The removal from active candidacy of Norfolk Canyon in 1997, Ten Fathom/Big Rock in 1986, and Monterey Bay in 1983 were all attributed by NOAA to a lack of adequate funding.⁴

By 1992, Congress was ready to adequately fund the Program. The solution proposed by Sen. Stevens and incorporated into the 1992 Amendments was to increase authorizations and to require the Program’s budget requests to be broken down by category, so that Congress could better track where the money was going.⁵ Whereas Congress had authorized \$5.95 million for the Program in fiscal year (FY) 1992 (down \$60,000 from the previous year), the amendments authorized \$8 million for FY 1993, \$12.5 million for FY 1994, \$15 million for FY 1995, and \$20 million for FY 1996.⁶

§ 23:82 The 1992 Amendments—Additional Provisions of the Amendments

The 1992 Amendments also addressed enforcement and alternate funding sources for the Program.¹ Liability for damage to sanctuaries was declared to be without a cap limiting it to a certain amount.² Liability also was expanded to include interest on response costs and damages and to allow vessels to be seized to help pay any fines levied against an offender.³ To assist with funding the program, Congress created a two-year pilot project to enhance funding for designation and management by creating an official NMS symbol and selling the rights to the symbol to sponsors.⁴ The section on cooperative agreements was also expanded to include more types of

⁵1992 NMSA Amendments § 2212 (§ 315(a)).

⁶H.R. Rep. No. 102-565 at 17; 1992 NMSA Amendments § 2212 (§ 315(e)).

[Section 23:81]

¹House Hearing 1991, at 104, 158; House Hearing 1992, at 102-06.

²1992 NMSA Amendments § 313.

³House Hearing 1991, at 104.

⁴51 Fed. Reg. 7097; 62 Fed. Reg. 45233; 48 Fed. Reg. 56252.

⁵S. 2770, 102d Cong. (1992); 1992 NMSA Amendments.

⁶1992 NMSA Amendments § 2111.

[Section 23:82]

¹1992 NMSA Amendments §§ 2107, 2109, 2110, 2204.

²1992 NMSA Amendments § 2110(c).

³1992 NMSA Amendments § 2110(a), (b).

⁴1992 NMSA Amendments § 2204.

agreements with additional parties, broadening the ability of the Program to receive outside support.⁵

§ 23:83 The 1992 Amendments—New Sanctuaries Designated by Congress in 1992

Perhaps the most important provisions of the 1992 Amendments were those legislatively designating Monterey Bay NMS, the Hawaiian Islands Humpback Whale Sanctuary, and Stellwagen Bank NMS.¹ With these congressional designations and NOAA's designation of Flower Garden Banks by NOAA in January 1992 (in response to a congressional mandate), the area under the control of the Program was *doubled* in size. The new sanctuaries represented resources not previously included in the Program, including humpback and other whales and a submarine canyon, but added only one previously unrepresented biogeographic region.²

As Rep. Hertel noted, Congress intervened in these designations because they were interested in “finalizing the lengthy and tedious designation process where the merits of specific sites are clear and where these sites require immediate management consideration.”³ Before Congress stepped in, the administration had been mired in debate over whether to allow sand and gravel mining in Stellwagen Bank, whether to designate Monterey Bay or once again remove it from active candidacy, and whether to side with NOAA or the Department of Defense on allowing the continued use of the Hawaiian Islands for military training.

Congress protected Stellwagen Bank and Monterey Bay by excluding some of the most pernicious threats. Rep. Studds found that the fact that the DOI

would even consider the possibility of sand and gravel mining in a highly productive marine ecosystem is nothing short of ludicrous. Stellwagen Bank is sand and gravel—mine it, and you destroy the very reason for establishing this sanctuary in the first place . . . This ridiculous debate must be stopped here and now. Government by special interest does not fly in the Commonwealth of Massachusetts—government by the people does.⁴

Congress, distrusting the administration's resolution of mining in Stellwagen Bank, therefore legislatively prohibited sand and gravel mining in the sanctuary, and gave NOAA consultation rights in other agency decisions that *may* (as opposed to the stricter standard of “likely to” provided in the new requirement for interagency consultation) affect sanctuary resources.⁵ Congress also protected Monterey Bay from oil and gas extraction, and mandated cooperative work towards safer vessel transportation in the sanctuary.⁶ However, neither the Monterey Bay nor Stellwagen Bank congressional designations required regulation of commercial fishing, testimony to the power of local fishing constituencies. Thus, it was left up to NOAA to decide whether to regulate fishing in the Monterey Bay designation document and the Stellwagen Bank management plan. In the final designation document for

⁵1992 NMSA Amendments § 2109.

[Section 23:83]

¹1992 NMSA Amendments §§ 2202, 2203, 2301-2307.

²The Oregonian region to which Monterey Bay belongs was already represented in the Program by Cordell Bank and Gulf of the Farallones National Marine Sanctuaries. The Indo-Pacific region to which the Hawaiian Islands belong was already represented by the Fagatele Bay National Marine Sanctuary. Stellwagen Bank, of the Acadian region, was the only one of the 1992 congressional designations to add representation of a new biogeographic region to the Program. *See* Table 23.2.

³138 Cong. Rec. 20911, 20912 (1992) (statement of Rep. Hertel).

⁴138 Cong. Rec. 20909, 20910.

⁵1992 NMSA Amendments § 2202(d), (e).

⁶1992 NMSA Amendments § 2203. *See also* 138 Cong. Rec. 14701 (1992).

Monterey Bay, NOAA explicitly chose not to regulate fishing, using this logic:

Fishing is not being regulated as part of the Sanctuary regime and is not included in the Designation Document as an activity subject to future regulation. Fisheries management will remain under the existing jurisdiction of the State of California, NMFS and PFMC. Sanctuary prohibitions that may indirectly affect fishing activities have been written to explicitly exempt aquaculture, kelp harvesting and traditional fishing activities.

Existing fishery management agencies are primarily concerned with the regulation and management of fish stocks for a healthy fishery. In contrast, the sanctuary program has a different and broader mandate under the MPRSA to protect all sanctuary resources on an ecosystem wide basis. Thus, while fishery agencies may be concerned about certain fishing efforts and techniques in relation to fish stock abundance and distribution the Sanctuary program is also concerned about the potential incidental impacts of specific fishery technique on all sanctuary resources including benthic habitats or marine mammals as well as the role the target species plays in the health of the ecosystem. In the case of the Monterey Bay area fish resources are already extensively managed by existing authorities.⁷

NOAA came to a different conclusion about the Program's role in regulating fishing at Stellwagen Bank. Stellwagen Bank's designation document included activities (e.g., discharge of any matter within the sanctuary, operation of any vessel within the sanctuary, and altering the sanctuary's seafloor) within the "scope of regulation" which could be used to restrict fishing.⁸

In its consideration of the Stellwagen Bank proposal, NOAA has identified threats to the Bank environment against which there currently is either insufficient protection or no protection. For example, while NMFS and the New England Fishery Management Council attempt to address concerns of overfishing, the Sanctuary program can play an important supplementary role of protecting habitat and systems upon which fish species rely, without interfering with other regulatory regimes. A primary intent of a national marine sanctuary designation is to fill such existing regulatory gaps, and to enhance the existing regulatory authorities of other agencies. . . .

NOAA/NOS has determined that while the regulatory structure for management of fisheries is adequate, current implementation of that structure is not fully attaining the objectives mandated under MFCMA. The NEFMC and NMFS are currently responding to a Court order to revise the FMP's for groundfish species, so as to design a rebuilding program for those stocks. NOAA/NOS believes this is an appropriate mechanism to address the current problems related to groundfish stocks. In addition, Congress is developing legislation to address this problem. Therefore, NOAA/NOS is neither regulating fishing nor listing fishing as an activity subject to Sanctuary regulation. NOAA/NOS intends to work closely with the NEFMC and NMFS to establish, via the Sanctuary, a broad forum representing multiple sources of possible assistance to the NEFMC and NMFS in the attainment of mutual objectives; and will also work with those entities on the impacts of fishing upon other Sanctuary resources and other Sanctuary users.⁹

The final *management plan* for Stellwagen Bank excluded traditional fishing from regulation.¹⁰ By leaving fishing subject to regulation in the *designation document*, however, NOAA allowed for regulation of fishing to occur merely by amendment of the management plan.

Sen. Daniel Inouye (D-HA) introduced a bill that would have stepped into the inter-agency turf wars between NOAA and the Department of Defense (DOD). The bill would have allowed DOD to continue ongoing activities *as long as* actions were taken to minimize any impact on the whales and would have allowed new DOD

⁷57 Fed. Reg. 43310 (Sept. 18, 1992).

⁸58 Fed. Reg. 53865, 53873 (Oct. 19, 1993).

⁹58 Fed. Reg. 53865 at 53866.

¹⁰58 Fed. Reg. 53865 at 53878–79.

activities *only* if there was no potential for significant adverse impact on humpback whales and their habitat *or* if the Secretary of Commerce exempted such new activities based on consideration of the national interest and the purposes of the sanctuary.¹¹ However, Congress did not adopt the Inouye language, designating the sanctuary but leaving the development of a comprehensive management plan up to the Secretary of Commerce.¹²

What is most clear from the congressional designations of 1992 is that Congress felt that NOAA had failed to properly interpret and implement the Act. All three of the designated sanctuaries were chosen at large sizes, and two were protected from some industrial uses. In designating the largest of the size alternatives for Monterey Bay NMS, Congress essentially disregarded the size issue.¹³ At 4,023 square nautical miles, Monterey Bay was significantly larger than the 1,258 square nautical mile Channel Islands designation, which some in Congress had previously proposed as an upper size limit.

Also evident was the influence of new scientific conclusions on protection of the oceans, and the power of public support for the Program. Rep. Neil Abercrombie (D-HI) received over 5,200 constituent comments in support of the Humpback Whale Sanctuary, and public awareness of the devastation caused by oil spills and freighter groundings led to the change in congressional attitude.¹⁴ The Ray and Ray report had concluded that sanctuary size should “reflect ecosystem properties and the degree of human threat” and that there can be no criteria for an “ultimate size” for the program but that the program must be left flexible or it will be “self-limiting.”¹⁵ Increased public support and scientific backing contributed to the newfound congressional *disinterest* in size limits. Congress was focused on protecting areas from oil spills, freighter groundings, and other threats that had shown how destructive they could be.

§ 23:84 The 1992 Amendments—Natural Diversity

As the amendments to and discussions of the bills leading up to the 1992 Amendments demonstrate, the importance of natural diversity was considered and ultimately rejected for inclusion in the final 1992 Amendments. Rep. Studds’ bill, as introduced, would have added “natural diversity” to the NMSA in the findings, twice in the purposes and policies, and in the factors to be considered for sanctuary designation.¹ All uses of the term were toned down before the bill was passed by the House, and further trimmed by the time it was incorporated into Hertel’s bill. In the end, Studds’ proposed finding was watered down to: “protection of these special areas can contribute to maintaining a *natural assemblage* of living resources for future generations.”² Despite alleged agreement in the committee, all other references to diversity or biogeographic representation were deleted in the final amendments.³

¹¹S. 2786, 102d Cong. (1992).

¹²1992 NMSA Amendments § 2306.

¹³138 Cong. Rec. 14701 (1992).

¹⁴House Hearing 1992, at 136, 138 (written testimony of Harold Masumoto, Office of State Planning, Office of the HI Governor).

¹⁵House Hearing 1991, at 154 (reprinting Ray and Ray report, at 9).

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¹H.R. 4310.

²1992 NMSA Amendments § 2101(4) (emphasis added).

³Rep. Hertel, in expressing his opinions in the report on the Studds bill, said that “While there was agreement that the criteria for designation of marine sanctuaries did not require that every

§ 23:85 The 1992 Amendments—Conclusion

In the 1992 Amendments, Congress sought to guide NOAA towards preservation by introducing more terms and more purposes connected with biodiversity and ecosystem health. However, by adding yet more purposes and duties and by leaving in the language about facilitation of all compatible public and private uses, the end result was an Act of greater complexity and diffuse mandates. The fact that Congress found it necessary to designate several sanctuaries and restrict uses that NOAA was unwilling to, was an indicator that the Act was bogged down by contradiction and its multitude of mandates.

§ 23:86 1994: The Designation of the Olympic Coast NMS

The debate over preservation versus multiple use continued with the considerations of the Northwest Straits and the addition of Stetson Bank to the Flower Garden Banks NMS. On May 11, 1994, NOAA designated the Olympic Coast NMS off of Washington State and abutting Olympic National Park.¹ NOAA had placed the site, also known as the Western Washington Outer Coast, on the SEL in 1983.² In 1988, Congress mandated that the sanctuary be designated by June 30, 1990.³ NOAA began public hearings in April 1989. Meanwhile, in 1992, Congress passed the Oceans Act, one provision of which prohibited oil and gas development once the western Washington site was designated.⁴ While the record is silent on the oil and gas prohibition, it is most likely that Congress did not trust NOAA to arrive at a prohibition on its own. When finally designated in 1994 as the Olympic Coast NMS, NOAA's regulations prohibited numerous activities, including hydrocarbon or mineral exploration or development; some types of discharging (but deposit of dredge spoils related to harbor maintenance was allowed); altering the seabed (though damage by uses such as traditional fishing methods was exempted); and airplane over flights below specified altitudes.⁵ In accordance with the 1984 Amendments, existing activities were allowed to continue if permits allowing them were issued prior to the date of the sanctuary's designation.

§ 23:87 The 1996 Amendments

In 1996, the Act was amended again. The changes to the Act's provisions were minor,¹ but the amendments also expanded two sanctuaries and prohibited designation of a third unless Congress expressly allowed it. The amendments expanded the Flower Garden Banks NMS to include Stetson Bank and allowed for expansion of the Hawaiian Islands Humpback Whale Sanctuary to include Kahoolawe Island. Designation of a Northwest Straits (Puget Sound) NMS was prohibited unless

biogeographic region be represented by the national program, a full array of representative ecosystems should be a long-term goal." H.R. Rep. No. 102-565 at 37.

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¹59 Fed. Reg. 24586 (1994).

²Final Site Evaluation List, 48 Fed. Reg. 35568 (Aug. 4, 1983).

³1992 NMSA Amendments § 205(a)(4).

⁴54 Fed. Reg. 10398 (Mar. 13, 1989); 1992 NMSA Amendments § 2207.

⁵59 Fed. Reg. 24586, at § 925.5.

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¹The amendments also made permanent the pilot study of the NMS official symbol effective way to increase funding, exempted Sanctuary Advisory Council meetings from the requirement to publish notice in the Federal Register to "streamline the public notification process," and required the Secretary to submit a long-range, comprehensive plan for management, stabilization, preservation, and recovery of artifacts and materials of the U.S.S. Monitor. Pub. L. 104-283, 110 Stat. 3363 (1996) [hereinafter 1996 NMSA Amendments]; H.R. Rep. No. 104-717 at 9 (1996) (on H.R. 3487).

Congress passed a law specifically allowing the area to become a sanctuary.² Rep. Solomon Ortiz (D-TX), Rep. Abercrombie, Rep. Metcalf, and Sen. Patty Murray (D-WA) supported these changes in their respective states in response to constituent desires.

The provision prohibiting a Northwest Straits sanctuary was the result of failure of the local jurisdictions in the Puget Sound area to buy in to the sanctuary process during the eight years that the area had been under consideration as an active candidate. Unlike most of the other marine sanctuaries, the Northwest Straits site is located predominately in state waters. Without local support, the governor might exercise his power under the Act to veto the portion in state waters, thus negating the purpose of designation. The sense in the community and the local government was that local people and institutions were capable of managing the area, and that a sanctuary would only add an extra layer of tension and federal bureaucracy without providing additional benefits. As Brian Calvert, Port Commissioner for the Friday Harbor Port District in San Juan County, testified,

[a]ctive citizens working with local and state governments are the best and more efficient way of managing this resource. The further decisions, rule making and management gets from the place being managed, the less effective it will be and the less involvement you will find from people like me . . . The Federal Government is too blunt an instrument to manage the many sensitive issues needed to maintain water quality, the unique quality of human life, the quality of our economy, the quality of marine habitat and the myriad of other issues which require balance and consideration.³

Sen. Murray echoed these sentiments:

I was concerned that the creation of a NOAA-controlled advisory committee would undermine the very intent of bringing local community members together to consider the resource protection needs of the Northwest Straits in an objective and open forum. Many members of the local communities have serious concerns about the performance of NOAA over the last several years with regard to the proposed sanctuary.⁴

Apparently, just four years after enacting a Sanctuary Advisory Council provision, Congress was beginning to have second thoughts. The SACs had been created to address the very type of concerns expressed by San Juan residents, Sen. Murray and Rep. Metcalf. However, the idea of creating a SAC to assist NOAA with designation and management was now seen as counter-productive, at least in the Northwest Straits, because of public distrust in federal (NOAA) oversight of their local waters. By the amendment, Congress once again was declaring that the NMSA was ineffective at achieving its purpose. As the Northwest Straits decision shows, the presence or absence of local public support can sway a decision about a candidate site.

During House debate on the 1996 Amendments, Rep. Jim Saxton (R-NJ) iterated the Program's purpose as protecting resources "while ensuring the continuation of all compatible public and private uses," and drew a comparison to national parks.⁵ Rep. Sam Farr (D-CA) expanded this, saying that sanctuaries "are not just about conserving resources. They are also about protecting coastal economies, such as our billion dollar tourism industry."⁶ This economic emphasis was echoed a week after Farr's statement by Jeffrey R. Benoit, the Director of the Office of Ocean & Coastal

²1996 NMSA Amendments § 10.

³Oversight Hearing on the National Marine Sanctuaries Act: Hearing Before the House Committee on Resources (testimony of Brian Calvert, Port Commissioner for Friday Harbor Port District) (1996) (reprinted at <http://resourcescommittee.house.gov/104cong/fishery/mar-21.96/calvert.htm> as of December 2003).

⁴142 Cong. Rec. 26532-33 (1996) (statements of Sens. Kerry and Murray).

⁵142 Cong. Rec. 25767 (1996) (statement of Rep. Saxton).

⁶142 Cong. Rec. 11581 (1996) (statement of Rep. Farr).

Resource Management, who testified that the accommodation of multiple uses in sanctuaries encourages recreational use and fosters economic growth and success.⁷ These statements reflect what appears to be another shift in thinking about the Marine Sanctuaries Program: whereas the 1992 Amendments had focused on designating areas that Congress deemed worthy for resource protection, by 1996 a swing back towards the multiple use sensibilities of the 1980s had begun.

§ 23:88 The 2000 Amendments

In 1997, the National Research Council concluded in a report, *Striking a Balance: Improving Stewardship of Marine Areas*, that there is need for a comprehensive regulatory or management framework for current or future activities in federal and state waters or on or under the seabed of the United States.¹ Public polls showed significant awareness of the worsening conditions of our coasts, particularly with respect to pollution and overfishing.² The 1998 International Year of the Ocean heightened this public awareness, capped off by a White House organized National Ocean Conference in Monterey, California, which was attended by President William Clinton, Vice President Albert Gore, several cabinet members and members of Congress, and more than 500 ocean experts.³ Shortly thereafter, President Clinton issued an executive memorandum which included prohibitions on oil and gas exploration or development in any of our National Marine Sanctuaries.⁴

I . . . withdraw from disposition by leasing for a time period without specific expiration those areas of the Outer Continental Shelf currently designated Marine Sanctuaries under the Marine Protection, Research, and Sanctuaries Act . . . Nothing in this withdrawal affects the rights under existing leases in these areas. Each of these withdrawals is subject to revocation by the President in the interest of national security.⁵

In one brief act, Clinton accomplished what Congress and NOAA had been haggling over for more than 25 years. The memorandum did not, however, cover existing leases in the Channel Islands or Flower Garden Banks sanctuaries or those in close proximity to sanctuaries that could have impacts on sanctuary resources.

In 2000, President Clinton issued an executive order to establish a Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.⁶ NOAA designated the Thunder Bay NMS, primarily known for its historic shipwrecks, in 2000 as the thirteenth sanctuary.⁷

The 2000 Amendments to the Act, led predominately by Rep. Saxton and Sens. John McCain (R-AZ) and Olympia Snowe (R-ME), included significant changes to all aspects of the Act.⁸ Rep. Farr noted that public interest in the oceans remained an important political force, with several polls showing that “more than half of Americans have observed that the conditions of our coasts are worsening, especially

⁷H.R. Rep. No. 104-717, at 7.

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¹Committee on Marine Area Governance and Management, National Research Council, *Striking a Balance: Improving Stewardship of Marine Areas* (1997).

²145 Cong. Rec. H2282-89 (daily ed. Apr. 22, 1999) (statements of Reps. Farr and Rohrabacher).

³144 Cong. Rec. 11659-60 (1998) (statement of Rep. Capps).

⁴25 Wkly. Comp. Pres. Doc. 1111 (June 19, 1998) (Clinton, Arb.)

⁵25 Wkly. Comp. Pres. Doc. 1111 (June 19, 1998).

⁶Executive Order No. 13178, 65 Fed. Reg. 76903 (2000), as amended by Executive Order No. 13196, 66 Fed. Reg. 7395 (2001) (declaring the establishment of the Reserve complete and ordering the Secretary to “initiate the process to designate the Reserve as a National Marine Sanctuary”).

⁷65 Fed. Reg. 39042 (2000).

⁸Pub. L. 106-513, 114 Stat. 2381 (2000) [hereinafter 2000 NMSA Amendments].

due to pollution and overfishing, and they want us, Members of Congress, to do something about it.”⁹ The 2000 Amendments were Congress’ answer.

Specifically, the 2000 Amendments:

- added a finding on the benefits of sanctuaries to scientific, cultural, and archaeological resources;
- added a ninth purpose “to maintain the natural biological communities in the national marine sanctuaries, and to protect, and where appropriate, restore and enhance natural habitats, populations, and ecological processes”;
- formally established a “system” to encompass all sanctuaries;
- added three new factors to be considered in making new designations: biodiversity, ecological importance, and archaeological, cultural, and historical importance;
- clarified and streamlined designation procedures;
- prohibited new designations unless the Program is determined to have met financial goals;
- enhanced enforcement provisions;
- placed emphasis on the need for long-term monitoring (as opposed to just monitoring) and wise and sustainable use of marine resources; and
- made permanent the trial Marine Sanctuaries Program logo from the 1996 amendments.¹⁰

The amendments also made two exceptions to the new provision that limited designations for financial reasons, authorizing designation of Thunder Bay and the Northwestern Hawaiian Islands sanctuaries.¹¹ Finally, the amendments required the Secretary to establish a Dr. Nancy Foster Scholarship Program to “award graduate education scholarships in oceanography, marine biology or maritime archeology.”¹²

§ 23:89 The 2000 Amendments—Sanctuaries as a System

In 1991, NOAA’s Marine Sanctuaries Review Team had set a vision that

by the year 2000, the National Marine Sanctuaries Program will manage a comprehensive and integrated system of the nation’s most significant marine areas, managed on the basis of ecologically sound, well-researched principles of resource protection and sustainable use and will focus as well on improving public understanding of the nation’s marine heritage and in extending sound marine resource management principles to areas beyond sanctuary boundaries.¹

Twenty-eight years after the Sanctuaries Program was created, Congress declared that the marine sanctuaries constituted components of a system. The Findings stated that management of sanctuaries, as a National Marine Sanctuary System will:

- (A) improve the conservation, understanding, management, and wise and sustainable use of marine resources;
- (B) enhance public awareness, understanding, and appreciation of the marine environment; and
- (C) maintain for future generations the habitat, and ecological services, of the

⁹145 Cong. Rec. H2282.

¹⁰2000 NMSA Amendments.

¹¹2000 NMSA Amendments § 6(f), (g).

¹²2000 NMSA Amendments § 18.

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¹House Hearing 1991, at 101.

natural assemblage of living resources that inhabit these areas.²

The new focus on the “system” of national marine sanctuaries has thus far been in name only. “System” implies clear definitions of what a marine sanctuary is, and clear, uniform guidelines about how sanctuaries are supposed to be selected and managed. However, the National Marine Sanctuaries System remains a group of disparately managed parts rather than a cohesive program with a unified vision. Nevertheless, the system concept is important because it heightens the value of individual sanctuaries and points toward a desired future state.

§ 23:90 The 2000 Amendments—Re-emphasis on the Program’s Primary Mandate

Drawing on the 1992 consideration of “natural diversity,” the 2000 Amendments added a new purpose “to maintain the natural biological communities in the national marine sanctuaries, and to protect, and where appropriate, *restore* and enhance natural habitats, populations, and ecological processes,” partially redirecting the Act to its original roots of preservation and restoration.¹ The 2000 Amendments also added more factors to those the Secretary must consider in making future designations. These include: the area’s scientific and monitoring value, the feasibility of employing innovative management approaches, and the value of the area as an addition to the system.² NOAA claimed the provisions “clarify that resource protection includes maintaining the entire ecosystem, including the structure of natural biodiversity and species assemblages and ecological processes.”³ The impact of this reemphasis, however, was severely tempered by the failure to simplify the Program’s purposes or to reduce the emphasis on facilitation of compatible uses. In fact, individual Members of Congress and committee reports all made comments that appear to strengthen the place of multiple use in the Program, rather than to diminish it.⁴

The Senate Committee on Commerce Science and Technology emphasized that the primary purpose is resource protection “while” facilitating all multiple uses, and said that “as a general rule, activities like drilling, mining, dredging, commercial fishing, sport fishing, boating, scuba diving, and marine tourism are generally allowed where practicable.”⁵ In other words, while the primary purpose of a sanctuary is protection, no use is out right prohibited and all may be allowed if they are “practicable” or “compatible.” Sens. McCain and Snowe declared that they saw the strength of the Program to be its emphasis on a “responsible balance” between conservation and compatible multiple uses.⁶ It is unclear why a responsible balance between conservation and compatible multiple uses would be needed if the multiple uses are actually compatible with conservation. These comments highlight one of the greatest weaknesses of the Act: the lack of any definition of what constitutes a

²2000 NMSA Amendments § 301(b)(3).

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¹2000 NMSA Amendments 3(c)(4) (emphasis added).

²2000 NMSA Amendments § 5(b).

³National Oceanic and Atmospheric Administration, Fact Sheet: National Marine Sanctuaries Act: Administration Reauthorization Bill (2000).

⁴See, e.g., 146 Cong. Rec. S10628-42 (daily ed. October 17, 2000) (statements of Sens. McCain, Hollings, and Inouye); 145 Cong. Rec. H8410-16 (daily ed. September 21, 1999) (statements of Rep. Saxton); S. Rep. No. 106-353 at 2.

⁵S. Rep. No. 106-353, at 2 (2000) (on S. 1482).

⁶145 Cong. Rec. S10440 (daily ed. August 5, 1999) (statement of Sen. McCain on introduction of S. 1482).

“compatible” activity such as that found in the Refuge Administration Act.⁷

The 2000 Amendments also reflected a division between Congress and the administration. Whereas President Clinton had banned all new oil and gas development in marine sanctuaries as of 1998, congressional statements made during the 2000 reauthorization and amendment process made it clear that many in Congress still felt that use of sanctuaries for oil and gas may be appropriate in some cases.⁸ The 2000 Amendments would have been the appropriate place to finally enact a clear legislated prohibition on oil and gas development in marine sanctuaries, given President Clinton’s stance and the various moratoria then in effect on OCS leasing in significant portions of U.S. coastal waters. Instead, Congress ignored the issue.

§ 23:91 The 2000 Amendments—Funding Constraints on New Sanctuaries

On Earth Day 1999, Rep. Farr said:

We have created national marine sanctuaries, which are essentially national parks in the ocean. We have 12 of those, yet with less than 1% of the funding that we give to our national parks. We have 378 national parks, 155 national forests, but only 12 national marine sanctuaries.¹

Addressing the lack of funding, Congress that year nearly doubled the Program’s budget from roughly \$14 million in FY 1996 to \$26 million in FY 2000, still falling short of the \$30 million identified as necessary in 1991 by the NOAA Review Team and Ray’s reports. Ironically, Rep. Farr said this only a year and a half prior to the 2000 Amendments that essentially banned new sanctuaries for financial reasons.

The 2000 Amendments prevented the designation of new sanctuaries by the Secretary unless he finds that:

- (A) the addition of a new sanctuary will not have a negative impact on the System; and
- (B) sufficient resources were available in the fiscal year in which the finding is made to—
 - i. effectively implement sanctuary management plans for each sanctuary in the System; and
 - ii. complete site characterization studies and inventory known sanctuary resources, including cultural resources, for each sanctuary in the System within 10 years after the date that the finding is made if the resources available for those activities are maintained at the same level for each fiscal year in that 10 year period.²

Although the 2000 Amendments were portrayed as a conservation-minded advance for the NMSA, the moratorium was not desired by most conservation groups involved in the process or by NOAA.³ The moratorium was opposed by the conservation community because it implements a standard that is nearly impossible to meet. The provisions of the moratorium require the Secretary to undertake new burdens, without any new funding, in a program that already stretches its appropriations further than any other resource preservation program.

⁷National Wildlife Refuge System Administration Act of 1966, 16 U.S.C.A. § 668dd to 668ee (1966).

⁸S. Rep. No. 106-353, at 2.

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¹145 Cong. Rec. H2282 (1999).

²2000 NMSA Amendments § 6(f).

³Telephone Interview with Amy Mathews-Amos, National Marine Sanctuaries Act History (Oct. 20, 2003).

The Review Team in its 1991 report had raised the concept of focusing the Program on improving management of existing sanctuaries, rather than continuing to designate additional sanctuaries. By 2000, the idea had gained wide support on the authorizing committees, and was confirmed by a National Academy of Public Administration (NAPA) report, which concluded that

[t]his is probably not the right time to create more sanctuaries. Perhaps if Congress were to increase the budget and the clout of the program dramatically, the program could handle additional sites, but no one is talking about such a step now. Eventually, the program could grow to include more sites. There are only a few small sites along the Atlantic Coast and in the Gulf of Mexico now, and none in Alaska. However, at this point, the program cannot afford to spend its resources on a long, expensive process to add more sites.⁴

Sen. McCain voiced his approval for the restriction by arguing that “by prioritizing our actions over the next few years on making the existing sanctuaries fully operational with education and research programs, a full complement of staff, active public outreach programs, and enforcement we will strengthen the system and help it to reach its full potential.”⁵

Rep. Saxton stated similar sentiments: the “biggest hurdle is inadequate funding for basic management and outreach activities.”⁶ Rep. Saxton contended that NOAA’s concerns about the moratorium were addressed by the provisions that allow new designations if they will not negatively impact management of existing sanctuaries or interfere with the sanctuary resource surveys.⁷

§ 23:92 The 2000 Amendments—Conclusion

The addition of a new purpose of restoring and maintaining natural ecosystems and processes and several other preservation-oriented provisions in the 2000 Amendments was important in highlighting the Act’s preservation goal, but in reality was not much of an advance because of the remaining and numerous non-resource factors and standards that promote multiple use. In addition, the moratorium on growth, other than the approved Northwestern Hawaiian Islands sanctuary, means that the sanctuaries-creation process, imperfect though it is, ground to a halt until Congress chose to restart it, or NOAA as a dedicated administration found a different path.

There have been no legislative changes, amendments, etc. to the National Marine Sanctuaries Act since 2000.

§ 23:93 Steps of National Importance Since the 2000 amendments (2006-2014)

The following are some of the items of national importance to the sanctuary system overall that have taken place since the 2000 amendments, and the last update of this chapter (these were quoted or partly adapted from the NMSA Web site).

2006

The Antiquities Act gives the President authority to protect natural and cultural objects through designation of a national monument. Although this authority has

⁴Center for the Economy and the Environment, Protecting Our National Marine Sanctuaries 34 (2000).

⁵145 Cong. Rec., at S10636.

⁶145 Cong. Rec., at H8413.

⁷145 Cong. Rec., at H8413.

been largely used to protect terrestrial resources, President George W. Bush used it to designate the Papahānaumokuākea Marine National Monument (Presidential Proclamation 8031) on June 15, 2006 (originally called the Northwestern Hawaiian Islands Marine National Monument), making it the largest single conservation area in the history of the country at the time. While Papahānaumokuākea is not a U.S. national marine sanctuary, it is jointly administered by the NMSP (in conjunction with the U.S. Fish and Wildlife Service and the State of Hawaii).

More than three million Americans learn about sanctuaries for the first time from Jean-Michel Cousteau's six-part high definition television Ocean Adventures series on PBS.

2007

On July 29, 2007 NOAA expands the state marine reserves and one of the limited take marine conservation areas in the Channel Islands National Marine Sanctuary to include federal waters out to six nautical miles, making the reserve network the largest network of marine reserves in the continental United States.

A collaborative effort by Stellwagen Bank National Marine Sanctuary staff and partners leads the International Maritime Organization to redirect the Boston shipping lanes to protect endangered whales off the coast of Massachusetts. The shift cuts the risk of vessel collisions with critically endangered right whales by an estimated 58% and all other baleen whales by 81%.

2008

Revised management plans are completed for Monterey Bay, Cordell Bank and Gulf of the Farallones national marine sanctuaries. Changes include the expansion of the Monterey Bay sanctuary to include Davidson Seamount, one of the largest underwater mountains in the U.S.

The fragile marine ecosystems of Papahānaumokuākea Marine National Monument are designated a "Particularly Sensitive Sea Area" (PSSA) in April by the International Maritime Organization. PSSA designation is intended to protect ecologically and culturally significant marine resources from damage by ships while helping keep mariners safe.

2009

On Jan. 6, 2009, President George W. Bush designates Rose Atoll in American Samoa as a marine national monument. The Pacific Islands Region and Fagatele Bay National Marine Sanctuary begin work to develop management strategies for the new monument.

Sanctuary advisory council members across the National Marine Sanctuary System create a national working group and draft an agreement addressing the issue of ocean acidification and the threat it poses to sanctuary resources.

2010

On June 17, 2010, Stellwagen Bank National Marine Sanctuary achieves a major milestone with the release of its final management plan, which will guide the sanctuary's resource protection and conservation efforts over the next five years.

2011

On Nov. 1, 2011, NOAA released the final management plan and environmental assessment for the Olympic Coast National Marine Sanctuary in Washington State.

2012

A new rule prohibiting killing, injuring, touching or disturbing whale sharks and rays is part of the final management plan, regulations and environmental assess-

ment for NOAA's Flower Garden Banks National Marine Sanctuary, was released in April, 2012.

In October 2012, NOAA completed the expansion of Fagatele Bay National Marine Sanctuary by adding five additional discrete geographical areas to the sanctuary, including Rose Atoll. The sanctuary's name was changed to the National Marine Sanctuary of American Samoa, and the multi-year public process also resulted in revised sanctuary regulations and sanctuary management plan. The final management plan will guide sanctuary management over the next five to ten years. The sanctuary's new management plan represents a needed revision of the original 1984 management plan under which the sanctuary used to operate.

2013

In February 2013, NOAA released the final management plan and environmental assessment for Monitor National Marine Sanctuary, based on several years of scientific assessment and public involvement. The plan outlines how the sanctuary will operate over the next five to 10 years. Specifically, it provides a framework for the sanctuary to refine its education and outreach programs; continue restoration and conservation of USS Monitor artifacts; consider possible expansion of the sanctuary's boundaries; and work with the state of North Carolina to strengthen local economies in coastal communities through maritime heritage tourism.

2014

In 2014, the Office of National Marine Sanctuaries released a proposal to expand the boundaries of Gulf of the Farallones (GFNMS) and Cordell Bank (CBNMS) national marine sanctuaries, 2 of 14 sites managed by NOAA, located off north-central California. California Senator Barbara Boxer and former U.S. Rep. Lynn Woolsey, whose district included areas near the sanctuaries, both had introduced legislation several times in Congress between 2004 and 2011 to expand the sanctuaries' boundaries.

In June, President Obama signed a proclamation to increase the size and protections for the existing Pacific Remote Islands Marine National Monument, to six times its current size. This designation may lead to a new national marine sanctuaries.

§ 23:94 An increasing emphasis on history and Underwater Cultural Heritage

NOAA's Maritime Heritage Program was created in 2002, as an initiative of the National Marine Sanctuaries Program. The program focuses on maritime heritage resources within the 14 designated National Marine Sanctuaries and also fosters maritime heritage appreciation throughout the entire nation. The program must comply with the Federal Archaeological Program, which is the collection of laws and regulations that pertain to the protection of historical and archaeological properties on federal and federally managed areas. As we have already noted, the NMSA authorizes the Secretary of Commerce to ". . . designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational or esthetic qualities as National Marine Sanctuaries."

The National Historic Preservation Act, which directs all federal agencies to develop programs to protect historical and archaeological resources, governs this activity.

- NHPA Section 106 requires agencies to consider the potential impacts of their actions, which includes the review of permit applications for projects that may allow the disturbance of the seabed, where archaeological remains may lie.

- NHPA Section 110 requires agencies to actively search for archaeological resources and to assess them for their significance and eligibility for inclusion in the National Register of Historic Places.

Some highlights from this effort to focus on history and heritage listed by the NMSP Web site include:

- In 2008, the Monitor National Marine Sanctuary staff coordinate a scientific expedition in July to investigate three sunken German U-boats off the coast of North Carolina in an area known as the “Graveyard of the Atlantic.” The research mission is the first part of a multi-year project to document several historic shipwrecks lost during World War II’s Battle of the Atlantic.
- Sanctuary marine archaeologists on an expedition in Papahānaumokuākea Marine National Monument locate the remains of the historic 19th-century British whaling ship *Gledstanes* and another unidentified vessel.
- In 2009, continuing the Graveyard of the Atlantic research effort, sanctuary researchers locate and identify the final resting place of the YP-389, a U.S. Navy patrol boat sunk by a German submarine during World War II approximately 20 miles off the coast of Cape Hatteras, N.C.
- In 2010, the whaling shipwreck *Two Brothers* is identified at Papahānaumokuākea Marine National Monument. The *Two Brothers* was a whaler lost in 1823 under the command of Captain George Pollard.
- On Jan. 31, 2011, the wreck of a mid-20th century fishing vessel, representative of a distinctive regional fishing technique, has been listed on the National Register of Historic Places, the nation’s official list of cultural resources worthy of preservation. The *Edna G.* shipwreck site rests within NOAA’s Stellwagen Bank National Marine Sanctuary.
- NOAA’s Office of National Marine Sanctuaries’ Maritime Heritage Program and the University of Hawaii’s Marine Option Program have completed a survey of sunken World War II-era aircraft and shipwrecks along Maui’s southern coast. The two-week survey continues a longstanding collaboration between NOAA and the University of Hawaii in providing students with hands-on training in maritime archaeology surveying techniques.
- On May 20th, 2013, NOAA presented the U.S. Coast Guard a national report that finds 36 sunken vessels scattered across the U.S. seafloor could pose an oil pollution threat to the nation’s coastal and marine resources. Of those, 17 were recommended for further assessment and potential removal of both fuel oil and oil cargo. The sunken vessels are a legacy of more than a century of U.S. commerce and warfare.

§ 23:95 A New Nomination Process

In June 2014, President Obama launched a series of executive actions to increase protections for the ocean, including the establishment of a pathway to new marine sanctuaries. On June 13, 2014, National Oceanic and Atmospheric Administration issued a rule making that “re-establishes the process by which communities may submit applications to have NOAA consider nominations of areas of the marine and Great Lakes environments as national marine sanctuaries.”¹ In response to widespread interest from the public, NOAA launched this new, locally driven sanctuary nomination process, which was developed with input from more than 18,000 public comments. NOAA then invites communities across the nation to “nominate their most treasured places in our marine and Great Lakes waters for consideration as

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¹79 Fed. Reg. 33851 (June 12, 2014).

national marine sanctuaries.”²

1. Community Builds a Nomination

Every nomination starts at the community level.

A group of people who care passionately about protecting an area of our nation’s marine or Great Lakes waters comes together to develop a nomination. This consists of gathering key information about the special place they wish to nominate and developing broad community support for the nomination.

2. Community Submits Nomination to NOAA

3. NOAA’s Initial Review

In our initial review, we will look at whether or not the nomination contains enough of the information we need. If the proposal does not meet the basic requirements, NOAA may decline it or send it back to the community for additional information.

4. Taking a Closer Look

A nomination that meets the minimum requirements will move on to the next round of review, where NOAA will take a closer look at all the different factors that make the nominated place a potential candidate for sanctuary designation. Throughout this process, NOAA will work with the community to answer any questions that arise, and NOAA may bring in external reviewers as needed.

5. Nomination Is Accepted

When a nomination successfully passes the review phase, NOAA will notify the community that all the requirements have been met and the nomination has been accepted.

6. Nominated Area Added to Inventory

As mentioned above, NOAA will place successful nominations in an inventory of areas it could consider for potential designation as a national marine sanctuary. NOAA [then] may consider an area added to the inventory for future designation as a national marine sanctuary.

VI. THE UNFILLED PRESERVATION MANDATE

§ 23:96 Background

The NMSA has experienced a complex and turbulent evolution. Having precipitated numerous sanctuary designation battles, suffered stop and go implementation, and been the subject of repeated regulatory and legislative amendments over three decades, how effective has the Act been in achieving its preservation purpose?

Some observers have rightly extolled the successes and potential of the Sanctuaries Program under difficult circumstances.¹ Dave Owen notes the Program has

functioned as a popular and effective limit on oil and gas drilling, particularly along the California coast. It has been similarly effective in protecting other limited areas from selected threats; Stellwagen Bank is intact, unmined and without floating casinos, and the reefs in the Florida Keys are better protected from shipping traffic. All of this protection, moreover, grew out of an uncommon level of bipartisan support and cooperation. The program also offers states a source of pride and communities a potentially defining connection to their surrounding environment. Finally, it has provided a platform for the potential development of future protection schemes.²

Although existing sanctuaries encompass a variety of qualities that make them nationally or internationally significant, they fail to add up to a complete marine preservation system. Moreover, given past experience with the Act’s conflicting and

²Id.

[Section 23:96]

¹Center for the Economy and the Environment, *Protecting Our National Marine Sanctuaries* 34 (2000).

²Dave Owen, *The Disappointing History of the National Marine Sanctuaries Act*, 11 N.Y.U. Env’tl. L.J. 711, 746 (2003).

numerous mandates, there is little likelihood that a sanctuary system that preserves the full array of the nation's unique and representative marine features and resources will be realized under the current law.

§ 23:97 Limited Scope of the Sanctuary System

The scientific consensus is very strong: many of the ocean ecosystems of the U.S. are in dire and worsening condition. At the same time, public support for ocean protection is growing. Is the Sanctuaries Program capable of preserving and restoring ocean ecosystems in timely fashion?

In the 43 years since the Act's passage, 14 sanctuaries have been established that cover approximately 150,000 square nautical miles, as noted in Table 23.1. This area equals nearly 0.4 percent of the nation's EEZ. The sanctuaries range in size from less than one square nautical mile (snm) (Monitor) to 137,792 snm (Papahānaumokuākea Marine National Monument). Most sanctuaries are relatively small, with eight under 1,000 snm. Five sanctuaries are between 1,000 and 4,100 snm in size. The authorized addition of a Northwest Hawaiian Islands Sanctuary of more than 99,500 square nautical miles will increase the size of the current system by seven-fold. But even with this addition, the System would encompass only 3.38% of the U.S. oceans.

Congress has never specified what constitutes an ideal sanctuary system, only that the Act intends to protect special areas that possess national significance. Although NOAA's regional survey teams identified a number of candidate sites in the early 1980s, NOAA has never undertaken a rigorous survey of U.S. ocean waters, similar to the comprehensive wilderness inventories and studies mandated by the Wilderness Act, to determine what marine resource types and areas are adequately protected and which ones merit protection.

§ 23:98 Limited Scope of the Sanctuary System—Resources Missing

Many desirable resources and areas are missing from the system. There are large swaths of the nation's oceans that have no sanctuaries. A look at a map will show blank spaces off many coastal States. No sanctuaries have been designated in the Caribbean or in the North Pacific. There are just three sanctuaries along the entire Atlantic seaboard, one in South Florida, and one in the Gulf of Mexico. On the West Coast, California has four sanctuaries, and Washington one, but Oregon and Alaska have none. Ironically, even Georges Bank, the area Rep. Keith set out to protect when he introduced sanctuary legislation in 1967, is missing from the system. Furthermore, only half of the 12 marine biotic regions identified by Ray and Ray are represented in existing sanctuaries, as noted in Table 23.2.

Another example of the system's incompleteness is its inadequate coverage of both endangered and commercially valuable species. In its 1974 regulations, NOAA identified preserving genetic resources, including spawning and nursery grounds and migratory pathways, as one purpose of a sanctuary designation and NOAA reconfirmed this in 1988.¹ Congress agreed with NOAA, and in 1992 added as a purpose of the Act: "to maintain, restore, and enhance living resources by providing places for species that depend upon these marine areas to survive and propagate."² In the 2000 Amendments, Congress declared that one of the purposes of the Act is "to maintain the natural biological communities in the national marine sanctuaries,

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¹39 Fed. Reg. 23254, 23255 (§ 922.10(a)); Marine Sanctuary Program Final Regulations, 53 Fed. Reg. 43802 (Oct. 28, 1988) (§ 922.1(c)(1)).

²2000 NMSA Amendments § 2101(b).

and to protect, and where appropriate, restore and enhance natural habitats, populations, and ecological processes.”³ The Act further specifies that among the factors to be considered in creating a sanctuary are “maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site.”⁴

There are currently 21 domestic marine species listed as endangered and 13 as threatened, as listed in Table 23.3. There has been no comprehensive assessment by NOAA of what or how many endangered marine species and critical habitats are encompassed in sanctuaries, or what additional sanctuaries are needed to help conserve these species. Regarding commercial species, although the Act has been used to protect ocean areas from oil development and pollution, it has not been used to protect fisheries stocks from overfishing or uniformly applied to protect sanctuary bottom habitats from destruction by commercial fishermen. For example, bottom trawling, the most environmentally destructive method of commercial fishing,⁵ is allowed in Stellwagen Bank and Monterey Bay sanctuaries, but banned in other sanctuaries.

§ 23:99 Limited Scope of the Sanctuary System—What Does Protection Mean?

The Turnstone Group notes that no sanctuary has been set aside as a “fully protected area.”¹ As defined by the Turnstone Group, a fully protected area means an area designated based on its “importance to ecosystem structure, function or process or their esthetic or other values,” and in which all extractive or potentially disruptive activities are prohibited, resource protection is the singular goal, and protection is permanent.² Fully protected zones or sub-areas have been created in two sanctuaries (Florida Keys, Fagatele Bay) and proposed in a third (Channel Islands).³ All or large portions of the northwest Hawaiian Islands also will qualify as fully protected zones when the designation process is complete.⁴ While it is conceivable the Act could be used to establish sanctuaries whose sole purpose is full protection, the Act has never been used this way.

The Act’s purpose of facilitating all uses means that resource conflicts within sanctuaries are common. Generally, it is against the law to “destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations.”⁵ However, the prohibition on destruction of managed resources applies only to resources identified in individual sanctuary designation documents as the subject of protection. In addition, the designation document, as implemented by the management plan, determines which uses or activities shall be subject to regulations. Uses not listed

³2000 NMSA Amendments § 3(c)(4).

⁴National Marine Sanctuaries Act, 16 U.S.C.A. §§ 1431 et seq., § 1433(b)(1)(A) (2002).

⁵*See, e.g.,* Lance E. Morgan and Ratana Chuenpagdee, *Shifting Gears: Addressing the Collateral Impacts of Fishing Methods in U.S. Waters* (2003).

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¹The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* (2003).

²The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 3-4 (2003).

³The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 11-12 (2003).

⁴The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 12 (2003).

⁵National Marine Sanctuaries Act § 1436(1).

are not subject to regulation, and thus can only be addressed post a loss, injury or destruction. For example, NOAA's management plan for Stellwagen expressly excludes fishing as subject to the regulation that prohibits altering the sanctuary seabed,⁶ despite research that NAPA says "has documented how bottom-trawling has leveled the seabed at Stellwagen and stripped vegetation."⁷

The Hawaiian Islands Humpback Whale Sanctuary, established primarily for research and education about humpback whales, does not regulate fishing in the sanctuary, even though "overfishing of bottom fish . . . and live capture of reef fish for the pet trade have depleted stocks sharply."⁸ Flower Garden Banks, a relatively small sanctuary set in an oil producing area, prohibits oil and gas development in some areas of the sanctuary but not others.⁹

According to the Turnstone Group,

Even when a sanctuary does prohibit activities in general, there are often exceptions for specific and often significant exceptions.

Some of these exceptions are minor but others substantially weaken protection. For instance, most sanctuaries prohibit discharge or deposit of materials in sanctuary waters, but include exceptions for minor activities such as discharge of deck washdown water. However, Monterey Bay and Gulf of the Farallones . . . include exceptions for disposing of dredge material and the Farallones provides an exception for the discharge of sewage. The Flower Garden Banks prohibits the use of explosives but then gives an exception to the use of explosives for oil and gas exploration.¹⁰

While one may determine what resources are being protected at each sanctuary by consulting the designation document or the current *Code of Federal Regulations*, it is more difficult to determine the status and trend of any particular resource because NOAA has not developed baseline information or effective monitoring programs.¹¹ Today, few sanctuaries can report with much specificity how their resources are faring based on objective measures.

§ 23:100 Limited Scope of the Sanctuary System—Oil Development and Commercial Fishing

Two of the biggest threats to sanctuary resources, oil development and commercial fishing, have proved flashpoints in sanctuary designations throughout the Act's history. As things have turned out, new oil development has been prohibited in the sanctuaries system, at least for the moment. Although there were assertions when the Act passed and afterwards that oil development could be a compatible use of a sanctuary, a number of sanctuaries specifically prohibited new oil and gas development at the time they were designated by NOAA (e.g., Channel Islands, Gulf of the Farallones) or by Congress (e.g., Monterey Bay, Cordell Bank). In fact, it was the desire of local citizens to exclude oil from their shores that impelled the creation of sanctuaries such as Monterey Bay and Channel Islands.

More recently, President Clinton issued an executive memorandum to the Secre-

⁶2000 NMSA Amendments § 2202; Marine Sanctuary Program Regulations, 15 C.F.R. § 922.142 (2002).

⁷Center for the Economy and the Environment, *Protecting Our National Marine Sanctuaries* 27 (2000). In contrast, logging is prohibited in both national parks and wilderness areas.

⁸Center for the Economy and the Environment, *Protecting Our National Marine Sanctuaries* 92 (2000).

⁹15 C.F.R. § 922.122.

¹⁰The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 11 (2003).

¹¹Telephone Interview with Michael L. Weber, National Marine Sanctuaries Program History (Mar. 11, 2004).

tary of the Interior in 1998 that extended until June 30, 2012 the prohibition on the granting of new oil and gas leases in all sanctuaries, but the issue of oil development is by no means settled.¹ The Clinton memorandum can be rescinded by a succeeding president. Congress can also intervene, as it did in 2003, when a provision was included in the energy bill to allow exploration for oil throughout the entire Outer Continental Shelf, including in marine sanctuaries.² The measure was passed by the Senate, but rejected by the House due to heavy opposition by members of Congress from coastal states. Energy development on the OCS remains an issue of public debate as it has from the time the Sanctuaries Act was passed.

Since 1972, commercial overfishing has caused severe population declines of many commercial fish species. Depleted populations include New England cod, snapper-grouper reef fish in the South Atlantic and Gulf of Mexico, various species of rockfish and the nearly extinct white abalone along the Pacific Coast, and rock lobster in Hawaii. According to NOAA, 86 populations in the U.S. are classified as overfished.³ Populations of depleted stocks are found in many sanctuaries, but most sanctuaries do not prevent or regulate the taking of fish commercially or recreationally except in a few closed areas. Furthermore, seven sanctuaries allow fishing by bottom trawl in all or a portion of their waters. Bottom trawling is known to cause extensive damage to structurally complex seafloor habitats, thereby reducing habitat complexity and “potentially altering the productivity of fish communities that depend on seafloor habitats for food and refuge.”⁴ Clearly, commercial fishing has had and continues to have significant negative impacts on sanctuary environments, as well as detracting other uses such as recreational fishing and diving.

Sanctuary staff of the National Ocean Service, the NOAA bureau with responsibility for management of the Sanctuaries Program, candidly admit, “We don’t do fish,” meaning that they leave commercial and recreational fisheries management in federal waters to their sister bureau, the National Marine Fisheries Service (NMFS), and the Regional Fishery Management Councils.⁵ This attitude is derived from the Act’s provision requiring the Secretary to give the appropriate Council “the opportunity to prepare draft regulations for fishing within the Exclusive Economic Zone as the Council may deem necessary to implement the proposed designation.”⁶ The draft regulations must be guided by the national standards that implement the Magnuson-Stevens Act, the law under which federal fisheries are managed primarily for exploitation.⁷ The Secretary must accept Council recommendations unless the Council action “fails to fulfill the purpose and policies . . . [of the Act] and the goals and objectives of the proposed designation.”⁸ If the Secretary rejects the Council-proposed regulations or the Council fails to submit regulations or to submit them in

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¹Memorandum on Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition, 34 Wkly. Comp. Pres. Doc. 1111 (June 12, 1998).

²S. 14, 108th Cong., § 105 (2003).

³Department of Commerce, National Marine Fisheries Service, Annual Report to Congress on the Status of U.S. Fisheries-2002 (2003).

⁴Committee on Ecosystem Effects of Fishing, National Research Council, *Effects of Trawling and Dredging on Seafloor Habitat 2* (2002); Les Watling & Elliott A. Norse, *Disturbance of the Seabed by Mobile Fishing Gear: A Comparison to Forest Clearcutting*, 12 *Conservation Biology* 1180 (1998).

⁵Telephone Interview with Michael L. Weber, National Marine Sanctuaries Program History (Mar. 11, 2004).

⁶National Marine Sanctuaries Act § 1434(a)(5).

⁷National Marine Sanctuaries Act § 1434(a)(5).

⁸National Marine Sanctuaries Act § 1434(a)(5).

a timely manner, the Secretary must prepare the regulations.⁹ Although the Sanctuaries Act technically gives the Secretary the power to object to a Council recommendation that would harm sanctuary resources, the Act, notes the Turnstone Group,

puts the burden on the Secretary to show why the regulations from Councils (that are generally less protective and more interested in resource exploitation) are incompatible with the goals and objectives of a sanctuaries designation. Given the multiple-use standard in the Sanctuaries Act, this finding is a difficult one to make. To our knowledge, this provision has never been used [by the Secretary] to protect Sanctuary resources from the effects of fishing.¹⁰

In addition, secretarial action to protect fish in sanctuaries is constrained by the Secretary's conflicting responsibilities. The National Ocean Service manages sanctuaries, and the NMFS manages fisheries, and both bureaus are within the Department of Commerce. According to the Turnstone Group, conflicts between the two bureaus typically "get resolved in favor of . . . [the fisheries service] at low levels before ever reaching the level of the Secretary."¹¹

Reluctance on the Secretary's part to challenge Council-drafted fishery rules for sanctuaries has been further reinforced by Congress's own failure to address head-on the negative impacts of fishing on sanctuaries. For example, the legislative designations of Monterey Bay and Stellwagen Bank were silent on commercial fisheries regulation, leaving it to NOAA to decide whether to include these activities in the list of what would be regulated or prohibited.¹² As a result, neither sanctuary has played a significant role in stopping the drastic decline of certain fish populations in their respective regions. These declines of fish populations and structural habitat impacted by some commercial fishing gears have also affected recreational fishing opportunities.

Clearly the Sanctuaries Act has been interpreted to give deference to the Fishery Management Councils regarding how to best manage commercial and recreational fishing in sanctuaries. This deference is at odds with the law's purpose of providing for "comprehensive and coordinated conservation and management" of special ocean areas.¹³ How can sanctuaries management be comprehensive if sanctuary managers do not have controlling authority over fish or fish habitat within a sanctuary?

§ 23:101 Limited Scope of the Sanctuary System—Moratorium on New Sanctuaries

While the Sanctuaries Program has clearly failed to identify, inventory, and protect the full array of marine resources and places meriting preservation, efforts to designate additional sanctuaries had come to a halt by the mid-1990's, by which time NOAA had inactivated the SEL on the ground that it was to be revised.¹ Before the revisions occurred, new designations were foreclosed by the moratorium

⁹National Marine Sanctuaries Act § 1434(a)(5).

¹⁰The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 7 (2003).

¹¹The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 7 (2003).

¹²2000 NMSA Amendments §§ 2202, 2203.

¹³National Marine Sanctuaries Act § 1431(b)(2).

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¹Marine Sanctuary Program Regulations, 60 Fed. Reg. 66875 (Dec. 27, 1995).

mandated by Congress in the 2000 Amendments.² The lifting of the moratorium is contingent upon the Secretary publishing a “finding” that the “addition of a new sanctuary will not have a negative impact on the System,” and that the Commerce Department’s budget has sufficient resources in the year of any new designation to inventory known sanctuary resources and complete site characterization studies for all sanctuaries within 10 years, if current funding levels are maintained.³

The moratorium is a signal that additions to the sanctuary system are not a high priority for the Program’s congressional authorizing committees until such time as NOAA proposes an adequate plan and budget for managing existing sanctuaries, and Congress itself provides the appropriations. While the moratorium has had one positive consequence—forcing NOAA to develop a management program for congressional review—it throws a pall of uncertainty over the Program because there is no set date for the moratorium’s expiration. It is hard to imagine a similar no-growth injunction being placed on the national park or wildlife refuge systems.

The moratorium will be tested once the new nomination process is allowed to work. Once one or more nominations overcome the various tests and hurdles and reviews, the Secretary will still have to find that adding new sanctuaries will not have a negative impact on the extant system; something that is hard to imagine in this area of declining resources.

§ 23:102 Structural Flaws of the Sanctuaries Act—Lack of Preservation Focus

The Turnstone Group calls the NMSA a paradox because “it provides authority for meaningful protection on the one hand, and then substantially undermines it with the other. The effect on the water is few real protections in marine sanctuaries.”¹ Among other things,

- the Act “makes it difficult to prohibit activities”;
- fisheries management [in sanctuaries] is essentially controlled by the NMFS;
- the Act’s multiple use mandate “makes it difficult to implement regulations that are contentious or that significantly impact politically well-connected user groups”;
- the requirement to review sanctuary management plans every five years undermines long-term protection; and
- the Act’s multiple use mandate and exhaustive consultation requirements make it “fundamentally different” from laws governing other protected systems like parks and wilderness areas which have an overarching conservation frame work.²

While we agree the law is riddled with incongruities, in our view, the fundamental flaw of the Sanctuaries Act is its *lack of a singular focus on preservation*. This conclusion is all the more obvious when the Sanctuaries Act is compared to the Wilderness Act, which was enacted just eight years earlier.

The Wilderness Act provides a valuable comparison for the Sanctuaries Program for two reasons. First, the singular objective of the Wilderness Act is preservation of “untrammeled” wilderness. Second, while implementation of the Wilderness Act has

²2000 NMSA Amendments § 6(f).

³2000 NMSA Amendments § 6(f).

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¹The Turnstone Group, An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas 5 (2003).

²The Turnstone Group, An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas 5-8 (2003).

not been trouble-free by any means, it has produced very successful outcomes.

**§ 23:103 Structural Flaws of the Sanctuaries Act—Lack of Preservation
Focus—Wilderness Act Model**

In his short history of the Wilderness Act, Douglas Scott identifies the features of that Act that have made it such an effective conservation tool.¹ The Wilderness Act:

- “established a clear unambiguous national policy to preserve wilderness, recognizing wilderness itself as a resource of value”;
- provided a specific definition of wilderness which could be applied practically in the field;
- established a permanent wilderness preservation system, described its extent and designated the first 9.1 million acres of wilderness (equivalent to 10,740 sqm of water);
- “set out a single, consistent management directive” that applied to all wilderness areas which, among other things, clearly specified allowed and prohibited uses;
- “mandated a clearly specified wilderness review process,” which included an inventory of all federal roadless areas 5,000 acres and larger, and required the executive branch to recommend all suitable wilderness areas to Congress within 10 years;
- “asserted the exclusive power of the Congress to designate wilderness areas” and to maintain them as wilderness until Congress decided otherwise; and
- “constituted the best, most practical mechanism to actually preserve wilderness *in perpetuity*.”²

In short, the Wilderness Act established a comprehensive, well-defined program with the *singular purpose of conserving America’s remaining wilderness in perpetuity*. The Wilderness Act has led to the designation of wilderness in 46 states.³ While there have been many political battles over whether particular areas were suitable for or should be designated as wilderness, once designated, wilderness areas must be managed in accordance with uniform preservation standards prescribed in the law. Furthermore, once established, wilderness areas are not subject to change in boundaries or degrees of protection, except by further act of Congress.

In contrast, the Sanctuaries Act has produced just 14 sanctuaries, which constitute less than 0.4% of U.S. waters. Although amended many times since 1972, the Sanctuaries Act still lacks a singular focus on preservation and a rigorous process to achieve it. Moreover, the Secretary of Commerce is not required to establish any particular sanctuary or number of sanctuaries or even to comprehensively inventory the nation’s waters for candidate areas. The Sanctuaries Act’s conflicting goals of preservation and multiple use, its discretionary and open ended nature, its lack of clear definitions and protection standards, and the multiple intervention points it provides for stakeholders and Congress have burdened the Program with enormous implementation difficulties and inefficiencies. The Act’s results speak for themselves.

**§ 23:104 Structural Flaws of the Sanctuaries Act—Lack of Preservation
Focus—Preservation and Multiple Use**

[Section 23:103]

¹Douglas W. Scott, Campaign for America’s Wilderness, A Wilderness-Forever Future: A Short History of the National Wilderness Preservation System (2001).

²Douglas W. Scott, Campaign for America’s Wilderness, A Wilderness-Forever Future: A Short History of the National Wilderness Preservation System 15 (2001).

³See Table 23.1.

Several observers have argued that the primary or central mission of the NMSA has always been protection or preservation, and that NOAA has simply failed to aggressively pursue this mission.¹ We believe the reality is more complex. While it is true that preservation (or protection) always has been a purpose of the Act, it is not the Act's *singular purpose*. More than anything, it is the multiple use provision (and related provisions) that has prevented the development of a marine sanctuary system that lives up to its name.

Even though the Act states that “protection” is the primary objective, by also mandating the facilitation of all public and private uses, the legislation

gives standing to resource users who can challenge the Secretary's decision to prohibit certain activities, and creates the expectation among resource users that their use will be facilitated. The Secretary must then defend his or her regulatory decisions by demonstrating that such activities are not “compatible” with resource protection. This fact raises the bar for determining whether an activity should be allowed and fundamentally changes the question the Secretary must answer before regulating an activity. Instead of the precautionary question “might this activity harm the resource?” the test is more complex. The Secretary must in effect, answer the question “Does this activity harm the resource enough in comparison to the benefits people get from that activity to justify regulating it?”²

David Tarnas found the pursuit of multiple use in sanctuaries “unworkable” because both the meaning of the term and its practical application are unclear.³ If preservation is the primary purpose of sanctuaries, at what point do multiple uses compromise resource protection? Furthermore, says Tarnas, according to some observers, application of multiple use management is “ineffective.” What ocean users “call multiple use appears to amount to a policy of non-exclusion of their favored uses.”⁴

Multiple use management would only make sense, says Tarnas, if it were applied comprehensively to the entire ocean to “balance the whole range of marine uses.”⁵

Conflicting activities could be separated, complementary activities allowed together. Designated areas would have different levels of use restrictions to achieve different purposes. For example, a marine protected area, being part of a larger interactive marine ecosystem, would restrict those consumptive uses that conflict with the primary purpose of resource protection.⁶

The Marine Sanctuaries Program, observes Tarnas, has “assumed the task of trying to provide both the overall multiple-use management of large ocean areas, and the specialized protective management of smaller areas. Doing both has been difficult

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¹See, e.g., David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 277 (1988); Telephone Interview with Michael L. Weber, *National Marine Sanctuaries Program History* (Mar. 11, 2004); Center for the Economy and the Environment, *Protecting Our National Marine Sanctuaries* 34 (2000).

²The Turnstone Group, *An Assessment of the Adequacy of the Authority of the National Marine Sanctuaries Act to Establish a Network of Fully Protected Areas* 6 (2003).

³David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 278 (1988).

⁴David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 279 (1988) (quoting Daniel P. Finn, *Interagency Relationships in Marine Resource Conflicts: Some Lessons from OCS Oil and Gas Leasing*, 4 *Harv. Envtl. L.J.* 359, 391 (1980)).

⁵David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 279 (1988).

⁶David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and Current Issues*, 16 *Coastal Management* 275, 279-80 (1988).

and has possibly weakened the program.”⁷

Tarnas concludes:

Sanctuaries fit into an overall multiple-use strategy for the larger marine ecosystem as one type of specialized marine management. Sanctuaries are marine protected areas with varying levels of protection not afforded by multiple use management. Thus, sanctuaries would operate most effectively within the context of a larger national ocean resource management policy using this multiple use approach. Yet this country has no comprehensive or integrated national ocean policy.⁸

Tarnas’ observations ring true. If most of the ocean is generally open to all uses, then the most direct and effective way to *preserve* ocean places is to set some of them aside for the singular purpose of preservation just as national parks and wilderness areas have been created on land. Only truly compatible uses of sanctuaries, such as education, science, and low-impact recreation would be allowed. A comprehensive ocean zoning policy, if we had one, would divide the ocean into a number of a number of different use zones, including preservation zones. This was the strategy recommended by President Johnson’s Science Advisory Committee in its 1966 call for a marine wilderness preservation system.

VII. CONCLUSION

§ 23:105 Generally

Lacking as it does the singular preservation focus of the Wilderness Act, the Sanctuaries Act has proved to be an unreliable vehicle for the timely preservation of the full array of the nation’s marine resources and special places in a comprehensive national system.

That the Sanctuaries Act is ineffective as a reliable preservation statute is reflected in the Act’s implementation history. Because of its incongruous and conflicting mandates, lack of strategic implementation guidelines, and failure to prohibit incompatible uses, or define uniform protection standards, the Act proved baffling to NOAA and a continuing frustration to its authorizing committees. Furthermore, the Act’s frequent reinvention by Congress and NOAA, though well-intentioned, has not really gotten at the root of the Act’s problems.

With the purposes and uses of each sanctuary up for grabs during the designation process, highly contentious and lengthy battles have been waged between conservationists and user groups over a number of candidate sites. Indeed, this contention is almost guaranteed by the Act’s elaborate designation process.

When NOAA became bogged down in designation battles in the 1980s, a protection-leaning Congress first was forced to mandate deadlines for NOAA to designate certain sanctuaries, then had to bypass a dysfunctional process to designate Florida Keys, the Hawaiian Islands Humpback Whale, Monterey Bay, and Stellwagen Bank marine sanctuaries. In addition, when Congress found itself unhappy with NOAA’s protection strategies for certain candidate sanctuaries, it intervened legislatively to prohibit new oil and gas leases at Cordell Bank and Olympic Coast, included an oil development ban in its legislative designation of Monterey Bay, and prohibited sand and gravel mining (but not oil development) at Stellwagen.

At other times, Congress has been more charitable towards certain user groups or

⁷David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program’s Implementation and Current Issues*, 16 *Coastal Management* 275, 280 (1988).

⁸David A. Tarnas, *The U.S. National Marine Sanctuary Program: An Analysis of the Program’s Implementation and Current Issues*, 16 *Coastal Management* 275, 294 (1988).

local constituencies. For example, Congress specifically prohibited the designation of a Northwest Straits sanctuary by NOAA because local users feared that federal oversight would result in greater use restrictions without a corresponding increase in protection to the area's resources. Congress also created sanctuaries (e.g., Monterey Bay) in which commercial fishing activities were not subject to regulation under the terms of the legislative designation, despite growing recognition that fish stocks in those areas were in decline.

The Act is now so constrained by its own architecture that that it stands little chance of ever producing the comprehensive system of marine preservation areas envisioned by early visionaries, who hoped to create a system of marine wilderness preserves analogous to the terrestrial wilderness system. The blueprint of a permanent marine sanctuary system with the singular purpose of preservation was rejected in favor of a law that required preservation to be balanced with other uses within a sanctuary. As a result, progress toward protecting America's ocean resources has been nowhere near that needed to achieve the national network of marine conservation areas scientists say are needed to protect and restore ocean life.

In order to be capable of establishing a system of marine preservation areas that only allows uses that are truly compatible with preservation, the Sanctuaries Act would have to undergo substantial amendment. Alternatively, Congress could authorize a separate system whose components could include any areas of the ocean, including presently managed or protected areas, which met the new law's preservation and protection criteria. This was precisely the approach taken by the Wilderness Act, which provided a wilderness-overlay on existing parks, refuges, forests, and public lands, and allowed compatible uses as defined by the law. Whichever approach is taken, a bold, vigorous and systematic effort will be needed to identify, protect and preserve the full array of marine habitats and features during the next 10 years before they are irretrievably degraded or lost. Current trends do not bode well for conservation.

§ 23:106 Our governance for coastal and ocean protection is seriously outdated and increasingly ineffective

The NMSA calls for the protection of nationally significant marine areas, but it does not clearly define the types of resources that are supposed to be protected. The sanctuary system covers a very small portion of U.S. waters, does not include a representative sample of biogeographical examples, nor has it been used to ensure Underwater Cultural Heritage is identified, included, and then monitored and protected. And, there is no coherent strategy for doing so despite the genuine support of NOAA administrators for a scientifically representative and biologically significant system of protected sanctuaries in U.S. waters.

Too some extent, the Act's flaws derive from its lukewarm beginning—almost an afterthought title of a broader, more universally supported legislative solution to human causes of ocean pollution. Its champions were neither united in their message nor able to frame the vision for the implementation of a marine sanctuary system. The Act's undefined multiple use mandate, discussed extensively in this chapter, has severely compromised its preservation purpose, because it allows extant users to hold out for exemptions for their extraction. So too has the authority of state governments to block creation of nationally significant sanctuaries that lie wholly or partly within state territorial waters. As a result, the nomination process has been too political and is at best producing lowest common denominator protections. And, was so dysfunctional that Congress had to bypass it. When something is that dysfunctional we have some serious flaws to address.

And, we have little or no data on whether ecosystems, species or habitats have

benefited from the NMSA. The management and protection of fish populations and fish habitat in sanctuaries has been ceded to NMFS and its regional fishery management councils, which until very recently were not doing a good job of following scientific recommendations for rebuilding fish stocks. The Sanctuary Program is not being used effectively or consistently to complement NOAA's Protected Resources Program for the conservation of marine mammals and endangered species. And, while most sanctuaries prohibit oil and gas development, the record otherwise in terms of real protections is abysmal. Most of the sanctuaries do not address recreational fishing, noise pollution, aquaculture, seabed mining or motorized recreation.

The new nominating process, is designed to minimize the kinds of local and regional political squabbles that have hindered NOAA's efforts to properly manage nominations, only to have a locally-driven, nationally supported first effort squashed by its congressional delegation in response to special user interests. The new process is transparent with nominations and all correspondence between NOAA and the nominators published on the NMS office Web site. Even the projects rejected at the first sufficiency review are encouraged to revise and resubmit, signaling a dedication to expanding and improving our system of sanctuaries.

The NMSA deserves better administration, an express authority to create fully protected marine reserves, flexibility in management and monitoring (particularly in the face of climate change) and more appropriations to make this all possible. For the health of the nation, food security, and preservation of our national heritage, we need to foster the rapid development of a national system of MPAs that include marine reserves, and right now the NMSA is not designed to accomplish this.

Table 23.1

Sanctuary Information

Sanctuary Name	Designation Date	Square Nautical Miles	New Oil/Gas Leases	Bottom Trawling
U.S.S. Monitor	1/30/75	0.75	Prohibited	Prohibited
Channel Islands	9/22/80	1,258	Prohibited	Restricted to Certain Areas
Gulf of the Farallones	1/16/81	948	Prohibited	Allowed
Gray's Reef	1/16/81	17	Prohibited	Prohibited
Fagatele Bay	4/29/86	0.19	Prohibited	Prohibited
Cordell Bank ³	5/24/89	397	Prohibited ²	Prohibited
Florida Keys ^{1, 2}	11/16/90	2,870	Prohibited	Restricted to Certain Areas
Flower Garden Banks ^{3, 4}	1/17/92	42	Prohibited	Prohibited
Monterey Bay ²	9/18/92	4,023	Prohibited ²	Restricted to Certain Areas.
Stellwagen Bank ²	11/4/92	636	Prohibited	Restricted to Certain Areas
Hawaiian Islands Humpback Whale ²	11/4/92	1,035	Prohibited	Prohibited
Olympic Coast ³	7/16/92	2,500	Prohibited ²	Allowed
Thunder Bay	10/7/00	338	Prohibited	N/A
Total System		14,065		
NWHI Coral Reef Ecosystem Reserve ⁵	12/4/00	99,500	Prohibited	

¹ Florida Keys NMS was designated on 11/16/90 and subsumed Key Largo (designated in 1975) and Looe Key (designated in 1981).

² Designated by Congress.

³ Designation required by Congress.

⁴ Congress added Stetson Bank to the Flower Garden Banks NMS in 1996.

⁵ NWHI is listed as an Active Candidate for sanctuary designation.

Table 23.2

Sanctuary Representation of Biogeographical Regions

Sanctuary Name	Acadian	Virginian	Carolinian	West In-dian	Louisian-ian	Vera Cru-zan	Califor-nian	Oregonian	Sitkan	Aleutian	Arctic Subartic	Indo-Pacific
U.S.S. Monitor Channel Is-lands			X				X					
Gulf of the Farallones								X				
Gray's Reef			X									
Fagatele Bay												X
Cordell Bank								X				
Florida Keys				X								
Flower Garden Banks				X								
Monterey Bay								X				
Stellwagen Bank	X											
Hawaiian Is-lands Hump-back Whale												X
Olympic Coast								X				
Thunder Bay												

Source: updated from The Current Status and Future Needs of the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program: Hearing Before the Subcommittees on Oceanography, Great Lakes and the Outer Continental Shelf of the House Committee on Merchant Marine and Fisheries, 102d Cong. at 160 (1991).

Table 23.3

Endangered and Threatened Marine Species

Species	Endangered Marine Species Populations Protected	Year Designated
Atlantic Salmon	NY to ME	2000
Blue Whale	All populations	1973
Bowhead whale	All populations (occur of N. AK)	1973
Caribbean monk seal	All populations (thought to be extinct)	1979
Chinook salmon	2 populations in CA and WA	1994, 1999
Fin whale	All populations (occur in Mid- and N. Atlantic)	1970
Green sea turtle	Breeding populations off FL and the Pacific Coast of Mexico	1978
Hawaiian monk seal	All populations (occur around HI)	1976
Hawksbill sea turtle	All populations	1970
Humpback whale	All populations	1973
Kemp's ridley sea turtle	All populations	1970
Leatherback sea turtle	All populations	1970
Northern right whale	All populations (occur in N. Atlantic)	1970
Olive ridley sea turtle	Mexican nesting population	1978
Sei Whale	All populations	1973
Shortnose sturgeon	All populations (only occur along E. Coast of U.S.)	1967
Smalltooth sawfish	All populations (only occur along E. Coast of U.S.)	2003
Sockeye salmon	Snake River	1991
Sperm whale	All populations (occur in N. Atlantic)	1973
Steelhead trout	2 populations off CA, WA	1997
West Indian Manatee	FL and Antillean (occurring off Puerto Rico) stocks	1967
White Abalone	All populations (occurs only from S. CA to Mexico)	2001

Species	Threatened Marine Species Populations Protected	Year Designated
Chinook salmon	7 populations	1992, 1999
Chum salmon	2 populations off OR, WA	1999
Coho salmon	3 populations off CA, OR	1996, 1997, 1998
Green sea turtle	All populations not listed as endangered	1978
Guadalupe fur seal	All populations (occur off S. CA)	1985
Gulf sturgeon	All populations (predominate in Gulf of Mexico)	1991
Johnson's sea grass	All populations (occurs only along E. Coast of FL)	1998
Loggerhead sea turtle	All populations	1978
Olive ridley sea turtle	All populations not listed as endangered	1978
Sockeye salmon	Ozette Lake, WA	1999
Southern sea otter	CA stock	1977
Steelhead trout	8 populations off CA, OR, WA	1997, 1998, 1999, 2000
Steller sea lion	All populations (occur off W. Coast of U.S.)	1990

Source: NMFS, Office of Protected Species

Chapter 24

Climate Change*

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*Sections 24:1 through 24:12 by **Cullen Howe and Karen Anderson**, J.D. candidate, 2021, Yale; §§ 24:14 through 24:20 by **A.R. Siders and Barrett Ristroph** who would like to thank Kristen Reece for her contributions; §§ 24:21 through 24:27 by **Katie Spidalieri**; §§ 24:28 through 24:32 by **Jennifer Li**; §§ 24:33 through 24:35 by **Wil Burns**; §§ 24:36 through 24:40 by **Elizabeth Kronk Warner and Heather Tanana**; §§ 24:41 through 24:52 by **Hana Vizcarra**. The editor would like to thank **Nareg Kuyumjian and Zack Schiffer** for their contributions to this chapter.

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I. INTRODUCTION

§ 24:1 In general

“Climate change” refers to changes in the climate system that are attributed directly or indirectly to human activity, alter the composition of the global atmosphere, and are in addition to natural climate variability observed over comparable time periods.¹ The United Nations has called climate change “the defining issue of our time” and urged global action to mitigate this threat.²

Government at all levels are addressing climate change through mitigation, adaptation, and, perhaps in the near future, geoengineering. Climate change *mitigation* involves reducing emissions of greenhouse gases (GHGs) or enhancing the sinks that remove these gases from the atmosphere, whereas climate change *adaptation* (see §§ 24:13 to 24:32) is the process of adjusting to climate effects already set to occur, and *geoengineering* envisions deliberate invention in environmental systems to directly counteract greenhouse gas emissions and solar radiation.

This chapter describes the legal tools available to, and leveraged by, all levels of government to both mitigate and adapt to climate change. Climate change law in the United States remains decentralized, and it is uncertain at this point whether a comprehensive and coordinated federal effort is forthcoming. Consequently, this chapter analyzes the legal tools available to, and used by, federal, state, tribal, and local governments. A discussion of climate change risk and disclosure recognize that climate change’s impacts are just as much economic as they are environmental. Finally, this chapter reviews litigation as a driver—whether attempted or successful—of climate change policy by actors both public and private.

II. SCIENTIFIC BASIS OF AND CONSENSUS ON CLIMATE CHANGE

§ 24:2 The Science behind climate change

Greenhouse gases trap heat in the atmosphere, and anthropogenic (human-caused) emissions of long-lived greenhouse gases since the onset of the Industrial

[Section 24:1]

¹United Nations Framework Convention on Climate Change (1992), <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

²United Nations, *Climate Change* (2020), <https://www.un.org/en/sections/issues-depth/climate-change/>.

Revolution have driven global warming.¹ Most significant is carbon dioxide (CO₂), which accounts for approximately 66% of the total radiative forcing (a standardized measure of the warming effect) from long-lived greenhouse gases. CO₂ increases are primarily due to combustion of fossil fuels (coal, oil, gas), with smaller sources including cement production, deforestation, and other land use changes. Methane has contributed 17% of this radiative forcing, with approximately 40% of methane emitted by natural sources (such as wetlands and termites) and 60% by anthropogenic sources (such as cattle farming, rice agriculture, fossil fuel production, landfills, and biomass burning). Nitrous oxide accounts for 6% of this radiative forcing and comes from both natural sources (about 60%, including soils and oceans) and anthropogenic sources (about 40%, including agriculture, biomass burning, and various industrial processes).²

Most of the remaining radiative forcing from long-lived greenhouse gases comes from past emissions of chlorofluorocarbons (CFCs), which have been largely phased out following the 1987 adoption of the Montreal Protocol (see *infra*) and thus are not subject to separate international reporting requirements for greenhouse gases.³ The other major greenhouse gases are all synthetic, fluorinated gases: hydrofluorocarbons (HFCs, used mainly as refrigerants), perfluorocarbons (PFCs, byproducts of aluminum production and used in semiconductor manufacturing), sulfur hexafluoride (used in semiconductor manufacturing, magnesium processing, and electrical transmission equipment), and nitrogen trifluoride (used in the electronics industry).⁴ While these gases are much less abundant than CO₂, methane, and nitrous oxide, they warrant concern because they remain in the atmosphere for long durations and produce more radiative forcing per unit of mass than CO₂—this ratio, shown below in Table 1, is known as “global warming potential.”⁵

Greenhouse Gas	Lifetime in Atmosphere (years)	Global Warming Potential (relative to CO ₂)		% of 2010 Global Greenhouse Gas Emissions (based on CO ₂ equivalents)
		20 Years	100 Years	
Carbon dioxide (CO ₂)	Variable	1	1	76%
Methane (CH ₄)	12.4	84	28	16%
Nitrous oxide (N ₂ O)	121	264	265	6%
Hydrofluorocarbons (HFCs)*				2%

[Section 24:2]

¹Water vapor is the largest contributor to the natural greenhouse effect. However, water vapor is not typically categorized as a greenhouse gas for the purposes of analyzing climate change, as its atmospheric concentration is controlled mostly by air temperature, rather than anthropogenic emissions.

²WORLD METEOROLOGICAL ORGANIZATION, *WMO Greenhouse Gas Bulletin* (Nov. 25, 2019), https://library.wmo.int/doc_num.php?explnum_id=10100.

³UNFCCC, *Methodological Issues Relating to Fluorinated Gases* (2019), <https://unfccc.int/process-and-meetings/transparency-and-reporting/methods-for-climate-change-transparency/methodological-issues-relating-to-fluorinated-gases>.

⁴UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *Overview of Greenhouse Gases: Emissions of Fluorinated Gases* (Sep. 2020), <https://www.epa.gov/ghgemissions/overview-greenhouse-gases#f-gases>.

⁵*Id.*

⁶This table displays the seven greenhouse gases covered by UNFCCC reporting guidelines, with data on drawn from the IPCC's Fifth Assessment Report. For data on lifetime and Global Warming Potential, see IPCC, *Anthropogenic and Natural Radiative Forcing*, in *Climate Change 2013: The Physical Science Basis* (Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change), at 731-33 (2013), https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf. For data on each gas's share of global greenhouse gas emissions, see IPCC, *Climate Change 2014: Mitigation of Climate Change* (Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change), at 7 (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf.

HFC-23	222	10,800	12,400	(combined share from the fluorinated gases: HFCs, PFCs, SF ₆ , and NF ₃)
HFC-134a	13.4	3,710	1,300	
HFC-152a	1.5	506	138	
Perfluorocarbons (PFCs)*				
PFC-14 (perfluoromethane)	50,000	4,880	6,630	
PFC-116 (perfluoroethane)	10,000	8,210	11,100	
Sulphur hexafluoride (SF ₆)	3,200	17,500	23,500	
Nitrogen trifluoride (NF ₃)	500	12,800	16,100	

* Non-exhaustive list of major HFCs and PFCs

§ 24:3 Scientific consensus on climate change threats

The threats posed by anthropogenic climate change have been widely recognized internationally since 1988, when the United Nations and the World Meteorological Organization created the Intergovernmental Panel on Climate Change (IPCC).¹ In the 1990s, the U.S. government recognized the IPCC as the preeminent international body established to provide objective scientific and technical assessments on climate change.²

In 2014, the IPCC completed its Fifth Assessment Report (IPCC FAR), the largest peer-reviewed scientific evaluation of climate change ever undertaken.³ The IPCC FAR concluded that “[w]arming of the climate system is unequivocal,” with significant changes including atmospheric and ocean warming, decreased snow and ice, and rising sea levels.⁴ With respect to the causes of these phenomena, the IPCC found that “[h]uman influence on the climate system is clear,” particularly “from the increasing greenhouse gas concentrations in the atmosphere.”⁵

In October 2018, the IPCC published a special report to compare the impacts of global warming of 1.5°C and 2°C and to assess emissions reduction pathways to limit warming.⁶ The report projected “robust differences” between the three scenarios of present-day warming (approximately 1.0°C above pre-industrial levels), reaching warming of 1.5°C, and reaching warming of 2°C, including differences in mean temperatures, heat extremes, heavy precipitation, and probability of drought and precipitation deficits.⁷ Moreover, the report projected that 2°C of global warming, as compared to 1.5°C, would yield an additional 0.1 meters in sea level rise; intensify ocean acidification; double the land area at risk of species loss due to shifts from one ecosystem to another; and increase the number of people exposed to climate-related risks and susceptible to poverty by up to several hundred million by 2050.⁸ The IPCC indicated that pathways limiting global warming to 1.5°C (and avoiding the

[Section 24:3]

¹U.N. General Assembly Resolution 43/53 (1988).

²See S. Exec. Rep. No. 102-55, 102nd Cong., 2d Sess. at 3, 9 (Oct. 1, 1992) (explaining that IPCC’s work is “viewed throughout most of the international scientific and global diplomatic community as the *definitive statement* on the state-of-the knowledge about global climate change”) (emphasis added).

³See generally Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report (2013–2014), available at <http://www.ipcc.ch/report/ar5/index.shtml>.

⁴IPCC Working Group I, *Summary for Policymakers*, in Climate Change 2013: The Physical Science Basis (Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change) 3, 4 (2013), http://www.climatechange2013.org/images/report/WG1AR5_AL_L_FINAL.pdf.

⁵*Id.* at 15.

⁶IPCC, Global Warming of 1.5°C (Oct. 2018).

⁷IPCC, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C, at 7 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf.

⁸*Id.* at 7-9.

more devastating impacts of 2°C) would require “deep emissions reductions in all sectors,” including “rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems” that would be “unprecedented in terms of scale.”⁹

The U.S. government has similarly studied climate change threats. In November 2018, the U.S. Global Change Research Program released the Fourth National Climate Assessment, which was developed in accordance with the requirements of the Global Change Research Act of 1990.¹⁰ The Fourth Assessment detailed climate change impacts on water quality and quantity; on public health, particularly in vulnerable communities (due to impacts on extreme weather and climate-related events, air quality, and the transmission of disease through insects and pests, food, and water); on indigenous peoples; on ecosystems; on agriculture and food systems; on infrastructure; on oceans and coasts; and on tourism and recreation.¹¹

III. CLIMATE CHANGE MITIGATION

§ 24:4 In general

This section provides background on core concepts of climate change mitigation, followed by sections that summarize: the primary components of achieving deep emissions reductions; relevant international agreements; U.S. federal, state, and local initiatives; and litigation related to climate change mitigation.

Greenhouse gas emissions are attributable to several different sectors. Roughly three-quarters of global emissions come from the energy system: electricity, heat production, and other fuel consumption in the major end-use sectors of industry, transportation, and buildings.¹ Reducing these emissions sources involves reducing overall energy demand (through efficiency and conservation efforts), decarbonizing energy sources (i.e., reducing the greenhouse gas emissions intensity of energy supply), and switching to low-carbon energy carriers (i.e., enabling end uses to run on cleanly-generated electricity, hydrogen, or biofuels instead of fossil fuels). Nearly one-quarter of global emissions come from the agriculture, forestry, and other land use (AFOLU) sector, after netting out the greenhouse emissions that are removed by natural sinks.² Mitigation options for this sector include reducing deforestation, improving management of cropland and grazing land, and reducing demand for energy-intensive foods.³ Figure 1 shows a sectoral breakdown of U.S. greenhouse gas emissions, with the electric power industry categorized separately (rather than attributing the emissions from electricity generation to the relevant end-use sectors), the building sector denoted as “commercial & residential,” and forestry and other land use excluded, as this sector is a net sink in the United States.

Figure 1: Total U.S. Greenhouse Gas Emissions by Economic Sector in 2018⁴

⁹*Id.* at 15.

¹⁰Pub. L. No. 101-606, 104 Stat. 3096 (codified at 15 U.S.C. §§ 2921 to 2961).

¹¹U.S. Global Change Research Program, Fourth National Climate Assessment: Volume II: Impacts, Risk, and Adaptation in the United States (2018).

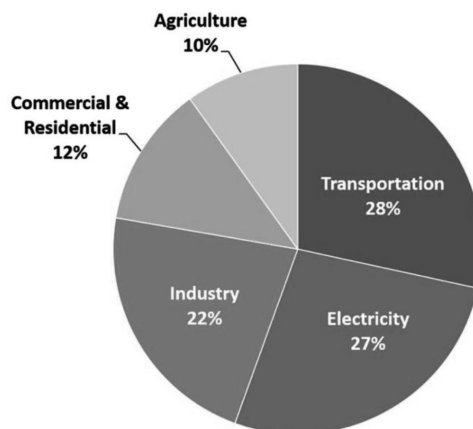
[Section 24:4]

¹IPCC, Climate Change 2014: Mitigation of Climate Change (Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change), at 44 (2014), http://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf.

²*Id.* at 17, 24.

³*Id.* at 24-25.

⁴UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018* (2020), <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.



At the international level (see § 24:6), climate change mitigation efforts have included multilateral agreements on greenhouse gas reporting and emissions reduction targets; financing mechanisms to fund green investments; creation of offset markets; trade measures; technology cooperation; and coordination on public policies and industry standards.

At the national and subnational levels (see Sections 24:6 to 24:11), a variety of policy approaches are available to implement mitigation efforts.⁵ Regulatory approaches set specific rules or limits for industries to comply with—for example, maximum levels of emissions from certain sources, or standards requiring certain pollution abatement technologies or low-carbon product inputs. Economic approaches, also known as market-based mechanisms, rely on private sector responses to economic incentives. These mechanisms include taxes or other required payments for greenhouse gas emissions; emissions trading systems (“cap-and-trade” or “cap-and-invest”) that limit overall amounts of certain emissions and issue a corresponding amount of tradeable permits; offset markets that let polluters (on a voluntary or mandatory basis) purchase credits generated by emissions reductions elsewhere; and subsidies that make public funds available to private actors who undertake certain activities, such as generating renewable energy or providing ecosystem services. Another policy category is direct public investment—government provision of goods and services such as R&D, green infrastructure, public transportation, and public lands management. Governments can also implement information policies, such as greenhouse gas reporting requirements or eco-labelling, to improve planning efforts and drive behavior changes by consumers and corporations. Federal and state examples of each policy category are shown below in Table 2.

Table 2: Examples of U.S. federal and state mitigation policies				
	Regulatory approaches	Economic approaches	Government services	Information policies
Energy Supply	<ul style="list-style-type: none"> State Renewable Portfolio Standards Clean Power Plan 	<ul style="list-style-type: none"> California’s Cap-and-Trade Program Regional Greenhouse Gas Initiative (RGGI) 	<ul style="list-style-type: none"> R&D (ARPA-E) Federally-owned hydropower 	<ul style="list-style-type: none"> Greenhouse Gas Reporting Program
Industry	<ul style="list-style-type: none"> DOE energy efficiency standards 	<ul style="list-style-type: none"> California’s “Buy Clean” procurement program 	<ul style="list-style-type: none"> R&D (DOE) 	<ul style="list-style-type: none"> Greenhouse Gas Reporting Program ENERGY STAR plant certification

⁵See, e.g., UNITED NATIONS CLIMATE CHANGE SECRETARIAT, *Climate Action and Support Trends*, at 17-19 (2019), https://unfccc.int/sites/default/files/resource/Climate_Action_Support_Trends_2019.pdf; IPCC, *Climate Change 2014: Mitigation of Climate Change* (Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change), at 1155-56 (2014), http://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf.

Table 2: Examples of U.S. federal and state mitigation policies				
	Regulatory approaches	Economic approaches	Government services	Information policies
Transport	<ul style="list-style-type: none"> • Corporate Average Fuel Economy (CAFE) standards • Clean Air Act limits on mobile sources of pollution 	<ul style="list-style-type: none"> • Transportation and Climate Initiative • USDA biofuel subsidies 	<ul style="list-style-type: none"> • Public transit systems • DOT grants for EV charging stations 	<ul style="list-style-type: none"> • Fuel and vehicle efficiency labelling • EPA SmartWay Program
Buildings	<ul style="list-style-type: none"> • DOE energy efficiency standards • State and local building codes • State Energy Efficiency Resource Standards 	<ul style="list-style-type: none"> • Energy efficiency tax credits 	<ul style="list-style-type: none"> • GSA Sustainable Federal Buildings 	<ul style="list-style-type: none"> • ENERGY STAR building certification
AFOLU	<ul style="list-style-type: none"> • State and local land use planning • Clean Water Act wetland protections 	<ul style="list-style-type: none"> • USDA Conservation Reserve Program • RGGI offsets 	<ul style="list-style-type: none"> • Federal land management • USDA Sustainable Agriculture Research and Education 	<ul style="list-style-type: none"> • USDA National Organic Program

§ 24:5 Components of climate change mitigation

Achieving deep reductions in greenhouse gas (GHG) emissions involves action on the following major areas: energy efficiency and conservation measures to reduce overall energy demand; replacement of fossil fuel sources with low- or zero-carbon sources to meet the remaining energy demand; switching to low-carbon energy carriers, mainly through electrification of end uses; and sustainable practices to reduce emissions from agriculture, forestry, and other land uses. In addition to reducing emission sources, another component of mitigation is enhancing the “sinks” that remove greenhouse gases from the atmosphere, including through biological or technological carbon sequestration. Finally, while often categorized as separate from mitigation, geoengineering (large-scale technical interventions in the climate system to alleviate the impacts of climate change) includes carbon dioxide removal—a set of techniques that overlap conceptually with mitigation efforts to enhance carbon sinks.

A. Energy efficiency and conservation

Given the importance of the transportation sector in emissions, more stringent vehicle fuel economy standards are a critical way to reduce greenhouse gas emissions. So are increased use of energy-saving technologies, such as hybrid vehicles, and less use of heavy and energy inefficient vehicles, such as sport utility vehicles (SUVs). Also frequently discussed, but requiring more decentralized effort over a much longer period of time, is changing land use patterns to reduce vehicle miles traveled by passenger vehicles and to increase trips by mass transit, bicycles and walking.

In the residential and commercial sectors, much effort is now being directed toward construction of buildings that minimize the use of energy in heating, cooling, lighting, and other operations. Energy efficiency is also being pursued in home appliances and office equipment. Likewise, increased efficiency of many industrial operations has the potential to yield major reductions in greenhouse gas emissions.

B. Decarbonizing energy sources

Lower-carbon alternatives to coal and oil are becoming increasingly widespread and cost effective. Ongoing fuel switching from coal to gas, which is roughly half as carbon intensive, has averted GHG emissions from electricity generation in several countries, most significantly China and the United States.¹ Another method of reducing emissions from fossil fuels is to pair them with emerging carbon capture and storage technologies (discussed *infra*, Subsection E) in electricity generation

[Section 24:5]

¹IEA, GLOBAL ENERGY & CO₂ STATUS REPORT (2019), <https://www.iea.org/reports/global-energy-co2-status-report-2019>.

and industrial processes.² However, even if such technologies further mature, significant decreases in fossil fuel usage and increases in renewable energy will still be necessary to limit warming in line with global climate goals. IPCC pathways for limiting warming to 1.5°C with no or limited overshoot rely on renewables providing 52-67% of primary energy overall and 70-85% of electricity by 2050.³

Renewable energy sources are naturally replenishing and include solar (photovoltaic cells that generate electricity and thermal systems that heat water or air); wind (onshore and offshore turbines that generate electricity); hydropower (dams, run-of-river systems, pumped storage facilities, and tidal or wave power systems that generate electricity); geothermal (steam plants that generate electricity and heat pumps or district heating systems that cool and heat buildings); and biomass (use of nonfossilized plant materials to generate electricity, heat buildings, or serve as transportation fuels).⁴ In 2019, renewables (predominantly hydropower, followed by wind and solar) accounted for 27% of global electricity generation.⁵

Nuclear energy (power plants using nuclear fission to generate electricity),⁶ while not a renewable energy source due to finite amounts of the uranium used as fuel, is a zero-emission energy source.⁷ In 2019, nuclear power accounted for 10% of global electricity generation.⁸ Nuclear power's share of the energy sector could increase in the near future. More funding is anticipated under the December 2020 COVID-19 stimulus package. The Congressional Budget Office calculated \$369 million in estimated budget authority specifically targeted for nuclear power technologies from 2021 to 2030, aimed at stimulating next-generation operations.⁹ Other observers estimate that total allocation to nuclear technologies in the bill amounts to \$6.6 billion.¹⁰ While existing nuclear technologies or new reactor types could play a role in further decarbonizing electricity generation, nuclear plants raise concerns including risks of accidents, security threats, and radioactive waste management.¹¹

C. Electrification and other low-carbon energy carriers

²IPCC, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C, at 326 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf.

³IPCC, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C, at 15, 34 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf.

⁴UNITED STATES ENERGY INFORMATION ADMINISTRATION, *Renewable Energy Explained: Types & Usages* (Dec. 9, 2020), <https://www.eia.gov/energyexplained/renewable-sources/types-and-usage.php>.

⁵IEA, GLOBAL ENERGY REVIEW 2020 (Apr. 2020), <https://www.iea.org/reports/global-energy-review-2020>.

⁶While all nuclear power plants currently use nuclear fission, research is ongoing to assess the viability of nuclear fusion technologies that would not generate any long-lived radioactive waste. See, e.g., UNITED STATES ENERGY INFORMATION ADMINISTRATION, *Nuclear Explained* (Apr. 17, 2020), <https://www.eia.gov/energyexplained/nuclear/>.

⁷UNITED STATES ENERGY INFORMATION ADMINISTRATION, *Nuclear Explained: Nuclear Power and the Environment* (Jan. 15, 2020), <https://www.eia.gov/energyexplained/nuclear/nuclear-power-and-the-environment.php>.

⁸IEA, GLOBAL ENERGY REVIEW 2020 (Apr. 2020), <https://www.iea.org/reports/global-energy-review-2020>.

⁹CONGRESSIONAL BUDGET OFFICE, Estimate for Divisions O Through FF H.R. 133, Consolidated Appropriations Act, 2021 Public Law 116-260 (January 14, 2021) https://www.cbo.gov/system/files/2021-01/PL_116-260_div%20O-FF.pdf.

see also Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong, Division Z, Title II §§ 2001 to 2008 (2020).

¹⁰Shannon Osaka, Congress takes action against 'super greenhouse gases' in coronavirus stimulus, GRIST (Dec. 22, 2022), <https://grist.org/politics/congress-takes-action-against-hfcs-super-greenhouse-gases-in-coronavirus-covid-19-stimulus/>.

¹¹IPCC, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C, at 325 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf.

Increases in clean energy sources, such as electricity generated from renewables, are not by themselves sufficient to decarbonize the energy system. Another key mitigation strategy is converting end uses that currently run on fossil fuels to instead utilize clean electricity, or another low-carbon energy carrier (e.g., hydrogen or liquid biofuels in some vehicles; hydrogen or bioenergy in some industrial processes).¹² In the buildings sector, existing technologies can electrify space heating and cooling, water heating, and cooking, though cost remains a barrier. In the transportation sector, battery electric vehicles, plug-in hybrid electric vehicles, or hydrogen fuel cell vehicles could replace vehicles fueled by gasoline or diesel. While another replacement option is to use biofuels in existing combustion engines, some biofuels have high indirect emissions from land use change.¹³ For industry, shifts toward electricity, heat, hydrogen, and bioenergy are a significant component of the sector's likely decarbonization pathways.¹⁴

D. Reducing emissions from agriculture, forestry, and other land uses

The agriculture, forestry, and other land use (AFOLU) sector produced approximately 23% of net anthropogenic greenhouse gas emissions from 2007 to 2016.¹⁵ Mitigation options include ecosystem conservation and land restoration; reduced deforestation and degradation; more sustainable forest management; more sustainable crop and livestock management; dietary changes away from energy-intensive foods; and reduction of food loss and waste.¹⁶ In pursuing these options, policymakers face both a challenge and an opportunity to harmonize climate change mitigation with other sustainable development goals such as food security, clean water and sanitation, improved health and wellbeing, and poverty eradication.¹⁷

E. Carbon sequestration

Carbon sequestration falls into two categories—biological sequestration and carbon capture and storage (CCS). Biological sequestration uses the natural function of plants to take up carbon dioxide through photosynthesis. A portion of the carbon is then stored in plant biomass and in soil organic matter. The amount of carbon dioxide stored in natural systems can be increased through forest conservation and management, reforestation, agricultural practices that increase levels of soil organic matter, and conserving or creating certain kinds of wetlands. However, stored carbon can be released back into the atmosphere as a result of fires, decomposition, and land use changes.

CCS uses engineered systems to capture carbon dioxide before it is emitted into the atmosphere, and then injects it into reservoirs for long-term storage. Carbon capture technologies are also being developed for other industries, such as cement manufacture, oil refining, ammonia production, and iron and steel manufacture. Once the carbon dioxide is captured, it can be transported to underground geologic formations; this may have the side benefit of enhancing oil and gas recovery from certain formations.

§ 24:6 International efforts to reduce greenhouse gas emissions

¹²IPCC, Climate Change 2014: Mitigation of Climate Change (Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change), at 19 (2014), http://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf.

¹³*Id.* at 613-16.

¹⁴*Id.* at 483.

¹⁵IPCC, *Summary for Policymakers*, in SPECIAL REPORT ON CLIMATE CHANGE AND LAND, at 8 (Jan. 2020), https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf.

¹⁶*Id.* at 20-24.

¹⁷*Id.* at 21.

A. *United Nations framework Convention on Climate Change*

The United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. The UNFCCC was ratified by the United States Senate in 1992, came into force in 1994, and has 197 parties as of 2020.¹ The UNFCCC's main objective is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system," and it embraces the principle that developed and developing countries have "common but differentiated responsibilities and respective capabilities" to address climate change. The UNFCCC governing body is the Conference of the Parties (COP), composed of representatives of ratifying countries who meet annually to assess progress on implementation and negotiate additional agreements.

B. *Kyoto Protocol*

At the 1997 COP meeting in Kyoto, Japan, the parties negotiated an agreement to operationalize the UNFCCC goals by setting binding emission reduction targets for 37 developed countries.² While the United States actively participated in these negotiations, with Vice President Al Gore playing a central role, the United States never ratified the Kyoto Protocol, which has 192 parties as of 2020. During the period 2008–2012, the Kyoto Protocol targets for developed countries were set as designated percentage reductions from a 1990 baseline of each country's emissions. Different countries were to meet different percentages; the figure for the U.S. was to be 7% below 1990 emissions. Overall, the Kyoto Protocol aimed to reduce emissions about 30% below what would have occurred under "business as usual." The Kyoto Protocol also established the "Clean Development Mechanism" (CDM), allowing developed countries to offset their own emissions by paying for certified emissions reduction projects in developing countries.³ While emissions from countries covered by Kyoto Protocol targets did fall, the success of these commitments was limited by the exclusion of many major economies, including China and India.

C. *Copenhagen Accord*

Ahead of the 2009 COP meeting in Copenhagen, Denmark, negotiators had aimed to secure a legally binding agreement to succeed the Kyoto Protocol. However, the end result was the three-page, non-binding Copenhagen Accord negotiated by the leaders of the U.S., China, India, Brazil, and South Africa.⁴ While falling short of expectations, the Copenhagen Accord did provide a foundation for the 2015 Paris Agreement by establishing a framework for countries to submit their domestic mitigation targets and policies, to be subject to monitoring, reporting, and verification procedures. Developed countries also committed to collective financing levels "approaching" \$30 billion for the period 2010–2012, and longer-term assistance of \$100 billion annually by 2020 to help developing countries with emissions mitigation, adaptation, and reduction in deforestation.

D. *Paris Agreement*

In 2015, the COP successfully adopted the first legally binding agreement with universal commitments for all parties to undertake climate change mitigation

[Section 24:6]

¹UNFCC, <https://www.who.int/globalchange/climate/unfccc/en/>.

²UNFCCC, https://unfccc.int/kyoto_protocol.

³UNFCCC, <https://cdm.unfccc.int/index.html>.

⁴The Accord is available at <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>.

efforts.⁵ The Paris Agreement was the result of extensive negotiations, including a joint announcement in November 2014 by the United States and China of their greenhouse gas emissions reduction targets.⁶ The overarching goal adopted in the Paris Agreement is to hold the increase in the global average temperature to “well below 2°C above pre-industrial levels,” with parties also agreeing “to pursue efforts to limit the temperature increase to 1.5°C”—a priority urged by many island and other vulnerable nations. To meet these goals, parties aim to reach a global peak in greenhouse gas emissions “as soon as possible,” recognizing that developing countries would take longer to reach their peaks, and achieve a balance between anthropogenic greenhouse gas emissions and removals by sinks (climate neutrality) “in the second half of this century.”

The main implementation mechanism is for countries to prepare, communicate, and maintain “nationally determined contributions” (NDCs), essentially climate action plans. In addition to domestic climate actions, the Paris Agreement allows for market mechanisms by which countries can use “internationally transferred mitigation outcomes” toward achievement of their NDCs. While specific rules for these offset markets are still being negotiated as of the time of this writing, they could eventually extend eligibility to projects under existing international frameworks such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation), which provides results-based payments to developing countries for sustainable forest management.⁷

The NDCs are to be updated every five years, with requirements starting in 2024 for public reporting on actions taken and international review of implementation progress. Parties will collectively assess progress towards achieving the long-term goals in “global stocktakes” every five years, beginning at the Conference of Parties in 2023. The global stocktakes are intended to result in commitments by the parties to update and enhance their climate actions. However, there is no mechanism to ensure that the commitments are adequate, or to take enforcement action or impose sanctions if they are not met. As assessed by the IPCC in 2018, existing NDCs under the Paris Agreement would not limit global warming to 1.5°C, even if supplemented by post-2030 emissions reductions.⁸

The Paris Agreement also addresses climate adaptation, providing that parties should submit and periodically update “an adaptation communication” that sets forth priorities, implementation and support needs, and plans and actions.⁹ The Agreement states that “[c]ontinuous and enhanced international support shall be provided to developing country Parties” for adaptation programs. More generally, developed countries “shall provide financial resources” to assist developing countries in their mitigation and adaptation efforts, with other parties encouraged to provide such support voluntarily. Every two years, developed countries must provide information about their support of developing countries and efforts in mobilizing climate finance—for example, through contributions to the Green Climate Fund established by the UNFCCC in 2010.¹⁰ However, no requirements were imposed on specific countries to make contributions of any particular magnitude.

In the United States, the Paris Agreement was not initially sent to the Senate for

⁵The Paris Agreement is available at unfccc.int/resource/docs/2015/cop21/eng/l09.pdf.

⁶Office of the Press Secretary, The White House, FACT SHEET: U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation (Nov. 11, 2014).

⁷UNFCCC, *What is REDD+?*, <https://unfccc.int/topics/land-use/workstreams/redd/what-is-redd>.

⁸IPCC, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C, at 32 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf.

⁹This issue is discussed in more detail in the climate adaptation section of this chapter. See *infra* §§ 24:13 to 24:32.

¹⁰GREEN CLIMATE FUND, *Overview*, <https://www.greenclimate.fund/about>.

ratification, given that President Obama had several sources of authority to unilaterally enter it as an executive agreement rather than a treaty.¹¹ First, the core obligations of the Paris Agreement are procedural (submitting NDCs) rather than substantive (no binding emission reduction targets), allowing the President to execute the agreement based on independent foreign affairs powers. Second, the Paris Agreement elaborated on planning and reporting obligations already contained in the UNFCCC, which the Senate did ratify in 1992. Third, the Paris Agreement's goals and commitments had existing Congressional support from statutes like the Global Climate Protection Act of 1987, which declared a U.S. policy of working toward multilateral agreements on climate change.

The United States' NDC set a 2025 target of reducing greenhouse gas emissions (below 2005 levels) by 26-28%, on top of its Copenhagen Accord target of 17% reduction in 2020.¹² Estimates for 2019 showed U.S. emissions at only 12% below 2005 levels, leaving the U.S. behind on progress toward these targets.¹³

On June 1, 2017, President Donald J. Trump announced his intention to withdraw the U.S. from the Paris Agreement. In his announcement, Trump stated that “as of today, the United States will cease all implementation” of the Paris Agreement, including the NDC and contributions to the Green Climate Fund, to which the United States had contributed only \$1 billion of an initial \$3 billion pledge.¹⁴

The Paris Agreement entered into force on November 4, 2016, and allows parties to file a notice of intent to withdraw no sooner than three years afterward, with such withdrawal becoming effective one year later. The Trump administration filed its official intent to withdraw on November 4, 2019, with formal withdrawal becoming effective on November 4, 2020.¹⁵ President-elect Joseph Biden, as of the time of this writing, has indicated that he will reverse this decision.

E. Kigali Amendments to the Montreal Protocol

Predating the UNFCCC, in 1987 the United Nations adopted the Montreal Protocol on Substances That Deplete the Ozone Layer, a landmark agreement to phase out the use of ozone-depleting substances including chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs).¹⁶ Given their coverage in the Montreal Protocol, CFCs and HCFCs are excluded from UNFCCC emissions reporting, despite technically being greenhouse gases. As CFCs and HCFCs have been phased out, the use of hydrofluorocarbons (HFCs)—potent greenhouse gases covered by UNFCCC mechanisms—has increased as a substitute for use in air conditioners, refrigerators, and aerosols. To avoid business-as-usual projections of significant emissions from increased HFC use, the parties to the Montreal Protocol adopted the Kigali Amendment in 2016, with a timeline for reducing HFC use by 80-85% by the

¹¹DANIEL BODANSKY & PETER SPIRO, *Executive Agreements*+, 49 VAND. J. TRANSNAT'L L. 885, 916–19 (2016).

¹²United States NDC Submission to the UNFCCC, available at <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/U.S.A.%20First%20NDC%20Submission.pdf>.

¹³TREVOR HOUSER & HANNAH PITT, *Preliminary US Emissions Estimates for 2019*, RHODIUM GROUP (Jan. 7, 2020), <https://rhg.com/research/preliminary-us-emissions-2019>.

¹⁴Office of the Press Secretary, White House, Statement by President Trump on the Paris Climate Accord (June 1, 2017), <https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/>.

¹⁵UNFCCC, *Paris Agreement—Status of Ratification* (2020), <https://unfccc.int/process/the-paris-agreement/status-of-ratification>.

¹⁶See Chapter 12 of this treatise for an in-depth discussion of the Montreal Protocol and its incorporation into the Clean Air Act.

late 2040s.¹⁷ The December 2020 COVID-19 stimulus package brought the U.S. in line with the Kigali Agreement, authorizing a 15-year phase down of HFCs to 15% of the 2011-2013 annual levels by 2036.¹⁸

§ 24:7 Federal efforts to reduce greenhouse gas emissions

A. Mitigation effects of federal environmental laws

While the United States lacks comprehensive federal legislation on greenhouse gas emissions, some foundational environmental laws have indirectly promoted mitigation. For example, federal land management by the Department of the Interior and the U.S. Forest Service can help preserve and enhance carbon sinks, and Clean Water Act permitting requirements that deter certain wetland conversion can avert releases of stored carbon. Some environmentalists have attempted to use the Endangered Species Act to require mitigation efforts to prevent climate change impacts on sensitive habitats.¹

B. Clean Air Act

As the bedrock federal law for regulating air pollution, the Clean Air Act has played a central role in evolving policy debates over federal regulation of greenhouse gas emissions. Longstanding Clean Air Act regulations on conventional pollutants can also reduce greenhouse gas emissions from some sources (e.g., by requiring industries to engage in efficiency improvements or switches to cleaner fuels). The 1990 Clean Air Act Amendments also contributed to climate change mitigation by requiring the phaseout of ozone-depleting substances, which are also potent greenhouse gases, in accordance with the Montreal Protocol (see *supra*).

Following years of litigation (see *infra*, *Massachusetts v. EPA*), in 2009 EPA issued an “endangerment finding” under Clean Air Act Section 202(a) that greenhouse gases endanger public health and the environment for current and future generations, providing a legal hook for regulating greenhouse gases under the Clean Air Act.² As discussed below, EPA has taken regulatory action on greenhouse gas emissions from stationary sources (with the Obama Administration’s Clean Power Plan since replaced by the Trump Administration’s Affordable Clean Energy Rule) and mobile sources (with the Obama Administration’s vehicle emission standards since replaced by the Trump Administration’s Safer Affordable Fuel-Efficient Vehicles Rule).

C. Federal Efforts to reduce GHG emissions from power plants

Clean Air Act Section 111, the New Source Performance Standards (NSPS) program, requires EPA to (1) identify categories of stationary sources that contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare; and (2) establish technology-based standards at the level of “best system of emission reduction . . . adequately demonstrated” (BSER, which can account for cost and other factors) for new and modified sources in those

¹⁷UNITED NATIONS ENVIRONMENT PROGRAMME, *The Montreal Protocol*, <https://www.unenvironment.org/ozonaction/who-we-are/about-montreal-protocol>.

¹⁸Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong, Division S § 103 (2020); Katherine McKeen, *Battling Refrigerators in the War on Climate Change*, (January 19, 2021), <https://www.theregreview.org/2021/01/19/mckeen-battling-refrigerators-war-climate-change/>.

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¹Linda Tsang, *The Endangered Species Act and Climate Change: Selected Legal Issues*, Congressional Research Service (Sep. 20, 2019), <https://fas.org/srgp/crs/misc/R45926.pdf>.

²74 Fed. Reg. 66496 (Dec. 15, 2009), https://www.epa.gov/sites/production/files/2016-08/documents/federal_register-epa-hq-oar-2009-0171-dec.15-09.pdf.

categories. Fossil-fuel fired electric generating units have long been subject to NSPS for conventional pollutants. For non-conventional pollutants (i.e., not NAAQS pollutants or Section 112 hazardous air pollutants), EPA also establishes BSER guidelines for existing sources, with Section 111(d) requiring states to receive EPA approval for implementation or become subject to an EPA federal implementation plan.

In October 2015, EPA published a final rule establishing standards under Section 111 for greenhouse gas emissions from new, modified, and reconstructed fossil fuel-fired electric utility generating units (power plants).³ This rule has remained in effect throughout the Trump Administration, though in 2018 EPA did propose a revision that would identify the BSER for new coal-fired power plants to be the most efficient demonstrated steam cycle in combination with the best operating practices, rather than requiring partial carbon capture and storage.⁴

Also in October 2015, EPA also published a final rule under Section 111(d) for existing power plants, known as the Clean Power Plan.⁵ EPA estimated that the emissions reductions required by the rule would reduce carbon pollution by 32% below 2005 levels. In February 2016, the Supreme Court granted applications for an emergency stay of the rule, and thus it never went into effect.⁶

The Clean Power Plan included three elements: (1) CO₂ emission performance rates representing BSER for two subcategories of existing fossil fuel-fired power plants (called electric generating units or EGUs)—fossil fuel-fired electric utility steam generating units and stationary combustion turbines; (2) state-specific goals for emission reduction using a rate-based (tons of CO₂ per megawatt hour) or mass-based (total tons of CO₂) approach; and (3) guidelines for the development, submission, and implementation of state plans to comply by 2030, with interim goals phasing in between 2022 and 2029.

States could base their Section 111(d) plans on an “emissions standards” approach, in which states would apply requirements to each covered power plant for achieving the subcategory-specific CO₂ emission performance rates or the state-specific rate-based or mass-based CO₂ emission goal, with those source-specific requirements applying as federally enforceable emission standards. Alternatively, states could use a “state measures” approach, in which a state would implement a combination of policies to achieve the state’s mass-based emissions goal, with source-specific emissions standards only applying as a backstop.

In March 2017, President Trump issued an executive order entitled “Promoting Energy Independence and Economic Growth” which directed EPA to review the Clean Power Plan.⁷ In July 2019, EPA published its final rule repealing the Clean Power Plan and finalizing the Affordable Clean Energy (ACE) Rule.⁸ EPA concluded that the Clean Power Plan “departed from the EPA’s traditional understanding of its authority under section 111 of the CAA and promulgated a rule in excess of its statutory authority” by setting a BSER that “could only be achieved by a shift in the

³Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64510 (Oct. 23, 2015), <https://www.govinfo.gov/content/pkg/FR-2015-10-23/pdf/2015-22837.pdf>.

⁴83 Fed. Reg. 65424 (Dec. 20, 2018), <https://www.govinfo.gov/content/pkg/FR-2018-12-20/pdf/2018-27052.pdf>.

⁵Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662 (Oct. 23, 2015), <https://www.govinfo.gov/content/pkg/FR-2015-10-23/pdf/2015-22842.pdf>.

⁶*West Virginia v. E.P.A.*, 136 S. Ct. 1000, 194 L. Ed. 2d 17 (2016).

⁷Exec. Order No. 13783, 82 Fed. Reg. 16093 (Mar. 31, 2017).

⁸84 Fed. Reg. 32520 (July 8, 2019).

energy generation mix at the grid level” rather than through application of equipment and practices at the facility level.

The ACE Rule determines that the BSER for power plants is based on heat rate improvement (HRI) measures that can be applied to a designated facility.⁹ The ACE Rule includes a table listing the most impactful HRI technologies, equipment upgrades, and best operating and maintenance practices. States are required to establish rate-based standards of performance for existing sources in their state based on application of the BSER, with an emphasis on states having discretion in determining these standards.

D. Federal efforts to reduce GHG emissions from vehicles

Federal regulations to reduce greenhouse gas emissions from motor vehicles fall into three primary categories: renewable fuel standards (to reduce the petroleum content of vehicle fuels), fuel economy standards (to increase the fuel efficiency of vehicles), and tailpipe emission standards (to directly limit the emissions from vehicles).

1. Renewable Fuel Standard

The federal Renewable Fuel Standard (RFS) was established by the Energy Policy Act of 2005 and expanded by the Energy Independence and Security Act of 2007, which amended Clean Air Act Section 211(o) to require that the U.S. supply of transportation fuel contain specified amounts of renewable fuel.¹⁰ Section 211(o) sets an annual schedule, starting with a requirement for 4 billion gallons of renewable fuel in 2006 and escalating to 36 billion gallons in 2022, after which EPA determines the amount, based on considerations including “the impact of the production and use of renewable fuels on the environment, including on air quality, climate change, conversion of wetlands, ecosystems, wildlife habitat, water quality, and water supply.”¹¹ To achieve these volume targets, the RFS imposes obligations on refiners or importers of gasoline and diesel fuel to meet a specified renewable volume obligation through a combination of blending renewable fuels into their own transportation fuels and/or purchasing credits generated by producers of renewable fuels.¹²

2. Corporate Average Fuel Economy (CAFE) standards

Federal fuel economy standards were first established by the 1975 Energy Policy and Conservation Act, requiring the National Highway Traffic Safety Administration (NHTSA) to set minimum corporate average fuel economy (CAFE) standards for vehicle fleets.¹³ The 2007 Energy Independence and Security Act required increased CAFE standards beginning in 2011 to achieve a combined fuel economy fleet average of at least 35 miles per gallon (mpg) by model year 2020.¹⁴

3. Greenhouse Gas Emission Standards

Following EPA’s 2009 “endangerment finding” for greenhouse gases under the Clean Air Act, EPA developed standards to regulate greenhouse gas emissions from various vehicle types in concert with NHTSA updates to the CAFE standards. Joint

⁹84 Fed. Reg. 32520, 32521 (July 8, 2019).

¹⁰Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (Aug. 8, 2005); Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (Dec. 19, 2007).

¹¹42 U.S.C. § 7545(o)(2)(B)(ii)(I).

¹²United States Environmental Protection Agency, *Overview for Renewable Fuel Standard* (June 2017), <https://www.epa.gov/renewable-fuel-standard-program/overview-renewable-fuel-standard>.

¹³49 U.S.C. § 32902.

¹⁴Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (Dec. 19, 2007).

rules were possible in part because fuel economy under the CAFE standards is determined by test procedures that use the amount of CO₂ emitted from the tailpipe to determine fuel consumption per mile. A final joint rule from EPA and NHTSA on light-duty vehicle GHG emission standards and CAFE standards took effect in July 2010, requiring achievement of a combined average emissions level of 250 grams of CO₂ per mile in model year 2016 vehicles, which could be achieved either by reaching average fuel economy of 35.5 mpg, or by reaching fuel economy of at least 34.1 mpg and undertaking other emissions reduction measures.¹⁵ An October 2012 joint rule applied to light-duty vehicles for model years 2017 to 2025, requiring an average of only 163 grams CO₂ per mile by 2025, corresponding to fuel efficiency improving to 54.5 mpg.¹⁶ The agencies also issued joint standards for medium- and heavy-duty trucks, with a September 2011 rule setting standards for model years 2014 to 2018 and an October 2016 rule for model years 2019 to 2027.¹⁷

In January 2017, EPA completed its midterm evaluation of the light-duty vehicle rule, concluding that the standards currently in place for model years 2022-2025 were appropriate and that it would be practical and feasible for automakers to meet the standards at reasonable cost.¹⁸ Following the change in presidential administrations, in April 2018 EPA published notice of its Final Determination for the Mid-Term Evaluation, determining that the current standards were “based on outdated information, and that more recent information suggests that the current standards may be too stringent.”¹⁹ EPA then adopted the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule in two parts. First, a September 2019 regulation withdrew the waiver previously allowing California to implement stricter vehicle emission limits (see *infra*) and clarified the scope of federal preemption of state efforts to limit or prohibit tailpipe greenhouse gas emissions.²⁰ Second, an April 2020 regulation lowered the greenhouse gas emissions and CAFE standards for passenger vehicles and light trucks for model years 2021 to 2026.²¹ The standards will increase in stringency at 1.5% per year from model year 2020 levels over model years 2021 to 2026. The agencies concluded that although the final standards were estimated to result in 1.9 to 2.0 additional billion barrels of fuel consumed and from 867 to 923 additional million metric tons of CO₂ compared to the standards established in 2012, the final standards’ “overall benefits” would outweigh the additional costs.

E. Product Energy Efficiency Standards

The Department of Energy sets minimum energy efficiency standards for approximately 60 product categories, covering both consumer appliances (e.g., refrigerators, water heaters, light bulbs, kitchen ranges and ovens) and industrial equipment (e.g., electric motors, commercial clothes washers).²² This DOE Appliance and Equipment Standards Program was initially authorized by the Energy Policy and Conservation Act of 1975, with amendments from subsequent laws including

¹⁵75 Fed. Reg. 25324 (May 7, 2010).

¹⁶77 Fed. Reg. 62624 (Oct. 15, 2012).

¹⁷76 Fed. Reg. 57106 (Sept. 15, 2011); 81 Fed. Reg. 73478 (Oct. 25, 2016).

¹⁸EPA, EPA-420-R-17-001, Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (Jan. 2017).

¹⁹83 Fed. Reg. 16077 (Apr. 13, 2018).

²⁰84 Fed. Reg. 51310 (Sept. 27, 2019).

²¹A prepublication version of the final rule is available on EPA’s website (<https://www.epa.gov/>) until the rule is published in the Federal Register.

²²Congressional Research Service, *Department of Energy Appliance and Equipment Standards Program* (Nov. 8, 2019), <https://crsreports.congress.gov/product/pdf/IF/IF11354>.

the Energy Policy Act of 1992 and the Energy Policy Act of 2005.²³ Manufacturers of covered products must submit certifications of energy performance before marketing each model. As of 2016, these standards were expected to achieve annual CO₂ savings of 345 million tons by 2020—equivalent to the emissions from nearly 75 million cars.²⁴

F. Greenhouse Gas Reporting Program

Within the Fiscal Year 2008 Consolidated Appropriations Act, Congress directed EPA to promulgate a rule requiring reporting of greenhouse gas emissions from large sources across all sectors of the economy.²⁵ The final rule, which took effect in 2010, identifies 41 categories of reports, with entities generally required to submit annual reports if either (1) greenhouse gas emissions from covered sources exceed 25,000 metric tons of carbon dioxide equivalent (CO₂e) per year; (2) supply of certain products would result in over 25,000 metric tons CO₂e of greenhouse gas emissions if those products were released, combusted, or oxidized; or (3) the facility receives 25,000 metric tons or more of CO₂ for underground injection.²⁶ With approximately 7,600 facilities and 1,000 greenhouse gas suppliers subject to reporting requirements, EPA estimates that the program covers 85 to 90% of U.S. greenhouse gas emissions.²⁷

G. EPA voluntary programs

Beyond the mandatory Greenhouse Gas Reporting Program and Clean Air Act regulations (see *infra*), EPA also administers several voluntary programs to promote energy efficiency, green transportation, and renewable energy generation.

EPA's "ENERGY STAR" program provides a government certification of energy efficiency, with far greater applicability (75 product categories, commercial buildings, residential homes, and industrial plants) than DOE's mandatory standards.²⁸ EPA established the program in 1992, under the authority of Clean Air Act Section 103(g), which directs EPA to "develop, evaluate, and demonstrate nonregulatory strategies and technologies for air pollution prevention . . . with opportunities for participation by [stakeholders] . . . including SO_x, NO_x . . . CO₂ . . . including end-use efficiency, and fuel-switching to cleaner fuels."²⁹ The Energy Policy Act of 2005 subsequently directed EPA and DOE to "promote ENERGY STAR compliant technologies" and regularly update the label's criteria.³⁰ Moreover, several laws require the federal government to use ENERGY STAR when procuring certain appliances and leasing buildings.³¹ Since 1992, ENERGY STAR and its partners have achieved over 3.5 billion metric tons of greenhouse gas reductions, equivalent to an-

²³42 U.S.C. §§ 6291 to 6317.

²⁴United States Department of Energy, Office of Energy Efficiency & Renewable Energy, *Saving Energy and Money with Appliance and Equipment Standards in the United States* (Oct. 2016), <https://www.energy.gov/sites/prod/files/2016/10/f33/Appliance%20and%20Equipment%20Standards%20Fact%20Sheet-101416.pdf>.

²⁵Consolidated Appropriations Act of 2008, Pub. L. No. 110-161, 121 Stat. 1844 (2007) at 285.

²⁶Mandatory Greenhouse Gas Reporting Rule, 40 C.F.R. Pt. 98.

²⁷United States Environmental Protection Agency, *Learn About the Greenhouse Gas Reporting Program* (Dec. 2020), <https://www.epa.gov/ghgreporting/learn-about-greenhouse-gas-reporting-program-ghgrp>.

²⁸ENERGY STAR, *ENERGY STAR by the Numbers*, https://www.energystar.gov/about/origins_mission/energy_star_numbers.

²⁹42 U.S.C. § 7403g.

³⁰42 U.S.C. § 6294a.

³¹ENERGY STAR, *Statutory Authority for ENERGY STAR*, https://www.energystar.gov/about/origins_mission/epas_role_energy_star/epa%E2%80%99s_statutory_authority_energy_star.

nual emissions from 750 million cars.³²

The Combined Heat and Power (CHP) Partnership works to advance the use of CHP at the facility, district energy, or utility resource level. CHP systems have higher fuel use efficiencies than separate heat and power systems, as CHP generates electricity and captures the heat (that would otherwise be wasted) to provide thermal energy for space heating, cooling, domestic hot water, or industrial processes.³³ Other energy-saving programs are AgStar, which promotes the use of biogas recovery systems to reduce methane emissions from livestock waste, and the Landfill Methane Outreach Program, which encourages the recovery and beneficial use of landfill gas.³⁴

In the transportation sector, the SmartWay Transport Partnership is a public-private collaboration between EPA and the freight transportation industry, launched in 2004 to help freight companies measure, benchmark, and improve efficiency across the supply chain through fuel-saving technologies.³⁵ EPA's Green Vehicle Guide provides information on more efficient, less polluting vehicle types and fuels.³⁶

EPA's renewable energy programs include the Green Power Partnership, which encourages organizations to make voluntary purchases of green power and thereby incentivize development of renewable electricity sources, and the RE-Powering America's Land Initiative, which promotes renewable energy development that is responsive to community priorities on current and formerly contaminated lands, landfills, and mine sites.³⁷

EPA also partners with state, local, and tribal governments to provide outreach support, data, technical assistance, and analytical tools on strategies for energy efficiency and renewable energy.³⁸ In partnership with DOE, EPA facilitates the State and Local Energy Efficiency Action Network, which convenes policymakers, business leaders, non-government organizations, and other stakeholders to advance recommendations for energy efficiency programs and policies.³⁹

H. Grant programs and tax credits

The Department of Energy's Weatherization Assistance Program funds energy efficiency improvements for low-income households.⁴⁰ Grants are awarded to states, which then contract with local governments and service providers that weatherize homes. The program began in 1976, as authorized by Title IV of the Energy Conservation and Production Act, and was intended to save energy and reduce household

³²ENERGY STAR, *What is ENERGY STAR*, <https://www.energystar.gov/about>.

³³United States Environmental Protection Agency, *Combined Heat and Power (CHP) Partnership: What Is CHP?* (May 2019), <https://www.epa.gov/chp/what-chp>.

³⁴United States Environmental Protection Agency, *Clean Energy Programs* (Mar. 2018), <https://www.epa.gov/energy/clean-energy-programs>.

³⁵United States Environmental Protection Agency, *Learn about SmartWAY* (Dec. 2017), <https://www.epa.gov/smartway/learn-about-smartway>.

³⁶United States Environmental Protection Agency, *Green Vehicle Guide: Learn about Green Vehicles* (Oct. 2019), <https://www.epa.gov/greenvehicles/learn-about-green-vehicles>.

³⁷United States Environmental Protection Agency, *Clean Energy Programs* (Mar. 2018), <https://www.epa.gov/energy/clean-energy-programs>.

³⁸United States Environmental Protection Agency, *Energy Resources for State, Local, and Tribal Governments* (2020), <https://www.epa.gov/statelocalenergy>.

³⁹State and Local Energy Efficiency Action Network, *SEE Action Network*, <https://www7.eere.energy.gov/seeaction/working-groups>.

⁴⁰United States Department of Energy, Office of Energy Efficiency & Renewable Energy, *Weatherization Assistance Program Fact Sheet* (2019), <https://www.energy.gov/sites/prod/files/2019/07/f64/WAP-Fact-Sheet-2019.pdf>.

costs in an era of high heating fuel prices.⁴¹ While not designed as a climate change mitigation policy, the Weatherization Assistance Program currently reduces CO₂ emissions by an estimated 3.5 million metric tons each year—an amount equivalent to the emissions from over 740,000 cars.⁴² Most recently, the December 2020 COVID relief package reauthorized the Weatherization Assistance Program at \$1.7 billion, and extended credits, up to \$2,000, for new energy efficient homes through the end of 2021.⁴³

The 1992 Energy Policy Act created the renewable electricity production tax credit (PTC), a per-kilowatt-hour credit for electricity generated by qualified renewable resources.⁴⁴ While wind and closed-loop biomass were initially the only eligible resources, Congress has since renewed the PTC (Section 45 of the Internal Revenue Code) several times and added and removed various resources.⁴⁵ The federal investment tax credit (ITC) was created by the Energy Act of 1978, which provided a temporary 10% tax credit for certain businesses using energy resources other than oil or gas. The ITC (Section 48 of the Internal Revenue Code) has similarly undergone several renewals and modifications. Solar and geothermal energy both have a permanent ITC of 10% (of the cost of acquiring or constructing eligible energy property), and various Congressional extensions have increased that percentage for certain years and included other resources, such as wind and fuel cells.⁴⁶ The December 2020 COVID-19 relief package extended the PTC and ITC for onshore wind projects at 60% for projects that start construction by the end of 2021,⁴⁷ and established a new ITC for offshore wind at 30% for projects that start construction by 2025.⁴⁸ ITCs for solar projects were extended for 2 years at 26% for projects through the end of 2022; qualified projects starting construction in 2023 would be eligible for a 22% credit.⁴⁹

The Energy Policy Act of 2005 also created the Section 179D Commercial Buildings Energy-Efficiency Tax Deduction, available to owners of new or existing buildings who make efficiency improvements to lighting, building insulation, or HVAC or hot water systems that produce certain levels of energy savings.⁵⁰

I. 2009 American Recovery and Reinvestment Act

⁴¹Corrie E. Clark & Lynn J. Cunningham, *The Weatherization Assistance Program Formula*, Congressional Research Service (June 16, 2020), <https://crsreports.congress.gov/product/pdf/R/R46418/3>.

⁴²American Council for an Energy-Efficient Economy, *Savings from Weatherization Assistance Program* (Feb. 2018), <https://www.aceee.org/sites/default/files/pdf/fact-sheet/weatherization-assistance-program.pdf>.

⁴³Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong, Division Z, Title 1 § 1011 (2020); Catherine Morehouse, Federal stimulus includes wind, solar tax credit extensions, adds first US offshore wind tax credit, (December 22, 2020), <https://www.utilitydive.com/news/federal-stimulus-includes-wind-solar-tax-credit-extensions-adds-first-us/592572/>.

⁴⁴Pub. L. No. 102-486, 106 Stat. 2776 (1992).

⁴⁵Molly F. Sherlock, *The Renewable Electricity Production Tax Credit: In Brief* (Apr. 29, 2020), <https://fas.org/sgp/crs/misc/R43453.pdf>.

⁴⁶Molly F. Sherlock, *The Energy Credit: An Investment Tax Credit for Renewable Energy*, Congressional Research Service (Nov. 2, 2018), <https://fas.org/sgp/crs/misc/IF10479.pdf>.

⁴⁷See Morehouse, *supra* note 43; Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong, Division EE, Title I Subtitle C § 131, 132, Title II § 204 (2020).

⁴⁸See Morehouse, *supra* note 43.

⁴⁹Ryser, Jeffrey, Congress passes ITC and PTC ‘extender bill’ for renewables, but confusion injected by Trump, (December 23, 2020), <https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/122320-congress-passes-itc-and-ptc-extender-bill-for-renewables-but-confusion-injected-by-trump>.

⁵⁰26 U.S.C. § 179D. See UNITED STATES DEPARTMENT OF ENERGY, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, *179D Commercial Buildings Energy-Efficiency Tax Deduction*, <https://www.energy.gov/eeer>

The American Recovery and Reinvestment Act (ARRA), enacted in 2009 as a stimulus response to the Great Recession, was the largest-ever federal investment in clean energy, providing more than \$90 billion in direct funding and tax incentives. A tax credit for investments in clean energy manufacturing provided \$2.3 billion for renewable energy generation, energy storage, advanced transmission, energy conservation, renewable fuel refining or blending, plug-in vehicles, and carbon capture and storage. ARRA also initiated the Section 1603 Payments-In-Lieu-Of-Tax-Credits program, providing \$25 billion to support installation of wind, solar, geothermal, and biomass projects, and extended the production tax credit for wind, geothermal, and hydroelectric generation. The Department of Energy's Loan Programs Office received \$16.1 billion for loans to projects including wind farms, utility-scale solar installations, and thermal energy storage systems. With \$5 billion in additional funding for the Weatherization Assistance Program, ARRA also provided for weatherization of more than one million homes. Other investment areas included electric grid modernization, advanced vehicle and fuel technologies, and carbon capture and sequestration.⁵¹

ARRA provided the initial \$400 million budget to the Advanced Research Projects Agency—Energy (ARPA-E), housed within the Department of Energy, which had been established in 2007 by the America COMPETES Act.⁵² From 2009 to 2018, ARPA-E provided approximately \$1.8 billion in R&D funding for more than 660 potentially transformational energy technology projects, including new efficiency solutions, battery storage technologies, and advanced biofuels.⁵³ The Congressional Budget Office estimated \$4 million in outlays for carbon management programs from 2021 to 2025 from the December 2020 COVID-19 stimulus package.⁵⁴ Other observers estimated the package provided \$6 billion for carbon capture and storage technologies and \$1.08 billion for energy storage technologies.⁵⁵

J. Sustainability in federal agency operations

The Energy Independence and Security Act of 2007 (EISA) requires federal agencies to designate energy managers and complete energy efficiency evaluations for certain facilities; source at least 30% of hot water demand from solar hot water heating, if life-cycle cost-effective, in new or renovated federal buildings; in any new or renovated agency buildings from FY 2010 onward, use designs that reduce fossil fuel-generated energy consumption by 55% compared to an FY 2003 baseline (and

[e/buildings/179d-commercial-buildings-energy-efficiency-tax-deduction.](#)

⁵¹WHITE HOUSE OFFICE OF THE PRESS SECRETARY, Fact Sheet: The Recovery Act Made the Largest Single Investment in Clean Energy in History, Driving the Deployment of Clean Energy, Promoting Energy Efficiency, and Supporting Manufacturing (Feb. 25, 2016), <https://obamawhitehouse.archives.gov/the-press-office/2016/02/25/fact-sheet-recovery-act-made-largest-single-investment-clean-energy>.

⁵²ARPA-E, *The Advanced Research Projects Agency-Energy: Overview* (2019), <https://www.arpa-e.energy.gov/sites/default/files/ARPA-E%20Fact%20Sheet.pdf>.

⁵³ARPA-E, *ARPA-E Impacts: A Sampling of Project Outcomes, Volume III* (May 2018), <https://arpa-e.energy.gov/sites/default/files/documents/files/ARPA-E-Impact-Book-Volume-3-Final-May10.pdf>.

⁵⁴CONGRESSIONAL BUDGET OFFICE, Estimate for Divisions O Through FF H.R. 133, Consolidated Appropriations Act, 2021 Public Law 116-260 (January 14, 2021) https://www.cbo.gov/system/files/2021-01/PL_116-260_div%20O-FF.pdf.

⁵⁵Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong, Division Z, Title IV § 4002-4004 (2020); Katherine McKeen, Battling Refrigerators in the War on Climate Change, (January 19, 2021), <https://www.theregreview.org/2021/01/19/mckeen-battling-refrigerators-war-climate-change/>; Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong, Division Z, Title III Subtitle C § 3201-3202 (2020); and Catherine Morehouse, Federal stimulus includes wind, solar tax credit extensions, adds first US offshore wind tax credit, (December 22, 2020), <https://www.utilitydive.com/news/federal-stimulus-includes-wind-solar-tax-credit-extensions-adds-first-us/592572/>.

for new buildings or major renovations after FY 2030, a reduction of 100%).⁵⁶

In October 2009, President Barack Obama signed Executive Order 13514, which set sustainability goals for federal agencies and focused on improvements in environmental, energy, and economic performance. The Order required federal agencies to set a 2020 greenhouse gas emissions reduction target within 90 days; increase energy efficiency; reduce fleet petroleum consumption; conserve water; reduce waste; support sustainable communities; and leverage federal purchasing power to promote environmentally-responsible products and technologies.⁵⁷ In March 2015, President Obama announced that federal greenhouse gas emissions had been reduced by 17% below the 2008 baseline and issued Executive Order 13693, aimed at furthering progress and achieving 40% reduction by 2025.⁵⁸ The U.S. Council on Environmental Quality (CEQ) released in 2010, and updated in 2012, guidance establishing government-wide requirements for calculating and reporting greenhouse gas emissions resulting from federal agency operations.⁵⁹

In May 2018, President Trump revoked the Obama-era orders on federal sustainability and issued Executive Order 13834, “Efficient Federal Operations,” which did away with specific targets and timetables for emissions reductions.⁶⁰ In April 2019, CEQ issued implementing instructions for this Order.⁶¹ CEQ also issued updated sustainable buildings guidance for federal agencies in December 2020.⁶²

K. Other reversals of Obama administration initiatives

In addition to the rollbacks discuss above (of the Clean Power Plan, CAFE standards and vehicle GHG emission standards, and sustainability targets for federal agency operations), the Trump Administration has reversed several other climate change initiatives established during the Obama Administration through executive orders and agency actions.

In March 2017, President Donald Trump issued Executive Order 13783, which described a national interest in promoting “clean and safe development of our Nation’s vast energy resources, while at the same time avoiding regulatory burdens that unnecessarily encumber energy production, constrain economic growth, and prevent job creation.”⁶³ The Order directed agencies to review existing regulations, orders, and other agency actions “that potentially burden the development or use of domestically produced energy resources, with particular attention to oil, natural gas, coal, and nuclear energy resources” and to recommend and implement actions

⁵⁶Pub. L. No. 110-140, 121 Stat. 1942 (2007). See United States Environmental Protection Agency, *Greening EPA: Energy Independence and Security Act of 2007* (June 2018), <https://www.epa.gov/greeningepa/energy-independence-and-security-act-2007>.

⁵⁷Federal Facilities Environmental Stewardship & Compliance Assistance Center, *EO 13514*, <http://www.fedcenter.gov/programs/eo13514/>.

⁵⁸White House Office of the Press Secretary, *Fact Sheet: Reducing Greenhouse Gas Emissions in the Federal Government and Across the Supply Chain* (Mar. 19, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro>.

⁵⁹Council on Environmental Quality, *Guidance for Federal Greenhouse Gas Accounting and Inventories*, <https://obamawhitehouse.archives.gov/administration/eop/ceq/sustainability/fed-ghg>.

⁶⁰Exec. Order No. 13834, <https://www.federalregister.gov/documents/2018/05/22/2018-11101/efficient-federal-operations>.

⁶¹Council on Environmental Quality, *Implementing Instructions for Executive Order 13834 Efficient Federal Operations* (Apr. 2019), https://www.sustainability.gov/pdfs/eo13834_instructions.pdf.

⁶²Council on Environmental Quality, *Guiding Principles for Sustainable Federal Buildings and Associated Instructions* (Dec. 2019), https://www.sustainability.gov/pdfs/guiding_principles_for_sustainable_federal_buildings.pdf.

⁶³Exec. Order No. 13,783, 82 Fed. Reg. 16,093 (Mar. 28, 2017), <https://www.federalregister.gov/documents/2017/03/31/2017-06576/promoting-energy-independence-and-economic-growth>.

to alleviate or eliminate agency actions that burden domestic energy production. President Trump's Executive Order 13783 specifically revoked certain climate change-related executive orders, presidential memoranda, guidance, and reports issued during the Obama administration. It also directed agencies to identify other existing agency actions that arose from these revoked documents and to take action to suspend, revise, or rescind those agency actions.⁶⁴

In October 2020, the House Committee on Energy and Commerce issued a report stating that the Trump Administration had taken steps to roll back nearly 100 environmental protections.⁶⁵ Summarized below are three examples relating to climate change mitigation efforts.

1. NEPA guidance on climate change

The National Environmental Policy Act (NEPA) requires federal agencies to assess the environmental impacts of “proposals for legislation and other major Federal actions significantly affecting the quality of the human environment.”⁶⁶ President Trump's Executive Order 13783 directed the Council on Environmental Quality (CEQ), which issues NEPA regulations and guidance, to rescind its 2016 “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews.” CEQ had issued this final guidance after years of public input and issuance of draft guidance in 2010 and revised draft guidance in 2014.⁶⁷ The final guidance specified that NEPA reviews should consider both (1) “the potential effects of a proposed action on climate change as indicated by assessing GHG emissions (e.g., to include, where applicable, carbon sequestration)” and (2) “the effects of climate change on a proposed action and its environmental impacts.”⁶⁸

Following the Trump Administration's 2017 withdrawal of the 2016 final guidance, CEQ published new draft guidance in June 2019.⁶⁹ This draft guidance focuses on consideration of climate effects from a project—with regard to how climate change could impact the project itself, it states that agencies should consider “whether the proposed action would be affected by foreseeable changes to the affected environment under a reasonable scenario,” but need not “undertake new research or analysis of potential changes to the affected environment in the proposed

⁶⁴This included guidance issued by CEQ in March 2011 to help federal agencies develop climate change adaptation plans and Executive Order 13653, which created the Council on Climate Preparedness and Resilience as well as a State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience. See Federal Agency Climate Change Adaptation Planning, Implementing Instructions (Mar. 4, 2011); Exec. Order No. 13,653, 78 Fed. Reg. 66,819 (Nov. 6, 2013). See *infra* §§ 24:13 to 24:32 for more on climate change adaptation.

⁶⁵House Committee on Energy & Commerce, *Environmental Assault: Trump Administration Imperils Public Health and the Environment* (Oct. 2020), <https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Trump%20EPA%20Rollback%20Report.pdf>.

⁶⁶42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.3; see 1 L. OF ENVTL. PROT. § 10, The National Environmental Policy Act.

⁶⁷CEQ, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (Feb. 18, 2010), <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf>; CEQ, *Revised Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (Dec. 2014), https://obamawhitehouse.archives.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf.

⁶⁸CEQ, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Review* (Aug. 1, 2016), <https://www.federalregister.gov/documents/2016/08/05/2016-18620/final-guidance-for-federal-departments-and-agencies-on-consideration-of-greenhouse-gas-emissions-and>.

⁶⁹84 Fed. Reg. 30097 (June 26, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-06-26/pdf/2019-13576.pdf>.

action area.”⁷⁰ It indicates that projections of a proposed action’s direct and reasonably foreseeable indirect greenhouse gas emissions may serve as a proxy for assessing potential climate effects.⁷¹ However, the draft guidance cautions that “but for” causation is not a sufficiently close causal relationship for emissions to be considered an indirect effect. CEQ describes the threshold for quantification of greenhouse gas emissions as “when the amount of those emissions is substantial enough to warrant quantification, and when it is practicable to quantify them using available data and GHG quantification tools.”⁷² The draft guidance also recommends that agencies should explain any determination to use only qualitative analysis when quantitative tools, methods, or data are not reasonably available.

CEQ also found that NEPA and its implementing regulations do not require agencies to monetize costs and benefits of a proposed action, meaning agencies need not use monetized Social Cost of Carbon estimates (see *infra*). The guidance further stated that some effects—such as employment or socioeconomic effects—are more “capable of monetization or quantification.”⁷³ The guidance indicated that monetization of some effects “does not require that all effects, including potential effects of GHG emissions, be monetized or quantified”—but that any decision to monetize some effects and not others should be explained.⁷⁴

2. Social cost of carbon

Beginning in 2009, an Interagency Working Group on Social Cost of Carbon devised a consistent methodology for incorporating the social cost of carbon into the agency rulemaking process. Executive Order 12866, issued in 1993, requires analysis of the costs and benefits of significant regulatory actions, and this analysis can play a significant role in the outcome of agency decisions.⁷⁵ To enable consideration of the benefits of reducing (or the costs of increasing) CO₂ emissions, the working group issued a “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866” in 2010, with revisions in 2013, 2015, and 2016. The Social Cost of Carbon (SCC) provided was an estimate of “the monetized damages associated with an incremental increase in carbon emissions in a given year.”⁷⁶ The SCC takes into account, among other things, changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change. The 2013 revision also incorporated sea level rise damages, updated adaptation assumptions, and a revised treatment of potentially abrupt shifts in climate damages.

The working group provided four different SCC values, all based on averages from several “integrated assessment models” of the interplay between human activities and environmental impacts. The first three SCC values all use different discount rates, which convert future damages into present-day value, based on the assumption that effects further in the future have a lower present-day value (whereas a discount rate of zero would treat present and future damages equally). A common justification for discount rates is the time value of money: spending \$1 million today

⁷⁰*Id.* at 30098.

⁷¹*Id.*

⁷²*Id.*

⁷³*Id.* at 30099.

⁷⁴*Id.*

⁷⁵Exec. Order No. 12866, <https://www.archives.gov/files/federal-register/executive-orders/pdf/12866.pdf>.

⁷⁶Interagency Working Group on Social Cost of Greenhouse Gases, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (Aug. 2016), https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf.

to avoid \$1 million in present damages means breaking even, whereas spending that money to avoid future damages may not, because that same money could have instead been invested and compounded over time. A common criticism is that high discount rates may preference current generations over future generations. The choice of discount rate is significant. In the 2016 revision, the SCC estimates for the year 2020 (per metric ton of CO₂, in 2007 dollars) were \$12 at a 5% discount rate, \$42 at a 3% discount rate, and \$62 at a 2.5% discount rate.⁷⁷ The working group also provided a fourth, significantly higher SCC estimate (\$123 in 2020) “to represent the potential for lower-probability, but higher-impact outcomes from climate change,” using the “95th percentile of the frequency distribution of [SCC] estimates based on a 3% discount rate.”⁷⁸

In 2014, a federal district court stated that federal agencies should use the SCC to assess climate change impacts in NEPA documents,⁷⁹ and in 2016, the Seventh Circuit upheld energy efficiency standards published by the Department of Energy that analyzed environmental benefits based on the social cost of carbon.⁸⁰

President Trump’s Executive Order 13783 disbanded the working group and declared its technical support documents to “be withdrawn as no longer representative of governmental policy.”⁸¹ The Order instead directed agencies, when monetizing the value of changes in greenhouse gas emissions resulting from regulations, to ensure consistency with a 2003 guidance document, OMB Circular A-4, including with respect to consideration of domestic versus international impacts and discount rates. A June 2020 analysis from the U.S. Government Accountability Office found that because agencies began considering only domestic rather than global climate change damages, the SCC at the 3% discount rate became about 7 times lower than prior estimates, falling to just \$7 for 2020 emissions.⁸² Agency officials, including in the regulatory impact analysis for the 2019 Affordable Clean Energy Rule (see *infra*), also used higher discount rates of 3% and 7%, instead of the previous rates of 2.5%, 3%, and 7%.

3. Methane reduction strategy

In March 2014, the Obama administration released a “Strategy to Reduce Methane Emissions.”⁸³ The plan targeted key sources of methane: landfills, coal mines, agriculture, and oil and gas. Components of the strategy included regulatory measures as well as voluntary or incentive programs and collaborations with industry. With respect to landfills, EPA amended air emissions standards for new landfills and issued guidelines for emissions from existing landfills.⁸⁴ The revised NSPS and emissions guidelines for landfills became effective on October 28, 2016,

⁷⁷*Id.* at 4.

⁷⁸*Id.* at 3.

⁷⁹*High Country Conservation Advocates v. United States Forest Service*, 52 F. Supp. 3d 1174 (D. Colo. 2014).

⁸⁰*Zero Zone, Inc. v. United States Department of Energy*, 832 F.3d 654 (7th Cir. 2016).

⁸¹Exec. Order No. 13783, 82 Fed. Reg. 16,093 (Mar. 28, 2017), <https://www.federalregister.gov/documents/2017/03/31/2017-06576/promoting-energy-independence-and-economic-growth>.

⁸²United States Government Accountability Office, *Social Cost of Carbon: Identifying a Federal Entity to Address the National Academies’ Recommendations Could Strengthen Regulatory Analysis* (June 2020), <https://www.gao.gov/assets/710/707871.pdf>.

⁸³White House, *Climate Action Plan: Strategy to Reduce Methane Emissions* (Mar. 2014).

⁸⁴Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills, 81 Fed. Reg. 59276 (Aug. 29, 2016) (final rule); Standards of Performance for Municipal Solid Waste Landfills, 81 Fed. Reg. 59332 (Aug. 29, 2016) (final rule); Standards of Performance for Municipal Solid Waste Landfills, 79 Fed. Reg. 41795 (July 17, 2014) (proposed rule); Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills, 79 Fed. Reg. 41771 (July 17, 2014) (advanced notice of proposed rulemaking).

but on May 31, 2017, EPA published notice that it was administratively staying the revised regulations for 90 days (until August 29, 2017) pending reconsideration.⁸⁵ In May 2017, EPA also announced it would reconsider certain provisions of the landfill regulations. In October 2018, EPA proposed to extend the compliance timeframe for the guidelines.⁸⁶ The proposal would change the due date for state plans for implementing the landfill guidelines from July 30, 2017 to August 29, 2019.

With respect to coal mines, the Bureau of Land Management (BLM) issued an advance notice of proposed rulemaking regarding the development of a program for the capture and sale or disposal of waste mine methane on leased federal lands,⁸⁷ but never developed a final rule. In January 2016, Secretary of the Interior Sally Jewell announced a moratorium on federal coal leasing pending the preparation of a programmatic environmental impact statement (PEIS) to analyze leasing and management reforms of the federal coal program.⁸⁸ The Secretary of the Interior directed that the PEIS should address the effect of the coal leasing program on greenhouse gas emissions. President Trump's Executive Order 13783 ordered the Secretary of the Interior to lift the moratorium. On March 29, 2017, Secretary of the Interior Ryan Zinke ordered the termination of the moratorium and also of the programmatic review of the coal leasing program.⁸⁹ In 2019, a federal court in Montana ruled that the lifting of the moratorium constituted a "major federal action" that triggered National Environmental Policy Act review requirements.⁹⁰

With respect to the oil and gas industry, the Obama administration in January 2015 outlined steps it would take to reduce methane and ozone-forming pollution from this sector, including commencement of a rulemaking process to set methane and volatile organic compound emissions standards for new and modified oil and gas production sources and natural gas processing and transmission sources. EPA published final standards in June 2016.⁹¹ President Trump's Executive Order 13783 ordered EPA to review and, if appropriate, suspend, revise, or rescind the standards. After publishing an announcement that it was reviewing the standards on April 4, 2017, EPA published a notice stating that it was staying for three months certain rule requirements for which it had granted reconsideration. On June 16, 2017, EPA proposed a two-year stay of the NSPS requirements pending its reconsideration of those requirements.⁹² The D.C. Circuit vacated the three-month administrative stay, finding that EPA lacked authority to issue it.⁹³ In October 2018, EPA proposed amendments to the NSPS that would change fugitive emissions requirements, well site pneumatic pump standards, the requirements for certification of closed vent systems by a professional engineer, and alternative means of emissions limitations,

⁸⁵82 Fed. Reg. 24878 (May 31, 2017).

⁸⁶83 Fed. Reg. 54527 (Oct. 30, 2018).

⁸⁷Waste Mine Methane Capture, Use, Sale, or Destruction, 79 Fed. Reg. 23923 (Apr. 29, 2014).

⁸⁸Secretarial Order No. 3338, Discretionary Programmatic Environmental Impact Statement to Modernize the Federal Coal Program (Jan. 15, 2016).

⁸⁹Secretarial Order No. 3348, Concerning the Federal Coal Moratorium (Mar. 29, 2017).

⁹⁰*Citizens for Clean Energy v. U.S. Department of the Interior*, 384 F. Supp. 3d 1264 (D. Mont. 2019).

⁹¹*Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources*, 81 Fed. Reg. 35824 (June 3, 2016).

⁹²*Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements*, 82 Fed. Reg. 27645 (June 16, 2017); *Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Grant of Reconsideration and Partial Stay*, 82 Fed. Reg. 25730 (June 5, 2017); *Review of the 2016 Oil and Gas New Source Performance Standards for New, Reconstructed, and Modified Sources*, 82 Fed. Reg. 16331 (Apr. 4, 2017).

⁹³*Clean Air Council v. Pruitt*, 862 F.3d 1, 84 Env't. Rep. Cas. (BNA) 1999 (D.C. Cir. 2017).

among other provisions.⁹⁴

EPA also intended to develop new guidelines for reducing emissions of methane and ozone-forming pollutants from existing oil and gas systems that do not meet ozone standards. In November 2016, EPA sent information collection requests to owners and operators of oil and gas facilities requesting information about equipment, including information on sources of methane emissions and emissions control devices or practices. On March 7, 2017, EPA provided notice that it was withdrawing the request.⁹⁵

Other initiatives undertaken by EPA during the Obama administration regarding methane emissions from the oil and gas sector included requiring all segments of the oil and gas industry to participate in the Greenhouse Gas Reporting Program (see *supra*). Other federal agencies taking action to reduce methane emissions included BLM, which updated operational standards regarding venting, flaring, and leaks of natural gas from oil and gas wells on public lands⁹⁶ (a regulation that President Trump's Executive Order 13783 required BLM to review and for which BLM announced it was postponing certain compliance dates in a June 15, 2017 notice).⁹⁷ A California federal court ruled that BLM could not postpone the compliance dates without complying with the notice-and-comment procedures of the Administrative Procedure Act.⁹⁸ In December 2017, BLM temporarily suspended certain requirements in the rule based on concerns regarding BLM's authority to issue the regulation and regarding the cost, complexity, and feasibility of complying with the regulation's requirements.⁹⁹ This suspension was enjoined by a California federal court in February 2018,¹⁰⁰ but in April 2018 a Wyoming federal court stayed key "phase-in" provisions of the rule that BLM had proposed to change in a February 2018 proposed rule.¹⁰¹ In September 2018, BLM rescinded several provisions of the 2016 rule, including those governing leak detection and repair, and substantially revised provisions addressing venting and flaring to include requirements similar to those in place before the 2016 rule.¹⁰²

§ 24:8 Regional efforts to reduce greenhouse gas emissions

A. Regional Greenhouse Gas Initiative

RGGI was the first mandatory, market-based CO₂ emissions reduction program in the United States. As of January 2021, its members are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia. RGGI has initially regulated carbon dioxide emissions from fossil-fuel-fired power plants that have a capacity of at least 25 MW, though other sources and gases may be targeted in the future. To meet emission reduction targets, the RGGI states established a regional cap-and-trade system, with each state implementing a CO₂ Budget Trading Program based on the RGGI

⁹⁴83 Fed. Reg. 52056 (Oct. 15, 2018).

⁹⁵Notice Regarding Withdrawal of Obligation To Submit Information, 82 Fed. Reg. 12817 (Mar. 7, 2017).

⁹⁶Waste Prevention, Production Subject to Royalties, and Resource Conservation, 81 Fed. Reg. 83008 (Nov. 18, 2016).

⁹⁷Waste Prevention, Production Subject to Royalties, and Resource Conservation; Postponement of Certain Compliance Dates, 82 Fed. Reg. 27430 (June 15, 2017).

⁹⁸State v. United States Bureau of Land Management, 277 F. Supp. 3d 1106 (N.D. Cal. 2017).

⁹⁹82 Fed. Reg. 58050 (Dec. 8, 2017).

¹⁰⁰State v. Bureau of Land Management, 286 F. Supp. 3d 1054 (N.D. Cal. 2018).

¹⁰¹Wyoming v. U.S. Department of the Interior, No. 2:16-cv-00285 (D. Wyo. Apr. 4, 2018). See 83 Fed. Reg. 7924 (Feb. 22, 2018).

¹⁰²83 Fed. Reg. 49184 (Sept. 28, 2018). See also 83 Fed. Reg. 7924 (Feb. 22, 2018) (proposed rule).

Model Rule. RGGI states have set an annual cap on emissions, starting with 2009, and issued a corresponding number of allowances. Regulated power plants must purchase allowances (from periodic RGGI auctions, on the secondary trading market, or the offset market for emission reduction projects within the region) to cover their CO₂ emissions.¹

When setting the first emissions caps, RGGI's aim was to stabilize covered emissions at 2009 levels through 2013, then later require gradual reductions from 2014 to 2018. Actual emissions during the initial the 2009-2013 period ended up being lower than the cap, and clearing prices for allowances stayed low (ranging from \$1.86 to \$3.51). Accordingly, the RGGI states adopted an updated 2013 model rule that reduced the 2014 cap by 45%, from 165 million to 91 million tons, and set it to decline 2.5% each year from 2015 to 2020. The 2017 model rule provides that the cap (approximately 75 million tons in 2021) will decrease by 2.275 million tons each year through 2030 (to less than 55 million tons). Between 2012 and 2018, CO₂ emissions from electricity generation decreased by 20% in RGGI states. RGGI auction proceeds through 2019 were \$3.2 billion, which states dedicated in large part to support energy efficiency, renewable energy, and other climate change mitigation efforts.²

In May 2011, New Jersey Governor Chris Christie declared that the state would withdraw from RGGI in May 2011, and formal repeal took place in August 2015.³ In 2018, New Jersey Governor Phil Murphy, issued an executive order directing agency rulemaking to ensure New Jersey's return to full participation in RGGI.⁴ In June 2019, the New Jersey Department of Environmental Protection adopted two rules to allow New Jersey to rejoin RGGI (effective January 1, 2020), a Carbon Dioxide Budget Trading rule (establishing the mechanism for the trading program)⁵ and a Global Warming Solutions Fund rule (addressing the framework for spending the proceeds from the auctions).⁶

Virginia joined RGGI as of January 2021, following the Virginia Department of Environmental Quality's adoption of the final Virginia Carbon Rule in June 2020.⁷ In October 2019, Pennsylvania Governor Tom Wolf issued an executive order directing the Pennsylvania Department of Environmental Protection to develop regulations on carbon dioxide emissions from fossil fuel-fired power plants that would enable the State to join RGGI.⁸ The Department published a proposed rulemaking in November 2020, open for public comment through January 14, 2021.⁹

B. Western Climate Initiative

From 2007 to 2012, several western U.S. states (including Arizona, California,

[Section 24:8]

¹Regional Greenhouse Gas Initiative, *Elements of RGGI* (2020), <https://www.rggi.org/program-overview-and-design/elements>.

²Jonathan L. Ramseur, *The Regional Greenhouse Gas Initiative: Background, Impacts, and Selected Issues*, Congressional Research Service (July 16, 2019), <https://fas.org/sgp/crs/misc/R41836.pdf>.

³47 N.J.R. 1937(a) (Aug. 3, 2015).

⁴Exec. Order No. 7.

⁵51 N.J.R. 992(a) (June 17, 2019).

⁶51 N.J.R. 1043(a) (June 17, 2019).

⁷Office of the Virginia Governor, *Virginia Becomes First Southern State to Join Regional Greenhouse Gas Initiative* (July 8, 2020), <https://www.governor.virginia.gov/newsroom/all-releases/2020/july/headline-859128-en.html>.

⁸Exec. Order No. 2019-07, 49 Pa. Bull. 6376 (Oct. 26, 2019).

⁹Pennsylvania Department of Environmental Protection, Environmental Quality Board, *Proposed Rulemaking: CO₂ Budget Trading Program* (Nov. 7, 2020), <http://www.pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol50/50-45/1541.html>.

Montana, New Mexico, Oregon, Utah, and Washington) and Canadian provinces (including British Columbia, Ontario, and Quebec) worked to implement a Western Climate Initiative (WCI) that would involve a regional target for emissions reduction, a market-based mechanism to achieve it, and a joint registry for tracking regional emissions. Almost all the western states later abandoned their plans for WCI participation, leaving only California, which later re-established a regional link with Quebec and briefly with Ontario.

California approved its Cap-and-Trade Program regulations in 2011 (see *infra*). Unlike RGGI, which only covers the power sector, California's Cap-and-Trade Program also covers large industrial sources and distributors of transportation fuels, gas, and other petroleum products. Similar to the RGGI mechanism, CARB sets an annual emissions cap and issues a corresponding number of "allowance" certificates which authorize the holder to emit a fixed amount of GHGs. As the cap declines each year, the number of allowances decreases, and covered entities are required to find ways to reduce emissions at their own facilities and/or purchase offset credits.

California may link its Cap-and-Trade Program with programs operating in other states, provinces, and countries so that covered entities may use allowances and offsets issued by those other jurisdictions to fulfill AB 32 compliance obligations, discussed later in § 24:9. Under legislation enacted in 2012, such linkages require the California Governor to make certain findings, including that the linked program's requirements for offsets are equivalent to or stricter than California's, that California is able to enforce AB 32 against regulated entities, that the linked jurisdiction will enforce requirements that are equivalent to or stricter than AB 32, and that the linkage will not impose any significant liability on California for any failure of the linkage.¹⁰ In April 2013, California Governor Jerry Brown made the findings required to link California's Cap-and-Trade Program with that of Quebec.¹¹ CARB subsequently adopted regulations to implement the linkage with Quebec, effective January 1, 2014.¹² In 2019, the United States filed a lawsuit challenging the constitutionality of this linkage. In March 2020, the court dismissed the lawsuit, stating that the agreement linking the cap-and-trade programs did not violate either the Treaty Clause or the Compact Clause of the U.S. Constitution.¹³

The Quebec and California programs also briefly linked with Ontario from January 1 to July 3, 2018, when Ontario revoked its own cap-and-trade regulation.¹⁴

C. Transportation and Climate Initiative

In December 2009, the governors of 11 northeastern states—which included the 10 states that were then part of RGGI plus Pennsylvania—signed a Memorandum of Understanding committing their states to further reduce greenhouse gas emissions from fuels, including transportation fuels, and, potentially, fuel oil used for heating. This group, along with the District of Columbia, became known as the

¹⁰Cal. Gov't Code § 12894(f).

¹¹Letter from Governor Edmund G. Brown to Mary Nichols, Chair, California Air Resources Board regarding Request for Findings Under SB 1018 (Apr. 8, 2013), http://gov.ca.gov/docs/Request_for_SB_1018_Findings.pdf.

¹²See Cal. Code Regs. tit. 17, § 95943.

¹³United States v. California, 2020 U.S. Dist. LEXIS 43422 (E.D. Cal. Mar. 12, 2020). The court's decision did not address the U.S.'s claims under the foreign affairs doctrine or the foreign Commerce Clause.

¹⁴California Air Resources Board, *Program Linkage*, <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/program-linkage>.

Transportation and Climate Initiative (TCI).¹⁵ The states committed to assess the feasibility of a range of reduction goals by early 2011, including a 10% cut in fuel carbon intensity and development of a framework for a regional low-carbon fuel standard to ensure sustainable use of renewable fuels.

The group intended ultimately to develop a model rule for enforcing the standard, which individual states could adopt through administrative or legislative means. In June 2010, the states signed another agreement to collaborate on developing policies and programs to reduce GHG emissions through transportation improvements and efficiencies. In September 2018, Virginia joined TCI. In October 2019, the TCI jurisdictions released a framework for a program that would cap emissions from combustion of the fossil component of gasoline and on-road diesel in the region.¹⁶ The cap would cover emissions from fuel destined for final sale or consumption in a TCI jurisdiction, upon removal from a storage facility (i.e., a “terminal rack”) in the TCI jurisdiction, or, for fuel removed from a facility in another jurisdiction, upon delivery into the TCI jurisdiction. Fuel suppliers—the regulated entities—would be required to hold allowances to cover reported emissions. In December 2020, Massachusetts, Connecticut, Rhode Island and the District of Columbia announced in a memorandum of understanding that they would move forward with implementing the program,¹⁷ with the eight remaining states agreeing to continue studying the program in a statement of support.¹⁸

§ 24:9 State efforts to reduce greenhouse gas emissions

In the absence of any comprehensive federal laws to control greenhouse gas emissions, states have played a leading role on climate change mitigation in the United States. Notable examples include economy-wide emissions reduction targets, clean electricity targets, and Energy Efficiency Resource Standards.

A. *Economy-wide emissions reduction targets*

At least 25 states and the District of Columbia have pledged to reduce their overall emissions by specific amounts before specific dates, with these economy-wide targets often complementing sector-specific targets. Beyond differing reduction amounts and timelines, these targets also differ in terms of bindingness—some targets are set by binding legislation, while others are only expressed by executive orders or non-binding legislative goals. As of December 2020, State legislatures have enacted economy-wide mandates for emissions reduction in California,¹ Colorado,² Connecticut,³ Hawaii,⁴ Maine,⁵ Maryland,⁶ Massachusetts,⁷ Minnesota,⁸ New

¹⁵Information about TCI is available at <https://www.transportationandclimate.org/>.

¹⁶Transp. & Climate Initiative, Framework for a Draft Regional Policy Proposal (Oct. 1, 2019).

¹⁷This memorandum of understanding is available at <https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf>.

¹⁸This statement of support is available at <https://www.transportationandclimate.org/sites/default/files/TCI%20Next%20Steps%2012.20.pdf>.

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¹2016 Cal. Legis. Serv. Ch. 249 (S.B. 32), codified at Cal. Health & Safety Code § 38566 (target to reduce GHG emissions 40% below 1990 levels by 2030).

²2019 Colo. Legis. Serv. Ch. 355 (H.B. 19-1261), codified at Colo. Rev. Stat. §§ 25-7-102, 25-7-105 (target to reduce GHG emissions, compared to 2005 levels, 26% by 2025, 50% by 2030, and 90% by 2050).

³Conn. Legis. Serv. P.A. 18-82 (S.B. 7), codified at Conn. Gen. Stat. § 22a-200a (target to reduce GHG emissions, compared to 2001 levels, 45% by 2030 and 80% by 2050).

⁴2018 Hawaii Laws Act 15 (H.B. 2182), codified at Haw. Rev. Stat. § 225P-5 (target for net-zero GHG emissions by 2045).

Jersey,⁹ New York,¹⁰ Vermont,¹¹ and Washington.¹² Other states with goals established by executive order or non-binding legislative declarations include Delaware,¹³ Illinois,¹⁴ Louisiana,¹⁵ Michigan,¹⁶ Minnesota,¹⁷ Montana,¹⁸ New Mexico,¹⁹ Nevada,²⁰ North Carolina,²¹ Oregon,²² Pennsylvania,²³ Rhode Island,²⁴ and Virginia,²⁵ as

⁵2019 Me. Legis. Serv. Ch. 476 (S.P. 550) (L.D. 1679), codified at Me. Rev. Stat. Ann. tit. 38, § 576-A (target to reduce GHG emissions, compared to 1990 levels, 45% by 2030 and 80% by 2050).

⁶2016 Maryland Laws Ch. 11 (S.B. 323), codified at Md. Code Ann., Envir. § 2-1204.1 (target to reduce GHG emissions 40% below 2006 levels by 2030).

⁷2008 Mass. Legis. Serv. Ch. 298 (S.B. 2540), codified at Mass. Gen. Laws ch. 21N, et seq. (target to reduce GHG emissions 80% below 1990 levels by 2050).

⁸2007 Minn. Sess. Law Serv. Ch. 136 (S.F. 145), codified at Minn. Stat. Ann. § 216H.02 (target to reduce GHG emissions, compared to 2005 levels, 30% by 2025 and 80% by 2050).

⁹NJ Sess. Law Serv. Ch. 112 (ASSEMBLY 3301), codified at N.J. Stat. Ann. 26:2C-37 (target to reduce GHG emissions 80% below 2006 levels by 2050).

¹⁰2019 Sess. Law News of N.Y. Ch. 106 (S. 6599), codified at N.Y. Envtl. Conserv. Law § 75-0107 (target to reduce GHG emissions, compared to 1990 levels, 40% by 2030 and 85% by 2050).

¹¹2020 Vermont Laws No. 153 (H. 688), codified at Vt. Stat. Ann. tit. 10, § 578 (target to reduce GHG emissions, compared to 1990 levels, 26% by 2025, 40% by 2030, and 80% by 2050).

¹²2020 Wash. Legis. Serv. Ch. 79 (S.S.H.B. 2311), codified at Wash. Rev. Code § 70A.45.020 (target to reduce GHG emissions, compared to 1990 levels, 45% by 2030, 70% by 2040, and 95% by 2050).

¹³Delaware Cabinet Committee on Climate and Resilience, Climate Framework for Delaware: Prepared under Executive Order 41: Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions (Dec. 2014), <http://www.dnrec.delaware.gov/energy/Documents/The%20Climate%20Framework%20for%20Delaware%20PDF.pdf> (goal to reduce GHG emissions 30% below 2008 levels by 2030).

¹⁴Exec. Order No. 2019-06, https://www2.illinois.gov/Pages/government/execorders/2019_6.aspx (goal to reduce GHG emissions 26-28% below 2005 levels by 2025).

¹⁵Executive Order JBE 2020-18, <https://gov.louisiana.gov/assets/ExecutiveOrders/2020/JBE-2020-18-Climate-Initiatives-Task-Force.pdf> (goal to reduce GHG emissions, compared to 2005 levels, 26-28% by 2025, 40-50% by 2030, and to net-zero by 2050).

¹⁶Executive Directive No. 2020-10, https://content.govdelivery.com/attachments/MIEOG/2020/09/23/file_attachments/1553296/ED%202020-10%20Carbon_Neutral_Goal.pdf (goal to reduce GHG emissions 28% below 1990 levels by 2025 and to net-zero by 2050).

¹⁷2007 Minn. Sess. Law Serv. Ch. 136 (S.F. 145), codified at Minn. Stat. Ann. § 216H.02 (goal to reduce GHG emissions, compared to 2005 levels, 30% by 2025 and 80% by 2050).

¹⁸Exec. Order No. 8-2019, https://governor.mt.gov/Portals/16/docs/2019EOs/EO-08-2019_Creating%20Climate%20Solutions%20Council.pdf?ver=2019-07-02-141610-417; Montana Climate Solutions Council, *Montana Climate Solutions Plan* (Aug. 2020), http://deq.mt.gov/Portals/112/DEQAdmin/Climate/2020-09-09_MontanaClimateSolutions_Final.pdf (goal to achieve net-zero GHG emissions between 2045 and 2050).

¹⁹Exec. Order No. 2019-003, <https://www.governor.state.nm.us/wp-content/uploads/2019/01/EO-2019-003.pdf> (goal to reduce GHG emissions 45% below 2005 levels by 2030).

²⁰2019 Nevada Laws Ch. 323 (S.B. 254), codified at Nev. Rev. Stat. § 445B.380 (goal to reduce GHG emissions, compared to 2005 levels, 28% by 2025 and 45% by 2030).

²¹Exec. Order No. 80, <https://files.nc.gov/ncdeq/climate-change/EO80—NC-s-Commitment-to-Address-Climate-Change—Transition-to-a-Clean-Energy-Economy.pdf> (goal to reduce GHG emissions 40% below 2005 levels by 2025).

²²2007 Oregon Laws Ch. 907 (H.B. 3543), codified at Or. Rev. Stat. § 468A.205 (goal to reduce GHG emissions, compared to 1990 levels, 10% by 2020 and 75% by 2050); Exec. Order No. 20-04, https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf (goal to reduce GHG emissions, compared to 1990 levels, 45% by 2035 and 80% by 2050).

²³Exec. Order No. 2019-01, <https://www.oa.pa.gov/Policies/eo/Documents/2019-01.pdf> (goal to reduce GHG emissions, compared to 2005 levels, 26% by 2025 and 80% by 2050).

²⁴2014 Rhode Island Laws Ch. 14-392 (14-H 7904A), codified at R.I. Gen. Laws § 42-6.2-2 (goal to reduce GHG emissions, compared to 1990 levels, 45% by 2035 and 80% by 2050).

²⁵2020 Virginia Laws Ch. 1191 (S.B. 94), codified at Va. Code Ann. §§ 67-102, 67-201 (goal to

of December 2020. While many pledges are for reductions by 2030 and 2050, in the short-term nearly all of these states are aiming to reduce emissions 26-28% below 2005 levels by 2025—a goal that corresponds to the Obama Administration’s commitment under the Paris Agreement and has since been taken up by states through the United States Climate Alliance.²⁶

1. California

a. **AB 32: Global Warming Solutions Act**

In September 2006, California passed Assembly Bill 32, otherwise known as the Global Warming Solutions Act.²⁷ AB 32 created the first enforceable state-wide program in the U.S. to cap all greenhouse gas emissions from major industries. It requires that greenhouse gas emissions be cut to 1990 levels by 2020 and 80% below that threshold by 2050. The California Air Resources Board (CARB) is the state agency responsible for monitoring and regulating GHG emission sources. In December 2007, CARB approved a regulation requiring annual reporting of GHG emissions from large sources.²⁸

CARB’s 2008 Climate Change Scoping Plan recommended a cap-and-trade program with regional linkages through the Western Climate Initiative (see *supra*). In 2011, CARB approved regulations for such a program, estimated to cover 85% of the state’s greenhouse gas emissions.²⁹ CARB’s rules apply to businesses in the state with reported or verified annual emissions exceeding 25,000 metric tons of carbon dioxide equivalents (CO₂e). During the initial 2012–2015 period, the program covered emissions from large industrial sources and “first deliverers” of electricity, which include electricity generators located within California as well as entities that import electricity from out-of-state sources into California. Beginning in 2015, fuel distributors (e.g., of gas and petroleum products) with annual emissions exceeding the threshold were included in the program. In 2017, California enacted a law that extended the cap-and-trade program through 2030.³⁰

California’s emissions cap declined approximately 2% per year from 2012 to 2014 and approximately 3% per year from 2015-2020 and is set to decline 5% per year from 2021-2030. Covered entities can use offset credits to meet up to 8% of their compliance obligation for emissions through 2020, 4% for 2021-2025, and 6% for 2026-2030, and from 2021 onward no more than half of an entity’s offsets can be sourced from projects without direct, in-state environmental benefits.³¹ From 2012 to 2019, allowance auctions generated \$12.5 billion in revenue, which are placed in the state’s Greenhouse Gas Reduction Fund and invested in other programs to reduce emissions.³²

In 2016, California enacted a law that codified a greenhouse gas emissions reduc-

achieve net-zero GHG emissions by 2045).

²⁶United States Climate Alliance, <http://www.usclimatealliance.org/>.

²⁷2006 Stats., ch. 488; Cal. Health & Safety Code §§ 38500 et seq.

²⁸Cal. Code Regs. tit. 17, §§ 95100 to 95163.

²⁹Cal. Code Regs. tit. 17, §§ 95801 to 96022.

³⁰AB 398. A companion bill, AB 617, included provisions to strengthen air quality monitoring and address local pollution.

³¹California Air Resources Board, *Compliance Offset Program*, <https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/about>.

³²California Air Resources Board, *2020 California Climate Investments Annual Report* (Mar. 2020), https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/2020_cci_annual_report.pdf.

tion target of 40% below 1990 levels by 2030.³³ In November 2017, CARB released its 2017 Climate Change Scoping Plan, which sets forth the State’s strategy for achieving the emissions targets and retains a large role for both the Cap-and-Trade Program and the Low Carbon Fuel Standard (discussed below).³⁴

b. Vehicle emissions

California is also a leader on reducing greenhouse gas emissions from vehicles. While the Clean Air Act generally preempts states from setting vehicle emissions standards, Section 209—in recognition of the fact that California had standards pre-dating Clean Air Act passage—allows EPA to grant a waiver to California standards that are “at least as protective of public health and welfare as applicable Federal standards” and necessary “to meet compelling and extraordinary conditions.”³⁵ In December 2005, California sought a waiver from the EPA to adopt standards regulating tailpipe emissions of CO₂ and other greenhouse gases. EPA denied this request in 2008, generating litigation until 2009, when EPA issued its own endangerment finding for greenhouse gases and subsequently granted California’s waiver request.³⁶ Since then, California has adopted the Advanced Clean Cars program, which establishes tailpipe GHG emission limits through a low-emission vehicle (LEV) regulation and requires manufacturers to produce an increasing amount of zero-emission vehicles (ZEVs) such as electric vehicles.³⁷ Section 177 of the Clean Air Act allows other states to adopt emissions standards that are “identical to the California standards for which a waiver has been granted,” without the need to obtain any separate EPA waiver.³⁸ As of August 2019, 14 states had adopted California’s LEV greenhouse gas emission regulations and ZEV regulations.³⁹ In June 2020, CARB adopted the Advanced Clean Truck Rule, requiring manufacturers of medium- and heavy-duty vehicles to sell zero-emission trucks as an increasing percentage of their annual California sales, beginning in 2024 and reaching 40-75% (varying based on truck class) by 2035.⁴⁰

c. Low-carbon fuel standard

In April 2009, CARB approved a regulation adopting a low-carbon fuel standard (LCFS), designed to cut the average “carbon intensity” of transportation fuels by 10% over 10 years.⁴¹ The regulation established a policy for calculating the life-cycle emissions of all vehicle fuels, specifically measuring the level of GHG emissions associated with the production, distribution, and consumption of gasoline, diesel fuels and their alternatives. Fuel providers, refiners, importers, and blenders are required to demonstrate that the mix of fuels they supply meets the declining “carbon intensity” standard each year through a market-based reporting system based on

³³SB 32.

³⁴CARB, California’s 2017 Climate Change Scoping Plan (Nov. 2017), https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf?

³⁵42 U.S.C. § 7543(b)(1).

³⁶California Air Resources Board, *California & the Waiver: The Facts* (Sep. 17, 2019), <https://ww2.arb.ca.gov/resources/fact-sheets/california-waiver-facts>.

³⁷California Air Resources Board, *Advanced Clean Cars Program*, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about>.

³⁸42 U.S.C. § 7507.

³⁹California Air Resources Board, *States That Have Adopted California’s Vehicle Standards under Section 177 of the Federal Clean Air Act* (Aug. 19, 2019), https://ww2.arb.ca.gov/sites/default/files/2019-10/ca_177_states.pdf.

⁴⁰California Air Resources Board, *Advanced Clean Trucks Fact Sheet* (June 25, 2020), <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet>.

⁴¹Information about California’s low-carbon fuel standard program is available at http://www.energy.ca.gov/low_carbon_fuel_standard.

the amount of fuel sold in the state.

While the LCFS has faced litigation challenges, it has been upheld by the Ninth Circuit twice and remains in place. In December 2011, a district court temporarily enjoined enforcement of the standard, holding (*inter alia*) that because the standard assigns more favorable carbon intensity values to corn-derived ethanol in California than to ethanol derived out-of-state, it impermissibly discriminates against out-of-state entities and thus violates the dormant Commerce Clause.⁴² However, in September 2013, the Ninth Circuit reversed its decision, instead holding that the LCFS did not impermissibly discriminate and did not violate the dormant Commerce Clause.⁴³ The court noted that, while California is generally exempt from the Clean Air Act's provision on fuel standards preemption, it declined to answer whether the federal Renewable Fuel Standard (see *supra*) established by Clean Air Act Section 211(o) could preempt the LCFS.⁴⁴ Litigation continued, and in 2019 the Ninth Circuit again rejected a Commerce Clause challenge.⁴⁵

2. Massachusetts

In 2008, Massachusetts enacted the Global Warming Solutions Act, which mandates emissions reductions of up to 25% below 1990 levels by 2020 and 80% by 2050.⁴⁶ In July 2009, Massachusetts released final reporting rules and baseline figures under which the state will be able to measure its progress in reducing GHG emissions.⁴⁷ In January 2011, the state released a plan designed to achieve a reduction of statewide GHG emissions by 25% below 1990 levels by 2020 through expansion of existing programs, along with new initiatives in building standards, electricity generation, and transportation.⁴⁸ In 2016, the Massachusetts Supreme Judicial Court ordered the Massachusetts Department of Environmental Protection (MassDEP) to take additional measures to implement the Global Warming Solutions Act. The court held that the Act required MassDEP to impose volumetric limits on aggregate greenhouse gas emissions from certain types of sources and that these limits were required to decline on an annual basis.⁴⁹ On September 16, 2016, Governor Charles D. Baker issued an executive order providing direction for the state's efforts to mitigate greenhouse gas emissions and to build resilience and adapt to climate change.⁵⁰ The order also required MassDEP to publish final regulations to meet the 2020 statewide emissions limit mandated by the Global Warming Solutions Act by August 2017.

3. New York

In July 2019, New York enacted the Climate Leadership and Community Protection Act (CLCPA).⁵¹ The CLCPA requires the New York State Department of Environmental Conservation (DEC) to promulgate regulations to achieve statewide

⁴²National Petrochemical & Refiners Ass'n v. Goldstene, 2011 U.S. Dist. LEXIS 149592 (E.D. Cal. Dec. 29, 2011).

⁴³Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070, 77 Env't. Rep. Cas. (BNA) 1077 (9th Cir. 2013).

⁴⁴*Id.* at 1106.

⁴⁵Rocky Mountain Farmers Union v. Corey, 913 F.3d 940 (9th Cir. 2019).

⁴⁶Mass. Gen. Laws Ch. 21N.

⁴⁷These rules are available at http://www.mass.gov/dep/air/climate/1990_2020_final.pdf.

⁴⁸The plan, entitled "Massachusetts Clean Energy and Climate Plan for 2020," is available at <http://www.mass.gov/Eoeea/docs/eea/energy/2020-clean-energy-plan.pdf>.

⁴⁹Kain v. Department of Environmental Protection, 474 Mass. 278, 49 N.E.3d 1124 (2016).

⁵⁰Exec. Order No. 569.

⁵¹L. 2019, ch. 106 (primarily codified at N.Y. Env'tl. Conserv. Law art. 75, N.Y. Pub. Serv. Law § 66-p).

greenhouse gas emissions limits of 60% of 1990 emissions by 2030 and 15% of 1990 emissions by 2050, as well as to advance the goal of net-zero emissions by 2050.⁵² CLCPA sets criteria for alternative compliance mechanisms for sources to achieve net-zero emissions, authorizing DEC to provide for use of such mechanisms to account for up to 15% of statewide emissions if the approved offset projects do not place a “disproportionate burden” of environmental impacts on disadvantaged communities. CLCPA extends this requirement of not disproportionately burdening disadvantaged communities to all state agencies in making certain environmental decisions. Moreover, CLCPA requires that disadvantaged communities receive at least 35% (with 40% as a goal) of the overall benefits of spending on clean energy and energy efficiency. The CLCPA further requires the New York State Public Service Commission (PSC) to establish a renewable energy program to require at least 70% of statewide electric generation in 2030 to come from renewable sources and to achieve zero emissions in the electric sector by 2040. The PSC must also establish programs to require 9 gigawatts (GW) of offshore wind generation by 2035, 6 GW of photovoltaic generation by 2025, and 3 GW of statewide energy storage capacity by 2030.

CLCPA established a new Climate Action Council, as well as an Environmental Justice Advisory Group and Climate Justice Working Group, to develop a Scoping Plan with recommendations for attaining the emissions limits. DEC, in consultation with the New York State Energy Research and Development Authority, has also issued guidance establishing a Social Cost of Carbon (see *supra*) for use by State agencies, setting a central value (at a 2% discount rate) of \$125 per ton of CO₂ for 2020.⁵³

B. Clean electricity targets

Many states have adopted policies to limit emissions from the electric power sector, often in parallel or as a precursor to economy-wide targets. One common policy is a Renewable Portfolio Standard (RPS) requiring a certain percentage of electricity sold by certain years to be generated by renewable resources—with variation in which resources are eligible, which utilities or other suppliers are covered, and which types of offsets are possible. As of December 2020, 30 states, three territories, and the District of Columbia have adopted an RPS, and seven states and one territory have set voluntary renewable targets for the power sector.⁵⁴

Going beyond partial RPS requirements, several states have adopted legislation setting binding targets for 100% zero-carbon electricity. These states include New York⁵⁵ (by 2040); and California,⁵⁶ Hawaii,⁵⁷ New Mexico,⁵⁸ Virginia,⁵⁹ and Washington⁶⁰ (by 2045). For example, in March 2019, New Mexico enacted a law requiring

⁵²6 NYCRR Part 496, Statewide Greenhouse Gas Emission Limits, https://www.dec.ny.gov/docs/administration_pdf/revexpterm496.pdf.

⁵³New York State Department of Environmental Conservation, *Establishing a Value of Carbon: Guidelines for Use by State Agencies* (Dec. 2020), https://www.dec.ny.gov/docs/administration_pdf/vocfguid.pdf.

⁵⁴National Conference of State Legislatures, *State Renewable Portfolio Standards and Goals* (Dec. 11, 2020), <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>.

⁵⁵2019 Sess. Law News of N.Y. Ch. 106 (S. 6599), codified at N.Y. Pub. Serv. Law § 66-p.

⁵⁶2018 Cal. Legis. Serv. Ch. 312 (S.B. 100), codified at Cal. Pub. Util. Code § 454.53.

⁵⁷2015 Hawaii Laws Act 97 (H.B. 623), codified at Haw. Rev. Stat. Ann. § 269-92.

⁵⁸2019 New Mexico Laws Ch. 65 (S.B. 489), codified at N.M. Stat. Ann. § 62-16-4.

⁵⁹2020 Virginia Laws Ch. 1194 (S.B. 851), codified at Va. Code Ann. § 56-585.5.

⁶⁰2019 Washington Senate Bill No. 5116, codified at Wash. Rev. Code § 19.405.050.

that “zero carbon resources” supply 100% of all retail sales of electricity by 2045.⁶¹ The law also provided for the closure of a coal-fired power plant in the state. In May 2019, Washington enacted the Clean Energy Transformation Act, which sets milestones for reducing electric utilities greenhouse gas emissions. By 2025, utilities must eliminate coal-fired electricity; by 2030, utilities must be greenhouse gas neutral; and by 2045, all electricity must be 100% renewable or non-emitting.

Other states have adopted non-binding goals for 100% clean electricity, including legislation in Colorado,⁶² Maine⁶³ and Nevada⁶⁴ and executive orders in Connecticut,⁶⁵ Rhode Island,⁶⁶ and Wisconsin.⁶⁷

C. *Energy efficiency resource standards*

At least 26 states have adopted an Energy Efficiency Resource Standard (EERS) to require electric utilities to meet energy savings targets, with 10 of these states extending similar requirements to gas utilities.⁶⁸ Covered utilities must implement energy efficiency programs (such as weatherization, efficient appliance rebates, incentives for demand reduction) for their customers in order to achieve the savings targets. Examples of particularly robust EERS policies include Massachusetts (2.7% annual electricity savings), Arizona (2.5%), Rhode Island (2.5%), Vermont (2.4%), and Maine (2.3%), and New York’s requirement of 3% annual electricity savings by 2025 will become one of the country’s most stringent EERS policies.⁶⁹

§ 24:10 Tribal efforts

Many Native American tribes are uniquely vulnerable to the effects of climate change because their culture and way of life is largely dependent on the natural environment. In addition, many areas near or on tribal lands have become targets for nuclear waste dumps, abandoned mines, and contaminated waterways, which increase the negative health impacts on tribal members. Tribal efforts to reduce greenhouse gas emissions and to increase the use of renewable sources of energy on their lands are discussed in more detail in §§ 24:36 to 24:40.

§ 24:11 Local efforts

Local governments are also taking action to reduce greenhouse gas emissions, with more than 200 cities and counties having committed to (or already achieved) a

⁶¹2019 N.M. Laws 65, § 29 (codified at N.M. Stat. Ann. § 62-16-4).

⁶²2019 Colo. Legis. Serv. Ch. 359 (S.B. 19-236), codified at Colo. Rev. Stat. Ann. § 40-2-125.5.

⁶³2019 Me. Legis. Serv. Ch. 477 (S.P. 457) (L.D. 1494), codified at Me. Rev. Stat. Ann. tit. 35-A, § 3210.

⁶⁴2019 Nevada Laws Ch. 3 (S.B. 358), codified at Nev. Rev. Stat. § 704.7820.

⁶⁵Exec. Order No. 3 (Sept. 3, 2019), <https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf>.

⁶⁶Exec. Order No. 20-01 (Jan. 17, 2020), <https://governor.ri.gov/documents/orders/Executive-Order-20-01.pdf>.

⁶⁷Exec. Order No. 38 (Aug. 16, 2019), https://content.govdelivery.com/attachments/WIGOV/2019/08/16/file_attachments/1268023/EO%20038%20Clean%20Energy.pdf.

⁶⁸American Council for an Energy-Efficient Economy, *State Energy Efficiency Resource Standards* (May 2019), <https://www.aceee.org/sites/default/files/state-eers-0519.pdf>. While this report lists EERS policies in 27 states, as of October 2019 Ohio’s House Bill 6 has effectively eliminated the Ohio EERS.

⁶⁹Natural Resources Defense Council, *Race to 100% Clean* (Dec. 2, 2020), <https://www.nrdc.org/resources/race-100-clean>.

transition to 100% clean energy.¹ Several local policies have focused on sectors like buildings, where municipalities have clear jurisdiction to regulate. Some representative examples are highlighted below.

A. *Portland, Oregon*

Portland has adopted a climate action plan to reduce CO₂ emissions by 40% by 2030 and 80% by 2050, compared with 1990 levels. The plan outlines several sector-specific initiatives to achieve this goal. With respect to buildings, the city will strive to achieve zero GHG emissions in all new residential and commercial buildings, recover 90% of all solid waste generated, improve the energy efficiency of freight movement within the city, expand the urban forestry to cover one third of the city, and to establish a tax credit for businesses that install green roofs and solar panels.²

B. *New York, New York*

New York City has adopted several policies to improve efficiency and reduce emissions in the buildings sector.³ In December 2009, the New York City Council enacted an energy-efficiency legislative package for government, commercial, and residential buildings in New York City called the Greener, Greater Buildings Plan. Among the most significant new provisions is Local Law 87, which requires large buildings (those over 50,000 square feet, which accounts for half of the building square footage in the city) to conduct periodic energy audits and retro-commissioning (ensuring correct equipment installation and performance) measures. The enacted law removed a provision from an earlier bill that would have also required retrofitting (installation of new technology) measures based on the results of large building audits. Unlike private buildings, city-owned buildings larger than 10,000 square feet must still retrofit with “all reasonable capital improvements” within a year of filing an audit report if the work would generate an energy cost-savings payback within seven years. Local Law 84 requires buildings over 50,000 square feet to benchmark their energy use and water consumption through EPA’s Portfolio Manager energy program. Local Law 85 established the New York City Energy Conservation Construction Code for building renovations that, among other things, removed an exemption from the State Energy Code for renovations that include less than 50% of a building’s subsystems. Local Law 88 requires large commercial buildings to carry out lighting upgrades by 2025.

In April 2019, New York City enacted the multi-bill Climate Mobilization Act, including Local Law 97, which requires a 40-percent reduction in carbon emissions from nearly 50,000 public and private sector buildings by 2024, bringing such reductions to 2005 levels by 2030.⁴ However, the Real Estate Board of New York has been fierce in its opposition to this bill, and it remains to be seen whether it will be implemented as currently conceived by the City Council.

C. *San Diego, California*

In December 2015, San Diego adopted a Climate Action Plan (CAP) with targets to reduce city-wide greenhouse gas emissions, below 2010 levels, 24% by 2020, 41%

[Section 24:11]

¹UCLA Luskin Center for Innovation, *Progress Toward 100% Clean Energy in Cities & States Across the U.S.* (Nov. 2019), <https://innovation.luskin.ucla.edu/wp-content/uploads/2019/11/100-Clean-Energy-Progress-Report-UCLA-2.pdf>.

²Additional information about Portland’s climate action plan is available at <http://www.portlandonline.com/bps/index.cfm?c=49989&a=26861>.

³See New York City Mayor’s Office of Sustainability, *Legislation*, <https://www1.nyc.gov/site/sustainability/legislation/legislation.page>.

⁴See <https://archpaper.com/2019/04/new-york-city-climate-mobilization-act/>.

by 2030, and 51% by 2035, in order to help achieve California’s goal of 80% reduction by 2050.⁵ The CAP identified implementation actions for five key areas: energy and water efficient buildings; clean and renewable energy; bicycling, walking, transit, and land use; zero waste (gas & waste management); and climate resiliency. As of 2019, all 17 actions identified in the CAP were in progress or completed, and greenhouse gas emissions had already decreased by 24% below the 2010 baseline. Sector-specific achievements included a 2.5% reduction in municipal energy usage and 15% reduction in residential energy usage since 2010; plans for a community choice energy program to achieve 100% renewable electricity by 2035; deployment of 64 electric vehicle charging stations; elimination of parking requirements for new multi-family developments within a half-mile of a public transit stop; improvements or additions of 42 miles of bike lanes; diversion of 65% of waste from landfills; and planting of 1,089 trees.⁶

§ 24:12 Litigation

Numerous lawsuits have been filed to address global climate change.¹ They fall into two broad categories: administrative law claims and civil claims. Some representative cases in each category are included below. A more comprehensive discussion of these and other cases is included in §§ 24:47 to 24:52.

A. Administrative Law Claims: *Massachusetts v. EPA*

In 1999, the International Center for Technology Assessment (ICTA) petitioned the Environmental Protection Agency (EPA) to regulate certain greenhouse gas (GHG) emissions from new motor vehicles. This petition wound its way through the EPA process and was denied in 2003. The denial was challenged by the ICTA, 12 states, and others. The U.S. Court of Appeals for the District of Columbia upheld the denial in a split decision.²

On April 2, 2007, the U.S. Supreme Court issued a 5-4 decision reversing the D.C. Circuit.³ The majority decision was authored by Justice Stevens and joined by Justices Kennedy, Souter, Ginsburg and Breyer. The majority found that “[t]he harms associated with climate change are serious and well recognized,” and that EPA did not “dispute the existence of a causal connection between man-made greenhouse gas emissions and global warming.”⁴ Addressing the plaintiffs’ standing, the Court declared that “[o]nly one of the petitioners needs to have standing to permit us to consider the petition for review,” and that a sovereign state, Massachusetts, was among the plaintiffs.⁵ Petitioners’ uncontested affidavits showed that “the rise in sea levels associated with global warming has already harmed and will continue to harm Massachusetts. The risk of catastrophic harm, through remote, is neverthe-

⁵City of San Diego, *Climate Action Plan* (adopted Dec. 15, 2015; amended July 12, 2016), https://www.sandiego.gov/sites/default/files/final_july_2016_cap.pdf.

⁶City of San Diego, *2019 Climate Action Plan Annual Report* (2019), https://www.sandiego.gov/sites/default/files/2019_cap_digital_version.pdf.

[Section 24:12]

¹See Climate Change Litigation Databases, <http://climatecasechart.com>.

²*Massachusetts v. E.P.A.*, 415 F.3d 50, 60 Env’t. Rep. Cas. (BNA) 1641, 35 Env’tl. L. Rep. 20148, 13 A.L.R. Fed. 2d 899 (D.C. Cir. 2005), judgment rev’d, 549 U.S. 497, 127 S. Ct. 1438, 167 L. Ed. 2d 248, 63 Env’t. Rep. Cas. (BNA) 2057 (2007).

³*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 167 L. Ed. 2d 248, 63 Env’t. Rep. Cas. (BNA) 2057 (2007).

⁴127 S. Ct. at 1455.

⁵127 S. Ct. at 1453–1454.

less real.”⁶ Though an EPA decision to regulate greenhouse gas emissions from new motor vehicles might have only a small benefit to the Massachusetts coastline, that is enough to confer standing. The Court found that EPA’s argument against standing “rests on the erroneous assumption that a small incremental step, because it is incremental, can never be attacked in a federal judicial forum.”⁷

The Court then turned to the merits. The Court said that it had “little trouble concluding” that the Clean Air Act authorizes EPA to regulate greenhouse gas emissions from new motor vehicles in the event that it forms a judgment that such emissions contribute to climate change. The Clean Air Act has a “sweeping definition” of “air pollutant” that “embraces all airborne compounds of whatever stripe.”⁸ According to the Court, “[r]ather than relying on statutory text, EPA invokes postenactment congressional actions and deliberations it views as tantamount to a congressional command to refrain from regulating greenhouse gas emissions.”⁹ The Court also rejected EPA’s conclusion that even if it does have statutory authority to regulate greenhouse gases, it would be unwise to do so, finding that this “rests on reasoning divorced from the statutory text.”¹⁰ The Court found that “[u]nder the clear terms of the Clean Air Act, EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do.”¹¹ The Court declared that “EPA has offered no reasoned explanation for its refusal to decide whether greenhouse gases cause or contribute to climate change,” and therefore its action was “arbitrary, capricious, . . . or otherwise not in accordance with law.”¹² The Court explicitly did not reach the question of whether on remand EPA must make an endangerment finding, or whether policy concerns can inform EPA’s actions in the event that it makes such a finding.¹³

Two dissenting opinions were filed—one by Chief Justice Roberts on standing, and one by Justice Scalia on the merits. Chief Justice Roberts expressed alarm that the majority opinion was opening up standing too broadly. He said there was no basis for giving special solicitude to states as plaintiffs.¹⁴ He declared that there was no evidence that Massachusetts was really losing coastal land as a result of climate change, or that such loss was caused by EPA’s failure to regulate greenhouse gases from motor vehicles, or that any injury it suffered would be redressed by a victory in this case.¹⁵ Justice Scalia found no requirement in the Clean Air Act that the Administrator of EPA make a judgment about whether to regulate greenhouse gases, as opposed to deferring any decision.¹⁶ He also found that EPA had looked at the science and reasonably concluded that there is too much scientific uncertainty to regulate greenhouse gases.¹⁷ Moreover, he disagreed with the majority’s reading of the term “air pollutant” in the Clean Air Act, and said that EPA’s judgment that

⁶127 S. Ct. at 1458.

⁷127 S. Ct. at 1457.

⁸127 S. Ct. at 1460.

⁹127 S. Ct. at 1460.

¹⁰127 S. Ct. at 1462.

¹¹127 S. Ct. at 1462.

¹²127 S. Ct. at 1463.

¹³127 S. Ct. at 1463.

¹⁴127 S. Ct. at 1464–1466.

¹⁵127 S. Ct. at 1470.

¹⁶127 S. Ct. at 1472–1473.

¹⁷127 S. Ct. at 1474–1475.

greenhouse gases do not qualify should receive deference.¹⁸

B. Civil Claims

Several lawsuits have been brought claiming that GHG emissions are a public nuisance or otherwise actionable at common law. As of the time of this writing, such cases have been unsuccessful.

1. Nuisance: *Connecticut v. American Electric Power*

In *Connecticut v. American Electric Power Co.*,¹⁹ eight states²⁰ and the City of New York sued the five biggest power companies in the United States, claiming their emissions were a nuisance by contributing to global warming. The District Court for the Southern District of New York dismissed their suit, finding it raised a political question that could not be answered by the courts. The court noted that Congress had recognized that carbon dioxide emissions caused global warming and that global warming would have severe adverse impacts.²¹ However, as Congress had refused to impose limits on carbon dioxide emissions, as sought by the plaintiffs, the court found it was without authority to resolve the political question. In September 2009, the Second Circuit reversed the district court, holding that while the plaintiffs' claims had political implications, the claims remained justiciable in the federal courts and the states, the city, and the land trusts all had standing to pursue those claims.²² The court acknowledged that the political implications of any decision involving possible limits on CO₂ emissions are important in the context of climate change, but held that not every case with political overtones is nonjusticiable and that it was error to equate a political question with a political case. While acknowledging that the EPA or Congress could still issue regulations or adopt legislation that pre-empted the field, neither had done so, and the court therefore found that the plaintiffs' claims were not displaced by other federal laws or regulations. On December 6, 2010, the U.S. Supreme Court granted certiorari.²³

On June 20, 2011, the Court issued a decision,²⁴ unanimously holding that the Clean Air Act displaces federal common law nuisance claims brought to reduce greenhouse gas emissions. This decision reverses the holding of the Second Circuit that states and private parties may pursue a public nuisance action under federal common law to limit power plants' greenhouse gas emissions. The opinion, written by Justice Ruth Bader Ginsburg, notes that the eight-member court (Justice Sonia M. Sotomayor was on the Second Circuit panel, though she was elevated before the decision was issued, and she recused herself) divided 4-4 on whether plaintiffs in this case had standing to bring suit, and thus whether the federal court had jurisdiction, affirming the decision below on this point. Because the Second Circuit found

¹⁸127 S. Ct. at 1475–1477.

¹⁹*Connecticut v. American Elec. Power Co., Inc.*, 406 F. Supp. 2d 265, 35 Env'tl. L. Rep. 20186 (S.D. N.Y. 2005), vacated and remanded, 582 F.3d 309, 69 Env't. Rep. Cas. (BNA) 1385 (2d Cir. 2009), judgment rev'd, 564 U.S. 410, 131 S. Ct. 2527, 180 L. Ed. 2d 435, 72 Env't. Rep. Cas. (BNA) 1609 (2011).

²⁰The states were California, Connecticut, Iowa, New Jersey, New York, Rhode Island, Vermont and Wisconsin.

²¹*Connecticut v. American Elec. Power Co., Inc.*, 406 F. Supp. 2d 265, 268-69, 35 Env'tl. L. Rep. 20186 (S.D. N.Y. 2005), vacated and remanded, 582 F.3d 309, 69 Env't. Rep. Cas. (BNA) 1385 (2d Cir. 2009), judgment rev'd, 564 U.S. 410, 131 S. Ct. 2527, 180 L. Ed. 2d 435, 72 Env't. Rep. Cas. (BNA) 1609 (2011).

²²*Connecticut v. American Elec. Power Co., Inc.*, 582 F.3d 309, 69 Env't. Rep. Cas. (BNA) 1385 (2d Cir. 2009), judgment rev'd, 564 U.S. 410, 131 S. Ct. 2527, 180 L. Ed. 2d 435, 72 Env't. Rep. Cas. (BNA) 1609 (2011).

²³*American Elec. Co. Inc v. Connecticut*, 562 U.S. 1091, 131 S. Ct. 813, 178 L. Ed. 2d 530 (2010).

²⁴131 S. Ct. 2527, 180 L. Ed. 2d 435 (2011).

in favor of jurisdiction, the Supreme Court proceeded to consider plaintiffs' federal common law claims. Referencing *Massachusetts v. EPA*,²⁵ the Supreme Court held that the Clean Air Act addresses carbon dioxide from defendants' plants and thus displaces the federal common law of nuisance. The Court remanded the case, declining to rule on plaintiffs' state law tort claims.

2. Class Action: *Comer v. Nationwide Mutual Insurance Co.*

In *Comer v. Nationwide Mutual Insurance Co.*,²⁶ 14 victims of Hurricane Katrina sought class certifications in a lawsuit against numerous insurance companies that issued policies insuring affected properties, mortgage lenders that allegedly failed to maintain adequate insurance coverage on these properties, and chemical manufacturers and oil companies that allegedly caused damage to affected properties by contributing to climate change. In a 2006 decision, the court refused to certify the insurance company and mortgage lender classes based on the difficulty and impracticality of resolving "individual questions of damage, coverage, policy provisions, mortgage obligations, and other relevant particulars" through the class action framework.²⁷ The court also declined to determine whether a class action was the appropriate vehicle for resolving plaintiffs' claims against the chemical manufacturer and oil company defendants but granted plaintiffs leave to file an amended complaint to clarify their claims against these defendants. The court addressed the seemingly insurmountable difficulties of basing a class action, or any lawsuit, on damages resulting from a defendant's contribution to global warming, concluding that although plaintiffs were free to pursue their lawsuit, the court foresaw "daunting evidentiary problems" in proving their allegations by a preponderance of the evidence.²⁸ In August 2007, the district court dismissed the suit, finding that the issues raised were political questions more appropriate for the legislative and executive branches and that plaintiffs did not have standing.²⁹

In October 2009, the Fifth Circuit reversed, finding that the plaintiffs had standing to assert their nuisance, trespass, and negligence claims.³⁰ The circuit court held that for purposes of Article III standing, an indirect causal relationship will suffice so long as there is a fairly traceable connection between the alleged injury and the conduct of the defendant, and that the traceability need not be as close as the proximate causation needed to succeed on the merits of a tort claim. The court further held that the plaintiffs' claims did not present nonjusticiable political questions because they did not present any specific question that is exclusively committed by law to the discretion of the legislative or executive branch. However, the Fifth Circuit did uphold the dismissal of the plaintiffs' claims for unjust enrichment, fraudulent misrepresentation and civil conspiracy, finding that the plaintiffs lacked standing on these claims given that they essentially alleged a massive fraud on the political system resulting from the failure of environmental regulators to impose proper costs on the defendants, and that this type of generalized grievance was best left to the legislative and executive branches.

In February 2010, the Fifth Circuit granted *en banc* review and vacated the 2009

²⁵*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 167 L. Ed. 2d 248, 63 Env't. Rep. Cas. (BNA) 2057 (2007).

²⁶*Comer v. Nationwide Mutual Insurance Co.*, 2006 U.S. Dist. LEXIS 33123 (S.D. Miss. Feb. 23, 2006).

²⁷2006 U.S. Dist. LEXIS 33123, at *3.

²⁸2006 U.S. Dist. LEXIS 33123, at *4.

²⁹*Comer v. Murphy Oil USA*, No. 1:05-CV-436-LG-RHW, 43 ELR 20109 (S.D. Miss. Aug. 30, 2007).

³⁰*Comer v. Murphy Oil USA*, 585 F.3d 855, 69 Env't. Rep. Cas. (BNA) 1513 (5th Cir. 2009).

decision.³¹ In a subsequent decision in May 2010, the Fifth Circuit held that it could not give the lawsuit *en banc* review because it no longer had a quorum to do so, but it left standing the order vacating the panel decision.³² This action means that the district court's dismissal of the lawsuit stands. The court said plaintiffs may now seek review from the U.S. Supreme Court. Three judges vigorously dissented. On January 10, 2011, the Supreme Court rejected without comment plaintiffs' request for a writ of mandamus.³³

Plaintiffs filed a new lawsuit against energy and chemical company defendants alleging public and private nuisance, trespass, and negligence claims.³⁴ In March 2012, the district court dismissed the claims on the grounds that they were barred by *res judicata* and collateral estoppel.³⁵ The court further held that the plaintiffs did not have standing because their alleged injuries were not fairly traceable to the defendants' conduct.³⁶ The court also ruled that the claims presented a nonjusticiable political question, that the claims were displaced by the Clean Air Act, that they were barred by the statute of limitations, and that the complaint failed to state a plausible claim for relief.³⁷

In May 2013, the Fifth Circuit affirmed the district court's dismissal on *res judicata* grounds.³⁸ The Fifth Circuit rejected plaintiffs' arguments that the district court's 2007 judgment was not final or on the merits, noting that at no point in the protracted appeals process had the district court's 2007 judgment been disturbed.³⁹ The Fifth Circuit also refused plaintiffs' request for an equitable exception to *res judicata*, invoking the "well-known rule that a federal court may not abrogate principles of *res judicata* out of equitable concerns."⁴⁰ The Fifth Circuit also held that the 2007 judgment was on the merits since *res judicata* principles apply to jurisdictional determinations.⁴¹

3. Public Trust Doctrine: *Juliana v. United States*

In 2015, 21 individual plaintiffs, all age 19 or younger, filed a lawsuit in the federal district court for the District of Oregon against the United States, the president, and various federal officials and agencies. The plaintiffs asked the court to compel the defendants to take action to reduce carbon dioxide emissions so that atmospheric CO₂ concentrations would be no greater than 350 parts per million by 2100. The plaintiffs alleged that the "nation's climate system" was critical to their rights to life, liberty, and property, and that the defendants had violated their

³¹Comer v. Murphy Oil USA, 598 F.3d 208 (5th Cir. 2010), on reh'g en banc, 607 F.3d 1049, 70 Env't. Rep. Cas. (BNA) 1808 (5th Cir. 2010).

³²Comer v. Murphy Oil USA, 607 F.3d 1049, 70 Env't. Rep. Cas. (BNA) 1808 (5th Cir. 2010).

³³In re Comer, 562 U.S. 1133, 131 S. Ct. 902, 178 L. Ed. 2d 807, 73 Env't. Rep. Cas. (BNA) 1128 (2011).

³⁴Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d 849, 853–54 (S.D. Miss. 2012), aff'd, 718 F.3d 460, 76 Env't. Rep. Cas. (BNA) 1489 (5th Cir. 2013).

³⁵Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d at 855–57, 43 ELR 20109.

³⁶Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d at 857–62, 43 ELR 20109.

³⁷Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d at 862–68, 43 ELR 20109.

³⁸Comer v. Murphy Oil USA, Inc., 718 F.3d 460, 76 Env't. Rep. Cas. (BNA) 1489 (5th Cir. 2013).

³⁹Comer v. Murphy Oil USA, Inc., 718 F.3d 460, 468, 76 Env't. Rep. Cas. (BNA) 1489 (5th Cir. 2013).

⁴⁰Comer v. Murphy Oil USA, Inc., 718 F.3d 460, 468, 76 Env't. Rep. Cas. (BNA) 1489 (5th Cir. 2013) (quoting *Matter of Teal*, 16 F.3d 619, 622 n.6, 25 Bankr. Ct. Dec. (CRR) 463, 30 Collier Bankr. Cas. 2d (MB) 996, Bankr. L. Rep. (CCH) P 75794, 94-1 U.S. Tax Cas. (CCH) P 50138, 73 A.F.T.R.2d 94-1252 (5th Cir. 1994)).

⁴¹Comer v. Murphy Oil USA, Inc., 718 F.3d 460, 469, 76 Env't. Rep. Cas. (BNA) 1489 (5th Cir. 2013).

substantive due process rights by allowing fossil fuel production, consumption, and combustion at “dangerous levels.” The plaintiffs also asserted an equal protection claim based on the government’s denial to them of fundamental rights afforded to prior and present generations. They further asserted violations of rights secured by the Ninth Amendment, which the plaintiffs said protects “the right to be sustained by our country’s vital natural systems, including our climate system.” The plaintiffs additionally alleged that defendants failed to fulfill their obligations under the public trust doctrine.⁴²

In 2016, the district court denied motions to dismiss the public trust and due process claims against the United States and federal officials and agencies.⁴³ The court held that the action did not raise a nonjusticiable political question because it asked the court to determine whether defendants had violated the plaintiffs’ constitutional rights, a question “squarely within the purview of the judiciary.” The court also concluded that the plaintiffs had adequately alleged standing to sue. In determining that the plaintiffs had adequately alleged a due process claim, the court said that the plaintiffs had asserted a fundamental right “to a climate system capable of sustaining human life” and that the plaintiffs’ allegations regarding the defendants’ role in creating the climate crisis, the defendants’ knowledge of the consequences of their actions, and the defendants’ deliberate indifference in failing to act to prevent the harm were sufficient to state a “danger-creation” due process claim. In finding that the plaintiffs had adequately stated a public trust claim, the court said that it was not necessary to determine whether the atmosphere was a public trust asset because the plaintiffs had also alleged the claim in connection with the territorial sea, to which the Supreme Court had said “[t]ime and again” that the public trust doctrine applies. The court also rejected the arguments that the public trust doctrine does not apply to the federal government and that federal environmental statutes displaced public trust claims.

In October 2018, the district court denied almost all aspects of the government’s pending dispositive motions.⁴⁴ The court declined to rule for the defendants on the primary claims advanced by the plaintiffs: the “state-created danger” due process claim and the public trust claim. The court dismissed President Trump from the action (but without prejudice) and also granted summary judgment to the defendants on the plaintiffs’ Ninth Amendment claim and on an equal protection claim based on “posterity” being a suspect classification. The district court said, however, that an equal protection claim based on alleged interference with a right to a climate system capable of sustaining human life would be aided by further development of a factual record. The district court rejected the government’s arguments that the case was required to be heard under the Administrative Procedure Act; that separation of powers principles foreclosed the plaintiffs’ claims; that plaintiffs lacked standing; and that there is no right to a climate system capable of sustaining human life.

In January 2020, the Ninth Circuit, in a split decision, ruled that the plaintiffs did not have Article III standing.⁴⁵ The Ninth Circuit rejected the government’s argument that the plaintiffs’ constitutional claims had to be brought pursuant to the Administrative Procedure Act and agreed with the district court that the plaintiffs met the injury and causation requirements for Article III standing because at least some plaintiffs had alleged concrete and particularized injuries caused by fossil fuel carbon emissions that were increased by federal subsidies and leases. The

⁴²Juliana v. United States, No. 6:15-cv-01517, 46 ELR 20072 (D. Or. filed Aug. 12, 2015).

⁴³Juliana v. United States, 217 F. Supp. 3d 1224, 83 Env’t. Rep. Cas. (BNA) 1598 (D. Or. 2016), mandamus dismissed, 140 S. Ct. 16, 204 L. Ed. 2d 1171 (2019) and rev’d and remanded, 947 F.3d 1159 (9th Cir. 2020).

⁴⁴Juliana v. United States, 2018 U.S. Dist. LEXIS 176508, 46 ELR 20072 (D. Or. Oct. 15, 2018).

⁴⁵Juliana v. United States, 947 F.3d 1159 (9th Cir. 2020).

Ninth Circuit found, however, that the plaintiffs had not established the redressability requirement for standing. The court said it was “skeptical” that even the first prong of redressability—that the relief sought be substantially likely to redress the plaintiffs’ injuries—was satisfied, noting that the plaintiffs conceded “that their requested relief will not alone solve global climate change.” The Ninth Circuit further concluded that even if the first prong was satisfied, the plaintiffs did not “surmount the remaining hurdle” of establishing that the relief they sought was within the power of Article III courts. The majority wrote that “[t]here is much to recommend the adoption of a comprehensive scheme to decrease fossil fuel emissions and combat climate change, both as a policy matter in general and a matter of national survival in particular,” but said it was beyond judicial power “to order, design, supervise, or implement the plaintiffs’ requested remedial plan.” The majority said it “reluctantly” concluded that “the plaintiffs’ case must be made to the political branches or to the electorate at large” and “[t]hat the other branches may have abdicated their responsibility to remediate the problem does not confer on Article III courts, no matter how well-intentioned, the ability to step into their shoes.” The dissenting judge would have held that the plaintiffs had standing and that they had asserted claims under the Constitution and presented sufficient evidence to proceed to a trial. The dissent contended that “a federal court need not manage all of the delicate foreign relations and regulatory minutiae implicated by climate change to offer real relief, and the mere fact that this suit cannot alone halt climate change does not mean that it presents no claim suitable for judicial resolution.”

IV. ADAPTATION—INTRODUCTION

§ 24:13 In general

This section of the chapter focuses on climate “adaptation,” defined in the 2018 National Climate Assessment as actions taken at the individual, local, regional, and national levels to reduce risks from current and future climate conditions.¹ This concept of adaptation shares overlapping characteristics with “resilience,” another frequently used term that also has many definitions.² In the context of climate change, resilience generally refers to a set of qualities that aid disaster recovery and facilitate continuity—in both government and the community—in the face of climate change impacts. Resilience and the ability to adapt are often positively related, since an increase in the capacity to adapt may also increase resilience and vice versa.³ Given the parallel correlation of these two concepts, the terms for “adaptation” and “resilience” will be used interchangeably in this section.

This section is organized into three sub-sections divided according to how different levels of government in the United States—federal, state, and local—are adapting to climate change. Federal, state, and local governments merit separate attention and analysis because, despite some overlap, each level of government has a

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¹R. Lempert, et al, Reducing Risks Through Adaptation Actions, Ch. 28 in Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [D.R. Reidmiller, et al (eds.)]. (2018) 28.

²P. Aldunce, R. Beilin, M. Howden, and J. Handmer, Resilience for disaster risk management in a changing climate: practitioners’ frames and practices, 30 *Glob Environ Change-Hum Policy Dimens* 1 (2014); Susan L Cutter, et al, A Place-Based Model for Understanding Community Resilience to Natural Disasters, 18(4) *Global Environmental Change* 598, 599 (2008).

³Cutter et al, at 600; J.B. Ruhl, General Design Principles for Resilience and Adaptive Capacity in Legal Systems: Applications to Climate Change Adaptation Law, 89 *North Carolina Law Review* 1373, 1388 (2011).

different legal authority and jurisdiction to address the climate crisis. This section first outlines federal laws, agencies, and programs relevant to adaptation, including some examples relevant to tribal adaptation (additional discussion can be found under the section on tribes and climate change). This section then presents key examples of how states and localities are addressing adaptation, focusing on some of the most common legal, regulatory, and policy frameworks that have been used around the country in the absence of a specific, comprehensive federal law or program to provide for adaptation.

This section on climate change adaptation is intended to provide a starting point for practitioners new to the area of climate adaptation or those seeking to understand how the field has changed in recent years. This section is not intended to be a comprehensive survey of laws or policy actions across different levels of government, nor does it fully address adaptation for any particular sector (e.g., natural resources and public lands management, transportation) or climate impact (e.g., sea-level rise, drought, wildfires). Where appropriate, this section provides examples of how different jurisdictions have adopted and/or implemented the specific legal, regulatory, and policy mechanisms discussed herein.

V. ADAPTATION—FEDERAL

§ 24:14 Appropriate government scope for climate adaptation

There is debate among scholars regarding which level of government should assume responsibility for climate change adaptation. Many emphasize the benefits of a local government role, including the greater sense of community ownership and responsibility;¹ the ability to incorporate local knowledge and tailor adaptation to local needs;² and the potential for greater community participation.³ Others have pointed out the disadvantages of local control, including lack of local capacity and resources and the need for cross-jurisdictional coordination.⁴ There is also concern that local control could result in an unfair distribution of adaptation costs, benefits, and risks by excluding traditionally marginalized actors and vulnerable popula-

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¹American Planning Association, *Policy Guide on Planning and Climate Change* 14 (2011); Susanne C. Moser, S. Jeffress Williams & Donald F. Boesch, *Wicked Challenges at Land's End: Managing Coastal Vulnerability Under Climate Change*, 37 ANNUAL REV. ENV. & RES. 51, 67 (2012); Victor B. Flatt, *Adapting Laws for a Changing World: A Systemic Approach to Climate Change Adaptation*, 64 Fla. L. Rev. 269, 285 (2012) at 272; Christopher J. Lemieux, Jessica L. Thompson, Jackie Dawson, & Rudy M. Schuster, *Natural Resource Manager Perceptions of Agency Performance on Climate Change*, 114 J. ENVTL. MGMT. 178, 181 (2012); Vicki Arroyo & Terri Cruce, *State and Local Adaptation* Ch. 16 in *THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS* 570 (MICHAEL GERRARD & KATRINA FISCHER KUH, EDS. 2012).

²ELINOR OSTROM, UNDERSTANDING INSTITUTIONAL DIVERSITY 281-282 (2005); Benjamin J. Richardson, *Local Climate Change Law, Introduction* 12 in *LOCAL CLIMATE CHANGE LAW: ENVIRONMENTAL REGULATION IN CITIES AND OTHER LOCALITIES* (BENJAMIN J. RICHARDSON, ED. 2012); Gary P. Kofinas & F. Stuart Chapin III, *Sustaining Livelihoods and Human Well-Being during Social-Ecological Change* 55 in *PRINCIPLES OF ECOSYSTEM STEWARDSHIP: RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT IN A CHANGING WORLD* 82 (F. STUART CHAPIN III, GARY P. KOFINAS & CARL FOLKE, EDS. 2009); Byrne, J. Peter, and Jessica Grannis. 2012. "Coastal Retreat Measures." In *The Law of Adaptation to Climate Change: U.S. and International Aspects*, edited by Michael Gerrard and Katrina Fischer Kuh, 267-306. Chicago: American Bar Association, Section of Environment, Energy, and Resources., Ch. 9 in GERRARD & KUH, at 267.

³Victor B. Flatt, *Adapting Laws for a Changing World: A Systemic Approach to Climate Change Adaptation*, 64 Fla. L. Rev. 269, 285 (2012); Benjamin J. Richardson, *Local Climate Change Law, Introduction* 12 in *LOCAL CLIMATE CHANGE LAW: ENVIRONMENTAL REGULATION IN CITIES AND OTHER LOCALITIES* (BENJAMIN J. RICHARDSON, ED. 2012), p. 12.

⁴Daniel Osberghaus et al., *The Role of the Government in Adaptation to Climate Change*, 28 ENV. & PLANNING C: GOV. & POLICY 834, 837 (2010).

tions,⁵ or by imposing negative externalities on other localities.⁶

Some commentators call for an overlapping “polycentric system,” where each level of government has some authority to prescribe rules for how resources are used, and no single level has primary authority.⁷ For example, legal scholar Damien Leonard calls for a new overarching law on climate change adaptation that integrates planning between different levels of government, similar to the principle of cooperative federalism carried out through the Coastal Zone Management Act (CZMA).⁸ Others call for a larger private sector role,⁹ noting the need for private citizens to take ownership of adaptation problems,¹⁰ and to avoid a “moral hazard” where government bailouts reduce incentives for personal responsibility.¹¹ There is also a view that addressing climate change is both a public and a private responsibility, where the government must work with non-government entities.¹²

§ 24:15 Scope of federal adaptation law

A. Lack of specific laws

In the late 2000s, the United States was moving on a course toward building federal adaptation law. President Obama’s administration ushered in a series of small measures to acknowledge, if not address, threats posed by climate change. In 2009, President Obama signed Executive Order 13514, which required agencies to evaluate climate-change risks and vulnerabilities and established a task force to

⁵Marcus B. Lane, *Participation, Decentralization, and Civil Society: Indigenous Rights and Democracy in Environmental Planning*, 22 J. PLANNING EDUC. & RESEARCH 360-73, 367 (2003); ELINOR OSTROM, UNDERSTANDING INSTITUTIONAL DIVERSITY 281-282 (2005); Benjamin J. Richardson, *Local Climate Change Law, Introduction 12 in LOCAL CLIMATE CHANGE LAW: ENVIRONMENTAL REGULATION IN CITIES AND OTHER LOCALITIES* (BENJAMIN J. RICHARDSON, ED. 2012) at 282; Alice Kaswan, *Climate Adaptation and Land Use Governance: The Vertical Axis*, 39 COLUMBIA J. ENVTL. L. 390, 396 (2014).

⁶Kaswan, *supra* note 5 at 396; Robert L. Glicksman, “*Climate Change Adaptation: A Collective Action Perspective on Federalism Considerations*,” 40 ENVTL. L. 1159, 1176 (2010).

⁷ELINOR OSTROM, UNDERSTANDING INSTITUTIONAL DIVERSITY 281-282 (2005); Benjamin J. Richardson, *Local Climate Change Law, Introduction 12 in LOCAL CLIMATE CHANGE LAW: ENVIRONMENTAL REGULATION IN CITIES AND OTHER LOCALITIES* (BENJAMIN J. RICHARDSON, ED. 2012) at p. 283; Thomas M Gremellion, *Setting the Foundation: Climate Change Adaptation at the Local Level*, 41 ENV. L. 1221, 1231 (2011); Kaswan, *supra* note 5 at 438-439; Yee Huang et al, *Climate Change and the Puget Sound: Building the Legal Framework for Adaptation*, 2 CLIMATE LAW 299, 311 (2011); J.B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems: Applications to Climate Change Adaptation Law*, 89 N.C. L. REV. 1373, 1396-97 (2011).

⁸Pub. L. No. 92-583, 86 Stat. 1280 (1972), 16 U.S.C. §§ 1451 to 1464. Damien Leonard, *Rising the Levee: Dutch Land Use Law as a Model for U.S. Adaptation to Climate Change*, 21 Georgetown Int’l Env. L. Rev., 543, 561 (2009).

⁹Peter P. J. Driessen and Helena F. M. W. van Rijswijk, *Normative Aspects of Climate Adaptation Policies*, 2 CLIMATE LAW 559, 563 (2011).

¹⁰Susanne C. Moser, S. Jeffress Williams & Donald F. Boesch, *Wicked Challenges at Land’s End: Managing Coastal Vulnerability Under Climate Change*, 37 ANNUAL REV. ENV. & RES. at 67 (2012).

¹¹Daniel Osberghaus et al., *The Role of the Government in Adaptation to Climate Change*, 28 ENV. & PLANNING C: GOV. & POLICY 834, 836 (2010).

¹²Edward P. Weber, *Getting to Resilience in a Climate-Protected Community: Early Problem-Solving Choices, Ideas, and Governance Philosophy*, Ch.8 in COLLABORATIVE RESILIENCE?: MOVING THROUGH CRISIS TO OPPORTUNITY (BRUCE EVAN GOLDSTEIN, ED. 2011) 187; Stefania Munaretto & Judith E. M. Klostermann, *Assessing Adaptive Capacity of Institutions to Climate Change: A Comparative Case Study of the Dutch Wadden Sea and the Venice Lagoon*, 2 CLIMATE LAW 219, 249 (2011); Edna Sussman, *Case Study: Climate Change Adaptation Planning Guidance for Local Governments in the United States*, 9 SUSTAINABLE DEV. L. & POL’Y 11, 34 (2009); J.E. Innes et al., *Coordinating Growth and Environmental Management through Consensus Building*, CPS REPORT: A POLICY RESEARCH PROGRAM REPORT 2 (2011).

develop policy recommendations.¹ In 2013, Executive Order 13653 established a new federal interagency body, the Council on Climate Preparedness and Resilience,² and called for federal agencies to create adaptation plans. Thirty-eight federal agencies submitted adaptation plans in response.³ In 2017, upon taking office, President Trump issued Executive Order 13783 to revoke Executive Order 13653.⁴ As of publication, President-Elect Biden is expected to reinstate many Obama-era climate orders upon taking office in 2021.

Currently, there is no overarching federal climate adaptation legislation and no coordinating agency. However, this does not mean there is no federal climate change adaptation law; indeed, there are an overwhelming number of laws, agencies, and programs relevant to adaptation. Many of them revolve around disaster management and post-disaster recovery, although several agencies are beginning to pay more attention to pre-disaster mitigation and prevention. Federal laws on natural resource management and the federal government's role as a landowner also require federal engagement with climate adaptation. Rather than attempt an inventory of every relevant law, this overview provides an introduction to some of the major relevant approaches.

B. Research programs related to climate change adaptation

A number of federal agencies and programs are dedicated to gathering more information on climate change.⁵ Key examples are the U.S. Global Change Research Program (USGCRP),⁶ which issues a National Climate Assessment⁷ every four years, and the National Oceanic and Atmospheric Administration's (NOAA) Climate Program Office.⁸

§ 24:16 Assistance programs related to disaster management

Climate adaptation and disaster management share certain similarities. They both seek to reduce or respond to the harms caused by hazards. However, there are some distinct differences.¹ Disaster management may refer both to hazards that are directly affected by climate change (e.g., floods, drought) and those that are not (e.g., earthquakes, terrorism). Climate adaptation focuses on current *and* future threats, while disaster management traditionally focuses on current threats. For example, a flood map that illustrates historic or current flood risk may be useful for disaster management, while a flood map that shows projected future risk due to sea

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¹Exec. Order No. 13514, 74 Fed. Reg. 52117 (Oct. 8, 2009).

²Exec. Order No. 13653, 215 Fed. Reg. 6681 (Nov. 6, 2013).

³Hannah Connors, Kathleen D. White & Jeffrey R. Arnold, *Report Providing Comparison of Adaptation Plans Submitted to the White House in 2014* (2015), available at http://www.corpsclimate.us/docs/Comparison_of_2014_Adaptation_Plans_JUNE_2015.pdf.

⁴Exec. Order No. 13783, 82 Fed. Reg. 16093 (Mar. 31, 2017).

⁵RONALD D. BRUNNER & AMANDA H. LYNCH, *ADAPTIVE GOVERNANCE AND CLIMATE CHANGE* 63 (2010).

⁶Pub. L. No. 101-606, 104 Stat. 3096-3104, Nov. 16, 1990.

⁷The National Climate Assessment evaluates the science of climate change and how change and variability will affect the United States. See Fourth National Climate Assessment, <https://nca2018.globalchange.gov>.

⁸See CPO HOME—NOAA, <https://cpo.noaa.gov/> (last visited May 22, 2018).

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¹See Frank Thomalla, Tom Downing, Erika Spanger-Siegfried, Guoyi Han and Johan Rockström, *Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation*, 30 *Disasters* 39-48 (2006); Jessica Mercer, *Disaster risk reduction or climate change adaptation: Are we reinventing the wheel?*, 22 *J. Int. Dev.* 247-264 (2010).

level rise would be useful for climate adaptation. Laws and policies related to disaster management, therefore, are not entirely aligned with climate adaptation, but in the absence of dedicated climate adaptation governance, disaster governance structures are most often leveraged to adapt in the United States.

A. *Scope: Stafford Act and definition of disasters*

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) lays the groundwork for disaster relief and planning for natural disasters.² It establishes the process for a Presidential Disaster Declaration (PDD), which is required for many types of national disaster funding.³ Before a presidential disaster can be declared, there must be a state or tribal disaster declaration.⁴ As disaster relief is intended to become available when local resources are overwhelmed, a disaster must meet certain thresholds to garner a state declaration.⁵ As of this writing, the Federal Emergency Management Agency (FEMA) is proposing to raise these thresholds.⁶ Federally recognized tribes are able to directly ask the president for a disaster declaration without going through a state, but this process involves cost-sharing requirements.⁷

Once a state or tribal disaster declaration has been made, FEMA advises the President whether to declare a disaster.⁸ In deciding what to recommend to the President, FEMA considers whether the disaster is beyond the capabilities of the affected state, tribal, or local governments.⁹ While there are criteria for how much funding a disaster merits, there are no clear criteria for whether a disaster is beyond the capacity of state, tribal, or local governments.¹⁰ As a result, the process for declaring a disaster has been criticized for falling victim to political favoritism.¹¹

Disasters addressed by the Stafford Act include hurricanes, tornados, storms, floods, tidal waves, tsunamis, earthquakes, volcanic eruptions, landslides, snowstorms, and droughts.¹² The exclusion of several climate change-related hazards

²Stafford Act, Pub. L. No. 93-288 (1974), codified as amended at 42 U.S.C. §§ 5121 to 5206, as amended by § 322 of the Disaster Mitigation Act of 2000 (Pub. L. No. 106-390), Katrina Emergency Management Reform Act of 2006, Pub. L. No. 109-295, 120 Stat. 1394 (codified as amended in scattered sections of U.S.C.).

³42 U.S.C. §§ 5122(1), 5191.

⁴42 U.S.C. § 5170(b).

⁵Alaska Division of Homeland Security & Emergency Management, Public Assistance Overview (2010), <https://ready.alaska.gov/recovery/PublicAssistance> (<https://perma.cc/48SZ-LQ4D>).

⁶FEMA, Cost of Assistance Estimates in the Disaster Declaration Process for the Public Assistance Program, 85 Fed. Reg. 80719 (December 14, 2010).

⁷Rachelle E. Luft, *Governing Disaster: The Politics of Tribal Sovereignty in the Context of (Un)natural Disaster*, 39 ETHN. RACIAL STUD. 802, 808 (2016).

⁸44 C.F.R. § 206.37(c). Since the recommendations to the president are a matter of executive privilege and not accessible for analysis, researchers have little insight into how this process actually works. John T. Gasper, *The Politics of Denying Aid: An Analysis of Disaster Declaration Turndowns*, 22 J. PUB. MGMT. & SOC. POL'Y 7 (2015).

⁹42 U.S.C. § 5170(a).

¹⁰Mary W. Downton & R.A. Pielke Jr., *Discretion Without Accountability: Politics, Flood Damage, and Climate*, 2 NAT. HAZARDS REV. 157, 158 (2001). FEMA's Sep. 1, 1999 rule (44 C.F.R. § 206.48—Factors considered when evaluating a Governor's request for a major disaster declaration) only provides criteria in determining the need for public and individual assistance. A preliminary damage assessment (not mentioned in the Stafford Act), conducted jointly by FEMA and the requesting state, is an important part of this consideration. 44 C.F.R. § 206.33.

¹¹See, e.g., John T. Gasper, *The Politics of Denying Aid: An Analysis of Disaster Declaration Turndowns*, 22 J. PUB. MGMT. & SOC. POL'Y 7 (2015); Andrew Reeves, *Political Disaster: Unilateral Powers, Electoral Incentives, and Presidential Disaster Declarations*, 73 J. POLITICS 142 (2011).

¹²42 U.S.C. § 5122.

(e.g., heat waves) from the definition of disaster is noteworthy since these slow-moving disasters plague many communities.¹³ Erosion is addressed through the national disaster regime only if it is sudden, such as when a storm occurs.¹⁴

A PDD is important because of the funding and agency support that comes with it.¹⁵ Once a national disaster is declared, FEMA utilizes the incident command system to coordinate the response with other agencies (and in some cases, the military). It provides public assistance to support government and non-government entities and individual assistance for housing and other expenses.¹⁶ Payouts for disasters can be substantial. Congress provided roughly \$120 billion for Hurricane Katrina (2005), \$60 billion for Hurricane Sandy (2012), and \$20.6 billion for Hurricane Maria (2017) recovery efforts.¹⁷ Following Hurricanes Harvey and Maria in 2017, Congress appropriated \$23.5 billion for the FEMA Disaster Relief Fund, \$17.39 billion for the U.S. Army Corps of Engineers (USACE), \$28 billion to Department of Housing and Urban Development (HUD) Community Development Block Grants, \$1.65 billion to the Small Business Administration (SBA), and various smaller amounts to the Department of Commerce, Department of Defense, Department of Education, Customs and Border Patrols, and Veterans Affairs.¹⁸

Part of the difficulty in declaring a disaster based on damage is determining whether damage is due to the hazard or to aging, unmaintained, or vulnerable infrastructure. In 2018, the Bipartisan Budget Act granted FEMA additional authority under Section 428 of the Stafford Act to provide assistance to replace or *fully* restore a facility or system and its functions including communications, electric, and other critical services rather than just restoring a facility to its pre-disaster conditions, which may have been substantially less than full functionality.¹⁹

B. FEMA programs

FEMA is the main federal agency responsible for short-term disaster response, long-term disaster recovery, and pre-disaster risk reduction efforts. As mentioned in the opening of § 24:16, disaster management may overlap with climate adaptation when and if disaster management also addresses the long-term effects of climate change. Efforts at preventing future risk—also called hazard mitigation or disaster risk reduction efforts—are most likely to coincide with climate adaptation, especially when they address climate-related hazards. FEMA has traditionally focused primarily on disaster response and recovery, but emphasis has shifted to risk reduc-

¹³See, e.g., U.S. ARMY CORPS OF ENGINEERS, ALASKA BASELINE EROSION ASSESSMENT, STUDY FINDINGS AND TECHNICAL REPORT (2009).

¹⁴In *Severance v. Patterson*, the Texas Supreme Court based its decision on a distinction between slow-onset erosion and ‘avulsive’ erosion that occurs rapidly due to a storm. *Severance v. Patterson*, 370 S.W.3d 705, 712 (Tex. 2012).

¹⁵42 U.S.C. §§ 5170b(b), 5172(b), 5173(d).

¹⁶42 U.S.C. § 5174; 44 C.F.R. § 206 Parts E–I.

¹⁷Bruce R. Lindsay, “FEMA’s Disaster Relief Fund: Overview and Selected Issues” (Congressional Research Service, May 7, 2014), <https://www.fas.org/sgp/crs/homesec/R43537.pdf> (<https://perma.cc/P2G6-GRKK>).

¹⁸Thad Cochran, U.S. Senate Committee on Appropriations, Supplemental Appropriations for Disaster Relief and Recovery, 2 July 2018, <https://www.appropriations.senate.gov/imo/media/doc/020718-SUPPLEMENTAL-SUMMARY.pdf>.

¹⁹BIPARTISAN BUDGET ACT, 2018, Pub. L. No. 115-123, Stat. 64, 2017 Enacted H.R. 1892 (February 9, 2018).

FEDERAL REGISTER: Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Disaster Recovery Grantees Pages 40314–40325 [FR DOC # 2018-17365], Impact News Service, August 15, 2018 Wednesday. U.S. Federal Emergency Management Agency, 2017 Hurricane Season FEMA After-Action Report (July 12, 2018), available at https://www.fema.gov/sites/default/files/2020-08/fema_hurricane-season-after-action-report_2017.pdf.

tion in recent years.

1. Disaster recovery and risk reduction funding

FEMA oversees several hazard mitigation programs that provide funding for disaster mitigation and risk reduction, including the Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC),²⁰ and Flood Mitigation Assistance (FMA).²¹ FEMA allows a state or tribe that has received a disaster declaration in the past year to apply for HMGP funding, which the recipient can re-grant to localities or tribes to reduce their hazard risks.²² Rather than providing states with a set, consistent amount of funding, HMGP funds are calculated as a percentage of payouts made through the last disaster declaration.²³ BRIC funds do not require a disaster declaration, and the amount of funding available is whatever Congress chooses to allocate to the program that year.²⁴ Both HMGP and BRIC provide funding opportunities for mitigation actions such as property acquisition and relocation, as well as disaster preparedness actions such as installing disaster warning systems.²⁵ Both HMGP and BRIC require a 25% match, or 10% for small and impoverished communities.²⁶ FMA provides funds to states, territories, tribes, and local governments to prepare flood mitigation plans and carry out mitigation projects. FMA requires communities to participate in the National Flood Insurance Program (NFIP, more fully discussed in the next subsection).²⁷

BRIC provides for a larger amount of funding than its predecessor, the pre-disaster mitigation program: the President may set aside 6% of the funding spent on presidential disaster declarations in the previous federal year for BRIC funding.²⁸ BRIC is available annually to states for which the President issued a disaster declaration in the past seven years. BRIC breaks down funding opportunities between state and territory allocation, tribal awards, and the national competition category. In the 2020 application cycle, these totaled \$500 million in funding opportunities.²⁹ Applicants' projects will still be subject to a cost sharing structure, with 75% of the project to be funded with federal funding and 25% with non-federal funding, except for small impoverished communities, in which case 90% of funding is federal and 10% non-federal.³⁰

While BRIC seeks to strategically shift the federal focus from reactive disaster management to preventative infrastructure and resiliency projects, there are many critiques about the methods it uses to accomplish this. Most notably, BRIC carries

²⁰BRIC is the successor to the Pre-Disaster Mitigation Program or PDM. 42 U.S.C. § 5133(i)(1); FEMA, Building Resilient Infrastructure and Communities (BRIC); <https://www.fema.gov/bric>.

²¹GAO, *High-Risk Series, An Update*, GAO-15-290 87 (2015).

²²42 U.S.C. § 5170c; 44 C.F.R. §§ 201.7, 206.2(a)(16), 206.434(a), 206.436.

²³42 U.S.C. § 5170c(a); 44 C.F.R. § 206.432; FEMA, *Hazard Mitigation Assistance Program Digest*, 41, 48, 53 (2015), https://www.fema.gov/media-library-data/1444240033001-518cdc8d447ef79a1360763e3145d17e/HMA_Program_Digest_508.pdf (<https://perma.cc/H5BY-TP3W>).

²⁴2 U.S.C. § 5133(c); FEMA, FY 2015 Pre-Disaster Mitigation Grant Program Fact Sheet (May 2015), <http://www.fema.gov/media-library-data/1432847398289-878c470e718239eedcaadc8d52ea1823/PDMFactSheetFY2015.pdf> (<https://perma.cc/ZD65-SCRW>).

²⁵FEMA, *Mitigation Ideas* (2013), https://www.fema.gov/media-library-data/20130726-1904-25045-0186/fema_mitigation_ideas_final508.pdf.

²⁶42 U.S.C. § 5170c(a); 44 C.F.R. § 206.432. 42 U.S.C. § 5133(h).

²⁷42 U.S.C. § 4104c.

²⁸42 U.S.C. § 5133(i)(1).

²⁹FEMA Notice of Funding Opportunity (NOFO), FY2020 Building Resilient Infrastructure and Communities, pg 4. https://www.fema.gov/sites/default/files/2020-08/fema_fy20-bric-notice-of-funding-opportunity_federal-register_August-2020.pdf.

³⁰*Id.*, at 8.

forward the arguably arbitrary principle of tying together hazard mitigation funding with how much was spent on a previous disaster declaration—a declaration that may or may not relate to a community’s vulnerability to disaster in the future.³¹

2. Flood insurance

The National Flood Insurance Program (NFIP) was established by the National Flood Insurance Act (NFIA) of 1968 to provide homeowners and renters with insurance coverage for flood damage.³² The NFIP is intended to “Better indemnify individuals for flood losses through insurance; Reduce future flood damages through State and community floodplain management regulations; and Reduce Federal expenditures for disaster assistance and flood control.”³³

To participate in NFIP, a household must be in a community with ordinances that meet minimum federal requirements to restrict development within Special Flood Hazard Areas (SFHAs): areas with flood, mudflow, or flood-related erosion hazards designated by FEMA in flood insurance rate maps (FIRMs). Homes in these areas that are purchased with a federally-backed mortgage must carry flood insurance³⁴ and must comply with local floodplain management ordinances.³⁵ Communities that participate in NFIP are eligible to apply for funding from FEMA’s Flood Mitigation Assistance program,³⁶ which can be used to prepare flood mitigation plans and implement measures to reduce flood losses (such as elevation or relocation of insured structures).³⁷ Communities may also participate in the Community Rating System (CRS), which reduces premiums if the community engages in risk reduction measures.³⁸

The NFIP has been widely criticized. Critics argue that the SFHA maps that underpin NFIP premium rates are often inaccurate and outdated, fail to consider climate change and sea level rise, and subsidize development in the most vulnerable areas.³⁹ The minimum federal requirements for local ordinances do not limit densities in vulnerable areas; nor do they prevent rebuilding of buildings that experienced

³¹E.g., Susan Cutter and Christopher Emrich, *Are Natural Hazards and Disaster Losses in the U.S. Increasing?*, 86 EOS, TRANSACTIONS AMERICAN GEOPHYSICAL UNION 381 (2005); Susan L. Cutter, Bryan J. Boruff, and W. Lynn Shirley, *Social Vulnerability to Environmental Hazards*, 84 SOC. SCI. QUARTERLY 242, 256 (2003); R. Steven Daniels, *The Rise of Politics and the Decline of Vulnerability as Criteria in Disaster Decisions of the United States, 1953-2009*, 37 DISASTERS 669, 689 (2013); Mary W. Downton & R.A. Pielke Jr., *Discretion Without Accountability: Politics, Flood Damage, and Climate*, 2 NAT. HAZARDS REV. 157, 163 (2001); Thomas A. Garrett, and Russell S. Sobel, *The Political Economy of FEMA Disaster Payments*, 41 ECON. INQUIRY 496, 508 (2003); John T. Gasper, *The Politics of Denying Aid: An Analysis of Disaster Declaration Turndowns*, 22 J PUB. MGMT. & SOC. POL’Y 7 (2015); Andrew Reeves, *Political Disaster: Unilateral Powers, Electoral Incentives, and Presidential Disaster Declarations*, 73 J POLITICS 1142, 1147 (2011); Mathew C. Schmidlein, Christina Finch, and Susan L. Cutter, *Disaster Declarations and Major Hazard Occurrences in the United States*, 60 PROF. GEOGRAPHER 1, 13 (2008).

³²Pub. L. No. 90-448, Title 13 (1968), 82 Stat. 476, codified as amended at 42 U.S.C. §§ 4001 to 4129.

³³Federal Emergency Management Agency (FEMA) Federal Insurance & Mitigation Administration (2002) National Flood Insurance Program: Program Description. Washington, D.C. https://www.fema.gov/media-library-data/20130726-1447-20490-2156/nfipdescrip_1_.pdf.

³⁴42 U.S.C. § 4012a.

³⁵42 U.S.C. § 4022.

³⁶42 U.S.C. § 4104c.

³⁷42 U.S.C. § 4104c; 44 C.F.R. §§ 79.2(b,c,i), 79.6(a).

³⁸See Wesley Highfield and Samuel Brody, *Determining the effects of the FEMA Community Rating System program on flood losses in the United States*, 21 International Journal of Risk Reduction 396 (2017).

³⁹Leatherman, Stephen P. 2017. “Coastal Erosion and the United States National Flood Insurance Program.” *Ocean & Coastal Management*, April.; Byrne, J. Peter, and Jessica Grannis, Coastal Retreat Measures, in THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS (Michael Gerrard

structural damage less than 50%.⁴⁰ According to the Government Accountability Office (GAO), oversight is not always strict, even where FEMA requires rebuilding to meet new standards.⁴¹ The GAO has suggested that the availability of federal assistance may inhibit actions to mitigate disaster losses, since individuals may not act to protect themselves from the effects of severe weather if they believe the federal government will eventually help pay for their losses.⁴² As one writer described the program:

“The NFIP is an actuarial joke. It would be like having a federal automobile insurance company that only insured teenage boys who drink and drive. By definition the properties covered by the program are doomed to be flooded, damaged, and even destroyed, not just once, but time and time again.”⁴³

Indeed, NFIP has been bankrupt since Hurricane Katrina in 2005. The NFIP borrows funds from the U.S. Treasury to cover shortfalls between premiums received and funds dispersed. In 2017, Congress cancelled \$16 billion of NFIP debt, although the program remains in debt.⁴⁴ In 2020, the GAO released a new report that concludes: “FEMA grants have been used to acquire and demolish flood-prone properties to help reduce flood damage. Reduced damage should lead to fewer or less costly claims for the National Flood Insurance Program, which FEMA also administers. But the number of such properties keeps growing, and the program still doesn’t collect enough in premiums to cover claims over the long term.”⁴⁵

Part of the challenge is that the number of flood insurance policies has declined over the last decade. According to one study, only 40% of homes in the FEMA-designated ‘100-year-floodplain’ had flood insurance policies (either public or private).⁴⁶ Up to 80% of the people affected by Hurricane Harvey in Texas had no insurance.⁴⁷

The Biggert-Waters Act of 2012 sought to update NFIP by reducing eligibility for flood insurance coverage and modifying premiums. Structures built before NFIP were no longer grandfathered into the program; homes that flood repeatedly were denied coverage; and insurance premiums were to be recalculated to accurately reflect actuarial risk.⁴⁸ The Act even authorized FEMA to update flood maps based

& Katrina Fischer Kuh, eds.) 267 Chicago: American Bar Association, Section of Environment, Energy, and Resources (2012), p. 290; Craig Anthony Arnold, *Legal Castles in the Sand: The Evolution of Property Law, Culture, and Ecology in Coastal Lands*, 61 *Syracuse L Rev* 213-260 (2011); Robin Kundis Craig, *Coastal adaptation, government-subsidized insurance, and perverse incentives to stay*, 152 *Climatic Change* 215-226 (2019); S Fox, *This is adaptation: the elimination of subsidies under the National Flood Insurance Program*, *Colum J Envtl L* 39:205-250 (2014).

⁴⁰44 C.F.R. § 206.226(f).

⁴¹GAO-20-396, *National Flood Insurance Program: FEMA Can Improve Community Oversight and Data Sharing*, May 5, 2020, <https://www.gao.gov/products/GAO-20-396>.

⁴²GAO, 2015. “High-Risk Series, An Update, GAO-15-290.” P. 87.

⁴³Dwight H. Merriam, *Regulating Rebuilding in Developed Areas Following Disasters*, in *Losing Ground: A Nation on Edge* 325, 326 (John R. Nolon & Daniel B. Rodriguez eds., 2007).

⁴⁴Pub. L. No. 115-72.

⁴⁵GAO-20-509, *National Flood Insurance Program: Fiscal exposure Persists Despite Property Acquisitions*, June 25, 2020, <https://www.gao.gov/products/GAO-20-509>.

⁴⁶Ryan Smith, *60% of homeowners in high-risk flood zones lack insurance*, *Insurance Business*, 28 May 2020, <https://www.insurancebusinessmag.com/us/news/catastrophe/60-of-homeowners-in-highrisk-flood-zones-lack-insurance-223609.aspx>.

⁴⁷Robin Kundis Craig, *Coastal adaptation, government-subsidized insurance, and perverse incentives to stay*, 152 *Climatic Change* 215-226 (2019).

⁴⁸Biggert-Waters Flood Insurance Reform Act of 2012, Pub. L. No. 112-141, 126 Stat. 405, § 100205, partially codified at 42 U.S.C. § 4014.

on climate change considerations.⁴⁹ However, a 2014 amendment rolled back these updates by repealing rate increases, restoring grandfathered rates, and limiting rate increases to rise more gradually.⁵⁰

Aware of concerns with the program, but unable to decide on how to balance affordability with risk reduction incentives, Congress has passed 16 short-term reauthorizations of the NFIP between 2017 and 2020.⁵¹ The most recent reauthorizes NFIP through September 30, 2021.⁵² The NFIP has no overarching sunset provision, termination, or expiration date, so portions of the Act must be routinely reauthorized by Congress. Several major reforms have been proposed, and some are still under consideration, but none have been adopted as of publication.⁵³

Only communities that have jurisdiction over their land can participate in NFIP; this means that unrecognized tribes and communities cannot participate.⁵⁴ There are additional challenges for tribes who wish to participate in NFIP, including a lack of flood mapping for many rural tribal lands, insufficient resources to administer NFIP requirements, and the expense of NFIP premiums. In 2012, GAO found that just 37 of the then 566 federally recognized tribes, or 7%, were participating in NFIP, with three tribes accounting for more than 70% of the policies.⁵⁵

In its current form, the NFIP may be doing more harm than good with respect to climate adaptation, by providing a “perverse incentive” for homeowners to build in or remain in flood-prone areas and by masking a market signal that might otherwise encourage homeowners and flood-prone communities to engage in climate adaptation.⁵⁶

C. HUD programs

Although the primary mission of the Department of Housing and Urban Development (HUD) is to “create strong, sustainable, inclusive communities and quality affordable homes for all,”⁵⁷ the department has played an increasingly large role in disaster recovery and risk reduction and, through these programs, adaptation. Indeed, HUD is one of the largest sources of funding for long-term disaster recovery, and investments in affordable housing and infrastructure influence the ability of communities to adapt to climate adaptation.⁵⁸

1. CDBG-DR and CDBG-MIT

The Housing and Community Development (HCD) Act of 1974 created the Com-

⁴⁹*Ibid.* at §§ 100215(d), 100216; partially codified at 42 U.S.C. § 4101b(b)(3).

⁵⁰Homeowner Flood Insurance Affordability Act, Pub. L. No. 113-89, 128 Stat. 1020 (2014), at § 3, 42 U.S.C. § 4014(g) and §§ 4-5, 42 U.S.C. § 4015.

⁵¹Diane P. Horn, What Happens If the National Flood Insurance Program (NFIP) Lapses? Congressional Research Service Report IN10835, October 2, 2020.

⁵²Title XIII of P.L. 90-448, as amended, 42 U.S.C. §§ 4001 et seq.

⁵³E.g., 21st Century Flood Insurance Reform Act (H.R. 2874), 2017, which includes a provision that would require flood risk disclosures in real estate transactions.

⁵⁴44 C.F.R. § 59.1 (definition of community).

⁵⁵GAO. 2013. “Flood Insurance: Participation of Indian Tribes in Federal and Private Programs, GAO-13-226.” <http://www.gao.gov/products/GAO-13-226>.

⁵⁶See, Robin Kundis Craig, *Coastal adaptation, government-subsidized insurance, and perverse incentives to stay*, 152 Climatic Change 215-226 (2019); Christine Klein, *The National Flood Insurance Program at Fifty: How the Fifth Amendment Takings Doctrine Skews Federal Flood Policy*, 31 Geo. Envtl. L. Rev. 285 (2019); Carolyn Kousky, *Financing Flood Losses: A Discussion of the National Flood Insurance Program*, 21 Risk Mgmt. Ins. Rev. 11 (2018).

⁵⁷HUD, About HUD—Mission, <https://www.hud.gov/about/mission> (last accessed 25 Nov. 2020).

⁵⁸HUD, Climate Change Adaptation Plan (HUD, 2014), available at <https://www.hud.gov/sites/documents/HUD2014CCADAPTPLAN.pdf>.

munity Development Block Grant (CDBG) program, which provides funds for urban communities to supply housing and services for low- and moderate-income persons.⁵⁹ These funds may be used to rebuild in the aftermath of a disaster; notably, the way in which communities rebuild has implications for their climate adaptation.

In addition, HUD offers CDBG Disaster Recovery (CDBG-DR) and CDBG-Mitigation (CDBG-MIT) funding in connection with federal disaster declarations.⁶⁰ These programs are designed specifically to address pre-disaster risk reduction (CDBG-MIT) and post-disaster recovery (CDBG-DR). Congress may appropriate funding under existing authorities following a disaster, and CDBG-DR has been commonly funded in this way since the 1990s.⁶¹ While CDBG-DR does not have a consistent annual budget, these supplemental allocations are sometimes larger than the conventional CDBG program. It is not required for CDBG-DR allocations to be tied to major disaster declarations, although this is the norm.

CDBG-MIT funds were developed as part of the CDBG-DR appropriations and are a sub-designation of funds intended to promote infrastructure resilience.⁶² Generally, expenditures follow CDBG statutory authorities, but because these programs are funded through supplemental appropriations, each appropriation may contain specific guidelines. States, tribal governments, and local governments submit action plans to HUD, which approves the plans and obligates funds.

2. One-time resilience competitions

HUD has held two resilience project competitions in the past decade. The first, Rebuild by Design, was held in coordination with the Hurricane Sandy Rebuilding Task Force, and was a competition to encourage Sandy-affected communities to propose resilience projects that also addressed potential effects of climate change. Seven winning projects were awarded \$930 million in CDBG-DR funds, and the projects are slated to be completed in 2022.⁶³

The second competition, launched in 2014, was the National Disaster Resilience Competition. This competition was open to communities across the nation, and through it, HUD awarded nearly \$1 billion to projects in 13 states.⁶⁴ According to HUD, “[p]rojects proposed include stormwater and water quality projects, low-income housing renovation and relocation, energy resilience, watershed restoration, bridge repair and replacement, and many other resilient infrastructure activities.”⁶⁵

Many competitions for community funding, including the one-time HUD competitions, have been criticized for being inequitable, as communities may win funding by having the most sophisticated proposal, rather than by facing the greatest threat

⁵⁹Housing and Community Development (HCD) Act of 1974, 42 U.S.C. §§ 5301 et seq.; HUD, Community Development Block Grants, HUD Exchange, <https://www.hudexchange.info/programs/cdbg/25> (last accessed Nov. 2020).

⁶⁰Sec. 5306(c)(4); HUD, Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Mitigation Grantees, 84 Fed. Reg. 45838 (August 30, 2019).

⁶¹Michael H. Cedre, Joseph V. Jaroscak, The Community Development Block Grant’s Disaster Recovery (CDBG-DR) Component: Background and Issues, Congressional Research Service, Report R46475, August 3, 2020.

⁶²A further subset of funds, CDBG-CV, was created by a supplemental appropriation as part of the CARES Act (Pub. L. No. 116-136) response to the COVID-19 pandemic.

⁶³HUD Exchange, Rebuild by Design, <https://www.hudexchange.info/programs/cdbg-dr/rebuild-by-design/> (last accessed 16 December 2020).

⁶⁴HUD, Notice of National Disaster Resilience Competition Grant Requirements, 81 Fed. Reg. 36557 (June 7, 2016).

⁶⁵HUD, National Disaster Resilience Competition Grant Requirements, https://www.hud.gov/progr/am_offices/economic_development/resilience/competition (last accessed 25 Nov. 2020).

or demonstrating the greatest need.⁶⁶

§ 24:17 Non-disaster assistance programs

In addition to disaster-related assistance programs and risk reduction efforts, a wide variety of federal programs affect the ability of communities and ecosystems to withstand the effects of climate change. Infrastructure, access to resources, and ecosystem regulations, for example, all affect adaptation. Rather than attempt a comprehensive catalog, the following section presents a range of different ways in which the federal government affects adaptation to climate change.

A. U.S. Army Corps of Engineers (USACE)

USACE has come to play an important role in erosion and flood control across the United States. The Flood Control Act of 1941 authorizes an emergency fund to be used at the discretion of the Chief of Engineers for disaster preparation, repair, or restoration of flood control works, nonstructural alternatives to flood control works, emergency provision of clean water, and “activities necessary to protect life and improved property from a threat resulting from a major flood or coastal storm.”¹ Various statutes over time, from the Flood Control Act of 1944 to the Water Resources Reform and Development Act of 2014,² expanded on this broad authority to manage water projects. “Major structural or operational change” and modifications that “seriously affect” authorized purposes of a project require additional Congressional approval.³ Today, the Corps defines its mission as “partnering in peace and war to strengthen our Nations’ security, energize the economy and reduce risks from disasters.”⁴

In Alaska, the USACE has taken the lead on anti-erosion “hard armoring” projects.⁵ In 2005, Congress authorized the Corps “to carry out, at full federal expense, structural and non-structural projects for storm damage prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities.”⁶ This authority was repealed in 2009.⁷ A 2010 appropriation provided a similar authority,⁸ but required non-federal cost sharing of up to 35%. As of this writing, the North Slope Borough is negotiating a project under this authority to construct a five-mile-long revetment. The project would armor the shoreline with rocks weighing nearly

⁶⁶See Christopher Flavelle, The toughest climate dilemma: Who gets saved?, Bloomberg, 6 September 2016; Trace Lane, The U.S. Strategy for Flood Resilience is Underwater, Next City, 24 August 2016, <https://nextcity.org/daily/entry/us-strategy-flood-resilience-coastal-cities-competitions>.

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¹Pub. L. No. 84-99 (1941), as amended, 33 U.S.C. § 701n, 69 Stat. 186. 33 U.S.C. § 203.12—Authority.

²See Pub. L. No. 78-534, §§ 1-8, 58 Stat. 887, 887-91 (1944) (codified in scattered sections of 16, 33 & 43 U.S.C.) and Pub. L. No. 113-121 (2014).

³43 U.S.C. § 390b(e).

⁴USACE, Mission & Vision (last accessed 4 Nov. 2020), <https://www.usace.army.mil/About/Mission-and-Vision>.

⁵Army Corps, 2007. “Information Paper, Status of Protection/Intervention Actions at High Risk Communities.”

⁶Consolidated Appropriations Act, 2005, Pub. L. No. 108-447, Div. C, Title I, § 117, 118 Stat. 2944-45 (2004).

⁷Pub. L. No. 111-8, Div. C, Title I, § 117, 123 Stat. 524 (2009).

⁸Section 116 of the Energy and Water Development and Related Agencies Appropriations Act, 2010 (Pub. L. No. 111-85) 33 U.S.C.A. § 2213.

three tons each at an estimated construction cost of \$328.6 million.⁹ With its strong economic basis in the oil and gas industry, the Borough is expected to be able to provide the 35% cost share. In contrast, small towns and Alaska Native Villages that are unable to meet the cost share requirements have been unable to benefit from this program.

In Miami, Florida, a city facing numerous climate-related risks including sea level rise, saltwater intrusion, and rising temperatures, the USACE is engaged in a *Miami-Dade Back Bay Coastal Storm Risk Management Feasibility Study*, to be completed by June 2021.¹⁰ The study “seeks not only to reduce coastal storm risk, but also to build on resilience by implementing strategic approaches that address identified stresses from major storms, and the impact on residents and economic activity.”¹¹ However, the study “will not provide a holistic or comprehensive risk reduction plan for the County” and explicitly does not address nuisance flooding or other residual risks.¹² The study is anticipated to propose a mix of structural measures—such as storm surge barriers, pump stations, and riprap that are designed to reduce the probability of flooding occurring—and non-structural measures—such as home elevation and building floodproofing that are designed to reduce the consequences of a flood once it occurs. During the public comment period, the draft study report was critiqued for a lack of nature-based approaches and for using standard cost-benefit analysis techniques and hazard estimates to assess potential equity implications.¹³ As these techniques are common throughout the federal government, challenging their application in Miami may lead to further conversations about appropriate techniques and evidentiary bases for evaluating adaptation alternatives.

B. Housing and Urban Development

As discussed above, HUD offers various grants for low-income housing and infrastructure to communities, including the Community Development Block Grant (CDBG) program.¹⁴ The program makes funds available to states, tribes, and municipalities on a semi-annual basis. Funding may be used “to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons.”¹⁵ Nothing in the relevant statute or regulations refers explicitly to climate adaptation, but investments in housing and urban infrastructure are often closely related to adaptation actions. For example, every time a community builds new housing, it makes climate adaptation-related decisions about where to build, how the building will affect water, electricity, and septic services, and how well the building design will fare in a future climate. HUD also plays a large and growing role in disaster mitigation, as described in § 2:3.

C. U.S. Department of Agriculture

⁹Alaska Native Tribal Health Consortium, Center for Environmentally Threatened Communities, Newsletter Issue 35, May 2020.

¹⁰Bipartisan Budget Act of 2018, Pub. L. No. 115-123.

¹¹USACE, *Miami-Dade Back Bay Coastal Storm Risk Management Feasibility Study* (U.S. Army Corps of Engineers, 2020), p. iii.

¹²*Id.*

¹³*See, e.g.*, NRDC, Public Comment RE: Miami-Dade Back Bay Coastal Storm Risk Management Feasibility Study, Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement, 19 Aug. 2020, <https://www.nrdc.org/sites/default/files/miami-dade-back-bay-csrm-feasibility-study-comments-20200819.pdf>.

¹⁴42 U.S.C. §§ 5301 et seq.

¹⁵HUD, Community Development Block Grants, HUD Exchange, available at <https://www.hudexchange.info/programs/cdbg/> (last accessed 25 Nov. 2020).

The Department of Agriculture's Natural Resources Conservation Service (NRCS) administers several programs related to watershed planning and flooding and erosion control projects. The Watershed and Flood Prevention Program and the Emergency Watershed Protection Program both allow for structural measures, buyouts, and relocations to prevent erosion or reduce risk exposure.¹⁶ Under the latter program (which is more often funded by Congress), assistance may be provided after a disaster declaration, as discussed in § 24:16, or when NRCS determines that a watershed has been impaired such that there is an imminent threat to health, life, or property.¹⁷ There is a cost-share requirement of 25%, or 10% for projects within limited-resource areas.¹⁸

§ 24:18 Resource management

Numerous federal laws could appear in this section, as many resource-related laws have been amended in their legislative language or their implementation to address the effects of climate change.¹ Those mentioned here were chosen to illustrate a range of federal efforts to address climate adaptation.

A. National Environmental Policy Act

Much of the discussion of the National Environmental Policy Act (NEPA)² in the context of climate change considers how to evaluate a project's contribution to rising greenhouse gas levels in the atmosphere. However, the act also has potential relevance for adaptation insofar as project managers are required to consider the uncertain future effects of climate change on a project.³ First, an agency can address this uncertainty by deciding to return to a decision later in time when there is new information, so long as this intent does not result in "piecemealing" a decision or ignoring cumulative impacts.⁴ Second, when an agency within the Department of the Interior ("DOI") is evaluating alternatives, it can consider different climate scenarios for each regime, and plan to shift management if a particular scenario

¹⁶Watershed and Flood Prevention program authorized by Flood Control Act of 1944, Pub. L. No. 78-534, 58 Stat. 887 (1944), codified at 16 U.S.C. § 460d and various sections of Titles 33 and 43 U.S.C.; Pub. L. No. 83-566, 68 Stat. 666, codified at 16 U.S.C. §§ 1001 to 1012; 7 C.F.R. Pt. 622. Emergency Watershed program authorized by Pub. L. No. 81-516, § 216 (1950), codified at 33 U.S.C. § 701b-1; and Pub. L. No. 95-334, §§ 403 to 405, codified at 16 U.S.C. §§ 2203 to 2205. For a description of risk reduction measures allowed, see, NRCS, National Watershed Program Manual at 50.3 <https://directives.sc.e.gov.usda.gov/OpenNonWebContent.aspx?content=35104.wba>; NRCS, Emergency Watershed Protection Program, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/>.

¹⁷7 C.F.R. §§ 624.4, 624.5.

¹⁸7 C.F.R. § 624.7.

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¹See, generally, Robert Glickson, *Governance of public lands, public agencies, and natural resources*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS* 441 (MICHAEL GERRARD & KATRINA FISCHER KUH, Eds., 2012).

²42 U.S.C. §§ 4321 to 4347.

³ROBERT L. FISCHMAN & JILLIAN R. ROUNTREE, *THE LAW OF ADAPTATION TO CLIMATE CHANGE?: U.S. AND INTERNATIONAL ASPECTS* 22, 19-47 (Michael Gerrard & Katrina Fischer Kuh 2012); Katrina Fischer Kuh, *Impact Review, Disclosure, and Planning*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE?: U.S. AND INTERNATIONAL ASPECTS* 543, 543-567 (Michael Gerrard & Katrina Fischer Kuh eds., 2012); Mark Squillace & Alexander Hood, *NEPA, Climate Change, and Public Lands Decision Making*, 42 ENVTL. L. 469, 479 (2012).

⁴*Compare* High Sierra Hikers Assn v. Weingardt, 521 F. Supp. 2d 1065 (N.D. Cal. 2007) (overturning a Forest Service decision to liberalize the rules limiting campfires in high-country parts of a wilderness area that were made in spite of a record raising a number of problems with the decision), *with* Theodore Roosevelt Conservation Partnership v. Salazar, 616 F.3d 497, 175 O.G.R. 824 (D.C. Cir. 2010) (upholding a tiered analysis of natural gas development that considered a broad plan but did not yet authorize a specific ground-disturbing activity).

occurs.⁵ This provision is based on 2008 DOI regulations that allow, but do not require, adaptive management.⁶

However, many federal actions are exempt from NEPA if undertaken as emergency response and recovery actions after a disaster declaration has been made under the Stafford Act.⁷ The Administrative Procedure Act similarly sets forth procedural exemptions for emergencies.⁸ In addition, the application of NEPA to adaptation actions such as relocation is unclear. For example, it is unclear which agency should take the lead with regard to the relocation efforts that have taken place thus far on the West Coast of Alaska—despite USACE having functionally taken on this role—and numerous environmental impact assessments have been conducted for each community rather than one cumulative analysis for each relocation project.⁹ More details on NEPA and recent interpretations and modifications are available in Chapter 10 of this treatise.

B. Management on federally-owned lands

As a major landowner, the federal government is also responsible for adaptation on federally-owned lands. This includes roughly 640 million acres of land, more than one-fourth of the total land area in the United States.¹⁰ The Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), National Park Service (NPS), and Forest Service (FS) in the US Department of Agriculture (USDA) together manage over 600 million acres of land and are responsible for climate adaptation on those lands. The Department of Defense administers almost 9 million acres and is similarly responsible for adaptation actions, with a particular concern being that of coastal Navy bases facing sea level rise and coastal hazards.¹¹

Two critical areas where adaptation has emerged in recent discussions are wildfire management and cultural heritage preservation.

1. Wildfire management

The federal government is responsible for responding to wildfires that originate on federal lands.¹² The DOI manages wildfire response on national parks, preserves, wildlife refuges, and Indian reservations. The Forest Service manages wildfire response in the National Forest System. FEMA provides assistance to states with wildfire disaster declarations through Fire Management Assistance Grants (FMAGs). Grants may reimburse up to 75% of allowable suppression costs.¹³ Federal agencies also carry out projects to prevent wildfires. These may be considered climate adaptation insofar as these management responses will be required to address rising temperatures and increasingly frequent and severe droughts.

2. Cultural heritage

The National Park Service (NPS) Organic Act of 1916 mandates protection of nat-

⁵43 C.F.R. § 46.145.

⁶43 C.F.R. § 46.145.

⁷42 U.S.C. § 5159. See also Michael Gerrard, *Emergency Exemptions from Environmental Laws After Disasters*, Natural Resources & Env., 10 (Spring 2006).

⁸5 U.S.C. § 553(b)(3)(B).

⁹GAO 2009, 9, 31.

¹⁰Vincent, Carol Hardy, Laura A. Hanson, Lucas F. Bermejo, Federal Land Ownership: Overview and Data, Congressional Research Service, Feb. 21, 2020, R42346.

¹¹See, e.g., Naval Studies Board and National Research Council, *National security implications of climate change for US Naval forces* (National Academies Press, 2011).

¹²See Katie Hoover, *Federal Assistance for Wildfire Response and Recovery*, Congressional Research Service, July 27, 2020, IF10732.

¹³*Id.*

ural and historic objects for enjoyment by the public and by future generations.¹⁴ The NPS Cultural Resources Climate Change Strategy recognizes the potential for climate change to complicate this mission and notes the need for NPS climate adaptation actions.¹⁵ The Historic Sites Act of 1935,¹⁶ Historic Preservation Act of 1966,¹⁷ and National Historic Landmarks Program all provide federal directives to ensure the protection of cultural heritage resources on federal lands.¹⁸

C. Water regulation

Numerous federal agencies are involved in water control and management, issues that are likely to become more contentious and difficult as climate change alters the availability of water, particularly in the West.¹⁹ DOI, USDA, USACE, the Federal Energy Regulatory Commission (FERC), and the Environmental Protection Agency (EPA) are all involved in the control, distribution, or monitoring of water resources. FERC, for example, issues permits and reauthorizations for existing permits for the construction and operation of hydroelectric dams.²⁰ The federal basis for engagement is grounded in land ownership and management (see § 24:18(B)), the Commerce Clause of the U.S. Constitution, and control of navigable water.²¹ Federal agencies have invested heavily in dams, power plants, and irrigation works, and their role in the future is uncertain. Chapters 13 (Water), 14 (Soil and Groundwater), and 18 (Drinking Water) of this treatise describe the federal regulatory frameworks governing water resources in the United States.

D. Adaptive management examples

Resource management laws have traditionally been based on the idea of stable ecosystems that can be managed with relatively static rules.²² For example, the U.S. Endangered Species Act aims to preserve all presently existing species in more or less their current genetic form.²³ Likewise, the Wilderness Act²⁴ focuses on maintaining landscapes in their current “untrammeled” form.²⁵ But ecosystems can and do change, and many are changing rapidly as the climate changes.²⁶ Effective response to climate change may require the law to provide natural resource decision-makers

¹⁴Organic Act of 1916, 16 U.S.C. § 1. Replaced by Pub. L. No. 113-287, National Park Service and Related Programs, 54 U.S.C. § 1.

¹⁵National Park Service, Climate Change Response Strategy (U.S. Department of the Interior, 2010).

¹⁶Formerly 16 U.S.C. § 461; now American Antiquities, 54 U.S.C. § 320101.

¹⁷Formerly 16 U.S.C. § 470; now 54 U.S.C. §§ 300101 et seq.

¹⁸Formerly 16 U.S.C. § 470; now National Historic Landmarks Program 54 USC 302102, and regulations 36 C.F.R. § 65.

¹⁹USGCRP National Climate Assessment.

²⁰Federal Power Act, 18 C.F.R. § 1(B) 4.1.

²¹In 2020, the EPA and USACE issued a rule that modifies how navigable waters are defined. EPA, USACE, The navigable waters protection rule: Definition of “waters of the United States,” 85 Fed. Reg. 22250 (2020).

²²Fischman & Rountree, *supra* note 3, at 22; Robin Kundis Craig, “Stationarity Is Dead”—Long Live Transformation: Five Principles for Climate Change Adaptation Law, 34 HARV. ENVTL. L. REV. 9, 29 (2010).

²³Endangered Species Act of 1973, 16 U.S.C. §§ 1531 to 1544 (1973). See also Fischman & Rountree, *supra* note 3, at 20.

²⁴Wilderness Act of 1964, 16 U.S.C. §§ 1131 to 1136.

²⁵David N. Cole, *Beyond Naturalness: Adapting Wilderness Stewardship to an Era of Rapid Global Change*, 18 INT’L. J. WILDERNESS 9 (2012); Roger Kaye, *What Future for the Wildness of Wilderness in the Anthropocene?* 13 ALASKA PARK SCI. 41 (2014).

²⁶Craig, *supra* note 22, at 29; F. STUART CHAPIN III, CARL FOLKE & GARY P. KOFINAS, PRINCIPLES OF ECOSYSTEM STEWARDSHIP: RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT IN A CHANGING WORLD 15 (F.

with more flexibility and options for management that address current as well as future circumstances.²⁷ In other words, there may be a greater need for adaptive management.²⁸ Adaptive management generally involves setting management goals, monitoring outcomes, determining impacts, and refining goals to incorporate lessons learned.²⁹

Some U.S. natural resource laws already provide a degree of flexibility to agency decision-makers that enables adaptive management. “Multi-purpose” management laws include the Federal Lands Management Policy Act³⁰ (BLM) and the National Forest Management Act³¹ (for the Forest Service).³² Agencies could interpret multiple and sustained use standards in these laws to vary,³³ depending on projected climate change impacts.³⁴ The Forest Service has taken advantage of its broad enabling legislation to incorporate adaptive management provisions across its planning efforts by involving more monitoring and revisions.³⁵

Some agencies have found ways to work adaptive management provisions into permitting and planning processes, so as to require additional mitigation measures at a later time. An example is the letter of authorization issued by the National Marine Fisheries Service (NMFS) for activities that would otherwise violate the Marine Mammals Protection Act (MMPA) (the underlying framework is discussed in Chapter 23, Coastal and Ocean Protection). NMFS used its general authority under MMPA³⁶ to issue an adaptive management regulation whereby it can modify mitigation requirements after an initial authorization is issued.³⁷ The regulation specifies possible sources of data that could contribute to a decision to modify requirements.³⁸ Other examples include the U.S. Fish and Wildlife Service’s regulation on permits for eagle takes,³⁹ the USACE and EPA’s regulation for compensatory mitigation,⁴⁰ and the U.S. Department of Transportation’s rules for developing mitigation plans

Stuart Chapin III, Carl Folke, & Gary P. Kofinas eds., 2009).

²⁷Craig, *supra* note 22; Shannon M. McNeeley, Examining Barriers and Opportunities for Sustainable Adaptation to Climate Change in Interior Alaska, 111 CLIMATIC CHANGE 835, 837 (2012); F. Stuart Chapin & Patricia Cochran, *Community-Empowered Adaptation for Self-Reliance*, 19 ENVTL. SUSTAINABILITY 67 (2016).

²⁸Yee Huang et al., *Climate Change and the Puget Sound: Building the Legal Framework for Adaptation*, 2 CLIMATE L. 299, 309 (2011); Robin Kundis Craig & J. B. Ruhl, *Designing Administrative Law for Adaptive Management*, 67 VAND. L. REV. 1, 7 (Jan. 2014).

²⁹J.B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems: Applications to Climate Change Adaptation Law*, 89 N.C. L. REV. 1373, 1388 (2011); Yee Huang et al., *Climate Change and the Puget Sound: Building the Legal Framework for Adaptation*, 2 CLIMATE L. 299, 309 (2011); Craig & Ruhl, *supra* note 28.

³⁰43 U.S.C. §§ 1701 to 1787.

³¹16 U.S.C. §§ 1600 to 1687.

³²Victor B. Flatt, *Adapting Laws for a Changing World: A Systemic Approach to Climate Change Adaptation*, 64 Fla. L. Rev. 269, 285 (2012), at 272.

³³E.g., 43 U.S.C. § 1732; 16 U.S.C. § 1604.

³⁴Craig, *supra* note 22, at 48.

³⁵E.g., 36 C.F.R. § 219.5(a).

³⁶16 U.S.C.A. § 1361.

³⁷50 C.F.R. § 218.148.

³⁸*Id.*

³⁹50 C.F.R. § 22.26 (“The permit will specify circumstances under which modifications to avoidance, minimization, or compensatory mitigation measures or monitoring protocols will be required. . .”).

⁴⁰33 C.F.R. § 332.7; 40 C.F.R. § 230.97.

for metropolitan transportation.⁴¹

1. Endangered Species Act

In 2008, for the first time, the Department of the Interior (DOI) listed a species (polar bears) as threatened due to climate change, due to the melting sea ice that serves as that species' habitat.⁴² In 2013, the North American wolverine was listed as threatened due solely to climate change due to the melting of spring snow.⁴³ Building on these examples, the Endangered Species Act (ESA) could theoretically pave the way for adaptation for species that are endangered and threatened by climate change, since listings results in changes in public and private sector actions to avoid jeopardizing listed species or their critical habitats.⁴⁴ But there are clear limitations to the power of the ESA. For example, DOI imposed no restrictions on fossil fuel emitters to reduce the threat of climate change to polar bears.⁴⁵ Revisions under the Trump administration also weakened the potential for ESA to protect critical habitat by changing the definition of critical habitat. That administration's actions also made it less likely for future species to be deemed threatened due to climate change, by allowing the use of cost-benefit analysis to determine whether species should or should not be protected.⁴⁶

2. Invasive species regulations

Laws and management plans have traditionally guarded against invasive species that can outcompete native species and reduce biodiversity and the value of the habitat for fish and wildlife.⁴⁷ For example, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended by the National Invasive Species Act of 1996 (Act), was enacted to prevent and control infestations of the coastal inland waters of the United States by the zebra mussel and other nonindigenous aquatic nuisance species.⁴⁸ The Act defines "nonindigenous species" as "any species or other viable biological material that enters an ecosystem beyond its historic range, including any such organisms transferred from one country into another." Another example is Executive Order 13112, signed by President Clinton on February 3, 1999, which established a Council of Departments to prevent the introduction of invasive species and minimize the economic, ecological, and human health impacts that invasive species cause.

But as the climate and ecosystems are rapidly changing, new species are increasingly moving into new ecosystems. These "immigrants" may be considered invasive species, although they are simply adapting to changes in their previous ecosystems and opportunities in the new ecosystems. The traditional laws controlling the

⁴¹23 C.F.R. § 450.214.

⁴²FWS, Endangered and Threatened Wildlife and Plants, Determination of Threatened Status for the Polar Bear Throughout Its Range, 73 Fed. Reg. 28,212 (May 15, 2008).

⁴³FWS, Threatened Status for the Distinct Population Segment of the North American Wolverine Occurring in the Contiguous United States, 78 Fed. Reg. 7864, 7867 (Feb 4, 2013). See also Blumm, Michael C. and Marienfeld, Kya, Endangered Species Act Listings and Climate Change: Avoiding the Elephant in the Room, 20 Animal Law Review 277 (2014). Although, notably, a later petition to list the Pacific Walrus based on a similar loss of sea ice was not approved.

⁴⁴Glicksman (2012, 450-451).

⁴⁵FWS, Endangered and Threatened Wildlife and Plants, Determination of Threatened Status for the Polar Bear Throughout Its Range, 73 Fed. Reg. 28,212 (May 15, 2008).

⁴⁶FWS, NMFS, NOAA, Endangered and Threatened Wildlife and Plants: Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. 45020, 50 C.F.R. § 424; FWS, NMFS, NOAA, Endangered and Threatened Wildlife and Plants: Regulations for Listing Species and Designating Critical Habitat, 85 Fed. Reg. 47333, 50 C.F.R. § 424.

⁴⁷See generally Chapter 22 (Alien Species) of this treatise.

⁴⁸16 U.S.C. §§ 4701 et seq.

introduction of invasive species by humans may not be appropriate for these migrating species.

§ 24:19 Other

The federal government influences climate change risk awareness and adaptation in a variety of ways, some of which are outside the scope of natural resource management, provision of assistance, or natural resource management. For an example, see the discussion of the Securities and Exchange Commission and its Guidance Regarding Disclosure Related to Climate Change in §§ 24:41 to 24:46.

§ 24:20 Federal adaptation law conclusions

Federal adaptation law is a maze of laws, agencies, and programs, most of which existed before Americans began paying attention to the need for climate change adaptation policy and which are therefore imperfect in their ability to address the specific needs of climate adaptation. In 2012, legal scholar Michael Gerrard described climate mitigation law as a “patchwork of scraps that are barely sewn together” and “adaptation laws are not even that; there is little cloth, and the existing scraps are hardly linked.”¹ Since then, several existing programs, particularly those centered around disaster preparedness and response, have attempted to address climate adaptation, but the patchwork quilt effect remains.

While some activists and practitioners would like to see adaptation law coalesce into a single law, agency, and program, this is unlikely to occur. In contrast to climate change mitigation, which focuses on the relatively narrow goal of reducing greenhouse gas emissions, the scope of adaptation is vast, including topics from water regulation and invasive species management to coastal management and housing. Many aspects of adaptation (particularly with regards to land use) have traditionally been managed at a state or local level, rather than at a federal level. Further, major reorganizations rarely occur in the federal executive branch, and a new federal agency would have to compete with existing entities for limited adaptation funding.

That said, there are abundant opportunities for better coordination and a potential role for a coordinating entity that could assist communities and individuals in navigating the federal bureaucracy of adaptation assistance.

VI. ADAPTATION—STATE*

§ 24:21 Introduction

This section presents an overview of state-level adaptation in the United States. Since the early 2000s, state governments have acted as leaders in advancing adap-

[Section 24:20]

¹Michael Gerrard, *Introduction and Overview*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. and International Aspects* 1, 11 (Michael Gerrard & Katrina Fischer Kuh, Eds., 2012).

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tation and resilience across the nation.¹ Initially, a limited number of coastal states, beginning with California, Florida, Maryland, and New Hampshire, led the charge to confront sea-level rise, flooding, and land loss outside of a disaster recovery context.² As time has passed and climate change has advanced, more coastal states in the Northeast, the Mid-Atlantic, the Great Lakes region, the Gulf, and the West Coast have followed suit. In addition, Colorado was an early non-coastal actor beginning in 2007. With the exacerbating prevalence and severity of climate-related impacts like drought, wildfire, and heat, a growing number of non-coastal states, including Montana, New Mexico, and Nevada, have also jumped on the adaptation bandwagon.

There is no “one-size-fits-all” or systematic approach to how states are pursuing—or should pursue—adaptation. Every state is unique and requires its own home-grown approach to adaptation due to any number of factors, including political leadership and direction, the exigency and frequency of different climate impacts, funding availability, history and culture, and local needs and interest. Despite this diversity of considerations, this section introduces the somewhat nascent but growing field for those new to this area of law.

This section identifies the range of legal, policy, and planning tools that states are utilizing—or, in many cases, repurposing—to adapt to climate change. First, this section discusses state executive and legislative actions related to climate adaptation and resilience, and then introduces different types of plans. Notably, planning has served as a critical and preliminary element for many states to develop comprehensive climate adaptation strategies. Moreover, plans have often set the stage for governors and state legislatures to advance the law in this area and vice versa. This section rounds out its coverage by exploring some of the different types of sector- and agency-specific plans and programs that states are using to implement the actions and mandates called for in their executive orders, statutes, and cross-sectoral or multi-agency plans. Critically, to effectively implement adaptation strategies and build long-term resilience, state governments must also have sustainable sources of funding and support adaptation at the local level.

This section presents a broad survey of the different types of adaptation-related laws, policies, plans, and programs that states are creating across sectors to address diverse climate impacts. The author of this section placed an emphasis on featuring

[Section 24:21]

¹The scope of this section is narrow by describing the field of climate adaptation from the vantage point of state governments. This section focuses on more sustained examples of how states are building their adaptive capacity through institutionalized and programmatic legal, policy, and planning approaches. Accordingly, this section will not directly discuss important and related, but largely distinct, examples of state efforts to increase resilience through federal and state hazard mitigation and disaster recovery processes. See, e.g., Georgetown Climate Ctr., *Rebuild by Design Competition After Hurricane Sandy*, ADAPTATION CLEARINGHOUSE (2013), <https://www.adaptationclearinghouse.org/resources/rebuild-by-design-competition-after-hurricane-sandy.html>; Georgetown Climate Ctr., *HUD National Disaster Resilience Competition*, ADAPTATION CLEARINGHOUSE (June 14, 2014), <https://www.adaptationclearinghouse.org/resources/hud-national-disaster-resilience-competition.html>.

²Some states—like Maine in 2003, Oregon in 2006, Alaska in 2007, and Pennsylvania in 2008—started taking discrete adaptation actions in the early 2000s, but only a few released statewide climate adaptation plans and took more comprehensive actions. Specifically, California, Colorado, Florida, Maryland, and New Hampshire are called out here due to the holistic nature of the actions they initiated between 2007 and 2009 that were more focused on climate adaptation versus mitigation. Notably, four of the five states—California, Florida, Maryland, and New Hampshire—released the nation’s first statewide climate adaptation plans within that period, which is a key distinction as to why their respective efforts are discussed here in depth. In contrast, Colorado did not release its first climate adaptation plan until 2011; however, it is the first example of a non-coastal state that released a climate adaptation plan and it has made more significant adaptation progress since 2007 than other non-coastal states. For a definition of and more information on state climate adaptation plans, see § 24:23 *infra*.

a comparative range of adaptation examples that are progressive, unique, and recent (as of 2020) to maximize this opportunity to understand the different ways states are approaching adaptation.³ This discussion, however, is not a comprehensive analysis of how every state in the United States is adapting to climate change. Nor does it look at every sector or climate change impact.

Moreover, it is important to note that this section focuses on state examples that were created more or less explicitly for the purpose of adapting or increasing resilience to climate change. This section does not discuss the many state programs that may not have been specifically designed for adaptation or resilience purposes but could be used to provide such benefits. For example, most states have enacted laws and policies to preserve and/or conserve privately and publicly owned land as open space (e.g., parks, protected areas, working lands like farms and forests). Open space programs can help communities mitigate flood risks from sea-level rise, heavy precipitation, and hurricanes, as well as extreme heat risks; however, most state open space efforts were not established for the purpose of accommodating and reducing impacts from climate change, nor have many been updated to reflect these possibilities and co-benefits.⁴ Therefore, this section does not include state efforts that provide important but only ancillary benefits for climate adaptation.

As the other sections in the climate adaptation chapter of this treatise discuss, states cannot carry the adaptation torch on their own. Actions must be coordinated in partnership with federal and local governments, nongovernmental partners, and most importantly, the people being directly affected by climate change. Regardless, states are a key part of this mosaic, and, through mounting actions, are emerging as increasingly significant players in the adaptation space.

§ 24:22 Executive and legislative actions

A state's governor, legislature, and/or agencies can serve as the initiator for climate adaptation at the state level. This part primarily features laws from a limited number of states that have issued or enacted more comprehensive executive orders or statutes around climate adaptation. This part is organized according to the following three categories of laws: (A.) statewide climate adaptation planning and interagency coordination requirements; (B.) state mandates to incorporate climate change data and considerations into state permitting, funding, and environmental compliance regulations and programs; and (C.) state support for local adaptation. Additional executive and legislative actions associated with planning, regulatory, and funding initiatives are discussed elsewhere in this section.

As will be shown throughout this section, most of these state laws follow national

³This section on state-level adaptation was informed by Georgetown Climate Center's work to update and maintain its State Adaptation Progress Tracker, which tracks and summarizes how states across the United States are adapting to climate change. For additional updates and information on state-level adaptation, visit Georgetown Climate Center's State Progress Tracker, *available at* <https://www.georgetownclimate.org/adaptation/plans.html>.

For more information and research on many of the resources featured in this section, see Georgetown Climate Center's Adaptation Clearinghouse, an online database and one-stop-shop for thousands of the best and emerging examples of federal, state, and local adaptation laws, policies, plans, case studies, and more, *available at* <https://www.adaptationclearinghouse.org>.

Note, this section only summarizes examples of state adaptation actions and does not fully capture all the benefits or critiques of any examples discussed herein.

⁴*Compare, e.g.,* Maryland's Program Open Space and the Florida Forever land acquisition programs that explicitly address and account for climate change in several different ways. Georgetown Climate Ctr., *Maryland GreenPrint and Program Open Space*, ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/maryland-greenprint-and-program-open-space.html> (last visited Nov. 17, 2020); Georgetown Climate Ctr., *Florida Forever Land Acquisition Program*, ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/florida-forever-land-acquisition-program.html> (last visited Nov. 17, 2020).

trends: most state adaptation actions focus primarily on climate-related impacts to water, particularly flooding and coastal resilience. However, exceptions exist.

California is one exception to this general trend because of its additional focus on wildfires.¹ Between 2018 and 2019, California issued a variety of executive orders and statutes that were explicit about growing the state's resilience to wildfires. Notably, in January 2019, Governor Gavin Newsom issued Executive Order N-05-19, which directed the California Department of Forestry and Fire Protection (CAL FIRE) and other state agencies to recommend regulatory and policy changes to prevent and mitigate wildfires that result from, among other things, climate change and drought.² In response, CAL FIRE identified "high priority fuels reduction projects and other measures to immediately begin to protect over 200 of California's most wildfire-vulnerable communities and put the state on a path toward long-term wildfire prevention and forest health."³ The governor also assembled a "strike force" to release a "60-day report" in April 2019 that examined California's recent catastrophic wildfires and made recommendations to the governor and state legislature.⁴ As a result of this report, on October 2, 2019, the governor signed approximately 22 bills into law, covering a comprehensive approach to wildfire issues.⁵ However, aside from California, the other examples in this part—and the section more broadly—predominantly relate to climate impacts to water.

A. Planning and agency governance structures

Of the executive and legislative actions presented in this § 24:23, the most common types are those that call for a state to: (1.) establish a state climate coordinating body or working group; (2.) establish a chief resilience officer or lead executive adaptation official; and/or (3.) develop a state climate adaptation plan. Generally, one or any combination of these mandates kick-starts state-level adaptation.⁶ While climate adaptation plans are explored in greater depth in § 24:23, of the 25 states with or in the progress of drafting a climate adaptation plan, most were initiated

[Section 24:22]

¹Note, other states like Arizona, Colorado, Idaho, Montana, Oregon, and Washington have previously or are currently undertaking actions to mitigate wildfire risk in their states through, for example, reports and defensible space laws; however, none of these explicitly mention or incorporate data about climate change. Moreover, while some states include wildfire considerations in their climate adaptation plans—Montana is the most recent example—(See § 24:23), there largely appears to be an absence of executive or legislative directives outside of California that are specifically implementing these plans.

²Georgetown Climate Ctr., *CA EO N-05-19 CAL FIRE to provide recommendations on wildfire prevention and mitigation, including at-risk populations*, ADAPTATION CLEARINGHOUSE (Jan. 8, 2019), <https://www.adaptationclearinghouse.org/resources/ca-eo-n-05-19-cal-fire-to-provide-recommendations-on-wildfire-prevention-and-mitigation-including-at-risk-populations.html>.

³*Community Wildfire Prevention & Mitigation Report*, CAL FIRE, <https://www.fire.ca.gov/about-us/45-day-report/> (last visited Dec. 8, 2020).

⁴The strike force was created by the governor to coordinate the state's efforts around energy sector safety and reliability, as well as its climate commitments. WILDFIRES AND CLIMATE CHANGE: CALIFORNIA'S ENERGY FUTURE—A REPORT FROM GOVERNOR NEWSOM'S STRIKE FORCE (Apr. 12, 2019), *available at* <https://www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California's-Energy-Future.pdf>.

⁵Bills included: Assembly Bill (AB) 38, which provides mechanisms to develop best practices for community-wide resilience against wildfires (such as by implementing defensible space standards) and mandates that homes built before 2020 be retrofitted to meet fire safety standards; Senate Bills (SB) 560, 70, and 167 that require utilities to develop wildfire reduction plans that take into account climate change; and AB 1823, which facilitates fuel reduction and other forest health projects and mandates that such projects be aligned with the state's objectives regarding climate change and forest management.

⁶*Contra* Minnesota, this part *infra*.

via a gubernatorial executive order.⁷ Maine, South Carolina, Vermont, and Washington, however, are four states that run contrary to this trend. In 2011, and again in 2019, the Maine Legislature called for two different climate adaptation coordinating bodies.⁸ In 2020, South Carolina and Vermont both passed statutes that called for the development of a statewide climate adaptation plan.⁹ Similarly, in 2009, the Washington State Agency Climate Leadership Act required state agencies to reduce emissions and develop an integrated climate change response strategy.¹⁰

Concurrently, how a state initiates adaptation can have a corresponding impact on its governance structure. In short, there is no “one-size-fits-all” approach—just like everything else with adaptation. For example, some states like Hawaii and Maryland have adopted more top-down frameworks that emphasize strong and consolidated executive direction. Specifically, Hawaii and Maryland both have commissions that lead climate adaptation strategies on behalf of their governors.¹¹ Although distinct, both commissions are composed of both agency heads across several departments and non-governmental representatives, meet regularly, inform and help prioritize annual state agency agendas and priorities around adaptation and resilience, and issue regular reports to state legislators. Furthermore, both commissions operate outside of an adaptation planning process.¹²

In contrast, states like Minnesota have been making progress on adaptation de-

⁷See Georgetown Climate Center’s State Adaptation Progress Tracker, available at <https://www.georgetownclimate.org/adaptation/plans.html>.

⁸Georgetown Climate Ctr., *Preparing for Climate Change in Maine*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/maine/overview.html> (last updated Sept. 20, 2019); Georgetown Climate Ctr., *An Act to Promote Clean Energy Jobs and to Establish the Maine Climate Council*, ADAPTATION CLEARINGHOUSE (June 26, 2019), <https://www.adaptationclearinghouse.org/resources/an-act-to-promote-clean-energy-jobs-and-to-establish-the-maine-climate-council.html>.

⁹Georgetown Climate Ctr., *South Carolina Disaster Relief and Resilience Act*, ADAPTATION CLEARINGHOUSE (Sept. 29, 2020), <https://www.adaptationclearinghouse.org/resources/south-carolina-disaster-relief-and-resilience-act.html>; Vermont Global Warming Solutions Act (Sept. 2020), available at <https://legislature.vermont.gov/Documents/2020/Docs/ACTS/ACT153/ACT153%20As%20Enacted.pdf>. The act created the Vermont Climate Council. The council is tasked with formulating a Climate Action Plan that must be adopted by December 1, 2021. The Climate Action Plan must include strategies to reduce greenhouse gas emissions, as well as those to build resilience to prepare Vermont’s communities, infrastructure, and economy to adapt to the current and anticipated effects of climate change.

¹⁰Georgetown Climate Ctr., *Preparing for Climate Change in Washington*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/washington/overview.html> (last updated July 28, 2020); Georgetown Climate Ctr., *Washington State Agency Climate Leadership—WA SB 5560*, ADAPTATION CLEARINGHOUSE (July 26, 2009), <https://www.adaptationclearinghouse.org/resources/washington-state-agency-climate-leadership-wa-sb-5560.html>.

¹¹*Hi. Commission*, STATE OF HI. CLIMATE CHANGE PORTAL, <https://climate.hawaii.gov/commission/> (last visited Dec. 8, 2020); Georgetown Climate Ctr., *Preparing for Climate Change in Hawaii*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/hawaii/overview.html> (last updated July 22, 2020); *Maryland Commission on Climate Change*, MD. DEPT OF ENV’T, <https://md.e.maryland.gov/programs/Air/ClimateChange/MCCC/Pages/index.aspx> (last visited Dec. 8, 2020); Georgetown Climate Ctr., *Preparing for Climate Change in Maryland*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/maryland/overview.html> (last updated July 16, 2018).

¹²After the state released its climate adaptation plans in 2008 and 2011, the Maryland General Assembly codified the Maryland Commission on Climate Change into law. The Hawaii Commission was not created for the purpose of only drafting a statewide climate adaptation plan and its adaptation efforts primarily focus on sea-level rise and building coastal resilience. Based on the flexible language included in executive orders and statutes since 2018, it appears that an increasing number of states, such as in Maine and North Carolina, are replicating this model. Specifically, it is likely that these coordinating bodies will outlive and not sunset once they deliver a climate adaptation plan. These types of bodies can aid states in implementing, updating, and tracking progress on their adaptation plans over time to align with the long-term impacts occurring in states.

spite not having a commission, a climate adaptation plan, or even an executive or legislative mandate to create one or the other. Since July 2009, Minnesota state agencies have been collaborating on climate adaptation efforts on their own volition through the Interagency Climate Adaptation Team (ICAT). ICAT includes representatives from a number of Minnesota state departments and agencies and is led by the Minnesota Pollution Control Agency.¹³

Some states then fall in the middle of the spectrum between Maryland and Hawaii on one end and Minnesota on the other. For example, in 2009, Oregon's Governor Ted Kulongoski established both a climate adaptation plan and an interagency coordinating body, but not formally as through an executive order.¹⁴ This has shaped how the state conducts cross-agency actions and may produce different results compared to a state with a stronger executive mandate and direction. Alternatively, Florida Governor Ron DeSantis created the Office of Resilience and Coastal Protection and the position of Chief Resilience Officer via Executive Order No. 19-12, but no corresponding interagency body.¹⁵ Similarly, West Virginia created the state's first Resiliency Office and Chief Resilience Officer in 2020, which will focus only on flood and hazard mitigation and disaster recovery.¹⁶

These examples demonstrate that states may select from a diversity of governance structures for adaptation, and the exact structure can shape how a state plans for and implements its broader adaptation strategy. It is important to understand this structure to gain a comprehensive understanding of each state's approach to adaptation.

B. Permitting, funding, and environmental compliance

Apart from broad planning and governance mandates, this part more discretely explores how five states—Maryland, New Jersey, Florida, New York, and California—have incorporated or are incorporating climate change considerations into their permitting, funding, and environmental compliance processes. Maryland and New York present two of the most holistic examples nationally, but New Jersey, Florida, and California have enacted significant executive and legislative updates that can help to advance statewide resilience through the approval of state-authorized and -funded projects.¹⁷

In 2012, Maryland Governor Martin O'Malley directed all state agencies to

¹³Georgetown Climate Ctr., *Preparing for Climate Change in Minnesota*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/minnesota/overview.html> (last updated Aug. 22, 2018).

¹⁴Georgetown Climate Ctr., *Preparing for Climate Change in Oregon*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/oregon/overview.html> (last updated June 25, 2018).

¹⁵Exec. Order No. 19-12, *Achieving More Now for Florida's Environment* (Jan. 10, 2019), available at <https://www.flgov.com/wp-content/uploads/2019/01/EO-19-12-.pdf>.

Note, Virginia (which has a statewide adaptation plan) and Louisiana (which does not have one) also have executive officials similarly focused on coastal resilience: Special Assistant to the Governor for Coastal Adaptation and Protection in Virginia and a Chief (Coastal) Resilience Officer in Louisiana. Interestingly, the Special Assistant is tasked with leading the development of a Coastal Master Plan modeled after Louisiana's. See § 24:24 *infra*; Georgetown Climate Ctr., *Virginia S 265: Special Assistant to the Governor for Coastal Adaptation and Protection*, ADAPTATION CLEARINGHOUSE (June 22, 2018), <https://www.adaptationclearinghouse.org/resources/virginia-s-265-special-assistant-to-the-governor-for-coastal-adaptation-and-protection.html>; Georgetown Climate Ctr., *Louisiana Executive Order Number JBE 2020-19 on Coastal Resilience*, ADAPTATION CLEARINGHOUSE (Aug. 19, 2020), <https://www.adaptationclearinghouse.org/resources/louisiana-executive-order-number-jbe-2020-19-on-coastal-resilience.html>.

¹⁶West Virginia State Resiliency and Flood Protection Act, W.V. CODE ch. 29 (2020), <http://www.wvlegislature.gov/wvcode/ChapterEntire.cfm?chap=29&art=31§ion=2>.

¹⁷Other states (e.g., Louisiana) also call for state agencies to infuse climate considerations into

consider the risk of sea-level rise, flooding, and extreme weather when constructing or reconstructing state buildings and facilities.¹⁸ The 2012 executive order also called for new and reconstructed state-owned structures to be elevated two or more feet above the 100-year base flood elevation. This requirement was codified and expanded in both 2014 and 2018. A 2014 law established the Coast Smart Council and required the development of “Coast Smart” siting and design criteria for state structures.¹⁹ A subsequent 2018 law amended the Coast Smart law by expanding the categories of structures that must comply with Coast Smart criteria to include new state highway facilities, and new or reconstructed local projects that are at least half state-funded.²⁰

In 2020, both New Jersey and Florida followed Maryland’s lead. Early in 2020, New Jersey Governor Phil Murphy issued Executive Order No. 100 to help New Jersey both adapt to climate change and mitigate GHG emissions.²¹ The order directs the New Jersey Department of Environmental Protection (DEP) to draft and adopt regulations for “Protecting Against Climate Threats.” New state-authorized or -funded projects will be required to take into account how climate change could impact a project and also quantify a project’s anticipated GHG emissions. Specifically, the order calls for DEP to “[i]ntegrate climate change considerations, such as sea level rise, into its regulatory and permitting programs, including but not limited to, land use permitting, water supply, stormwater and wastewater permitting and planning, air quality, and solid waste and site remediation permitting.”²²

Under Governor Ron DeSantis and the current Florida Legislature, the state has taken some actions to similarly address impacts from sea-level rise and flooding. In March 2020, the Florida Senate passed a resolution expressing its support for adopting policies to prepare the state for sea-level rise and flooding.²³ In the resolution, the Senate also recognizes the importance of resilient infrastructure in “fortifying” the state from those impacts. In that vein, the Florida Legislature passed a new law, also in March 2020, that establishes new rules and enforcement

agency plans, policies, and operations; however, these five states are featured herein because they have more specific and explicit mandates to undertake these types of actions.

¹⁸Georgetown Climate Ctr., *Climate Change and “Coast Smart” Construction (Maryland Executive Order 01.01.2012.29)*, ADAPTATION CLEARINGHOUSE (Dec. 28, 2012), <https://www.adaptationclearinghouse.org/resources/climate-change-and-coast-smart-construction-maryland-executive-order-01-01-2012-29.html>; Georgetown Climate Ctr., *Preparing for Climate Change in Maryland*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/maryland/overview.html> (last updated July 16, 2018).

¹⁹The criteria that were ultimately developed essentially codified what the state had been using based on the prior requirements in the executive order. Georgetown Climate Ctr., *Maryland HB 615: Coast Smart Council Law*, ADAPTATION CLEARINGHOUSE (May 5, 2014), <https://www.adaptationclearinghouse.org/resources/maryland-hb-615-coast-smart-council-law.html>; Georgetown Climate Ctr., *Maryland Climate Change and Coast Smart Construction Infrastructure Siting and Design Guidelines*, ADAPTATION CLEARINGHOUSE (Jan. 31, 2014), <https://www.adaptationclearinghouse.org/resources/maryland-climate-change-and-coast-smart-construction-infrastructure-siting-and-design-guidelines.html>.

²⁰Georgetown Climate Ctr., *Maryland HB 1350/SB 1006—Sea-Level Rise Inundation and Coastal Flooding—Construction, Adaptation, and Mitigation*, ADAPTATION CLEARINGHOUSE (Apr. 5, 2018), <https://www.adaptationclearinghouse.org/resources/maryland-hb-1350-sb-1006-sea-level-rise-inundation-and-coastal-flooding-construction-adaptation-and-mitigation.html>.

²¹Georgetown Climate Ctr., *New Jersey EO 100: Protecting Against Climate Threats (PACT); land use regulations and permitting*, ADAPTATION CLEARINGHOUSE (Jan. 27, 2020), <https://www.adaptationclearinghouse.org/resources/new-jersey-eo-100-protecting-against-climate-threats-pact-land-use-regulations-and-permitting.html>.

²²*Id.*

²³Georgetown Climate Ctr., *Florida Senate Resolution 1572*, ADAPTATION CLEARINGHOUSE (Mar. 5, 2020), <https://www.adaptationclearinghouse.org/resources/florida-senate-resolution-1572.html>.

mechanisms for state-financed coastal construction projects.²⁴ According to the law, “state-financed constructors” are public entities that manage or commission “a construction project using funds appropriated from the state.”²⁵ The purpose of the law is to ensure that (1.) projects funded by public monies can better withstand coastal flooding and will not exacerbate flooding impacts on surrounding communities; and (2.) project managers consider all design options and alternatives in the face of sea-level rise. The law requires that constructors prepare a sea-level impact projection (SLIP) study for state-funded coastal construction projects. The standards for SLIP studies will be developed by the Florida Department of Environmental Protection through a rulemaking.

While New York similarly developed climate-smart permitting and funding review criteria and policies, it distinguished itself by taking the extra step of also revising the regulations under the State Environmental Quality Review Act—New York’s equivalent of the federal National Environmental Policy Act (NEPA). To start, the state passed the Community Risk and Resiliency Act (CRRA) in 2014 under Governor Andrew Cuomo.²⁶ The law includes several provisions that amend existing state law, but all work together to update the state’s permitting, funding, and environmental compliance requirements at large. Like Maryland, New Jersey, and Florida, CRRA requires that climate change, severe weather, and sea-level rise be considered in certain specified state permitting and funding programs. To accomplish these objectives, CRRA also required the Department of Environmental Conservation (DEC) to write regulations (finalized in 2017) to establish statewide sea-level-rise projections that can be used in CRRA compliance.²⁷ In addition, CRRA called for the state to develop multiple types of implementation guidance detailing how to incorporate these projections into state agency review procedures and application requirements for covered programs. Various guidance documents fulfilling this directive were released in 2018 and 2020.²⁸

In 2018, DEC announced its first major update to the State’s Environmental Quality Review (SEQR) regulations in over two decades.²⁹ The update streamlines the state’s environmental review process and encourages both renewable energy and sustainable development. The update consists of two main climate-related changes. First, DEC expanded expedited review to environmentally beneficial projects, such as green infrastructure upgrades and retrofits.³⁰ Second, state draft environmental impact statements must now consider alternatives to avoid or reduce

²⁴Georgetown Climate Ctr., *Florida Senate Bill 178: An Act Relating to Public Financing of Construction Projects*, ADAPTATION CLEARINGHOUSE (Mar. 11, 2020), <https://www.adaptationclearinghouse.org/resources/florida-senate-bill-178-an-act-relating-to-public-financing-of-construction-projects.html>.

²⁵*Id.*

²⁶Georgetown Climate Ctr., *New York Community Risk and Resiliency Act (S06617B)*, ADAPTATION CLEARINGHOUSE (Sept. 22, 2014), <https://www.adaptationclearinghouse.org/resources/new-york-community-risk-and-resiliency-act-s06617b.html>; Georgetown Climate Ctr., *Preparing for Climate Change in New York*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/new-york/overview.html> (last updated July 17, 2018).

²⁷Georgetown Climate Ctr., *New York Regulation—Part 490—Projected Sea-Level Rise*, ADAPTATION CLEARINGHOUSE (Feb. 2017), <https://www.adaptationclearinghouse.org/resources/new-york-regulation-part-490-projected-sea-level-rise.html>.

²⁸Georgetown Climate Ctr., *New York Community Risk and Resiliency Act Implementation Guidance*, ADAPTATION CLEARINGHOUSE (Nov. 2020), <https://www.adaptationclearinghouse.org/resources/new-york-community-risk-and-resiliency-act-implementation-guidance.html>.

²⁹DEC Adopts First Major Update to State’s Environmental Quality Review Regulations in 20 Years, N.Y. DEP’T OF ENVTL. CONSERVATION (June 28, 2018), <https://www.dec.ny.gov/press/114048.html>; *State Environmental Quality Review Act—Adopted Amendments 2018*, N.Y. DEP’T OF ENVTL. CONSERVATION (June 2018), <https://www.dec.ny.gov/permits/83389.html>.

³⁰More specifically, DEC expanded the list of “actions not subject to further review” (known as

an action's potential impacts on environmental conditions affected by climate change, such as sea-level rise and flooding.

Similar to the 2018 SEQR regulatory changes, in 2009, the California Governor's Office of Planning and Research finalized amendments to the California Environmental Quality Act (CEQA) guidelines for completing environmental impact assessments.³¹ The guidelines were updated to require that state agencies consider climate impacts to state actions in environmental analyses under CEQA.

C. Local government requirements and new authorities

Outside of state-owned properties and assets, local governments and communities are on the front lines of climate change. Accordingly, much of what states are doing to adapt to climate change is geared at targeting and supporting work at the local level. States support local government adaptation in two primary ways. First, states can enact mandates to ensure a certain minimum level of statewide compliance with preparedness and resilience-building activities. Second, states can issue optional directives to increase local authority and provide other forms of support like guidance and funding (*See also* § 24:26). Most mandates and optional directives originate from a legislature rather than a governor or executive agency (*Compare* the origin of planning and agency coordinating bodies *supra* § 24:22.). Moreover, the bulk are aimed at adapting to coastal and flooding threats compared to other climate impacts.

The most common type of state adaptation mandate requires local governments to include or consider sea-level rise and flooding in their local comprehensive plans (also called general or master plans) (*See* the section on local adaptation in this treatise).³² These, however, are usually standalone legislative provisions that include only that specific requirement. Instead, this part focuses on a few examples of how states legislatures—and a governor in Pennsylvania—are responding to local adaptation needs by enabling new actions at the local level or providing other forms of support.

States can draft new statutes (and update existing ones) to provide local governments with the necessary tools and powers they need to respond to climate change without fear of lacking clear state authority to do as such, even in home rule states.³³

“Type II” actions) to include green infrastructure upgrades or retrofits; and the installation of solar arrays on different sites like cleaned up brownfields, wastewater treatment facilities, and those zoned for industrial uses.

³¹*See* the guidelines from December 2009, *available at* https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf; *see also* Georgetown Climate Ctr., *Preparing for Climate Change in California*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/california/overview.html> (last updated Aug. 1, 2018).

³²*See, e.g.*, legal requirements in California, Florida, South Carolina, and Virginia in Georgetown Climate Center's State Adaptation Progress Tracker, *available at* <https://www.georgetownclimate.org/adaptation/plans.html>.

³³Generally, home rule means that a state's political subdivisions—its counties and municipalities—are authorized to legislate on almost all local matters, without seeking permission from the state; the usual exception involves preemption by or conflict with state law. In a Dillon rule state, local governments usually have less freedom to act without the permission of their state legislature. Specifically, in a Dillon rule state, local governments have the authority to act only in instances where they have been expressly granted such authority by their state legislature, or where such authority is necessarily implied by an express grant.

State laws that predate the advent of climate adaptation in both home rule, but especially Dillon rule states could potentially hinder a local government's ability to take some type of action if: (1) the original state authorization is not broad enough to cover or encompass a local government's intended climate course of action; or (2) even where state authority can be reasonably implied or inferred, a local government is still hesitant to take any action that does not derive from an express or

New Hampshire and Maryland present a few examples. In 2017, New Hampshire passed a new law that enables municipalities to create a tax incentive program to promote resilience in coastal areas.³⁴ Municipalities can establish “Coastal Resilience Incentive Zones” to grant property owners tax relief for undertaking “resilience measures” for qualified properties and structures impacted by sea-level rise, storm surge, and extreme precipitation.³⁵ In 2019, the state passed another innovative law that can help local governments overcome cross-jurisdictional governance challenges posed by sea-level rise and flooding.³⁶ Among other provisions, the law allows municipalities to either alter their existing boundaries or create a new municipality by combining existing ones. Another notable provision allows municipalities to establish Joint Municipal Development and Revitalization Districts, which can include land from several municipalities, and create agreements to share tax revenues and expenditures across jurisdictions. Together, these provisions can help local governments coordinate regional adaptation responses to sea-level rise and share the tax revenues and costs of these necessary responses.

Somewhat differently, Maryland passed a law in 2020 that gives local governments the ability to establish and fund a “Resilience Authority.”³⁷ A Resilience Authority can enable a local jurisdiction to generate funding through fees, bonds, and other non-tax means to manage large-scale infrastructure projects affected by sea-level rise, flooding, increased precipitation, erosion, and heatwaves. A local government can use this new source of revenue to support many types of infrastructure projects, including elevating buildings and developing flood barriers, stormwater infrastructure, and green spaces. Resilience Authorities can help local governments accelerate infrastructure financing, reduce implementation costs, and better adapt to climate change.³⁸

Furthermore, many states have gone one step further by developing guidance and tools to help local governments design and implement these types of state actions. In 2011, the Florida Legislature passed the Community Planning Act, which made significant changes to the state’s growth management laws. One update allows local coastal governments to create Adaptation Action Areas (AAA).³⁹ AAA are optional comprehensive plan designations for areas vulnerable to sea-level rise and coastal

clear grant of authority, likely due to fears of potential legal challenges. Where a state’s authority is unclear or not broad enough, a state may consider updating or expanding that authority to enable local governments to adapt to climate change with enhanced legal clarity. For more information on the difference between home rule and Dillon rule, see the section on local adaptation in this chapter of the treatise.

³⁴Georgetown Climate Ctr., *New Hampshire Coastal Resilience Incentive Zone Program for Municipalities*, ADAPTATION CLEARINGHOUSE (Sept. 3, 2017), <https://www.adaptationclearinghouse.org/resources/new-hampshire-coastal-resilience-incentive-zone-program-for-municipalities.html>.

³⁵Tax relief in this case means that property taxes will not increase for the cost of any property or structural improvements during the period of eligibility set by the municipality (which, barring exceptions, can be for a maximum period of five years).

³⁶Georgetown Climate Ctr., *New Hampshire Senate Bill (S.B.) 285: Establishing a Coastal Resilience and Economic Development Program*, ADAPTATION CLEARINGHOUSE (Aug. 3, 2019), <https://www.adaptationclearinghouse.org/resources/new-hampshire-senate-bill-s-b-285-establishing-a-coastal-resilience-and-economic-development-program.html>.

³⁷Georgetown Climate Ctr., *Maryland Senate Bill 457: Resilience Authorities*, ADAPTATION CLEARINGHOUSE (May 8, 2020), <https://www.adaptationclearinghouse.org/resources/maryland-senate-bill-457-resilience-authorities.html>.

³⁸Agenda, Adaptation & Resiliency Working Group Quarterly Meeting, Maryland Comm’n on Climate Change (Nov. 16, 2020), available at <https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/ARWG/Meeting%20Agenda%2011.16.20.pdf>.

³⁹Georgetown Climate Ctr., *Creation of “Adaptation Action Areas” in Florida’s Community Planning Act*, ADAPTATION CLEARINGHOUSE (June 2, 2011), <https://www.adaptationclearinghouse.org/resources/creation-of-e-adaptation-action-areas-e-in-florida-s-community-planning-act.html>.

flooding that can aid local governments in prioritizing funding for infrastructure and adaptation planning. Under the act, AAA are defined as areas at risk of flooding from sea-level rise, high tide events, storm surge, flash floods, and stormwater runoff. In 2015, Florida released the Adaptation Action Areas Guidebook: A Planning Guidebook for Florida's Local Government for municipalities considering using AAA.⁴⁰

In addition, Maryland passed a law in 2018 that, among other provisions, requires every local jurisdiction experiencing nuisance flooding (also called high tide or sunny day flooding) to develop a plan to reduce and address that type of flooding.⁴¹ The Maryland Department of Natural Resources developed guidance to assist local governments in this first-of-its-kind endeavor in the nation.⁴²

In a somewhat different executive vein, Governor Tim Wolf of Pennsylvania announced a plan at the end of 2020 to help municipalities address flooding caused or exacerbated by climate change.⁴³ The governor is requiring the State Planning Board to develop recommendations and best practices for land use, planning, zoning, and stormwater management to assist local governments in mitigating threats like flash flooding, which is increasing throughout the state. In addition, the State Planning Board must establish “state goals and strategic investments to assist municipalities, which will then be incorporated by state agencies into their appropriate funding applications.”⁴⁴ The governor's orders are largely in response to a lack of current legislative direction or action to help the state recover from successive flooding damages that did not qualify for disaster relief from the federal government.⁴⁵

§ 24:23 Climate adaptation plans

Climate adaptation planning has emerged as a crux for how most states have initiated and then built their broader adaptation strategies. Specifically, most states initiate adaptation strategies through planning and implementation of those plans. In the climate adaptation field, there is no accepted technical definition for a “climate adaptation plan” let alone a singular classification system or set of characteristics to

⁴⁰Georgetown Climate Ctr., *Adaptation Action Areas Guidebook: A Planning Guidebook for Florida's Local Government*, ADAPTATION CLEARINGHOUSE (Aug. 2015), <https://www.adaptationclearinghouse.org/resources/adaptation-action-areas-guidebook-a-planning-guidebook-for-florida-s-local-government.html>.

⁴¹Georgetown Climate Ctr., *Maryland HB 1350/SB 1006—Sea-Level Rise Inundation and Coastal Flooding—Construction, Adaptation, and Mitigation*, ADAPTATION CLEARINGHOUSE (Apr. 5, 2018), <https://www.adaptationclearinghouse.org/resources/maryland-hb-1350-sb-1006-sea-level-rise-inundation-and-coastal-flooding-construction-adaptation-and-mitigation.html>.

⁴²MD. DEP'T OF NATURAL RES., NUISANCE FLOOD PLAN DEVELOPMENT (Oct. 2019), available at <https://dnr.maryland.gov/ccs/Documents/NuisanceFloodPlan.pdf>.

⁴³*Gov. Wolf Announces Plan to Address Flooding Caused by Climate Change*, GOV. TOM WOLF (Dec. 7, 2020), <https://www.governor.pa.gov/newsroom/gov-wolf-announces-plan-to-address-flooding-caused-by-climate-change/>.

⁴⁴*Id.*

⁴⁵*Id.* (“There are two programs within the Federal Emergency Management Agency that can provide federal aid after a flooding disaster: public assistance and individual assistance. Public assistance provides reimbursements to state, county and local governments and eligible nonprofits for costs associated with response and recovery efforts. Each county included in a public assistance request must meet a cost threshold based on population and, in turn, the commonwealth overall must meet a threshold of \$19.5 million in damage costs. Individual assistance includes a wide range of programs for homeowners and renters, including cash grants, housing or home repair assistance. In 2018 in Pennsylvania, more than 5,000 homes were damaged in a series of incidents, but no single incident met the threshold. That year there was also approximately \$63 million in public infrastructure damages alone that were not reimbursable through federal disaster programs.”).

determine which states have a climate adaptation plan.¹ For purposes of this treatise, **climate adaptation plans** *outline or direct how states will prepare to address forecasted climate change impacts*. These plans vary in format, level of detail, and sectors covered, among other factors. Adaptation plans are usually preceded by or developed concurrently with a state-level vulnerability assessment to ensure that state strategies are scientifically based, driven, and informed.²

Between 2008 and 2009, Maryland, Florida, California, and New Hampshire released the nation's first climate adaptation plans.³ On April 20, 2007, Governor Martin O'Malley issued Executive Order 01.01.2007.07, which established the Maryland Commission on Climate Change and directed the commission to create a Climate Action Plan.⁴ To fulfill this mandate, Maryland produced two climate adaptation plans: the Comprehensive Strategy for Reducing Maryland's Vulnerability to

[Section 24:23]

¹E.g., Georgetown Climate Center tracks whether and how states are developing "climate adaptation plans." The center has established four criteria for determining which states have an adaptation plan. Specifically, a climate adaptation plan must be: (1.) comprehensive (multi-sector, multi-impact [e.g., some states have plans that focus only on sea-level rise or coastal impacts]); (2.) statewide (considers impacts to the full state, involves multiple state agencies); (3.) focused on adaptation (i.e., assesses the state's vulnerability to the full range of climate impacts and identifies strategies for reducing those impacts); and (4.) state supported or state led (meaning that the state has a primary role in developing the plan, rather than a nongovernmental or academic partner).

Some states listed as having a plan do not consider themselves as having a plan. For example, according to Georgetown Climate Center, New York State has a climate adaptation plan commissioned by former Governor David Paterson; however, under Governor Andrew Cuomo, the state is currently developing what it considers to be its first climate adaptation plan. Moreover, some states, like California, have multiple plans that meet Georgetown Climate Center's criteria.

²Although important, this section does not describe state vulnerability assessments in detail. Through Executive Order S-03-05, California is an example of a state that imposes upon itself an obligation to complete periodic statewide assessments of climate impacts and vulnerabilities. The fourth and latest version of the state's climate change assessment, as of publication of this section, was released on August 27, 2018. Most states that have climate adaptation plans called for by an executive order or statute are similarly required to update their climate adaptation plans and vulnerability assessments on a regular schedule, usually every five years. Georgetown Climate Ctr., *California's Fourth Climate Change Assessment*, ADAPTATION CLEARINGHOUSE (Aug. 27, 2018), <https://www.adaptationclearinghouse.org/resources/california-s-fourth-climate-change-assessment.html>.

Other states take different approaches to how they sequence and link their vulnerability assessments and adaptation plans. In June 2020, North Carolina released its first climate vulnerability assessment in conjunction with and a part of its Climate Risk Assessment and Resilience Plan. Georgetown Climate Ctr., *North Carolina 2020 Climate Risk Assessment and Resilience Plan*, ADAPTATION CLEARINGHOUSE (June 2, 2020), <https://www.adaptationclearinghouse.org/resources/north-carolina-2020-climate-risk-assessment-and-resilience-plan.html>. In April 2020, the State of New Jersey released its first Scientific Report on Climate Change ahead of its first climate adaptation plan and other related initiatives, including a separate Coastal Resilience Plan that is also being developed. *Climate Resilience for New Jersey*, N.J. DEPT OF ENVTL. PROT., <https://www.nj.gov/dep/climatechange/resilience.html> (last visited Nov. 17, 2020).

³Some states—like Maine in 2003, Oregon in 2006, Alaska in 2007, and Pennsylvania in 2008—started taking discrete adaptation actions in the early 2000s, but only a few released statewide climate adaptation plans and took more comprehensive actions. Specifically, California, Colorado, Florida, Maryland, and New Hampshire are called out here due to the holistic nature of the actions they initiated between 2007 and 2009 that were more focused on climate adaptation versus mitigation. Notably, four of the five states—California, Florida, Maryland, and New Hampshire—released the nation's first statewide climate adaptation plans within that period, which is a key distinction as to why their respective efforts are discussed here in depth. In contrast, Colorado did not release its first climate adaptation plan until 2011; however, it is the first example of a non-coastal state that released a climate adaptation plan and it has made more significant adaptation progress since 2007 than other non-coastal states.

⁴Georgetown Climate Ctr., *Maryland Executive Order 01.01.2007.07*, ADAPTATION CLEARINGHOUSE (Apr. 20, 2007), <https://www.adaptationclearinghouse.org/resources/maryland-executive-order-01-01-2007-07.html>.

Climate Change, Phase I: Sea-level Rise and Coastal Storms (issued September 12, 2008); and the Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change, Phase II: Building Societal, Economic, and Ecological Resilience (issued January 24, 2011).⁵ The 2011 plan is broader than the 2008 plan because it evaluates multiple impacts to the state outside of sea-level rise and the coastal sector. Specifically, the 2008 plan addresses the effects of sea-level rise and coastal storms in the state on the existing and future built environment and infrastructure; the economy; human health, safety, and welfare; and natural resources. In contrast, the 2011 plan evaluates the impacts of precipitation changes and increased temperature changes on similar sectors.

Through Executive Order 07-128, on July 23, 2007, Florida Governor Charlie Crist established an Action Team on Energy and Climate Change to create a comprehensive Energy and Climate Change Action Plan.⁶ The plan was finalized on October 15, 2008.⁷ The plan highlights projected climate impacts to the state, including temperature and precipitation changes, sea-level rise, and extreme weather, and recommends adaptation strategies that the state could implement to increase Florida's resilience to these impacts. The Action Plan includes goals related to: the state's research needs; comprehensive planning; ecosystems and biodiversity; water resource; the built environment and infrastructure; the economy; insurance; emergency preparedness; human health and social effects; government organization and coordination; funding; and education.

Shortly after Maryland and Florida, California released its California Climate Adaptation Strategy in December 2009.⁸ On November 14, 2008, Governor Arnold Schwarzenegger issued Executive Order S-13-08 and called on the California Natural Resources Agency to develop a statewide adaptation strategy in coordination with public and private entities at all levels of government.⁹ The California strategy summarizes climate change impacts and recommends adaptation goals for seven sectors: public health; biodiversity and habitat; oceans and coastal resources; water; agriculture; forestry; and transportation and energy. California updated its adaptation strategy in 2014 and 2018.

Around the same time as California, New Hampshire finalized its own climate adaptation plan. In December 2007, New Hampshire's Governor John Lynch

⁵Georgetown Climate Ctr., *Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change, Phase I: Sea-level Rise and Coastal Storms*, ADAPTATION CLEARINGHOUSE (Sept. 12, 2008), <https://www.adaptationclearinghouse.org/resources/comprehensive-strategy-for-reducing-maryland-s-vulnerability-to-climate-change-phase-i-sea-level-rise-and-coastal-storms.html>; Georgetown Climate Ctr., *Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change, Phase II: Building Societal, Economic, and Ecological Resilience*, ADAPTATION CLEARINGHOUSE (Jan. 24, 2011), <https://www.adaptationclearinghouse.org/resources/comprehensive-strategy-for-reducing-maryland-s-vulnerability-to-climate-change-phase-ii-building-societal-economic-and-ecological-resilience.html>.

⁶Georgetown Climate Ctr., *Florida Executive Order 07-128—Governor's Action Team on Energy and Climate Change*, ADAPTATION CLEARINGHOUSE (July 13, 2007), <https://www.adaptationclearinghouse.org/resources/florida-executive-order-07-128-governor-s-action-team-on-energy-and-climate-change.html>; Georgetown Climate Ctr., *Preparing for Climate Change in Florida*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/florida/overview.html> (last updated Aug. 19, 2020).

⁷Georgetown Climate Ctr., *Florida's Energy and Climate Change Action Plan*, ADAPTATION CLEARINGHOUSE (Oct. 15, 2008), <https://www.adaptationclearinghouse.org/resources/florida-s-energy-and-climate-change-action-plan.html>.

⁸Georgetown Climate Ctr., *California 2009 Climate Adaptation Strategy*, ADAPTATION CLEARINGHOUSE (2009), <https://www.adaptationclearinghouse.org/resources/california-2009-climate-adaptation-strategy.html>.

⁹Georgetown Climate Ctr., *California Executive Order S-13-08 Requiring State Adaptation Strategy*, ADAPTATION CLEARINGHOUSE (Nov. 14, 2008), <https://www.adaptationclearinghouse.org/resources/california-executive-order-s-13-08-requiring-state-adaptation-strategy.html>.

established a Climate Change Policy Task Force through Executive Order 2007-3.¹⁰ The Task Force was charged with developing a state Climate Action Plan.¹¹ On March 25, 2009, the Task Force released the New Hampshire Climate Action Plan, which includes a chapter on Adapting to a Changing Climate.¹²

Beyond Maryland, California, and New Hampshire, the number of states with adaptation plans has grown, especially between 2018 and 2020, a period in which a number of coastal and non-coastal states made adaptation commitments for the first time. As of 2020, 18 states have released adaptation plans, plus the District of Columbia, for a total of 19 jurisdictions: Alaska, California, Colorado, Connecticut, Delaware, Florida, Maine, Maryland, Massachusetts, Montana, New Hampshire, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Virginia, and Washington.¹³ Among these, Connecticut, Delaware, Maine, Maryland, and New York are updating their plans or creating new ones.¹⁴ In addition, other states are in the process of or making strong progress on developing their inaugural adaptation plans, including Michigan, Nevada, New Jersey, New Mexico, South Carolina, Vermont, and Wisconsin.¹⁵

A plan's goals, objectives, and recommendations vary state-by-state. Moreover,

¹⁰Georgetown Climate Ctr., *New Hampshire Executive Order 2007-3*, ADAPTATION CLEARINGHOUSE (Dec. 6, 2007), <https://www.adaptationclearinghouse.org/resources/new-hampshire-executive-order-2007-3.html>.

¹¹*Id.*

¹²Georgetown Climate Ctr., *New Hampshire Climate Action Plan: A Plan for New Hampshire's Energy, Environmental, and Economic Development Future*, ADAPTATION CLEARINGHOUSE (Mar. 2009), <http://www.adaptationclearinghouse.org/resources/new-hampshire-climate-action-plan-a-plan-for-new-hampshire-s-energy-environmental-and-economic-development-future.html>.

¹³See Georgetown Climate Center's State Adaptation Progress Tracker, available at <https://www.georgetownclimate.org/adaptation/plans.html> (last visited Nov. 20, 2020).

¹⁴See, e.g., *Governor's Council on Climate Change*, CT. DEPT OF ENERGY & ENVTL. PROT., <https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change>; DELAWARE'S CLIMATE ACTION PLAN, available at <https://declimateplan.org> (last visited Jan. 7, 2021); ME. CLIMATE COUNCIL, MAINE WON'T WAIT: A FOUR-YEAR CLIMATE ACTION PLAN (Dec. 2020), available at https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/MaineWontWait_December2020.pdf.

¹⁵Exec. Directive No. 2020-10, Building a Carbon-Neutral Michigan (Sept. 23, 2020), available at https://content.govdelivery.com/attachments/MIEOG/2020/09/23/file_attachments/1553296/ED%202020-10%20Carbon_Neutral_Goal.pdf.

Exec. Order 2019-22, Order Directing Executive Branch to Advance Nevada's Climate Goals (Nov. 22, 2019), https://gov.nv.gov/News/Executive_Orders/2019/Executive_Order_2019-22_Directing_Executive_Branch_to_Advance_Nevada_s_Climate_Goals/; *Nevada's Climate Change Strategy*, STATE OF NV. CLIMATE CHANGE INITIATIVE, <https://climateaction.nv.gov/policies/exec-summary/> (last visited Jan. 7, 2021). In December 2020, the Nevada Climate Initiative released the state Climate Strategy, which lays out how the state will reach its goals of reducing GHG emissions to net-zero by 2050 and the "groundwork" for the state to pursue climate adaptation and resilience.

Georgetown Climate Ctr., *New Jersey Executive Order 89 Establishing Statewide Climate Change Resilience Strategy*, ADAPTATION CLEARINGHOUSE (Oct. 29, 2019), <https://www.adaptationclearinghouse.org/resources/new-jersey-executive-order-89-establishing-statewide-climate-change-resilience-strategy.html>.

Georgetown Climate Ctr., *New Mexico Climate Strategy—Initial Recommendations and Status Update*, ADAPTATION CLEARINGHOUSE (Sept. 2019), <https://www.adaptationclearinghouse.org/resources/new-mexico-climate-strategy-initial-recommendations-and-status-update.html>.

Georgetown Climate Ctr., *South Carolina Disaster Relief and Resilience Act*, ADAPTATION CLEARINGHOUSE (Sept. 29, 2020), <https://www.adaptationclearinghouse.org/resources/south-carolina-disaster-relief-and-resilience-act.html>.

Vermont Global Warming Solutions Act (Sept. 2020), available at <https://legislature.vermont.gov/Documents/2020/Docs/ACTS/ACT153/ACT153%20As%20Enacted.pdf>. The act created the Vermont Climate Council. The council is tasked with formulating a Climate Action Plan that must be adopted by December 1, 2021. The Climate Action plan must include strategies to reduce greenhouse gas emissions, as well as strategies to build resilience to prepare Vermont's communities, infrastructure, and economy to adapt to the current and anticipated effects of climate change.

each state implements its plan differently and may or may not track its plan's implementation progress on discrete goals and objectives—either internally for a government audience and/or externally for the public. Implementation tracking can be a useful tool for many reasons, including demonstrating state progress on adaptation; informing the need for adaptive management approaches in the face of a changing climate and other plan revisions or updates to achieve stated goals and objectives; and promoting transparency and awareness among elected officials and the public.

While this part only provides an overview of state climate adaptation planning in the United States, Box 1 highlight a few interesting facts showcasing the range and unique nature of various states' plans:

Box 1: Examples of State Climate Adaptation Plans
<p style="text-align: center;">Colorado</p> <p>In 2011, Colorado was the first non-coastal state to develop and release a climate adaptation plan, the Colorado Climate Preparedness Project: Final Report.¹⁶ The state issued an updated version of the plan in 2018, the Colorado Climate Plan Update 2018—State Level Policies to Mitigate and Adapt.¹⁷ The 2018 plan includes new climate resiliency goals, for example, regarding state actions at the local level; and reports on state adaptation progress since 2015.</p>
<p style="text-align: center;">Massachusetts</p> <p>In 2018, Massachusetts was the first state to issue a combined statewide hazard mitigation and climate adaptation plan, the Massachusetts Statewide Hazard Mitigation and Climate Adaptation Plan.¹⁸ Given the similar goals and objectives for hazard mitigation and climate adaptation plans to reduce risks and vulnerabilities to people and the environment, Massachusetts pioneered a logical and seamless plan alignment. The natural hazards assessment conducted for this plan examines how hazard risks and vulnerabilities are becoming more severe or uncertain due to climate change. The plan outlines climate change impacts and adaptation strategies for five key sectors: populations, the government, the built environment, natural resources and the environment, and the economy.</p>

STATE OF WI., GOVERNOR'S TASK FORCE ON CLIMATE CHANGE REPORT (Dec. 2020), available at <https://climatechange.wi.gov/Documents/Final%20Report/USCA-WisconsinTaskForceonClimateChange20201207-HighRes.pdf>. In December 2020, Wisconsin's bipartisan Climate Change Task Force released the Climate Change Report, which contains 55 recommendations that, if implemented, will help the state adapt to the impacts of climate change and reduce climate emissions. One of the recommendations calls for the state to: "Fund and execute a statewide climate risk assessment and resilience plan."

¹⁶Georgetown Climate Ctr., *Colorado Climate Preparedness Project: Final Report*, ADAPTATION CLEARINGHOUSE (2011), <https://www.adaptationclearinghouse.org/resources/colorado-climate-preparedness-project-final-report.html>.

¹⁷Georgetown Climate Ctr., *Colorado Climate Plan Update 2018—State Level Policies to Mitigate and Adapt*, ADAPTATION CLEARINGHOUSE (July 2018), <https://www.adaptationclearinghouse.org/resources/colorado-climate-plan-2018-update-state-level-policies-and-strategies-to-mitigate-and-adapt.html>.

¹⁸Georgetown Climate Ctr., *Massachusetts Statewide Hazard Mitigation and Climate Adaptation Plan*, ADAPTATION CLEARINGHOUSE (Sept. 17, 2018), <https://www.adaptationclearinghouse.org/resources/massachusetts-statewide-hazard-mitigation-and-climate-adaptation-plan.html>.

In hazard mitigation plans, state and local governments develop strategies to protect people and property from future disaster events. These plans must meet requirements set by the Federal Emergency Management Agency (FEMA). Hazard mitigation plans start by identifying risks and vulnerabilities related to a given disaster or multiple types of disasters, like hurricanes, tsunamis, flooding, drought, and wildfires, and then potential strategies to reduce those risks and vulnerabilities. Importantly, a FEMA-approved hazard mitigation plan is a prerequisite for state and local governments to receive funding from FEMA for areas covered by a presidential disaster declaration. *Hazard*

Montana

In August 2020, Montana finalized its first-ever climate adaptation plan, the Montana Climate Solutions Plan.¹⁹ The plan—a **combined climate mitigation and adaptation plan**—calls for the state to: create a Montana Climate Solutions Network to connect communities and encourage cross-jurisdictional adaptation efforts; preserve Montana’s resources that support tourism and outdoor recreation; incentivize management practices on private lands that increase productivity while minimizing climate risks; increase resilience to wildfires; and increase the resilience of wildlife and rangelands. Notably, the state plan also includes a section on promoting the economic resilience of Montana’s citizens as the state’s economy and workforce are in the process of transitioning away from the fossil fuel industry.²⁰ In order to support and ensure justice for displaced workers and communities, the plan identifies the following as key strategies to build individual economic resilience: increasing apprenticeship opportunities; integrating career training into the public school curriculum; standardizing wages in up-and-coming industrial sectors; and supporting unionization.

Connecticut, Maine, and Rhode Island

Given the need for adequate and available funding to implement the objectives and projects identified in state adaptation plans, Connecticut, Maine, and Rhode Island have been working to evaluate **potential funding and financing mechanisms** as a part of—and not separately from—their adaptation planning processes.²¹ More states are simultaneously looking at funding and financing in tandem with adaptation planning to enhance the practicality and usefulness of their plans. For example, in 2019, Connecticut formed a Financing and Funding Adaptation and Resilience Working Group as part of Governor Ned Lamont’s call to update the state’s 2011 Connecticut Climate Change Preparedness Plan.²² The **working group identified several ways the state and its municipalities could fund and finance climate mitigation and adaptation projects.**²³

Mitigation Plan Requirement, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/emergency-manager/s/risk-management/hazard-mitigation-planning> (last updated Oct. 28, 2020). As stated in the section on federal adaptation, hazard mitigation funding from FEMA and other agencies has become a critical source of funding for climate adaptation in the absence of other, more sustainable and climate-specific sources of federal, state, and local funding.

¹⁹Georgetown Climate Ctr., *Montana Climate Solutions Plan*, ADAPTATION CLEARINGHOUSE (Aug. 2020), <https://www.adaptationclearinghouse.org/resources/montana-climate-solutions-plan.html>.

²⁰The fossil fuel industry has provided many Montanans with well-paying, secure jobs. However, as the fossil fuel industry is declining in the state, no comparable positions have emerged in other sectors.

²¹*Governor’s Council on Climate Change*, CT. DEP’T OF ENERGY & ENVTL. PROT., <https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change>; ME. CLIMATE COUNCIL, MAINE WON’T WAIT: A FOUR-YEAR CLIMATE ACTION PLAN (Dec. 2020), available at https://www.maine.gov/future/sites/main/files/inline-files/MaineWontWait_December2020.pdf; Georgetown Climate Ctr., *Resilient Rhody: An Actionable Vision for Addressing the Impacts of Climate Change in Rhode Island*, ADAPTATION CLEARINGHOUSE (July 2, 2018), <https://www.adaptationclearinghouse.org/resources/resilient-rhody-an-actionable-vision-for-addressing-the-impacts-of-climate-change-in-rhode-island.html>.

²²*Governor’s Council on Climate Change*, CT. DEP’T OF ENERGY & ENVTL. PROT., <https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change>.

²³Financing and Funding Adaptation and Resilience Working Group, Governor’s Council on Climate Change Public Forums (Oct. 7, 2020), available at https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-Public-forums/GC3_Financing_Funding_Adapt_Resilience_publicforum_slides_100720.pdf.

Maine is similarly considering a range of potential funding and financing options across all levels of government and the private sector to support the climate mitigation and adaptation strategies recommended in its 2020 plan update, *Maine Won't Wait*.²⁴ The state also commissioned a study to **assess the impacts of climate on Maine's economy, revenues, and investment decisions**.²⁵ The purpose of the study is to help Maine estimate how much adapting—or not adapting—to climate change will cost the state.

In its 2018 Resilient Rhody plan, Rhode Island explicitly **highlighted barriers to paying for adaptation projects**. Importantly, the plan also identified both existing (e.g., state revolving funds and mitigation banking) and new and emerging financing mechanisms (e.g., environmental impact bonds and stormwater utilities) that could be used to overcome those barriers.

North Carolina

Many state climate adaptation plans include **equity and environmental justice considerations** to varying degrees. North Carolina's Climate Risk Assessment and Resilience Plan places a significant emphasis on equity and environmental justice, or what the state refers to as "**climate justice**."²⁶ In the plan, the state mapped "Potentially Underserved Populations" using North Carolina's environmental justice mapping protocol, which identifies U.S. Census block groups as potentially underserved if their populations are disproportionately non-white and experiencing poverty. After mapping "Potentially Underserved Populations," the state then overlaid projected climate impact maps to better assess these populations' exposure to risks like inland and coastal flooding, wildfire, and extreme heat. The plan concludes by recommending a future research agenda and policy updates to address institutionalized and systemic climate injustice.

§ 24:24 Supplemental and standalone plans and actions

For the many states that already have or are in the process of developing an official climate adaptation plan—and the even greater number of states that do not have one yet—there is both supplemental and standalone progress on other types of adaptation plans and initiatives. This part explores additional types of adaptation plans and related legal and policy actions that were not covered in Section 24:23. This part is organized to highlight the most common ways state agencies are structuring these plans. First, this part presents examples of state plans and actions that are intended to address climate-related impacts to water, especially on the coast. These plans focus on water, but provide cross-sectoral (e.g., infrastructure, natural resources) recommendations and direction to a state. Second, this part identifies examples of plans and initiatives through the lens of a given sector or agency.

In summary, states are most frequently undertaking actions to adapt to coastal and inland flooding. A few examples of other types of water-related plans look at how states are managing their freshwater supplies in the face of saltwater intrusion and salinization, drought, and competing user demands. These plans suggest that states are beginning to grow more comprehensive approaches to managing water

²⁴ME. CLIMATE COUNCIL, MAINE WON'T WAIT: A FOUR-YEAR CLIMATE ACTION PLAN (Dec. 2020), *available at* https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/MaineWontWait_December2020.pdf.

²⁵DEP'T OF THE GOVERNOR'S OFFICE OF POL'Y INNOVATION & THE FUTURE, STATE OF ME., ASSESSING THE IMPACTS CLIMATE CHANGE MAY HAVE ON THE STATE'S ECONOMY, REVENUES, AND INVESTMENT DECISIONS (Sept. 1, 2020), *available at* <https://climatecouncil.maine.gov/reports> (this report was prepared for the state by Eastern Research Group, Inc. and Synapse Energy Economics).

²⁶Georgetown Climate Ctr., *North Carolina 2020 Climate Risk Assessment and Resilience Plan*, ADAPTATION CLEARINGHOUSE (June 2, 2020), <https://www.adaptationclearinghouse.org/resources/north-carolina-2020-climate-risk-assessment-and-resilience-plan.html>.

beyond just mitigating flood risks. The author of this section, however, is not similarly aware of any statewide plans to reduce extreme heat or wildfires.¹ Where state agencies are currently addressing those impacts, it appears to only be through sector-specific or individual agency or project plans.

A. *Water-related plans and actions*

This part starts by examining first-of-their-kind state exemplars aimed at building coastal resilience. It then transitions to novel examples of state efforts to address other climate-related impacts to freshwater.

1. Coastal master and resilience plans

Despite not having its own statewide climate adaptation plan, Louisiana is a leader in coastal adaptation and resilience. In 2006, Louisiana passed Act 8, which created the Coastal Protection and Restoration Authority and required the authority to develop a Coastal Master Plan (CMP) every five years.² The CMP provides a \$50 billion, 50-year blueprint for directing Louisiana's investments, regulations, and programs in coastal restoration, resilience, and protection.³

The CMP utilizes data on sea-level rise, flooding, and land loss over a 50-year planning horizon. The CMP includes objectives for enhancing flood protection; restoring, protecting, and sustaining natural processes, coastal habitats, and cultural heritage; and promoting a viable working coast. The state seeks to attain these objectives by investing in land-building, restoration, and structural (e.g., levees) and non-structural (e.g., elevating structures, buyouts) risk-reduction projects identified in the CMP. The CMP guides how the state will allocate funds towards these purposes over the applicable five-year period. Since the first CMP was adopted in 2007, the state has completed or funded 135 projects temporarily benefiting 36,000 acres of land.⁴

Consistent executive leadership has amplified the CMP's ability to affect state actions beyond the Coastal Protection and Restoration Authority alone. Via Executive Order JBE 2016-09 in 2016, Governor John Bel Edwards directed all state agencies, departments, and offices in Louisiana to carry out their regulatory programs, practices, grants, and contracts in a manner consistent with the CMP.⁵ In August 2020, Governor Edwards issued a second executive order that further emphasized the

[Section 24:24]

¹The author is not aware of any statewide plans for heat or wildfires that are analogous to statewide plans for flooding or water in terms of their depth or coverage of climate change. This is not to say that states do not have, for example, wildfire mitigation, protection, and recovery plans, because some in fact do. However, the author has not found examples of heat or wildfire plans that align with this section's focus on state-level actions that explicitly call out or significantly approach climate change.

²Georgetown Climate Ctr., *Louisiana's 2012 Coastal Master Plan*, ADAPTATION CLEARINGHOUSE (May 22, 2012), <https://www.adaptationclearinghouse.org/resources/louisiana-s-2012-coastal-master-plan.html>. Hurricane Katrina hit the Gulf in 2005, directly precipitating the legislative mandate for a CMP. The tragedies that resulted from Hurricane Katrina brought the state to develop a more comprehensive approach to coastal management and disaster preparedness. *Structure*, LA. COASTAL PROT. & RESTORATION AUTH., <https://coastal.la.gov/about/structure/> (last visited Jan. 14, 2021).

³Georgetown Climate Ctr., *Louisiana's 2012 Coastal Master Plan*, ADAPTATION CLEARINGHOUSE (May 22, 2012), <https://www.adaptationclearinghouse.org/resources/louisiana-s-2012-coastal-master-plan.html>; Georgetown Climate Ctr., *Louisiana 2017 Coastal Master Plan*, ADAPTATION CLEARINGHOUSE (June 2, 2017), <https://www.adaptationclearinghouse.org/resources/louisiana-2017-coastal-master-plan.html>.

⁴Georgetown Climate Ctr., *Louisiana 2017 Coastal Master Plan*, ADAPTATION CLEARINGHOUSE (June 2, 2017), <https://www.adaptationclearinghouse.org/resources/louisiana-2017-coastal-master-plan.html>. The most recent CMP is from 2017, and the next update is expected in 2021.

⁵Exec. Order No. JBE 2016-09, available at <https://gov.louisiana.gov/assets/ExecutiveOrders/JBE16-09.pdf>.

importance of the CMP to the state's plans and initiatives. Executive Order JBE 2020-19 requires all state agencies to pursue Louisiana's coastal protection and adaptation goals and incorporate resilience planning into their operations.⁶ To accomplish these goals, the governor established the position of Chief Resilience Officer and resilience leads in each state agency to coordinate state-agency actions with the CMP.

In accordance with Louisiana's model, other states are following suit with their own coastal master or resilience plans. In 2017 and 2019, Texas released a Coastal Resiliency Master Plan to guide future management of the state's coast in response to sea-level rise, storm surge, erosion, habitat loss and degradation, and declining water quality.⁷ In both plans, the Texas General Land Office lays out several resilience strategies to address these hazards in a system-wide approach. Similarly, New Jersey and Virginia are in the process of developing their coastal master or resilience plans.⁸

While Louisiana's Coastal Master Planning framework is gaining traction among coastal states, Rhode Island is pursuing a different approach. Instead of creating a plan to identify, prioritize, fund, and implement adaptation projects over a given planning horizon, Rhode Island's approach focuses on how the state can increase its overall resilience through data-driven permitting and land use processes. In June 2018, the State of Rhode Island's Coastal Resource Management Council (CRMC) adopted the Rhode Island Shoreline Change Special Area Management Plan (Beach SAMP) to help Rhode Island's coastal communities better adapt to climate and shoreline changes.⁹ The Beach SAMP includes guidance and tools for how state and local decisionmakers and private property owners can design and build more resilient development.

The Beach SAMP is the first SAMP of its kind in the United States to both cover a state's entire coastal zone and climate impacts.¹⁰ The planning boundary was identified through STORMTOOLS, an online, interactive mapping tool that displays different storm inundation scenarios—both with and without sea-level rise—for

⁶Georgetown Climate Ctr., *Louisiana Executive Order Number JBE 2020-19 on Coastal Resilience*, ADAPTATION CLEARINGHOUSE (Aug. 19, 2020), <https://www.adaptationclearinghouse.org/resources/louisiana-executive-order-number-jbe-2020-19-on-coastal-resilience.html>.

⁷Georgetown Climate Ctr., *2017 Texas Coastal Resiliency Master Plan*, ADAPTATION CLEARINGHOUSE (Mar. 2017), <https://www.adaptationclearinghouse.org/resources/texas-2017-coastal-resiliency-master-plan.html>; Georgetown Climate Ctr., *Texas 2019 Coastal Resiliency Master Plan*, ADAPTATION CLEARINGHOUSE (Mar. 2019), <https://www.adaptationclearinghouse.org/resources/texas-2019-coastal-resiliency-master-plan.html>.

⁸Georgetown Climate Ctr., *New Jersey Executive Order 89 Establishing Statewide Climate Change Resilience Strategy*, ADAPTATION CLEARINGHOUSE (Oct. 29, 2019), <https://www.adaptationclearinghouse.org/resources/new-jersey-executive-order-89-establishing-statewide-climate-change-resilience-strategy.html>. Among other things, this executive order called for the development of a Coastal Resilience Plan, in addition to a statewide Climate Resilience Strategy.

OFFICE OF THE GOVERNOR, COMMONWEALTH OF VA., VIRGINIA COASTAL RESILIENCE MASTER PLANNING FRAMEWORK: PRINCIPLES AND STRATEGIES FOR COASTAL FLOOD PROTECTION AND ADAPTATION (Oct. 2020), available at <https://www.governor.virginia.gov/media/governorvirginiagov/governor-of-virginia/pdf/Virginia-Coastal-Resilience-Master-Planning-Framework-October-2020.pdf>. This document was drafted pursuant to Governor Ralph Northam's Exec. Order No. 24 from November 2018 and is part one of a two-part process to release a Coastal Master Plan, like Louisiana's, by the end of 2021.

⁹Georgetown Climate Ctr., *Rhode Island Shoreline Change Special Areas Management Plan (BEACH SAMP)*, ADAPTATION CLEARINGHOUSE (June 2018), <https://www.adaptationclearinghouse.org/resources/rhode-island-shoreline-change-special-area-management-plan-beach-samp-a.html>.

¹⁰Under the federal Coastal Zone Management Act, Special Area Management Plans or "SAMPs" are resource management plans that states can develop to better manage specific geographic areas within their coastal zones. Coastal Zone Management Act, 16 U.S.C. § 1452(3). Here, Rhode Island created a SAMP to cover its entire coastal zone.

Rhode Island.¹¹ With STORMTOOLS, Rhode Island has the ability to assess risk at the individual structure and parcel level for all properties along the coast and within the Beach SAMP planning boundary.

The Beach SAMP contains the Coastal Hazard Application Guidance, a five-step risk assessment process for proposed development within the Beach SAMP Planning Boundary. In August 2018, CRMC amended its regulations to require that project applicants complete and file a Coastal Hazard Application worksheet with their permit application in accordance with the template and guidance provided in the Beach SAMP.¹² This is one example of a coastal regulatory program in the U.S. to put forward permit requirements that address future risk from sea-level rise, storm surge, and coastal erosion.

2. Other examples of water-related plans and actions

Apart from sea-level rise and flooding, Maryland, Colorado, and California present examples of how states are addressing other climate-related impacts to freshwater.

Maryland developed the nation's first state-level plan to combat saltwater intrusion and salinization.¹³ In response to a state law that called for the plan, Maryland's 2019 Plan to Adapt to Saltwater Intrusion and Salinization looks at the impacts of these threats on the state's freshwater resources, coastal wetlands and forests, and human uses (e.g., agriculture), and identifies future research and adaptation priorities.¹⁴ Through the Maryland Department of Planning, the state is beginning to implement priorities contained in the plan.¹⁵ Specifically, the state is drafting a Wetlands Adaptation Plan to protect wetlands being lost or "drowned" by sea-level rise. The plan will map and identify both priority wetlands that can be restored and conserved in place, as well as wetland migration corridors that can serve as a pathway to their establishment on higher ground. The state is also developing the template for a wetlands conservation easement, or "coastal easement," that would preserve undeveloped space (i.e., buffers on private property) to ensure that wetlands will have room to move inland.

Compared to Maryland, Colorado is addressing different western water impacts. The state was one of the first to prominently feature climate data and considerations in its comprehensive water plan. In 2015, Colorado released the Colorado Water Plan to put forward an adaptive water management approach for the state.¹⁶ Colorado is facing increased demand and stress on its water supply due to a steadily increasing population. This is compounded by climate impacts, such as higher

¹¹Georgetown Climate Ctr., *Rhode Island: STORMTOOLS for Mapping Coastal Flooding*, ADAPTATION CLEARINGHOUSE (2016), <https://www.adaptationclearinghouse.org/resources/rhode-island-stormtools-for-mapping-coastal-flooding.html>. CRMC has defined the Beach SAMP Planning Boundary as the land area along the coastline projected to be inundated by seven feet of sea-level rise with a 100-year-return-period storm event, as illustrated using STORMTOOLS.

¹²650-20-00-01 R.I. CODE R. § 1.1.6 (2019).

¹³Georgetown Climate Ctr., *Maryland Plan to Adapt to Saltwater Intrusion and Salinization*, ADAPTATION CLEARINGHOUSE (Dec. 2019), <https://www.adaptationclearinghouse.org/resources/maryland-plan-to-adapt-to-saltwater-intrusion-and-salinization.html>.

¹⁴Georgetown Climate Ctr., *Maryland HB 1350/SB 1006—Sea Level Rise Inundation and Coastal Flooding—Construction, Adaptation, and Mitigation*, ADAPTATION CLEARINGHOUSE (Apr. 5, 2018), <https://www.adaptationclearinghouse.org/resources/maryland-hb-1350-sb-1006-sea-level-rise-inundation-and-coastal-flooding-construction-adaptation-and-mitigation.html>.

¹⁵Agenda, Adaptation & Resiliency Working Group Quarterly Meeting, Maryland Comm'n on Climate Change (Nov. 16, 2020), available at <https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/ARWG/Meeting%20Agenda%2011.16.20.pdf>.

¹⁶Georgetown Climate Ctr., *Colorado Water Plan*, ADAPTATION CLEARINGHOUSE (2015), <https://www.adaptationclearinghouse.org/resources/colorado-water-plan.html>.

temperatures and changes in precipitation and spring runoff. The purpose of the plan is to create a sustainable water future for the state out to 2050 in light of these impacts and competing user groups. To meet these challenges, the plan includes specific goals, quantifiable outcomes, and adaptation strategies for each of Colorado's eight water basins. In 2017, the state issued an update and progress report on the 2015 plan in a report called *Ripple Effects: Colorado Water Plan in Action 2017*.¹⁷

Last but not least, a recent initiative in California suggests an opportunity for future statewide approaches to more comprehensively manage freshwater resources that include, but are not limited to, mitigating flood risks. In April 2019, California Governor Gavin Newsom issued Executive Order No. N-10-19 that requires the state to develop a comprehensive strategy to build a climate resilient water system.¹⁸ The order directed the secretaries of the California Natural Resources Agency, California Environmental Protection Agency, and the California Department of Food and Agriculture to prepare a Water Resilience Portfolio that will address the needs of California's communities, environment, and economies throughout the twenty-first century.¹⁹ On July 28, 2020, Governor Newsom released the Water Resilience Portfolio.²⁰ The portfolio will serve as the state's blueprint to better address a myriad of climate impacts beyond flooding—like extreme droughts, rising temperatures, declining fish stocks, and depleting groundwater supplies—that are affecting the state's water supply and quality. This is a noteworthy example of a state action to coordinate water management and climate adaptation and resilience to address more than one climate impact.

B. Sector- and agency-specific plans and actions

This part looks at how state agencies are addressing the multiple climate impacts facing their states through the lens of a single sector or agency focus. To supplement and contrast with § 24:22 *supra*, this part intentionally includes sector-specific examples of how agencies are adapting to non-water-related impacts, namely extreme heat and wildfires. Many states have included goals and objectives for extreme heat and wildfires in their climate adaptation plans but have yet to subsequently act on or implement those goals and objectives on a programmatic planning or regulatory level.²¹ As stated at the beginning of § 24:22, this author is not aware of any statewide plans to mitigate these climate threats in a way that is

¹⁷Georgetown Climate Ctr., *Ripple Effects: Colorado Water Plan in Action 2017*, ADAPTATION CLEARINGHOUSE (Nov. 2017), <https://www.adaptationclearinghouse.org/resources/ripple-effects-colorado-water-plan-in-action-2017.html>.

¹⁸Exec. Order No. N-10-19, *available at* <https://www.gov.ca.gov/wp-content/uploads/2019/04/4.29.19-EO-N-10-19-Attested.pdf>.

¹⁹The new Water Resilience Portfolio will build upon the state's water plan predecessors that have been issued since 1957. Legally mandated water plans are released every five years, with the most recent update from 2018. The 2018 update addresses climate change broadly under goals to increase the resiliency of the state's water infrastructure and incorporate climate change data into water management and education efforts, among others. Dep't of Water Res., Natural Res. Agency, State of Cal., *California Water Plan Update 2018: Managing Water Resources for Sustainability* (2018), *available at* <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Docs/Update2018/Final/Accessible-California-Water-Plan-Update-2018.pdf>.

²⁰CAL. NAT. RES. AGENCY, CAL. ENVTL. PROT. AGENCY, & CAL. DEP'T OF FOOD & AGR., 2020 WATER RESILIENCE PORTFOLIO: IN RESPONSE TO THE EXECUTIVE ORDER N-10-19, *available at* <https://waterresilience.ca.gov/wp-content/uploads/2020/01/California-Water-Resilience-Portfolio-2019-Final2.pdf>.

²¹Note: The author of this section has not undertaken a thorough analysis or conducted outreach to propose why there is an absence of statewide extreme heat and wildfire adaptation plans and initiatives. The author speculates that one possible reason is that the most severe impacts of extreme heat are highly localized and therefore, these impacts are better (or more typically) tackled at the local or community level. Compare §§ 24:22, 24:23 to learn more about how California is undertaking executive

analogous to those for coastal resilience, flooding, or water management.

State transportation agencies are increasingly conducting vulnerability assessments and planning to adapt to multiple effects of climate change, including extreme heat. As of 2020, the Massachusetts Department of Transportation (MassDOT) is in the process of developing a Statewide Climate Change Adaptation Plan for the state's infrastructure system.²² The plan will be used to help the state identify which of its publicly owned assets are at the greatest risk of inland flooding. Notably, MassDOT will also look at the effects of extreme heat on transportation assets and operations. Currently, MassDOT is conducting a vulnerability assessment during the first phase of this process. When completed, the plan will guide the state's actions to increase the resilience of its infrastructure to improve public safety and infrastructure reliability and reduce maintenance and operational costs.²³ Other states, like Arizona, California, Delaware, and Oregon, have completed or are undertaking vulnerability assessments for their transportation infrastructure and incorporating adaptation considerations into programmatic-level planning and guidance, in addition to project-level decisions.²⁴

Outside of the transportation sector, Washington and Oregon present examples of

and regulatory—compared to comprehensive planning—actions to address climate change and wildfires.

²²*MassDOT Statewide Climate Change Adaptation Plan Objectives*, MASS.GOV, <https://www.mass.gov/service-details/massdot-statewide-climate-change-adaptation-plan-objectives> (last visited Nov. 24, 2020).

²³This effort will be integrated with other ongoing state-led efforts, such as the Coastal Transportation Asset Vulnerability Assessment and the Deerfield River Watershed Vulnerability Assessment.

²⁴*See Resilience Program*, AZ. DEP'T OF TRANSP., <https://azdot.gov/business/environmental-planning/programs/sustainable-transportation/resilience-program> (last visited Nov. 24, 2020) ("The management of the roadway system has now evolved from a decentralized, project-based focus to one that encompasses enterprise-wide endeavors: administration, asset management, technology adoption, planning, design, construction, operations and maintenance. In addition, the expansion of risk analysis for extreme weather management and climate adaptation has complicated the long-term delivery of these complex transportation systems. ADOT seeks to combine risk, science, technology, and engineering to improve the understanding of weather-related risks to its transportation system, in order to accomplish its mission 'Connecting Arizona. Everyone. Every Day. Everywhere' and its vision to become the most reliable transportation system in the nation. ADOT has developed a programmatic approach to addressing all aspects of weather and natural hazards—including extreme weather and future measurable climate trends through a formal Resilience Program and three Transportation Research Board (TRB) papers and presentations . . .").

See Climate Change, CALTRANS, <https://dot.ca.gov/programs/transportation-planning/office-of-smart-mobility-climate-change/climate-change> (last visited Nov. 24, 2020) ("Increasing temperatures, larger wildfires, heavier rain storms, and rising sea levels and storm surges associated with climate change are posing a significant risk to our natural and human resources and to the State's transportation infrastructure. The Climate Change Branch in Caltrans' Division of Transportation Planning is responsible for overseeing the development, coordination, and implementation of climate change policies in all aspects of the Department's decision making. It serves as a resource for technical assistance, training, information exchange, and partnership-building opportunities. . . . Caltrans is conducting Climate Change Vulnerability Assessments to identify segments of the State Highway System vulnerable to climate change impacts including precipitation, temperature, wildfire, storm surge, and sea level rise. The climate change data were developed in coordination with climate change scientists and experts at Federal, State, and regional organizations at the forefront of climate science. The results of the Climate Change Vulnerability Assessments will be used to guide analysis of at-risk assets and develop adaptation plans to reduce the likelihood of damage to the State Highway System, thereby allowing Caltrans to both reduce the costs of storm damage, and to provide transportation that meets the needs of all Californians."). Note, the vulnerability assessments and corresponding district-mappings tools were completed in 2019. Georgetown Climate Ctr., *Caltrans District Climate Change Vulnerability Assessments (2019)*, ADAPTATION CLEARINGHOUSE (Oct. 2019), <https://www.adaptationclearinghouse.org/resources/caltrans-district-climate-change-vulnerability-assessments-2019.html>.

See DEL. DEP'T OF TRANSP., STRATEGIC IMPLEMENTATION PLAN FOR CLIMATE CHANGE, SUSTAINABILITY, AND RESILIENCE FOR TRANSPORTATION (July 2017), available at https://deldot.gov/Publications/reports/SIP/pdfs/SIP_FINAL_2017-07-28.pdf (Executive Summary, p. i: "This Strategic Implementation Plan for Climate Change, Sustainability and Resilience for Transportation (SIP) is the Delaware Department of

state agency actions connecting wildfires to natural resources conservation and public health, respectively. In February 2020, the Washington Department of Natural Resources (DNR) released its Plan for Climate Resilience.²⁵ The plan is a response to increasing climate impacts in the state, including the 2015 wildfire season, the worst wildfire season in recent history. In the plan, DNR identifies eight focus areas with corresponding adaptation responses it can implement to reduce the state's climate threats.²⁶ Among the eight focus areas, DNR draws specific attention to the nexus between climate change, wildfires, and forest management by suggesting several adaptation responses for each including:

- Wildfires: Reduce human-caused fires; enhance wildfire and timber workforces; and create post-wildfire recovery and restoration strategies.
- Forest management: Build climate-resilient seed management techniques; reforest with more climate-resilient tree species; enhance DNR's forest health assistance capacity for small forest landowners; and support climate-informed urban forest management that includes fire-adaptation strategies.

The importance of this plan was underscored by an order issued by the state's Commissioner for Public Lands, Hilary S. Franz, that committed DNR to "take all practicable steps within existing authorities and as guided by DNR's Plan for Climate Resilience to incorporate climate change considerations into all relevant decisions, policies, procedures, and operations"²⁷

In Oregon, the Health Authority published a report on the Oregon Climate and Health Program in 2019, which identifies ways that the public health system is adapting to the increasing number and severity of wildfires in Oregon and highlights future adaptation opportunities.²⁸ In response to Governor Kate Brown's Executive Order 20-04, the state also released the Climate and Health in Oregon 2020 Report.²⁹ The 2020 report documents how climate hazards like wildfires, heat, and drought

Transportation's (DelDOT) first attempt to develop a strategic and cohesive plan to promote a more resilient and sustainable transportation system in Delaware.").

See Georgetown Climate Ctr., *Oregon Dept. of Transportation Climate Change Adaptation Strategy Report*, ADAPTATION CLEARINGHOUSE (Apr. 2012), <https://www.adaptationclearinghouse.org/resources/oregon-dept-of-transportation-climate-change-adaptation-strategy-report.html> ("The Oregon Department of Transportation's (ODOT) Climate Change Adaptation Strategy Report is intended to provide a preliminary assessment of likely climate change impacts on ODOT assets and operations and adaptation strategies. . . . The report provides detailed recommendations on the data collection needs for further assessing the state's vulnerability, actions the state is already taking to prepare for impacts, and recommendations for additional adaptation measures.").

²⁵WA. DEP'T OF NATURAL RES., SAFEGUARDING OUR LANDS, WATERS, AND COMMUNITIES: DNR'S PLAN FOR CLIMATE RESILIENCE (Feb. 2020), available at https://www.dnr.wa.gov/publications/em_climateresilienceplan_feb2020.pdf?duly0m. The two guiding principles of the plan are to be proactive (rather than reactive) and to expand collaborations and partnerships across agencies, sectors, and levels of government. DNR will also make equity and environmental justice a cornerstone of its climate resilience approach by convening an Equity and Environmental Justice Advisory Committee, identifying frontline and/or highly impacted communities, and developing a formal Environmental Justice and Equity Strategy.

²⁶The eight focus areas included in the plan are: (1.) wildfires; (2.) forest management; (3.) agriculture and grazing; (4.) urban, commercial, and industrial land; (5.) ecosystem conservation; (6.) aquatic resources and coastal management; (7.) geological surveying; and (8.) recreation.

²⁷Wa. Dep't of Natural Res. Commissioner's Order on Climate Resilience, No. 202006 (Feb. 20, 2020), available at https://www.dnr.wa.gov/publications/em_climate_resilience_cplo_202006.pdf?gu6tgbl.

²⁸EMILY A. YORK, OR. CLIMATE & HEALTH PROG., OR. HEALTH AUTH., MORE DAYS WITH HAZE: HOW OREGON IS ADAPTING TO THE PUBLIC HEALTH RISKS OF INCREASING WILDFIRES (Dec. 2019), available at https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/2020/oha2688_0.2.pdf.

²⁹Exec. Order No. 20-04, Directing State Agencies to Take Actions to Reduce and Regulate Greenhouse Gas Emissions (Mar. 10, 2020), available at https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf; PUB. HEALTH DIV., OR. HEALTH AUTH., CLIMATE AND HEALTH IN OREGON 2020 REPORT (2020), available at <https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/2020/Climate%20and%20Health%20in%20Oregon%202020%20-%20Full%20Report.pdf>.

disproportionately affect communities of color, tribal communities, farmworkers, and underinvested rural communities.

§ 24:25 State-level funding for adaptation

In order to accomplish this critical work, states must have sustainable and sufficient sources of funding. The current amount and availability of state funding is not on parity to attend to all of the needs affected and exacerbated by the climate crisis. Some states are dedicating funding for adaptation through general appropriations or raising entirely new sources of revenue. Although considerably more effort is needed, this part presents examples of novel state-level funding sources for adaptation actions, including climate taxes and bonds. Innovative state financing systems that support the development of local adaptation plans and projects are discussed in the next part of this section (See § 24:26). Typically, financing mechanisms like revolving loan programs and infrastructure banks do not create a new source of revenue in and of themselves, but rather serve as a “pass through” for federal and state grants and other appropriations. Like most of the other state actions presented herein and observed to date, states are primarily funding adaptation and resilience programs and projects for water—and especially to reduce coastal and inland flooding threats.

Outside of allocating or reallocating general appropriations, some states are generating revenue for adaptation and resilience by creating new—and increasing existing—taxes. In 2010, Hawaii established the “environmental response, energy, and food security tax,” otherwise known as the “barrel tax,” to provide resources for addressing the effects of climate change in the state.¹ This law increased the per-barrel tax on petroleum products and created a fund for clean energy, agriculture, and adaptation initiatives in Hawaii.² Subsequently in 2015, Hawaii passed another law—An Act Relating to Beach Protection—to allocate \$3,000,000 of hotel tax revenues to a special fund to develop and implement plans to slow the degradation of Hawaii’s beaches; restore and conserve beaches; coordinate cross-county activities; and form public-private partnerships.³

In 2019, New Jersey reallocated an existing tax to help the state continue increasing its coastal and flood resilience after Hurricane or “Superstorm” Sandy devastated the state in 2012. In June of that year, the New Jersey Legislature passed a constitutional measure—Senate Bill No. 3920—setting aside a portion of the state’s Corporate Business Tax (CBT) to provide funding for the nationally recognized state-run Blue Acres Buyout Program and open space, farmland, and historic prop-

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¹Georgetown Climate Ctr., *Hawaii Act 73: Environmental Response, Energy and Food Security Tax*, ADAPTATION CLEARINGHOUSE (Apr. 29, 2010), <https://www.adaptationclearinghouse.org/resources/hawaii-act-73-environmental-response-energy-and-food-security-tax.html>; Georgetown Climate Ctr., *Preparing for Climate Change in Hawaii*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/hawaii/overview.html> (last updated July 22, 2020).

²Georgetown Climate Ctr., *Hawaii Act 73: Environmental Response, Energy and Food Security Tax*, ADAPTATION CLEARINGHOUSE (Apr. 29, 2010), <https://www.adaptationclearinghouse.org/resources/hawaii-act-73-environmental-response-energy-and-food-security-tax.html>; Georgetown Climate Ctr., *Preparing for Climate Change in Hawaii*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/hawaii/overview.html> (last updated July 22, 2020).

³Georgetown Climate Ctr., “*Hawaii HB 444—An Act Relating to Beach Protection: Transient Accommodations Tax; Special Land and Development Fund; Appropriation*,” ADAPTATION CLEARINGHOUSE (July 1, 2015), <https://www.adaptationclearinghouse.org/resources/hawaii-hb-444-an-act-relating-to-beach-protection-transient-accommodations-tax-special-land-and-development-fund-appropriation-e.html>; Georgetown Climate Ctr., *Preparing for Climate Change in Hawaii*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/hawaii/overview.html> (last updated July 22, 2020).

erties acquired through the state's Green Acres Program.⁴ Under New Jersey's Constitution, 6% of the total money collected through the CBT is reserved for these purposes on an annual basis.⁵ Collectively, the Blue and Green Acres programs acquire properties voluntary from willing owners to mitigate growing flood hazards throughout the state and conserve working lands and natural resources. Compared to individual bond measures, the CBT provides the Blue and Green Acres programs with a more sustainable, consistent source of funding. Moreover, this law will enable the state to design and implement longer-term, multi-phased plans for buyouts and open space acquisitions that are not dependent on competitive federal funding opportunities (*See* section on federal adaptation in this chapter of the treatise).

California presents a different example of a tax to support coastal and flood resilience via natural resource restoration and conservation strategies. In 2016, the state-established San Francisco Bay Restoration Authority approved the San Francisco Bay Clean Water, Pollution Prevention, and Habitat Restoration Measure, also known as Measure AA, which is a \$12-per-year parcel tax for the San Francisco Bay area of California.⁶ The tax succeeded with over 70% support in all nine Bay Area counties covered by the tax.⁷ Measure AA was the first parcel tax in the history of the state to be levied throughout an entire region encompassing multiple counties. Measure AA is anticipated to generate \$500 million over 20 years for critical tidal marsh restoration projects around San Francisco Bay.

In addition to taxes, California has significant experience generating revenue through a means other than taxes: bonds. California voters have approved bond measures to provide funding for sea-level rise and climate preparedness projects. In June 2018, Proposition 68 authorized over \$4 billion in general obligation bonds to fund natural resource conservation and resilience (\$1.55 billion), parks and recreation (\$1.28 billion), and water projects (\$1.27 billion), including \$443 million for climate preparedness and habitat resiliency, and \$550 million for flood protection.⁸

California has also passed several bills relating to financing water projects. In November 2014, voters approved Proposition 1—the Water Quality, Supply, and

⁴Tom Johnson, *New Law Simplifies How State Allocates Funds to Preserve Open Space*, NJSPOTLIGHT (June 28, 2019), <https://www.njspotlight.com/2019/06/19-06-27-new-law-simplifies-how-state-allocates-funds-to-preserve-open-space/>.

⁵N.J. Const. art. VIII, § II, ¶ 6(a) (2019), available at <https://www.njleg.state.nj.us/lawsconstitution/constitution.asp> (“Commencing July 1, 2019, there shall be credited to a special account in the General Fund an amount equivalent to six percent of the revenue annually derived from the tax imposed pursuant to the ‘Corporation Business Tax Act (1945),’ P.L.1945, c.162 (C.54:10A-1 et seq.), as amended and supplemented, or any other State law of similar effect. . . . Commencing July 1, 2019, seventy-eight percent of the amount annually credited pursuant to this subparagraph shall be dedicated, and shall be appropriated from time to time by the Legislature, only for: providing funding, including loans or grants, for the preservation, including acquisition, development, and stewardship, of lands for recreation and conservation purposes, including lands that protect water supplies and lands that have incurred flood or storm damage or are likely to do so, or that may buffer or protect other properties from flood or storm damage; providing funding, including loans or grants, for the preservation and stewardship of land for agricultural or horticultural use and production; providing funding, including loans or grants, for historic preservation; and paying administrative costs associated with each of those efforts.”).

⁶Georgetown Climate Ctr., *San Francisco Bay Clean Water, Pollution Prevention, and Habitat Restoration Measure*, ADAPTATION CLEARINGHOUSE (June 7, 2016), <https://www.adaptationclearinghouse.org/resources/san-francisco-bay-clean-water-pollution-prevention-and-habitat-restoration-measure.html>.

⁷The affected counties include San Francisco, San Mateo, Santa Clara, Contra Costa, Alameda, Napa, Solano, Sonoma, and Marin County, California.

⁸Georgetown Climate Ctr., *California Proposition 68—Parks, Environment, and Water Bond*, ADAPTATION CLEARINGHOUSE (June 5, 2018), <https://www.adaptationclearinghouse.org/resources/california-proposition-68-parks-environment-and-water-bond.html?preview=true>; Georgetown Climate Ctr., *Preparing for Climate Change in California*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/california/adaptation-plan-status.html> (last updated in 2018).

Infrastructure Improvement Act of 2014—a \$7.545 billion general obligation bond.⁹ The measure provided funding for investments for part of a statewide, comprehensive water plan for California. In part, Proposition 1 was intended to help the state address drought and the impacts of climate change on water supplies and ecosystems. The state later enacted the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018, which authorized \$4 billion in bonds to finance a new program to increase the public’s access to parks and provide environmental benefits including climate and drought resilience.¹⁰

Other states, such as Massachusetts, have passed bond initiatives to fund adaptation projects at the state and local levels.¹¹ New York and Rhode Island are also evaluating the possibility of using bonds to invest in nature-based solutions and help communities build resilience.¹² California too proposed a new bond explicitly focused on climate change.¹³ However, due to the global COVID-19 pandemic, as of the time of publication, all three states postponed putting any of these bond measures on a ballot for voter approval.

§ 24:26 State support for local adaptation

One of the most significant ways states can build resilience is by supporting actions at the local level. While this support can take a variety of forms, this part will focus on two prevalent categories: (A.) funding for communities through grant, certification, and revolving loan programs; and (B.) capacity building around data, tools,

⁹Georgetown Climate Ctr., *California Proposition 1—Water Quality, Supply, and Infrastructure Improvement Act of 2014, Water Bond*, ADAPTATION CLEARINGHOUSE (Nov. 14, 2014), <https://www.adaptationclearinghouse.org/resources/california-proposition-1-water-quality-supply-and-infrastructure-improvement-act-of-2014-water-bond.html>.

¹⁰*SB-5 California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018*, CAL. LEG. INFO., available at http://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB5 (approved by the governor on October 15, 2017; filed with the Secretary of State on October 15, 2017); Georgetown Climate Ctr., *Preparing for Climate Change in California*, STATE PROCESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/california/adaptation-plan-status.html> (last updated in 2018).

¹¹*Governor Baker Signs Legislation Directing \$2.4 Billion to Climate Change Adaptation, Environmental Protection, and Community Investments*, MASS.GOV (Aug. 21, 2018), <https://www.mass.gov/news/governor-baker-signs-legislation-directing-24-billion-to-climate-change-adaptation> (discussing the governor’s allocation of a \$2.4 billion bond under House Bill 4385 titled, “An Act Promoting Climate Change Adaptation, Environmental and Natural Resource Protection, and Investment in Recreational Assets and Opportunity,” available at <https://malegislature.gov/Bills/190/H4835>).

¹²*Restore Mother Nature Bond Act*, GOV. ANDREW CUOMO, <https://www.governor.ny.gov/programs/restore-mother-nature-bond-act> (last visited Dec. 4, 2020) (“Governor Cuomo’s Executive Budget includes a \$3 billion Restore Mother Nature Bond Act, the largest environmental bond act in State history, and is part of a broader 5-year plan to invest \$33 billion to fight climate change. . . . The \$3 billion Restore Mother Nature Bond Act was passed in the state budget in April 2020. Unfortunately, Governor Cuomo confirmed on July 30, 2020 that the bond act will be pulled from the November ballot due to the impact the Coronavirus response has had on the state’s financial situation.”).

Proposed 2020 Beach, Clean Water, & Green Economy Bond, R.I. DEP’T OF EM. MGMT., <http://dem.ri.gov/greenclean/> (last visited Dec. 4, 2020) (“MUNICIPAL RESILIENCE PROGRAM: \$7 MILLION to help local communities restore and improve resiliency of vulnerable coastal habitats, rivers and stream floodplains, and infrastructure. This investment will fund matching grants up to 75% to directly support Rhode Island’s cities and towns to identify top hazards, improve community resiliency, and strengthen public safety in the face of increased flooding and more frequent and more intense storm events driven by climate change.”).

¹³California Climate Resilience Bond (2020), available at <http://www.ebudget.ca.gov/2020-21/pdf/BudgetSummary/ClimateResilience.pdf> (included in a summary of Governor Gavin Newsom’s budget for 2020).

and other types of technical, peer-learning, and networking assistance.¹

A. Funding

1. Grant and certification programs

Funding is a critical and necessary form of support that states must provide local governments and communities. The costs associated with climate adaptation can be burdensome and too much for individual counties and municipalities to shoulder alone. Several states, including California, Florida, and Maryland, have and increasingly offer grants and other types of financial assistance to serve a range of adaptation needs, from conducting vulnerability assessments and gathering data to engaging in adaptation planning and funding on-the-ground projects.² Some states offer grants targeted at a specific sector or climate impact, while others have more programmatic grant programs that cut across sectors and impacts and focus on building holistic community resilience.

Massachusetts is a leader in this last area.

Massachusetts's Municipal Vulnerability Preparedness or "MVP" grant program helps local governments and communities in the state address climate change.³ The program is structured into two progressive phases. As a part of phase one, the state funds communities that want to be certified as a "MVP community" through MVP Planning Grants. To become a MVP community, cities and towns work with the state to complete a climate vulnerability assessment and develop an action-oriented resiliency plan. MVP-certified communities are then eligible to participate in the second phase of the program to compete for MVP Action Grants. Action Grants provide municipalities with funding to implement the priority projects they identified in their resiliency plans. The opportunity to win Action Grants incentivizes municipalities to become MVP certified. Collectively, these two phases allow communities to understand their unique climate hazards and risks and then develop a roadmap and execute projects to mitigate those risks. To date, the state has invested over \$44 million in the MVP program, achieving an 89-percent participation rate among municipalities across the Commonwealth.⁴

Other states on the East Coast have initiated programs like the Massachusetts MVP program. In 2020, North Carolina rolled out a similarly designed program

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¹Note, state guidance specifically developed to implement executive and legislative mandates is another important form of state support for local adaptation. Given the nexus to executive and legislative actions, however, these examples are discussed separately in § 24:21 *supra*.

²See, e.g., California provides several different types of grant and financing support for regions and municipalities. For an example of some of these sources by sector, see Georgetown Climate Ctr., *Preparing for Climate Change in California*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/california/adaptation-plan-status.html> (last updated in 2018); and for additional examples, see also Georgetown Climate Ctr., *Preparing for Climate Change in California*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/california/completed-goals.html> (last updated Dec. 18, 2018); *Florida Resilient Coastlines Program*, FL. DEPT OF ENVTL. PROT., <https://floridadep.gov/rcp/florida-resilient-coastlines-program> (last visited Dec. 4, 2020); Georgetown Climate Ctr., *Maryland Community Resiliency Grants/CoastSmart Communities Grants*, ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/maryland-community-resiliency-grants-coastsmart-communities-grants.html?preview=true> (last visited Dec. 4, 2020).

³*MVP Program Information*, MASS.GOV, <https://www.mass.gov/service-details/mvp-program-information> (last visited Dec. 7, 2020).

⁴Press Release, Baker-Polito Administration Awards \$11.1 Million in Climate Change Funding to Cities and Towns (Sept. 15, 2020), <https://www.mass.gov/news/baker-polito-administration-awards-111-million-in-climate-change-funding-to-cities-and-towns>.

specifically for coastal communities.⁵ Likewise, since 2019, the Rhode Island Infrastructure Bank (RIIB), in partnership with nonprofit organization, The Nature Conservancy, has awarded funding to municipalities through the Municipal Resilience Program (MRP).⁶ The MRP supports community-driven planning processes to identify and mitigate priority local hazards. The MRP builds on the financing goals and recommendations included in the state's climate adaptation plan, *Resilient Rhody*.⁷ Through the two-step MRP, participating municipalities must first follow the "Community Resilience Building" process to develop a vulnerability assessment and resiliency plan. Once this step is completed, a municipality becomes certified as a "Resilient Rhody Municipality." These municipalities can then apply for action grants to implement projects identified as a result of the first step. Eligible projects must be identified through the Community Resilience Building process, make a community more resilient, and involve a capital investment that will result in construction. MRP Action Grants require a 25-percent match from municipalities and are not available for research-related activities, such as studies and strategic plans.

In 2019 and 2020, the state piloted the MRP in a few municipalities. Over time, the state aims to introduce the MRP to all of Rhode Island. As of August 2019, the state and other nongovernmental partners spent over \$13 million on municipal adaptation efforts to implement adaptation projects including, among others, dam repair, road elevation, watershed restoration, and green stormwater infrastructure.⁸

In comparison, other states, like Minnesota and New York, have created phased certification programs. These programs are similar to the ones in Massachusetts, North Carolina, and Rhode Island, but are a bit broader in terms of the support they offer. Moreover, the programs in Minnesota and New York are oriented to providing a mechanism for peer recognition rather than grants alone to drive local action. Even before the three aforementioned states launched their certification and grant programs, the State of Minnesota developed the GreenStep Cities program early in 2010 to assist municipalities across the state with implementing sustain-

⁵*N.C. Resilient Coastal Communities Program*, N.C. DEP'T OF ENVTL. QUALITY, <https://deq.nc.gov/about/divisions/coastal-management/coastal-adaptation-and-resiliency/nc-resilient-coastal> (last visited Dec. 4, 2020).

⁶*Municipal Resilience Program*, R.I. INFRASTRUCTURE BANK, <https://www.riib.org/mrp> (last visited Dec. 4, 2020); Georgetown Climate Ctr., *Preparing for Climate Change in Rhode Island*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/rhode-island/overview.html> (last updated July 20, 2020).

⁷Georgetown Climate Ctr., *Resilient Rhody: An Actionable Vision for Addressing the Impacts of Climate Change in Rhode Island*, ADAPTATION CLEARINGHOUSE (July 2, 2018), <https://www.adaptationclearinghouse.org/resources/resilient-rhody-an-actionable-vision-for-addressing-the-impacts-of-climate-change-in-rhode-island.html>.

⁸*Municipal Resilience Program*, R.I. INFRASTRUCTURE BANK, <https://www.riib.org/mrp> (last visited Dec. 4, 2020); Georgetown Climate Ctr., *Preparing for Climate Change in Rhode Island*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/rhode-island/overview.html> (last updated July 20, 2020); see also *Proposed 2020 Beach, Clean Water, & Green Economy Bond*, R.I. DEP'T OF EM. MGMT., <http://dem.ri.gov/greenclean/> (last visited Dec. 4, 2020) ("MUNICIPAL RESILIENCE PROGRAM: \$7 MILLION to help local communities restore and improve resiliency of vulnerable coastal habitats, rivers and stream floodplains, and infrastructure. This investment will fund matching grants up to 75% to directly support Rhode Island's cities and towns to identify top hazards, improve community resiliency, and strengthen public safety in the face of increased flooding and more frequent and more intense storm events driven by climate change. The Municipal Resilience Program has already been successful in identifying strategies and providing action grants to implement projects in five communities. This funding will unlock additional resources for those communities and allow 20 additional municipalities to participate in the program over the next two years."). As discussed in § 24:25, this bond has yet to be put on a ballot for voter approval given the global COVID-19 pandemic.

able best management practices.⁹ Managed by a public-private partnership, this “challenge, assistance, and recognition program” provides technical assistance and peer recognition for cities that adopt best practices in sustainability and resilience. The GreenStep program identifies 29 best practices that municipalities can adopt to plan for climate impacts, increase energy efficiency and green and resilient buildings, and foster green businesses and jobs, among others. Of the 29 best practices, the final one specifically focuses on climate adaptation and community resilience. Each best practice can be implemented by completing one or more actions that can be tailored to fit local context. Over the course of the program’s first ten years, participants totaled 140 municipal entities representing nearly half of Minnesota’s population.¹⁰

Akin to Minnesota, New York DEC, in partnership with five other state agencies, oversees the Climate Smart Communities program, a network of communities throughout the state taking action to reduce greenhouse gas emissions and increase climate resilience.¹¹ Specific to adaptation, the program calls for communities to alter the built and natural environment to proactively prepare for or retroactively respond to climate change impacts. Communities can start by taking the Climate Smart Communities Pledge. Pledged communities can then become “certified” as a gold, silver, or bronze community for actions that mitigate local risks to climate impacts and increase resilience in ways that go above and beyond what is required to be a foundational member. The program’s certification component is designed to maximize local performance and encourage peer recognition among participants. The program’s incentives include free technical assistance from the state and priority for grants for certified communities under the Climate Smart Communities Grant Program, which started in 2016. Under the Climate Smart Communities Grant Program, the state provides a 50-50 match to municipalities for climate adaptation and mitigation projects. As of December 2020, 315 communities have taken the Climate Smart Communities pledge, and 62 have become certified.¹²

2. Revolving loan funds

As stated in § 24:25 and the section on federal adaptation in this treatise chapter, the lack of consistent federal leadership on adaptation and dedicated funding—through congressional appropriations or other means—has incentivized states to become innovative in how they use limited pots of money to further adaptation in their jurisdictions. Some states have identified revolving loan funds as a promising financial opportunity to grow these limited dollars. If revolving loan funds receive start-up capital, the hope is that they will eventually become self-sustaining financial mechanisms.

In 2020, the states of Virginia and South Carolina established revolving loan funds to mitigate flood risks at the local level. Virginia’s Community Flood Preparedness Fund is a low-interest revolving loan fund that can help local governments and communities adapt to increasing coastal and inland flooding from

⁹MN. GREENSTEP CITIES, <https://greenstep.pca.state.mn.us> (last visited Dec. 7, 2020); Georgetown Climate Ctr., *Minnesota GreenStep Cities* (June 2010), <https://www.adaptationclearinghouse.org/resources/minnesota-greenstep-cities.html>.

¹⁰MN. GREENSTEP CITIES, 10 YEARS OF IMPACTS AND ACCOMPLISHMENTS WITH MINNESOTA GREENSTEP CITIES (2020), available at <https://greenstep.pca.state.mn.us/sites/default/files/2020-04/10-years-GreenStepCities.pdf> (informational one pager).

¹¹*Climate Smart Communities*, N.Y. STATE, <https://climatesmart.ny.gov> (last visited Dec. 7, 2020); Georgetown Climate Ctr., *Preparing for Climate Change in New York*, STATE PROGRESS TRACKER, <https://www.georgetownclimate.org/adaptation/state-information/new-york/completed-goals.html> (last updated July 17, 2018).

¹²*Climate Smart Communities*, N.Y. STATE, <https://climatesmart.ny.gov> (last visited Dec. 7, 2020).

multiple sources, including sea-level rise and precipitation.¹³ The purpose of the fund is to enhance the state's overall coastal resilience by funding flood prevention and mitigation projects and prioritizing projects in low-income areas and those that are designed with nature-based solutions.¹⁴ Revenue for the fund will primarily come from carbon auctions generated through the state's participation in the Regional Greenhouse Gas Initiative (RGGI), in addition to the local repayment of loans and from other federal and state sources.¹⁵

Somewhat similarly, South Carolina's Resilience Revolving Fund allows local governments to apply for low-interest loans to conduct home buyouts to move residents out of floodplains and restore ecosystems to attain flood mitigation, economic, ecosystem, and community benefits.¹⁶ In 2020, South Carolina also established a Disaster Relief and Resilience Reserve Fund. Funds in the Disaster Relief and Resilience Reserve Fund can only be used to "develop, implement, and maintain [South Carolina's forthcoming] Statewide Resilience Plan, and for disaster relief assistance, hazard mitigation, and infrastructure improvements."¹⁷ For locations that are covered by a presidential disaster declaration, the state may immediately activate the reserve fund to "aid resilient rebuilding in affected communities with significant" need unmet via federal disaster recovery funding from agencies like the Federal Emergency Management Agency and Department of Housing and Urban Development. For example, the state and local governments can turn to the fund for the non-federal match required by federal agencies for most grants.

The Rhode Island Infrastructure Bank (RIIB) presents another, but longer-standing revolving loan model. RIIB is a quasi-public entity that finances infrastructure investments for municipalities, businesses, and homeowners by leveraging revolving loan funds.¹⁸ These revolving funds are capitalized by federal grants, state appropriations, and money from other sources. Established by the Rhode Island General Assembly in 1989, the state expanded RIIB's mandate in 2015 to include energy and brownfield remediation. Today, RIIB backs several different types of local investments; this includes projects that build climate resilient infrastructure, which can emphasize the use of natural- and nature-based solutions to reduce flooding and improve water quality.

B. Data, tools, and technical, peer-learning, and networking assistance

Data, tools, and technical, peer-learning, and networking assistance are other critical types of support states can provide local governments and communities. These can take a variety of forms and are often supported by public-private partnerships with the federal government, colleges and universities, and local community-based organizations. This part merely highlights a few of the range of examples across states, sectors, and climate impacts.

Local governments must have localized, site-specific data to identify the climate

¹³Georgetown Climate Ctr., *Virginia SB 320 Community Flood Preparedness Fund*, ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/virginia-sb-320-community-flood-preparedness-fund.html> (last visited April 22, 2020).

¹⁴*Id.*

¹⁵*Id.* In 2021, Virginia plans to disburse \$60 million from the fund. The state also released draft guidelines, which will inform the annual implementation of the fund, for public comment. COMMUNITY FLOOD PREPAREDNESS FUND DRAFT GUIDELINES: PRIORITIES AND APPROACH (2020), available at <https://www.dcr.virginia.gov/document/Community-Flood-Preparedness-Fund-Draft-Guidelines.pdf>.

¹⁶Georgetown Climate Ctr., *South Carolina Disaster Relief and Resilience Act*, ADAPTATION CLEARINGHOUSE (Sept. 29, 2020), <https://www.adaptationclearinghouse.org/resources/south-carolina-disaster-relief-and-resilience-act.html>.

¹⁷*Id.*

¹⁸*Who are we?*, R.I. INFRASTRUCTURE BANK, <https://www.riib.org/who-we-are> (last visited Dec. 7, 2020).

risks and hazards plaguing their jurisdictions. Climate adaptation plans, laws, and policies are built around vulnerability assessments and other tools that capture this information. States like Louisiana and Rhode Island have developed digitized maps and planning tools that incorporate climate data on sea-level rise, storm surge, and coastal erosion to enable state and local policymakers to better understand and plan to mitigate current and future flooding threats.¹⁹ Other states have similar online tools that display localized flood data; however, unlike Louisiana and Rhode Island, they do not include data to show how climate change is impacting the spatial extent and severity of flooding.

Another way that states can use data is to inform benefit-cost analyses and help local policymakers and communities better understand the costs associated with different adaptation actions—including inaction or no action. Until recently, Colorado did not have a tool to quantify the cost of future risks. In 2020, the state released the online Future Avoided Cost Explorer or “FACE:Hazards” tool.²⁰ Colorado’s risk profile will continue to increase in the coming years. FACE:Hazards includes a suite of resources that will enable local decisionmakers to evaluate the costs of future risks from flooding, drought, and wildfire across seven economic sectors over different climate and population projections between today and 2050. This data can support local actions to make communities more resilient and save money over the long term.

In addition to decision-support data, states are increasingly trying to find centralized ways to provide information to local policymakers and communities in a “one-stop-shop” platform. California’s Adaptation Clearinghouse, Resilient CA, and Massachusetts’s resilient MA are online clearinghouses created and maintained by the state.²¹ The sites are organized differently, but the content of both clearinghouses cuts across various sectors and climate impacts to share data and resources like case studies and guides on vulnerability assessments, planning, funding, and communication, among others. Notably, California’s clearinghouse was required by

¹⁹See the data collected and presented in Louisiana’s Coastal Master Plan, which is updated every five years, *supra* § 24:24 and Georgetown Climate Ctr., *Louisiana 2017 Coastal Master Plan*, ADAPTATION CLEARINGHOUSE (June 2, 2017), <https://www.adaptationclearinghouse.org/resources/louisiana-2017-coastal-master-plan.html>; Georgetown Climate Ctr., *Rhode Island: STORMTOOLS for Mapping Coastal Flooding*, ADAPTATION CLEARINGHOUSE (2016), <https://www.adaptationclearinghouse.org/resources/rhode-island-stormtools-for-mapping-coastal-flooding.html> (“STORMTOOLS is a set of comprehensive mapping tools providing a series of maps and data sets that depict the sea level rise and storm surge in Rhode Island. The site now features a set of data layers for municipalities. STORMTOOLS is intended as a way to make the data outputs of a complex set of modeling processes freely available, and is designed to help homeowners and municipalities in Rhode Island better understand their risks from coastal storms and flooding, and to plan for sea level rise.”); for a description of Rhode Island’s Shoreline Change Special Area Management Plan (BEACH SAMP), see also *supra* § 24:24.

²⁰Georgetown Climate Ctr., *Colorado Future Avoided Cost Explorer (FACE:Hazards) Tool*, ADAPTATION CLEARINGHOUSE (June 2020), <https://www.adaptationclearinghouse.org/resources/colorado-future-avoided-cost-explorer-face-hazards-tool.html>.

²¹Georgetown Climate Ctr., *California State Adaptation Clearinghouse—ResilientCA.org*, ADAPTATION CLEARINGHOUSE (2018), <https://www.adaptationclearinghouse.org/resources/california-state-adaptation-clearinghouse-resilientca-org.html>; Georgetown Climate Ctr., *resilient MA: Climate Change Clearinghouse for the Commonwealth of Massachusetts*, ADAPTATION CLEARINGHOUSE (June 2018), <https://www.adaptationclearinghouse.org/resources/resilient-ma-climate-change-clearinghouse-for-the-commonwealth-of-massachusetts.html> (“The site primarily organizes available resources across three main categories: (1.) explore sectors; (2.) identify changes; and (3.) take action. This content parallels the steps a community can take to become more resilient from beginning to learn about how climate change is impacting Massachusetts to implementing or ‘taking action.’ The site also contains interactive maps, access to state documents, and a robust search feature that connects users to adaptation-related resources from Massachusetts partners (e.g., nonprofits) and other states.”). For a clearinghouse with a national lens and scope, see also Georgetown Climate Center’s Adaptation Clearinghouse, available at <https://www.adaptationclearinghouse.org>.

statute.²²

Beyond data and decision-support tools, states can also provide communities with training and technical assistance. Outside of water-related climate issues, like flooding, some states are providing more diverse forms of this type of support. For example, Michigan is concentrating on the intersection of climate and public health, driven by the unprecedented global COVID-19 pandemic in 2020. In 2020, Michigan launched Catalyst Communities, a program to “provide education, training, planning, and technical resources to local public officials as they prepare for climate impacts on emergency response and public health.”²³ The program has four focus areas: emergency preparedness, adaptation planning, economic resilience, and equity.²⁴ The Michigan Department of Health and Human Services also released the Climate and Health Adaptation Guide for Michigan Communities.²⁵

In regard to heat, the Minnesota Department of Health developed an Extreme Heat Toolkit to provide information, tools, and resources for local governments and public health professionals. The toolkit can enable these groups to prepare for and respond to an increasing number of extreme heat events.²⁶ In addition, local officials can better identify populations that face the greatest public health risks from extreme events by detailing a range of “characteristics that increase the risk of heat-related illnesses.”²⁷

Massachusetts’s Greening the Gateways program also addresses urban heat. The program seeks to increase tree canopy in environmental justice neighborhoods and “Gateway Cities” that have lower tree canopy, a large renter population, higher wind speeds, and an older housing stock.²⁸ This cross-state agency program defines “Gateway Cities” as urban centers facing economic and social challenges due to recent industry and manufacturing losses. The program is currently operating in 18 residential neighborhoods with the goal of covering 5% of each area in new tree canopy cover.

Lastly, states can also serve as a convenor to bring different stakeholders together to promote peer-learning, networking, and capacity building. Delaware created the Resilient and Sustainable Communities League—more affectionately known as “RASCL”—to provide Delawareans from all levels of government and the public and private sectors with information, technical assistance, and networking opportunities

²²Georgetown Climate Ctr., *California SB 246—Integrated Climate Adaptation and Resiliency Program*, ADAPTATION CLEARINGHOUSE (Oct. 8, 2015), <https://www.adaptationclearinghouse.org/resources/california-sb-246-integrated-climate-adaptation-and-resiliency-program.html>.

²³*Catalyst Communities Program Will Help Communities Address Climate Impacts on Public Health, Emergency Preparedness*, OFFICE OF GOV. GRETCHEN WHITMER (Sept. 16, 2020), https://www.michigan.gov/whitmer/0,9309,7-387-90499-539833---rss,00.html#:~:text=---%20The%20Michigan%20Department%20of%20Environment,climate%20impacts%20on%20emergency%20response;see%20also%20Catalyst%20Communities,OFFICE%20OF%20CLIMATE%20&%20ENERGY,MI.%20DEPT%20OF%20ENV'T,%20GREAT%20LAKES,%20&%20ENERGY,https://www.michigan.gov/climateandenergy/0,4580,7-364-98206_102852---,00.html (last visited Dec. 4, 2020).

²⁴*Catalyst Communities Program Will Help Communities Address Climate Impacts on Public Health, Emergency Preparedness*, OFFICE OF GOV. GRETCHEN WHITMER (Sept. 16, 2020), <https://www.michigan.gov/whitmer/0,9309,7-387-90499-539833---rss,00.html#:~:text=---%20The%20Michigan%20Department%20of%20Environment,climate%20impacts%20on%20emergency%20response>.

²⁵SCHOOL OF PLANNING, DESIGN, & CONSTRUCTION, MI. STATE. UNIV., MI. STATE UNIV. EXTENSION, & MI. DEPT OF HEALTH & HUMAN SERV., CLIMATE AND HEALTH ADAPTATION GUIDE FOR MICHIGAN COMMUNITIES (2020), available at https://www.michigan.gov/documents/mdhhs/ClimateHealthPlanningGuide_2020_10_2_accessible_704110_7.pdf.

²⁶Georgetown Climate Ctr., *Minnesota Extreme Heat Toolkit*, ADAPTATION CLEARINGHOUSE (June 6, 2012), <https://www.adaptationclearinghouse.org/resources/minnesota-extreme-heat-toolkit.html>.

²⁷*Id.*

²⁸Georgetown Climate Ctr., *Greening the Gateway Cities Program*, ADAPTATION CLEARINGHOUSE (2018), <https://www.adaptationclearinghouse.org/resources/greening-the-gateway-cities-program.html>.

to achieve resiliency and sustainability goals.²⁹ The state helps lead RASCL by holding an annual summit and also quarterly “RASCL Coffee Hours” in each county throughout the state “to address hot topics and encourage dialogue between communities and resilience practitioners.”³⁰ Maine and New Hampshire have similar bodies co-managed through public-private partnerships.³¹ In addition, organizers in Maine and New Hampshire strive to connect on a regional scale across state boundaries through different events like annual meetings and Beaches Conferences.

§ 24:27 Conclusion

This section lays out the range of the legal, policy, and planning tools and approaches states are using to adapt to climate change. While there is significant diversity among states, some trends, including the following three, are clear. First, climate adaptation plans are often, but not always, the precipitating and coordinating mechanism around how a state develops a comprehensive adaptation strategy. Nonetheless, some states are making progress in this space on discrete climate impacts, like flooding and sea-level rise, or within particular sectors, like transportation or public health, through specific plans or laws. Second, the majority of state adaptation actions are addressing climate change impacts to water. While this is a necessary focus, states should also direct more attention to non-water-related impacts, especially for wildfires. Third, many states are filling a critical role to support local governments and communities by enacting new legal authorities and implementing new grant programs. States must look for increased opportunities to provide funding and other types of support to meet the growing needs of the people and entities on the front lines of climate change.

Within the first two decades of this millennium, states have emerged as leaders to address the ongoing climate crisis. Regardless, more work is needed across all levels of government. Moving forward, it is anticipated that states will continue to act and grow in this space—particularly in the mid and far west—as indicated by an increasing number of new laws and statewide climate adaptation plans and plan updates. The hope is that a greater number of state actors can better enable the nation at-large to confront a cross-boundary phenomenon with state-specific implications.

<p>Box 2: Summary of Types of State Actions on Climate Adaptation</p> <p>Statewide climate adaptation planning and interagency coordination</p>

²⁹DE. RASCL: RESILIENT AND SUSTAINABLE COMMUNITIES LEAGUE, <https://www.derascl.org> (last visited Dec. 7, 2020).

³⁰RASCL’s *Work*, DE. RASCL: RESILIENT AND SUSTAINABLE COMMUNITIES LEAGUE, <https://www.derascl.org> (last visited Dec. 7, 2020).

³¹ME. CLIMATE CHANGE ADAPTATION PROVIDERS NETWORK (CCAP) (2020), <https://seagrant.umaine.edu/wp-content/uploads/sites/467/2020/06/2020-ME-CCAP-Summary.pdf> (“The Maine Climate Change Adaptation Providers (CCAP) Network is a group of approximately 36 organizations and 73 members drawing from a broad-based representation of local, state and federal government, university, research institute and non-profit organizations, and is strengthened by the diverse backgrounds and expertise of its members as primary researchers, subject matter experts, facilitators, policy, and planning professionals. CCAP’s intent is to help improve communication across practitioners, determine mutual goals and activities, charting our potentially shared roles and responsibilities as we each work to assist coastal communities on climate change adaptation and resilience. General activities of the network include sharing of best practices and transferable lessons, project ideas to develop, projects underway, and education and outreach on completed projects throughout the region, as well as opportunities for funding, training, and events for continued knowledge exchange, peer-to-peer learning, and project implementation.”); N.H. COASTAL ADAPTATION WORK GROUP (NH CAW), <https://www.nhcaw.org/follow/updates/> (last visited Dec. 7, 2020) (“The New Hampshire Coastal Adaptation Workgroup (NHCAW) is a collaboration of 24 organizations working to ensure coastal watershed communities are resourceful, ready and resilient to the impacts of extreme weather and long term climate change.”).

<ul style="list-style-type: none"> ● Establish state climate coordinating or interagency governance body ● Establish executive resilience/adaptation official ● Develop state climate adaptation plan
<p>Incorporate climate change considerations into permitting, funding, and environmental compliance regulations for development/redevelopment of state/local projects and infrastructure</p> <ul style="list-style-type: none"> ● Siting and design criteria ● Accounting for climate change impacts on project design ● Quantify, consider, and reduce GHG emissions ● Incorporation of adaptation, resilience, and risk-identification and -reduction elements
<p>Supplemental and standalone plans and agency actions</p> <ul style="list-style-type: none"> ● Water-related plans (e.g., coastal resilience, drought and water conservation, managing and mitigating saltwater intrusion) ● Sector- (e.g., transportation) and agency-specific plans (e.g., a Department of Natural Resources five-year strategic plan) ● Agency strategies, policies, and guidance for implementing a plan
<p>Support for local adaptation</p> <ul style="list-style-type: none"> ● Mandate minimum level of compliance with preparedness and resilience-building activities, e.g., incorporate climate impact in local comprehensive plans ● Increase local authority, authorizing: <ul style="list-style-type: none"> ● Tax incentive programs ● Ability to address cross-jurisdictional climate impacts ● Joint powers authorities for regional coordination ● Special districts/authorities to generate revenue for large-scale infrastructure projects ● Special planning/land use designations ● Financial support <ul style="list-style-type: none"> ● Grants ● Certification programs ● Revolving loans ● Technical support <ul style="list-style-type: none"> ● Guidance (e.g., implementing new climate resilience laws, best practices) ● Data (localized and site-specific) ● Tools (maps, planning, risk quantification/forecasting) ● Training and technical assistance ● Convenor of/platform for peer-learning, and networking assistance

VII. ADAPTATION—LOCAL

§ 24:28 Framework for local adaptation

Local governments in the United States can play a significant role in developing and implementing climate adaptation policies.¹ As discussed in the section on federal climate adaptation, the federal government does not currently have a single,

[Section 24:28]

¹Generally, “local government” refers to sub-units of government within the state, created via a charter or state statute. The United States Census Bureau classifies local governments as one of two

comprehensive climate adaptation program, relying instead on a combination of existing laws, programs, and agencies that, to date, has focused largely on post-disaster management and recovery, though with an increasing eye toward pre-disaster mitigation and prevention.² Likewise, state governments vary in their treatment of climate adaptation policies, with some states—such as California, Maryland, New Hampshire, and Colorado—taking the early lead on developing statewide climate adaptation plans.³ Some state legislatures have also passed laws that support local responses, including: helping to coordinate regional responses to climate change impacts; increasing funding to bolster local infrastructure; developing science to support climate projections at the local level; and providing guidance and best practices for local governments to address a range of climate threats.⁴ Indeed, as explored throughout this section, many of the federal and state programs and funding sources directly support the development and implementation of adaptation measures at the local level. Local governments, in turn, frequently leverage a combination of planning, regulatory, and funding tools to implement adaptive measures to prepare for and respond to climate change impacts.

A. *Role of local government in climate adaptation*

Local governments are frequently where the rubber meets the road in climate adaptation, particularly in larger and more progressive cities. This is for several reasons. First and foremost are the practical considerations. Local governments are often the first responders to climate change impacts that occur both during non-emergent—or “steady-state”—periods (e.g., sea-level rise, extreme heat, drought), and also in the aftermath of emergencies (e.g., hurricanes, wildfires). Local governments are also tasked with overseeing land use policies, adopting zoning ordinances and building codes, and implementing comprehensive plans that can influence the vulnerability—and resilience—of people, infrastructure, and natural resources to climate change impacts.⁵

Further, as discussed in §§ 24:14 to 24:20’s treatment of federal adaptation activities, there are a number of policy reasons to explain why local governments are especially suited to developing adaptation responses.⁶ Local governments and stakeholders can be well-positioned to understand not only local climate hazards and risks—such as where streets tend to flood—but also the community needs and priorities that must be considered when calibrating adaptation responses.⁷ Additionally, there are many opportunities for local decision-making to be shaped by

types: general purpose or special purpose. “General purpose” governments include counties, municipalities, and townships. “Special purpose” governments include special districts (which provide specific services and operate independently of “general purpose” governments) and school districts. “Criteria for classifying governments,” U.S. CENSUS BUREAU, *Government Finance and Employment: Classification Manual* 1-1 (2006), https://www2.census.gov/govs/pubs/classification/2006_classification_manual.pdf (last visited Feb. 23, 2021). See also “Cities 101: Types of Local US Governments,” National League of Cities (Nov. 13, 2016), <https://www.nlc.org/resource/cities-101-types-of-local-governments/> (last visited Jan. 8, 2021).

²See generally §§ 24:14 to 24:20.

³See §§ 24:21 to 24:27.

⁴Georgetown Climate Ctr., *New Hampshire Coastal Resilience Incentive Zone Program for Municipalities*, ADAPTATION CLEARINGHOUSE (Sept. 3, 2017), <https://www.adaptationclearinghouse.org/resources/new-hampshire-coastal-resilience-incentive-zone-program-for-municipalities.html>.

⁵*Gov. Wolf Announces Plan to Address Flooding Caused by Climate Change*, GOV. TOM WOLF (Dec. 7, 2020), <https://www.governor.pa.gov/newsroom/gov-wolf-announces-plan-to-address-flooding-caused-by-climate-change/>.

⁶See, e.g., *Land Use*, ENVIRONMENTAL LAW INSTITUTE, www.eli.org/keywords/land-use (last visited Feb. 23, 2021).

⁷§ 24:14.

⁸It should be noted that, while some larger cities may have the resources to support the science

sustained community engagement, particularly in frontline communities where equitable adaptation policies require participation and input from the residents and stakeholders who are the most heavily impacted by extreme heat, sea-level rise, and other climate threats.⁸

Yet local governments can be constrained by several factors when attempting to implement meaningful adaptation solutions.⁹ Barriers may be political and resource-based. Elected officials in some jurisdictions may lack the political will to confront the realities of what some may see as an existential threat, particularly for gradual climate threats like sea-level rise or extreme heat. The lack of political will can be particularly challenging to overcome in the absence of state or federal requirements to require local adaptation measures—with some exceptions—beyond meeting minimum requirements.¹⁰ Even in areas where political will is less of an obstacle, jurisdictions may lack technical expertise, administrative capacity, or financial resources to coordinate responses within and across jurisdictional lines. Other than in large, well-resourced cities, local governments rarely have in-house capacity to conduct the climate modeling necessary to inform adaptation responses; this work is frequently delegated to university researchers or state agency partners. And, as discussed further below, adaptation measures may compete with other local priorities, which could also lead to the inequitable distribution of adaptation resources across socio-economically stratified populations that have disparate levels of resilience to climate change impacts.

Despite these challenges, local governments nevertheless wield important planning, regulatory, and funding powers to implement adaptation responses. While many of the mechanisms discussed here were not created explicitly for the purpose of adaptation to climate change, they are part of the array of tools available to local governments to proactively address climate change impacts—both in coordination with and independent of state and federal government measures.

B. Legal questions for local governments

Local governments seeking to develop and implement adaptation measures must balance the legal and policy tradeoffs of each action. Each of the adaptive measures discussed in this section should be considered in the context of the legal questions outlined below.¹¹

1. Local government authority

A threshold question for adaptation actions taken at the local level is whether the action is within the scope of the local government's authority. Some actions may require a legislative change by local council, while other actions may require authorization by the state. The scope of the local government's authority depends on whether it resides in a Home Rule state or Dillon Rule state.

In a Home Rule state, the state's political subdivisions—its counties, townships, municipalities—are authorized to adopt a wide range of legislative decisions across

for projecting risk, this is not the case for every city or locality. Smaller jurisdictions may not always have the same resources to synthesize localized data.

⁸See generally *Equitable Adaptation Legal & Policy Toolkit*, GEORGETOWN CLIMATE CENTER (2020), <https://www.georgetownclimate.org/adaptation/toolkits/equitable-adaptation-toolkit/introduction.html> (last visited Jan. 28, 2021) [hereinafter *Equitable Adaptation Toolkit*].

⁹§ 24:14.

¹⁰See §§ 24:21 to 24:27 on State-level adaptation.

¹¹Smart Growth Fixes for Climate Adaptation and Resilience: Changing Land Use and Building Codes and Policies to Prepare for Climate Change at 8-10, Environmental Protection Agency (2017), https://www.epa.gov/sites/production/files/2017-01/documents/smart_growth_fixes_climate_adaptation_resilience.pdf [hereinafter *EPA Smart Growth Guide*].

almost all local matters, without seeking permission from the state.¹² In Home Rule jurisdictions, local governments have broad authority to act, so long as doing so is not inconsistent with the state constitution, state law, or its own charter.¹³

By contrast, in a Dillon Rule state, local governments may possess significantly less freedom to act without the permission of their state legislature.¹⁴ Specifically, in a Dillon Rule state, local governments have the authority to act only in instances where they have been expressly granted such authority by their state legislature, or where such authority is necessarily implied by an express grant.¹⁵ In the climate adaptation context, the Dillon Rule could limit a local government's ability to enact land use ordinances and policies if the measures are outside the scope of its power granted by the state.¹⁶

Examination of whether local government action is permitted under the Dillon Rule requires a two-step analysis. The first step asks whether the locality possesses the authority to act. Local governments may exercise only those powers that are: (1) expressly granted by the state; (2) necessarily and fairly implied from that grant; or (3) essential and indispensable to the existence of the unit of local government and its ability to exercise its express powers.¹⁷ The second step asks whether the locality properly executed the authority. Granted authority is properly executed when either: (1) the enabling authority provides specific direction for how to execute the

¹²1 Am. Law. Zoning § 2:6 (5th ed.), American Law of Zoning, Patricia E. Salkin, Chapter 2. Authority to enact land use regulations. Constitutional home-rule powers.

¹³For example, under a broad Home Rule grant, Lafourche Parish (LA) has authority to pass zoning ordinances that protect the general welfare and safety, and could therefore adopt FEMA-recommended advisory based flood elevations. *Colvan Cattle Co., LLC v. Lafourche Parish Government*, Case 2:08-cv-00907-EEF-SS Document 41. U.S. District Court, Eastern District of Louisiana, 2009.

¹⁴While many states have adopted either the Home Rule or Dillon Rule, some states have adopted a hybrid approach. For example, some states are both a Home Rule and Dillon Rule state, meaning that the Dillon Rule applies in matters for which Home Rule is not otherwise provided for under the state constitution or by legislative statute. Some states may have “limited Home Rule,” where Home Rule applies to some jurisdictions within the state and the Dillon Rule to other jurisdictions (e.g., Alabama, where the Dillon Rule applies to counties only).

¹⁵§ 4:11. Delegation of powers by legislature—Municipal powers under Dillon’s Rule. 2 McQuillin Mun. Corp. § 4:11 (3d ed.) (Municipalities in a Dillon Rule state “exercise only those powers that the state expressly grants to it, the powers necessarily and fairly implied from that grant, and the powers that are indispensable to the existence of the unit of local government.”).

¹⁶These limitations may not necessarily restrict local governments from taking action to prepare for and adapt to climate change impacts. For example, in Virginia, a Dillon Rule state, local governments are granted broad authority under a state enabling statute to consider flood risks when making planning and zoning decisions. This arguably permits Virginia municipalities to consider sea level rise, because “considering future projections of sea level rise when exercising zoning powers is consistent with the legislature’s intent to ‘promote the health, safety, [and] general welfare of the public.’” Gill, Lauren. *The Dillon Rule and Sea Level Rise: An Analysis of the Impact of the Dillon Rule on Potential Adaptation Measures*. Virginia Coastal Policy Clinic, William & Mary L.S. (2013). *But see, e.g.,* Marble Technologies, Inc. v. City of Hampton, 279 Va. 409, 690 S.E.2d 84 (2010) (holding that the city of Hampton exceeded its local authority in a Dillon Rule state because it lacked express or implied authority to enforce a city ordinance that used a federal criterium for designating lands to be a part of the Resource Protection Area under the Chesapeake Bay Preservation Act).

¹⁷John F. Dillon, Commentaries on The Law of Municipal Corporations § 237 (89) at 448-49 (5th. ed. 1911) (“It is a general and undisputed proposition of law that a municipal corporation possesses and can exercise the following powers, and no others: First, those granted in express words; second, those necessarily or fairly implied in or incident to the powers expressly granted; third, those essential to the declared objects and purposes of the corporation,—not simply convenient, but indispensable”) (emphasis in original); *see also* 13B MICHIE’S JURIS. MUN. CORP. § 25 (2016) (“A municipal corporation possesses and can exercise the following powers, and no others. First, those granted in express words by general statutes or charters; second, those necessarily or fairly implied in or incident to the powers expressly so granted; third, those essential to the declared objects and purposes of the corporation, not simply convenient, but indispensable.”); *id.* at § 26 (describing the Dillon Rule of strict construction, which controls the powers of local governing bodies).

power and the locality follows that direction; or (2) if the enabling authority does not provide specific direction and the localities' actions are considered within reason.¹⁸

2. Preemption by state or federal law

Even if a local government has Home Rule authority, the local action must not be preempted by existing state or federal law.¹⁹ Generally, state laws set minimum requirements that local governments may exceed, but local governments may not fall below the floor established by the state or federal legislature. For example, as discussed further below in § 24:30, local governments may adopt floodplain requirements that *exceed* state or federal standards, but may not adopt requirements below the floor set by the state or federal government.²⁰

3. Potential takings liability

A government action that changes an area's zoning or affects a property owner's use of the land could constitute a "taking" of private property that requires the payment of just compensation to the owner.²¹ Zoning ordinances and regulations are less likely to trigger takings claims if they can be "rationally related to protecting a genuine public purpose."²² Public purposes like reducing loss of life or damage to property can be demonstrated by using information from climate vulnerability assessments and other mapping tools, which can provide information about the likelihood that an at-risk area may be exposed to climate change hazards.²³

4. Compliance with the American with Disabilities Act

Local governments are required by the Americans with Disabilities Act (ADA) to "make reasonable modifications to policies, practices, or procedures to prevent discrimination on the basis of disability."²⁴ For example, if a local government were to pass a zoning ordinance that requires new construction projects in a flood zone be elevated, it should also require modifications (e.g., elevators or ramps) to provide disabled people with a means of accessibility.²⁵

C. *Other considerations*

1. Equitable adaptation

It is universally acknowledged that not all communities or populations of people are equally affected by the impacts of climate change. Climate change is a threat multiplier that could exacerbate existing social and economic challenges in frontline

¹⁸Dillon, *supra* note 17, at § 239 (91), 453 ("The rule of strict construction does not apply to the mode adopted by the municipality to carry into effect powers expressly or plainly granted, where the mode is not limited or prescribed by the legislature, and it is left to the discretion of the municipal authorities. In such a case the usual test of validity of the act of a municipal body is, Whether it is reasonable? And there is no presumption against the municipal action in such cases.") (emphasis in original); *see also* Michie's *Juris.*, *supra* note 17, at § 25.

¹⁹*See* chapter 7 of this treatise on State Environmental Law and Programs for detailed discussion of federal preemption.

²⁰EPA *Smart Growth Guide* at 9-10.

²¹J. Peter Byrne and Jessica Grannis, *Coastal Retreat Measures, The Law of Adaptation to Climate Change: U.S. and International Aspects* 271 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012) [hereinafter Byrne and Grannis].

²²EPA *Smart Growth Guide* at 9.

²³*Id.*

²⁴*The ADA and City Governments, Common Problems*, U.S. DOJ Civil Rights Division, <https://www.w.ada.gov/comprob.htm> (last visited Jan. 28, 2021).

²⁵EPA *Smart Growth Guide* at 10.

communities. “Frontline communities” refer to populations that are disproportionately hit the earliest and/or hardest by climate change impacts, and who frequently possess fewer resources to adapt.²⁶ Frontline communities may include low-income households and communities of color who, following generations of racist housing policies, now reside in climate-vulnerable areas. Frontline communities may also include majority Black or Latinx populations who currently live in low-flood-risk areas, but are at-risk of displacement by wealthier residents who live in coastal, flood-vulnerable areas and seek to relocate inland away from the flood risk.²⁷

It is therefore critical that climate adaptation approaches are planned, developed, and implemented with the participation of frontline communities that disproportionately experience the impacts of climate change. Local governments have begun adopting inclusive strategies throughout the entirety of the decision-making process for adaptation. In Louisiana, six coastal parishes (with the support of federal and state funding) convened a nearly year-long community engagement process to identify community assets and priorities to inform adaptive measures for increasing community resilience to flooding from climate threats like sea-level rise, erosion, land subsidence, and hurricanes.²⁸ In Washington, DC, the District’s Department of Energy and Environment developed a community engagement guide—informed by a working group of residents to tailor the city’s adaptation actions to community needs—for agency partners in local government.²⁹ Importantly, incorporating community feedback through the lifecycle of the adaptation process (from planning to implementation) ensures that adaptation actions are targeted to communities that would benefit the most from these measures.

2. Nexus between climate adaptation and other local priorities

As discussed further below in § 24:30, local governments can address climate adaptation needs through a community’s land use and building policies, and adopt

²⁶See generally *Equitable Adaptation Toolkit*. Frontline communities include, but are not limited to: people of color, low-income residents, immigrants, senior citizens, people experiencing housing insecurity or homelessness, incarcerated individuals, and persons with disabilities.

²⁷See, e.g., Jesse Keenan et al., *Climate gentrification: from theory to empiricism Miami-Dade County, Florida*, Environmental Research Letters 13 (2018), <https://iopscience.iop.org/article/10.1088/1748-9326/aabb32> (using the term “climate gentrification” to describe the economic and physical displacement of frontline populations in Miami-Dade County as property values increase in low flood risk areas where Black and Latinx populations historically reside); Carolyn Kormann, *Miami Faces an Underwater Future*, New Yorker (Jul. 3, 2018), <https://www.newyorker.com/news/news-desk/miami-face-s-an-underwater-future> (last visited Feb. 22, 2021) (featuring personal accounts of Miami residents experiencing climate gentrification). See also Galia Shokry et al., *Understanding climate gentrification and shifting landscapes of protection and vulnerability in green resilient Philadelphia*, Urban Climate 31 (2020), <https://reader.elsevier.com/reader/sd/pii/S2212095519300732?token=631395E9A78E51A9D137783E6CA124E8BB38AD3EBA91C897F6CE5BA24FFD1FE0D8B72B46C5220AD12FF807111069689B> (last visited Feb. 22, 2021) (finding a significant positive correlation between the relatively high rate of climate-resilient investments in gentrifying neighborhoods and areas with high-income and/or White residents in Philadelphia, compared with underinvestment in the city’s lower-income and none-White neighborhoods). The disproportionate allocation of resources to communities of color, low-income, and other frontline communities both before and after a climate disaster has also been well-documented. See, e.g., Robert Benincasa, *Search the Thousands of Disaster Buyouts FEMA Didn’t Want You to See*, NPR (Mar. 5, 2019), <https://www.npr.org/2019/03/05/696995788/search-the-thousands-of-disaster-buyouts-fema-didnt-want-you-to-see> (last visited Feb. 22, 2021) (reporting that the percentage of federal buyouts after a disaster have been disproportionately in neighborhoods that are majority White or non-Hispanic).

²⁸See *Managing the Retreat from Rising Seas—State of Louisiana: Louisiana Strategic Adaptations for Future Environments (LA SAFE)*, Georgetown Climate Center (2020), https://www.georgetownclimate.org/files/MRT/GCC_20_LaSafe-4web.pdf (last visited Jan. 28, 2021).

²⁹A Guide to Community-Centered Engagement in the District of Columbia, Georgetown Climate Center (2018), https://www.georgetownclimate.org/files/report/community-engagement-guide_10.05.18_web.pdf (last visited Jan. 28, 2021).

smart growth strategies that offer multiple benefits and increase the community's resilience across a variety of issues—beyond adapting to climate change. These co-benefits can include improving the environment and public health (protecting air and water quality), or also be financial (saving people money by using energy more efficiently, offering transportation options, and creating economic opportunities). Implementing climate measures through regular processes like updates to zoning and building codes could also help build political support for further action or spur large, wholesale policy changes—such as facilitating gradual retreat from high at-risk areas—by starting first with more modest adjustments. These modest adjustments could include offering incentives for installing green infrastructure—which could reduce stormwater runoff and provide relief from extreme heat—or enhancing regulatory requirements for building materials to be fire-resistant.³⁰

So-called “smart growth principles” can also make communities more resilient to climate change in the long term.³¹ For example, the principle to “strengthen and direct development toward existing communities” could become an adaptation strategy if it takes into account future climate projections and directs development away from areas with a community that is at increased risk of wildfire, flooding, or other climate change impacts, and instead encourages new development in existing development areas that do not present such risks.³²

D. Coordination with state governments

Local governments that play an active role in planning for climate change impacts frequently rely on their states and other stakeholders (e.g., academic institutions and nonprofit organizations) for information and other resources. State and local governments can coordinate in several different ways. For example, some local governments participate in state-level adaptation planning efforts. States can also support local adaptation efforts by coordinating local initiatives or providing technical assistance, such as by creating downscaled climate models to understand local climate risks and vulnerabilities, and providing financial support, planning tools, and guidance.

E. Key actors

The focus of this part of the section is on the role of local government in developing and implementing adaptation responses. “Local government” in this context refers to legislative bodies, executive offices, and administrative agencies at the municipal and county levels that are authorized to exercise a range of powers and serve a variety of functions in providing services to local communities.³³

Beyond these formal decision-makers, it is important to acknowledge the other actors and entities that are instrumental to local climate adaptation strategies. These entities form the basis of critical public-private partnerships that can leverage funding and other resources.³⁴ As with other local government functions, the closer climate change decisions are to the people most impacted by them, the greater the potential need for a holistic and inclusive approach to implementing programs and policies. Other key actors who may play central roles in comprehensive, local adaptation processes include community groups and stakeholders (e.g., faith-based

³⁰EPA *Smart Growth* Report at ii to vi.

³¹*Id.* at 2.

³²*Id.*

³³Richard Briffault, *Our Localism: Part 1—The Structure of Local Government Law*, 90 Colum. L. Rev. 1 (1990).

³⁴Edward P. Weber, *Getting to Resilience in a Climate-Protected Community: Early Problems-Solving Choices, Ideas, and Governance Philosophy*, in *Collaborative Resilience: Moving through Crisis to Opportunity* (Cambridge, MA: MIT Press) (2011).

groups, residents, elected and non-elected leaders), nonprofit organizations, local businesses, and members of the private sector.

§ 24:29 Planning tools

Local governments may consider integrating climate adaptation considerations into a number of different types of new or existing planning processes.¹ A few common types of plans are discussed below.

A. Local climate adaptation plans

Similar to states that have developed climate adaptation plans, an increasing number of counties and municipalities have developed local or regional adaptation plans.² Even in states that have yet to develop a statewide adaptation plan, local jurisdictions have adopted their own adaptation strategies to prepare for and reduce the potential impacts of climate change.³ Just as statewide adaptation plans vary in detail and scope, there is no uniform definition to a local climate adaptation plan.⁴

Compared to state plans, local adaptation plans are able to address more geographically specific climate change impacts. Many local adaptation plans are informed by vulnerability assessments, or studies that identify the probability of local development and other assets being exposed to different types of climate hazards.⁵ The types of assets taken into account may include both built infrastructure (e.g., public transportation, roadways, stormwater systems) and other community resources (e.g., medical and emergency services, affordable housing, schools). The outcomes of vulnerability studies can help local decision-makers better deploy scarce resources to neighborhoods and communities that are most in need.

The resulting local adaptation plans may differ across a range of factors:

- **Geographical coverage**—Local adaptation plans can be:
 - **Regional** (e.g., Southeast Florida Regional Climate Adaptation Plan)—Regional plans often facilitate cross-pollination of resources across county lines, enabling jurisdictions to collaborate on building capacity, sharing information, or even collaborating on specific programs; for example, the NFIP's Community Rating System.⁶

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¹Local plans that are conducive to incorporating adaptation strategies include: agency-specific strategic plans; airport plans; Coastal Zone Management Plans; comprehensive plans; drought plans; emergency preparedness plans; erosion plans; hazard mitigation plans; heat event plans; stormwater management plans; transportation plans; water resource management plans. Vicki Arroyo and Terri Cruce, *State and Local Adaptation*, *The Law of Adaptation to Climate Change: U.S. and International Aspects* 569, 584 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012) [hereinafter Arroyo and Cruce].

²The Georgetown Climate Center maintains an active database of state and local adaptation plans. See *State Adaptation Progress Tracker*, GEORGETOWN CLIMATE CENTER, <https://www.georgetownclimate.org/adaptation/plans.html> (last visited Feb. 22, 2021).

³See, e.g., Columbus, Ohio Climate Adaptation Plan (adopted in December 2018), https://byrd.osu.edu/sites/byrd.osu.edu/files/CCCAP%20-%20FINAL_0.pdf.

⁴See discussion of State-level adaptation in § 24:23. There are many resources available to local communities interested in finding information and developing tools to adapt to climate change. These include the Georgetown Climate Center's *Adaptation Clearinghouse*, which maintains a database of adaptation resources and a tracker for state and local adaptation plans; the *Climate Adaptation Knowledge Exchange* (CAKE); and NOAA Coastal Services Center's *Digital Coast*, which provides resources to local coastal managers and planners.

⁵U.S. CLIMATE RESILIENCE TOOLKIT, <https://toolkit.climate.gov/tool/climate-change-extreme-weather-vulnerability-assessment-framework> (last visited Feb. 22, 2021).

⁶Regional Climate Action Plan, SOUTHEAST FLORIDA REGIONAL COMPACT, <https://southeastfloridaclimat>

- **County-wide** (e.g., Cumberland County, NC, Climate Resiliency Plan)—Adaptation plans developed and implemented at the county level are particularly common in rural areas that do not have large urban centers, which are more likely to have developed a city-specific climate adaptation plan.⁷
- **City-specific** (e.g., Boston, MA (Climate Ready Boston); Keene, New Hampshire (Climate Adaptation Action Plan), Phoenix, AZ (Phoenix Climate Action Plan)).⁸
- **Tribal** (e.g., Swinomish Climate Change Initiative: Climate Change Adaptation Action Plan).⁹
- **Scope of the plan**—In addition to differences in geographic coverage, local adaptation plans vary in scope, with some plans focusing on a specific threat (e.g., heat waves), and others focusing on a full range of climate change impacts. For example, Washington, DC's adaptation plan, *Climate Ready DC*, identifies dozens of potential actions across four key “adaptation strategies” (transportation and utilities; buildings and development; neighborhoods and communities; governance and implementation) that respond to multiple climate change impacts (rising temperatures and heat, rainfall and flooding, sea-level rise and storm surge).¹⁰ For administrative, political, or other reasons, some jurisdictions may adopt more narrow plans that focus instead on a specific adaptation strategy (e.g., green infrastructure), a single climate change impact (e.g., sea-level rise), or the role played by a certain government entity (e.g., the District Department of Transportation's (DDOT) Climate Change Adaptation Plan).¹¹ Indeed, elements of these more narrowly focused strategies could later be incorporated into future, more comprehensive adaptation plans, as was the case with DDOT's *Climate Change Adaptation Plan*,

ecomcompact.org/regional-climate-action-plan/ (last visited Feb. 23, 2021). The Community Rating System (CRS) is a subprogram of the National Flood Insurance Program that encourages communities to go above and beyond minimum floodplain management practices in exchange for a reduction on insurance premiums. See *infra* federal section at § 24:16.

⁷*Cumberland County, North Carolina, Climate Resiliency Plan*, ADAPTATION CLEARINGHOUSE (2016), <https://www.adaptationclearinghouse.org/resources/cumberland-county-north-carolina-climate-resiliency-plan.html#:~:text=The%20five%20strategies%20for%20building.and%20Support%20for%20Vulnerable%20Populations> (last visited Feb. 26, 2021). Other counties that have adopted adaptation plans include: Broward County, FL; King County, WA; Portland/Multnomah County, OR.

⁸*Climate Ready Boston*, <https://www.boston.gov/departments/environment/preparing-climate-change> (last visited Feb. 26, 2021); *Keene, New Hampshire Climate Adaptation Action Plan, Summary Report*, CITY OF KEENE, https://ci.keene.nh.us/sites/default/files/Boards/CCP/Keene%20Summary%20Report_ICLEI_FINAL.pdf (last visited Feb. 26, 2021); *Phoenix Climate Action Plan*, CITY OF PHOENIX <https://www.phoenix.gov/oep/cap> (last visited Feb. 26, 2021). Other cities that have adopted climate adaptation plans include: Berkley, CA; Chicago, IL; Chula Vista, CA; Eugene, OR; Fresno, CA; Green Bay, WI; Groton, CT; Homer, AK; Miami-Dade, FL; Milwaukee, WI; New York, NY; Punta Gorda, FL; San Francisco, CA; San Rafael, CA; Seabrook, NH; Seattle, WA. Arroyo and Cruce at 585.

⁹SWINOMISH CLIMATE CHANGE INITIATIVE, <https://www.swinomish-climate.com/swinomish-climate-change-initiative> (last visited Feb. 23, 2021). For a full list of tribal adaptation plans, see *Tribal Climate Change Guide*, UNIVERSITY OF OREGON, <https://tribalclimateguide.uoregon.edu/adaptation-plans?page=1> (last visited Feb. 23, 2021).

¹⁰*Climate Ready DC*, DISTRICT OF COLUMBIA DEPT. OF ENERGY & ENVT., https://doee.dc.gov/sites/default/files/dc/sites/ddoe/service_content/attachments/CRDC-Report-FINAL-Web.pdf (last visited Feb. 23, 2021).

¹¹*Climate Change Initiatives*, DISTRICT OF COLUMBIA DISTRICT DEPT. OF TRANSPORTATION, <https://ddot.dc.gov/page/climate-change-initiatives> (last visited Feb. 23, 2021). See also *New York City Green Infrastructure Plan—A Sustainable Strategy for Clean Waterways*, ADAPTATION CLEARINGHOUSE (2010), <https://www.adaptationclearinghouse.org/resources/new-york-city-green-infrastructure-plan-a-sustainable-strategy-for-clean-waterways.html> (last visited Feb. 23, 2021); *Sea Level Rise: Technical Guidance for Dorchester County*, Maryland State Library Resource Center, <https://mdstatedocs.slrc.info/digital/collection/mdgov/id/10929> (last visited Feb. 23, 2021).

which was later incorporated into *Climate Ready DC*.

- **Relationship to other climate plans**—Some plans are developed as standalone climate adaptation plans, while others are incorporated with climate mitigation measures as part of a broader, comprehensive climate action plan or “sustainability plan.”¹² For example, the Iowa City Climate Action and Adaptation Plan combines recommendations for actions that result in greenhouse gas reductions with proposals to adapt to climate change impacts in the region.¹³ In contrast, *Climate Ready DC* was developed separately from the District’s climate mitigation plan, *Clean Energy DC*, which identifies actions that could help the city meet targets for emissions reduction.¹⁴

B. Comprehensive plans (also called general plans, master plans, and growth or smart growth plans)

Comprehensive plans are a critical tool for local government to inform future growth and development in communities. While the elements of a comprehensive plan are dictated by individual state law, comprehensive plans generally provide guidance for future planning in land use and transportation.¹⁵ The visions for development set forth under comprehensive plans are then implemented through zoning ordinances—which, in many states, are required to be consistent with the local comprehensive plan.¹⁶ Due to a comprehensive plan’s influence on zoning regulations, the process of developing or updating comprehensive plans could be an opportunity for local governments to identify climate change impacts, assess the vulnerability of people and infrastructure, and identify areas where they should be kept out of harm’s way.¹⁷ For example, zoning policies could restrict development in areas that are at high-risk from flooding, sea-level rise, erosion, wildfire, and other climate hazards.

C. Hazard mitigation plans

Hazard mitigation plans (HMPs) are another opportunity for local governments to incorporate climate change into existing planning processes. State, territorial, local, and federally recognized tribal governments can use HMPs to address natural hazards by developing a framework to prevent or alleviate loss of life or damage to property from wildfires, floods, and other natural disasters.¹⁸ HMPs must be approved by the Federal Emergency Management Agency (FEMA).

Local governments that have developed an approved HMP become eligible to receive certain non-emergency disaster assistance under various FEMA grant programs, including the Hazard Mitigation Grant Program (HMGP), Public Assistance Grant Program (PA), Building Resilient Infrastructure and Communities (BRIC), Pre-Disaster Mitigation Grant Program (PDM), and Fire Management As-

¹²See, e.g., *OurCounty*, LOS ANGELES COUNTY, <https://ourcountyla.lacounty.gov/> (last visited Feb. 23, 2021).

¹³*Iowa City Climate Action and Adaptation Plan*, CITY OF IOWA CITY, <https://www8.iowa-city.org/web-link/0/edoc/1803121/Climate%20Action%20Plan.pdf> (last visited Feb. 23, 2021).

¹⁴*Clean Energy DC: The District of Columbia Climate and Energy Plan*, DISTRICT OF COLUMBIA DISTRICT DEPT. OF ENERGY & THE ENVIRONMENT (2018), https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf.

¹⁵*Elements of a Comprehensive Plan*, Zoning and Planning Deskbook § 16:2 (2d ed.).

¹⁶This is not always the case. In some states, zoning may be enforced under the local government’s police powers, even in the absence of a comprehensive plan. *Id.*

¹⁷J. Peter Byrne and Jessica Grannis, Coastal Retreat Measures, *The Law of Adaptation to Climate Change: U.S. and International Aspects* 271 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012) [hereinafter Byrne and Grannis at 271].

¹⁸*Id.*

sistance Grant Program (FMAG) (see discussion about federal climate adaptation at §§ 24:16 to 24:18 for a more in-depth treatment of some of these programs).¹⁹ For example, certain funds can be used for floodplain management activities, such as creating an undeveloped buffer to protect natural resources.²⁰

HMPs can also include land use activities, such as the adoption of ordinances and other regulatory tools to inform development decisions in affected areas, or promote a managed retreat strategy by acquiring and demolishing or relocating structures.²¹ HMP activities may also include plans for retrofitting buildings and critical facilities that have been damaged by disasters, or conducting community outreach programs to educate property owners and residents about climate risks and measures that can be adopted to protect their homes and businesses.²²

Local governments are not required to follow and implement their hazard mitigation plans. However, HMPs can be incorporated into local comprehensive plans to help inform hazard mitigation strategies in development and zoning processes.²³

§ 24:30 Regulatory and land use tools

Even without climate adaptation plans or other standalone planning efforts that focus on specific climate hazards, local governments can proactively address or respond to climate change impacts through their regulatory and land use powers. Local governments can leverage regulatory tools to facilitate adaptation practices that help ensure that property—and the residents and businesses they house—is developed out of harm’s way. Regulatory tools can not only influence where structures are built, but also how their physical features can help adapt to climate risks like extreme heat or flooding.

The list of regulatory and land use practices that can support adaptation activities is long, and the suitability of each tool depends on the locality and the climate hazard. They include: downzoning permissible uses to limit new development in vulnerable areas; creating setbacks and buffers to site structures away from at-risk areas; rebuilding restrictions that limit the right to rebuild structures after they have been substantially damaged; and building moratoria that provide local governments with time to reassess zoning and development regulations after a major climate event.¹ A few of the commonly used regulatory and land use tools that can be used to address a range of climate hazards (flooding, wildfire, extreme heat) are discussed below.

A. Zoning

¹⁹Stafford Act Disaster Relief and Emergency Assistance Act, Title 44 CFR 201.6; <https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning/regulations-guidance>; *Local Mitigation Plan Review Guide*, FEDERAL EMERGENCY MANAGEMENT AGENCY, https://www.fema.gov/sites/default/files/2020-06/fema-local-mitigation-plan-review-guide_09_30_2011.pdf; *Mitigation Planning and Grants*, FEDERAL EMERGENCY MANAGEMENT AGENCY, <https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning/requirements> (last visited Feb. 23, 2021).

²⁰Fact Sheet: Local Hazard Mitigation Planning, FEDERAL EMERGENCY MANAGEMENT AGENCY (2018) https://www.fema.gov/sites/default/files/2020-06/fema-local-hazard-mitigation-planning-factsheet_02-06-2018.pdf (last visited Jan. 28, 2021).

²¹*Id.*

²²*Id.*

²³Anna K. Schwab and David J. Bower, *Increasing Resilience to Natural Hazards: Obstacles and Opportunities for Local Government*, 38 Env’tl. L. Rep. News & Analysis (2008).

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¹See generally Jessica Grannis, *Adaptation Tool Kit: Sea-level Rise and Coastal Land Use* (2011), https://www.georgetownclimate.org/files/report/Adaptation_Tool_Kit_SLR.pdf [hereinafter *Sea-level Rise Toolkit*]; Byrne and Grannis at 272-74.

Zoning is one of the most powerful tools local governments have to prepare communities for climate change impacts. Zoning maps classify different areas of a community based on permitted uses of the land (e.g., residential, commercial, industrial). Zoning ordinances—which specify design requirements for development (e.g., building densities) and determine land use and development within delineated districts—can be used to make sure structures are developed out of harm’s way. Changes to zoning ordinances may require legislative action taken by local councils (see Section 24:28 above for an overview of common legal consideration when local governments adopt zoning ordinances).

Localities can incorporate climate risk (e.g., sea-level rise) into zoning ordinances.² For example, zoning ordinances can implement more stringent regulations in existing flood hazard areas, or regulate larger geographic areas to reduce risks posed by flooding. A zoning ordinance could expand an area defined as a regulatory floodplain, or create overlay districts to add additional requirements for zoning in flood vulnerable areas (see discussion below in Subsection D on the use of floodplain regulations). Overlay zones, which impose additional regulations on top of an existing zone based upon the area’s special characteristics (e.g., floodplains or wildland-urban interfaces), can also be used to impose design and construction standards to minimize threats to structures like flooding or wildfire.³

Zoning ordinances can also be used to require development practices that help communities adapt to climate change impacts. For example, Seattle was one of the first cities to require new construction in certain zones to include additional planted areas, which can include green roofs.⁴ Zoning ordinances can also require new construction projects to have a certain percentage of pervious groundcover or cool pavement. One example is Chicago, which has required large, redeveloped properties to increase pervious surfaces by 15% compared to earlier conditions.⁵ Local governments can also modify zoning codes to require cool pavements in certain locations to reduce the urban heat island effect.⁶

B. Subdivision and cluster development

Like zoning ordinances, subdivision ordinances specify development criteria like minimum lot sizes and development densities. Unlike zoning ordinances, which regulate development on individual parcels, subdivision ordinances regulate the

²See, e.g., Va. Code Ann. §§ 15.2-2283, 15.2-8884.

³*Sea-level Rise Toolkit* at 19. Wildland-urban interface (WUI) refers to areas where development meets undeveloped land, which are at high risk from wildfires. The WUI is not a fixed location. For example, an undeveloped forest only becomes part of the WUI when development is introduced to the area. Jim Schwab and Stuart Meck, *Models for Mitigating Wildfire Hazards Through Zoning*, Am. Plan. Ass’n (2005), <https://planning-org-uploaded-media.s3.amazonaws.com/document/Zoning-Practice-2005-03.pdf> (last visited Feb. 26, 2021). For a summary of WUI regulations and land use options at the neighborhood, community, individual, and structural scales, see *Community Wildfire Safety Through Regulation: A Best Practices Guide for Planners and Regulators*, NAT’L FIRE PROTECTION ASS’N (2013), <https://www.nfpa.org/-/media/Files/Public-Education/By-topic/Wildland/WildfireBestPracticesGuide.ashx> (lasts visited Feb. 26, 2021).

⁴Green roofs consist of multiple layers—such as vegetation or a growing medium—planted over a waterproof membrane, protecting the underlying roof. Sara P. Hoverter, *Adapting to Urban Heat: A Tool Kit for Local Governments* 22 (2012), https://www.georgetownclimate.org/files/report/Urban%20Heat%20Toolkit_9.6.pdf [hereinafter *Urban Heat Toolkit*].

⁵Pervious surfaces refer to surfaces like grass or permeable pavement, which allow water to penetrate into the soil. *Id.* at 41.

⁶The urban heat island effect refers to the warming of cities compared to surrounding rural areas due to the lack of shade and the prevalence of heat-retaining surfaces such as pavements and buildings. *Id.* at 2.

division of individually saleable lots within large tracts of land.⁷

Local governments can use subdivision ordinances to encourage beneficial practices like cluster development, which concentrates development on a specific tract while preserving the rest of the tract as open space.⁸ The resulting open space can be used for adaptation practices such as capturing stormwater runoff, which can reduce flood risk and protect water quality. In areas susceptible to wildfire, clustering development allows for more green space to help control the spread of wildfire.⁹

In some rural areas without zoning, subdivision ordinances can also be used to encourage development patterns to keep homes out of harm's way. Subdivision ordinances can also ensure adequate road access and points of evacuation for residents, firefighters, and rescue workers when there is a wildfire.¹⁰

C. Building codes

Just as zoning codes can be used to require green roofs and other features on new development, local governments can also use building codes to establish standards and requirements for a particular type of building, regardless of the zoning district. As with zoning codes, a change to a building code is likely to require local legislation.

Local governments use building codes to establish standards for individual building types (e.g., residential, commercial). The building codes can be used to set requirements for building construction to maximize protection from climate hazards (e.g., reduce risk of flooding through elevation or requiring certain construction techniques or materials). Building codes primarily apply to new development, though local governments can also use building codes to incorporate requirements for building retrofits or repairs.¹¹

D. Floodplain regulations

Local governments can use floodplain regulations to implement adaptation strategies. Indeed, the adoption of floodplain ordinances is a requirement for communities that voluntarily participate in the National Flood Insurance Program (NFIP).

In order for federal flood insurance to be made available in their communities, local governments are required to adopt and enforce floodplain management ordinances that regulate new construction in special flood hazard areas (SFHAs).¹² SFHAs are mapped by FEMA—the NFIP's administering agency—which uses historical flood data to develop flood insurance rate maps (FIRMs) and identifies areas of the floodplain according to different flood risk zones.¹³

⁷*Sea-level Rise Toolkit* at 34.

⁸*Id.*

⁹Smart Growth Fixes for Climate Adaptation and Resilience: Changing Land Use and Building Codes and Policies to Prepare for Climate Change, Environmental Protection Agency (2017), https://www.epa.gov/sites/production/files/2017-01/documents/smart_growth_fixes_climate_adaptation_resilience.pdf [hereinafter *EPA Smart Growth Guide*].

¹⁰*Id.* at 74.

¹¹For example, including a cool roof requirement in a building code places the cost of installing a cool roof primarily on the building owner. However, for new development, the cost is similar to that of constructing a traditional roof. The cost is usually financed over a period of years to match the saving. *Urban Heat Toolkit* at 17.

¹²NFIP regulations, sections 60.0-60.3, National Flood Insurance Program Requirements.

¹³SFHAs include A-Zones and V-Zones. A-Zones are areas that are upland or located in riverine floodplains and are vulnerable to the 100-year flood (or have a one percent annual chance of flooding based upon historical data). V-Zones are coastal floodplains that are susceptible to damage from storm-induced velocity wave action, and are more strictly regulated than A-Zones. FEMA also designates flood zone areas outside of SFHAs, called X-Zones (representing the 500-year floodplain, which have a

Many local governments directly adopt FEMA's model floodplain ordinance, which imposes minimum regulations on development in the SFHA. FEMA's ordinance contains primarily design requirements for development; for example, elevating structures to or above the base flood elevation (BFE).¹⁴ However, FEMA's reliance on historical flood data to determine flood risk means that the NFIP does not account for the impact of future sea-level rise. Therefore, in order to qualify for the NFIP, many local governments that adopt FEMA's model floodplain ordinance may not be adequately accommodating increased risks of future flood due to sea-level rise, erosion, subsidence, and/or extreme storm events that will increase in both frequency and intensity.

In order to be better prepared for future climate risks, many local governments have elected to adopt higher standards for regulating floodplains and taken other measures to update their floodplain management practices. For example:

- Communities can expand the regulatory flood zone boundaries so that more structures are required to comply with local floodplain regulations, as the city of Baltimore did in 2014 when it amended the floodplain ordinance to extend floodplain regulations to the 500-year floodplain and add new flood resilience measures.¹⁵
- Local governments can restrict the height and size of structures in flood hazard areas. By reducing the density of development, local governments can reduce the number of people and structures at risk of harm or damage from storms and sea-level rise. Likewise, jurisdictions may also exempt structures that are being elevated from height restrictions and other regulations, so that the structural elevation does not conflict with local codes. For example, after Superstorm Sandy, New York City waived height and setback requirements so that flood-damaged structures could be rebuilt to higher standards and prepare for future flood risk.¹⁶
- Communities can participate in the Community Rating System (CRS), a sub-program of the NFIP that encourages communities to increase floodplain standards above the minimum requirements set forth in the NFIP. In exchange for receiving discounts in their flood insurance premiums, communities must implement a range of flood risk measures, from higher regulatory standards like requiring buildings be elevated above the BFE to conducting community outreach and education around flood risk.¹⁷ In order to maximize benefits under the CRS program, many participating communities have collaborated across jurisdictional boundaries to pursue CRS activities at a regional scale.¹⁸

§ 24:31 Funding and financing tools

Local governments can use a variety of funding and financing mechanisms to promote climate adaptation practices, which could include capital improvement projects, planning, and program development. Local governments can fund many

0.2 to one-percent annual chance of flooding based upon historical data). However, FEMA does not currently require regulation in X-Zones. *See Flood Zones*, FEDERAL EMERGENCY MANAGEMENT AGENCY, <https://www.fema.gov/glossary/flood-zones> (last visited Feb. 23, 2021).

¹⁴*Base Flood Elevation (BFE)*, FEDERAL EMERGENCY MANAGEMENT AGENCY, <https://www.fema.gov/node/404233> (last visited Feb. 24, 2021).

¹⁵Baltimore, Md. Municipal Code art. 7, section 3-1.

¹⁶*New York City's Risk Landscape: A Guide to Natural Hazard Mitigation* (79-81).

¹⁷2017 CRS Coordinator's Manual, Federal Emergency Management Agency (2017), https://www.fema.gov/sites/default/files/documents/fema_community-rating-system_coordinators-manual_2017.pdf.

¹⁸*See, e.g.*, the Cape Cod Cooperative Extension, <https://www.capecodextension.org/> (last visited Jan. 28, 2021).

activities through a city's General Fund, which is funded in part by property, income, and sales taxes.¹ Municipal budgets may not be the most reliable source of funding for adaptation projects, given that the amount of funding available for these purposes may fluctuate from year to year if other spending obligations are prioritized. Additionally, the use of general funds for adaptation activities may bring about an inequitable distribution of resources, such as when property owners become exempt from the property taxes used to fund a stormwater management program, even when they contribute to stormwater runoff (e.g., churches and universities).²

Aside from the municipal budget, funds for adaptation projects could be generated through several other sources, including taxes, stormwater utility or other fees, state and federal grants, bonds, low-interest loans, and public-private partnerships.³ Where possible, local governments may coordinate funding across multiple agencies. For example, in Boulder, Colorado, the city's Greenways Master Plan leverages funding from the city's Transportation Fund, Stormwater and Flood Control Utility Fund, and the State Lottery Fund.⁴

A few commonly used measures are discussed below.

A. Stormwater fees

Many local governments collect stormwater fees from property owners and industrial and commercial customers to help maintain the public stormwater system, as well as pay for impacts to water quality and address flood concerns. The fees are collected based on a property's contribution to stormwater runoff; the fees are then used to help operate the local stormwater system. In this way, compared to general funds, stormwater fees may be a more equitable source of funding for stormwater management because the fee levels are directly related to a property's impact on the local stormwater infrastructure.

To encourage more adaptation-friendly practices from the consumer side, more and more localities are offering financial incentives for adopting certain practices to alleviate impact on the stormwater system. Local governments can offer a partial or full refund of stormwater fees for property owners that install green stormwater infrastructure (GSI) that reduces or treats stormwater runoff at its source, thereby reducing flood risk and protecting floodplains. For example, in Newport News, Virginia, property owners can earn up to a 15% rebate on their stormwater fee for reducing runoff.⁵ Governments can also use revenue from stormwater management fees to offer one-time payments for the installation of vegetation or porous pavements that can help capture and filter stormwater. An illustration is the District of

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¹Eric Shytle, "Practice Note: Legal Issues in Municipal Finance," Westlaw (2021) (last visited Feb. 26, 2021).

²*Green Infrastructure Toolkit: Local Funding*, Georgetown Climate Center (2012), <https://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/local-funding.html> (last visited Feb. 26, 2021) [hereinafter *Green Infrastructure Toolkit*].

³See generally *Getting to Green: Paying for Green Infrastructure Financing Options and Resources for Local Decision-Makers*, ENVIRONMENTAL PROTECTION AGENCY (Dec. 2014), https://www.epa.gov/sites/production/files/2015-02/documents/gi_financing_options_12-2014_4.pdf (last visited Feb. 26, 2021) [hereinafter *Paying for Green Infrastructure*].

⁴*Greenways Master Plan*, CITY OF BOULDER 4-5 (2011), https://www-static.bouldercolorado.gov/docs/2011-greenways-master-plan-update-1-201304221316.pdf?_ga=2.160203005.1740217377.1614342871-1790120834.1614342871 (last visited Feb. 26, 2021). See also *Boulder, Colorado Greenways Master Plan*, Adaptation Clearinghouse (2011), <https://www.adaptationclearinghouse.org/resources/boulder-colorado-greenways-master-plan.html> (last visited Feb. 26, 2021).

⁵Newport News, VA., Code of Ordinances §§ 37.1-15.

Columbia, which offers homeowners a rebate of \$5 per square foot to replace impervious surfaces with vegetation, and \$10 per square foot to install permeable pavers.⁶

B. Permit and inspection Fees

Aside from stormwater utility fees, local governments also use permit and inspection fees to fund measures like installing green infrastructure to reduce urban heat island effects, manage stormwater, improve air quality, and help meet other sustainability goals. Permit fees could help fund green infrastructure programs, such as in Portland, Oregon, which established a “% for Green” fund, which is used to fund the city’s Green Streets program.⁷ The fund requires construction projects in the public’s right-of-way—that do not already include green street features—to contribute one percent of the construction budget to support green street facilities.⁸

Like stormwater fees, permit and inspection fees allow for a more direct allocation of funding for specific projects. However, permit fees may not provide a consistent source of revenue during periods when construction may lag, and stormwater utility fees may require approvals by the local legislative body, among other legal and regulatory constraints (e.g., having legal authority to establish a stormwater user fee, meeting other applicable state requirements).⁹ Therefore, local governments may need to combine fees with other funding sources to ensure a dedicated funding stream for local adaptation projects.

C. Bonds

Like states, local governments can sell bonds to raise funds for the construction of public projects and infrastructure, such as roads or schools. Local governments can borrow money from private investors, which is then repaid on a schedule at a fixed interest rate. Bonds therefore offer potential as one mechanism for local governments to fund climate adaptation projects; for example, urban forestry or cool pavement projects.¹⁰

Municipal bonds traditionally take one of two forms. A revenue bond is backed by a specific project or source (e.g., service fees and assessments) and can be used to finance large capital expenditures.¹¹ General obligation bonds are backed by a government entity or tax revenue and used to fund public projects.¹² Increasingly, cities have also adopted “green bonds” that can be earmarked specifically for environmental and climate investments.¹³ For example, in 2014 the state of California issued a \$300 million general obligation bond (backed by the state’s General Fund) to finance projects for flood prevention, energy conservation in public build-

⁶2021 Permeable Surface Rebate Program, DISTRICT OF COLUMBIA DISTRICT DEPT. OF ENERGY & THE ENVIRONMENT (2021), <https://doee.dc.gov/service/permeablesurfacerebate> (last visited Feb. 26, 2021).

⁷Green streets use vegetation and structural (e.g., curb extensions, permeable pavements) measures to mitigate and filter stormwater runoff. *Learn About Green Streets*, ENVIRONMENTAL PROTECTION AGENCY, <https://www.epa.gov/G3/learn-about-green-streets> (last visited Feb. 26, 2021).

⁸% for Green, CITY OF PORTLAND, <https://www.portlandoregon.gov/bes/article/341452> (last visited Feb. 26, 2021).

⁹*Green Infrastructure Toolkit*.

¹⁰*Urban Heat Toolkit* at 55.

¹¹*Municipal Bonds: Understanding Credit Risk*, SECURITIES & EXCHANGE COMMISSION, <https://www.sec.gov/files/municipalbondsbulletin.pdf> (last visited Feb. 26, 2021).

¹²*Id.*

¹³Gregory D. Miller, “Practical Law: Green Bonds and Local Infrastructure Projects,” Westlaw (2021) (last visited Feb. 26, 2021). *See also How to Issue a Green Muni Bond: The Green Muni Bonds Playbook*, U.S. Green City Bonds Coalition (2015), <https://www.climatebonds.net/files/files/Green%20City%20Playbook.pdf> (last visited Feb. 26, 2021).

ings, clean water and drinking water, and air pollution, among other categories.¹⁴

§ 24:32 Conclusion

In addition to working with federal and state agency partners, many local governments are already equipped with planning, regulatory, and funding tools to proactively prepare for existing and future climate change impacts. Indeed, some local governments may be uniquely situated to both identify their climate risks, as well as proactively implement adaptive solutions that can be tailored to meet the needs of their communities. Whether in drafting long term plans or adopting regulatory measures to meet the challenges of preparing for climate hazards, each locality will need to calibrate its actions not only in consideration of its legal authority, but also with the input of communities at the frontlines of climate change. Local climate actions are most effective when they are planned, developed, and implemented in coordination with community members, particularly those that are hardest hit by climate change impacts.

VIII. GEOENGINEERING: REGULATING CARBON DIOXIDE REMOVAL/NETS UNDER INTERNATIONAL LAW

§ 24:33 Overview of carbon dioxide removal/negative emissions technologies

The Paris Agreement's entry into force in 2016 was hailed as a hallmark achievement by the world community. However, there is growing recognition that meeting its objectives may require not only aggressive emissions reduction policies, but also wide-scale deployment of so-called "carbon dioxide removal" (CDR) approaches.¹ Carbon dioxide removal options, also frequently known as "negative emissions," aim to address climate change by effectuating the removal of carbon dioxide from the atmosphere and then storing it terrestrially or in the world's oceans,² or utilizing it in industrial or chemical processes.³ This can be achieved by enhancing natural sinks for carbon, or deploying chemical engineering to remove carbon dioxide from the atmosphere.⁴

CDR is usually recognized of one of two major categories of an emerging set of climate response mechanisms collectively known as "climate geoengineering," defined by the UK's Royal Society as "the deliberate large-scale manipulation of the

¹⁴*Final Report: 2014 Green Bonds*, OFFICE OF THE STATE TREASURER (Dec. 2018), <https://www.treasury.ca.gov/publications/2014green.pdf> (last visited Feb. 26, 2021).

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¹Niall MacDowell, et al., *The role of CO₂ capture and utilization in mitigating climate change*, 7 NATURE CLIMATE CHANGE 243-49 (2017). The most recent "emissions gap report" of the United Nations Environment Program concluded that annual emissions by 2030 need to be a whopping 15 GtCO₂e lower annually than current unconditional Paris NDCs to hold temperatures to 2 °C above pre-industrial levels, and 32 GtCO₂e lower to meet the 1.5 °C objective, UNEP, *Emissions Gap Report 2020*, Executive Summary, at X, <https://www.unep.org/emissions-gap-report-2020> (last visited Feb. 16, 2021). The lion's share of scenarios utilizing integrated assessment models thus contemplate large-scale deployment of CDR, perhaps to the tune of 10-20 GtCO₂/yr. in the latter part of the century. Ottmar Edenhofer, et al., *Climate Change 2014 Mitigation of Climate Change Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014), at 14-15.

²Institute for Carbon Removal Law & Policy, *What is carbon removal?*, <https://www.american.edu/u/sis/centers/carbon-removal/what-it-is.cfm> (last Feb. 22, 2021).

³Cameron Hepburn, et al., *The technological and economic prospects for CO₂ utilization and removal*, 575 Nature 87, 87 (2019).

⁴Timothy Lenton, *The Global Potential for Carbon Dioxide Removal*, GEOENGINEERING OF THE CLIMATE SYSTEM 53 (Roy Harrison & Ron Hester eds., 2014).

planetary environment to counteract anthropogenic climate change.”⁵ The other major category, Solar Radiation Management (SRM), encompasses approaches that could reflect a small portion of incoming solar radiation back to space—such as by injecting aerosol particles into the upper atmosphere—and thus exerting a cooling effect.⁶ This section focuses on the law associated with CDR approaches, given the fact that SRM remains a largely notional concept at this point.

CDR options include the following:

- Bioenergy and carbon capture and storage (BECCS), a process by which biomass is converted to heat, electricity, or liquid or gas fuels, coupled with carbon dioxide capture and sequestration (CCS);⁷
- Ocean fertilization (OF), a process for dispersing iron or other nutrients in regions of the world’s oceans regions to stimulate phytoplankton production, thus potentially enhancing carbon dioxide uptake;⁸
- Increasing ocean alkalinity, and thus carbon dioxide uptake, by adding substances such as lime or olivine to oceans or in coastal regions;⁹
- Direct air capture (DAC), a process to extract carbon dioxide from ambient air in a closed-loop industrial process;¹⁰
- Terrestrial enhanced mineral weathering, a process to accelerate the uptake of carbon dioxide from the atmosphere by magnesium and calcium-rich rocks;¹¹ and
- Afforestation and reforestation initiatives,¹² and efforts to increase sequestration of carbon dioxide in soils.¹³

There is increasing recognition of the potentially critical role for CDR approaches in climate policymaking.¹⁴ The vast majority of mitigation scenarios developed in integrated assessment models, under which temperatures are maintained at 2°C or

⁵The Royal Society, *Geoengineering the Climate: Science, Governance and Uncertainty* (2009), at 11. <http://royalsociety.org/Geoengineering-the-climate/>, site visited on February 5, 2021.

⁶Neil Craik & William C.G. Burns, *Climate Engineering Under the Paris Agreement*, Centre for International Governance Innovation (2016), at 2.

⁷Joris Kornneeff, et al., *Global Potential for Biomass and Carbon Dioxide Capture, Transport and Storage up to 2050*, 11 INT’L J. GREENHOUSE GAS CONTROL 117, 119 (2012); U.S. Environmental Protection Agency, Carbon Dioxide Capture and Sequestration, <http://www3.epa.gov/climatechange/ccs/#CO2Capture> (last visited Feb. 17, 2017).

⁸Matthew Hubbard, *Barometer Rising: The Cartagena Protocol on Biosafety as a Model for Holistic International Regulation of Ocean Fertilization Projects and Other Forms of Geoengineering*, 40 WM. & MARY ENVTL. L. & POL’Y REV. 591, 598 (2016); Christine Bertram, *Ocean Iron Fertilization in the Context of the Kyoto Protocol and the Post-Kyoto Process*, 8 ENERGY POL’Y 1130, 1130 (2010).

⁹Wil Burns & Charles R. Corbett, *Antacids for the Sea? Artificial Ocean Alkalinization and Climate Change*, 3 ONE EARTH 154-56 (2020); Andrew Lenton, et al., *Assessing carbon dioxide removal through global and regional ocean alkalization under high and low emission pathways*, 9 EARTH SYS. DYNAMICS 339-257 (2018).

¹⁰Robert Socolow, et al., *Direct Air Capture of CO₂ with Chemicals* (2011), American Physical Society, at 7-9, <https://www.aps.org/policy/reports/assessments/upload/dac2011.pdf> (last visited Feb. 14, 2017); R. Stuart Haszeldine, *Can CCS and NETs Enable the Continued Use of Fossil Carbon Fuels after CoP21?*, 32(2) OXFORD REV. ECON. POL’Y 304, 310 (2016).

¹¹David J. Beerling, et al., *Potential for large-scale CO₂ removal via enhanced rock weathering with croplands*, 583 NATURE 242-62 (2020).

¹²Jean Francois-Bastin, et al., *The global tree restoration potential*, 365 SCI. 76-79 (2019); Matthew E. Fagin, et al., *How Feasible are global forest restoration goals?*, 13(3) CONSERVATION LETTERS 1-8 (2020), <https://doi.org/10.1111/conl.12700>.

¹³Xiongiong Bai, et al., *Responses of soil carbon sequestration to climate smart agriculture practices: A meta analysis*, 25 GLOBAL CHANGE BIO. 2591-2606 (2019).

¹⁴European Parliament Think Tank, *Carbon dioxide removal: Nature-based and technological solutions* (2021), at 2-3, <https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS>

below, contemplate extensive deployment of CDR technologies during the course of this century,¹⁵ with bioenergy and carbon capture with storage cited as the primary option.¹⁶ Moreover, carbon dioxide removal could play a critical role in reversing potential overshoot of carbon budgets during this century and beyond.¹⁷

However, CDR approaches also pose potentially serious risks, including building upon the inequities of climate change for some of the world's most vulnerable populations. For example, ocean iron fertilization could result in shifts in community composition that could threaten the integrity of ocean ecosystems.¹⁸ Large-scale deployment of bioenergy and carbon capture and storage could divert large swathes of land from food production, imperiling food security for vulnerable populations,¹⁹ It could also result in large land grabs,²⁰ and threaten biodiversity.²¹ Enhanced mineral weathering could pose risks to agricultural applications by releasing potentially toxic levels of chromium and nickel,²² could pose potential threats to human health through inhalation of ultrafine particles,²³ and might adversely impact ocean environments by substantially altering biogeochemical cycles.²⁴

Yet despite the momentous implications that large-scale CDR deployment may pose for society, legal purview over these approaches at both the domestic and international level remain amorphous and contested. The next section describes the current status of legal regulation of CDR, and other potentially pertinent institutions.

§ 24:34 The international law of carbon dioxide removal

As Kuokkanen and Yamineva observe, there are no dedicated international regimes to regulate climate geoengineering. However, a number environmental

BRI(2021)689336, site visited on Mar. 1, 2021.

¹⁵Intergovernmental Panel on Climate Change, Fifth Assessment Report, Working Group III, Ch. 6, *Assessing Transformation Pathways*, at 93; Giulia Realmonte, et al., *An inter-model assessment of the role of direct air capture in deep mitigation pathways*, 10 NATURE COMMUNICATIONS, 3277 (2019).

¹⁶Mathias Fridahl & Mariliis Lehtveer, *Bioenergy with carbon capture and storage (BECCS): Global potential, investment preferences, and deployment barriers*, 42 ENERGY RES. & SOC. SCI. 155, 155 (2018).

¹⁷Stephen M. Smith, *A case for transparent net-zero carbon targets*, 2:24 COMMUNICATIONS EARTH & ENV'T 1, 1 (2021).

¹⁸R.S. Lampitt, et al., *Ocean Fertilization: A Potential Means of Geoengineering?*, 366 PHIL. TRANS. R. SOC'Y 3919, 3925 (2008).

¹⁹Pete Smith, et al., *Biophysical and Economic Limits to Negative CO₂ Emissions*, 6 NATURE CLIMATE CHANGE 42, 46 (2016).

²⁰Lorenzo Catula, Nat Dyer & Sonja Vermeulen, *Fuelling Exclusion? The Biofuels Boom and Poor People's Access to Land*, International Institute for the Environment and Development and Food and Agriculture Organization, at 14, <http://pubs.iied.org/pdfs/12551IIED.pdf>, site visited on Feb. 15, 2017.

²¹Andrew Wiltshire & T. Davies-Barnard, *Planetary Limits to BECCS Negative Emissions*, AVOID2, Mar. 2015, at 15, http://avoid-net-uk.cc.ic.ac.uk/wp-content/uploads/delightful-downloads/2015/07/Planetary-limits-to-BECCS-negative-emissions-AVOID-2_WPD2a_v1.1.pdf (last visited Jan. 14, 2017).

²²Mike E. Kelland, et al., *Increased yield and CO₂ sequestration potential with the C4 cereal Sorghum bicolor cultivated in basaltic rock dust-amended agricultural soil*, 26 GLOBAL CHANGE BIO. 3658, 3659 (2020).

²³Romany M. Webb, *The Law of Enhanced Weathering for Carbon Dioxide Removal*, Columbia Law School, Sabin Center for Climate Change Law (2020), at 31, <https://climate.law.columbia.edu/sites/default/files/content/Webb%20-%20The%20Law%20of%20Enhanced%20Weathering%20for%20CO2%20Removal%20-%20Sept.%202020.pdf>, site visited on January 6, 2021.

²⁴Jens Hartmann, et al., *Enhanced Chemical Weathering as a Geoengineering Strategic to Reduce Atmospheric Carbon Dioxide, Supply Nutrients, and Mitigate Ocean Acidification*, 51 REV. GEOPHYS. 113, 113 (2013).

treaties and general principles of international law are, or may be, pertinent.¹ To date, two international regimes have sought to regulate ocean fertilization schemes. In 2008, the Parties to the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention)² passed a resolution in 2008 to regulate ocean fertilization. The Resolution provided that ocean fertilization would not constitute “dumping” for the purposes of the Convention if: (1) restricted to “legitimate scientific research”; and (2) the activity was subject to a case-by-case assessment framework to be developed by the Scientific Groups of the Convention, and its successor agreement, the London Protocol.³ In 2010, the Parties adopted a framework to guide that assessment.⁴ Under the framework, ocean fertilization scientific research projects will be construed to be contrary to the aims of the Convention and Protocol unless “conditions are in place to ensure that, as far as practicable, environmental disturbance would be minimized, and the scientific benefits maximized.”⁵

There are obvious limitations to the potential role of the London Convention in this context. London Convention resolutions are not legally binding.⁶ Moreover, by its terms, the 2008 resolution is restricted to regulation of one CDR approach, OF, though it might provide guidance for similar approaches in the future. Finally, the scope of the Convention itself is narrowly limited to assessment of the impacts of disposal/placement of materials in the seas, which means it would not be applicable to the vast majority of CDR options.

In 2013, the Parties to the London Protocol passed an amendment to regulate marine geoengineering,⁷ defined as “a deliberate intervention in the marine environment to manipulate natural processes, including to counteract anthropogenic climate change and/or its impacts, and that has the potential to result in deleterious effects, especially where those effects may be widespread, long lasting or severe.”⁸ The initial regulatory scope of the amendment is limited to ocean fertilization, which is restricted to legitimate scientific research and subject to an extensive assessment framework before a permit may be issued by a Party.⁹ However, the amendment also permits adding other marine geoengineering approaches to its regulatory framework, under Annex 4, in the future.¹⁰

Unlike resolutions passed by the Parties to the Convention/Protocol, amendments

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¹Tuomas Kuokkanen & Yulia Yamineva, *Regulating Geoengineering in International Environmental Law*, 3 CCLR 161, 162 (2013).

²Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, opened for signature 29 December 1972, 1046 UNTS 138 (entered into force 30 August 1975).

³Resolution LC-LP.1(2008) on the Regulation of Ocean Fertilization (Oct. 31, 2008).

⁴Resolution LC-LP.2(2010) on the Assessment Framework for Scientific Research Involving Ocean Fertilization, Annex 6 (Oct. 14, 2010).

⁵*Id.*

⁶Jeffrey McGee, Kerry Brent & Wil Burns, *Geoengineering the oceans: an emerging frontier in international climate change governance*, 10(1) *AUS. J. MARITIME & OCEAN AFF.* 267, 270 (2017).

⁷Amendment to the London Protocol to Regulate the Placement of Matter for Ocean Fertilization and Other Marine Geoengineering Activities, Report of the Thirty-Fifth Consultative Meeting and the Eighth Meeting of the Contracting Parties, UNEP, Res LP.4(8), Annex 4, LC 35/15 (2013) [Res LP.4(8)].

⁸*Id.* at 5bis.

⁹*Id.* at Annex 4, para. 3.

¹⁰1996 Protocol to the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 7 Nov. 1996, [2006] ATS 11 (entered into force 24 March 2006), at art. 22(1).

to these instruments are legally binding.¹¹ However, an amendment does not come into force until two-thirds of the Parties have accepted it,¹² and to date only a handful of Parties have done so.¹³ Other limitations include the fact that the scope of potential carbon dioxide options is limited to marine-based interventions, and at least one major potential actor, the United States, is not a Party.¹⁴

The Parties to the Convention on Biological Diversity (CBD) also passed a resolution in 2008,¹⁵ restricting ocean fertilization activities to small scale scientific studies in coastal waters, and subject to prior assessment of potential impacts.¹⁶ However, the resolution also provided for potentially expanding the scope of permitted activities in the future in the presence of an adequate scientific basis and effective regulatory architecture.¹⁷ Subsequent resolutions on ocean fertilization passed by the Parties have largely tracked this language, though the restriction of research to coastal areas was dropped in a subsequent resolution.¹⁸ In 2012, the Parties passed a resolution that expanded the purview of the regime's focus to "climate-related geoengineering" interventions, which was capaciously defined as "any technologies that deliberately reduce solar insolation or increase carbon sequestration from the atmosphere on a large scale and that may affect biodiversity . . ."¹⁹ The resolution called on the Parties and Executive Secretary to engage in additional research to address gaps on a range of issues, including the potential impacts of geoengineering schemes on biodiversity,²⁰ and the current status of the international regulatory framework pertinent to the interests of the CBD.²¹

A number of other international treaty regimes might engage on carbon dioxide removal issues in the future. Perhaps the most logical regime would be the Paris Agreement,²² given its role as the primary international agreement to address climate change. Article 4(2) provides that Parties are to effectuate their nationally determined contributions (NDCs) through "domestic mitigation measures." The term "mitigation" is not defined in Paris. However, it is in Paris's parent agreement, the United Nations Framework Convention on Climate Change (UNFCCC).²³ In that agreement, *mitigation* encompasses measures "limiting . . . anthropogenic emissions of greenhouse gases *and protecting and enhancing . . . greenhouse gas*

¹¹*Id.* at art. 21(3).

¹²*Id.*

¹³Technofixing the climate: who's in charge?, *The Economist*, Jan. 15, 2020, <https://www.woi.economist.com/technofixing-the-climate-whos-in-charge/> (last visited Feb. 8, 2021).

¹⁴United States Environmental Protection Agency, Ocean Dumping: International Treaties, <https://www.epa.gov/ocean-dumping/ocean-dumping-international-treaties> (last visited Feb. 8, 2021).

¹⁵Convention on Biological Diversity, 5 June 1992, 1760 UNTS 79 (entered into force 29 Dec. 1993).

¹⁶Convention on Biological Diversity, Biodiversity and Climate Change, Decision IX/16 (2008), at para. 4.

¹⁷*Id.*

¹⁸Convention on Biological Diversity, Marine and coastal biodiversity, Decision X/29 (2010), at para. 49.

¹⁹Convention on Biological Diversity, Climate-Related Geoengineering, Decision XI.20 (2012), at para. 5(a).

²⁰*Id.* at para. 7.

²¹*Id.* at para. 16(a).

²²United Nations Framework Convention on Climate Change, Conference of the Parties, Twenty-First Session, Paris, Nov. 30-Dec. 11, 2015, Adoption of the Paris Agreement, Draft Decision, CP.21, Dec. 12, 2015, FCCC/CP/2015/L.9/Rev.1.

²³United Nations Conference on Environment and Development: Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849.

sinks and reservoirs . . .”²⁴ “Sinks,” in turn, constitute “any process, activity or mechanism *which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.*”²⁵ Thus, CDR options clearly are a form of sinks that Parties can include as a mitigation element of their NDCs. Indeed, most of the world’s major emitters have already included one form of CDR, afforestation/reforestation initiatives, in their NDCs.²⁶ However, the Parties have yet to incorporate CDR approaches into their formal NDC agendas.²⁷

Of course, CDR pledges would be subject to provisions of the Paris Agreement that seek to assess the impacts of climate response measures on axes such as sustainable development,²⁸ human rights,²⁹ and notions of climate justice and equity.³⁰ Moreover, deployment of CDR approaches to fulfill Paris obligations would be subject to the implementation guidelines set forth in the Paris Rulebook,³¹ especially provisions pertinent to mitigation.³²

There are several other treaties that might also be apposite. The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques prohibits its Parties from engaging in “the hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.”³³ The term “environmental modification techniques” encompasses “deliberate manipulation of natural processes . . . including its . . . atmosphere . . .”³⁴ Thus, the treaty would appear to be germane to the deployment of CDR approaches that have, or may have, negative transboundary impacts. However, it is far from clear if CDR deployment characterized by a State as a means to *combat climate change* would be construed as a “hostile use” of these techniques.³⁵ Moreover, ENMOD’s membership is limited,³⁶

²⁴*Id.* at art. 4(2)(a) [emphasis added].

²⁵*Id.* at art. 1(7).

²⁶Espen Moe & Jo-Kristian S. Røttereng, *The post-carbon society: Rethinking the international governance of negative emissions*, 44 ENERGY RES. & SOCIAL SCI. 199, 202 (2018).

²⁷*Id.* at 204. See also M.J. Mace, et al. *Governing large-scale carbon dioxide removal: are we ready?* Carnegie Climate Geoengineering Governance Initiative (C2G2), November 2018, at 26, <https://www.c2g2.net/wp-content/uploads/C2G2-2018-CDR-Governance-1.pdf> (last visited Feb. 13, 2021).

²⁸Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104, at Preamble & art. 4(1).

²⁹*Id.* at Preamble.

³⁰*Id.* at Preamble; art. 1(2); art. 4(1).

³¹United Nations Framework Convention on Climate Change, The Katowice climate package: Making The Paris Agreement Work For All, <https://unfccc.int/process-and-meetings/the-paris-agreement/katowice-climate-package> (last visited Feb. 10, 2021).

³²UNFCCC, *Further guidance in relation to the mitigation section of decision*, Decision 4/CMA.1, FCCC/PA/CMA/2018/3/Add.1 (2018), at Annex II.

³³G.A. Res. 72, U.N. GAOR, 31st Sess., Supp. No. 39 at 36, U.N. Doc. A/31/39 (1977); *Id.* at art. I(1).

³⁴*Id.* at art. II.

³⁵Ralph Bodle, *Geoengineering and International Law: The Search for Common Legal Ground*, 46 TULSA L. REV. 305, 312 (2010). It is not clear if visiting “unintentional” harms on other countries could be construed as a “hostile” use of CDR approaches, Conflict and Environment Observatory, From ENMOD to geoengineering: the environment as a weapon of war, <https://ceobs.org/from-enmod-to-geoengineering-the-environment-as-a-weapon-of-war/> (last visited Feb. 13, 2021).

³⁶Albert Lin, *Balancing the Risks: Managing Technology and Dangerous Climate Change*, 8 ISSUES IN LEGAL SCHOLARSHIP, Article 2 (2009), at 20. There are currently only 78 Parties to ENMOD, Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD), <https://www.unog.ch/enmod> (last visited Feb. 13, 2021).

and the treaty has not been invoked in potentially apposite cases.³⁷

Several provisions of the United Nations Convention on the Law of the Sea could be pertinent to ocean-based CDR approaches.³⁸ This would include provisions to regulate scientific research,³⁹ as well as those that address potential pollution impacts of the placement of materials in the ocean.⁴⁰ The Biodiversity Beyond National Jurisdiction (BBNJ) agreement,⁴¹ currently being formulated under UNCLOS, also contains a number of provisions that could be pertinent to research and potential deployment of ocean-based CDR, including those related to establishment of specially-protected areas and transboundary environmental impact assessments.⁴²

A number of general principles of international law might also be applicable to carbon dioxide removal options with potential transboundary impacts. These include the precautionary approach,⁴³ transboundary environmental impact assessment,⁴⁴ and principles of State responsibility.⁴⁵

Of course, it should be recognized that many carbon dioxide removal options may have few or no transboundary impacts, meaning that they will likely be predominantly regulated at the national and sub-national level.⁴⁶ For example, in the United States, BECCS would likely be governed primarily by domestic laws related to land-use, as well as federal and state laws governing carbon dioxide sequestration.⁴⁷ Enhanced mineral weathering could be subject to an array of laws and regulations associated with land-use, air and water pollution and waste management.⁴⁸ Direct Air Capture deployment at a large scale would be subject to the National Environmental Policy Act and federal and state laws on carbon dioxide sequestration,⁴⁹ as well as the Clean Air Act.⁵⁰ Nations committed to deployment of these approaches may also carve out special rules for regulation in the future, as well as to

³⁷Bodle, *supra* note 35, at 312.

³⁸United Nations Convention on the Law of the Sea, 10 Dec. 1982, 1833 UNTS 3 (entered into force 16 November 1994).

³⁹*See id.* at arts. 238-257.

⁴⁰*Id.* at arts. 194, 204, 210, 216. *See also* Kerry Brent, Wil Burns & Jeffrey McGee, *Governance of Marine Geoengineering*, Special Report, Centre for International Governance Innovation (2019), at 167-69.

⁴¹Development of an international legally-binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, GA Res 69/292, UNGAOR, 69th Sess, UN Doc A/Res/69/292 (2015).

⁴²Brent, et al., *supra* note 40, at 51.

⁴³Bodle, *supra* note 35, at 309-11.

⁴⁴*Id.* at 311-13.

⁴⁵Kuokkanen & Yamineva, *supra* note 1, at 163.

⁴⁶Phillipa C. McCormick, Jan McDonald & Kerryn A. Brent, *Governance of Land-Based Negative-emission Technologies to Promote Biodiversity Conservation: Lessons from Australia*, 10 CLIMATE L. 123, 130 (2020).

⁴⁷Kelsi Braemort & Richard K. Lattanzio, *Geoengineering: Governance and Technology Policy*, Congressional Research Service, Nov. 26, 2013, at 26-27, <https://fas.org/sgp/crs/misc/R41371.pdf>, site visited on Feb. 25, 2021.

⁴⁸Romany M. Webb, *The Law of Enhanced Weathering*, Columbia Law School, Sabin Center for Climate Change Law 1-64 (Sept. 2020), <https://climate.law.columbia.edu/sites/default/files/content/Webb%20-%20The%20Law%20of%20Enhanced%20Weathering%20for%20CO2%20Removal%20-%20Sept.%202020.pdf>, site visited on Feb. 21, 2021.

⁴⁹Michael B. Gerrard, *Direct air capture: An emerging necessity to fight climate change*, 51(4) TRENDS (Mar./Apr. 2020), <https://climate.law.columbia.edu/sites/default/files/content/docs/Michael%20Gerrard/TR%20MarApr%202020%20Gerrard%20article.pdf>, site visited on Feb. 25, 2021.

⁵⁰Tracy Hester, *Legal Pathways to Negative Emissions Technologies and Direct Air Capture of Greenhouse Gases*, 48 ELR 10413, 10425 (2018).

facilitate deployment.⁵¹ In Europe, European Union regulations pertinent to land-use, land-use change and forestry (LULUCF), carbon capture and sequestration, and soil strategies would play a major role in governing many CDR approaches.⁵²

§ 24:35 Conclusion

As the diffusion of carbon dioxide removal options in society grows, it is likely that the ambit of international regimes engaged in this emerging climate response will widen. This turn to polycentric governance may prove beneficial in several ways, including facilitating broader representation of perspectives, and building in redundancies that minimize mistakes in governing.¹ At the same time, this approach may pose a number of challenges, including potentially increasing transaction costs, and complexities that may privilege powerful actors.² It is likely that many countries will also begin to develop additional legislation to address the specific concerns associated with carbon dioxide removal, as well as development of national policies to support research, development and integration into existing accounting and climate policy frameworks.³

IX. TRIBAL

§ 24:36 Introduction

Literature on the legal strategies to address climate change has predominantly focused on federal and state actions (or inaction, as the case may be). But these are not the only sovereigns addressing the negative impacts of climate change: tribal governments are increasingly stepping up with innovative solutions. Aside from protecting their own communities, tribal action on climate change may also prove helpful to other sovereigns in developing effective climate responses.

This section focuses on climate change in tribal communities. To better understand why tribes are legally able to adopt tribal climate change measures, an introduction to tribal sovereignty is helpful to practitioners unfamiliar with the field of federal Indian law. This section begins with an introduction to tribal governments, and then moves to a discussion of federal Indian law generally, with a special emphasis on tribal sovereignty. Next, this section explains the legal precedent underlying the adoption of tribal environmental law, including climate change responses. With this introduction in place, the discussion turns to the impacts of climate change on tribal communities and explores responses that have been adopted by various tribes, focusing on adaptation plans and mitigation efforts.

§ 24:37 Federal Indian law and tribal sovereignty

A. Overview

Most tribes predate the formation of the United States of America. Although the

⁵¹*Id.* at 10428.

⁵²European Parliament Think Tank, Carbon dioxide removal: Nature-based and technological solutions (2021), at 7, [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI\(2021\)689336](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2021)689336), site visited on Mar. 1, 2021.

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¹Stockholm Resilience Center, GRAID, Principle Seven, Promote Polycentric Governance, <https://applyingresilience.org/en/principle-7/> (last visited Mar. 1, 2021); D. Huitema, et al., *Adaptive Water Governance: Assessing the Institutional Prescriptions of Adaptive (Co-)Management from a Governance Perspective and Defining a Research Agenda*, 14(1) *Eco. & Soc'y* 26, 26-27 (2009).

²Andreas Thiel, *The Scope of Polycentric Governance Analysis and Resulting Challenges*, 5(3) *J. OF SELF-GOVERNANCE & MGMT. ECON.* 52, 69 (2016).

³Albert C. Lin, *Carbon Dioxide Removal after Paris*, 45 *Eco. L.Q.* 533,569-70 (2019).

level of sophistication varied, these tribes possessed functioning governments long before contact with European powers. Tribal governments are not uniform in the manner in which they are structured. For example, some tribal governments, such as the Little Traverse Bay Band of Odawa Indians, possess separation of powers, inclusive of an independent judiciary. Other tribal governments, such as the Sault Ste. Marie Tribe of Chippewa Indians, do not utilize separation of powers, preferring instead to have one governmental entity inclusive of executive, legislative, and judicial powers. Within some tribes, such as the Hopi Nation, traditional leaders and elders play an important role in government functions.

Just as tribal governmental structures differ, so too does tribal law. Tribes have developed tribal customary law based on centuries of customs and traditions. Because tribes have enacted their own tribal laws and yet may look to federal and state law for guidance, tribes may create a hierarchy of laws detailing the order in which law should be applied. For example, the Hopi Nation adopted a resolution ordering that law be applied within the Hopi Nation's territory according to the following order: (1) the Hopi Constitution and By-laws; (2) Ordinances of the Hopi Tribal Council; (3) Resolutions of the Hopi Tribal Council; (4) the customs, traditions and culture of the Hopi Tribe; (5) federal law; (6) Arizona [the state where the Nation is located] law; and (7) the common law.¹ Given that many different sources of law may apply to a matter arising within Indian Country,² tribes increasingly create intertribal and intratribal common law. In fact, "the wide majority of tribal courts apply intertribal common law in almost every decision involving nonmembers."³ Accordingly, the law applicable in Indian country can be multifaceted and certainly differs as between tribes.

Ultimately, although tribal sovereignty is limited in some ways, as discussed below, tribal sovereignty persists today. Once the federal government recognizes tribal sovereignty, that sovereignty continues unless divested by Congress. Accordingly, any discussion of law applicable within Indian country must start with the premise that tribal sovereignty remains and then look to see whether that sovereignty has been divested in any way by the federal government. The relationship between tribal governments and the federal government has been evolving for some time. The next part of the chapter details the history of this relationship.

B. Introduction to the relationship between the federal government and tribal governments

The relationship between tribes and the federal government is dynamic. As stated above, tribes pre-dated the formation of the federal government, and, as a result, had thriving, fully functional governments in place at the time the United States of America was formed. The legal relationship between the federal government and tribes has its roots in Medieval and Renaissance legal traditions. Starting during the Crusades, the Roman Catholic Church played a vital role in providing the legal justifications for such foreign actions. Generally, the Church justified the Crusades under the legal theory that only individuals who believed in a Christian God had le-

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¹Hopi Tribal Council Res. No. H-12-76. While a tribe may adopt an order of application regarding different sources of law, it is important to note that federal law will likely preempt where it conflicts with tribal ordinances. On questions of territorial jurisdiction, state law at times may supersede if it can be justified on public health grounds.

²Indian country is defined as (a) all land within the limits of any Indian reservation; (b) all dependent Indian communities; and (c) all Indian allotments. 18 U.S.C. § 1151. Although originally enacted as part of the Federal Criminal Code, this definition has been extended to civil cases as well.

³Matthew L.M. Fletcher, *Toward a Theory of Intertribal and Intratribal Common Law*, 43 Hous. L. Rev. 701, 720 (2006).

gitimate power. This concept was expanded during Europe's "Age of Discovery," when European nations established the right to explore and "discover" massive areas of land under the authority of the papal bull *Romanus Pontifex*.⁴ The Church issued papal bulls to European countries, which then gave the countries legal authority to explore and assert dominion over non-Christian people who were discovered in the new territories. Under this legal justification, those arriving in the new world believed that they had legally discovered the territory and, therefore, owned the territory in question if the original inhabitants did not possess European-Christian norms.

The modern United States of America built on these foundational legal principles. Initially, however, many tribal nations were politically and militarily strong. As a result, the newly created federal government originally perpetuated the British policy of negotiating with tribes on a government-to-government basis.⁵ Most negotiations between tribal governments and the federal government were conducted using treaties. The use of treaties was also consistent with the fact that tribal governments were extra-constitutional.

Starting in 1823, however, the relationship between the federal government and tribes started to change. Chief Justice Marshall applied the ideas promulgated during the European "Age of Discovery" to the United States when he adopted the Doctrine of Discovery in *Johnson v. M'Intosh*, the first of the Marshall trilogy of cases that serve as the foundation of modern federal Indian law.⁶ In *Johnson*, the U.S. Supreme Court considered whether Indian tribes maintained title to their property and could therefore sell the property, or whether the United States had obtained title through Britain's discovery of the property in question.⁷ Ultimately, Chief Justice Marshall determined that the Doctrine of Discovery applied and therefore Indians had the right to occupy the land in question but that exclusive title rests with the discoverer. Furthermore, Marshall explained in his decision that the United States, as the exclusive owner of the property, maintained the legal right to extinguish the Indian right of occupancy at any time.

Johnson and the other two cases comprising the Marshall trilogy—*Cherokee Nation v. Georgia* and *Worcester v. Georgia*,⁸ decided in 1831 and 1832, respectively—are generally considered the foundation of federal Indian law. Both *Cherokee Nation* and *Worcester* arose from the State of Georgia's efforts to assert its sovereignty over the Cherokee Nation, located within the boundaries of Georgia at the time. Georgia passed laws abolishing the boundaries of the Cherokee Nation and asserting the laws of Georgia over the Cherokee Nation. In *Cherokee Nation*, the Cherokee Nation attempted to bring an original action in the U.S. Supreme Court to stop Georgia's actions. The U.S. Supreme Court addressed whether its original jurisdiction

⁴The Pope of the Roman Catholic Church issued the papal bull *Romanus Pontifex* to Christian nations. The papal bull *Romanus Pontifex* was a legal document binding on all other Christian monarchs. The papal bull *Romanus Pontifex* confirmed the Christian nation's ability to colonize the territories defined within the document. DAVID H. GETCHES ET AL., CASES AND MATERIALS ON FEDERAL INDIAN LAW 44-48 (West, 6th ed. 2011). For more information on the papal bull *Romanus Pontifex* and the role of the Roman Catholic Church in the development of the Doctrine of Discovery see JAMES MULDOON, POPES, LAWYERS, AND INFIDELS (1979).

⁵DAVID H. GETCHES ET AL., CASES AND MATERIALS ON FEDERAL INDIAN LAW 44-48 (West 6th ed. 2011).

⁶*Johnson v. M'Intosh*, 21 U.S. 543, 5 L. Ed. 681, 1823 WL 2465 (1823).

⁷Given Great Britain was the legal predecessor to the United States, the United States assumed Britain's legal rights to the property in question upon the United States' succession from Great Britain.

⁸*Cherokee Nation v. State of Ga.*, 30 U.S. 1, 8 L. Ed. 25, 1831 WL 3974 (1831); and *Worcester v. State of Ga.*, 31 U.S. 515, 8 L. Ed. 483, 1832 WL 3389 (1832).

extended to Indian nations.⁹ In holding that it did not, the Court reasoned that Indian nations were not foreign nations, but, rather, “domestic dependent nations.” In *Worcester*, Georgia had imprisoned a missionary working within the Cherokee Nation’s territory for failure to comply with Georgia law, raising the issue of whether the laws of the state of Georgia applied within the territory of the Cherokee Nation. The U.S. Supreme Court concluded that the laws of the state of Georgia had no force or effect within Indian country.

Cherokee Nation and *Worcester* are important to understanding the extent of tribal jurisdiction. *Cherokee Nation* recognized the separateness and sovereignty of tribal nations. At the same time, *Cherokee Nation* set forth the basis of the federal trust responsibility. The relationship between tribes and the United States was established as one resembling that of a ward and guardian or a beneficiary and trustee.¹⁰ Based upon this relationship, a trust responsibility has arisen such that the United States must ensure the protection of tribal and individual Indian lands, assets, resources, and treaty rights.¹¹ *Worcester* held that the laws of states generally do not apply in Indian country. Although subsequent congressional acts and court decisions have modified *Worcester*, the presumption against the applicability of state law in Indian country remains. This presumption is especially strong where application of state law would interfere with inherent tribal governmental functions.

Following *Worcester*, the U.S. Supreme Court was relatively silent on the issue of federal Indian law until events occurring nearly 50 years later during the development of the Allotment Era.¹² In 1883, the U.S. Supreme Court decided *Ex Parte Crow Dog*,¹³ which involved the murder of one Indian by another Indian in Indian country. The U.S. Supreme Court held that the federal court did not have jurisdiction over the crime, because both the defendant and victim were Indian and the crime occurred within Indian country. In reaction to this decision, Congress passed the Major Crimes Act, which granted the federal courts concurrent jurisdiction over enumerated crimes that occur within Indian country, regardless of the political affiliation of the individuals involved.¹⁴

The U.S. Supreme Court determined that Congress had the authority to enact the Major Crimes Act in *U.S. v. Kagama*.¹⁵ In reaching this decision, the Supreme Court determined that the United States owes Indian tribes a “duty of protection” and, therefore, the federal government has plenary authority over Indian country.¹⁶ Since this time, the federal government has exercised substantial authority in Indian

⁹The U.S. Supreme Court has original jurisdiction, meaning the parties can file first in the U.S. Supreme Court, in claims between states and claims between states and foreign nations.

¹⁰*Cherokee Nation*, 30 U.S. at 17.

¹¹COHEN’S HANDBOOK OF FEDERAL INDIAN LAW § 5.04[3] (Nell Jessup Newton, et al. eds. Lexis Nexis 2005 ed.).

¹²This historical period is typically referred to as the Allotment Era of federal Indian law, because the federal government explicitly rejected its policy of recognizing tribal sovereignty through enactment of treaties by ending the treaty making period and moving toward a policy of allotment with the express purpose of assimilating Indians. In addition to the cases discussed, allotment acts themselves represent the increased role of the federal government in Indian country. This is because the federal government took an active role in the management of Indian country by allotting land to individual Indians.

¹³*Ex parte Kan-gi-shun-ca*, 109 U.S. 556, 3 S. Ct. 396, 27 L. Ed. 1030 (1883).

¹⁴18 U.S.C.A. § 1153.

¹⁵*U.S. v. Kagama*, 118 U.S. 375, 6 S. Ct. 1109, 30 L. Ed. 228 (1886).

¹⁶118 U.S. 375, 383-84 (1886); *See also* *Lone Wolf v. Hitchcock*, 187 U.S. 553, 23 S. Ct. 216, 47 L. Ed. 299 (1903). *Lone Wolf v. Hitchcock* involved the ability of Congress to abrogate provisions of a treaty between the federal government and Indian nations. In holding that Congress did have the authority to abrogate treaties, the U.S. Supreme Court relied on Congress’ plenary authority to act within Indian country.

country.

Toward the end of the 19th century, Congress enacted a series of acts, such as the General Allotment Act or Dawes Act,¹⁷ to divide or allot land held by tribes into individual parcels; many parcels were 160, 80, and 40 acres. Allotted lands were then taken from the tribes and given to individual Indians. Remaining lands were often opened up to non-Indian homesteaders for settlement. As a result of the allotment acts, much of Indian country is now “checkerboarded,” meaning that many different entities may own land in Indian country—e.g., the United States, tribes, Indians, and non-Indians. As one prominent scholar pointed out, “[t]he primary effect of the Allotment Act was a precipitous decline in the total amount of Indian-held land, from 138 million acres in 1887 to 48 million in 1934.”¹⁸

The Allotment Era of federal Indian law ended in 1934 with the passage of the Indian Reorganization Act (IRA). In addition to ending allotment of Indian lands, IRA also affirmed the ability of tribal governments to formally adopt tribal constitutions. This marked the beginning of the Indian Reorganization Era and a shift away from the failed assimilationist policies of the Allotment Era toward policies embracing and promoting tribal sovereignty.

Following the Indian Reorganization Era, federal Indian law entered the Termination Era, which is roughly associated with the 1950s and early 1960s. During this time period, the federal government “terminated” its federal relationship with many tribes, such as the Menominee of Wisconsin and the Klamath of Oregon, on the basis that those tribes allegedly no longer needed federal superintendence. Termination of the federal relationship devastated many of the affected tribes. As a preliminary matter, any reservations previously set aside for a terminated tribe became disestablished, resulting in substantial land and resource losses. Since then, the federal government has reinstated its federal relationship with many of the tribes that were terminated under the termination acts. However, the effects of this failed policy are still felt today. In many cases, restoration of recognition did not return the tribe’s reservation and, therefore, failed to fully restore the tribe to its pre-termination status.¹⁹

Following the civil rights movement of the 1960s, the federal government moved toward a policy of promoting tribal self-determination, the modern Self-Determination Era. President Nixon ushered in this historical era with his message to Congress on July 8, 1970.²⁰ President Nixon explicitly rejected the policy of termination and indicated that the federal government should adopt policies promoting tribal autonomy and allowing for tribes to take over federal programs where appropriate. Congress overwhelmingly adopted the majority of the policies articulated by President Nixon in his 1970 message to Congress. Most notably, Congress adopted the Indian Self-Determination and Education Assistance Act in 1975, which allowed for tribes to take control of programs previously administered by the federal government in Indian country.

While Congress tended to adopt pro-tribal sovereignty legislation during this period, the U.S. Supreme Court started issuing decisions that have slowly constrained tribal sovereignty. For example, in 1978, the U.S. Supreme Court decided *Oliphant*

¹⁷24 Stat. 388 (1887).

¹⁸WILLIAMS C. CANBY, JR., *AMERICAN INDIAN LAW IN A NUTSHELL* 23 (West 5th ed. 2009).

¹⁹See e.g., Federal recognition of Wyandotte, Ottawa, and Peoria Tribes, Act of May 15, 1978, Pub. L. No. 95-246 (codified at 25 U.S.C. §§ 861 to 861c).

²⁰*Message from the President of the United States Transmitting Recommendations for Indian Policy*, H.R.Doc. No. 91-363, 91st Cong., 2d Sess. (1970).

v. Suquamish Indian Tribe,²¹ which involved the ability of a tribal court to assert jurisdiction over a non-Indian who committed a crime within Indian country. The U.S. Supreme Court held that the tribal court did not have jurisdiction over non-Indians committing felonious crimes within Indian country, severely limiting tribal criminal jurisdiction. The U.S. Supreme Court also has restricted tribal civil jurisdiction, which is discussed further below in the context of tribal environmental regulation.

The preceding is a very short introduction to the history of the relationship between tribes and the American federal government. Having some familiarity with the basic foundations and history of this relationship assists in understanding the contours of environmental law applicable in Indian country. Accordingly, with this background in place, the next section examines how environmental law applies within Indian country.

§ 24:38 Environmental law and tribal sovereignty¹

Tribes have the authority to enact environmental law affecting their territories under either their tribal inherent authority or under a federal delegation of authority. This section focuses on the contours of environmental law enacted under tribal inherent authority, which exists by virtue of tribes' sovereign status. It is under this authority that tribes have generally taken measures to respond to climate change.

Today, inherent tribal sovereignty persists with regard to matters of self-governance and tribal membership.² Quoting another scholar of federal Indian law: "Tribal powers of self-government are recognized by the Constitution, legislation, treaties, judicial decisions, and administrative practice."³ Tribes maintain those aspects of sovereignty that have not been removed by virtue of treaty, statute, or "by implication as a necessary result of their dependent status."⁴ Any examination of tribal authority should start with the presumption that the tribe in question possesses sovereignty, unless the tribe has been divested of its sovereignty by the federal government.⁵

"Indian tribes are neither states, nor part of the federal government, nor subdivisions of either. Rather, they are sovereign political entities possessed of sovereign authority not derived from the United States, which they predate."⁶ As such, tribes maintain sovereign authority over their members and territories to the extent not

²¹*Oliphant v. Suquamish Indian Tribe*, 435 U.S. 191, 98 S. Ct. 1011, 55 L. Ed. 2d 209 (1978).

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¹Portions of this chapter are taken from an article, "Examining Tribal Environmental Law," 39 *Colum. J. of Env'tl. L.* (2014).

²*U.S. v. Wheeler*, 435 U.S. 313, 322–323, 98 S. Ct. 1079, 55 L. Ed. 2d 303 (1978). Although this assertion is generally true, as previously mentioned, some tribes were "terminated" during the Termination Era of the mid-twentieth century. COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 1.06 (Nell Jessup Newton, et al. eds. Lexis Nexis 2005 ed.) (citing Charles F. Wilkinson & Eric R. Biggs, *The Evolution of the Termination Policy*, 5 *Am. Ind. L. Rev.* 139, 151–154 (1977)). "Although the termination acts did not expressly extinguish the governmental authority of such [terminated] tribes, most were unable to exercise their governmental powers after losing their land base. Termination thus weakened the sovereignty of terminated tribes." *Id.* at § 1.06.

³*Id.*

⁴*U.S. v. Wheeler*, 435 U.S. 313, 323, 98 S. Ct. 1079, 55 L. Ed. 2d 303 (1978).

⁵COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 4.01[1][a] (Nell Jessup Newton, et al. eds. Lexis Nexis 2005 ed.).

⁶*Nanomantube v. Kickapoo Tribe in Kansas*, 631 F.3d 1150, 1151–52, 111 Fair Empl. Prac. Cas. (BNA) 610, 94 Empl. Prac. Dec. (CCH) P 44089 (10th Cir. 2011) (quoting *N.L.R.B. v. Pueblo of San Juan*, 276 F.3d 1186, 1192, 169 L.R.R.M. (BNA) 2129, 145 Lab. Cas. (CCH) P 11225, 146 Lab. Cas.

limited by federal law.⁷ This authority includes the ability to regulate through tribal environmental laws.⁸

Despite inherent tribal sovereignty, jurisdictional uncertainty sometimes arises in relation to a tribe's authority over the actions of non-members and non-Indians acting within the tribe's territory. In the civil context, this is because tribes have been divested of their inherent sovereignty over non-citizens on non-Indian land unless certain conditions exist.⁹ In *Montana v. United States*, the United States Supreme Court considered the extent of a tribe's inherent sovereignty over non-Indians.¹⁰ Ultimately, because of implicit divestiture of the Nation's inherent sovereignty,¹¹ the Court determined that the Crow Nation did not have authority to regulate the hunting and fishing of non-Indians owning fee land within the Crow Nation's reservation boundaries.¹² However, the Court acknowledged that, despite the implicit divestiture of tribal inherent sovereignty over non-Indians on fee land within reservation boundaries, tribes may regulate the activities of such individuals under two circumstances.

First, tribes may regulate the activities of individuals who have entered into "consensual relationships with the tribe or its members."¹³ Second, a tribe retains the "inherent power to exercise civil authority over the conduct of non-Indians on fee lands within its reservation when that conduct threatens or has some direct effect on the political integrity, the economic security, or the health or welfare of the tribe."¹⁴ These are known as the two "*Montana* exceptions."

Notably, the *Montana* decision involved the actions of non-Indians living on non-Indian owned land within the tribe's territory. It may therefore be argued that tribes have a greater interest in regulating the activities of non-members and non-Indians on tribally-controlled land within the tribe's territory. However, the U.S. Supreme Court's decision in *Nevada v. Hicks* casts a shadow on this assumption.¹⁵ In *Hicks*, the U.S. Supreme Court considered whether the Fallon Paiute-Shoshone Tribes had jurisdiction over Mr. Hicks' civil claim (based on tribal and federal law)

(CCH) P 10090 (10th Cir. 2002) (en banc)).

⁷*Id.* (citing *Worcester v. State of Ga.*, 31 U.S. 515, 555, 8 L. Ed. 483, 1832 WL 3389 (1832) (absent tribal or federal approval "[t]he Cherokee nation, then, is a distinct community occupying its own territory, with boundaries accurately described, in which the laws of Georgia can have no force")).

⁸See generally WILLIAM H. RODGERS, JR., *ENVIRONMENTAL LAW IN INDIAN COUNTRY* (Thomson West 2005).

⁹*Id.* Tribes' criminal jurisdiction is generally limited to Indians. *Oliphant v. Suquamish Indian Tribe*, 435 U.S. 191, 98 S. Ct. 1011, 55 L. Ed. 2d 209 (1978).

¹⁰*Id.*

¹¹*Id.* See also Bruce Duthu, *Implicit Divestiture of Tribal Powers: Locating Legitimate Sources of Authority in Indian Country*, 19 AM. INDIAN. L. REV. 353 (1994). "According to this theory, courts can rule that, in addition to having lost certain aspects of their original sovereignty through the express language of treaties and acts of Congress, tribes also may have been divested of aspects of sovereignty by implication of their dependent status." Kevin Gover and James B. Cooney, *Cooperation Between Tribes and States in Protecting the Environment*, 10-WTR NAT. RESOURCES & ENV'T 35 (1996).

¹²*Montana v. U. S.*, 450 U.S. 544, 564–565, 101 S. Ct. 1245, 67 L. Ed. 2d 493 (1981) (holding that the "exercise of tribal power beyond what is necessary to protect tribal self-government or to control internal relations is inconsistent with the dependent status of the tribes, and so cannot survive without express congressional delegation"). Since *Montana*, the Supreme Court has also considered the ability of tribe to regulate the conduct of non-members and non-Indians on other types of lands. For example, in *Strate v. A-1 Contractors*, 520 U.S. 438, 117 S. Ct. 1404, 137 L. Ed. 2d 661 (1997), the Court held that the Indian tribe did not possess the inherent sovereignty to adjudicate a civil complaint arising from an accident between two non-Indians on a state highway within the tribe's reservation boundaries. The *Strate* Court explained that "[a]s to nonmembers, we hold, a tribe's adjudicative jurisdiction does not exceed its legislative jurisdiction." 520 U.S. at 453.

¹³*Id.* at 565.

¹⁴*Id.* at 566.

¹⁵*Nevada v. Hicks*, 533 U.S. 353, 121 S. Ct. 2304, 150 L. Ed. 2d 398 (2001).

against Nevada game wardens, in their individual capacities.¹⁶ In concluding that the tribal court did not have jurisdiction to hear the tribal-law based claims, the U.S. Supreme Court found that the *Montana* exceptions did not apply.¹⁷ It may therefore be argued that the Court implicitly suggested in *Hicks* that *Montana* applied to the actions of non-members and non-Indians within Indian country regardless of the status of land where the activity occurred.

In sum, because of their inherent sovereignty, tribes generally have regulatory authority over their citizens within their physical territory. Tribes generally lack jurisdiction over non-Indians acting on non-Indian land within tribal territory,¹⁸ unless one of the two *Montana* exceptions applies. Tribes may have regulatory authority in such circumstances if: 1) the non-Indians in question have consented to tribal jurisdiction; or 2) the non-Indian conduct “threatens or has some direct effect on the political integrity, the economic security or the health or welfare of the tribe.”¹⁹ Through delegated authority, such as the treatment as a state (TAS) provisions of many federal environmental statutes, tribes may have jurisdictional authority over non-Indians.

§ 24:39 Climate change and Indian country

A. Climate change impacts in Indian country

Climate change is a global environmental problem, and yet, the adverse impacts of climate change are disproportionately felt in tribal communities. There are currently 574 federally recognized American Indian tribes and Alaska Native villages. American Indian reservation and trust lands comprise 56 million acres and are located across 35 states.¹ Under the Alaska Native Claims Settlement Act, another 44 million acres was transferred to Alaska Natives Corporations.² While each tribe is unique and independent, many tribes share a common history of colonization and a connection to the land—legally and culturally. As discussed above, the majority of tribal nations were removed from their traditional homelands and placed on reservations. Many of the legal rights tribes possess today are tied to the reservations where they were relocated. Beyond these legal considerations, many tribes have a strong spiritual and cultural connection to their land and the environment. They view the Earth as a living being to be cared for and respected. Their culture and traditions are often connected to the larger environment and tied to certain environmental occurrences. Consequently, “[a]s climate change threatens to dramatically change the environment, culture and tradition that is tied to environmental occurrences is threatened.”³

From diminishing sea ice and flooding to loss of forest resources from insect damage, the impacts of climate change have been particularly apparent for Indigenous people in northern Canada and Alaska. Over the past century, salmon popula-

¹⁶*Id.*

¹⁷533 U.S. at 355-369, 374-375.

¹⁸Although *Montana* involved the activities of non-Indians on non-Indian fee land, suggesting that the status of the land plays a role in the determination of jurisdiction, *Nevada v. Hicks* muddies the analysis of tribal jurisdiction. This is because the *Hicks* Court applied the *Montana* exceptions to a situation where the alleged wrongful activity occurred on property owned by a tribal member.

¹⁹*Id.*

[Section 24:39]

¹See U.S. Department of the Interior, Bureau of Indian Affairs, “Frequently Asked Questions,” at <https://www.bia.gov/FAQs/>.

²43 U.S.C. §§ 1601 et seq. (Pub. L. No. 92-203).

³Randall S. Abate and Elizabeth Ann Kronk, *Climate Change and Indigenous Peoples: The Search for Legal Remedies* § 1 (2013).

tions—an important traditional food source for Pacific Northwest tribes—have declined due to dams, loss of habitat, pollution and other factors. Climate change impacts have further stressed salmon populations through the rise in ocean water temperatures and streamflow pattern changes. In the Southwest, climate change is threatening already scarce water resources. All of these impacts raise questions about the future availability of resources and continued viability of Indigenous people and their traditional way of life.⁴ Due to climate-related disasters, such as coastal flooding or land erosion, tribal communities in Alaska, the Southeast, and the Pacific Northwest will have to decide whether to relocate, away from tribal lands that have become inhabitable.⁵

B. Tribal responses to climate change

Having examined the ability of tribes to enact environmental law by virtue of their inherent tribal sovereignty as well as the impacts of climate change in Indian country, this section identifies examples where a tribe has in fact enacted laws related to the environment by virtue of its inherent sovereignty. The U.S. has yet to enact a pervasive regulatory scheme designed to cope with the effects of climate change, although, as discussed elsewhere in this chapter, there are certainly federal programs and laws that may be helpful in addressing climate change.⁶ Similar to other sovereign entities located in the United States,⁷ tribes too have enacted laws targeting climate change. Given that the federal government has yet to legislate pervasively in this area, the tribes' legal actions related to climate change are enacted under tribal inherent sovereignty and not a delegation of federal authority.

As the original stewards of this land, tribes have been responding to historical extremes in the Americas for years. This expertise, also known as Traditional Ecological Knowledge (TEK) or indigenous knowledge (IK), has been integrated into tribal responses to climate change. Put another way, "Indigenous peoples . . . 'interpret and react to climate change impacts in creative ways, drawing on traditional knowledge as well as new technologies to find solutions, which may help society at large to cope with impending changes.'"⁸ TEK "can play a role in advancing understanding of climate change and in developing more comprehensive climate adaptation studies, in part because they focus on understanding relationships of interdependency and involve multigenerational knowledge of ecosystem phenology (the study of cyclic and seasonal natural phenomena) and ecological shifts."⁹ Case study examples of tribal adaptation and mitigation strategies exercised by tribes through their inherent sovereignty and employing TEK are discussed below.

*C. Tribal climate change adaptation plans*¹⁰

⁴Daniel Cordalis & Dean B Suagee, *The Effects of Climate Change on American Indian and Alaska Native Tribes*, 22 *Natural Resources & Environment* 45 (2008) [hereinafter *The Effects of Climate Change*].

⁵Jantarasami, L.C., R. Novak, R. Delgado, E. Marino, S. McNeeley, C. Narducci, J. Raymond-Yakoubian, L. Singletary, and K. Powys Whyte, 2018: Tribes and Indigenous Peoples. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 572-603. doi: 10.7930/NCA4.2018.CH15 [hereinafter *National Climate Assessment*].

⁶See *infra* §§ 24:14 to 24:20.

⁷See *infra* §§ 24:21 to 24:27.

⁸Randall S. Abate and Elizabeth Ann Kronk, *Climate Change and Indigenous Peoples: The Search for Legal Remedies* § 6 (2013).

⁹National Climate Assessment.

¹⁰Portions of this section of the chapter were taken from Elizabeth Ann Kronk Warner, *Indigenous*

As discussed in §§ 24:14 to 24:32 of this chapter,¹¹ adaption plans play an important role in responding to climate change. This section describes the climate change adaptation plans of four Native communities (Confederated Salish and Kootenai Tribes, Jamestown S’Klallam Tribe, Swinomish Indian Tribal Community, and the Nome Eskimo Community) and then identifies trends that may be emerging in tribal adaptation plans based on the descriptions below.

Confederated Salish and Kootenai Tribes¹²

The Confederated Salish and Kootenai Tribes (CSKT), located within Montana, have adopted an adaptation plan titled the “Climate Change Strategic Plan.”¹³ On November 29, 2012, the CSKT adopted Resolution No. 13-52, acknowledging the impact of climate change on the Tribes’ reservation, the Flathead Reservation, and declaring the “intent and commitment” of the Tribes to address the effects of climate change on the Reservation.¹⁴ “The Northwest has already observed climate changes including an average increase in temperature of 1.5°F over the past century. . . . Locally, all models predict warmer temperatures, lower snowpack, and more frequent and severe droughts and floods.”¹⁵ For the Tribes, the changes in water and its impact on the fisheries that the Tribes rely on are some of the most important effects of climate change.¹⁶ Although each of the Tribes located on the Flathead Reservation—including Salish, Pend d’Oreilles, Kalispel, and Spokane Indians—is culturally distinct, they all share a strong knowledge of the natural environment and respect for all creation.¹⁷

Adaptation in the Face of Climate Change, 31 *Journal of Environmental and Sustainability Law* 129 (2015).

¹¹See *infra* §§ 24:14 to 24:32.

¹²The discussion of the Confederated Salish and Kootenai Tribes Climate Change Strategic Plan is largely taken from Elizabeth Ann Kronk Warner, *Tribes as Innovative Environmental “Laboratories,”* 86 *Colorado Law Review* 790 (2015).

¹³Confederated Salish and Kootenai Tribes of the Flathead Reservation, *CLIMATE CHANGE STRATEGIC PLAN*, 3 (Sept. 2013), available at <https://www.cakex.org/documents/confederated-salish-and-kootenai-tribes-climate-change-strategic-plan> (“The Confederated Salish and Kootenai Tribes (CSKT) include the Salish, Kootenai, and Pend d’Oreilles Tribes. As the first to organize a tribal government under the Indian Reorganization Act of 1934, the Tribes are governed by a tribal council. The Tribal Council has ten members. The council elects from within a Chairman, Vice Chairman, Secretary, and Treasurer. The Tribal Council represents the Arlee, Dixon, Elmo, Hot Springs, Pablo, Polson, Ronan, and St. Ignatius districts in Montana. CSKT employs nearly 1,400 people. As of 2012, there were about 7,900 enrolled tribal members. Approximately 5,300 tribal members live on the Flathead Reservation and 2,600 tribal members live off the Reservation. The 2010 population of the Reservation was 28,324, an eight percent increase over the 2000 census, but non-Indians outnumbered Indians by two-to-one.”).

¹⁴*Id.* at i.

¹⁵*Id.* at 2.

¹⁶*Id.* at 22-23 (“All models predict warmer temperatures, lower snowpack, more frequent and severe droughts and floods.”). Anticipated climatic impacts also include increased storm events, decreased snow pack, changes in hydrology, changes in the forest and vegetation, increased wildlife, decreased air quality, and changes to wildlife in addition to impacts on fish. *Id.* at 24-26.

¹⁷*Id.* at 6.

Through Resolution No. 13-52, the CSKT Tribal Council called on the Tribes “[t]o develop appropriate policies and strategies for addressing effects and projected impact of climate change on the Tribe and the Reservation” and “[t]o develop potential programmatic and/or regulatory actions and changes consistent with said policies[.]”¹⁸ Notably, the Resolution called for the incorporation of TEK into the Climate Change Strategic Plan and also recognized that climate change may result in cultural impacts, as well as negative social, environmental, and economic consequences. The focus on culture in the Strategic Plan is consistent with the Tribes’ overall use of cultural considerations for natural resources in land use planning. The Strategic Plan later explains that TEK is uniquely related to cultural resources and that both must be protected. In fact, the Strategic Plan places a special emphasis on the importance of protecting tribal culture and TEK, in addition to providing excerpts of tribal elder observations related to climate change.

As a result of Resolution No. 13-52, the Tribes eventually adopted their Climate Change Strategic Plan in September 2013. The Tribes’ Strategic Plan aligns with local regional, state, and city efforts to address the impacts of climate change. The Plan includes a discussion of the characteristics and history of the Tribes, the climate impacts, the planning focus, vulnerability and risk assessment, goals and actions, and an implementation plan. The Strategic Plan focuses on nine sectors that may be affected by climate change: forestry, land, fish, wildlife, water, air, infrastructure, people, and culture. The Plan also provides priority levels for each of the areas examined, and the Tribes rated the priority for culture as high. In relation to the high priority placed on culture, the Strategic Plan concludes that, “[p]rotecting land-based cultural resources is essential if the Tribes are to sustain Tribal cultures.”¹⁹

Ultimately, the Tribes’ Strategic Plan develops goals and actions related to each of the nine sectors considered.²⁰ Where possible, the Tribes incorporate TEK into their goals and actions. For example, the forestry goals include developing a greenhouse to grow native and cultural plant species.²¹ Similarly, the land goals include engaging in practices to promote the growth of native plants.²² In terms of obtaining the cultural goals, the Tribes task the Tribal Council and CSKT Elders Advisory Council, who possess TEK, with this responsibility.²³

In the Executive Summary of the Strategic Plan, the Tribes acknowledged that the Plan is an “early step” in the Tribes’ efforts to combat the impacts of climate change and much future work will be required.²⁴ Having taken the initial step of developing the Strategic Plan, the Tribes established several steps of an implementation plan to effectuate the Strategic Plan.²⁵

Jamestown S’Klallam Tribe

¹⁸*Id.* at ii, 6, 22-23.

¹⁹*Id.* at 18.

²⁰*Id.* at 54-66.

²¹*Id.* at 54.

²²*Id.* at 57.

²³*Id.* at 66.

²⁴*Id.* at 1.

²⁵*Id.* at 67.

The Jamestown S’Klallam Tribe (JSK) and its ancestors have occupied the Olympic Peninsula of Washington State for centuries.²⁶ Over the last two centuries, “the Jamestown S’Klallam people have successfully navigated a variety of societal changes, all while maintaining a connection to the resource-rich ecosystems of the region.”²⁷ The Tribe is now facing another change because of the impacts of climate change, but “[c]hanging climate and its associated impacts are not entirely new to the Tribe, which has successfully adapted to past climate variations.”²⁸ In light of the negative impacts of climate change on the JSK tribal community, the Tribe engaged in adaptation planning “[t]o protect and preserve culturally important resources and assets; ensure continued economic growth; and promote long-term community vitality[.]”²⁹

The JSK Adaptation Plan begins with a discussion of the Tribe and resilience, then explains the impacts of climate change on the Tribe, and concludes by discussing the three key areas of concern: Group 1 (very high priority areas of concern); Group 2 (high priority areas of concern); and Group 3 (medium priority areas of concern). The Tribe identifies several impacts of climate change that are threatening its homeland’s eco-system. These impacts include: increasing temperatures; changing precipitation patterns; sea level rise and coastal flooding; ocean acidification and temperature increases; forest habitat changes; and negative impacts to human health, such as shifting tribal demographics, storm events, and air pollution. Furthermore, in relation to human health, the JSK Adaptation Plan concludes that “[p]opulation-wide changes to tribally valued plants and animals have the potential to disrupt cultural, spiritual, socioeconomic, and nutritional health.”³⁰

²⁶Jamestown S’Klallam Tribe, CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION PLAN 7 (S. Petersen & J. Bell eds., 2013), *available at* <https://www.adaptationclearinghouse.org/resources/jamestown-s-eyklallam-tribe-climate-vulnerability-assessment-and-adaptation-plan.html>.

²⁷*Id.* Later in the JSK Adaptation Plan, the Tribe goes on to explain that “[t]he Tribe has been responding and adapting to a changing climate for thousands of years. Preparing for continued and accelerated change is not something new, but a continuation of the holistic natural resource and culturally driven approach that has kept the Jamestown S’Klallam Tribe a vibrant and growing community.” *Id.* at 52.

²⁸*Id.* at 7.

²⁹*Id.*

³⁰*Id.* at 24.

The Tribe also established vulnerability rankings in its Adaptation Plan, which factored in exposure, sensitivity, and adaptive capacity.³¹ The vulnerability rankings correspond to the overall group ranking. According to the Tribe, “*Climate exposure* is the extent and magnitude of a climate or weather event. *Sensitivity* is the degree to which that area of concern is susceptible to a climate impact. *Adaptive capacity* is [sic] the ability of the area of concern to adjust to or respond to the changing conditions.”³² Once the vulnerability rankings were assessed, the vulnerabilities were ranked so that the Tribe could prioritize based on its limited resources.³³ Following this ranking, the Group 1 vulnerabilities included: salmon, clams and oysters, shellfish biotoxins, wildfire, and cedar harvests.³⁴ Most of the Group 1 vulnerabilities ranked particularly high in cultural importance.³⁵ Group 2 vulnerabilities included: casino and longhouse market, transportation Highway 101, and the Blyn tribal campus water supply.³⁶ And, finally, vulnerabilities in Group 3 were: Jamestown Beach water supply, NR Lab & Planning Department buildings, and the Blyn tribal campus wastewater tanks.³⁷

Because the climate change-related stressors negatively impacting salmon are not limited to tribal territory, the JSK Adaptation Plan calls on the Tribe to coordinate with the federal government, state government, private industry, and private landowners to try to increase the resiliency of salmon.³⁸

As with the CSKT adaptation plan and as demonstrated by the foregoing discussion, JSK references “culture” as a reason adaptation planning is important. Specifically, the Tribe explains that a “persisting idea of an ecosystem-wide homeland” is culturally essential to the JSK community,³⁹ and, therefore, the ecosystem-wide homeland must be protected as much as possible from the impacts of climate change.

In addition to considering cultural impacts, the JSK Adaptation Plan also acknowledges the importance of TEK. In evaluating the extent of the impacts of climate change on the tribal community, the JSK Adaptation Plan explains that “[t]he scenarios created for this project are meant to assist in adaptation planning and should be combined with local knowledge, such as patterns of flooding and existing storm impacts, in order to identify areas or infrastructure at most risk from sea level rise.”⁴⁰

Swinomish Indian Tribal Community

³¹*Id.* at 26-27.

³²*Id.* at 26 (emphasis in original).

³³*Id.* at 28.

³⁴*Id.* at 29.

³⁵*Id.*

³⁶*Id.*

³⁷*Id.*

³⁸*Id.* at 32-33 tbl.3.

³⁹*Id.* at 7.

⁴⁰*Id.* at 17.

The Swinomish Indian Tribal Community is located within the state of Washington, and approximately 3,000 people live on the Reservation.⁴¹ The Tribe adopted the Swinomish Climate Change Initiative Climate Adaptation Action Plan (Swinomish Adaptation Plan). The Swinomish Adaptation Plan was the culmination of a study initiated by the 2007 Proclamation, although the Tribe acknowledges that the Plan is a first step.⁴²

The Plan defines “Adaptation (climate change)” as “[a]ctions to respond to and/or counter the effects of climate change; relocation and armoring are examples of adaptation actions.”⁴³ The Plan points out that the Tribe has a proven record of adaptation. As M. Brian Cladoosby, Chairman of the Swinomish Indian Senate, explained, “our community and culture have also proven their ability to endure and survive many times before. . . . If adaptation is to be our future, we at Swinomish have already proved ourselves equal to the challenge.”⁴⁴

The Swinomish Adaptation Plan is organized based on five categories, with related climate change impacts and action items identified within each of these categories. The first four categories are Coastal Resources, Upland Resources, Physical Health, and Community Infrastructure and Services.⁴⁵ “A fifth overarching category, Cultural Traditions and Community Health, has threads to all categories, given the ties and significant [sic] of cultural and community health to a great number of issues, and as such is the subject of special focus.”⁴⁶ Accordingly, the Swinomish Adaptation Plan specifically considers the impacts of climate change on culture.

The Plan explains that the Swinomish Indian Reservation brought together several Coast Salish groups, with the Treaty of Point Elliot in 1855, “who shared a culture centered on fishing, and a ceremonial calendar revolving around cedar houses.”⁴⁷ The Plan further recognizes that “[t]raditional foods such as salmon and seafood are ‘cultural keystone’ aquatic species to the Tribe; much more than food sources, these foods are a vital contribution to the cultural, spiritual, and social life of tribal members.”⁴⁸ The loss of these cultural resources can have profound effects on the tribal community because “[l]oss of a traditional food is directly related to loss of morale, and cultural health and well-being.”⁴⁹

The Swinomish Adaptation Plan explains that acknowledging the connection between culture and the health of the community is important because “the projected impacts [of climate change] are expected to affect long-standing traditions of tribal members, including shellfish harvesting, salmon fishing, hunting, gathering of native plants, and use of cedar and other species.”⁵⁰

⁴¹Swinomish Indian Tribal Community, *Swinomish Climate Change Initiative Climate Adaptation Action Plan*, 7 (Oct. 2010), available at <https://www.swinomish-climate.com/swinomish-climate-change-initiative>.

⁴²*Id.* at 1.

⁴³*Id.* at 5 (emphasis in original).

⁴⁴*Id.* at v.

⁴⁵*Id.* at 2.

⁴⁶*Id.* at 2.

⁴⁷*Id.* at 8.

⁴⁸*Id.* at 10 (citation omitted).

⁴⁹*Id.* (citation omitted).

⁵⁰*Id.*

Like other plans discussed above, the Swinomish Adaptation Plan specifically calls for the incorporation of TEK, in order to find solutions to the impacts of climate change on the Tribe's culture. The Plan explains that TEK can be helpful in addressing the impacts of climate change because "Indigenous knowledge offers valuable insights and tools to respond to challenges such as climate change and to find solutions."⁵¹

Furthermore, the Plan explains that tribal self-determination is linked to the community's health and tribal culture. The Plan asserts that the tribal community should be able to determine what lifestyle leads to good health and that development and restoration should be community driven.⁵² The Swinomish Adaptation Plan goes on to state that "[s]elf determination is a key health indicator that incorporates healing, restoration, and development, all enacted by and at a community/local level. Self-determination means the freedom to decide how to create and sustain 'good health.' . . . Self-determination is the ability to exercise sovereign rights."⁵³

In addition to the broad focus on culture, the Swinomish Adaptation Plan also looks more narrowly at cultural resilience. The Plan explains that "[r]esilience is important because certain impacts of climate change may lead to *grief* and *despair*, e.g. from decline in shellfish, salmon, land animals such as elk, the loss of traditional gathering and hunting places, and impacts to traditional plants."⁵⁴ The Plan, therefore, considers how tribal culture may increase resiliency to climate change. For example, one idea to increase resiliency through traditional tribal culture is the creation of a repository of indigenous plants, which would become a place for traditional teaching and healing.⁵⁵

Similarly, Chapter 4 of the Swinomish Adaptation Plan concludes with suggestions of how to adapt to climate change and preserve tribal culture at the same time generally. To accomplish this, the Plan recommends integrating indigenous knowledge into ongoing planning and programs and also exploring treaty implications of adaptation planning.⁵⁶

⁵¹*Id.* at 15.

⁵²*Id.* at 20.

⁵³*Id.* at 22.

⁵⁴*Id.* at 23 (emphasis in original).

⁵⁵*Id.*

⁵⁶*Id.* at 24.

Following its in-depth discussion of the impacts of climate change on tribal culture, the Swinomish Adaptation Plan then goes on to summarize the impacts of climate change on the remaining four identified categories. In terms of its Coastal Resources, climate change has impacted the tribal resource because of “[i]nundation from sea level rise and storm surge; includes impacts on shoreline areas, structures, habitat, and natural resources within those areas,”⁵⁷ and, “[d]ecreased habitat viability due to changing water quality parameters.”⁵⁸ For its Upland Resources, the Tribe anticipates increased wildfire risk as a result of climate change.⁵⁹ In terms of the physical health of its citizens, the Tribe anticipates heat-related illnesses, increased incidence of respiratory disease, and toxic seafood contamination.⁶⁰ In terms of the Tribe’s Community Infrastructure and Services, the Tribe anticipates that climate change will lead to: “[i]nundation of low-lying roads and bridge approaches,” “[r]oad closure from storm/tidal surge event and/or wildfire,” “[r]educed potable water supplies due to decreased sources,” “[c]ontamination of drinking water supplies from flooding,” and “[s]ervice disruption of communication and energy systems.”⁶¹

In creating the Plan, the Tribe worked directly with its community to hear the community’s concerns and suggestions. Interviews with tribal community members identified tribal strengths that can be built upon to increase the community’s resiliency. Consistent with this focus on the tribal community, evaluation of potential adaptation methods includes conformity with community goals. Ultimately, the Plan focuses an entire chapter, Chapter 9, on community participation, acknowledging that “[a]n essential ongoing component of any climate change project is communicating the issues to the affected community and involving the community in responses to identified issues.”⁶²

*Nome Eskimo Community*⁶³

⁵⁷*Id.* at 2.

⁵⁸*Id.*

⁵⁹*Id.* at 3.

⁶⁰*Id.*

⁶¹*Id.*

⁶²*Id.* at 81.

⁶³This is only one example from Alaska. Because many Alaska Natives are particularly hard hit by the negative impacts of climate change, many Alaska Native communities have been actively engaged in climate change adaptation planning. To access information on other Alaska Native climate change adaptation plans and assessments, see Tribal Climate Change Assessments and Adaptation Plans, available at: http://www7.nau.edu/itep/main/tcc/docs/resources/TribalCCAssessmentsAdaptationPlans_updated%20March%202020.pdf.

Climate change adaptation planning is not limited to tribes. Other Native organizations, such as the Nome Eskimo Community (NEC), a tribe in Alaska, have also engaged in tribal adaptation planning. The NEC represents the Alaska Native population in Nome, Alaska, which is located in northwest Alaska on the southern coast of the Seward Peninsula. The NEC includes Alaska Native representation incorporating Central Yupik, Iñupiaq, and St. Lawrence Island Yupik. Given the increasing negative impacts of climate change on Nome and the Alaska Native populations found there,⁶⁴ the NEC and the Alaska Center for Climate Assessment & Policy came together to draft the Nome Tribal Climate Adaptation Plan (September 2017).⁶⁵

As an initial starting point, the Plan participants developed community values to guide their work on climate change adaptation strategies. These values included “maintaining cultural activities, fostering community and relationships, and ensuring healthy people and ecosystems.”⁶⁶ With these values in place, the Plan participants discussed changes to their community as a result of climate change and their primary related concerns to these changes.

Ultimately, the Plan participants developed eight initiatives with specific actions attached to address the negative impacts of climate change. These eight initiatives included: “Adapt food preservation techniques for changing weather and climate conditions; Promote the use of traditional food preservation techniques that are less energy intensive; Reconnect families to subsistence activities; Increase awareness of near-term climate and related environmental conditions; Increase tribal representation in subsistence management; Protect tribal cemeteries from erosion; Support research and monitoring; and Build capacity for addressing concerns about increased shipping.”⁶⁷

These initiatives were developed incorporating three core themes: “supporting opportunities to share traditional knowledge and engage youth and Elders; using local materials, labor, and expertise, whenever possible; and learning from Elders and other communities.”⁶⁸ This incorporation of traditional knowledge is consistent with many other tribal adaptation plans discussed above. Additionally, at an early stage of the Plan development, community members were interviewed to ascertain how climate change was impacting their communities.

D. Trends in tribal climate change adaptation planning

Examination of the tribal adaptation plans discussed above illuminates several potential emerging trends in tribal adaptation planning. All of the tribal adaptation plans either explicitly or implicitly discussed the importance of tribal culture and the impacts of climate change on tribal culture and traditions. Given the intimate connection between culture and health and wellness, preservation of tribal culture is important for the well-being of tribal communities. Most of the tribal adaptation plans considered: 1) the necessity of coordination with local governments and com-

⁶⁴Some of the impacts that the Alaska Natives reported experiencing were: temperature increases, permafrost thaw, sea ice forming later and melting earlier and, as a result, the increased presence of vessel activity in the Bering Strait (concerns were related to increased risk of oil spills/environmental pollution and the impacts of tourism), stronger storms that lead to erosion, changes in precipitation, the drying up and disappearance of tundra lakes and ponds, as well as numerous other impacts.

⁶⁵N. Kettle, J. Martin, and M. Sloan, Nome Tribal Climate Adaptation Plan, Nome Eskimo Community and The Alaska Center for Climate Assessment and Policy (Fairbanks, AK September 2017), available at: [https://www.necalaska.org/PDF/6.%20Tribal Resources/Nome%20Tribal%20Climate%20Adaptation%20Plan%20\(Final-LowRes\).pdf](https://www.necalaska.org/PDF/6.%20Tribal%20Resources/Nome%20Tribal%20Climate%20Adaptation%20Plan%20(Final-LowRes).pdf).

⁶⁶*Id.* at 4.

⁶⁷*Id.*

⁶⁸*Id.* at 23.

munity;⁶⁹ 2) traditional knowledge or TEK;⁷⁰ and 3) resiliency.⁷¹

Tribal incorporation of traditional knowledge or TEK into their adaptation plans may provide the detailed environmental information and flexibility in governance necessary to ensure effective adaptive management. It is interesting to note that the majority of the tribes and Native communities studied are focusing on increasing their community resiliency rather than merely surviving the impacts of climate change. A number of plans discussed species migration and other disturbances to traditional food sources.⁷² As traditional foods no longer become accessible due to habitat alterations, tribes may increasingly be forced to identify other species to rely on.

Finally, several of the adaptation plans incorporated interviews with tribal community members and discussed the importance of tribal sovereignty or self-determination. The CSKT, Swinomish, and NEC incorporated interviews with community members into their tribal adaptation plans. Such incorporation parallels the call for TEK and recognizing the unique connection many tribal members have with their environment, as discussed above. The CSKT and Swinomish adaptation plans also mention the importance of tribal sovereignty and self-determination.⁷³

E. Tribal mitigation efforts

Whether incorporated into a broader tribal adaptation plan or on its own, mitigation strategies are another way that tribes have been confronting the disproportionate impacts of climate change on their communities. Recognizing the connection between adaptation and mitigation—adaptation efforts may become more difficult or costly if mitigation actions are not taken—many tribes are adopting more proactive mitigation responses.⁷⁴ This section identifies various policies implemented by tribes to slow the rate of climate change and reduce related impacts.

F. Renewable energy development

Many tribal lands have abundant renewable energy resources. Within the contiguous 48 states, tribal lands comprise approximately 5.8% of the total U.S. land base, yet represent an estimated 6.5% of the total U.S. utility-scale renewable energy technical potential.⁷⁵ Several tribes have viewed climate change as an opportunity to add renewable energy development to their economic portfolio. Renewable energy

⁶⁹The CSKT, JSK and NPT adaptation plans all referenced coordination with local governments in their adaptation plans, as discussed above.

⁷⁰The CSKT, JSK and Swinomish adaptation plans all reference TEK, as discussed above.

⁷¹The JSK, NPT and Swinomish adaptation plans all reference resiliency, as discussed above.

⁷²See, e.g., 1854 Treaty Authority, *1854 Ceded Territory Climate Change Vulnerability Assessment and Adaptation Plan*, 101 (2016), <https://www.1854treatyauthority.org/environment/climate-change.html> (plan evolved from a collaboration between the 1854 Treaty Authority, Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Grand Portage Band of Lake Superior Chippewa) (“Changing temperature and precipitation patterns along with the associated ecosystem shifts will also lead to species migration, the loss of certain species as they are outcompeted by other species, and the arrival of new species within the 1854 Ceded Territory and on reservations. The decline or loss of certain species, such as moose that provide a significant source of sustenance for band members, will likely mean a decline in traditional hunting. This could lead to increased economic and social problems associated with loss of cultural and traditional livelihoods and the loss of cultural identity”).

⁷³It is important to note that many tribal adaptation plans developed by consultants ultimately fail to be implemented. Ristorph, E.B. 2018. “Improving the Quality of Alaska Native Village Climate Change Planning.” *Journal of Geography and Regional Planning* 11(10):143-155.

⁷⁴U.S. Climate Resilience Toolkit, Mitigation, <https://toolkit.climate.gov/topics/tribal-nations/mitigation>.

⁷⁵National Renewable Energy Laboratory, *Techno-Economic Renewable Energy Potential on Tribal Lands* (2018), available at <https://www.nrel.gov/docs/fy18osti/70807.pdf>.

development can provide revenue to the tribe and employment to the community. In comparison to traditional fossil fuel development, renewable energy development can also be implemented more in accordance with Indigenous values.

In 1994, tribes from the northern Great Plains joined together to form the Intertribal Council on Utility Policy (Intertribal COUP). Looking to meet growing energy demands in a sustainable way, Intertribal COUP turned toward renewable energy development. Since its formation, Intertribal COUP has been leading the effort to reduce greenhouse gas (GHG) emissions through tribal wind power development. Tribally led renewable energy projects allow the tribe to ensure that development occurs in a way that does not result in other community harms. The Rosebud Sioux Tribe, a member of COUP, established a tribally owned, utility-scale wind energy generation facility. When deciding where to site its wind turbine, the Rosebud Sioux Tribe conducted studies to minimize the impacts on areas of cultural significance, as well as on the environment generally.⁷⁶ The same consideration of cultural values has not always been taken by the federal government and renewable energy projects on public lands.⁷⁷

More recently, the federal government established programs to assist tribes in developing renewable energy projects. The Energy Policy Act of 2005, Pub. L. No. 109-48, directly addressed energy development in Indian country and established an Office of Indian Energy Policy and Programs within the U.S. Department of Energy (DOE). The Act further authorized grants, loan guarantees, and technical assistance to tribes. For 2021, the Office announced up to \$15 million in new funding to deploy energy technology on tribal lands.⁷⁸ Aside from the DOE, other federal agency programs are also available to provide technical assistance and funding. For example, the Internal Revenue Service (IRS) provides clean renewable energy bonds to governmental bodies, including tribes, to finance the cost of a qualified renewable energy facility.⁷⁹ Additionally, the National Renewable Energy Laboratory's State, Local, and Tribal program is available to provide tribes with technology and market analytics, direct technical assistance, capacity building, and resilience assessment and planning for energy technology delivery.⁸⁰

G. Carbon sequestration

Some tribes, such as the Nez Perce Tribe in Idaho, are involved in the carbon credit market and have dedicated tracts of tribal land for biological carbon sequestration. In the 1990s, the Nez Perce Forestry & Fire Management Division developed a carbon offset strategy to market carbon sequestration credits. The Tribe reinvested revenue from the sale of carbon to acquire previously forested lands (often former tribal lands lost through allotment) and then replicate the process with additional afforestation projects.⁸¹ The Tribe's first afforestation project, known as the Tramway Project, helped the Tribe establish marketable carbon offsets,

⁷⁶The Effects of Climate Change, *supra* note § 24:39.

⁷⁷*See, e.g.*, Miriam Raftery, East County Magazine, Wind Storm: Tribes implore President Obama to stop Ocotillo Express Wind Project, save cultural resource sites (Mar. 23, 2012), available at: <https://www.eastcountymagazine.org/wind-storm-tribes-implore-president-obama-stop-ocotillo-express-wind-project-save-cultural-resource>; Quechan Tribe of Ft. Yuma Indian Reservation v. U.S. Dept. of the Interior, 927 F. Supp. 2d 921, 934 (S.D. Cal. 2013), *aff'd*, 673 Fed. Appx. 709 (9th Cir. 2016) (finding that the federal government had complied with applicable law in approving the wind power project and dismissing the tribe's challenge).

⁷⁸Current Funding Opportunities, Office of Indian Energy Programs, Department of Energy, <http://www.energy.gov/indianenergy/funding/current-funding-opportunities>.

⁷⁹<https://www.irs.gov/pub/irs-drop/n-15-12.pdf>.

⁸⁰<https://www.nrel.gov/state-local-tribal/decision-support-tribes.html>.

⁸¹When tribes purchase land, they initially hold that land in fee. In order for the land to become part of Indian country, the federal government must take the land into trust on behalf of the tribe. The

understand potential carbon markets, and cover the costs of project implementation. The Nez Perce Tribe contracted with the Montana Carbon Offset Coalition, now known as the National Carbon Offset Coalition, and the Chicago Climate Exchange.⁸²

As part of the DOE's Regional Carbon Sequestration Partnership Initiative Grant, the Nez Perce Tribe has been involved in increasing awareness and educating other tribes regarding carbon sales and opportunities for carbon sequestration projects in Indian country. Initially, learning the process required to engage in carbon offset markets can require significant investment by tribes, both in terms of time and commitment. Additionally, the lack of federal legislation on climate change has reduced the current value of carbon, which could impact the willingness of tribes to invest in carbon offset projects.⁸³ However, carbon sequestration is consistent with the balanced approach many tribes take to land-management and can provide another revenue stream while preserving cultural resources. Such efforts can be part of a tribe's broader goal to reclaim ancestral territory previously lost during the Allotment or Termination Eras.

In 2013, California launched its cap-and-trade program, creating another opportunity for tribes to participate in the carbon credit industry. However, in order to participate, tribes must agree to a 100-year commitment and limited waiver of their sovereign immunity. Not surprisingly, many tribes may be concerned that such requirements may restrict their ability to meet the changing needs of their communities in the future and be hesitant to grant a limited waiver of the tribe's sovereign immunity for a century. Currently, 11 tribes have received approval to participate in the California program.⁸⁴

H. Prescribed burning

The practice of prescribed burning further illustrates the overlap between adaptation and mitigation strategies. Creating warmer and drier conditions, climate change has been a key factor in increasing the risk and extent of wildfires in the United States.⁸⁵ Aside from generally mitigating the risks of wildfire, prescribed burns can also be part of a climate change response. Prescribed burns release less carbon dioxide than wildfires. Whereas wildfires often consume large trees that store significant amounts of carbon, prescribed fires are designed to burn underbrush and small trees that store less carbon.⁸⁶ A reduction in high severity fires through prescribed burning could result in a reduction in forest emissions.

Historically, state and federal approaches to wildfire management were synonymous with wildfire suppression. Indeed, the U.S. Forest Service (USFS) prevented publication of studies that indicated fire suppression was detrimental. However, after increasing dialogue about the deleterious effects of wildfire exclusion on the ecosystem as a whole, the USFS officially recognized fire as a management policy in

Department of Interior oversees this process and follows the land acquisition process set forth in 25 U.S.C. § 151. Notably, the Bureau of Indian Affairs—the federal agency responsible for protecting and improving the trust assets of tribes—has yet to implement a formal policy regarding trust lands and carbon sequestration projects.

⁸²Tribal Climate Change Project Profile, Nez Perce Tribe, Carbon Sequestration Program, https://c-pb-us-e1.wpmucdn.com/blogs.uoregon.edu/dist/c/389/files/2010/11/tribes_NezPerce_web5.pdf.

⁸³*Id.*

⁸⁴California Air Resources Board, Offset Project Listing Requirements for Native American Tribes, <https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/listing-requirements-tribes>.

⁸⁵Center for Climate and Energy Solutions, Wildfires and Climate Change, available at <https://www.c2es.org/content/wildfires-and-climate-change/>.

⁸⁶Christine Wiedinmyer & Matthew Hurteau, Prescribed Fire As a Means of Reducing Forest Carbon Emissions in the Western United States, 44 Environ. Sci. Technol. 1926 (2010).

1978.⁸⁷ While prescribed burning has become more widely used across the United States, fire has long been used by the Karuk Tribe as part of its TEK to achieve ecological balance and restore landscape resilience. The Karuk's proactive use of fire has protected their lands within the Klamath River basin by reducing the availability of forest fuels and therefore the risk of large-scale wildfires. Traditional fire use is a primary tool in the Karuk's wildland management and protection of cultural resources. According to the U.S. Climate Resilience Toolkit, "[f]ire is important for restoring grasslands for elk, managing for food sources such as tan and black acorns, maintaining quality basketry materials, and producing smoke that can shade the river for fish."⁸⁸

Also located along the Klamath River, the Yurok Tribe has sought to restore cultural burning practices on its ancestral lands. The Cultural Fire Management Council (CFMC), a Yurok community-based nonprofit organization, has played an active role in this effort and works in partnership with the federal government, states, and tribes (including the Karuk Tribe), and other nonprofit organizations.

The Indigenous Peoples Burning Network (IPBN) was formed in 2015, which includes tribes in California, New Mexico, Minnesota, and Oregon. One of the ultimate goals of IPBN is to support tribes to reclaim their fire culture through self-determination.⁸⁹

Overall, prescribed burns have been widely advocated as an effective practice for reducing fuels and wildfire hazards while restoring ecological function to fire-adapted ecosystems.⁹⁰ However, recent studies indicate that climate change will reduce prescribed burning opportunities in certain parts of the United States. To be safe and effective, prescribed burns require alignment of certain conditions—time, resources, fire specialists, and suitable weather conditions—known as a burn window. Climate change is projected to reduce the number of days with a burn window and make it more difficult to predict good burning days in general.⁹¹ As a result, adaptive management will be necessary if prescribed burns are to continue being used as a mitigation strategy into the future.

§ 24:40 Conclusion

Climate change impacts on tribes must be viewed in the context of the historical relationship that tribes have with the federal government through treaties and federal policies; as well as the cultural relationship that tribes have with the environment. As sovereigns, tribes have the authority to respond to climate change. Several tribes have already taken the initiative to do so through adaptation measures and mitigation strategies. Tribal adaptation plans frequently incorporate:

⁸⁷Rebecca Miller, *Prescribed Burns in California: A Historical Case Study of the Integration of Scientific Research and Policy*, 3 Fire 44 (2020).

⁸⁸U.S. Climate Resilience Toolkit, The Karuk's Innate relationship with Fire: Adapting to Climate Change on the Klamath, available at <https://toolkit.climate.gov/case-studies/karuk%E2%80%99s-innate-relationship-fire-adapting-climate-change-klamath>; see also Tribal Climate Change Project Profile, Karuk Tribe, Integrating Traditional Ecological Knowledge within Natural Resource Management, available at https://cpb-us-e1.wpmucdn.com/blogs.uoregon.edu/dist/c/389/files/2010/11/Karuk_profile_5_14-12_web1.pdf and Karuk Tribe Dep't of Natural Res., Karuk Climate Adaptation Plan (Mar. 2019), available at https://karuktribeclimatchangeprojects.files.wordpress.com/2019/08/final-karuk-climate-adaptation-plan_july2019.pdf.

⁸⁹Page Buono, Nature, Quiet Fire: Indigenous tribes in California and other parts of the U.S. have been rekindling the ancient art of controlled burning (Nov. 2, 2020), available at <https://www.nature.org/en-us/magazine/magazine-articles/indigenous-controlled-burns-california/>.

⁹⁰Crystal A. Kolden, *We're Not Doing Enough Prescribed Fire in the Western United States to Mitigate Wildfire Risk*, 2 Fire 30 (2019).

⁹¹John A. Kupfer, et al. *Climate change projected to reduce prescribed burning opportunities in the south-eastern United States*, *International Journal of Wildland Fire* (2020).

1) the necessity of coordination with local governments and community; 2) traditional knowledge; and 3) resiliency. Although adaptation plans often include mitigation efforts, tribes may also enact mitigation strategies on their own. Such efforts have included renewable energy development, carbon sequestration, and prescribed burning. Overall, tribal responses to climate change are an exercise of tribal sovereignty and can serve as an example to other sovereigns.

X. CLIMATE-RELATED FINANCIAL DISCLOSURE AND RISK MANAGEMENT

§ 24:41 Introduction

The private sector has dramatically improved its understanding of how efforts to transition to a lower carbon economy and the physical consequences of a changing climate will impact the economy as well as the role that industry plays in mitigating and adapting to climate change. The financial sector, in particular, has recently recognized the importance of understanding and accounting for such risks in investment, lending, and other financial decision-making. This recognition has moved the discussion of climate change disclosure and risk management from impact investors and socially responsible investing efforts to mainstream players concerned about how climate change will affect markets and the economy as a whole.

However, financial regulators in the United States have not been of one mind as to how to address these issues. Different federal agencies are taking distinct approaches, ranging from complete inaction, to research and consideration of recognized climate risks, and even actively erecting barriers against incorporating climate change concerns into decision-making. As of the time of this writing less than a month after the inauguration of President Biden, the potential for change is great. President Biden has committed to taking bold actions on climate change, including in the financial sector and on corporate disclosure requirements, and began acting on these commitments as soon as he took office. With new leadership in the federal government, significant shifts are underway in the regulatory direction.

This section discusses recent U.S. regulatory activity, the evolving law around climate-related disclosures, and how the U.S. approach contrasts with efforts elsewhere around the world.

§ 24:42 Changing expectations around corporate disclosures and financial risks of climate change

Climate change can pose significant risks to individual companies. Shareholders, asset managers, and financial institutions increasingly view information about such risks as critical to their investment and lending decision-making. Their use of this information in turn influences corporate disclosure practices. Many companies are improving their consideration of climate change risks in their internal risk management programs. Banks, investment firms, insurance companies, and the like are coming to terms with their own exposure to climate-related risks. As discussed later in this section, changing expectations for and uses of climate-related risk information over time shifts the legal standards for mandatory disclosures by public companies. In this way, the rapid expansion of voluntary disclosures of climate-related information is also leading to changes in required disclosures.

The formation of the Financial Stability Board's Task Force on Climate-Related Disclosure (TCFD) in 2015 galvanized efforts already underway to improve

disclosure of climate change-related risks and opportunities.¹ The TCFD released recommendations in 2017,² which have since served as a unifying framework that has informed voluntary and regulatory disclosure efforts around the world. Asset managers, pension funds, sovereign wealth funds, and other stakeholders have continued to engage companies on expanding their climate-related disclosures, often through consolidated efforts by groups such as Climate Action 100+, Ceres, UN PRI, and WBCSD. The TCFD's framework for improving climate-related reporting encouraged companies to incorporate as much information as possible into their mandatory disclosures and provided recommendations for how to approach disclosures on governance, strategy, risk management, and metrics and targets (including scenario analysis). It focuses on reporting information considered material by the jurisdictions in which the company reports.

Numerous organizations have emerged to provide guidance on climate-related corporate disclosures and do not limit their guidance to how to comply with mandatory reporting requirements. Different voluntary reporting frameworks and guidance documents were designed to achieve disparate goals and respond to the interests of a varied group of stakeholders. These tools are not limited to helping companies discern what information a company must disclose by law.³ Some of these organizations also encourage companies to report a broader array of information than that envisioned by the TCFD—including reporting information that may not be financially material or information that covers topics beyond the climate-specific focus of the TCFD. The proliferation of voluntary reporting frameworks can create confusion in the absence of corresponding guidance from regulators to help companies navigate the various approaches to evaluating and disclosing climate-related risks and opportunities. Adding to this challenge, a number of ratings organizations and investor advisory firms have begun to incorporate climate change

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¹The Financial Stability Board is an international body established in 2009 by the G20 to promote international financial stability. It monitors and makes recommendations about the global financial system, influencing financial regulation around the world. More information is available at www.fsb.org. The Task Force on Climate-related Financial Disclosures (TCFD) was created to improve and increase reporting of climate-related financial information. Learn more at <https://www.fsb-tcfd.org/>.

²Task Force on Climate-related Financial Disclosures (TCFD), *Recommendations of the Task Force on Climate-related Financial Disclosures* (June 15, 2017), available at <https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf>; see also, TCFD, *2020 Status Report* (October 2020), available at <https://www.fsb.org/2020/10/2020-status-report-task-force-on-climate-related-financial-disclosures/>.

³Some of the most well-known organizations with their own reporting frameworks or guidance include: CDP, <https://www.cdp.net/en>; Global Reporting Initiative, <https://www.globalreporting.org/>; Integrated Reporting, <https://integratedreporting.org/>; The Climate Registry, <https://www.theclimateregistry.org/>; The Sustainable Accounting Standards Board (SASB), <https://www.sasb.org/>; Principles for Responsible Investment (UN PRI), <https://www.unpri.org/climate-change/climate-related-disclosure-/3971.article>; Climate Disclosure Standards Board (CDSB), <https://www.cdsb.net/>; World Business Council for Sustainable Development (WBCSD), <https://www.wbcsd.org/>; among others. Although most, if not all, of these organizations predate the TCFD creation, the TCFD has become the overarching framework to which these groups point to. Some encourage companies to disclose much more than would be required to fulfill the needs of the investment community, also encouraging disclosures deemed important to other stakeholders. SASB aligns its guidance with U.S. securities law, designing its industry-specific disclosure recommendations around what could be material under U.S. securities law. For this reason, SASB has emerged as a preferred methodology for some asset managers and owners, such as BlackRock. In addition, Ceres has been a significant advocate for climate-related disclosures, launching some of the reporting initiatives already mentioned, advocating for better practices in the corporate world, and highlighting the need for analysis of the systemic risks of climate change in our financial system. See more about their work at <https://www.ceres.org/our-work/disclosure>.

consideration into their work.⁴

That said, two trends help cut through the confusion.

First, the voluntary reporting organizations have begun to align their work and, in some cases, consolidate. Many of the voluntary reporting and standards organizations have committed to aligning their guidance with the TCFD framework. SASB and others have also developed industry-specific guidance on disclosing procedures that helps companies more concretely address questions of when risks related to the transition to a low carbon economy (often referred to as “transition risks”—these include risks that arise from new regulation designed to mitigate climate and usher in a lower carbon economy) and the physical risks of climate change (floods, fires, increasingly intense storms, drought, heat, etc.) are financially material to their particular company. These more detailed efforts provide additional guidance for how companies can report in a manner that is in line with the TCFD recommendations.

Second, some of these organizations have committed to better explaining how their reporting frameworks or guidance documents fit together with that of the other organizations and, in some cases, consolidating efforts to lessen the confusion among users as to how their reporting guidance and ratings intersect.⁵ As voluntary reporting becomes more detailed and qualitative—and as investors and financial entities use that information in new ways—it shifts the range of what may need to be disclosed to the SEC as well.

§ 24:43 Federal securities law, climate risk disclosure, and investment practices

Publicly traded companies must share information about their finances and business with investors and the public under U.S. securities law, which imposes liability

⁴For example, S&P Global Ratings launched an ESG Evaluation program and ESG Risk Atlas that included climate change risks in April 2019; Moody’s acquired climate data and risk analysis company, Four Twenty Seven, Inc., in July 2019; and MSCI acquired a data analytics company that conducts climate change scenario analysis for investors called Carbon Delta in September 2019 and launched a new ESG tool in November 2019. Don Jergler, “S&P Will Issue ‘Environmental, Social and Governance’ Evaluations Including on Insurance Sector,” *INSURANCE JOURNAL* (April 18, 2019), <https://www.insurancejournal.com/news/national/2019/04/18/524270.htm>; “Moody’s Acquires Majority Stake in Four Twenty Seven, Inc., a Leader in Climate Data and Risk Analysis,” *BUSINESSWIRE* (July 24, 2019), <https://www.businesswire.com/news/home/20190724005169/en/Moody%E2%80%99s-Acquires-Majority-Stake-Twenty-Leader-Climate>; Christopher Flavelle, “Moody’s Buys Climate Data Firm, Signaling New Scrutiny of Climate Risks,” *NEW YORK TIMES* (July 24, 2019), <https://www.nytimes.com/2019/07/24/climate/moodys-ratings-climate-change-data.html>; “MSCI to Strengthen Climate Risk Capability with Acquisition of Carbon Delta,” *BUSINESSWIRE* (Sept. 9, 2019), <https://www.businesswire.com/news/home/20190909005263/en/>; MSCI ESG Controversies Factsheet, https://www.msci.com/documents/1296102/1636401/ESG_Controversies_Factsheet.pdf/4dfb3240-b5ed-0770-62c8-159c2ff785a0. See also, Billy Nauman and Anna Gross, “Credit rating agencies focus on rising green risks,” *FINANCIAL TIMES* (Nov. 26, 2019) (noting S&P bought the ESG ratings arm of RobecoSAM and Fitch introduced ESG “relevance scores” in 2019), <https://www.ft.com/content/45d721ee-1036-11ea-a7e6-62bf4f9e548a> and Institutional Shareholder Services Inc., Press Release, “ISS Launches Climate Voting Policy,” (March 9, 2020) (announcing a new way for investors to integrate climate factors into their voting decisions), <https://www.issgovernance.com/iss-launches-climate-voting-policy/>.

⁵SASB, Press Release, “IIRC and SASB announce intent to merge in major step towards simplifying the corporate reporting system,” (Nov. 25, 2020), <https://www.sasb.org/wp-content/uploads/2020/11/IIRC-SASB-Press-Release-Web-Final.pdf>; Statement of Intent to Work Together Towards Comprehensive Corporate Reporting: Summary of alignment discussions among leading sustainability and integrated reporting organisations CDP, CDSB, GRI, IIRC and SASB (Sept. 2020), <https://29kjwb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Statement-of-Intent-to-Work-Together-Towards-Comprehensive-Corporate-Reporting.pdf>; GRI and SASB, Press Release, “Promoting Clarity and Compatibility in the Sustainability Landscape,” (July 13, 2020) (announcing a collaborative workplan), https://www.sasb.org/wp-content/uploads/2020/07/GRI-SASB-joint-statement_2020_07_13_FINAL.pdf.

for misleading investors in these disclosures.¹ The Securities Act of 1933 (The Securities Act) and the Securities Exchange Act of 1934 (The Exchange Act) form the core legal regime. The Sarbanes–Oxley Act of 2002 and the Dodd–Frank Act of 2010 added modifications that affect corporate governance and disclosure requirements.² The U.S. Securities and Exchange Commissions (SEC) promulgates reporting requirements through which these companies provide the information required.³

However, U.S. companies have, to date, shared most climate-related information in voluntary reports rather than in SEC filings, with only limited discussions of climate-related risks contained in reports to the SEC. What information public companies must report to the SEC is limited by the concept of materiality, with some exceptions. Companies primarily need to report only information that is financially material to the company, or whose omission would make other reported information materially misleading (discussed in more detail below).

A. Relevant SEC disclosure requirements

The SEC, in exercising its regulatory, oversight, and enforcement powers, requires public companies to file, among other requirements:

1. Registration statements and prospectuses for all securities sold in the U.S. (with some exemptions);⁴
2. Annual and other periodic reports (for those with certain levels of assets and numbers of owners); and
3. Materials provided to shareholders ahead of votes, such as the annual proxy materials.⁵

False or misleading statements or omissions can lead to enforcement by the SEC or private actions filed by shareholders.

SEC Regulation S-K outlines the primary disclosure requirements imposed on public companies (a.k.a. “filers”).⁶ The specific disclosure items most relevant to environmental and climate-related information include: Item 101 Business Description, Item 103 Disclosure of Legal Proceedings, Item 105 Risk Factors, and Item 303 Management Discussion and Analysis (MD&A).⁷

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¹Securities Act of 1933, 15 U.S.C. §§ 77a to 77mm; The Securities Exchange Act of 1934, 15 U.S.C. §§ 78a to 78kk; *The Laws That Govern the Securities Industry*, SEC. EXCH. COMM’N, <https://www.sec.gov/answers/about-lawsshtml.html> (last visited Jan. 12, 2021).

²*Id.*

³The Securities and Exchange Act of 1934 created the SEC to “register, regulate, and oversee brokerage firms, transfer agents, and clearing agencies as well as the nation’s securities self regulatory organizations (SROs)” and included the power to require companies with publicly traded securities to report information. *The Laws That Govern the Securities Industry*, SEC. EXCH. COMM’N, <https://www.sec.gov/answers/about-lawsshtml.html> (last visited Jan. 12, 2021).

⁴A prospectus is a document that describes the fund to potential investors and includes information about costs, investment objectives, risks, and performance. SEC, “Prospectus,” <https://www.sec.gov/investor/tools/mfcc/prospectus-help.htm>, last visited Jan. 13, 2021.

⁵*The Laws That Govern the Securities Industry*, SEC. EXCH. COMM’N, <https://www.sec.gov/answers/about-lawsshtml.html> (last visited Apr. 27, 2019).

⁶Regulation S-K, 17 C.F.R. § 229, https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title17/17cfr229_main_02.tpl.

⁷Of note, the 2020 updates to the items 101, 103, and 105 are reflected in these descriptions. SEC, Final Rule, “Modernization of Regulation S-K Items 101, 103, and 105,” 85 Fed. Reg. 63726 (Oct. 8, 2020).

Environmental and Climate-Related Information Required Under SEC Disclosure Regulations	
Item 101⁸ <u>Business Description—complying with environmental regulation</u>	Requires companies to describe the business. Significantly, disclosure must describe “the material effects” of complying with regulations, “including [what effects] environmental regulations, may have upon the capital expenditures, earnings and competitive position of the registrant.” Filers must disclose “estimated capital expenditures for environmental control facilities for the current fiscal year and any other material subsequent period.”
Item 103⁹ <u>Disclosure of Legal Proceedings</u>	Requires companies to disclose “material pending legal proceedings, other than ordinary routine litigation incidental to the business.” Environmental litigation is not considered excludable as “routine.” ¹⁰ Environmental proceedings considered material to the business—and whose alleged damages exceed 10% of current assets—must be disclosed. Litigation that involves a government authority as a party and could result in sanctions of \$300,000 or more should be disclosed. ¹¹ However, the company may also choose a different threshold for a material proceeding that is in excess of \$300,000 but less than \$1 million. ¹²
Item 105¹³ <u>Risk Factors</u>	Requires companies to discuss “the material factors that make an investment in the registrant or offering speculative or risky.” This is an area where companies often discuss potential new environmental regulation that could impact the business.
Item 303¹⁴ <u>Management Discussion and Analysis (MD&A)</u>	Requires filers to describe “known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations” and “events that will cause a material change in the relationship between costs and revenues.” These include “material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.” Examples include matters that would impact future but have not impacted past operations, or ones that have impacted the past but are not expected to impact future operations.

SEC rules also require companies to disclose additional material information not specifically requested in the line-item disclosures if it is “necessary to make the required statements, in the light of the circumstances under which they are made, not misleading.”¹⁵ Rule 12b-20 has a similar requirement.¹⁶ Rule 10b-5 extends liability for misstatements made outside of SEC filings, such as in voluntary sustainability or climate reports.¹⁷

In response to the line-item reporting requirements described above, companies may need to discuss plans for responding to climate-related impacts on their industry, demand for their product and its potential to dramatically change, specific climate-related law changes, or significant climate litigation that could materially affect their business, among other topics. Companies may also need to review their voluntary disclosures, to ensure those reports are consistent with the information reported to the SEC, and that any omissions of information in a company’s manda-

⁸17 C.F.R. § 229.101.

⁹17 C.F.R. § 229.103.

¹⁰17 C.F.R. § 229.103(c)(3).

¹¹This amount was increased from \$100,000 in the 2020 rule revision. Modernization of Regulation S-K, 85 Fed. Reg. 63726 (Oct. 8, 2020).

¹²Also a consequence of the 2020 rule revision.

¹³17 C.F.R. § 229.105.

¹⁴17 C.F.R. § 229.303.

¹⁵17 C.F.R. § 230.408.

¹⁶17 C.F.R. § 240.20b-20 (“In addition to the information expressly required to be included in a statement or report, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made not misleading.”).

¹⁷17 C.F.R. § 240.10b-5 (making it unlawful to defraud or make an untrue statement or material fact or omit a material fact necessary for the statements made, in light of the circumstances, to not be misleading).

tory reporting could not potentially result in misleading investors. Under the current reporting framework, what a company must report remains largely based on what it finds material to its financial status and is particular to the circumstances of that individual business. Beyond the line items enumerated above that could encompass some climate-related information, there are not yet requirements to disclose specific climate-related information in SEC reporting.

B. SEC action on climate change

1. 2010 climate guidance

The SEC issued guidance, in 2010, on how existing reporting requirements could require disclosure of climate-related information.¹⁸ The SEC emphasized that a much broader range of information should be considered when making that materiality determination than that which is ultimately disclosed as financially material to the company.¹⁹ The guidance noted four types of information likely to trigger disclosure:

1. The impacts of legislation and regulation;
2. International accords;
3. Indirect consequences of regulation or business trends; and
4. The physical impacts of climate change.

Although the 2010 guidance listed ways that climate change can impact businesses, it did not provide any specific guidance on how a company should approach determining materiality of climate-related information.

The SEC failed to follow the 2010 guidance with substantive enforcement efforts, issuing only a handful of letters requesting additional information from issuers.²⁰ Reviews of corporate disclosures in subsequent years revealed little significant change;²¹ climate-related disclosures issued by publicly-held companies varied in format and specificity and often relied on boilerplate language.²² Without a robust enforcement initiative following the guidance, the Commission potentially missed an opportunity to better define disclosure practices for climate change-related information.

2. 2016 Concept release

The SEC again opened a door to new guidance, or even regulation, on climate-

¹⁸Commission Guidance Regarding Disclosure Related to Climate Change, 75 Fed. Reg. 6290, 6295 (Feb. 8, 2010).

¹⁹The SEC emphasized that “registrants are expected to consider all relevant information even if that information is not required to be disclosed.” For example, in disclosing “known trends, events . . . [or] uncertainties” in Item 303 (MD&A disclosure), companies should remember that “[w]hile these materiality determinations may limit what is actually disclosed, they should not limit the information that management considers in making its determinations.”

²⁰SEC staff issued a handful of comment letters to companies about their climate change disclosure decisions (25 letters to 23 companies from 2010 to 2013 out of more than 45,000 comment letters and 14 letters to 14 companies out of over 41,000 letters issued from 2014 to 2017). As of 2012, SEC staff had noticed little change in climate-related disclosures as a result of the 2010 guidance. U.S. Gov’t Accountability Off., GAO-18-188, *SEC Has Taken Steps to Clarify Disclosure Requirements* at 14-15 (2018) (describing the letters issued after the 2010 guidance and noting that, in the 2012 report to the Senate Committee on Appropriations examining climate-related disclosures after the 2010 guidance, the SEC found no notable changes).

²¹Jim Coburn & Jackie Cook, Ceres, Cool Response: The SEC & Corporate Climate Change Reporting 4 (2014), https://www.ceres.org/sites/default/files/reports/2017-03/Ceres_SECguidance-append_020414_web.pdf (reviewing disclosures and finding little discussion of specific material information or quantification of climate impacts in the first few years after the 2010 guidance was issued).

²²U.S. Gov’t Accountability Off., GAO-18-188, *SEC Has Taken Steps to Clarify Disclosure Requirements* at 18-20 (2018).

related and Environmental, Social, and Corporate Governance (ESG)²³ issues in a 2016 concept release. In a section covering public policy and sustainability matters the SEC sought comment on whether additional disclosure requirements or guidance specific to ESG and climate-related information were needed to inform investment and voting decisions, and whether to create new line-item reporting requirements on these topics.²⁴

The Concept Release recognized the potential for a shift in what corporate boards of directors should consider when making materiality determinations as investor expectations change.²⁵ The SEC finalized updates to items 101, 103, and 105 (described above) in October 2020. However, the regulatory body did not move forward with new actions on climate change information like those contemplated in the Concept Release and related public comments.²⁶

3. Recent SEC discussion of climate-related disclosures

The Commission's advisory committees are slowly arriving at the conclusion that the SEC must consider additional guidance or disclosure requirements on climate-related information. In May 2020, the Investor-As-Owner Subcommittee of the SEC's Investor Advisory Committee recommended the Commission update reporting requirements to include "material, decision-useful ESG factors" and specifically referenced climate-related information.²⁷ The SEC's Asset Management Advisory Committee has since created a subcommittee to consider ESG issues—including climate—and released an update on its progress in September 2020.²⁸

SEC leadership as of the end of 2020 has been reticent to move forward with new guidance or regulations on climate change-related disclosures. The three Republican commissioners openly expressed concern about trying to incorporate environmental, social, and governance (ESG) issues into the mandatory disclosure regime, viewing these issues as "amorphous" and lacking in consensus definitions.²⁹ Indeed, in a 2020 rulemaking, SEC revised Rule 14a-8 in a manner that could hinder efforts to

²³ESG refers to a broad range of issues from climate change and environmental compliance to racial equity, board diversity, and how a company supports its employees, among others. The term is not synonymous with sustainable or impact investing. Consideration of ESG issues can inform sustainable investment strategies or be used to screen certain types of stocks for impact investing purposes, but it can also be integrated into an investment strategy for a more complete picture of current and future financial performance to inform a more traditional investing approach. For an overview of what the term encompasses, see Pippa Stevens, "Your complete guide to investing with a conscience, a \$30 trillion market just getting started," CNBC (Dec. 14, 2019), <https://www.cnbc.com/2019/12/14/your-complete-guide-to-socially-responsible-investing.html>. See also Georg Kell, "The Remarkable Rise of ESG," FORBES (July 11, 2018), <https://www.forbes.com/sites/georgkell/2018/07/11/the-remarkable-rise-of-esg/?sh=610395701695>.

²⁴Business and Financial Disclosure Required by Regulation S-K, Concept Release, 81 Fed. Reg. 23916 at 23969-73 (Apr. 22, 2016).

²⁵*Id.* at 23971-72 ("The role of sustainability and public policy information in investors' voting and investment decisions may be evolving as some investors are increasingly engaging on certain ESG matters . . .").

²⁶SEC, Final Rule, "Modernization of Regulation S-K Items 101, 103, and 105," 85 Fed. Reg. 63726 (Oct. 8, 2020).

²⁷Recommendation of Investor-as-Owner Subcommittee Related to ESG Disclosure, May 14, 2020, <https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-of-the-investor-as-owner-subcommittee-on-esg-disclosure.pdf>.

²⁸Update on progress in ESG Subcommittee, Presentation by SEC Asset Management Advisory Committee, Sept. 16, 2020, available at <https://www.sec.gov/files/update-from-esg-subcommittee-09162020.pdf>.

²⁹COMMISSIONER HESTER PIERCE, *Scarlet Letters: Remarks before the American Enterprise Institute* (June 18, 2019) ("While ESG advocates can point to studies that certain ESG policies serve companies well, the amorphous nature of such policies makes it hard to generalize. In any case, the research, even on discrete points, is mixed. Other research has highlighted the cost of ESG investment strategies.

push companies to address climate-related risks. The revised Rule imposes obstacles on shareholder efforts to include proposals in company proxy statements. This is important because it historically has been a process used to push companies to take action on climate change, or at least to disclose more information about their approach to the crisis.³⁰

In contrast, the two Democratic commissioners have supported SEC action on climate change. Commissioner Allison Lee, a Democrat, has noted that the broad, principles-based “materiality” standard has not produced sufficient disclosures to ensure companies are divulging comparable and reliable information to investors.³¹ Commissioner Lee has highlighted the importance of better climate-related disclosures in avoiding panicked sell-offs, stating: “[W]e must price climate risk accurately and drive investment toward an orderly, sustainable transition to green portfolios—rather than panicked scrambles and stock sell-offs as we see more and more climate disasters.”³² SEC’s newest commissioner,³³ Democratic Commissioner Caroline Crenshaw, joined Commissioner Lee in criticizing a recent Regulation S-K modernization rule in part because it “fails completely to address climate risk, similar to other recent modernization rulemakings that have failed to deal adequately with this and other critical factors that impact an issuer’s long-term sustainability, such as human capital management.”³⁴ The two commissioners argue the SEC should “address climate, human capital, and other ESG risks, in a comprehensive fashion with new rulemaking specific to these topics,” and propose creating “an internal task force and ESG Advisory Committee that is dedicated to building upon the recommendations of leading organizations, such as the Task Force on Climate-Related Financial Disclosures, and defining a clear plan to address sustainable investing.”³⁵

President Biden’s campaign platform included a commitment to “[r]equiring public companies to disclose climate risks and the greenhouse gas emissions in their

The ambiguity of ESG makes research inherently difficult.”); COMMISSIONER ELAD L. ROISMAN, *Keynote Speech at the Society for Corporate Governance* (July 7, 2020) (“In my experience, there is not consensus on what, exactly, ‘ESG’ means. I often wondered how the three concepts of environmental, social, and governance matters got lumped together.”); Chris Flood, *SEC chair warns of risk tied to ESG ratings*, FINANCIAL TIMES (May 28, 2020) (“Jay Clayton, chairman of the Securities and Exchange Commission, said any analysis that combined separate environmental, social and governance metrics into a single ESG rating would be ‘imprecise.’”) available at <https://www.ft.com/content/2c662135-4fd3-4c1b-9597-2c6f8f17faed>.

³⁰SEC, “Procedural Requirements and Resubmission Thresholds Under Exchange Act Rule 14a-8,” (Final Rule), 85 Fed. Reg. 70240-70295 (Nov. 4, 2020), <https://www.federalregister.gov/documents/2020/11/04/2020-21580/procedural-requirements-and-resubmission-thresholds-under-exchange-act-rule-14a-8>.

³¹COMMISSIONER ALLISON LEE, “Modernizing” Regulation S-K: Ignoring the Elephant in the Room (Jan. 30, 2020).

³²Allison Lee, *Big Business’s Undisclosed Climate Crisis Plans* (Opinion), THE NEW YORK TIMES (Sept. 27, 2020), <https://www.nytimes.com/2020/09/27/opinion/climate-change-us-companies.html>.

³³SEC Commissioners serve staggered five-year terms ending on June 5th of each year. They can continue to serve another 18 months if they are not replaced before then. No more than three Commissioners may belong to the same political party. See Current SEC Commissioners, <https://www.sec.gov/Article/about-commissioners.html> (most recent Chair, Commissioner Jay Clayton, stepped down at the end of 2020; the remaining four Commissioners are Elad Roisman, who joined in 2020 and whose term expires in 2023; Hester Peirce, Commissioner since 2018 whose term expires in 2025; Allison Herren Lee, Commissioner since 2019 whose term expires in 2022; and Caroline Crenshaw, Commissioner since 2020 whose term expires in 2024).

³⁴Joint Statement by Commissioners Lee and Crenshaw on Amendments to Regulation S-K, HARVARD LAW FORUM ON CORPORATE GOVERNANCE (Nov. 21, 2020), <https://corpgov.law.harvard.edu/2020/11/21/joint-statement-by-commissioners-lee-and-crenshaw-on-amendments-to-regulation-s-k/#2b>.

³⁵*Id.*

operations and supply chains.”³⁶ The President does not have direct control over the SEC’s regulatory direction, but he will change the makeup and leadership of the commission. SEC Chairman Clayton stepped down at the end of 2020, as is customary when there is a change in administration.³⁷ President Biden has nominated former Commodity Futures Trading Commission (CFTC) chairman Richard Gensler to serve as SEC chairman. Commissioner Lee was named Acting Chair while Gensler awaits confirmation.³⁸ Policy direction is already shifting as a result of the change in leadership. Acting Chair Lee spoke on the importance of regulatory involvement on climate-related and ESG disclosures in early November 2020.³⁹ She has also created a new position in her office focused on climate change. The new Senior Policy Advisor for Climate and ESG, Satyam Khanna, “will advise the agency on environmental, social, and governance matters and advance related new initiatives across its offices and divisions.”⁴⁰ This is a strong indicator that there will be a renewed focus on the topic across the Commission’s divisions.

C. Climate-related Information’s Evolving Legal Materiality

The legal standard for corporate disclosure requirements in the U.S. centers on the term “material,” as reflected in the numerous times the term is used in applicable regulations and guidance materials, such as the aforementioned Regulation S-K. The U.S. Supreme Court defined “material” information as information a “reasonable investor” is “substantially likely” to view as “significantly altering the total mix of information” available.⁴¹ Given that the materiality standard, and thus the information a company must disclose, is partially defined by a reasonable investor’s views and actions, the information a publicly-traded company must include in its disclosures can change over time as investor expectations change, even absent new regulations.⁴²

Changing investment and disclosure practices with regard to climate-related information suggest such a transformation is in process. Indeed, a rapid increase in focus on climate change by shareholders and asset managers may already be changing the scope of what companies must disclose in their mandatory filings to the

³⁶BIDEN FOR PRESIDENT, *The Biden Plan To Secure Environmental Justice And Equitable Economic Opportunity In A Clean Energy Future* <https://joebiden.com/climate-plan/#>.

³⁷Jeff Cox, “Jay Clayton says he will step down early as head of the SEC at the end of 2020,” CNBC.com, <https://www.cnbc.com/2020/11/16/jay-clayton-says-he-will-step-down-early-as-head-of-the-se-c-at-the-end-of-2020.html>.

³⁸Steven T. Dennis and Laura Davison, *Gensler Confirmation Nowhere in Sight as GameStop Tests SEC Role*, BLOOMBERG (Jan. 28, 2021), <https://www.bloomberg.com/news/articles/2021-01-28/gensler-confirmation-nowhere-in-sight-as-gamestop-tests-sec-role>; Peter Dizikes, *MIT Sloan’s Gary Gensler to be nominated for chair of Securities and Exchange Commission*, MIT News (Jan. 19, 2021), <https://news.mit.edu/2021/gary-gensler-nominated-chair-sec-0119>.

³⁹Commissioner Lee, Keynote Remarks at PLI’s 52nd Annual Institute on Securities Regulation, *Playing the Long Game: The Intersection of Climate Change Risk and Financial Regulation* (Nov. 5, 2020), https://www.sec.gov/news/speech/lee-playing-long-game-110520#_ftnref17.

⁴⁰SEC Press Release, *Satyam Khanna Named Senior Policy Advisor for Climate and ESG* (Feb. 1, 2021), <https://www.sec.gov/news/press-release/2021-20>.

⁴¹*TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438, 96 S. Ct. 2126, 48 L. Ed. 2d 757, Fed. Sec. L. Rep. (CCH) P 95615 (1976). The SEC adjusted its definition to align with the Supreme Court in Rule 12b-2, which defines “material” as limiting the disclosure required to “those matters to which there is a substantial likelihood that a reasonable investor would attach importance in determining whether to buy or sell the securities registered.” 17 C.F.R. § 240.12b-2. *See also* Business and Financial Disclosure Required by Regulation S-K, Concept Release, 81 Fed. Reg. 23916, 23925 (Apr. 22, 2016) (explaining that SEC changed the definition of materiality used in Rule 12b-2 in 1982 to that adopted by the Supreme Court in *TSC Industries, Inc. v. Northway, Inc.*).

⁴²Hana Vizcarra, *The Reasonable Investor and Climate-Related Information: Changing Expectations for Financial Disclosures*, ENVIRONMENTAL LAW REPORTER, Vol. 50, Issue 2, 10106-10114 (2020).

SEC.

Institutional investors have moved, from voicing concern about climate-related risks and their interest in receiving more information from public companies, to actively incorporating such information into their investment practices. In addition to engaging companies on how to improve climate-related disclosures and strategies for responding to the impacts of climate change (engagement that accelerated after the TCFD issued its recommendations in 2017), asset managers have started to incorporate climate-related data into their internal analysis, including partnering with climate data firms to go beyond company-level information revealed in corporate financial disclosures.⁴³ They are also increasingly committing to voting against management, divesting,⁴⁴ or taking other actions if companies fail to take significant action to address climate change risks.⁴⁵

Absent new disclosure guidance or line-item requirements, courts may still expect to encounter cases about climate-related information in disclosures. Shareholders can bring a securities fraud suit under SEC rule 10b-5 (discussed above) based on a company's material misrepresentation or omission in disclosures. It is important to note that claimants must show that the company either intended to deceive, manipulate, or defraud, or had a reckless disregard for the truth.⁴⁶ State attorneys general can also pursue claims regarding misrepresentation and fraud based on state law.

In all of these cases, courts assess whether specific climate-related information is material to individual companies. As more of these cases arise, the likelihood that courts will find some climate-related information material for a particular company increases. Two court decisions have already acknowledged this potential, although the specific facts of their cases led them to find the disclosures at issue were not

⁴³*Id.* at 10109-10110 (describing increasing use of climate-related information by investors) and *supra* Sec. 24.X, notes 6 and 7.

⁴⁴Divestment, or eliminating investments in certain industries or companies from a portfolio, has long been a tactic of those seeking to take a stand on an issue and potentially drive change in the market (although the capacity for divestment to drive change is limited if it does not result in a net loss of capital for the industry or company). *See* Felix Mormann, "Why the divestment movement is missing the mark," *NATURE* (Nov. 2, 2020) (describing the limitations of the fossil fuel divestment movement), <https://www.nature.com/articles/s41558-020-00950-2>. Some institutional investors have determined that divesting their portfolios of fossil fuel stock is important for consistency with their climate-related goals. Schools, pension funds, and private investors have made such decisions. *See, e.g.*, Georgetown University, Press Release, "Fossil Fuels Divestment Continues Georgetown's Commitment to Sustainability," (Feb. 6, 2020) (announcing a new university policy on fossil fuel and impact investments that includes a commitment to divest the school of fossil fuel stock), <https://www.georgetown.edu/news/fossil-fuels-divestment-continues-georgetown-commitment-to-sustainability/>; Rockefeller Brothers Fund, "Fossil Fuel Divestment" (describing its efforts to divest from fossil fuels), <https://www.rbf.org/mission-aligned-investing/divestment>; Ann Bernard, "New York's \$226 Billion Pension Fund Is Dropping Fossil Fuel Stocks," (Dec. 9, 2020) (reporting on the New York state pension fund announcement that it plans to divest from fossil fuel stocks and other companies that contribute to climate change).

⁴⁵For example, BlackRock's 2021 stewardship expectations and voting guidelines specifically note that the asset manager will vote against boards that do not adequately disclose or plan for climate change. BlackRock, "Our 2021 Stewardship Expectations" (2020), <https://www.blackrock.com/corporate/literature/publication/our-2021-stewardship-expectations.pdf>. The California State Teachers Retirement System (Calstrs) is supporting an effort to elect independent board members to ExxonMobil's board and is planning to accelerate greening of its investments in light of the election of Biden. Svea Herbst-Bayliss and Jennifer Hiller, "Tiny activist investor's arguments against Exxon draw crowd to its side," *REUTERS* (Dec. 11, 2020), <https://www.reuters.com/article/exxon-activist/tiny-activist-investors-arguments-against-exxon-draw-crowd-to-its-side-idUSKBN28L27G>; Josephine Cumbo and Chris Flood, "Calstrs plans green shift after Joe Biden's victory," *FINANCIAL TIMES* (Dec. 5, 2020), <https://www.ft.com/content/6762a43d-79fe-471d-8f3b-41e2fb8f3835>.

⁴⁶*See* BG Litigation Recovery I, LLC v. Barrick Gold Corporation, 180 F. Supp. 3d 316, 322, Fed. Sec. L. Rep. (CCH) P 99072 (S.D. N.Y. 2016).

materially misleading.⁴⁷

The evolving materiality standard, and the potential for courts to assess the standard, may not lead to consistent, comparable disclosures across industries without more specific action from the SEC. Academics have proposed various approaches to revising SEC disclosure requirements to expand discussion of sustainability issues, including climate.⁴⁸ As previously mentioned, SEC Commissioners Lee and Crenshaw have suggested the SEC create an internal task force as well as an advisory committee on ESG disclosures; these bodies would review recommendations of outside organizations and subsequently develop a plan for SEC action. However, without additional guidance from the SEC, companies must navigate a variety of demands from investors and other stakeholders without a solid understanding of how regulators view these disclosure approaches.

D. State attorneys general and corporate disclosure

State attorneys general have a history of influencing corporate climate disclosures. For example, during the 2000s, the New York attorney general conducted investigations into the disclosures of power and coal producers. This pressured the SEC to issue its 2010 guidance and resulted in settlements requiring climate-specific disclosures from the targeted companies.⁴⁹

More recently, New York pursued ExxonMobil for securities fraud, ultimately losing in court.⁵⁰ In *New York v. Exxon Mobil Corp.*, the court considered whether ExxonMobil misled investors in disclosures about the potential impacts of future climate policies on product demand and examined how ExxonMobil incorporated this information into its project-level business planning. Plaintiffs failed to convince the court of the materiality of the company's statements and supposed omissions. The court found the plaintiffs' experts unpersuasive and found no evidence of impact on investors' analyses or decisions during the relevant timeframe. However, the court acknowledged that climate-related information *could* be material in certain circumstances under existing securities law standards. Massachusetts has also sued Exxon and its case includes a claim that the company misled investors, as well as allegations of misleading consumers.⁵¹

Other state cases have focused on consumer protection claims, reflecting differences in the underlying state law available to them and perceptions of the difficulty

⁴⁷See *Ramirez v. Exxon Mobil Corporation*, 334 F. Supp. 3d 832, Fed. Sec. L. Rep. (CCH) P 100241 (N.D. Tex. 2018) (denying a motion to dismiss in a shareholder suit against ExxonMobil but acknowledging that certain types of information related to climate change transition risks could be material to reasonable investors) and *New York v. Exxon Mobil Corp.*, 65 Misc. 3d 1233(A), 49 ELR 20199 (N.Y. Sup. Ct. 2019) (slip copy) (acknowledging the potential materiality of climate-related information but not finding the future cost estimates of an energy transition material to a reasonable investor's decisions made between 2013 and 2016).

⁴⁸Eccles and Youmans (2016) suggest requiring a statement of significant audiences and materiality to better define what environmental, social, and governance issues boards consider material and the specific stakeholders to which they relate. Fisch (2019) proposes creating a new "SD&A" (sustainability, disclosure, & analysis) section of SEC filings modeled after the MD&A, in which companies would identify and explain the three sustainability issues most significant to their operations. Esty and Karpilow (2019) suggest a three-tiered mandatory ESG reporting regime. These proposals would likely require additional SEC guidance on their applicability to climate-related topics should they be incorporated into SEC disclosure requirements.

⁴⁹Hana V. Vizcarra, *Climate-Related Disclosure and Litigation Risk in the Oil & Gas Industry: Will State Attorneys General Investigations Impede the Drive for More Expansive Disclosures?*, 43 Vt. L. Rev. 733 (2019).

⁵⁰*New York v. Exxon Mobil Corp.*, 65 Misc. 3d 1233(A), 49 ELR 20199 (N.Y. Sup. Ct. 2019) (slip copy).

⁵¹*Commonwealth of Massachusetts v. Exxon Mobil Corp.*, No. 19-3333 (Mass. Sup. Ct. Oct. 24, 2019).

in proving investors were misled by information in corporate disclosures or left out of those disclosures.⁵²

E. ESG and climate change considerations in ERISA plan investment decisions

Former President Trump issued a directive to the Department of Labor in 2019 to review data on Employee Retirement Income Security Act (ERISA) plans, identify trends in investments in the energy sector, and review guidance on fiduciary responsibilities.⁵³ Two rules finalized by the Employee Benefits Security Administration (EBSA)⁵⁴ towards the end of 2020 emphasize the limits of how ERISA plan fiduciaries can consider ESG topics, including climate, in their investment planning and in the exercise of their shareholder rights.

EBSA finalized a new rule on investment duties under ERISA in November 2020.⁵⁵ The rule cautioned against considering ESG factors in ERISA-covered plan investments, emphasizing financial outcomes over other considerations, and restricted fiduciaries from offering ESG-themed funds as default options. The regulation included requirements for potentially burdensome documentation of economic returns and risks to support investment choices.

Some observers have argued the new requirements would limit ERISA plan fiduciaries' voice in overseeing corporate decision-making around climate change preparedness and planning and other ESG topics. Professor and legal scholar Ann Lipton even argues the rule "may functionally disenfranchise ERISA fiduciaries."⁵⁶ EBSA, in the rulemaking documents, states that "plan assets may never be enlisted in pursuit of other social or environmental objectives at the expense of ERISA's fundamental purpose of providing secure and valuable retirement benefits." EBSA adds that "an ERISA fiduciary's evaluation of plan investments must be focused solely on economic considerations that have a material effect on the risk and return of an investment based on appropriate investment horizons, consistent with the plan's funding policy and investment policy objectives. The corollary principle is

⁵²See, e.g., *Minnesota v. American Petroleum Institute*, 62-CV-20-3837 (Minn. Dist. Ct. June 24, 2020) (alleging that API, ExxonMobil, and Koch Industries violated the Minnesota Consumer Fraud Act and asserting claims of strict and negligent liability for failure to warn as well as common law fraud and misrepresentation, deceptive trade practices, and violating the state's False Statement in Advertising Act.), <http://climatecasechart.com/case/state-v-american-petroleum-institute/>; *District of Columbia v. ExxonMobil*, 2020 CA 002892 B (D.C. Super. Ct. June 25, 2020) (asserting Consumer Protection Procedures Act violations, that oil and gas companies engaged in deceptive and unfair conduct and misled consumers), <http://climatecasechart.com/case/district-of-columbia-v-exxon-mobil-corp/>; *Connecticut v. ExxonMobil Corp.*, HHDCV206132568S (Conn. Super. Ct. Sept. 14, 2020) (alleging violations of the state's Unfair Trade Practices Act), <http://climatecasechart.com/case/state-v-exxon-mobil-corp/>; *Massachusetts v. ExxonMobil*, No. 19-3333 (Mass. Sup. Ct. Oct. 24, 2019) (including claims the company misled investors and that they misled consumers under the state's Consumer Protection Act).

⁵³Exec. Order No. 13868, *Promoting Energy Infrastructure and Economic Growth*, 84 Fed. Reg. 15495 (April 10, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-04-15/pdf/2019-07656.pdf>.

⁵⁴EBSA is a sub-cabinet division of the Department of Labor that administers and enforces the fiduciary, reporting, and disclosure provisions of Title I of the Employee Retirement Income Security Act of 1974 (ERISA). EBSA's authority covers private retirement plans, some health plans, and welfare benefit plans. See *What We Do*, <https://www.dol.gov/agencies/ebsa/about-ebsa/about-us/what-we-do> and *History of EBSA and ERISA*, [https://www.dol.gov/agencies/ebsa/about-ebsa/about-us/history-of-ebsa-and-erisa#:~:text=The%20Employee%20Benefits%20Security%20Administration,Welfare%20Benefits%20Administration%20\(PWBA\)](https://www.dol.gov/agencies/ebsa/about-ebsa/about-us/history-of-ebsa-and-erisa#:~:text=The%20Employee%20Benefits%20Security%20Administration,Welfare%20Benefits%20Administration%20(PWBA)) (last visited Jan. 25, 2021).

⁵⁵Employee Benefits Security Administration, Department of Labor, *Final Rule - Financial Factors in Selecting Plan Investments*, 85 Fed. Reg. 72846 (Nov. 13, 2020), <https://www.federalregister.gov/documents/2020/11/13/2020-24515/financial-factors-in-selecting-plan-investments>.

⁵⁶Ann Lipton, *I Just Read the Department of Labor's New ERISA Voting Proposals and Boy Are My Fingers Tired (from typing)*, Business Law Prof Blog, https://lawprofessors.typepad.com/business_law/2020/09/i-just-read-the-department-of-labors-new-erisa-voting-proposals-and-boy-are-my-fingers-tired-from-ty.html.

that ERISA fiduciaries must never sacrifice investment returns, take on additional investment risk, or pay higher fees to promote non-pecuniary benefits or goals.”⁵⁷ Nevertheless, EBSA did recognize that ESG factors can represent material financial risk or opportunity.⁵⁸

EBSA also finalized a rule in December 2020 on an EBSA fiduciary’s duties for proxy voting and exercising shareholder rights.⁵⁹ The regulation clarifies that plan fiduciaries are not required to vote all proxies, but emphasizes that votes they do make should be based on pecuniary factors.⁶⁰ The rule lists specific principles a plan fiduciary must consider when deciding whether to exercise shareholder rights, including not using plan assets to further “policy-related or political issues, including ESG issues.”⁶¹

President Biden signed Executive Order 13990 on his first day in office, which directs all agencies to review regulations promulgated during the Trump administration that may be inconsistent with the new administration’s climate policies.⁶² EBSA’s 2020 rulemakings are expected to be part of this review and potentially revised as a result of it.

§ 24:44 U.S. climate-related financial risk management

Other financial regulators are considering how climate change poses systemic risks to the financial system and what steps to take to address these risks. Federal regulators have not yet imposed climate-specific mandatory disclosure requirements, nor have they started down the path of requiring climate-related stress testing for banks as other countries have begun to implement. However, climate change is a topic of study that could result in U.S. regulators taking similar action.

A. *Commodity Futures Trading Commission (CFTC) Climate-Related Risk Report*

The Commodity Futures Trading Commission (CFTC) was created in 1974 to regulate the U.S. derivatives markets.¹ The CFTC’s Market Risk Advisory Committee (MRAC) commissioned a report on climate-related systemic risk that was

⁵⁷85 Fed. Reg. 72846, 72848.

⁵⁸“The final rule recognizes that there are instances where one or more environmental, social, or governance factors will present an economic business risk or opportunity that corporate officers, directors, and qualified investment professionals would appropriately treat as material economic considerations under generally accepted investment theories. For example, a company’s improper disposal of hazardous waste would likely implicate business risks and opportunities, litigation exposure, and regulatory obligations. Dysfunctional corporate governance can likewise present pecuniary risk that a qualified investment professional would appropriately consider on a fact-specific basis.” Id.

⁵⁹EBSA, Final Rule, “Fiduciary Duties Regarding Proxy Voting and Shareholder Rights,” 85 Fed. Reg. 81658.

⁶⁰Id. at 81663 (“The final rule carries forward from the proposal a provision that requires plan fiduciaries, when deciding whether to exercise shareholder rights and when exercising such rights, including the voting of proxies, to carry out their duties prudently and solely in the interests of the plan participants and beneficiaries and for the exclusive purpose of providing benefits to participants and beneficiaries and defraying the reasonable expenses of administering the plan.”).

⁶¹Id. at 81665.

⁶²Exec. Order No. 13990, Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis, 86 Fed. Reg. 7037 (Jan. 20, 2021), <https://www.federalregister.gov/documents/2021/01/25/2021-01765/protecting-public-health-and-the-environment-and-restoring-science-to-tackle-the-climate-crisis>.

[Section 24:44]

¹The Commodity Futures Trading Commission Act created the CFTC in 1974. See more about its history at <https://www.cftc.gov/About/AboutTheCommission>.

released in September 2020.² The subcommittee responsible, the Climate-Related Market Risk Subcommittee, was given a broad mandate: to evaluate climate-related risk across the U.S. financial system and markets, and not just limited to the jurisdiction of the CFTC.

The report identifies and examines climate-related risks and provides specific recommendations for addressing them. These recommendations range from establishing an economy-wide price on carbon to incorporating climate-related risks within the monitoring and oversight functions of federal financial regulatory agencies.³ The report advises that the Financial Stability Oversight Council (FSOC)⁴ research the financial implications of climate-related risks, including sub-systemic shocks to markets, and that the CFTC investigate how such risks impact markets and market participants under its oversight. The report further recommends that U.S. regulators join international groups established specifically to address these risks, and that financial supervisors require financial firms address climate-related risks through their risk management frameworks and pilot climate risk stress testing. The report calls upon state insurance regulators to require insurers to assess, address, and disclose climate risks in their underwriting activity and investment portfolios, and focuses on how financial regulators can help improve disclosure and standardize classification systems.

Notably, the report calls on the SEC to clarify the definition of materiality for disclosing medium- and long-term climate risks both quantitatively and qualitatively, and advises the SEC to update its 2010 climate risk guidance. The report further recommends that regulators review and clarify the law on using climate-related factors in investment decisions for retirement and pension plans under the ERISA and non-ERISA fiduciary duties and encourages a rethinking of rules recently issued by EBSA, described above. A number of the Climate-Related Market Risk Subcommittee's suggestions are already being acted on.⁵

B. Federal Reserve is researching climate-related risk to the financial system

The Federal Reserve has actively engaged on the issue of how climate change could impact the health of the U.S. financial system.⁶ This is illustrated in a number

²Managing Climate Risk in the U.S. Financial System, Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the U.S. Commodity Futures Trading Commission (Sept. 2020), available at <https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf> (last visited Jan. 25, 2021).

³*Id.*

⁴The FSOC was created by the Dodd-Frank Wall Street Reform and Consumer Protection Act in 2010 to monitor the stability of the financial system. Chaired by the Secretary of Treasury, it comprises the various agency financial regulators and responsible for identifying risks and responding to emerging threats to financial stability. The FSOC has supervisory authorities over certain nonbank financial firms. Learn more at U.S. DEPT. OF THE TREASURY, *About FSOC*, <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/about-fsoc> (last visited Jan. 19, 2021).

⁵For example, as is noted in the next section, the Federal Reserve has since joined the Network of Central Banks and Supervisors for Greening the Financial System and is actively researching climate-related systemic risks. The Biden administration is also expected to act on considering new SEC guidelines or regulations around climate-related disclosures and may reconsider the EBSA rulemaking.

⁶The Federal Reserve System is the U.S.'s central bank that manages the nation's monetary policy, promotes stability of the financial system and safety and soundness of financial institutions, fosters payment and settlement system safety and efficiency, and promotes consumer protection. BOARD OF GOVERNOR OF THE FEDERAL RESERVE SYSTEM, *About the Fed*, <https://www.federalreserve.gov/aboutthefed.htm> (last visited Jan. 19, 2021). The Federal Reserve System was created in 1913 by the Federal Reserve Act and is composed of the Board of Governors and twelve regional banks. *Id.* At Federal

of recent actions by this body.

Federal Reserve Chair Jerome Powell stated, in January 2020, that the Fed has a role to play “to ensure that the financial system is resilient and robust against the risks of climate change” and is working to understand how to do so.⁷ In November 2020, the Federal Reserve included climate change in its Financial Stability Report for the first time.⁸ On December 15, 2020, the Federal Reserve Board formally joined the Network of Central Banks and Supervisors for Greening the Financial System (NGFS),⁹ a network of central banks and supervisory authorities formed in 2017 to share practices on climate-related financial risk management.¹⁰ In January 2021, the Fed announced a new Supervision Climate Committee to be led by Kevin Stiroh, mentioned below and a senior official who has worked closely on climate change and financial risk.¹¹

The Federal Reserve Banks, part of the Federal Reserve System, are also taking action. The Federal Reserve Bank of San Francisco, for example, hosted a conference on climate change in 2019, publishing a series of papers,¹² and its October 2019 issue of Community Development Innovation Review was titled “Strategies to Address Climate Change Risk in Low- and Moderate-income Communities.”¹³ Most recently, the Federal Reserve Bank of San Francisco released a new report on climate change as a financial risk that describes “how uncertainty about the magnitude, scope, and timing of the economic damages from climate change translates into financial risk, which can adversely affect financial markets, asset classes, and institutions as well as the income and balance sheets of businesses, households, and governments.”¹⁴ Furthermore, the now former executive vice president of the Federal Reserve Bank of New York, Kevin Stiroh (mentioned above), regularly speaks about climate change and financial risk. For example, in 2020 he delivered remarks on climate change and risk management in bank supervision at an event at Harvard Business School.¹⁵ Stiroh is also the co-chair of the Basel Committee on Banking Supervision’s high level Task Force on Climate-related Financial

Reserve History, <https://www.federalreserve.gov/aboutthefed/centennial/about.htm>.

⁷Ann Saphir, “Fed has a role in combating climate change, says Powell,” REUTERS (Jan. 29, 2019), <https://www.reuters.com/article/us-usa-fed-climatechange/fed-has-a-role-in-combating-climate-change-risk-powell-says-idUSKBN1ZT031>.

⁸Board of Governors for the Federal Reserve System, “Financial Stability Report,” (Nov. 2020), <https://www.federalreserve.gov/publications/files/financial-stability-report-20201109.pdf>.

⁹Board of Governors for the Federal Reserve System, Press Release, “Federal Reserve Board announces it has formally joined the Network of Central Banks and Supervisors for Greening the Financial System, or NGFS, as a member,” (Dec. 15, 2020), <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20201215a.htm>.

¹⁰The Network on Greening the Financial System, <https://www.ngfs.net/en>.

¹¹Avery Ellfeldt, *‘Enormously big deal’: Fed creates climate committee*, E&E NEWS (Jan. 25, 2021), <https://www.eenews.net/stories/1063723523>; Pete Schroeder, *U.S. Fed taps official to lead new climate change team*, REUTERS (Jan. 25, 2021), <https://www.reuters.com/article/usa-fed-climate/u-s-fed-taps-official-to-lead-new-climate-change-team-idUSL1N2K02GM>.

¹²“The Economics of Climate Change,” Economic Research Conference held by the Federal Reserve Bank of San Francisco (Nov. 19, 2019), <https://www.frbsf.org/economic-research/events/2019/november/economics-of-climate-change/>.

¹³Strategies to Address Climate Change Risk in Low- and Moderate-income Communities, COMMUNITY DEVELOPMENT INNOVATION IN REVIEW, Vol. 14, Issue 1 (Oct. 2019), <https://www.frbsf.org/community-development/publications/community-development-investment-review/2019/october/strategies-to-address-climate-change-low-moderate-income-communities/> (last visited Jan. 25, 2021).

¹⁴Glenn D. Rudebusch, *Climate Change Is a Source of Financial Risk*, Federal Reserve Bank of San Francisco Economic Letters (Feb. 8, 2021), <https://www.frbsf.org/economic-research/publications/economic-letter/2021/february/climate-change-is-source-of-financial-risk/>.

¹⁵Kevin Stiroh, “Climate Change and Risk Management in Bank Supervision,” Remarks delivered at Harvard Business School (March 4, 2020), <https://www.newyorkfed.org/newsevents/speeches/2020/st>

Risks (TCFR), established in February 2020 with the goal of developing a supervisory practices to mitigate climate-related risks.¹⁶

The Federal Reserve Board acts independently of the White House but works closely with the Treasury Department to manage the U.S. economy. In his January 27 Executive Order on Tackling the Climate Crisis at Home and Abroad, President Biden instructed the Treasury Secretary to participate in international fora working on managing climate-related risks.¹⁷ Biden's Secretary of the Treasury, Janet Yellen, has committed to creating a high level climate team within the department to work on these issues.¹⁸ This could provide additional support for the Federal Reserve's efforts to engage on climate-related risk in international bodies as well as tackle the challenges presented in the U.S. financial system.

C. Federal Office of the Comptroller of the Currency's Proposed Restrictions of Bank Lending Policies Related to Climate Change

Lenders are making commitments and changing their policies in ways that place pressure on companies that rely on such lenders for financing. These banks are committing to disclosing climate-related risks in their assets and to making estimates of the environmental and climate impacts of their lending practices. The largest banks have made commitments not to finance certain types of projects that exacerbate GHG emissions—such as oil and gas exploration in the Arctic National Wildlife Refuge, coal projects, and tar sands development.¹⁹ For example, Goldman Sachs Group Inc., JP Morgan Chase & Co., Wells Fargo & Co., Citigroup, Morgan Stanley, and, most recently, Bank of America, have all stated that they will not

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¹⁶The Basel Committee on Banking Supervision (BCBS) is “the primary global standard setter for the prudential regulation of banks and provides a forum for cooperation on banking supervisory matters. Its mandate is to strengthen the regulation, supervision and practices of banks worldwide with the purpose of enhancing financial stability.” BANK FOR INTERNATIONAL SETTLEMENTS, *Basel Committee Charter*, <https://www.bis.org/bcbs/charter.htm> (last visited Jan. 19, 2021). The BCBS set up the TCFR in 2020 as part of its efforts to support central banks in addressing climate change-related risks. BIS Annual Report, 2019/20 at 106-108, <https://www.bis.org/about/areport/areport2020.pdf>. In his role as co-chair, Kevin Stiroh spoke several times in 2020 about the work of the TCFR and the risks of climate change to the financial system. See, e.g., Kevin Stiroh, “The Basel Committee's initiatives on climate-related financial risks,” Speech at 2020 IIF Annual Membership Meeting (Oct. 14, 2020), <https://www.bis.org/speeches/sp201014.htm>; Kevin Stiroh, “A microprudential perspective on the financial risks of climate change,” Remarks at the Global Association of Risk Professionals' 2020 Climate Risk Symposium (Nov. 10, 2020), <https://www.bis.org/review/r201110b.htm> (last visited Jan. 25, 2021).

¹⁷Executive Order 14008, 86 Fed. Reg. 7619, <https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad>.

¹⁸Zachary Warmbrodt, *Yellen vows to set up Treasury team to focus on climate, in victory for advocates*, POLITICO (Jan. 19, 2021), <https://www.politico.com/news/2021/01/19/yellen-treasury-department-climate-change-460408>.

¹⁹David Benoit, *JPMorgan Pledges to Push Clients to Align With Paris Climate Agreement*, WALL STREET JOURNAL (Oct. 6, 2020), <https://www.wsj.com/amp/articles/jpmorgan-pledges-to-push-clients-to-align-with-paris-climate-agreement-11602018245> (“Other banks have made various pledges to stop supporting Arctic drilling and coal companies. British banks NatWest Group PLC (the former RBS Group PLC) and Barclays PLC have both committed to using their business to further the Paris agreement, the 2015 deal that called on global governments to curb rising temperatures. Citigroup Inc. earlier this year said it would walk away from clients that aren't taking climate change seriously.”); Christopher Flavelle, *Global Financial Giants Swear Off Funding an Especially Dirty Fuel*, THE NEW YORK TIMES (Feb. 12, 2020), <https://www.nytimes.com/2020/02/12/climate/blackrock-oil-sands-alberta-financing.html>; Tsevetana Paraskova, *Deutsche Bank Immediately Ends Funding For Oil Sands And Arctic Oil Projects*, OILPRICE.COM (July 27, 2020), <https://oilprice.com/Latest-Energy-News/World-News/Deutsche-Bank-Immediately-Ends-Funding-For-Oil-Sands-And-Arctic-Oil-Projects.html>; Lananh Nguyen, *BofA Says It Won't Finance Oil and Gas Exploration in the Arctic*, BLOOMBERG (Nov. 30, 2020), https://www.bloomberglaw.com/product/blaw/document/QKMMNJT1UM0W?criteria_id=85a1d6e099f94377191fb0a56233eddb.

finance oil and gas projects in the Arctic National Wildlife Refuge coastal plain.²⁰

Morgan Stanley and Bank of America have committed to disclosing the climate change impacts of their financing through the Partnership for Carbon Accounting Financials (PCAF), which released the “Global GHG Accounting and Reporting Standard for the Financial Industry” in November 2020.²¹ JP Morgan recently announced it will establish emission targets for its financing portfolio and become carbon neutral in its operations in 2020.²² The bank will advocate for the federal government to establish a price on carbon and will engage its corporate clients on climate-related strategies and carbon disclosures, in addition to tracking their carbon intensity. Adding to the divestment pressures, the Rockefeller family, which owes its fortune to the John D. Rockefeller’s Standard Oil Co., has committed to pressuring banks to stop investing in fossil fuels, creating the organization BankFWD to engage on the topic.²³

Partly in response to these commitments, the Office of the Comptroller of the Currency (OCC)²⁴ finalized a new rule designed to prevent banks from refusing to finance categories of projects or companies, requiring them to undergo individual risk assessments to support their decision to deny services to any particular potential customer. The rule, which applies to banks with more than \$100 billion in assets, was proposed in November 2020 and finalized in the last week of the Trump presidency, ten days after the public comment period on the proposal closed.²⁵ The rule requires large banks to provide services offered to all lawful businesses in a given market if it provides those services to any, relying on language in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. The OCC states that “a bank may not rely on factors that cannot be quantified” when deciding

²⁰Dino Grandoni, *The Energy 202: The last big environmental fight of the Trump era is over drilling in Alaska’s Arctic*, WASHINGTON POST (Nov. 23, 2020), <https://www.washingtonpost.com/politics/2020/11/23/energy-202-last-big-environmental-fight-trump-era-is-over-drilling-alaska-arctic/>.

²¹Caroline Hudson, *Bank of America to join other big banks in disclosing environmental effect of lending practices*, CHARLOTTE BUSINESS JOURNAL, <https://www.bizjournals.com/charlotte/news/2020/07/30/bank-of-america-will-report-lending-and-emissions.html>; Zack Colman, *Morgan Stanley commits to tallying its climate impact*, POLITICO (July 20, 2020), <https://www.politico.com/news/2020/07/20/morgan-stanley-climate-impact-371696>; Pippa Stevens, *Goldman Sachs to spend \$750 billion on climate transition projects and curb fossil fuel lending*, CNBC (Dec 16, 2019), <https://www.cnbc.com/2019/12/16/goldman-sachs-targets-750-billion-for-climate-transition-projects.html> (noting lending policy changes that included no longer financing upstream Arctic oil and gas, coal fired power plants without capture or emissions reduction technologies, or new thermal coal projects); Partnership for Carbon Accounting Financials, “Global GHG Accounting and Reporting Standard for the Financial Industry,” (Nov. 18, 2020), <https://carbonaccountingfinancials.com/standard>.

²²JP Morgan Chase Press Release, *JP Morgan Chase Adopts Paris-Aligned Financing Commitment* (Oct. 6, 2020), <https://www.jpmorganchase.com/news-stories/jpmorgan-chase-adopts-paris-aligned-financing-commitment>.

²³Zack Colman, *Oil scions rally wealthy peers to press banks on climate*, POLITICO (Oct. 2, 2020), <https://www.politico.com/news/2020/10/02/oil-scions-rally-wealthy-peers-to-press-banks-on-climate-425018?gsBNFDNDN=undefined>.

²⁴The OCC is a bureau of the U.S. Department of Treasury that charters, regulates, and supervises national banks, federal savings associations, and federal branches and agencies of foreign banks. OFFICE OF THE COMPTROLLER OF THE CURRENCY, *Who We Are*, <https://www.occ.treas.gov/about/who-we-are/index-who-we-are.html> (last visited Jan. 19, 2021). The OCC was created in 1863 by the National Currency Act. *Id.* at History, <https://www.occ.treas.gov/about/who-we-are/history/index-history.html> (last visited Jan. 19, 2021).

²⁵OCC, Proposed Rule, *Fair Access to Financial Services*, 85 Fed. Reg. 75261, <https://www.federalregister.gov/documents/2020/11/25/2020-26067/fair-access-to-financial-services>; OFFICE OF THE COMPTROLLER OF THE CURRENCY, Press Release, “OCC Finalizes Rule Requiring Large Banks to Provide Fair Access to Bank Services, Capital, and Credit,” (Jan. 14, 2021), <https://www.occ.gov/news-issuances/news-releases/2021/nr-occ-2021-8.html>.

whether or not to provide a financial service to a customer.²⁶ The OCC specifically mentioned climate-related commitments from banks as a reason for its proposal (and in particular pointed to a letter from the Alaska congressional delegation about banks announcing they would not finance oil and gas development in the Arctic)²⁷ but does not directly mention them in the final rule. The OCC argues the regulation is needed to ensure fair access to lending.

The Comptroller of the Currency has since placed a pause on the rule, preventing it from being published in the Federal Register in order to allow the next nominated Comptroller of the Currency time to review it.²⁸ Congressional Democrats are reportedly considering using the Congressional Review Act to eliminate it.²⁹

§ 24:45 International financial regulatory actions on climate-related risks

Central banks and regulators in other countries are assessing climate change risks to their respective financial systems. Many are implementing new risk management strategies, and several have begun to enact new disclosure requirements and guidance for public companies and financial institutions, as well as enact stress tests for banks. Helpful examples include the European Central Bank and the Bank of England, as well as actions taken by central banks in Canada, Australia, New Zealand, and Hong Kong.

The European Central Bank listed climate change as a key risk driver in 2019.¹ The European Union issued a non-financial reporting directive in 2014 and required companies to include non-financial statements in their annual reports beginning in 2018. The European Commission in late 2019 released guidelines on reporting climate-related information to assist companies in complying with the disclosure requirement.²

The Bank of England (BoE) plans to test the UK financial system's resilience to climate change risks in 2021 against three climate scenarios. The test includes insurers as well as banks, and utilizes a 30-year modeling horizon.³ The BoE's Prudential Regulatory Authority issued expectations in 2019 for how banks and insurers should manage their climate-related financial risks, and address such risks through risk management, as well as expectations for conducting scenario analysis

²⁶OFFICE OF THE COMPTROLLER OF THE CURRENCY, Final Rule, "Fair Access to Financial Services," RIN 1557-AF05 at 36 (Jan. 14, 2021), <https://www.occ.gov/news-issuances/federal-register/2021/nr-occ-2021-8a.pdf>.

²⁷OCC, Proposed Rule, *Fair Access to Financial Services*, 85 Fed. Reg. 75261, <https://www.federalregister.gov/documents/2020/11/25/2020-26067/fair-access-to-financial-services>.

²⁸Press Release, OCC Puts Hold on Fair Access Rule, Office of the Comptroller of the Currency (Jan. 28, 2021), <https://www.occ.treas.gov/news-issuances/news-releases/2021/nr-occ-2021-14.html>; Eric Rosenbaum, *Banking regulator pauses rule that enraged Wall Street and climate investors*, CNBC (Jan. 28, 2021), <https://www.cnbc.com/2021/01/28/occ-pauses-bank-rule-that-enraged-wall-street-climate-investors-.html>.

²⁹Juliet Eilperin and Dino Grandoni, "In Trump's last days, a spree of environmental rollbacks," WASHINGTON POST (Jan. 15, 2021), <https://www.washingtonpost.com/climate-environment/2021/01/15/trump-environmental-rollbacks/>.

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¹European Central Bank, "Financial Stability Review," (2019), <https://www.ecb.europa.eu/pub/financial-stability/fsr/html/ecb.fsr201905266e856634.en.html>; European Central Bank, Banking Supervision, "Banking in a changing climate—preparing for what lies ahead," (2019), https://www.bankingsupervision.europa.eu/press/publications/newsletter/2019/html/ssm.nl190515_3.en.html.

²European Commission. (2020). Non-financial reporting. Retrieved from https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en.

³Bank of England, "The 2021 Biennial Exploratory Scenario on the Financial Risks from Climate Change, A Discussion Paper," (Dec. 18, 2019), <https://www.bankofengland.co.uk/paper/2019/biennial-exploratory-scenario-climate-change-discussion-paper>.

and disclosure.⁴ The UK's Financial Reporting Council in 2019 stated that companies should report on both the direct and indirect effects of climate change and, importantly, highlighted the importance of the auditor.⁵ In December 2020, the Financial Conduct Authority finalized a new climate-related disclosure rule requiring companies to conform their disclosures with the TCFD's recommendations, or otherwise explain why they have not done so beginning in 2021. The rule includes a technical note on climate-related disclosure obligations under existing rules.⁶

The Bank of Canada initiated in 2019 a multi-year research effort to assess climate-related risks. The Canadian government's Expert Panel on Sustainable Finance at the time also released recommendations for supporting sustainable finance, including integrating climate risks into the supervision of federally regulated institutions.⁷ Australia, for its part, updated its regulatory guidelines in 2019 to formally include climate change,⁸ and in September 2020, New Zealand announced mandatory reporting in line with TCFD recommendations, with disclosure obligations likely beginning in 2023.⁹ In December 2020, Hong Kong announced financial institutions and listed companies would be required to disclose the financial impact of climate change in line with TCFD recommendations by 2025, at the latest.¹⁰ Hong Kong will adopt new standards for disclosure and is preparing a pilot climate risk stress test for 2021.¹¹

§ 24:46 Conclusion: A new administration will accelerate existing climate-disclosure trends

The implications of climate change for individual companies, investment and lending portfolios, or the nation's financial system is now firmly ensconced as a topic of concern for corporate boards, investors, and financial firms. How its risks and opportunities are analyzed, disclosed, and incorporated into business and investment decisions remains fraught with challenges.

The last few years have been a period of contradictions for climate disclosure and

⁴Bank of England Prudential Regulation Authority, "Supervisory Statement SS3/19, Enhancing banks' and insurers' approaches to managing the financial risks from climate change," (April 2019), <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319>.

⁵UK Financial Reporting Council, "FRC statement on the Government's Green Finance Strategy," (July 2, 2019), <https://www.frc.org.uk/news/july-2019/frc-statement-on-the-government%E2%80%99s-green-finance-st>; UK Financial Reporting Lab, "Climate-related corporate reporting," (Oct. 22, 2019), <https://www.frc.org.uk/news/october-2019/investors-see-clearer-reporting-on-climate-relate>.

⁶UK FINANCIAL CONDUCT AUTHORITY, "PS20/17: Proposals to enhance climate-related disclosures by listed issuers and clarification of existing disclosure obligations" (Dec. 12, 2020), <https://www.fca.org.uk/news/news-stories/fca-introduces-rule-enhance-climate-related-disclosures>.

⁷BANK OF CANADA, *Financial System Review* (2019), <https://www.bankofcanada.ca/2019/05/financial-system-review-2019/>; Canada's Expert panel on sustainable finance, "Final Report of the Expert Panel on Sustainable Finance—Mobilizing Finance for Sustainable Growth," (2019), <https://www.canada.ca/en/environment-climate-change/services/climate-change/expert-panel-sustainable-finance.html>.

⁸Baker McKenzie, "Australia: What ASIC's Updated Regulatory Guidelines on Climate Change Disclosures Mean in Practice," (Aug. 26, 2019), <https://www.bakermckenzie.com/en/insight/publications/2019/08/what-asics-updated-climate-change-guidelines-mean>.

⁹CDSB, "New Zealand becomes first to implement mandatory TCFD reporting," (Sept. 15, 2020), <https://www.cdsb.net/mandatory-reporting/1094/new-zealand-becomes-first-implement-mandatory-tcfd-reporting>.

¹⁰Alun John, "Hong Kong sets new climate disclosure rules, aligns with global standard," REUTERS (Dec. 17, 2020), <https://www.reuters.com/article/us-hong-kong-regulator-climate-change/hong-kong-sets-new-climate-disclosure-rules-aligns-with-global-standard-idUSKBN28R0Y5>.

¹¹Denise Wee, "Hong Kong Unveils Plan for Climate Disclosures, Stress Tests," BLOOMBERG (Dec. 17, 2020), <https://www.bloomberg.com/news/articles/2020-12-17/hong-kong-unveils-plan-for-climate-disclosures-stress-tests>.

financial risk management in the U.S. On the one hand, the private sector has made some progress in incorporating climate-related information into risk management and financial analysis. But, on the other, federal regulatory bodies with the power to referee the points of contention have either been on the sidelines or taken steps to stifle the discussion. This state of affairs is already changing with the new Biden administration and is expected to continue to do so as the new administration implements its plans to engage the powers of the government across agencies to ensure better disclosure, assessment, and management of risks from climate change by companies and the financial system and also as independent financial regulators start acting on their statements about the financial risks of climate change.

XI. LITIGATING CLIMATE CHANGE

§ 24:47 Introduction

Climate change is increasingly coming before state and federal judges alike.¹ These cases are not the purview of environmental litigation alone; climate change claims today drawn upon torts, consumer protection, securities fraud, and constitutional law in addition to plaintiffs leveraging more traditional challenges to environmental regulatory and permitting decisions. Thus far, courts have demonstrated a willingness to follow the science and not be swayed by politically-motivated denialism when considering cases with climate-related fact patterns, even if they disagree with plaintiffs' understanding of how the science impacts legal outcomes.²

This section categorizes four main types of cases bringing climate change-connected claims: (1) challenges against federal regulation of greenhouse gases and consideration of climate in government decisionmaking; (2) constitutional and public trust cases; (3) state and municipal governments seeking damages, under the public nuisance doctrine, from private industry for climate change-related impacts; and (4) state cases against companies for inadequate corporate disclosures and consumer protection. The first two types of claims pit private citizens, nongovernmental organizations, and governmental bodies against the federal government utilizing statutory law and constitutional principles; the latter two are led by state and municipal challengers against private industry under both tort law and federal laws and regulations governing securities.

§ 24:48 Regulating greenhouse gases and considering climate in government decisionmaking

The 2007 *Massachusetts v. EPA* Supreme Court decision affirmed the EPA's authority to regulate greenhouse gas emissions as air pollutants under the Clean Air Act and a responsibility to do so should it determine that greenhouse gases (GHGs) endanger public health and welfare.¹ (See § 24:12 for a more detailed discussion.)

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¹Recognizing this increase in climate-related fact patterns, the Climate Judiciary Project is educating courts on the basics of the science that underpins these cases. Environmental Law Institute, *The Climate Judiciary Project: Educating Judges on the Science Underpinning Arguments in Climate Cases*, <https://www.eli.org/judicial-education/recent-ongoing-upcoming-projects>.

²Maria L. Banda, *Climate Science in the Courts: A Review of U.S. and International Judicial Pronouncements*, Environmental Law Institute (April 2020), <https://www.eli.org/research-report/climate-science-courts-review-us-and-international-judicial-pronouncements>.

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¹For a detailed look at the case, how it came to be, and how it was argued at the Supreme Court, see Richard Lazarus's book *The Rule of Five: Making Climate History at the Supreme Court*, Harvard University Press (2020).

sion of this case.) The EPA made this endangerment finding on December 7, 2009,² triggering an obligation to regulate emissions of GHGs.

The Supreme Court narrowed this authority somewhat as applied to stationary sources in *Utility Air Resources Group v. EPA* (*UARG*).³ In *UARG*, the Court found that emissions of GHGs alone could not trigger the CAA's Prevention of Significant Deterioration (PSD) or Title VI permitting programs. However, the Agency could apply the PSD "best available control technology" requirements to GHG emissions from sources already subject to the PSD program, due to emissions of other pollutants.⁴

Subsequently, during the Obama administration, EPA promulgated regulations designed to limit GHG emissions from sources, including power plants, landfills, and oil and gas production.⁵ The Trump administration later rescinded or revised these rules,⁶ demonstrating a distinct interpretation of the CAA from that which underpinned the Obama-era rules.⁷

In 2012, the EPA issued New Source Performance Standards (NSPS) for volatile organic compounds (VOCs) from oil and gas sources.⁸ This rule did not directly regulate GHGs, but did contribute indirectly to reducing emissions of methane because controls for VOCs also had the side benefit of controlling methane emissions. In 2016, the EPA issued a new NSPS rule for oil and gas that separately regulated methane in addition to VOCs.⁹ Both rules covered emissions sources at the well site, gathering and boosting stations, processing plants, and compressor stations. However, the 2016 rule expanded the sources covered by the standards at those sites.¹⁰ EPA also issued Control Technique Guidelines in 2016 to states with moderate nonattainment areas for ozone, in effect directing them to amend their state implementation plans to address VOCs from existing sources via a set of controls

²Environmental Protection Agency, Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act, <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean>.

³*Utility Air Regulatory Group v. E.P.A.*, 573 U.S. 302, 134 S. Ct. 2427, 189 L. Ed. 2d 372, 78 Env't. Rep. Cas. (BNA) 1585 (2014).

⁴See Chapter 12 of this treatise for an in-depth explanation of the Clean Air Act and its sections and regulations governing the PSD and Title VI permitting programs.

⁵EPA, Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64509 (Oct. 23, 2015); EPA, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units ("Clean Power Plan"), 80 Fed. Reg. 64662 (Oct. 23, 2015); EPA, Standards of Performance for Municipal Solid Waste Landfills, 81 Fed. Reg. 59332 (Aug. 29, 2016); EPA, Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills, 81 Fed. Reg. 59276; EPA, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, 81 Fed. Reg. 35824 (June 3, 2016).

⁶See Harvard Law School Environmental & Energy Law Program's Regulatory Rollback Tracker pages on each of these rules for a history of these developments—the landfill rules, oil and gas rules, and the Clean Power Plan rule, available at <https://eelp.law.harvard.edu/regulatory-rollback-tracker/>.

⁷See Hannah Perls, *Deconstructing Environmental Deregulation Under the Trump Administration, forthcoming in the Vermont Law Review*, draft available at <http://eelp.law.harvard.edu/wp-content/uploads/Deconstructing-Environmental-Deregulation-Under-the-Trump-Administration.pdf>.

⁸EPA, Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 77 Fed. Reg. 4940 (Aug. 16, 2012).

⁹EPA, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, 81 Fed. Reg. 35824 (June 3, 2016).

¹⁰EPA, Sources Covered by the 2012 New Source Performance Standards (NSPS) for VOCs and the 2016 NSPS for Methane and VOCs, by site, available at https://www.epa.gov/sites/production/files/2016-09/documents/sources_covered_2012nsps.pdf.

that would also reduce methane emissions at those sources.¹¹ Less than two weeks later, EPA issued an Information Collection Request (ICR) to operators, asking them to identify ways to control methane from existing oil and gas sources—a necessary information-gathering step for developing methane emissions regulations for existing oil and gas sources.¹²

With the change in administration in 2017 came a change in priorities. EPA canceled its Information Collection Request for existing oil and gas operations and withdrew the Control Technique Guidelines.¹³ President Trump directed EPA to reconsider the 2016 methane standards for the oil and gas industry in the “Executive Order on Promoting Energy Independence and Economic Growth.”¹⁴ In September 2020, EPA published two final rules eliminating methane emissions standards for oil and gas sources, removing storage and transmission sources from even the standards for VOCs, and revising the remaining requirements for VOCs.¹⁵ The decision not to regulate methane and the changes to which sources were included relied on a different interpretation of the Agency’s authority under the CAA than the one previously held by the agency.¹⁶ The EPA acknowledged in its Regulatory Impact Analysis that these rule changes would result in higher emissions than those that would have occurred under the rule promulgated during the Obama administration.¹⁷ However, the EPA argued in the rulemaking that the prior rule improperly included transmission and storage sources, saying they should not be considered part of the Crude Oil and Natural Gas Production Source Category. The EPA also argued that it must make a new determination that methane emissions from the remaining sources in the source category contribute significantly to pollution that can endanger public health or welfare in order to regulate methane—an additional determination that the Agency did not previously believe the CAA required.

States and environmental organizations challenged these rulemakings but the litigation did not reach a conclusion before President Biden took office.¹⁸ In a January 20, 2021 executive order, President Biden instructed the EPA to consider revising or rescinding the Trump-era rules by May 2021 and to propose rules applicable to

¹¹EPA, Release of Final Control Techniques Guidelines for the Oil and Natural Gas Industry, 81 Fed. Reg. 74798 (Oct. 27, 2016).

¹²EPA, EPA’s Actions to Reduce Methane Emissions from the Oil and Natural Gas Industry: Final Information Collection Request for Existing Sources, available at <https://www.epa.gov/sites/production/files/2016-11/documents/oil-gas-final-icr-factsheet.pdf>.

¹³EPA, Notice Regarding Withdrawal of Obligation To Submit Information, 82 Fed. Reg. 12817 (March 2, 2017); EPA, Notice of Proposed Withdrawal of the Control Techniques Guidelines for the Oil and Natural Gas Industry, 83 Fed. Reg. 10478 (March 9, 2018).

¹⁴Executive Order 13783 of March 28, 2017, 82 Fed. Reg. 16093 (March 31, 2017).

¹⁵EPA, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration, 85 Fed. Reg. 57398 (Sept. 15, 2020); EPA, Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review, 85 Fed. Reg. 57018 (Sept. 14, 2020).

¹⁶See Hana Vizcarra, EPA’s Final Methane Emissions Rules Roll Back Standards and Statutory Authority, Harvard Law School Environmental & Energy Law Program (Sept. 9, 2020) (explaining in detail the legal interpretations in the rules that EPA used to limit the scope of its standards), <https://elp.law.harvard.edu/2020/09/epas-final-methane-emissions-rule-rolls-back-standards-and-statutory-authority/>.

¹⁷EPA, Regulatory Impact Analysis for the Review and Reconsideration of the Oil and Natural Gas Sector Emission Standards for New, Reconstructed, and Modified Sources, EPA-452/R-20-004 (August 2020), https://www.epa.gov/sites/production/files/2020-08/documents/oil_and_natural_gas_nsp_s_review_and_reconsideration_final_ria.pdf.

¹⁸*California v. EPA*, No. 20-1357 (DC Cir. 2020); *EDF v. Wheeler*, No. 20-01359 (D.C. Cir. 2020).

existing oil and gas sources by September 2021.¹⁹ In February, the EPA asked the D.C. Circuit to put litigation over the Trump-era rules on hold while it reviewed the regulation. It therefore appears these cases are unlikely to result in opinions on the validity of the Trump-era rules.

The Obama administration also proposed the Clean Power Plan aimed to reduce GHG emissions from existing power plants with a “best system of emission reduction” (BSER) for coal- and natural gas-fired power plants that allowed for both improvements to coal plant operating efficiency and shifting generation to lower- and zero-emitting generators like natural gas and renewable energy sources, providing substantial flexibility to states as to how to achieve the standards set.²⁰ The Clean Power Plan never went into effect because the Supreme Court stayed the rule pending its review by the D.C. Circuit.²¹ The Trump administration repealed and replaced the Clean Power Plan with its own guidelines for GHG emissions from existing power plants, called the Affordable Clean Energy rule (ACE Rule).²² The ACE Rule proposed instead setting emissions standards that relied only on heat-rate improvement technologies and practices and not generation shifting. Tellingly, the Agency acknowledged the ACE Rule would actually *increase* emissions. Just before President Biden took office, the D.C. Circuit vacated the ACE Rule and rejected the Trump-EPA’s argument that its repeal of the CPP and promulgation of the ACE Rule instead derived from the “only permissible reading” of Section 7411(d) of the CAA.²³ The D.C. Circuit decision reflects a more flexible view of the approaches the agency could take, and therefore the Biden administration is arguably free to determine a new best system of emissions reduction for GHGs at existing power plants without needing to address the ACE rule’s approach. However, there remains potential for the Supreme Court to take a narrower view of the scope of authority set out in Section 7411(d).

Subsequent to President Biden taking office, the EPA asked the Department of Justice (DOJ) to seek abeyances or stays in any ongoing litigation involving Trump-era regulations. In the meantime, the Agency would review these actions and consider how to proceed, in line with the new administration’s policy priorities.²⁴ As a result, many of the cases considering the Trump administration’s interpretations

¹⁹Exec. Order No. 13990, 86 Fed. Reg. 7037 (Jan. 25, 2021).

²⁰See Joseph Goffman and Caitlin McCoy, *EPA’s House of Cards: the Affordable Clean Energy Rule*, White Paper, Harvard Law School Environmental & Energy Law Program (Oct. 23, 2019) (describing the Clean Power Plan and the proposed Affordable Clean Energy rule and discussing the legal arguments espoused in the proposal), <http://eelp.law.harvard.edu/wp-content/uploads/ACE-Paper-Final.pdf>.

²¹Caroline Scobie, “Supreme Court Stays EPA’s Clean Power Plan,” ABA SEER Practice Point, <https://www.americanbar.org/groups/litigation/committees/environmental-energy/practice/2016/021716-energy-supreme-court-stays-epas-clean-power-plan/>.

²²EPA, Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32520.

²³*American Lung Association v. EPA*, No. 19-1140 (D.C. Cir. Jan. 19, 2021).

²⁴On Jan. 20, 2021, President Biden signed Executive Order 13990, “Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis,” instructing agencies to review agency actions during the Trump administration for consistency with the new administration’s policies and consider suspending, revising, or rescinding them. Executive Order 13990 of Jan. 20, 2021, 86 Fed. Reg. 7037 (Jan. 25, 2021). The administration froze activities on all pending regulations for 60 days to allow time for this review and EPA instructed the DOJ to seek stays or abeyances in ongoing litigation involving regulations promulgated during the Trump administration period in office. See Ron Klain, Regulatory Freeze Pending Review (Jan. 20, 2021), <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/regulatory-freeze-pending-review/> and Rebecca Beitsch, *biden EPA asks DOJ to hit pause on defense of Trump-era rules*, THE HILL (Jan. 22, 2021) (describing a letter from EPA’s Acting General Counsel Melissa Hoffer to DOJ), <https://thehill.com/policy/energy-environment/535450-biden-e>

of bedrock environmental law statutes will not result in court opinions, including the reinterpretations of the CAA to limit EPA's authority to regulate greenhouse gases. However, the legal interpretations previewed in the Trump-era regulatory actions may portend likely arguments used to challenge Biden-era regulations. This is particularly true in the CAA context, where legal arguments that would limit EPA's authority to regulate GHGs from power plants and the oil and gas sector were used to justify rescissions of Obama-era rulemakings and will likely re-emerge in litigation challenging Biden-era replacements.

Litigation involving climate change also arises in the context of the National Environmental Policy Act (NEPA). NEPA requires federal agencies to take a hard look at the environmental consequences of its potential actions, such as making decisions on permit applications or constructing publicly-owned facilities, when considering its options.²⁵ Parties have challenged agency decisions on the basis of not fulfilling their obligation to consider the potential action's contribution to climate change.²⁶ The Trump administration's Council on Environmental Quality (CEQ) revised guidance on how to consider greenhouse gases in NEPA evaluations. As of publication, the Biden administration had already announced its intention to rescind and replace this guidance, and reconsider revisions to implementing regulations made during the Trump administration that deemphasized the importance of considering cumulative impacts of actions.²⁷ Courts did not have the opportunity to issue their interpretations of the Trump CEQ's guidance, but application of revised guidance and regulations promulgated by the Biden administration are likely to generate additional cases.

Questions about how well the federal government integrates information about climate change into its day-to-day decisionmaking are arising under statutes beyond NEPA. While NEPA cases involving climate change tend to hinge on a government action's *contribution* to climate change, a newer trend are cases centered on how well the government is prepared to *adapt* to the physical impacts of climate change. For example, environmental groups have questioned the adequacy of the government's consideration of a changing climate in making critical habitat designations under the Endangered Species Act (ESA).²⁸ They have also argued that a company violated the Clean Water Act (CWA) by failing to consider the impact of sea level rise in a distribution terminal's storm water prevention plans and violated Resource Conservation and Recovery Act (RCRA) by posing an imminent danger to the public and environment as a result of this failure.²⁹ Improved awareness of the physical impacts of climate change is likely to only encourage the number of citizen suits

[pa-asks-doj-to-hit-pause-on-defense-of-trump-era-rules?rl=1](#).

²⁵See Chapter 10 of this treatise for an in-depth explanation of the National Environmental Policy Act. See also Council on Env'tl. Quality. *A Citizen's Guide to the NEPA* (2021) available at https://ceq.doe.gov/get-involved/citizens_guide_to_nepa.html.

²⁶See Sabin Center for Climate Change Law, Climate Change Litigation Database (listing NEPA climate-related cases under Federal Statutory Claims-NEPA), <http://climatecasechart.com/category/nepa/>.

²⁷See NEPA Environmental Review Requirements, Harvard Law School Environmental & Energy Law Program, <https://eelp.law.harvard.edu/2018/08/nepa-environmental-review-requirements/>.

²⁸See, e.g., *Conservation Council for Hawai'i v. Bernhardt*, No. 1:21-cv-00040 (D. Haw. 2021) (a case filed in January 2021 challenging a 2020 rule defining the term "habitat" that limits how critical habitat designations under the Endangered Species Act can be made, alleging it fails to allow for consideration of how climate change will impact habitats).

²⁹See *Conservation Law Foundation v. ExxonMobil Corp.*, No. 1:16-cv-11950 (D. Mass. 2016) (alleging the company failed to consider climate change impacts like sea level rise, increased precipitation, and the frequency and intensity of storms creating an imminent threat of release of wastes in violation of RCRA, violating its CWA discharge permit because of more frequent discharges, and making its stormwater pollution prevention plan and spill prevention control measures inadequate; the

filed asking companies and permitting officials to incorporate information into their decisionmaking on how climate change will impact the facilities being built or permitted.

§ 24:49 Constitutional/public trust cases against the government

In 2010, the non-profit public interest firm Our Children's Trust formed to advance cases, representing youth, that seek to secure a constitutional right to a healthy and stable climate.¹ In 2011, the firm initiated an effort to file rulemaking petitions or lawsuits, in all fifty states, demanding each state take action on climate change.

The organization also represented clients in *Juliana v. United States*, a case against the federal government filed in 2015.² Youth plaintiffs in the *Juliana* case argued that the permitting, authorization, and subsidization of fossil fuel by the federal government violate their constitutional right to life, liberty, and property, and the federal government failed to protect public trust resources. Plaintiffs also claimed the government violated their substantive due process rights to a "climate system capable of sustaining human life," their right to equal protection under the law, their rights under the Ninth Amendment, and the public trust doctrine.³

While acknowledging the reality of climate change, its harms, and the federal government's contribution to it by affirmatively promoting fossil fuel use,⁴ the Ninth Circuit Court of Appeals determined an Article III court could not redress the plaintiffs' claims. Rather, the court held remediation of the type requested by plaintiffs fell under the purview of the executive and legislative branches of government,⁵ effectively reversing a district court decision that would have allowed the case to move forward. In reaching this conclusion, the court did not consider whether the rights claimed by plaintiffs existed. Rather, even assuming the government had deprived plaintiffs of a substantive constitutional right to a "climate system capable of sustaining human life," the court determined it was beyond its constitutional powers to order the government to develop a plan to phase out fossil fuels and

case was stayed in March 2020 to allow EPA to address the renewal of the facility's permit).

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¹See Our Children's Trust, Our Mission, <https://www.ourchildrenstrust.org/mission-statement>.

²See Our Children's Trust, *Juliana v. US*, <https://www.ourchildrenstrust.org/juliana-v-us> for a timeline of the case.

³Plaintiffs argued that the government's permitting, authorizing, and subsidizing fossil fuel development cause climate change-related injuries to them. They argued a stable climate is critical to their right to life, liberty, and property under the constitution. They alleged that their 5th Amendment rights have been violated because the government knowingly caused atmospheric CO₂ to rise, such that it interfered with a stable climate, by permitting, authorizing, and subsidizing of fossil fuel extraction, production, transportation, and utilization. They also argued that the government has violated the equal protection principles of the Fourteenth Amendment by denying the youth plaintiffs the same protection of their rights afforded previous generations, due to the increased impacts of climate change that their generation will endure, arguing they should be treated as a protected class. They also argue the Ninth Amendment affords them the "right to be sustained by our country's vital natural systems, including our climate system"—an implied right to a stable climate system. Finally, plaintiffs alleged defendants violate the public trust doctrine. That is, they argued that the government is a trustee of the natural resources for present and future generations and it must refrain from substantially impairing these resources. *Juliana v. U.S.*, No. 6:15-cv-01517, Amended Complaint (D. Or. Sept. 10, 2015).

⁴*Juliana v. United States*, 947 F.3d 1159, 1167 (9th Cir. 2020) ("The government affirmatively promotes fossil fuel use in a host of ways, including beneficial tax provisions, permits for imports and exports, subsidies for domestic and overseas projects, and leases for fuel extraction on federal land.").

⁵*Juliana v. United States*, 947 F.3d 1159, 1171 (9th Cir. 2020) ("But it is beyond the power of an Article III court to order, design, supervise, or implement the plaintiffs' requested remedial plan. As the opinions of their experts make plain, any effective plan would necessarily require a host of complex policy decisions entrusted, for better or worse, to the wisdom and discretion of the executive and legislative branches.").

reduce atmospheric CO₂. The Ninth Circuit denied a request for a rehearing *en banc* on February 10, 2021. (See Section 24:12 for a more detailed discussion of the history of the *Juliana* case.)

Our Children’s Trust represents plaintiffs with claims against numerous states as well as the federal government.⁶ None of these claims have yet met with success either.

One of the most recent developments in the state cases as of the time of publication was *Aji P. v. Statei*, in the state of Washington, which was ultimately dismissed by the state appellate court. Youth plaintiffs from Washington state sued the state of Washington, the governor, and state agencies for “creating, operating, and maintaining a fossil fuel-based energy and transportation system that [the State] knew would result in greenhouse gas (‘GHG’) emissions, dangerous climate change, and resulting widespread harm.”⁷ Plaintiffs petitioned the court to declare they had a fundamental constitutional right to a “healthy and pleasant environment, which includes a stable climate system that sustains human life and liberty” and to order the state to develop a climate recovery plan. Their complaint included claims based on substantive due process, equal protection, state constitutional law, and the public trust doctrine.

The appellate court affirmed the trial court’s dismissal of the Washington case on February 9, 2021, finding the case involved nonjusticiable political questions and resolving it would “violat[e] the separation of powers doctrine.”⁸ The court stated the claims were “constitutionally committed to the legislative and executive branches,” noting the “climate recovery plan” the plaintiffs requested amounted to legislation and the court “cannot force the legislature to legislate, and we cannot legislate ourselves.”⁹ The court also found there was “no judicially manageable standard” to resolve the claims; the court would be making decisions “beyond the scope of our authority with resources not available to the judiciary.”¹⁰ The court added the state already made a policy determination on the subject of the plaintiffs’ claims with its recently enacted clear air rule regulating GHG emissions, one that the court could not replace with its own regulatory regime.¹¹ “[B]y wading into the waters of what policy approach to take, what economic and technological constraints exist, and how to balance all implicated interests to achieve the most beneficial outcome, the court would . . . usurp the authority and responsibility of the other branches.”¹²

Despite the lack of success so far in these cases, active litigation remains and does not show signs of subsiding. These claims raise awareness of government actions regarding climate change—whether actions contributing to or ameliorating it.

§ 24:50 State and municipal cases seeking damages for climate change impacts from companies

In *Connecticut v. American Electric Power Co.*,¹ eight states and the City of New

⁶See Our Children’s Trust, Pending State Legal Actions, <https://www.ourchildrenstrust.org/pending-state-actions>.

⁷*Aji P. v. Statei*, No. 80007-8-I, ¶ 1 (Wash. Ct. App., Div. 1, Feb. 8, 2021).

⁸*Id.* at ¶ 2.

⁹*Id.* at ¶ 14.

¹⁰*Id.* at ¶ 15.

¹¹*Id.* at ¶ 16.

¹²*Id.* at ¶ 18.

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¹*Connecticut v. American Elec. Power Co., Inc.*, 406 F. Supp. 2d 265, 35 Env’tl. L. Rep. 20186 (S.D.

York sued the five biggest power companies in the United States,² claiming their emissions were a nuisance by contributing to global warming. On June 20, 2011, after working its way through the federal courts, the Supreme Court unanimously held that the CAA displaces federal common law nuisance claims brought to reduce GHG emissions.³ This case foreclosed future claims in federal court and set up the dynamic currently playing out in state and federal courts around the country—namely, climate liability cases based on state nuisance claims, fighting remand to federal court (See § 24:12 for a more detailed discussion of the *Connecticut v. American Electric Power Co.* case.).

Following the *Connecticut v. AEP* case, the Ninth Circuit also dismissed *Native Village of Kivalina v. ExxonMobil*.⁴ The plaintiffs in *Kivalina* sought damages from energy and power companies for their contributions to climate change, resulting in erosion so severe as to require the Alaska Native village relocate. The court dismissed their private and public nuisance claims, relying on *Connecticut v. AEP* in finding the CAA displaced federal common law claims.

As a result of these decisions, states and local governments have turned to state common law claims to pursue damages from oil and gas companies (and, in one case, an industry association as well) to help them adapt to the impacts of climate change. As of publication, at least fourteen cases alleging public and private nuisance, trespass, negligence, and other claims have been filed since 2017 by municipalities, counties, states, and an industry association.⁵ No court has yet reached a decision on the merits as plaintiffs continue to fight defendants' efforts to remove the cases to federal court. The First, Fourth, and Ninth Circuits have all remanded cases to state court.⁶ However, removal efforts continue. For example, defendants in the Baltimore case asked the Supreme Court to consider whether the case involves a federal officer and thus requires resolution in federal court.⁷ They have also asked the Court to go beyond this narrow jurisdictional review and consider the Fourth Circuit's remand order in its entirety. Oral arguments were held in January 2021.

None of these cases has yet met with success. Nevertheless, they will continue to contribute to inhabit litigation dockets until courts have an opportunity to consider the merits of the claims—albeit only if they survive the removal fights. At least one law professor has argued that even if none of these cases succeed, they will have a significant impact on corporate activity simply due to the process of discovery during litigation.⁸ One thing is certain: these cases highlight the potential for substantial impacts to municipal budgets that await coastal communities when

N.Y. 2005), vacated and remanded, 582 F.3d 309, 69 Env't. Rep. Cas. (BNA) 1385 (2d Cir. 2009), judgment rev'd, 564 U.S. 410, 131 S. Ct. 2527, 180 L. Ed. 2d 435, 72 Env't. Rep. Cas. (BNA) 1609 (2011).

²The states were California, Connecticut, Iowa, New Jersey, New York, Rhode Island, Vermont and Wisconsin.

³131 S. Ct. 2527, 180 L. Ed. 2d 435 (2011).

⁴*Native Village of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 75 Env't. Rep. Cas. (BNA) 1289 (9th Cir. 2012).

⁵See Climate Change Litigation Databases, Common Law Claims, <http://climatecasechart.com/case-category/common-law-claims/> and Sher Edling, Climate Case Chart, <https://www.sheredling.com/wp-content/uploads/2021/01/2021-01-26-Climate-Case-Status-Charts.pdf>.

⁶Sher Edling, Climate Case Chart, <https://www.sheredling.com/cases/climate-cases/> (listing the current status of cases).

⁷*Mayor and City Council of Baltimore v. BP P.L.C.*, 952 F.3d 452 (4th Cir. 2020), cert. granted, 141 S. Ct. 222, 207 L. Ed. 2d 1165 (2020).

⁸Daniel Farber, *The climate change lawsuits against big oil*, New Age (Feb. 8, 2021) ("But beyond wins, losses, or settlements, the most consequential phase of these climate lawsuits may be discovery, where courts require the oil companies to turn over documents and other information relevant to the

faced with the costs of adapting to climate change.

§ 24:51 State cases against companies for inadequate corporate disclosures and consumer protection

State attorneys general have also initiated cases against companies, asserting securities fraud and consumer protection claims. The state attorneys general allege the companies inadequately disclosed climate-related risks and misled consumers and shareholders. The strategy of claims based in corporate climate related disclosure dates to the early 2000s, when the New York attorney general conducted investigations into the disclosures of power and coal producers.¹ These investigations contributed to pressure on the Securities and Exchange Commission to issue guidance on climate-related disclosures in 2010, and also resulted in settlements requiring climate-specific disclosures from the targeted companies² (See §§ 24:41 to 24:46 for a more expansive discussion of climate-related disclosures and securities law.)

More recently, New York pursued ExxonMobil for securities fraud, ultimately losing in court.³ In *New York v. Exxon Mobil Corp.*, the court considered whether ExxonMobil misled investors in disclosures about the potential impacts of future climate policies on product demand; the court examined how ExxonMobil incorporated this information into its project-level business planning. Plaintiffs failed to convince the court of the materiality of the company's statements and supposed omissions. The court ultimately found the plaintiffs' experts unpersuasive and found no evidence of impact on investors' analyses or decisions during the relevant timeframe. However, the court acknowledged that climate-related information *could* be material in certain circumstances under existing securities law standards.⁴ Massachusetts recently sued ExxonMobil, which included a claim that the company misled investors, as well as allegations of misleading consumers.⁵

Other state cases have focused on consumer protection claims, reflecting both differences in the underlying state law available to them and perceptions of the difficulty in proving investors were misled by information in corporate disclosures or left out of those disclosures.⁶ The *New York v. Exxon* securities fraud case was the first of these cases to reach trial and decision. It remains to be seen how much suc-

suits, with the possibility that these disclosures will reach the public.”), <https://www.newagebd.net/article/129499/the-climate-change-lawsuits-against-big-oil>.

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¹Hana V. Vizcarra, *Climate-Related Disclosure and Litigation Risk in the Oil & Gas Industry: Will State Attorneys General Investigations Impede the Drive for More Expansive Disclosures?*, 43 Vt. L. Rev. 733, 766–772 (2019) (describing the history of attorney general investigations into corporate disclosures of climate-related information).

²*Id.* (discussing these investigations and their outcomes).

³*New York v. Exxon Mobil Corp.*, 65 Misc. 3d 1233(A), 49 ELR 20199 (N.Y. Sup. Ct. 2019) (slip copy).

⁴For a more detailed discussion of the opinion in this case, see, Hana Vizcarra, *Understanding the New York v. Exxon Decision*, Harvard Law School Environmental & Energy Law Program, <https://eelp.law.harvard.edu/2019/12/understanding-the-new-york-v-exxon-decision/>.

⁵*Commonwealth of Massachusetts v. Exxon Mobil Corp.*, No. 19-3333 (Mass. Sup. Ct. Oct. 24, 2019).

⁶See, e.g., *Minnesota v. American Petroleum Institute*, 62-CV-20-3837 (Minn. Dist. Ct. June 24, 2020) (alleging that API, ExxonMobil, and Koch Industries violated the Minnesota Consumer Fraud Act and asserting claims of strict and negligent liability for failure to warn as well as common law fraud and misrepresentation, deceptive trade practices, and violating the state's False Statement in Advertising Act.), <http://climatecasechart.com/case/state-v-american-petroleum-institute/>; *District of Columbia v. ExxonMobil*, 2020 CA 002892 B (D.C. Super. Ct. June 25, 2020) (asserting Consumer Protection Procedures Act violations, that oil and gas companies engaged in deceptive and unfair

cess the consumer protection claims will have.

§ 24:52 Conclusion

Climate change is creeping into court through an ever-expanding range of fact patterns and legal theories. Whether securities law, torts, consumer protection, or even claims of previously unacknowledged constitutional rights, climate change litigation has transcended the confines of environmental law. At the same time, climate change is also causing traditional environmental lawsuits to evolve, by giving rise to new claims and statutory interpretations under bedrock environmental laws such as the CAA, CWA, RCRA, and NEPA. Also multiplying is litigation aimed at limiting a private sector or government entity's impact on the climate or to pressure them to better incorporate the physical impacts of climate change into their decision-making.

Ultimately, the physical damages produced as the changing climate's physical impacts become more severe and the government takes more direct action to regulate emissions are likely to fuel a rapid rise in climate related litigation. Adaptation to climate change will foster more litigation still. For example, climate change-threatened Superfund sites could spur litigation over the need to reopen remediation decisions;¹ the impacts of sea level rise and storms on coastal communities could give rise to claims of constitutional takings claims as local, state, and federal government entities attempt to weather the impacts on their communities or handle extreme weather events.² As climate change impacts every facet of our lives, so will it percolate into an ever-broader spectrum of areas of the law and the litigation that results.

XII. CONCLUSION

§ 24:53 In general

Climate change presents an existential threat on a global level, requiring a combination of mitigation measures *ex ante* to reduce GHG emissions, adaptation activities *ex post* to react to the climate impacts many communities are already witnessing, and exploring new scientific—and legal—frontiers presented by geoengineering. The United States, as a major GHG emitter, is poised to lead this effort.

Yet the United States currently lacks a comprehensive climate change strategy,

conduct and misled consumers), <http://climatecasechart.com/case/district-of-columbia-v-exxon-mobil-corp/>; Connecticut v. ExxonMobil Corp., HHDCV206132568S (Conn. Super. Ct. Sept. 14, 2020) (alleging violations of the state's Unfair Trade Practices Act), <http://climatecasechart.com/case/state-v-exxon-mobil-corp/>; Massachusetts v. ExxonMobil, No. 19-3333 (Mass. Sup. Ct. Oct. 24, 2019) (including claims the company misled investors and that they misled consumers under the state's Consumer Protection Act). Cases in Boulder, Baltimore, South Carolina, Delaware, and Hoboken, NJ also include consumer protection claims. See Sher Edling, Climate Case Chart, <https://www.sheredling.com/wp-content/uploads/2021/01/2021-01-26-Climate-Case-Status-Charts.pdf> (listing the current status of cases and the claims alleged as of Jan. 26, 2021).

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¹The Government Accountability Office ("GAO") estimates that over 60% of nonfederal National Priorities List ("NPL") sites are at risk of flooding or experiencing damage from other impacts of climate change and has said the EPA does not consistently incorporate climate change information into its remedial assessments. GAO-20-73, *Superfund: EPA Should Take Additional Actions to Manage Risks from Climate Change* (Oct. 2019), <https://www.gao.gov/assets/710/702158.pdf>.

²See, e.g., *In re Upstream Addicks and Barker (Texas) Flood-Control Reservoirs*, 146 Fed. Cl. 219 (2019); *In re Downstream Addicks*, 147 Fed. Cl. 566 (2020); J. Patashnik, Note, *The Trolley Problem of Climate Change: Should Governments Face Takings Liability if Adaptive Strategies Cause Property Damage?*, 119 Colum. L. Rev. 1273, 1273 (2019); Thomas Ruppert, *Castles—and Roads—in the Sand: Do All Roads Lead to "Taking"?*, Environmental Law Reporter, Vol. 48, Issue 10, 10914-10932 (2018).

with no overarching statutory regimen and no single federal agency tasked with directing national efforts. Nevertheless, a fragmented yet growing body of climate change law has emerged from this leadership vacuum, a mixture drawn existing statutes, regulations, funding mechanisms, and agency programs originally created for other purposes. Much of the action in both law and policy is occurring on the state, tribal, and local levels, whose constituencies are at the frontlines of climate change impacts. These regional efforts may ultimately serve as laboratories, from whose successful experiments the federal government may draw upon in the future.

Citizens, impatient with the slow pace of change, are pressing the courts to force federal action. At the same time, public and private actors are attempting to hold corporate entities accountable for the effects of their GHG emissions through litigation. Financial institutions alongside regulatory bodies are also increasingly playing a role in the arena of climate risk disclosure and management.

Potential exists for the federal government to take robust action on climate change. After all, the question is not if, but when—and what will be the extent of the consequences of delay.

APPENDIX 24A

Table of Acronyms

TABLE OF ACRONYMS	
ACE Rule	Affordable Clean Energy Rule
AFOLU	Agriculture, forestry, and other land use
ARPA-E	Advanced Research Projects Agency—Energy
ARRA	American Recovery and Reinvestment Act
BBNJ	Biodiversity Beyond National Jurisdiction
Beach SAMP	Rhode Island Shoreline Change Special Area Management Plan
BECCS	Bioenergy and carbon capture and storage
BFE	Base Flood Elevation
BLM	Bureau of Land Management
BoE	Bank of England
BRIC	Building Resilient Infrastructure and Communities
BSER	Best system of emission reduction
CAA	Clean Air Act
CAFE	Corporate average fuel economy
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CBD	Convention on Biological Diversity
CBT	New Jersey Corporate Business Tax
CCAP	Maine Climate Change Adaptation Providers Network
CCS	Carbon capture and storage
CDBG	Community Development Block Grant
CDBG-DR	Community Development Block Grant—Disaster Recovery
CDBG-MIT	Community Development Block Grant—Mitigation
CDM	Clean Development Mechanism
CDR	Carbon dioxide removal
CDSB	Climate Disclosure Standards Board
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CFMC	Cultural Fire Management Council
CFTC	Commodity Futures Trading Commission
CHP	Combined heat and power
CLCPA	Climate Leadership and Community Protection Act
CMP	Louisiana Coastal Master Plan
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COP	Conference of the Parties
CRMC	Rhode Island Coastal Resource Management Council
CRRA	New York Community Risk and Resiliency Act
CRS	Community Rating System (see National Flood Insurance Program)
CSKT	Confederated Salish and Kootenai Tribes
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DAC	Direct air capture
DEC	New York Department of Environmental Conservation
DEP	New Jersey Department of Environmental Protection
DNR	Washington Department of Natural Resources
DOE	U.S. Department of Energy

DOI	Department of the Interior
DOT	Department of Transportation
EBSA	Employee Benefits Security Administration
EERS	Energy Efficiency Resource Standard
EGUs	Electric generating units
EIS	Environmental impact statement
EISA	Energy Independence and Security Act
ENMOD	Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques
EPA	Environmental Protection Agency
ERISA	Employee Retirement Income Security Act
ESA	Endangered Species Act
ESG	Environmental, Social, and Corporate Governance
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FMAG	Fire Management Assistance Grant Program
FY	Fiscal year
GAO	Government Accountability Office
GHG	Greenhouse gas
GRI	Global Reporting Initiative
GSA	General Services Administration
GSI	Green stormwater infrastructure
GW	Gigawatt
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
HRI	Heat rate improvement
HUD	U.S. Department of Housing and Urban Development
ICAT	Minnesota Interagency Climate Adaptation Team
ICR	Information Collection Request
ICTA	International Center for Technology Assessment
IIRC	International Integrated Reporting Council
IK	Indigenous knowledge
Intertribal COUP	Intertribal Council on Utility Policy
IPBN	Indigenous Peoples Burning Network
IPCC	Intergovernmental Panel on Climate Change
IPCC FAR	Intergovernmental Panel on Climate Change Fifth Assessment Report
IRA	Indian Reorganization Act of 1934
IRS	Internal Revenue Service
ITC	Investment tax credit
JSK	Jamestown S'Klallam Tribe
LCFS	Low-carbon fuel standard
LEV	Low-emission vehicle
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MD&A	Management Discussion and Analysis
MMPA	Marine Mammals Protection Act
Mpg	Miles per gallon
MRAC	Market Risk Advisory Committee
MRP	Rhode Island Municipal Resilience Program
MSCI	Morgan Stanley Capital International
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NDC	Nationally Determined Contribution
NEC	Nome Eskimo Community
NEPA	National Environmental Policy Act

NEPA	National Environmental Policy Act
NEPA	National Environmental Policy Act
New York State DEC	New York State Department of Environmental Conservation
New York State PSC	New York State Public Service Commission
NFIP	National Flood Insurance Program
NHCAW	New Hampshire Coastal Adaptation Workgroup
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National park Service
NRCS	Natural Resources Conservation Service
NSPS	New Source Performance Standards
OCC	Office of the Comptroller of the Currency
OF	Ocean fertilization
OMB	Office of Management and Budget
PA	Public Assistance Grant Program
PCAF	Partnership for Carbon Accounting Financials
PDD	Presidentially Declared Disaster
PDM	Pre-Disaster Mitigation Grant Program
PEIS	Programmatic environmental impact statement
PFCs	Perfluorocarbons
PPP	Public-private partnership
PTC	Production tax credit
RCRA	Resource Conservation and Recovery Act
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RFS	Renewable Fuel Standard
RGGI	Regional Greenhouse Gas Initiative
RIIB	Rhode Island Infrastructure Bank
RPS	Renewable Portfolio Standard
RSCL	Delaware Resilient and Sustainable Communities League
SAFE Vehicles Rule	Safer Affordable Fuel-Efficient Vehicles Rule
San Diego CAP	San Diego Climate Action Plan
SASB	Sustainable Accounting Standards Board
SBA	Small Business Administration
SCC	Social Cost of Carbon
SD&A	Sustainability, Disclosure and Analysis
SEC	Securities and Exchange Commissions
SEQR	New York State Environmental Quality Review Act and Regulations
SFHA	Special Flood Hazard Area
SLIP	Sea-Level Impact Projection
SRM	Solar Radiation Management
SUVs	Sport utility vehicles
TAS	Treatment as a state
TCFD	Task Force on Climate-Related Disclosures
TCI	Transportation and Climate Initiative
TEK	Traditional ecological knowledge
UN PRI	United Nations Principles for Responsible Investment
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United Nations Framework Convention on Climate Change
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGCRP	U.S. Global Change Research Program
VOC	Volatile organic compounds
WBCSD	World Business Council for Sustainable Development
WCI	Western Climate Initiative
WUI	Wildland-Urban Interface

ZEV	Zero-emission vehicle
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Part G

NEXT GENERATION ENVIRONMENTAL PROTECTION LAW

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Chapter 25

Introduction to Next Generation Environmental Protection Law*

- § 25:1 Introduction
- § 25:2 Reinvention efforts
- § 25:3 Sustainability
- § 25:4 Private environmental governance
- § 25:5 Conclusion

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§ 25:1 Introduction

It is commonplace to say that environmental protection law has been ossifying since 1990, when the Clean Air Act was last amended. It is true that Congress has not enacted major environmental legislation since those amendments, but environmental protection law continues to evolve without Congress’ direct intervention. Regulations are created and revised to implement the laws of the 1970s and 1980s. And the white spaces left by Congress with no legislative directive also are being addressed by states, companies, and private action. Like water flowing downstream, environmental protection law continues to wind its way despite bends, curves, and obstructions in its way.

An understanding of today’s environmental protection law would not be complete without investigating where environmental protection law is headed and how it is

*By Scott Schang.

adapting around Congress' near abandonment of its legislative oversight of environmental protection. This Part of the treatise first provides insights into recent reform efforts that call for revising environmental protection statutes. Then one of the field's leading authors examines the United States' progress on sustainability. Hopefully, these final three chapters will give the reader a sense of likely future directions and trends in environmental protection law.

§ 25:2 Reinvention efforts¹

Efforts to re-think U.S. environmental law go almost as far back as the laws themselves. If the "first wave" of command-and-control statutes² dates roughly from the 1970 Clean Air Act to the passage of CERCLA in 1980, by the late eighties there already were calls for new ideas and systemic reform.

For example, the high-profile, bipartisan "Project 88," co-chaired by Senators Tim Wirth and John Heinz, generally is credited with advancing market-based approaches for environmental protection, including the sulfur dioxide cap-and-trade program enacted in the 1990 Clean Air Act Amendments.³ Originally conceived during a presidential election, it later was celebrated as an important, if rare, case of policy agreement among industry, environmentalists, and government.⁴

Just 10 years later came a similarly ambitious, consensus-based reform process, the "Enterprise for the Environment" (E4E) effort chaired by former EPA Administrator William Ruckelshaus.⁵ The blue-ribbon panel represented all sectors, including current leadership in Congress and the White House, and produced 12 recommendations for reforming the environmental protection system.⁶ Yet these prescriptions failed to gain traction in the politicized atmosphere of the late 1990s.

The past 15 years have seen no shortage of general proposals for overhauling U.S. environmental protection law. Some, taking their cues from Project 88, have coincided with the election cycle and been directly targeted at an incoming Congress and/or White House.⁷ Others have been outputs of the political process, as with a decade-long series of National Academy of Public Administration reports produced at the specific request of Congress.⁸ Still others were triggered by reflecting on

[Section 25:2]

¹By **Jay Austin** and **Scott Schang**.

²Rose, *Environmental Law Grows Up (More or Less), and What Science Can Do to Help*, 9 *Lewis & Clark L. Rev.* 273 (2005).

³Timothy Wirth, John Heinz, and Robert Stavins, *Project 88: Harnessing Market Forces to Protect the Environment* (1988); Hahn and Stavins, *Incentive-Based Environmental Regulation: A New Era From an Old Idea?*, 18 *Ecology L.Q.* 1 (1991).

⁴Kathy McCauley, Bruce Barron, and Morton Coleman, *Crossing the Aisle to Cleaner Air: How the Bipartisan "Project 88" Transformed Environmental Policy* (University of Pittsburgh Institute of Politics, 2008).

⁵William D. Ruckelshaus and Karl Hausker, *The Environmental Protection System in Transition: Toward a More Desirable Future* (Center for Strategic and International Studies, 1998).

⁶*Id.* at 4.

⁷See, e.g., Alyson Flournoy et al., *CPR for the Environment: Breathing New Life Into the Nation's Major Environmental Statutes* (Center for Progressive Reform, 2007); David Schoenbrod, Richard Stewart, and Katrina Wyman, *Breaking the Logjam: Environmental for the New Congress and Administration* (NYU Law School, 2009).

⁸See, e.g., Jonathan Howes and DeWitt John, *Setting Priorities, Getting Results: A New Direction for EPA* (NAPA, 1995); Howes and John, *Resolving the Paradox of Environmental Protection: An Agenda for Congress, EPA, & the States* (NAPA, 1997); Howes and John, *Environment.gov: Transforming Environmental Protection for the 21st Century* (NAPA, 2000); Jonathan Howes and Bruce McDowell, *Taking Environmental Protection to the Next Level: An Assessment of the U.S. Environmental*

milestones such as the 25th anniversary of modern environmental protection⁹ or evaluating the progress made in the wake of the 1992 Rio Earth Summit.¹⁰

Like Project 88 and E4E before them, what these initiatives have in common is their broad scope yet comparatively isolated success and short shelf life. In the late nineties, efforts like the President's Council on Sustainable Development did have some official cachet and dovetailed with independent NAPA and Aspen Institute calls for "flexibility" in the system,¹¹ leading to acclaimed EPA programs like Project XL, the Common Sense Initiative, the agency's public involvement policy and creation of the EPA Office of Information, and the Smart Growth Initiative. These programs introduced incremental but lasting reforms.

But even close PCSD observers lament the missed opportunity for a wider vision such as the U.S. had agreed to at the 1992 Earth Summit. They cite the Council's subsequent lack of support from high-level political leaders and the public, lack of outreach to the same, failure to recommend a federally coordinated national strategy, absence of a permanent institutional mechanism for implementing recommendations, and lack of political accountability for success or failure.¹²

The cyclical nature of these environmental reform initiatives and the marked similarity of their content have led to meta-studies that summarize and categorize the various kinds of recommendations made. In 2000, the Congressional Research Service analyzed the previous decade's worth of "new approaches" to environmental protection and found that their proposals fell into five categories:¹³

- **Information.** Approaches to improve the quantity and quality of information and to organize it effectively so as to enhance the knowledge base underlying decisions affecting the environment, such as "sound science" and improving regulatory decisions, in particular risk analysis and cost-benefit analysis.
- **Public Sector Processes.** Approaches to revise or create new governmental structures or processes for making environmental decisions, such as increasing delegation to states, creation of an independent cost-benefit/risk assessment review body, and establishment of a "regulatory budget."
- **Incentives.** Approaches that emphasize incentives as opposed to regulatory or financial penalties for achieving environmental ends, such as grants, loans, tax breaks, procurement policies, technical assistance, and regulatory waivers.
- **Market Mechanisms.** Approaches that rely on markets and common law for environmental decisions to the extent possible, such as trading, banking, offsetting of pollution rights, pollution taxes, and liability risks under tort law.
- **Management Principles.** Approaches to inculcate environmental values in public and private managerial decisions, such as corporate environmental management systems, supply chain management, and pollution prevention.

Services Delivery System (NAPA, 2007).

⁹Bill Clinton and Al Gore, *Reinventing Environmental Regulation* (1995); Marian Chertow and Daniel Esty (eds.), *Thinking Ecologically: The Next Generation of Environmental Policy* (Yale University Press, 1997).

¹⁰President's Council on Sustainable Development, *Sustainable America: A New Consensus for the Prosperity, Opportunity and a Healthy Environment for the Future* (1996); President's Council on Sustainable Development, *Towards a Sustainable America: Advancing Prosperity, Opportunity and a Healthy Environment for the 21st Century* (1999); John Dernbach (ed.), *Agenda for a Sustainable America* (ELI Press, 2009).

¹¹John E. Blodgett, *Environmental Protection: New Approaches*, CRS Report RL30760 (Dec. 11, 2000).

¹²Dernbach, *Learning From the President's Council on Sustainable Development: The Need for a Real National Strategy*, 32 ELR 10648 (2002).

¹³Adapted from Blodgett, *Environmental Protection: New Approaches*, *supra* note 11, at 9-44.

In chapter 26, George Washington University law professor Lee Paddock examines a number of environmental reinvention reports and finds that “[t]he similarity of the conclusions from these studies and policy recommendations is striking.”¹⁴ He distills the conclusions into seven broad categories: (1) establishing priorities, setting goals, and measuring progress; (2) improving access to information, including good scientific data; (3) public engagement; (4) partnering and other forms of collaboration; (5) bringing new financial resources to the table; (6) innovation in developing and deploying a broad range of approaches to solving environmental problems; and (7) individual and corporate responsibility and extended producer responsibility.

Professor Paddock argues that although these reports produced a clear and relatively consistent reform agenda, “[e]qually striking . . . is the fact that the basic system of environmental management and the allocation of human and financial resources are little changed at their core after nearly 20 years of introspection.”¹⁵ He concludes that some rethinking of environmental governance remains necessary, but also points to political deadlock at both the federal and state levels—which has only intensified in the years since his original article appeared. His (and the others’) prescriptions for regulatory reform, increased networking and partnerships, economic incentives, public information, education and participation, and innovation in environmental management remain relevant; but many would depend on overcoming the same political indifference and institutional inertia that has sidelined most similar proposals for the past two decades or more.

§ 25:3 Sustainability

The intersection of environmental protection law and sustainable development is neither clear cut nor well defined. As Professor John Dernbach traces in chapter 27, sustainability is a broad concept that combines concern for the environment with concern for economic and social progress. It is not clear whether environmental protection law is a precursor to sustainability, a part of it, or an artifact that will be left behind as sustainability grows as a concept and/or practice.

Environmental protection law and sustainability are clearly closely related, even if sustainability’s exact pedigree is unclear. Section 101 of the National Environmental Protection Act arguably contains the first formulation of sustainability despite the fact that the 1987 Brundtland Commission’s formulation of sustainable development is often credited as sustainability’s start. Compare these two excerpts:

The Congress, recognizing the profound impact of man’s activity on the interrelations of all components of the natural environment . . . declares that it is the continuing policy of the Federal Government . . . to use all practicable means and measures . . . in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans.¹

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization

¹⁴See §§ 26:1 et seq., *infra*.

¹⁵See §§ 26:1 et seq.

[Section 25:3]

¹42 U.S.C.A. § 4331(a).

on the environment's ability to meet present and future needs.²

The seeds of modern sustainability can be found in both.

Professor Dernbach's expansive view of sustainability in chapter 27 provides a prescription for better environmental governance through planning and integration. It remains to be seen whether his vision of intelligent governance leading progress will win out over progress pulling environmental governance along with it.

§ 25:4 Private environmental governance

Over the past decade, non-governmental actors have been taking on traditional government functions, such as standard setting and policing other entities' environmental compliance. This so-called private environmental governance is beginning to have such broad impact that it merits independent discussion.¹

Professor Paddock and others have noted the growth of "individual and corporate responsibility and extended producer responsibility."² This effort has shown significant growth recently and has arguably developed into a form of private governance:

Private Governance occurs when non-governmental entities, including private organizations, dispute resolution organizations, or other third party groups, make rules and/or standards which have a binding effect on the "quality of life and opportunities of the larger public." Simply put, private—not public—entities are making public policy.³

The impact of such efforts has been significant. The Forest Stewardship Council and Sustainable Forest Initiative together account for over 418 million acres of certified forests in North America, according to the organizations' websites. Wal-Mart, GE, and many other companies have undertaken extensive product supply chain management programs that at times have the purchasing companies acting as inspector and enforcer of both government and non-government environmental standards. Private, voluntary certifications and standards have had a significant impact on the sustainability of some fisheries.

The motivations behind these various efforts are varied. Protecting a hard-won corporate image is important. Preventing a public uproar over an environmental scandal may be far cheaper than enduring one. Some companies consider environmental protection an element of their corporate ethics. Others undertake such efforts in the hope of forestalling more onerous government intervention. There are, no doubt, more motivations as well.

The impact of private environmental governance is still unclear in terms of demonstrable environmental protection outcomes. But it is better to have institutions striving to inculcate environmental values into the very way in which they conduct their business than to have it remain an external factor that government imposes.

Having private actors take on traditional government functions also raises important factors that merit further research and discussion. For example:

- What role does the public play when companies or companies and non-governmental organizations create voluntary codes of conduct?

²Report of the World Commission on Environment and Development: Our Common Future, ch. 2 (1987).

[Section 25:4]

¹See, e.g., "A Summit on Private Environmental Governance: Facing the Challenges of Voluntary Standards, Supply Chains and Green Marketing," available at http://www.eli.org/Seminars/past_event.cfm?eventid=768.

²See § 26:44, *infra*.

³http://en.wikipedia.org/wiki/Private_governance.

- Why should private entities be responsible to other private entities for environmental compliance?
- What is the appropriate role, if any, for government in this new system?
- To what degree will private environmental governance invite so-called greenwashing, or public relations efforts disguised as environmental protection efforts?

This area is still in its infancy, but represents an important aspect of environmental protection law that bears close attention.⁴

§ 25:5 Conclusion

Environmental protection law remains a work in progress. As new environmental risks are understood, new governance solutions are proposed. While congressional action may have reached a nadir, new efforts such as private environmental governance and the public's embrace of sustainability provide evidence of dynamism in this field.

Despite the many changes in environmental conditions and law in the past four decades, the need to internalize externalities remains perhaps the most pressing constant. Garrett Hardin made clear in 1968 that the tragedy of the commons is a central cause of environmental decline.¹ In the 21st century, we continue to face this issue through common use of the atmosphere to dispose of greenhouse gases, largely unchecked exploitation of global fisheries, lack of adequate regulation of fresh water usage, and many other examples.

Our environmental governance system largely continues to allow usage of common resources without users bearing the full cost of the use to current and future generations and without recognizing the many benefits our natural world provides that are not monetized. Sustainability may be one method to tackle externalities, and private environmental governance and reform of environmental protection law may be other or complementary methods. Finding ways to accommodate an expanding human population through innovation, efficiencies, and internalizing externalities remain central challenges for environmental protection law as it continues to evolve and adapt.

⁴For a comprehensive discussion of private environmental governance, see Vandenberg, *Private Environmental Governance*, 99 *Cornell L. Rev.* (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237515.

[Section 25:5]

¹Hardin, *The Tragedy of the Commons*, 162 *Sci.* 1243–1248 (1968).

Chapter 26

Reform Efforts in Environmental Protection Law*

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- § 26:2 Changing world in which change is accelerating
- § 26:3 The consequences of change

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- § 26:5 National Academy of Public Administration: setting priorities, getting results
- § 26:6 The Aspen Institute
- § 26:7 PCSD
- § 26:8 NAPA: resolving the paradox of environmental protection and “enterprise for the environment”
- § 26:9 NAPA: environment.gov.
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*By **LeRoy C. Paddock**. Excerpted with permission from LeRoy C. Paddock, “Green Governance: Building the Competencies Necessary for Effective Environmental Management,” 38 *Envtl.L.Rep.* 10609 (Sept. 2008).

- § 26:32 —Governance considerations
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- § 26:36 — —Voluntary programs
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- § 26:47 Identifying and mainstreaming innovative environmental management approaches
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PART I. CHANGING CIRCUMSTANCES

§ 26:1 Introduction

Almost 40 years after the dawn of the modern age of federal environmental law, the nature of the environmental challenges faced by the United States has so fundamentally changed that the country's system of environmental governance must be completely re-imagined to ensure healthy air, clean water, a stable climate, safe drinking water, vital ecosystems, and continuing biodiversity. For most of this time environmental governance has primarily been, and been seen as, a regulatory process within the domain of government. Today, environmental governance must become a shared enterprise, anchored by government regulatory programs, but fully integrating economics-based and values-based behavioral drivers as well. Rather than relying primarily on direct regulations to control behavior, government (and other organizations) must employ a variety of direct and indirect measures in a new system of environmental governance to achieve desired environmental outcomes. These measures may include collaboration, voluntary programs, information, participation, taxes and fees, business drivers such as reputation and investor relations, education, and consumer pressure, among others. This will require government to rethink how its human and financial resources are deployed to leverage the maximum possible environmental results from those approaches.

§ 26:2 Changing world in which change is accelerating

The changes necessitating this shift from environmental programs heavily focused on traditional regulation to a leveraged management system that relies on a variety of actors to help shape environmental outcomes have come in many forms:

- The complex, societywide issues associated with greenhouse gas (GHG) emissions were not on the scientific radar screen in the early 1970s.
- The value of wetlands and the effect of persistent bioaccumulative toxins on fisheries were not well understood outside of the scientific community.
- Urban sprawl and intense development along many coastal areas were not as severe as they are today.
- The impact of nonpoint sources of water and air pollution, though anticipated, were not the focus of the regulatory system and not thought to be as signifi-

cant as they have proved to be.¹

- The impacts on air quality and climate from motor vehicles, ships, and aircraft have dramatically changed as the economy has globalized, ships and trucks have become the virtual warehouse for just-in-time manufacturing and big-box retailing, and the number of vehicle miles traveled has skyrocketed.
- The rapid growth in abandoned urban industrial property resulting from major changes in the manufacturing patterns and, at least in part, from the unintended consequence of the liability system designed to drive cleanup of old industrial waste sites.
- The increasing pace of scientific breakthroughs like nanotechnologies are beginning to outpace the ability of the regulatory system to respond using traditional approaches.
- The dramatic shift in the United States from a manufacturing economy to a service economy—where service businesses now account for three-fourths of the nation's economy and 80% of its employment²—has eliminated many major industrial point sources, but now includes a vastly larger number of smaller sources of pollution.
- The scale of environmental problems such as climate change, mercury contamination, biodiversity loss, and illegal logging and the cost of responding to the problems has dramatically increased.
- Globalization of the economy means that consumer decisions have environmental impacts both locally and in countries throughout the world.
- The public desires to be more fully engaged in decisions about environmental issues in their community and more generally.

As Marian Chertow and Daniel Esty observed in their book *Thinking Ecologically*:

In the past, when environmental insults were obvious and the targets of controls were big smokestack industries, making companies pay for their despoliation had a moral logic that offered wide appeal. Today, however, when many of the harms we face reflect the cumulative impact of millions of individual and small enterprises, the enemy is “us” and the moral certainty of the crusade is harder to sustain.³

Point source pollution control over the last 35 years has produced tremendous public health and economic benefits. But it has also been a very expensive enterprise, with the nation spending in excess of \$200 billion annually to carry out our environmental laws.⁴ Most of these costs have been absorbed by the same point source facilities that have been the focus of environmental regulation. These costs have become embedded in the price of goods and services and are, for the most part, not particularly visible to the public.

However, the cost of dealing with many of the new sources of environmental problems like GHGs, nonpoint source water pollution, and urban sprawl may be far more apparent to the public since many of the costs will not be as easily blended into the economy, at least in the short term. The cost of rehabilitating major ecosystems is staggering, requiring sources of revenue that stretch far beyond the scope of traditional environmental funding. For example, the cost of achieving the water quality goals for a healthy Chesapeake Bay are estimated to be in excess of

[Section 26:2]

¹Daniel J. Fiorino, *The New Environmental Regulation* (2006).

²Bruce Guile & Jared Cohon, *Sorting Out a Service-Based Economy*, in *Thinking Ecologically: The Next Generation of Environmental Policy* 76 (Marian R. Chertow & Daniel C. Esty eds., 1997).

³Daniel C. Esty & Marian R. Chertow, *A Vision for the Future*, in *Thinking Ecologically: The Next Generation of Environmental Policy*, *supra* note 2, at 232.

⁴Fiorino, *supra* note 1, at 1.

\$25 billion,⁵ the cost of the Comprehensive South Florida Ecosystem Restoration Plan is expected to exceed \$19 billion,⁶ and a 2006 version of the Great Lakes Regional Collaboration Implementation Act called for more than \$20 billion in spending over a five-year period.⁷

The costs of a serious effort to stabilize carbon dioxide (CO₂) emissions are even higher, with one recent estimate by Prof. Robert Stavins indicating that the cost will be between 0.5% and 1% of gross domestic product (GDP) annually depending on the chosen reduction targets.⁸ Given a GDP of about \$13 trillion,⁹ this is an annual cost of between \$65 billion and \$130 billion. The scale of these costs is driving policymakers to find new ways of approaching environmental problems.

§ 26:3 The consequences of change

The nature of today's environmental problems and the costs to remedy those problems has dramatic consequences for the design of an effective system of environmental governance. The public can no longer simply turn over environmental problems to "expert" government agencies and expect the problems will be resolved without their involvement or commitment. And the public cannot expect these major environmental problems to be solved without committing either significant new tax or fee revenues or new sources of nongovernmental funding to the problems. Legislatures and government agencies can no longer concentrate most of their efforts on large public and industrial facilities and expect that major ecosystem problems will be adequately addressed. Simply writing rules, requiring permits, enforcing the permits, and reporting to the public about how many permits have been issued and how many penalties have been imposed is increasingly an insufficient response. The public wants to know how much cleaner its air and water is as a result of what government is doing.

Industrial facilities and service operations cannot simply outsource or offshore their environmentally damaging operations and expect that they have satisfied their environmental obligations, nor can they expect that mere compliance with a limited set of environmental standards will be sufficient to satisfy their customers' expectations or the demands of their investors and insurers. Farmers and developers who have for the most part escaped the reach of the environmental regulatory system cannot expect this situation to continue as the consequences of land use on the environment become more evident.

Both government and facility owners must recognize that members of the public want more information about environmental conditions, want more and earlier opportunities to participate in environmental decisions, and want to have a real voice in the decisionmaking process.

This new system of environmental governance will be complex and difficult to manage; government "controls" much of the regulatory system but often only has the ability to influence economics-based and values-based environmental behavioral drivers that many of the new approaches rely upon. Thus, any new system of

⁵Nat'l Acad. of Pub. Admin. (NAPA), Taking Environmental Protection to the Next Level: An Assessment of the U.S. Environmental Services Delivery System 50 (2007).

⁶U.S. Gov't Accountability Office, South Florida Ecosystem: Restoration Is Moving Forward but Is Facing Delays, Implementation Challenges, and Rising Costs 34 (2007).

⁷John C. Austin et al., Great Lakes Economic Initiative, The Brookings Institution, Healthy Waters, Strong Economy: The Benefits of Restoring the Great Lakes Ecosystem 2 (2007), available at http://www3.brookings.edu/metro/pubs/20070904_gleiecosystem.pdf.

⁸Robert Stavins, *A Sensible Way to Cut CO₂ Emissions*, *Env'tl. F.*, Nov./Dec. 2007, at 18, 18.

⁹Central Intelligence Agency, The 2008 World Factbook 657 (2007), available at <https://www.cia.gov/library/publications/the-world-factbook/print/us.html>.

environmental governance will require new societal arrangements. In some cases, government will still set the standards and the rules of behavior. In other cases, new forms of stakeholder consultation will be needed where government, citizens, businesses, and nongovernmental organizations (NGOs) work with each other to achieve agreed-upon environmental goals. In still other cases, companies will establish their own environmental standards driven by economic factors including cost savings and the opportunity to differentiate their products, but also by reputation, customer demand, insurance availability, investor decisions, and other factors like corporate values. Governments' role in this area may simply be to recognize these economic forces driving corporate behavior and to not intervene in a way that would limit these forces. Or, government may be in a position to encourage corporate "beyond compliance" behavior through a variety of incentives or by providing information to the public.

In some cases, communities will drive environmental behavior through forces such as common law, legislative liability standards, local environmental regulation, customer demands, investment decisions, company reputation, and educational campaigns. Governments' role in these circumstances may be to provide information supporting community-based activities or to provide wider community access to government processes.

In yet other cases, NGOs will drive company behavior through negotiations, threats of public action, or shareholder actions. Government may be able to facilitate NGO action through participation in collaborative efforts and by providing information, including scientific data.

PART II. CALLS FOR NEW APPROACHES TO ENVIRONMENTAL GOVERNANCE

§ 26:4 Regulatory critiques

For nearly 20 years, a wide range of organizations, including the U.S. Environmental Protection Agency (EPA) and state environmental agencies, has recognized that the traditional regulatory approach cannot, by itself, achieve the kind of environmental outcomes needed to solve many of the nation's most critical environmental problems. As early as 1987, EPA began to reexamine the most important environmental risks facing the country and found that many of those risks (including the relatively highly ranked risks related to habitat destruction, loss of biodiversity, climate change, and nonpoint source discharges to surface water) were outside of the Agency's core regulatory programs.¹ The following discussion looks at several of the critiques of the core regulatory system in chronological order.

§ 26:5 National Academy of Public Administration: setting priorities, getting results

In 1995, the National Academy of Public Administration (NAPA), in what would become a long series of reports on EPA, produced a list of the most serious "residual" environmental risks. The list was similar to that produced by EPA in 1987, and included polluted runoff from farms and urban development, high levels of ground-

[Section 26:4]

¹U.S. EPA, *Unfinished Business: A Comparative Assessment of Environmental Problems* (1987).

level ozone, climate change, biodiversity loss, and degradation of coastal zones.¹ NAPA noted: “One thing which the problems in the list have in common is that they are caused not only by the emissions of chemicals from smokestacks and drainage pipes, but from thousands or even millions of different sources, or from patterns of land use,”² and pointed out that “EPA’s traditional command-and-control approaches are relatively ineffective tools for managing most of the problems on the list”³ To better cope with the nation’s environmental problems, NAPA suggested a shift “from a system that relies heavily . . . on tightly defined pollution controls set by federal lawmakers and regulators, to a system that would rely more heavily . . . on the ability of individuals, firms, communities, and states to meet national environmental standards in ways that make the most sense to them.”⁴

Although the need to rely more heavily on actors outside government to produce desired environmental outcomes was noted by NAPA more than 13 years ago, this shift in focus has proven difficult to accomplish.

Coincident with the NAPA work, the Aspen Institute through its “Series on the Environment in the 21st Century” and President William J. Clinton’s Council on Sustainable Development took in-depth looks at the U.S. environmental regulatory system.

§ 26:6 The Aspen Institute

The Aspen Institute’s Series on the Environment in the 21st Century was one of the first efforts to seriously engage government, business, and environmental organizations in a *balanced* stakeholder dialogue focused on developing a new environmental management system for the United States based on “the belief on all sides that current environmental protection and enhancement strategies are not sufficient to meet the environmental challenges of the next century.”¹ This belief led to a goal of developing “a new way to protect and enhance the environment consistent with a sustainable society characterized by a vibrant economy, protection of public health and the natural environment, and social and environmental justice.”² The Aspen participants called this new way “The Alternative Path.” They explain that

[a] company or other regulated entity choosing to operate under the Alternative Path may design a tailored, more efficient environmental management plan with increased flexibility as to how the environmental goals are achieved. This may involve waivers of currently applicable regulatory requirements. In return, however, the plan must be developed in an open, transparent, consensus-based stakeholder process; it must ensure the attainment of better environmental performance than would be achieved under the traditional regulatory process; and it must not result in significant increase in risk to any exposed population or shift risks from one population to another.³

The Alternative Path provided a quid pro quo for regulated entities: increased flexibility to identify and utilize the most efficient means of accomplishing

[Section 26:5]

¹NAPA, Setting Priorities, Getting Results: A New Direction for EPA 23–24 (1995).

²*Id.* at 24.

³*Id.* at 25.

⁴*Id.* at 172.

[Section 26:6]

¹The Aspen Inst., The Alternative Path: A Cleaner, Cheaper Way to Protect and Enhance the Environment (1996).

²*Id.* at 2.

³*Id.* at 3–4.

environmental results in return for a commitment to achieving environmental outcomes beyond the minimums established by law, increased transparency, stakeholder involvement, and a greater focus on prevention and continuous improvement.⁴ As the Aspen Institute report noted:

The Alternative Path is founded on a new, more cooperative relationship [among] regulators, the regulated companies and communities, and affected constituencies—stakeholders who are impacted by the decisions and outcomes. At the heart of this relationship is a mutually beneficial approach—allowing more flexible and efficient compliance methods in return for achieving superior environmental performance and involving stakeholders more directly in the information sharing and decision making process.⁵

The Clinton Administration’s Regulatory Reinvention effort adopted the Aspen concept in 1995 launching Project XL (Excellence and Leadership), a high-profile experimental effort to test the Alternative Path.⁶

The Aspen Institute’s proposal involved a rather limited innovation: providing more flexibility in the permitting process or avoiding the need for some new permits by allowing companies to operate under facilitywide caps or through the use of other mechanisms in return for superior performance commitments and greater involvement of stakeholders. However, even this limited innovation faced significant obstacles when it was introduced in the XL program and has not survived in any major EPA programs today. It also focused on reforms in the regulatory system rather than going beyond the regulatory system to introduce new economics- or values-based approaches. The President’s Council on Sustainable Development (PCSD) took a broader approach to reform.

§ 26:7 PCSD

The PCSD, an elaborate multi-year, multi-stakeholder effort,¹ examined in depth the need to diversify the methods used to drive desired environmental results. The council found that

Future progress requires that the United States broaden its commitment to environmental protection to embrace the essential components of sustainable development: environmental health, economic prosperity, and social equity and well-being. This means reforming the current system of environmental management and building a new and efficient framework based on performance, flexibility linked to accountability, extended product responsibility, tax and subsidy reform, and market incentives.²

Specifically, the PCSD recommended an “alternative path” similar to the Aspen Institute proposal,³ but went well beyond Aspen in recommending new approaches to environmental management. PCSD’s recommendations included the following:

- A “voluntary system that ensures responsibility throughout a product’s life cycle by all of those involved in the life cycle. The greatest opportunity for

⁴*Id.* at 4–6.

⁵*Id.* at 9.

⁶*Id.* at 11.

[Section 26:7]

¹Staff from the PCSD participated in the Aspen Institute Series on the Environment in the 21st Century.

²PCSD, *Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment for the Future 25* (1996).

³The PCSD recommended the creation of “a bold, alternative environmental management system designed to achieve superior environmental performance and economic development that relies on verifiable and enforceable performance-based standards and provides increased operational flexibility through a collaborative decision-making process.” *Id.* at 34.

extended product responsibility rests with those throughout the commerce chain—designers, suppliers, manufacturers, distributors, users, and disposers—that are in a position to practice resource conservation and pollution prevention at lower cost”;⁴

- Tax policies, e.g., carbon taxes, that discourage environmentally damaging production and consumption decisions and eliminate subsidies that encourage activities inconsistent with economic, environmental, and social goals;⁵
- Greater use of market incentives such as cap-and-trade systems, congestion pricing, and energy efficiency surcharges on utility bills;⁶
- “[O]pen information policies and practices, recognizing that disclosure and active dissemination of information should be the rule, not the exception”;⁷
- A system of indicators that report progress toward national sustainable development goals to the public on a regular basis;⁸
- Changes in the formal education system to help students, educators, and education administrators learn about the environment, the economy, and social equity;⁹
- “[N]onformal access to information on, and opportunities to learn and make informal decisions about, sustainability as it relates to citizens’ personal, work, and community lives”;¹⁰
- “[V]oluntary, multistakeholder, collaborative approaches to protect, restore, and monitor natural resources and to resolve natural resources conflicts”;¹¹ and
- Incentives such as tax credits, conservation reserve payments and resource depletion fees “to stimulate and support the appropriate involvement of corporations, property owners, resource users, and government at all levels in the individual and collective pursuit of stewardship of natural resources.”¹²

The PCSD report is the first major set of environmental policy recommendations to fully embrace a triangulated approach to environmental management that relies on an enhanced regulatory system, economic incentives and disincentives, and individual and organizational values based on better environmental education and improved access to information to achieve the goal of sustainable development. Almost all of the elements of advanced environmental governance needed to address the problems discussed in the case examples later in this Article are included in the PCSD recommendations.

EPA incorporated some of these ideas into its programs through, for example, Project XL, the Common Sense Initiative,¹³ its public involvement policy,¹⁴ the cre-

⁴*Id.* at 40. This recommendation moves beyond traditional regulatory approaches to incorporate programs such as EPA’s Green Chemistry® and Energy Star® programs but does not recommend a move as far as some of the product regulation approaches adopted by states, e.g., Minnesota’s electronics and metals regulations, or in European Union Directives.

⁵*Id.* at 46.

⁶*Id.* at 50.

⁷*Id.* at 64.

⁸*Id.* at 66.

⁹*Id.* at 74.

¹⁰*Id.* at 78.

¹¹*Id.* at 115.

¹²*Id.* at 124.

¹³See U.S. EPA, *Sector Programs*, <http://www.epa.gov/ispd/otherprograms.html>.

¹⁴See U.S. EPA, *Public Involvement*, http://www.epa.gov/public_involvement/policy2003/index.htm.

ation of its Office of Information,¹⁵ the Agency's five-year strategic planning and goal-setting process,¹⁶ and its Smart Growth Initiative.¹⁷ However, the Agency has not adopted the kind of systematic governance changes envisioned by the PCSD.

§ 26:8 NAPA: resolving the paradox of environmental protection and “enterprise for the environment”

NAPA revisited the issue of environmental governance in 1997. It found that EPA's main challenge is to

learn to maintain and improve a regulatory system that is both nationally consistent and individually responsive to the particular needs of each state, community, and company. That paradox can be resolved only if the agency and Congress continue to adopt performance-based tools. These include information management systems, market-based controls, compliance-assurance strategies, regulations which encourage firms to choose among compliance strategies, and new partnerships with states and businesses.¹

Former EPA Administrator William Ruckelshaus served on the 1997 NAPA panel and at about the same time launched an effort of his own to identify ways that the environmental governance system needed to evolve to deal with the most pressing environmental problems. Enterprise for the Environment (E4E), yet another broadly representative stakeholder-based project, concluded:

[T]he current environmental protection system must be improved if it is to deal effectively with the serious environmental problems and challenges faced by the United States. Participants also agree that steps must be taken to both improve the quality of the environment and increase the effectiveness, efficiency, and fairness of the nation's environmental protection system. They believe that in the future, the system should encourage businesses, nonprofit organizations, government agencies, and individual citizens to reach higher levels of responsibility, accountability, commitment, and stewardship. In other words, because of both the nature of the environmental challenges that lie ahead and the inefficiencies associated with the current environmental protection system, E4E participants believe the system must evolve for progress to be possible.²

Key E4E recommendations included the following:

- Setting and pursuing clear environmental goals and milestones;
- Offering flexibility of means to meet environmental goals coupled with clarity or responsibility, accountability for performance, and transparency of results;
- Relying on a broader set of policy tools including economic incentives that reward superior performance and stimulate technology innovation, incentives that change individual behavior, and disclosure of consistent and accurate source-level information;
- Promoting collaborative problem solving;
- Encouraging high levels of stewardship; and

¹⁵See U.S. EPA, *Office of Environmental Information (OEI)*, <http://www.epa.gov/oei/>.

¹⁶See Office of the Chief Financial Officer, U.S. EPA, 2006–2011 EPA Strategic Plan (2005), available at <http://www.epa.gov/cfo/plan/plan.htm>.

¹⁷See U.S. EPA, *Smart Growth*, <http://www.epa.gov/dced/>.

[Section 26:8]

¹NAPA, *Resolving the Paradox of Environmental Protection: An Agenda for Congress, EPA, and the States 2* (1997).

²NAPA, *The Environmental Protection System in Transition: Toward a More Desirable Future 3* (Center for Strategic & Int'l Studies 1998).

- Creating decision processes that meaningfully involve affected stakeholders.³

§ 26:9 NAPA: environment.gov.

Perhaps the most in-depth examination of environmental governance over the past decade is NAPA's report entitled *Environment.gov*,¹ involving 16 research teams who examined a wide range of issues from state and federal innovations programs to emissions trading to watershed planning to the working relationship between EPA and the states. The NAPA panel's blunt conclusion was that

[t]he nation's current environmental protection system cannot deliver the healthy and sustainable world that Americans want. Absent significant change in America's environmental governance, the accumulation of greenhouse gases will continue to threaten the stability of the global climate and all of the systems that depend upon it; the uncontrolled runoff of fertilizer and other pollutants will continue to choke rivers, lakes, and estuaries with oxygen-depleting algae; smog will continue to degrade the health of millions of Americans. The regulatory programs in place in this country simply cannot address those problems at a price America can afford.²

Instead, NAPA recommended that clear, measurable goals be established for making progress on the big environmental problems of nutrient loading, smog, and GHGs. NAPA further recommended that these issues be given priority attention, and a much broader range of innovative tools (including market-based mechanisms, collaboration, third-party auditing, industry leadership programs, and industry self-regulation) to attack these problems. Finally, NAPA recommended that much more information, including information on progress in meeting environmental goals, be gathered and made available to the public.³ In essence, in *environment.gov*, NAPA seconded the recommendations of the PCSD.

§ 26:10 Think-tank perspectives

Think-tanks from a range of perspectives have also pointed out the need for a change in the regulatory system. The free market-oriented Reason Foundation observed that

[t]he old . . . vision [of environmental management], shaped in the 1960s and 1970s, implicitly, and some-times explicitly, viewed the information challenge as one of identifying general environmental problems and then specifying uniform remedies to those problems; information relevant to environmental problem solving was perceived to be the sort that could be collected and centralized within as agency of experts, then translated into a series of one-size-fits-all regulations that prescribed acceptable technologies, cleanup methods, and single-purpose wilderness management plans. The public sector was the sector of choice for solving environmental problems, and punishment rather than cooperation was the method of choice for securing compliance on the part of the private sector.¹

Their new vision of environmental regulation includes the following five attributes:

³*Id.* at 4. Many of these recommendations also received support in a 1997 report issued by the National Environmental Policy Institute. See Nat'l Env'tl. Policy Inst., *Environmental Goals and Priorities: Four Building Blocks for Change* (1997).

[Section 26:9]

¹NAPA, *Environment.gov: Transforming Environmental Protection for the 21st Century* (2000).

²*Id.* at 11.

³*Id.* at 190–93.

[Section 26:10]

¹Alexander Volokh et al., *Introduction* to *Race to the Top: The Innovative Face of State Environmental Management* (The Reason Foundation Policy Study No. 239, 1998).

- Stresses problem solving instead of primarily relying on punishment;
- Strives to balance competing values, both environmental values against other values, and some environmental values against other environmental values;
- Seeks flexibility in methods of compliance, so that companies can choose the lowest cost way of following the law instead of having to follow a single prescribed way;
- Views the private sector as a key partner in environmental improvement; and
- Tries to bring decisionmaking authority to the lowest possible level where it makes sense—so that local problems can have local solutions, state problems can have statewide solutions, and federal problems can have federal solutions.²

In a similar vein, the Progressive Policy Institute (PPI), an organization associated with the Democratic party centrists, noted in 1999: “Environmental policy must be modernized to keep pace with the dramatic transformation in the environment, economy, and population. The first generation of rules simply cannot get the job done.”³

PPI recommended that second-generation strategies rely on better information that will drive performance and accountability, increased civic engagement to help solve place-based environmental problems, and expanded use of market-based incentives and regulatory flexibility to improve environmental performance and spur innovation.⁴

§ 26:11 NAPA: taking environmental protection to the next level

Major regulatory reform studies were noticeably absent in the early part of the 2000s. However, NAPA reentered the arena in 2007 with its report *Taking Environmental Protection to the Next Level: An Assessment of the U.S. Environmental Services Delivery System*.¹ The study, requested by the Office of Management and Budget, was designed to provide “an independent assessment of the U.S. environmental services delivery system and ways to optimize the capabilities of each level of government to achieve the greatest environmental and public health results.”²

NAPA found numerous reasons for a new approach to the delivery of environmental services such as the increased need to focus on diffuse sources of pollution, the

²*Id.*

³Debra Knopman & Emily Fleschner, Progressive Pol’y Inst., Briefing, Second Generation of Environmental Stewardship: Improve Environmental Results and Broaden Civic Engagement (1999). The study noted:

- Two-fifths of smog-causing nitrogen oxides come from factories and power plants. The rest comes from cars, trucks, railroads, airplanes, and other miscellaneous non-industrial sources whose actual emissions are difficult to control under the Clean Air Act rules.
- Agricultural runoff—not included in the Clean Water Act permitting program—is now the most extensive source of water pollution, affecting 70% of rivers and streams failing to meet water quality standards.
- More than two-thirds of greenhouse gas emissions—totally unregulated under the Clean Air Act—come from electricity consumed to heat, cool, and light homes and buildings, and from fossil fuels for transportation; industry energy use accounts for the remaining third.
- More than two-thirds of threatened and endangered species reside on private lands where the Endangered Species Act is least effective.

⁴*Id.*

[Section 26:11]

¹NAPA, *Taking Environmental Protection to the Next Level: An Assessment of the U.S. Environmental Services Delivery System* (2007) [hereinafter *NAPA*].

²*Id.* at 1.

limits to EPA's authority in areas such as nonpoint source pollution and brownfields rehabilitation, the increased public demand for information, the need to engage local governments and private organizations in resolving major ecosystem-based environmental problems, and the high cost of large-scale rehabilitation efforts.³

What is clear from the changes in the nature of environmental problems in each media is that the specific job each program is mandated to do by statute—its outputs [rules, permits, inspections, enforcement actions]—may not be enough to achieve the desired environmental outcome—clean air, clean water, or clean land. But ultimately, the environmental outcome is what voters, taxpayers, and the affected public care about. Most people do not understand or care about the details of program administration, but they do care a great deal about what difference the programs make to them individually, to the economy, and to the natural environment. The program outputs—and the effectiveness and efficiency with which they are produced—remain very important of course, and should continue to be measured and used to improve program management, but they are no longer enough to demonstrate the kind of “results” for which the agencies are now responsible.

. . . Producing a clean environment, rather than issuing permits for individual facilities and checking compliance with them, requires managers to involve many more partners, use new forms of collaborative management, obtain and work with greatly improved and more timely data, measure environmental outcomes rather than just program outputs, devise accountability systems that include far more parties than just EPA and the states, and accomplish many other unfamiliar tasks.⁴

To significantly improve the manner in which EPA delivers environmental services, NAPA recommended that the Agency:

- Strengthen its position as a partnering agency while maintaining a strong regulatory presence;
- Create a nonpoint source water pollution program on a par with its point source program;
- Directly serve as the coordinator for or support regional coordination efforts in resolving ecosystem-scale problems;
- Provide the scientific support needed to effectively address ecosystem-scale problems;
- Find, or help other units of government find, new sources of funding that can support large ecosystem restoration projects;
- Support innovative approaches to environmental problem solving; and
- Continue to improve outcome-oriented, performance management systems.⁵

§ 26:12 Study conclusions

The similarity of the conclusions from these studies and policy recommendations is striking. They recognize the need for a strong regulatory and enforcement system to anchor a diverse range of new approaches and tools that will help drive environmental improvement. The studies emphasize the importance of

- Establishing priorities, setting goals, and measuring progress;
- Improving access to information including good scientific data;
- Public engagement;
- Partnering and other forms of collaboration;
- Bringing new financial resources to the table;
- Innovation in developing and deploying a broad range of approaches to solving environmental problems; and

³*Id.* at 5–6.

⁴*Id.* at 8.

⁵*Id.* at 159–84.

- Individual and corporate responsibility and extended producer responsibility.

Equally striking, though, is the fact that the basic system of environmental management and the allocation of human and financial resources are little changed at their core after nearly 20 years of introspection. Daniel Fiorino observed in his book, *The New Environmental Regulation*:

Despite the several efforts to innovate, regulation in 2001 was not much different from what it had been in 1991. Behavior and relationships had changed somewhat; law and policy had changed very little. So William Ruckelshaus could write in 1998 that EPA had made progress but “only at the margins of the agency’s programs.” This statement was only slightly less valid by 2005.¹

Experiments have occurred for the most part on the margins of environmental governance. This is evidenced by many factors. Alternative path programs have not achieved long-term support at the federal level and remain relatively small programs at the state level. Collaborative decisionmaking and partnerships are increasingly used by EPA and a number of states but collaboration and partnering are still not embedded as a core element of environmental management. Some advances have occurred in public involvement especially with EPA’s public engagement policy, but many government administrators still are reluctant to fully engage the public. Innovation programs at both the federal and state level tend to be isolated from media programs, often making mainstreaming of innovation difficult, and little attention has been paid to how to engage NGOs and the public in the innovation process. More information is available but information is still not routinely seen as a central management strategy. Government-sponsored public education efforts, where they exist, remain a small part of most programs, limiting the impact that the agencies could have on individual behavior and on the behavior of smaller businesses. And, except for voluntary programs like Energy Star® or Green Chemistry® and a limited number of state product laws such as the Minnesota electronic waste legislation,² thinking about corporate responsibility and extended producer responsibility remains a minor element of the environmental governance equation.

PART III. CASE EXAMPLES

§ 26:13 New approached to environmental protection

Environmental problem solving has become increasingly complex over the past decade or more. As the following case examples demonstrate, government agencies, NGOs, and businesses have begun developing new ways of achieving environmental progress. These new approaches point the way for building a system of governance that can leverage significantly more resources to achieve environmental results.

§ 26:14 Impaired waters—Chesapeake bay

Even though significant progress has been made over the last 30-plus years in limiting water pollution from industrial sources and publicly owned treatment works, approximately 40% of lakes and rivers in the United States that have been assessed remain polluted. These waters do not meet water quality standards largely because of nonpoint sources of pollution such as agricultural and urban runoff and

[Section 26:12]

¹Fiorino, *supra* note 1, at 153.

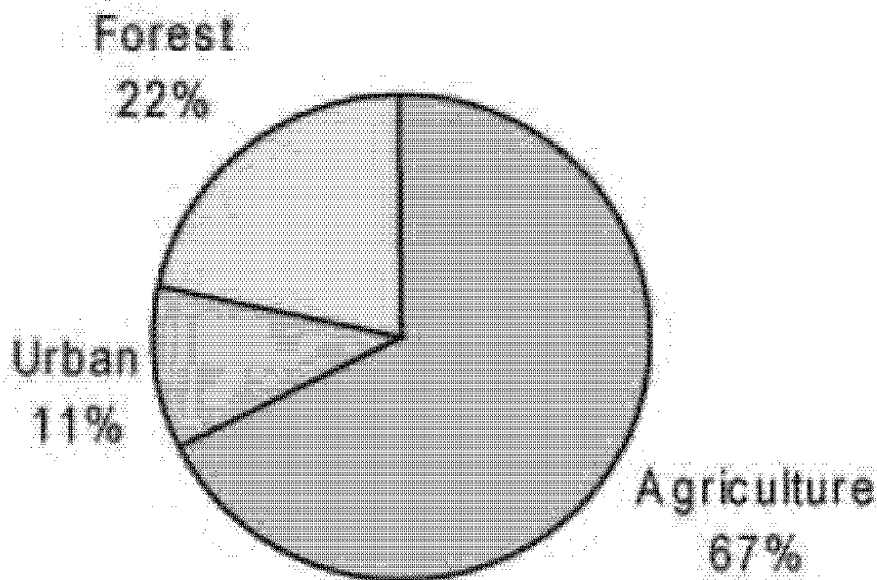
²Minn. Stat. §§ 115A.1310 to 115A.1330 (2007).

airborne deposition.¹ Solving the “impaired waters” problem in the United States is a complex challenge that requires a very different approach to governance. Consider the case of the Chesapeake Bay.

With a drainage area of 64,000 square miles in six states, the bay is North America’s largest estuary, and home to 3,600 species of fish, plants, and animals and 16 million people.² Water quality in the bay is seriously degraded by sediment, phosphorus, and nitrogen resulting in unwanted algae blooms, dead zones where levels of dissolved oxygen cannot support fish, and loss of critical habitat for crabs and other species.³ Achieving nutrient loading levels sufficient to produce a healthy bay is a tremendous challenge, with as much as a 70% reduction in nutrients needed. As the Figures below derived from NAPA’s study of the Chesapeake Bay indicate, agriculture is the largest source of all three pollutants, contributing as much as two-thirds of the sediment pollution. Conventional point sources are the second largest source of phosphorus and nitrogen impairment, followed closely by urban and development sources. Finally, vehicles and power plants are a major source of nitrogen pollution through atmospheric deposition.⁴

Chesapeake Bay Pollution Sources⁵

Sediment Sources to the Bay (2002)



[Section 26:14]

¹U.S. EPA, Overview of Current Total Maximum Daily Load—TMDL—Program and Regulations, available at <http://www.epa.gov/owow/tmdl/overviewfs.html>.

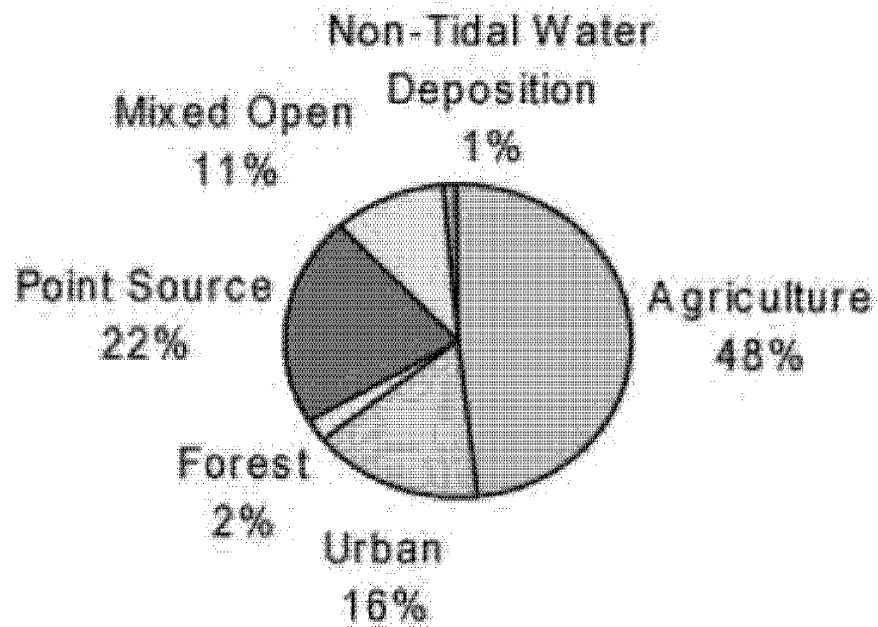
²NAPA, *supra* note 48, at 47.

³Chesapeake Bay Found., *2007 State of the Bay* 4–5, 8 (2007).

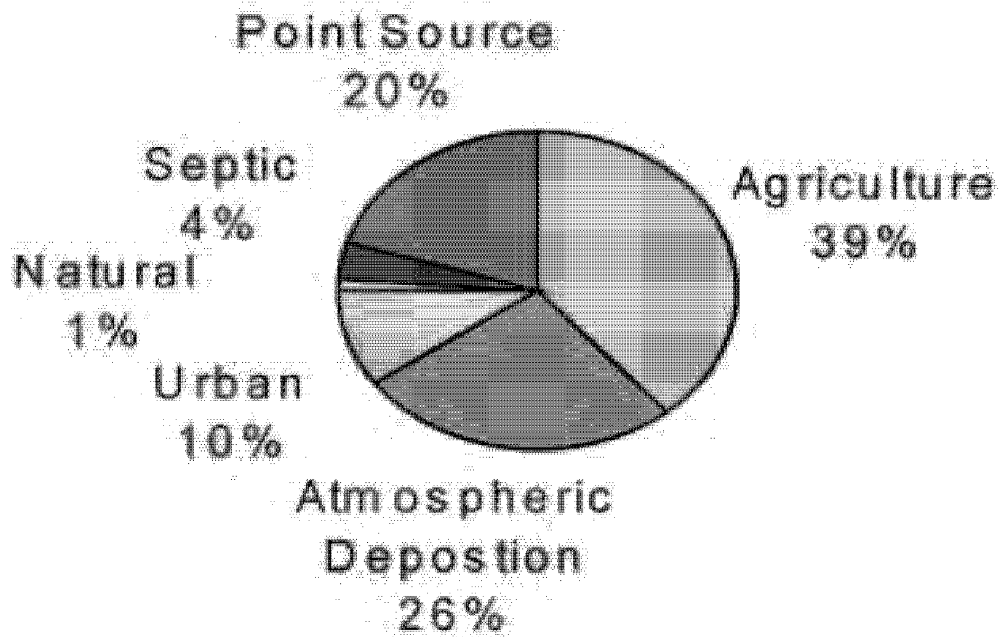
⁴NAPA, *supra* note 48, at 48–49.

⁵*Id.* at 48.

Phosphorus Sources to the Bay (2002)



Nitrogen Sources to the Bay (2006)



Point sources are an important part of the nutrient problem and states, particularly Maryland, have used their traditional regulatory authority under the Clean Water Act (CWA) to impose stringent Enhanced Nutrient Removal (ENR) technology in new wastewater treatment permits.⁶ Clearly, though, most of the Chesapeake Bay problem is attributable to nonpoint sources (as much as 70%), with agriculture being the leading source of pollution and urban development a major and growing contributor.⁷

In addition to its role in regulating wastewater treatment facilities, the traditional regulatory system was an important tool in leveraging the wider Chesapeake Bay cleanup. In 1998, the American Canoe Association and the American Littoral Society sued EPA under § 303(d) of the CWA.⁸ The consent decree settling the case required EPA to issue total maximum daily loads (TMDLs) for the Chesapeake Bay and its Virginia tributaries if Virginia failed to complete TMDLs for those water bodies by 2010, spurring significant work on Chesapeake Bay issues by the state of Virginia.⁹

Although effluent standards and TMDLs play an important role in the Chesapeake Bay, two factors make the Chesapeake Bay a striking example of new approaches to governance: (1) the extremely large number of organizations involved in the cleanup process; and (2) the wide range of tools that are being used to help improve water quality. NAPA found that the Chesapeake Bay cleanup strategy requires the joint efforts of the following:

- 6 states, the District of Columbia, and 3,169 local governments;
- 23 federal agencies;
- 678 watershed associations;
- A large number of riverkeepers;
- 2 interstate river basin commissions;
- 30 regional councils (multi-county councils of local governments);
- 36 state-created tributary strategy teams;
- 87,000 farmers;
- 5-6 million homeowners;
- Hundreds of lawn care companies;
- An uncounted number of land developers, homebuilders, construction companies, agribusinesses, and other companies that send pollution to the bay; and
- A very large number of civic and nonprofit organizations.¹⁰

The diffuse sources of pollution, the scale of the reductions needed to achieve a healthy bay, and the complex intergovernmental arrangements have required governments to deploy an extremely wide range of conventional and nonconventional tools to attack the bay's pollution problems. These tools include identification of clear goals and benchmarks for bay restoration based on extensive scientific analysis, allocation of nutrient reduction responsibilities to each tributary of the bay and establishment of tributary strategies, imposition of new ENR standards for wastewater treatment facilities, development of a wide range of best management practices for agriculture and for development activity, establishing new taxes such as

⁶*Id.* at 54.

⁷*Id.* at 49.

⁸*American Canoe Ass'n, Inc. v. U.S. E.P.A.*, 30 F. Supp. 2d 908, 29 Env'tl. L. Rep. 20383 (E.D. Va. 1998).

⁹*Id.* at 624-27.

¹⁰NAPA, *supra* note 48, at 160-61.

Maryland's flush tax¹¹ to support cleanup activity, raising funds through private philanthropy, social marketing campaigns to raise public awareness of problems, and to gain support for financing, the introduction of low-impact development concepts, and the use of collaborative decisionmaking.¹²

The complex and elaborate structure developed to attack pollution problems in the Chesapeake Bay reflects a broader trend in which governments have adopted a wide range of "indirect" mechanisms or tools to meet their strategic goals.

Lester Salamon observed that

[t]he heart of this revolution has been a fundamental transformation not just in the scope and scale of government action, but in its basic *forms*. A massive proliferation has occurred in the *tools* of public action, in the *instruments* or means to address public problems. Whereas earlier government activity was largely restricted to the direct delivery of goods or services by government bureaucrats, it now embraces a dizzying array of loans, loan guarantees, grants, contracts, social regulation, economic regulation, insurance, tax expenditures, vouchers and more.¹³

As Salamon suggests, and the Chesapeake Bay experience illustrates, important shifts have occurred in how government agencies must approach governance. These shifts include moving away from what an agency's programs require to what tools or instruments can best resolve a particular problem;¹⁴ from the role of agency hierarchies in directing environmental problem solving to the network of organizations that are needed to effectively implement environmental solutions;¹⁵ and shifting from the public sector *versus* the private sector to the public sector *plus* the private sector.¹⁶

This change is illustrated by contrasting NAPA's version of the logic model traditionally used by EPA for dealing with water quality issues with the logic model of the Chesapeake Bay Program.

NAPA Logic Model for Traditional Point Source Water Pollution Control¹⁷

¹¹The Maryland Chesapeake and Atlantic Coastal Bays Restoration Fund is supported by a \$2.50 a month fee on sewer bills and a \$30 annual fee on septic system owners.

¹²*See generally id.*

¹³Lester M. Salamon, *The New Governance and the Tools of Public Action: An Introduction to The Tools of Government: A Guide to the New Governance* 1–2 (Lester M. Salamon ed., 2002).

¹⁴*Id.* at 9.

¹⁵*Id.* at 11. Stephen Goldsmith and William D. Eggers point out that

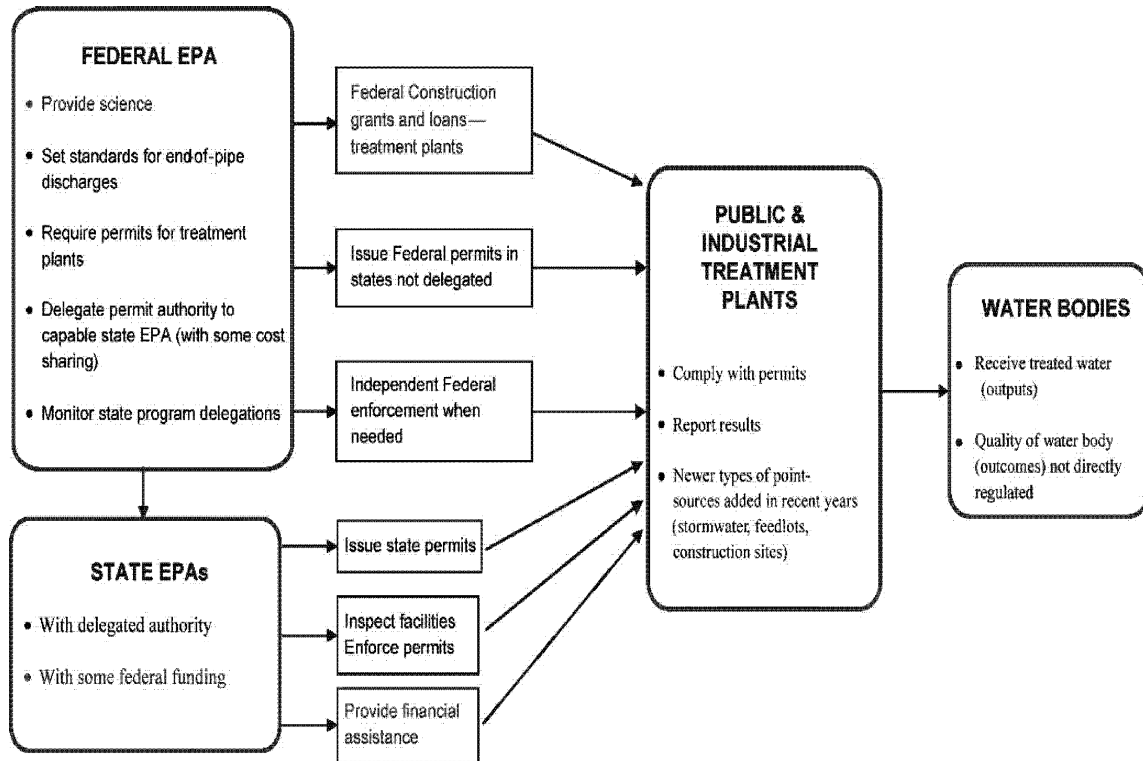
[i]n the twentieth century, hierarchical government bureaucracy was the predominant organizational model used to deliver public services and fulfill public policy

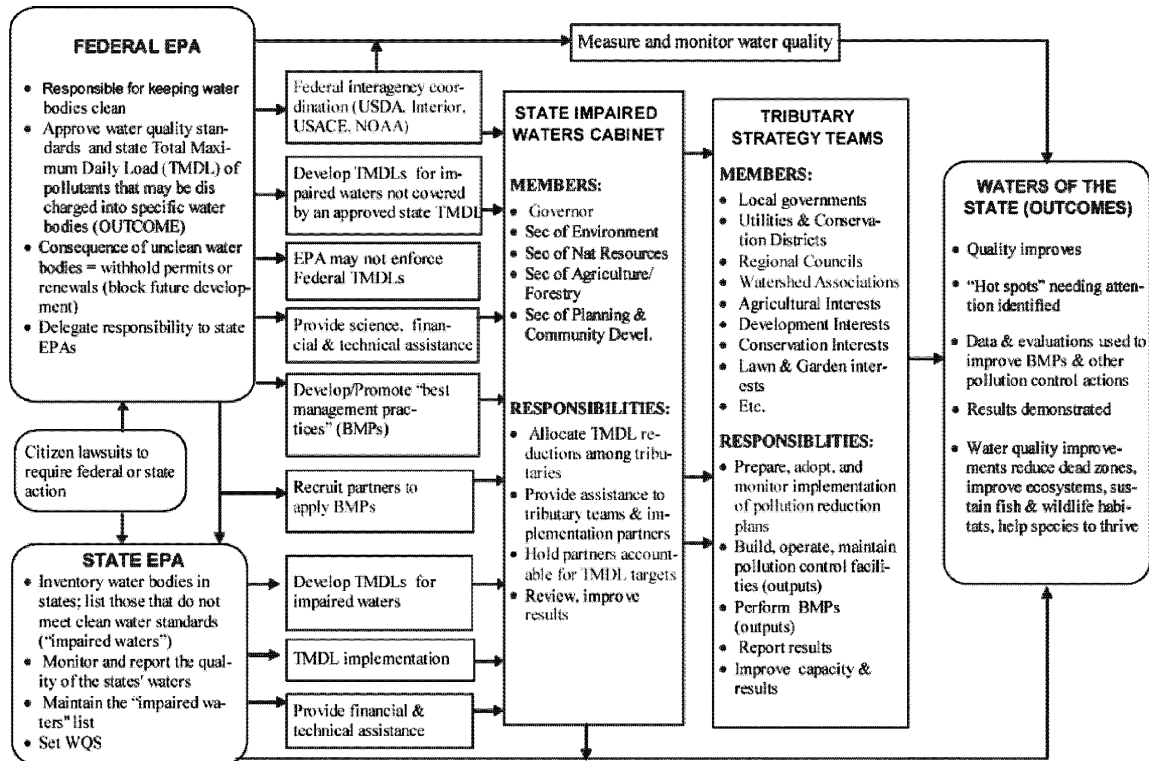
The hierarchical model of government persists, but its influence is steadily waning, pushed by government's appetite to solve ever more complicated problems and pulled by new tools that allow innovators to fashion creative responses. This push and pull is gradually producing a new model of government in which executive's core responsibilities no longer center on managing people and programs but on organizing resources, often belonging to others, to produce public value. Government agencies, bureaus, divisions, and offices are becoming less important as direct service providers, but more important as generators of public value within the web of multiorganizational, multigovernmental, and multisectoral relationships that increasingly characterize modern government.

Stephen Goldsmith & William D. Eggers, *Governing by Network: The New Shape of the Public Sector* 7–8 (2004).

¹⁶Salamon, *supra* note 67, at 14.

¹⁷NAPA, *supra* note 48, at 20.



NAPA Logic Model for Nonpoint Source Water Pollution Control¹⁸¹⁸*Id.* at 23.

Despite the large amount of money spent on Chesapeake Bay cleanup, the number of entities involved in the cleanup network and several innovative regulatory and voluntary programs, the bay will not meet water quality standards by 2010.¹⁹ The Chesapeake Bay Foundation's latest *State of the Bay* report rates progress on pollution issues either as a D or an F.²⁰ The scale of the nutrient reduction required (70%), the cost of the cleanup (estimated at over \$25 billion), the difficulty in finding politically acceptable and effective methods of dealing with agricultural runoff, and rapid development in the region²¹ all contribute to making it very difficult to restore the bay. Certainly going forward new regulatory tools will have to be part of the mix in dealing with agricultural runoff and problems related to development, but the scale and the cost of the problem, and the need to find politically acceptable solutions will continue to require a broad range of approaches to improving environmental outcomes.

Chesapeake Bay is only one of several major estuaries where ecosystem-scale restoration efforts are underway or planned. All of these restoration projects face similar challenges in establishing restoration goals, coordinating restoration activities, creating effective collaborative arrangements, funding, finding the right set of tools to solve problems, measuring progress, and involving the public.²²

§ 26:15 Impaired waters—Minnesota's response

The issue of impaired waters is not restricted to large, multistate estuaries. Each state in the country is struggling with how to restore its impaired waters. States have identified nearly 40,000 impaired water bodies.¹ Since many states have not yet assessed all of their water bodies—for example, Minnesota has only assessed about 8% of its river and stream miles and only 14% of its lakes²—the actual number of impaired waters in the country is much higher. In Minnesota, phosphorus, mercury, and turbidity are the principal sources of impairment. Only 14% of the impairment causing pollutants in Minnesota are discharged from point sources.³

The Minnesota response to impaired waters first required a new consensus on how to address the sources of impairment.⁴ Several local governments, burdened by the prospect of significant costs needed to upgrade wastewater infrastructure, had

¹⁹Office of the Inspector General, U.S. EPA, Development Growth Outpacing Progress in Watershed Efforts to Restore the Chesapeake Bay 8 (2007) (Report No. 2007-P-00031).

²⁰Chesapeake Bay Foundation, 2007 State of the Bay 3 (2007).

²¹EPA's Inspector General found that

[n]ew development is increasing nutrient and sediment loads at rates faster than loads are being reduced from developed lands. Little progress has been reported in reaching nutrient and sediment load reduction goals from developed lands. Judging just the load reductions from implementing the actions laid out in the tributary strategies, about 18 to 28 percent of each reduction goal was reported as being achieved in 2005 for developed lands. At this rate, full implementation of the developed land part of the strategies will not occur until 2028 at the earliest—many years after the 2010 goal.

Office of the Inspector General, *supra* note 73, at 8.

²²See NAPA, *supra* note 48, at 94–103; see also Karen E. Vigmostad et al., Northeast Midwest Institute, Large-Scale Ecosystem Restorations: Lessons Learned From Existing and Emerging Initiatives (2005), available at <http://www.nemw.org/restoration.pdf>.

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¹U.S. EPA, 2006–2011 EPA Strategic Plan: Charting Our Course 43 (2006).

²NAPA, *supra* note 48, at 101; cf. Minn. Dep't of Agric., *Impaired Waters/Total Maximum Daily Load*, <http://www.mda.state.mn.us/protecting/waterprotection/impwaterdefault.htm> (last visited July 30, 2008); see also Office of the Governor, State of Minn., 2006 Clean Water Legacy Act (2006), available at <http://cwc.State.mn.us/documents/CWLA%20fact%20sheet%208-14-06aa.pdf>.

³NAPA, *supra* note 48, at 101.

⁴Minn. Pollution Control Agency, Impaired Waters, <http://proteus.pca.state.mn.us/water/tmdl/tmdl-1-303dlist.html> (last visited July 30, 2008).

expressed concerns about tightening effluent standards to deal with impaired waters, particularly tighter phosphorus standards. Other interest groups including developers and agriculture were concerned about the prospect of new regulations. Businesses expressed frustration that they were too often the focus of the efforts to reduce pollutant loading through the CWA permitting process, often at very high costs, when the majority of the problem came from lightly regulated or unregulated nonpoint sources. The resulting stalemate over how to deal with impaired waters left the state with very serious water quality problems that affected the ability of cities to expand when their wastewater treatment facilities would contribute to further water quality impairment,⁵ affected the tourist industry that is critically important to the state's economy,⁶ and weighed heavily on public values in the "Land of 10,000 Lakes."

To bridge these gaps, the state Pollution Control Agency, working through a non-profit organization, the Minnesota Environmental Initiative,⁷ convened a very diverse stakeholder dialogue⁸ which, after two years of negotiations, developed a consensus approach for impaired waters. This was a historic alliance of parties that had traditionally held very disparate views on how to manage water quality issues in the state. The fact that such a wide range of interests could agree on the basic structure for a statewide impaired waters program resulted in broad bipartisan support⁹ for the legislation proposed by the coalition, the Clean Water Legacy Act.¹⁰ It is perhaps the most comprehensive approach to addressing impaired waters in the country.

The legislative findings in the Act reflect the consensus approach used in its development, noting that

- (2) achieving the state's water quality goals will require long-term commitment and cooperation by all state and local agencies, and public and private organizations and

⁵In 2005, a Minnesota Court of Appeals significantly limited the ability of expanding suburbs to obtain permits for new wastewater treatment facilities that discharge into an impaired water without fully offsetting any discharges that contribute to the impairment. The court of appeals held that the Clean Water Act prohibited the state from issuing a permit for a new discharge if that discharge would "cause or contribute to the violation of water quality standards." *In re Cities of Annandale and Maple Lake NPDES/SDS Permit Issuance for Discharge of Treated Wastewater*, 702 N.W.2d 768, 773 (Minn. Ct. App. 2005), rev'd, 731 N.W.2d 502 (Minn. 2007). The decision, rendered in the midst of the legislative debate over the Clean Water Legacy Act, provided additional incentive for passage of the Act. The Minnesota Supreme Court later reversed the decision in *In re Cities of Annandale and Maple Lake NPDES/SDS Permit Issuance for the Discharge of Treated Wastewater*, 731 N.W.2d 502 (Minn. 2007).

⁶Tourism supported approximately 126,360 jobs and contributed about \$4.6 billion to the state's gross regional product in 1999. Minn. Dep't of Emp. & Econ. Dev., *Economy, FAQs*, <http://www.deed.state.mn.us/faq/economy.htm#Economy19> (last visited July 30, 2008).

⁷The Minnesota Environmental Initiative (MEI) was formed in 1991 with the purpose of bringing professionals from business, government, and environmental communities together to work on partnership-based environmental projects. MEI, *Homepage*, <http://www.mn-ei.org> (last visited July 30, 2008). The initiative fosters "creative collaborations in the form of initial dialogues, policy forums and longer-term special projects." *Id.*

⁸Stakeholders included: The Minnesota Department of Agriculture, The Minnesota Association of Watershed Districts, The Minnesota Association of Soil and Water Conservation Districts, The Minnesota Chamber of Commerce, Minnesota Power, League of Minnesota Cities, The Minnesota Department of Natural Resources, The Association of Metropolitan Municipalities, Minnesota Farmers Union, Minnesota Farm Bureau, The Minnesota Center for Environmental Advocacy, The Rivers Council of Minnesota and the Minnesota Lakes Association, The Association of Minnesota Counties, The Minnesota Board of Water and Soil Resources, Clean Water Action Alliance, and Minnesota Pollution Control Agency. *Id.*

⁹See Minn. State Legislature, *SF762 Status in Senate for Legislative Session 84*, https://www.revisor.leg.state.mn.us/revisor/pages/search_status/status_detail.php?b=Senate&f=sf762&ssn=0&y=2005 (last visited July 30, 2008).

¹⁰S.F. 762, 84th Leg. Sess., codified as Minn. Stat. §§ 114D.05 to 114D.45 (2007).

individuals, with responsibility and authority for water management, planning, and protection; and

(3) all persons and organizations whose activities affect the quality of waters, including point and nonpoint sources of pollution, have a responsibility to participate in and support efforts to achieve the state's water quality goals.¹¹

This consensus-building approach is a markedly different path than the traditional regulate-permit-inspect-enforce paradigm.

The goals of the Act include assessing all waters of the state within 10 years, prioritizing and targeting restoration activities, using a combination of regulatory and nonregulatory approaches to restoration, and implementing measures that prevent future impairment.¹² The Act places special emphasis on public involvement:

Public agencies and private entities involved in the implementation of this chapter shall encourage participation by the public and stakeholders, including local citizens, landowners and managers, and public and private organizations, in the identification of impaired waters, in developing TMDLs, and in planning, priority setting, and implementing restoration of impaired waters. In particular, the Pollution Control Agency shall make reasonable efforts to provide timely information to the public and to stakeholders about impaired waters that have been identified by the agency. The agency shall seek broad and early stakeholder participation in scoping the activities necessary to develop a TMDL, including scientific models, methods, and approaches to be used in TMDL development, and to implement restoration.¹³

The emphasis on public and stakeholder involvement, including scientific stakeholders, is reinforced by other parts of the Act including: the creation of a multi-stakeholder Clean Water Legacy Council¹⁴ to oversee implementation of the Act; a requirement that the council and state agencies make use of available public and private expertise from educational, research, and technical organizations, including the University of Minnesota;¹⁵ and a requirement that the council develop educational strategies for “informing, educating, and encouraging the participation of citizens, stakeholders, and others regarding the identification of impaired waters, development of TMDLs, development of TMDL implementation plans, and implementation of restoration for impaired waters.”¹⁶ The Act places the burden of implementation on public agencies.¹⁷

§ 26:16 Impaired waters—Conclusions

Clearly, making progress on impaired waters will require a very broad approach to environmental governance. Traditional regulation and enforcement, including citizen suits, provides the essential context in which a wider range of creative approaches can be used. New effluent discharge limits for industrial sources is key to dealing with over 20% of the nutrient loading problem in Chesapeake Bay. And, the TMDL requirements in the Clean Water Act provide the backdrop against which all other efforts are measured in both the Chesapeake and in Minnesota. But these regulatory approaches cannot, by themselves, produce the dramatic reduction in

¹¹Minn. Stat. § 114D.10, subdiv. 2

¹²Minn. Stat. § 114D.20.

¹³Minn. Stat. § 114D.35, subdiv. 1.

¹⁴Minn. Stat. § 114D.30. The council includes representatives from statewide farm organizations, business organizations, soil and water conservation districts, watershed districts, county government, city governments, township governments, hunting and fishing organizations, environmental organizations, lakes associations, tribal government, and the University of Minnesota.

¹⁵Minn. Stat. § 114D.35, subdiv. 2.

¹⁶Minn. Stat. § 114D.35, subdiv. 3.

¹⁷Minn. Stat. § 114D.35, subdiv. 3.

nutrient loading needed to produce a healthy bay or a clean water legacy for an entire state. Instead, a range of other mechanisms—partnerships, collaboration, information, social marketing, new fees, private philanthropy, best management practices, etc.—must be strategically linked with regulation to have any hope that the desired end result will be achieved.

§ 26:17 Urban ozone and particulate pollution

Similar to the case of impaired waters, nitrogen oxides (NO_x), and volatile organic compounds (VOCs), the precursors of urban ozone, and particulate matter (PM) pollution are emitted by both point sources and nonpoint sources (referred to in air pollution language as area sources). Motor vehicles play a key role in both ozone and particulate pollution. Just as with impaired waters, it has become increasingly important to look to innovative ways of dealing with those diffuse pollution sources. Ozone and PM are two of the most important air pollutants from a public health perspective.¹

Ground-level ozone is formed when NO_x and VOCs react in the presence of sunlight.² The major anthropogenic source of NO_x is motor vehicles,³ accounting for 56% of the NO_x emissions in the United States.⁴ Other sources of NO_x include fuel combustion processes and utilities, which contribute 17% and 22%, respectively.⁵ Motor vehicles also make up 45% of total VOC emissions.⁶ Industrial and commercial processes account for almost all the rest of the VOC emissions at 50%, with the remaining 5% emitted by consumer solvents.⁷ A significant percentage of VOC emissions come from diffuse sources. For example, the top-10 sources of VOC in Baltimore include degreasing operations, pleasure craft, paints and coatings, portable fuel containers, consumer products, and lawn and garden machinery.⁸

PM is a term for air pollution composed of solid and liquid particles suspended in the air.⁹ Large, coarse particles with a diameter of 2.5 micrometers (m)—10 m are usually composed of soil particles, desiccated cellular debris, spores, and pollen.¹⁰ Uncovered soil, unpaved roads, mining operations, and agricultural processes all provide sources of wind-blown dust that constitute coarse particulates.¹¹

Fine particles with a diameter of less than 2.5 m are mainly composed of products

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¹Ozone can cause numerous respiratory health problems for humans including chest pains, coughing, throat irritation, and congestion. U.S. EPA, *Ozone—Good Up High Bad Nearby*, <http://www.epa.gov/air/oaqps/gooduphigh/> [hereinafter U.S. EPA, *Ozone*]. It can exacerbate existing problems with bronchitis, emphysema, and asthma and long-term exposure to ozone can cause permanent scarring of lung tissue. *Id.* Ozone also damages the ecosystem causing an estimated \$500 million in reduced crop production in the United States every year. *Id.*

²Richard P. Turco, *Earth Under Siege: From Air Pollution to Global Change* 78–79 (2d ed. 2002).

³*Id.* at 276.

⁴U.S. EPA, *supra* note 94.

⁵*Id.*

⁶*Id.*

⁷*Id.*

⁸Md. Dep't of the Env't, *Top-Ten Sources of Volatile Organic Compound in the Baltimore Area* 2002, [http://www.mde.state.md.us/Air/air information/TopTenVOC.asp](http://www.mde.state.md.us/Air/air%20information/TopTenVOC.asp) (last visited July 30, 2008).

⁹World Health Organization (WHO), *Health Aspects of Air Pollution With Particulate Matter, Ozone, and Nitrogen Dioxide: Report on a WHO Working Group 7* (2003), available at <http://www.euro.who.int/document/e79097.pdf> [hereinafter WHO Report].

¹⁰Robert F. Phalen, *The Particulate Air Pollution Controversy: A Case Study and Lessons Learned* 42 (2004).

¹¹WHO Report, *supra* note 102.

from coal and oil combustion, and can contain heavy metals.¹² They can be formed from gases, including sulfur dioxide (SO₂), NO_x, and VOCs.¹³ The NO_x and VOC sources listed above that contribute to ozone pollution also contribute to PM pollution.

Particulate emissions from diesel engines create particularly important health concerns. A study by the South Coast Air Quality Management District (SCAQMD) found that the air toxics carcinogenic risk in the Los Angeles Basin is as high as 1,400 per million people.¹⁴ Emissions from trucks, buses, cars, off-road vehicles, planes, and ships are the dominant source of the risk, with particulates from diesel engines making up 84% of the risk.¹⁵ In 2007, a new EPA rule required manufacturers to produce much cleaner diesel engines.¹⁶ However, diesel engines have a long life expectancy and many of the pre-2007 engines will be in use for 20 or more years.

Several organizations have pursued innovative approaches to deal with the diffuse sources of ozone and PM pollution, including diesel emissions.

§ 26:18 Urban ozone and particulate pollution—Clean Air Minnesota

The Minneapolis/St. Paul region is an attainment area for ozone but came close to exceeding ozone limits on several occasions beginning in the late 1990s. Recognizing this fact, the Minnesota Chamber of Commerce (the Chamber) commissioned a study in 1999 that found the cost to Minnesota businesses of meeting emissions regulations for ozone non-attainment areas under the Clean Air Act (CAA) would be between \$189 and \$266 million per year should the region slip into non-attainment status.¹

The Chamber pursued an unusual path in responding to these potential costs. The organization contacted the state's largest environmental advocacy organization, the Minnesota Center for Environmental Advocacy (MCEA), to discuss whether MCEA might be interested in developing a collaborative effort to reduce ozone-forming pollutants to reduce the possibility that the region would fall into non-attainment. No doubt, part of the motivation for this tactic was that many of the sources for ozone precursors were non-industrial, allowing at least some of the cost of dealing with ozone to be shifted to organizations other than those represented by the Chamber.² Still, the idea was intriguing enough that MCEA agreed to join in the effort.

The Chamber and MCEA began with feasibility meetings to which a broad spectrum of stakeholders were invited, including the Minnesota Pollution Control Agency, the American Lung Association of Minnesota, and Minnesota's largest oil

¹²Phalen, *supra* note 103, at 42–43.

¹³*Id.* at 43.

¹⁴SCAQMD, Draft Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin: MATES-III, at ES-3 (2008).

¹⁵*Id.*

¹⁶U.S. EPA, Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements; Final Rule, 68 Fed. Reg. 5001, 5002 (Jan. 18, 2001) (codified at 40 C.F.R. Pts. 69, 80, 86).

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¹MEI, *About Clean Air Minnesota*, <http://www.mn-ei.org/cam/about.html> (last visited July 30, 2008).

²Motor vehicle emissions are the largest source of ozone precursor emissions in the Twin Cities area followed by area sources. See Sonoma Technology, Inc., Preliminary Assessment of Ozone Air Quality Issues in the Minneapolis/St. Paul Region (2002), available at <http://www.pca.state.mn.us/publications/reports/ozonestudy2002.pdf>.

refinery.³ These meetings resulted in a consensus to pursue a collaborative approach to ozone reduction. Clean Air Minnesota (CAM) was created in 2002 to reduce ozone air pollution so that the Twin Cities metropolitan area remained in compliance with of federal air pollution regulations⁴ and was later expanded to incorporate particulate pollution.

The CAM facilitation process is also unique. The Chamber and MCEA decided to engage the Minnesota Environmental Initiative (MEI) to manage CAM. MEI works with nonprofit, business, and government partners to develop consensus on critical issues and move collectively toward action with positive environmental impacts.⁵ Both MCEA and the Chamber were members of MEI. Organizations that became a member of CAM⁶ agree to implement at least one long-term program designed to reduce air pollution emissions and to engage in education and outreach to employees.⁷

CAM developed a range of projects to reduce ozone precursors, including a lawn mower exchange program, a campaign to encourage businesses with large campuses to plant native grasses to reduce lawn mowing, and a public education campaign to dramatically raise awareness of ozone and particulate issues. The largest project, by far, has focused on retrofitting diesel school bus engines.

Project Green Fleet, through a combination of funding from companies and from EPA, retrofitted 500 school bus engines in its first two years of operation and now plans to retrofit a total of 4,000 buses, reducing particulate and other emissions by 30–40%.⁸ Project Green Fleet is now beginning to work with county governments to retrofit their diesel trucks and construction equipment.⁹ Overall, diesel engines account for only 10% of the vehicles in the state but more than 50% of air pollution from vehicles.¹⁰

§ 26:19 Urban ozone and particulate pollution—Other collaborative responses

Collaborative efforts have also been part of the response to ozone and PM pollution in non-attainment areas in a host of cities.

- Clean Air Counts in Chicago¹ is a collaborative effort among the Metropolitan Mayors Caucus, City of Chicago, U.S. EPA Region 5, Illinois Environmental

³MEI, *Clean Air Minnesota (CAM) Partners*, <http://www.mn-ei.org/cam/partners.html> (last visited July 30, 2008).

⁴MEI, *Clean Air Minnesota (CAM)*, <http://www.mn-ei.org/cam/about.html> (last visited July 30, 2008).

⁵See MEI, *Homepage*, <http://www.mn-ei.org/> (last visited July 30, 2008).

⁶*Id.* The founding partners of CAM included 3M, the American Lung Association of Minnesota, Andersen Corporation, Barr Engineering, the Bush Foundation, the City of Minneapolis, EPA, Flint Hills Resources, Ford Motor Company, Hennepin County, Izaak Walton League of America—Midwest Office, the Metropolitan Council, the Chamber, the Minnesota Department of Health, the Minnesota Office of Environmental Assistance, the Minnesota Pollution Control Agency, Minnesota Power, the Minnesota Technical Assistance Program of the University of Minnesota, Target Corporation, Rock-Tenn (Waldorf Corporation), and Xcel Energy. MEI, *Clean Air Minnesota (CAM) Partners*, *supra* note 112.

⁷MEI, *Clean Air Minnesota (CAM) Partners*, *supra* note 112.

⁸See MEI, *Project Green Fleet: Project Background*, <http://www.projectgreenfleet.org/background/index.html> (last visited July 30, 2008).

⁹*Id.*

¹⁰MEI, *Project Green Fleet* (2007).

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¹Clean Air Counts began in 1999 as a response to the Chicago region's designation as a severe non-attainment area due to repeated violations of the national ambient air quality standards (NAAQS)

Protection Agency and almost 500 public, private and nonprofit partners.² This multiyear initiative is designed to achieve specific and significant reductions in targeted smog-forming pollutants and major reductions in energy consumption.³ Clean Air Counts established a goal of reducing polluting emissions by five tons per day through adoption of energy-efficient lighting; becoming an energy star partner; participating in a gas can replacement program; trading in gas-powered lawnmowers and leaf blowers for electric, battery-operated, or non-motorized models; using low-VOC building materials, cleaning supplies, and paint; using natural landscaping methods that minimize the use of mowing, fertilization, and pesticide treatments; participating in a diesel retrofit program; and reducing the number of employees who drive to work on a daily basis by offering alternatives and incentives.⁴

- The Clean Air Force in Austin⁵ recruits businesses in Central Texas to voluntarily join and commit to reducing emissions from their organization by 10% within three years. Clean Air Partners helps businesses do this by giving them ideas, including: (1) reducing the number of single-occupant vehicle trips made to the work place by setting up carpooling, vanpooling, public transportation options, bicycling, working from home, flex time, and compressed work weeks; (2) using clean energy and energy conservation strategies; and (3) using clean landscaping practices to avoid using fuel-powered landscaping equipment.⁶
- Clean Air Action in Houston⁷ focuses on encouraging ridesharing, using public transit and alternative transportation, and proper vehicle maintenance.⁸
- Spare the Air in San Francisco⁹ seeks to educate the public about air pollution and encourages individuals to help reduce air pollution. Spare the Air also has an employer program.¹⁰ Members of the program receive notice of high ozone one and one-half days in advance so that employers can try to reduce the number of employees that commute to work on the high ozone day. Strategies include offering employees the option to telecommute, subsidizing commutes via public transportation, offering free or preferential parking for car-pools/

for ground-level ozone. Clean Air Counts, *History*, <http://www.cleanaircounts.org/history.aspx> (last visited July 30, 2008). The program targets nonregulated sources of pollution, including: non-regulated businesses, industries, and institutions; municipal governments; developers; architectural services; property managers; households; and other governing and taxing bodies with a specific goal of reducing ozone pre-cursor emissions by five tons per day. Clean Air Counts, *Goals*, <http://www.cleanaircounts.org/goals.aspx> (last July 30, 2008). Clean Air Counts members employ numerous strategies to reduce emissions and conserve energy. Clean Air Counts, *Strategies*, <http://www.cleanaircounts.org/strategies.aspx> (last visited July 30, 2008).

²Clean Air Counts, *Who Has Joined?*, <http://www.cleanaircounts.org/whohasjoined.aspx> (last visited July 30, 2008).

³Clean Air Counts, *History*, *supra* note 120.

⁴Clean Air Counts, *Strategies*, *supra* note 120.

⁵Clean Air Partners is a program developed by the Clean Air Force of Central Texas to reduce air pollution by reducing the number of vehicles that commute. Clean Air Partners, *About the Clean Air Partners Program*, <http://www.cleanairpartnerstx.org/about.html> (last visited July 30, 2008).

⁶Clean Air Partners, *Becoming a Clean Air Partner*, <http://www.cleanairpartnerstx.org/join.html> (last visited July 30, 2008).

⁷Houston-Galveston Area Council, *Air Quality Programs*, <http://www.h-gac.com/taq/airquality/default.aspx> (last visited July 30, 2008).

⁸*Id.*

⁹Spare the Air was established by the Bay Area Air Quality Management District (BAAQMD) to alert residents to high ozone days (days when the ozone levels exceed federal standards for healthy air) and to urge them to reduce their pollution-causing activities on those days. Spare the Air, *Homepage*, <http://www.sparetheair.org/> (last visited July 30, 2008).

¹⁰Spare the Air, BAAQMD, *What Is the Spare the Air Employer Program?*, <http://www.sparetheair.org/employers/employer-program.htm> (last visited July 30, 2008).

vanpools, providing safe bicycling options (including showers and lockers at work), and allowing flexible work hours. Employers are also asked to find alternatives to using gas-powered lawn care equipment on ozone alert days. Over 2,000 businesses and government agencies have registered with Spare the Air.¹¹

- The Puget Sound Clean Air Agency (PSCAA) in Seattle¹² is a special purpose regional agency that works with EPA and the Washington State Department of Ecology to enforce air quality regulations, sponsor voluntary initiatives, and educate the public about clean air. Its Diesel Solutions program, started in 2001, works to reduce diesel emissions by retrofitting vehicles with pollution control equipment, using cleaner fuels, and promoting reduced idling. Transit agencies, school districts, cities and counties, ports, ferries, cruise lines, garbage haulers, and private businesses have all voluntarily joined the Diesel Solutions Program.¹³ Community initiatives sponsored by PSCAA include a program to subsidize a wood stove trade-out to reduce wintertime wood smoke pollution in the town of Darrington.¹⁴ PSCAA also encourages individuals and businesses to take measures to become more energy efficient.¹⁵
- Clean Air Campaign in Atlanta¹⁶ educates the public about air pollution and encourages voluntary efforts by individuals and businesses to improve the air quality in Georgia. Its efforts are focused on reducing the number of commuters traveling in the traditional one-car one-passenger way. Strategies for commuters include telework, carpooling/vanpooling, public transportation, bicycling, flexible work schedules, car sharing, and the guaranteed ride home program, which provide benefits for people who do not drive their car to work.¹⁷

§ 26:20 Urban ozone and particulate pollution—Conclusion

CAM is a dramatic example of a new approach to environmental governance. It is unique in many ways. It was imagined by a business trade association as a way of avoiding future regulatory costs and involved a partnership that is headed by the business organization and an environmental advocacy group. CAM is facilitated by another nonprofit organization and involves the state environmental agency as a participant in the collaborative. It relied on the state agency for the scientific information underlying the work of the collaborative, but has drawn funding from private organizations and foundations in addition to government financial resources. And it is safeguarded by the fact that if the effort fails to produce emissions reductions that keep the area in attainment, the government will step in and impose emissions reductions through a state implementation plan. The CAM example indicates that creative collaborations can produce important environmental results prior to the time that regulatory thresholds are triggered, creating early pollutant reductions, saving costs, building the public reputation of businesses, and creating a better

¹¹Spare the Air, BAAQMD, *Recognizing Participating Employers*, <http://www.sparetheair.org/employers/participating-employers.htm> (last visited July 30, 2008).

¹²PSCAA, *Homepage*, <http://www.pscleanair.org> (last visited July 30, 2008).

¹³PSCAA, *Diesel Solutions*, <http://www.pscleanair.org/programs/dieselsolutions/default.aspx> (last visited July 30, 2008).

¹⁴PSCAA, *Community Initiatives: Darrington*, <http://www.pscleanair.org/programs/community/darrington/default.aspx> (last visited July 30, 2008).

¹⁵PSCAA, *Energy Solutions*, <http://www.pscleanair.org/programs/climate/energy.aspx> (last visited July 30, 2008).

¹⁶The Clean Air Campaign is a nonprofit organization formed in 1996 that works with government agencies and private organizations to reduce air pollution. Clean Air Campaign, *About Us*, http://www.cleanaircampaign.com/about_us (last visited July 30, 2008).

¹⁷*Id.*

working relationship among communities, businesses and government agencies.

The other clean air programs incorporate a wide variety of approaches ranging from public education campaigns to voluntary emissions reduction programs to incentives for reducing commutes and trading in highly polluting equipment such as wood-burning stoves or lawn mowers for more efficient versions. Just as is the case for impaired waters, an important regulatory program underlies and provides the impetus for all of these efforts, but the regulatory program is only one part of a much larger effort to reduce urban ozone and particulate contamination.

§ 26:21 Brownfields rehabilitation

Brownfields rehabilitation is one of the first areas where significant rethinking about the role of government in leveraging private resources was critical to accomplishing public goals. Over the last few decades, many U.S. cities have undergone immense suburban development, pejoratively termed suburban sprawl by land use academics and city planners because of suburbia's often unorganized and expansive development patterns. Land use expert James A. Kushner describes America's subsidization of suburban development as an example of a centrifugal force that has driven metropolitan development farther and farther away from urban centers.¹ Critics argue that the consequences of unchecked suburban sprawl include vast degradation of green space, significant air and water pollution, increased commutes and congested traffic patterns, and increased CO₂ emissions, as well as diminished tax revenues for urban centers due to the loss of economic and residential development.² Reversing the negative effects of suburban sprawl requires public and private support for centripetal forces in metropolitan development that focus on urban and central city revitalization.³

EPA defines a brownfield as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."⁴ The Agency estimates that there are more than 450,000 brownfield sites in the United States today.⁵ According to EPA, cleaning up and redeveloping brownfield sites in the United States "increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment."⁶ More than one-half of the 200 cities responding to a recent survey reported that if redeveloped, brownfield properties in their jurisdictions could yield an aggregate of \$958 million to \$2.2 billion in tax revenues annually.⁷ As part of the same survey, 91 of the cities responding estimated that up to 149,515 new jobs could be created if their brownfield sites were redeveloped.⁸ For environmental and public health purposes, the cleanup and redevelopment of brownfields "eliminates

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¹Kushner, *Brownfield Redevelopment Strategies in the United States*, 22 Ga. St. U. L. Rev. 857, 858 (2006).

²Sierra Club, *Stop Sprawl: Sprawl Overview*, <http://www.sierraclub.org/sprawl/overview/> (last visited July 30, 2008).

³Kushner, *supra* note 137, at 858.

⁴U.S. EPA, *About Brownfields and Land Revitalization*, <http://www.epa.gov/brownfields/index.html> (last visited July 30, 2008).

⁵U.S. EPA, *About Brownfields*, <http://www.epa.gov/brownfields/about.htm> (last visited July 30, 2008).

⁶*Id.*

⁷The U.S. Conference of Mayors, *Recycling America's Land: A National Report on Brownfields Redevelopment* 6 (2006).

⁸*Id.* at 9.

the toxins and physical hazards brought on by idle and contaminated land.”⁹

Revitalization of brownfields is an essential element of urban revitalization plans.¹⁰ One study concluded that for every 1 acre of brownfields reused, 4.5 acres of green space is saved.¹¹

§ 26:22 Brownfields rehabilitation—Legal issues

Despite the fact that brownfields are usually found within the urban core, with access to public transportation, roads, and municipal services because of their previous industrial uses, redevelopment of brownfields has faced many significant obstacles. The most important factors hindering brownfields redevelopment are fears of environmental contamination and potential liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also referred to as Superfund.¹ Ironically, although CERCLA was enacted to clean up the nation’s worst hazardous waste sites, it became “a barrier to the redevelopment of an astounding number of industrial sites that pose health and environmental hazards of their own.”² CERCLA’s complex liability provisions often encourage land-owners to choose to abandon or mothball their property rather than redevelop the property, and often drove development to occur on greenfields.³

§ 26:23 Brownfields rehabilitation—Minnesota’s Land Recycling Act¹

Beginning in the early 1990s, states responded to the growing inventory of brownfield sites by solving three critical problems using new tools that leveraged private interests and resources: (1) potential CERCLA liability associated with financing or undertaking redevelopment of potentially contaminated sites; (2) availability of funding to investigate potential contamination at the sites and to remediate that contamination if found; and (3) access to government staff to approve investigation and remediation plans.

Minnesota’s pioneering Land Recycling Act, passed in 1992, adopted a then very innovative approach to clarifying liability, leveraging private dollars for cleanup, and facilitating government review and approval. The Act provides that

[a] person who is not otherwise responsible [under the state Superfund law] for a release or a threatened release will not be responsible . . . for the release or threatened release if the person undertakes and completes response actions to remove or remedy all known releases and threatened releases at an identified area of real property in accordance with a voluntary response action plan approved by the commissioner [of the Pol-

⁹Sigurani, *Brownfields: Converging Green, Community, and Investment Concerns*, 43 *Ariz. Att’y* 38, 40 (2006).

¹⁰See McMorrow, *CERCLA Liability Redefined: An Analysis of the Small Business Liability Relief and Brownfields Revitalization Act and Its Impact on State Voluntary Cleanup Programs*, 20 *Ga. St. U. L. Rev.* 1087, 1088 (2004).

¹¹U.S. EPA, *Environmental News: EPA Administrator Whitman Announces \$14.6 Million in Grants to Help 80 Communities Revitalize Abandoned Properties*, <http://www.epa.gov/brownfields/html-doc/pr052002.htm> (last visited July 30, 2008).

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¹42 U.S.C.A. §§ 9601 to 9675, *ELR Stat.* CERCLA §§ 101 to 405.

²Tanck, *Getting Snagged in the Environmental Liability Web: The Trouble with CERCLA and Why the Brownfields Act Provides Only Modest Relief*, 35 *Tex. Tech. L. Rev.* 1325, 1328 (2004).

³Collins, *The Small Business Liability Relief and Brownfields Revitalization Act: A Critique*, 13 *Duke Env’tl. L. & Pol’y F.* 303, 304 (2003).

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¹Minn. Stat. § 115B.175.

lution Control Agency].²

This language made it very clear that a person intending to develop or finance the development of a site could do so without assuming the risk of unlimited CERCLA liability, the uncertainty that had previously prevented redevelopment of potentially contaminated property. The statutory change allowed the costs of redevelopment to be more clearly calculated once the extent of contamination was known thereby permitting the developer and financier to determine whether redevelopment was likely to be a profitable enterprise. Since contamination at many of these sites was not extensive and the value of the property for new development was often very high given their location, redevelopment of these properties significantly increased after the passage of the law, almost all supported by private funds. More than 1,200 voluntary cleanups have been completed under the Minnesota voluntary cleanup program.³

The Act also set up an important fee-for-services program that provided developers rapid access to state agency staff that could approve the developer's site investigation and cleanup plans. This arrangement allowed the agency to act quickly on the requests rather than putting these requests in the long queue of CERCLA cleanups, thereby accommodating the tight time schedules often associated with property transactions.

The basic model developed by Minnesota that relied on an understanding of the economics of urban redevelopment was subsequently adopted by most other states and, ultimately, by Congress.⁴

§ 26:24 Brownfields rehabilitation—Federal legislation

Following the lead of many states, Congress passed national brownfields legislation in the Small Business Liability Relief and Brownfields Revitalization Act (the Brownfields Act)¹ in 2002. The purpose of the new legislation was to “provide certain relief for small business from liability under [CERCLA], and to amend such Act to promote the cleanup and reuse of brownfields, to provide financial assistance for brownfields revitalization, to enhance State response programs, and for other purposes.”²

The Brownfields Act accomplishes this result by creating defenses to CERCLA liability including an Innocent Landowner Defense, a Contiguous Landowner Defense and a Bona Fide Prospective Purchaser Exemption. The Brownfields Act also provides public incentives to encourage brownfield redevelopment.³ The Act originally authorized \$200 million per year for an EPA-administered program to provide grants in order to assess and clean up abandoned or underutilized brownfields.⁴

The Brownfields Act also provides tax incentives for redevelopment. The federal brownfields tax incentive was originally passed as part of the Tax Relief Act of 1997.

²Minn. Stat. § 115B.175, subdiv. 1.

³Minn. Pollution Control Agency, *Voluntary Investigation and Cleanup Program: Selected VIC Success Stories*, <http://proteus.pca.state.mn.us/cleanup/vicstories.html> (last visited July 30, 2008).

⁴See McMorrow, *supra* note 146, at 1117. A listing of state-by-state voluntary cleanup program contacts can be found at <http://www.epa.gov/brownfields/stentct.htm>.

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¹Pub. L. No. 107-118, 115 Stat. 2356 (2002) (codified at 42 U.S.C.A. §§ 9601 to 9675, *ELR Stat.* CERCLA §§ 101 to 405).

²H.R. 2869, 107th Cong. (2001), available at <http://epa.gov/brownfields/html-doc/hr2869.htm>.

³42 U.S.C.A. § 9604(k), *ELR Stat.* CERCLA § 104(k).

⁴Tanck, *supra* note 149, at 1363.

This federal tax incentive allows a taxpayer to fully deduct expenses for environmental cleanup in the year the costs were incurred, rather than spreading them out over a period of years.⁵ To qualify for the incentive, a property must meet two main requirements. First, the property must either be held by the taxpayer incurring the eligible expenses for use in a trade or business or for the production of income or, it must be properly included in the taxpayer's inventory.⁶ Second, hazardous substances or petroleum must be present or potentially present on the property in question.⁷ This is known as the contamination requirement.⁸ These requirements essentially exclude properties owned for personal purposes. In December 2006, President George W. Bush signed the Tax Relief and Health Care Act of 2006,⁹ which extended the federal brownfields tax incentive through December 31, 2007, and also included petroleum products as eligible for expensing under the contamination requirement.¹⁰ The federal government estimates that the federal brownfields tax incentive would decrease tax revenue by \$300 million annually while returning up to 8,000 brownfields sites to productive use.¹¹

§ 26:25 Brownfields rehabilitation—Additional tools

The continued suburban expansion of many cities over the past 40-plus years has resulted in a variety of adverse side effects. Long commutes, high transportation costs, increased air pollution, and ever-worsening traffic have lead communities to consider smart growth programs that focus on revitalization of urban centers.¹ One of EPA's smart growth strategies has been to encourage brownfields redevelopment. In fact, EPA believes that "[b]rownfield redevelopment is an essential component of smart growth, as both seek to return abandoned and underutilized sites to their fullest potential as community and economic assets."² In 2002, 2003, and 2004, EPA awarded special grants to communities to incorporate smart growth into planning, revitalization, and redevelopment efforts, but the Agency has not offered any such grants under this program in the last three years.³

Portland, Oregon, is one of the most successful examples of smart growth development programs in practice. In Portland, a strict urban growth boundary (UGB) has generated high demand for inner-city and downtown redevelopment.⁴ Because Portland was home to a large number of brownfields sites, EPA selected the city in

⁵U.S. EPA, *Brownfields Tax Incentive—Frequently Asked Questions* 1, http://www.epa.gov/brownfields/t1_faq_final.pdf.

⁶U.S. EPA, *Brownfields Tax Incentive Fact Sheet* 1 (2007), available at http://www.epa.gov/swerosps/bf/brownfield_tax_incentive_fact%20sheet%201-31-07%20Final.pdf (last visited July 30, 2008).

⁷*Id.*

⁸*Id.*

⁹H.R. 6111, 109th Cong. (2006).

¹⁰*Brownfields News of 2007*, *Legal News: Envtl. Law Update* (Foley & Lardner LLP), Feb. 12, 2007 at 1, available at http://www.foley.com/files/tbl_s31Publications/FileUpload137/3873/Legal%20News%20Environmental%20Law%202-6-07%20Brownfields.pdf (last visited July 30, 2008).

¹¹See Rodenberger, *Brownfields Programs and Tax Incentives Are Stimulating the Redevelopment of Brownfields Properties in North Carolina and South Carolina*, 13 *Southeastern Envtl. L.J.* 119, 128–29 (2005).

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¹Kushner, *supra* note 137, at 864.

²U.S. EPA, *Smart Growth and Brownfields*, <http://www.epa.gov/smartgrowth/brownfields.htm>.

³*Id.*

⁴Kushner, *supra* note 137, at 865.

1996 for a national brownfields pilot grant.⁵ Since then, Portland has become a model for brownfield revitalization. Much of Portland's success is due to the city's realization that brownfields and smart growth go hand-in-hand: "For every Brownfield redeveloped inside the [Urban Growth Boundary], sprawl to surrounding farm and forest land is reduced, air and water quality are improved, and jobs and income in the urban core area are increased."⁶

Environmental insurance is another interesting program that can shield developers from liability during cleanup and redevelopment of brownfields. The brownfields legislation has helped open the insurance market by allowing costs of cleaning up these sites to be more easily quantified and, therefore, the risk for insurers better understood. Environmental insurance in the brownfield context can be generally broken down into three types of policies: (1) cleanup cost cap; (2) pollution liability; and (3) secured creditor.⁷ Cleanup cost cap protects the developer from absorbing unforeseen cleanup costs that exceed original estimates.⁸ Pollution liability protection helps safeguard developers and long-term owners of revitalized brownfields from suits stemming from pollution on the property.⁹ Finally, secured creditor policies benefit lenders by guaranteeing loan repayments should a borrower default on loan payments because of a pollution condition.¹⁰

In the last decade, states began to institute their own environmental insurance programs. However, as of 2006, there were only four state environmental insurance programs in effect—(1) Connecticut; (2) Massachusetts; (3) New York; and (4) Wisconsin—although many other states were in the process of looking into setting up their own insurance programs in the future.¹¹ One major difficulty with environmental insurance programs for brownfields is that no two brownfields sites are the same, requiring each site to have a specifically tailored insurance policy. This reality prevents public and private insurers from forming generic insurance policies, an option that would reduce the cost of environmental insurance and make the insurance program more affordable for both providers and developers.¹² And, as a seminal U.S. Department of Housing and Urban Development (HUD) feasibility study on environmental insurance put it: "[S]o long as environmental insurance is not systematically included in the portfolio of tools strategically employed to promote brownfield redevelopment, neither large nor small [brownfields] will reach their full potential."¹³

§ 26:26 Brownfields rehabilitation—Example projects

Three brownfields initiatives provide an important perspective on the leveraging power resulting from thinking differently about how to create incentives to redevelop

⁵See Portland Bureau of Env'tl. Servs., *About the Portland Brownfields Initiative*, <http://www.portlandonline.com/BES/index.cfm?c=35009&a=54874> (last visited July 30, 2008).

⁶See Portland Brownfields Initiative, *Brownfield Land Use/Growth Management Action Plan 2* (1998), available at <http://www.portlandonline.com/shared/cfm/image.cfm?id=72043> (last visited July 30, 2008).

⁷U.S. EPA, *Environmental Insurance Helps Ensure Redevelopment 1* (2003), available at <http://www.epa.gov/brownfields/success/insurance.pdf> (last visited July 30, 2008).

⁸*Id.*

⁹*Id.*

¹⁰*Id.*

¹¹Kristen R. Yount & Peter B. Meyer, *State Brownfield Insurance Programs*, 2006, at 1–3 (2006), available at http://www.epa.gov/brownfields/pubs/state_report_2006.pdf.

¹²Kristen R. Yount & Peter B. Meyer, *State Brownfield Insurance Programs*, 2004, at 71–72 (2004), available at http://www.epa.gov/brownfields/pubs/state_report_04revised.pdf.

¹³HUD, *Environmental Insurance for Brownfields Redevelopment: A Feasibility Study 132* (1997), available at <http://www.huduser.org/publications/pdf/envins.pdf>.

urban property.

Atlantic Station

For the past century, the Atlantic Steel mill operated on a 130-acre tract located in downtown Atlanta.¹ The steel mill officially closed in 1998 and after three years of extensive cleanup efforts, EPA finally certified the site as safe for construction in December 2001.² After conducting a thorough investigation of the site, the property was remediated under a set of risk-based cleanup criteria tailored to site-specific future use.³ Following the cleanup and remediation of the site, and after another \$250 million was spent on investment in roads, sewers, and utility lines, construction on Atlantic Station finally began in 2002.⁴ Atlantic Station is said to be the largest remediation of a brownfield in the history of the United States.⁵

The idea for Atlantic Station was first conceived in 1996, and when completed it will include 5,000 residential units (including luxury condos as well as less-expensive townhouses and apartments), six million square feet of Class A office space, two million square feet of retail and entertainment space, 1,000 hotel rooms, and 11 acres of public parks.⁶ As of the summer of 2006 Atlantic Station's population was 3,000 and about 40% of the site redevelopment had been completed. The development has received brownfields redevelopment awards from both EPA and the Sierra Club. Atlantic Station has been cited as a national model for brownfield revitalization.⁷

Clearwater, Florida

The Clearwater Brownfields Area, home to the area's largest concentration of minority residents and once a thriving business center, had deteriorated over the last 30 years into place of abandoned land, gas stations, dry cleaning facilities, and print shops.⁸ With a current population of 109,000 residents, Clearwater used to be the center for canning, packing, and shipping citrus fruits grown in the region.⁹ Clearwater's brownfields revitalization efforts began in 1996 when Clearwater was awarded a \$100,000 pilot grant from EPA.¹⁰ After receiving an additional \$100,000 from EPA in 1998, Clearwater leveraged more than \$9 million in additional federal, state, and local funding by 2001.¹¹

Clearwater's focus on environmental justice has been one of the most unique aspects of its brownfields initiative. Rather than simply rehabilitate individual parcels of land, Clearwater used a communitywide planning process that engaged a

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¹Pouncey Jr., *Reurbanization: A Case Study of the Atlantic Steel Redevelopment*, 15 Nat. Resources & Env't 248, 248 (2001).

²Lisa Chamberlain, *Building a City Within the City of Atlanta*, N.Y. Times, May 24, 2006.

³Pouncey, *supra* note 179, at 251.

⁴Chamberlain, *supra* note 180.

⁵Chamberlain, *supra* note 180.

⁶Smart Growth Online, *Atlantic Station Continues to Take Shape and Exceed Expectations as Construction Passes Halfway Point*, <http://www.smartgrowth.org/news/article.asp?art=5442&State=11&res=1600>.

⁷Pouncey, *supra* note 179, at 248. For more information on the progress of this site, see <http://www.atlanticstation.com>.

⁸U.S. EPA, *Brownfields 2007 Grant Fact Sheet: Clearwater, FL* (2007), available at http://www.epa.gov/brownfields/07arc/r04_fl_clearwater.pdf [hereinafter *U.S. EPA, Brownfields*].

⁹*Id.*

¹⁰U.S. EPA, *Clearwater's Revitalization Spectrum: From High-Tech Industry to Community Health Clinic 1* (2001), available at http://www.epa.gov/swerosps/bf/pdf/ss_clear.pdf [hereinafter *U.S. EPA, Clearwater's Revitalization Spectrum*].

¹¹*Id.*

broad cross section of the community in thinking about how to rebuild. This plan developed in four phases:

- Phase 1: Conceptualizing, planning, and establishing principles and values that guide the project;
- Phase 2: Empowering and educating the community;
- Phase 3: Establishing economic, community, and land use strategies to address priorities developed by the community and the local government; and
- Phase 4: Bringing stakeholders together to work toward implementing the plan.¹²

Among the unique results of the Clearwater collaborative effort was building a health clinic as part of the brownfields rehabilitation to meet a critical community concern.¹³ Clearwater has remained a model for successful brownfields cleanup and redevelopment, and was awarded \$400,000 in Assessment Grants by EPA in 2007.¹⁴

Habitat for Humanity

In the mid-1990s one of Habitat for Humanity International's (Habitat's)¹⁵ most prolific chapters, the Twin Cities Chapter, found it increasingly difficult to acquire affordable building lots in Minneapolis and St. Paul. This led to an innovative alliance between a brownfields redevelopment program run by the MEI and Habitat. MEI's program, Resources for Redevelopment, links engineering firms with non-profit organizations seeking to develop brownfields site, and provides the NGOs with a volunteer consultant who can help access the necessity for, and cost of cleanup. The MEI/Habitat partnership, supported by EPA funding, allowed Habitat to expand the number of sites available to it for new homes, advanced the goal of infill development, and resulted in the removal of contaminated soils at several sites. This primarily private effort led by two NGOs with the assistance of engineering firms who volunteered their time is an important example of how government can leverage its influence through legislation providing needed liability protection (here state-level legislation) and targeted funding that primes the pump for significantly greater private sector funding.

The partnership that developed in Minnesota later became a nationwide program when Habitat officially partnered with EPA in 2002.¹⁶ The memorandum of understanding between EPA and Habitat is a general agreement on "coordinating policies to enact assessment and cleanup of brownfields, to promote community revitalization with residential energy efficiency, and to provide affordable housing for low-income people . . ."¹⁷ Beyond environmental benefits, Habitat's brownfields partnership with EPA is especially important for addressing the environmental justice consequences of abandoned or underutilized brownfield sites.

Habitat's brownfields initiative has spawned many success stories across the nation including Habitat East Bay in East Oakland, California.¹⁸ Before redevelopment, the site had been a former junk yard and gardening outlet, and had since

¹²International City/County Management Association, *Righting the Wrong: A Model for Environmental Justice in Brownfields Redevelopment* 42 (2002).

¹³U.S. EPA, *Brownfields*, *supra* note 186, at 1.

¹⁴U.S. EPA, *Clearwater's Revitalization Spectrum*, *supra* note 188.

¹⁵Habitat is an ecumenical Christian ministry dedicated to providing simple, decent housing to people who otherwise could not afford to own their own home.

¹⁶Habitat for Humanity, *EPA Partners With HFHI to Develop Brownfields* (2002), available at <http://www.habitat.org/newsroom/2002archive/insitedoc004423.aspx>.

¹⁷*Id.*

¹⁸California Dep't of Toxic Substances Control, *East Bay Habitat for Humanity* (2006), available at http://www.dtsc.ca.gov/SiteCleanup/Brownfields/upload/Habitat_for_Humanity.pdf.

become contaminated with pesticides, lead, and petroleum.¹⁹ After an extensive three-year cleanup, Habitat East Bay was approved to begin building 26 single-family homes on the property.²⁰ In 2007, EPA approved a \$200,000 grant to Habitat East Bay to continue cleanup plans on different areas of the site.²¹ Other notable Habitat for Humanity affiliates pursuing brownfields redevelopment are located in Minneapolis/St. Paul, Minnesota; Washington, D.C.; Charlotte, North Carolina; Denver; and San Francisco.²²

§ 26:27 Brownfields rehabilitation—Conclusion

Solving the brownfields problem was essential for important policy reasons including revitalization of urban centers, limiting sprawl, and ultimately responding to important concerns like environmental justice and the need for affordable housing in areas with easy access to public transportation and jobs. The key to success for these programs was rethinking the role of government and building new collaborative programs. The CERCLA program and its accompanying liability standards are not only critical to ensuring that dangerous hazardous waste sites are cleaned up, but, perhaps more importantly, changing the hazardous waste management practices in the country to prevent future contamination. But CERCLA's side effects needed to be addressed to enable brownfields redevelopment. By better understanding the liability protections and the degree of certainty developers, banks, and insurers needed, new laws could be enacted that preserved the core purpose of CERCLA but provided the opportunity for private developers and their financiers to bring hundreds of millions of dollars in new financing to urban redevelopment projects.

§ 26:28 Managing nanotechnology development¹

Nanotechnology presents a very different challenge than the preceding case examples to the nation's traditional modes of regulation—the speed at which the technology is developing. Nanotechnology innovation is occurring very rapidly, with new products coming to the market monthly and whole new generations of technology expected within the span of a few years. The International Risk Governance Council (IRGC) notes that “innovation in the field of nanotechnology development is far ahead of the policy and regulatory environment, which is fragmented and incomplete at both the national and international levels.”² In its study, *Managing the Effects of Nanotechnology*, the Woodrow Wilson International Institute for Scholars pointed out that “[t]he rapid development of [nanotechnology] also means that government managers always will be operating with outdated information, and that data about [nanotechnology] effects will lag behind commercial applications.

¹⁹*Id.*

²⁰*Id.*

²¹U.S. EPA, Brownfields 2007 Grant Sheet 2008), available at http://www.epa.gov/brownfields/07arc/r09_ca_habitatbay.htm.

²²Bill Walsh, Home Groan: Runaway Building Costs Challenge Habitat's Ingenuity, *Habitat World*, Dec. 2005, available at http://www.habitat.org/hw/Dec_2005/feature1.html.

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¹Parts of the discussion on Managing Nanotechnology Development are derived from Paddock, Keeping Pace with Nanotechnology: A Proposal for a New Approach to Environmental Accountability, 36 ELR 10943 (Dec. 2006), reprinted by permission.

²Int'l Risk Governance Council, Nanotechnology Risk Governance: Recommendations for a Global Coordinated Approach to the Governance of Potential Risks 13 (2007) [hereinafter Nanotechnology Risk Governance].

Priorities for research and for regulation will need to shift constantly.”³

The impact of rapid technology innovation is not an entirely new phenomenon for regulatory agencies. In the mid-1990s Intel became one of the early participants in EPA’s Project XL program to help develop a new approach to air permitting that could accommodate the rapid change in computer chip technology that might necessitate new industrial processes every 18-30 months.⁴ Standard government permitting processes often could not accommodate this short product cycle. As a result, Intel negotiated a more flexible plantwide limit for emissions for its facilities that allowed the company to change product lines and processes as long as it held total emissions below the plantwide cap.⁵ In return, Intel agreed to involve members of the surrounding community in discussions about the emissions limits, increased access to information about the performance of the facilities, and agreed to environmental performance standards beyond those that would otherwise be required by law.⁶ The XL agreement thus leveraged private economic incentives, here facilitating Intel’s need to move new products rapidly into production—to achieve better environmental results.

Nanotechnologies, however, present a more complex problem since there are literally hundreds of such technologies under development, little is known about the health and environmental impacts of nanomaterials, and new materials will be introduced to the market very quickly. While government will need to play an important role in health and environment research and through regulatory programs such as Toxic Substances Control Act (TSCA) and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), it is likely that government will have to use a variety of other governance tools to protect human health and the environment.

§ 26:29 Nanotechnology—Background

EPA defines nanotechnology in the following way:

[R]esearch and technology development at the atomic, molecular, or macromolecular levels using a length scale of approximately one to one hundred nanometers in any dimension; the creation and use of structures, devices and systems that have novel properties and functions because of their small size; and the ability to control or manipulate matter on an atomic scale.¹

A nanometer is one billionth of a meter. To put this into perspective, the diameter of a human hair is about 100,000 nanometers and a human red blood cell about 1,000 nanometers.² Nanoscale materials have physical, chemical and biological characteristics that differ fundamentally from larger particles, creating novel mechanical, optical, magnetic, and electronic properties.

The anticipated scale of the nanotechnology industry is exceptional. The IRGC notes that “[n]anotechnology has the potential to become one of the defining

³J. Clarence Davies, Woodrow Wilson Int’l Ctr. for Scholars, *Managing the Effects of Nanotechnology* 9 (2007), available at http://www.nanotechproject.org/process/files/2708/30_pen2_mngeffects.pdf.

⁴U.S. EPA, *XL Progress Report Intel Corporation* 2 (1999), available at http://www.epa.gov/project_xl/intel/1299.pdf.

⁵*Id.*

⁶*Id.* at 3.

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¹U.S. EPA, *Nanotechnology White Paper* 5 (2007), available at <http://www.epa.gov/osa/pdfs/nanotech/epa-nanotechnology-whitepaper-0207.pdf> [hereinafter *Nanotechnology White Paper*].

²*Id.*

technologies of the 21st Century.”³ “Envisaged breakthroughs for nanotechnology include order-of-magnitude increases in computer efficiency, advanced pharmaceuticals, biocompatible materials, nerve and tissue repair, surface coatings, catalysts, sensors, telecommunications, and pollution control.”⁴

As of May 2007, 475 consumer products were using nanotechnology.⁵ This number had doubled from the 212 products counted only 14 months earlier.⁶ In 2005, nanotechnology was incorporated into more than \$30 billion in manufactured goods.⁷ It is estimated that this number will increase to \$2.6 trillion by 2014.⁸ On the international scale, the United States leads with 52% of the consumer products produced.⁹ Inside the United States, the top-four nanotechnology states are California, Massachusetts, New York, and Texas.¹⁰ Moreover, 47 of 50 states in the United States have at least one university, company, government lab, or organization working on nanotechnology.¹¹ In total, the U.S. government has invested around \$5.5 billion in nanotechnology through the year 2006, with an additional \$1.3 billion requested for 2007 alone.¹²

More than 30 countries have nanotechnology initiatives including many traditional industrial powers and less likely candidates such as Ukraine and Mexico. Research and development investments by industry worldwide are currently at about the same level as government investment but these private investments are increasing at a higher annual rate.¹³ Nanotechnology development appears to have become a race in which no nation, no state, and no major company wants to be left behind. For example, the United Kingdom’s Strategy for Nanotechnology concluded that “the field of nanotechnology and its applications is crucial to the future competitiveness and productivity of the UK economy, and to the well being and prosperity of its people.”¹⁴ And, the U.S.-based Nanotechnology Alliance observed:

[T]he countries that demonstrate the highest level of innovation and capture the most value from nanotech progress will exert a very significant level of influence on the global geopolitical landscape. For us to maintain our quality of life and global leadership position, the U.S. must play, not just to participate in, but to win the international nanotechnology race.¹⁵

State after state has enacted legislation trying to secure a competitive advantage

³*Id.* at 24.

⁴*Id.*

⁵Woodrow Wilson Int’l Ctr. for Scholars, Nanotechnology Now Used in Nearly 500 Everyday Products, Release No. 40-07, at 1 (2007), *available at* http://www.nanotechproject.org/process/files/5987/051507nanotechnology_productinven05_07.pdf. For an inventory of goods using nanotechnology, see <http://www.nanotechproject.org/consumerproducts>.

⁶*Id.*

⁷*Id.*

⁸*Id.*

⁹*Id.*

¹⁰Woodrow Wilson Int’l Ctr. for Scholars, Mapping the New U.S. NanoMetro Economy, Release No. 42-07, at 1 (2007), *available at* http://www.nanotechproject.org/process/files/5986/051707nanotechnology_nanometro.pdf.

¹¹*Id.*

¹²Karen F. Schmidt, Woodrow Wilson Int’l Ctr. for Scholars, Green Nanotechnology: It’s Easier Than You Think 20 (2007), *available at* http://www.nanotechproject.org/filedownload/files/GreenNano_PEN8.pdf.

¹³Nanotechnology Risk Governance, *supra* note 202, at 21.

¹⁴Dep’t of Trade & Industry, New Dimensions for Manufacturing: A U.K. Strategy for Nanotechnology 11 (2002).

¹⁵Nanobusiness Alliance, Nanotechnology: A Roadmap to Leadership 2 (2006).

in the industry using tax credits,¹⁶ emerging technology funds,¹⁷ direct appropriation to university research centers,¹⁸ authorizing access to funding from Economic Development Banks,¹⁹ and creating cabinet-level positions to help the state cultivate and expand growth industries such as nanotechnology.²⁰

The dramatic investments in nanotechnology development reflect the potential benefits (and therefore the potential financial windfall) from nanotechnologies.

§ 26:30 Nanotechnology—Potential benefits

The development of nanotechnology will have significant effects on many facets of our lives including the environment, medicine, electronics, and an ever-expanding list of consumer products. Because fundamental life processes occur at the nanoscale, nanotechnology offers an ideal medium for fighting diseases.¹ Advanced drug-delivery systems incorporating nanotechnology would theoretically be able to direct drug molecules only to where they are needed in the body, a technique that would greatly reduce the side-effects of a treatment such as chemotherapy.²

Nanotechnology is also considered one of many tools that can help address the energy crisis. Nanotechnology will be used to enhance our abilities to capture, store, and distribute energy more efficiently.³ In the near-term, one of the most realistic uses of nanotechnology in the production of clean energy involves the development of more efficient solar panels.⁴ The company Nanosolar, which is engaged in perhaps the most ambitious private effort to enhance commercial solar technology through the use of nanotechnology, has attracted millions of dollars in grants and investments.⁵ Nanosolar's goal is to be able to mass produce its thin-film solar panels, which are not only 100 times thinner than traditional solar panels, but also significantly more efficient.⁶

Beyond solar panels, nanotechnology has also shown promise in significantly enhancing the storage capacity of batteries, a development that could make hybrid cars even more attractive in the future.⁷ Scientists are also looking into the possibility of improving energy transmission efficiency by applying nanocoating to wires to reduce lost energy as it moves down the line.⁸

Nanotechnology could also become an important part of the cleanup of contaminated and hazardous waste sites. EPA states that because of enhanced reactivity, surface area, subsurface transport, and/or sequestrian characteristics of nanomaterials, the benefits of nanotechnology could include more rapid or cost-effective cleanup

¹⁶Ark. Code Ann. § 15-4-2104(a) (2006).

¹⁷Mass. Gen. Laws Ann. ch. 23G, § 27(a), (c) (2006).

¹⁸2003 Or. Laws 725 § 11(4)(b).

¹⁹Tex. Gov't Code Ann. § 489.0296(a) (2006).

²⁰Va. Code Ann. § 2.2-225 (2006).

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¹Dennis, *Nanotechnology: Unique Science Requires Unique Solutions*, 25 Temp. J. Sci. Tech. & Envtl. L. 87, 94 (2006).

²*Id.*

³*Id.* at 26.

⁴Nanotechnology White Paper, *supra* note 207, at 27, 71.

⁵See Nanosolar, *Homepage*, <http://www.nanosolar.com>.

⁶*Id.*

⁷Green Nanotechnology: It's Easier Than You Think, *supra* note 218, at 28.

⁸*Id.*

of wastes.⁹ On a related point, nanotechnology is also being used to create more powerful sensors that can accurately detect contaminants in the environment at very low concentrations.¹⁰

While the potential societal benefits from nanotechnologies are profound, the risks associated with the technologies are also significant, especially in light of the fact we still know little about how exposure to nanomaterials may affect either health or the environment.

§ 26:31 Nanotechnology—Potential risks

Because nanomaterials are so small, they may have the ability to enter human cells and even alter biological processes on the cellular level.¹ Research has shown that nanomaterials can be hazardous to living organisms both because of their size and because of their toxicity.² However, it is still unknown exactly how nanomaterials may affect humans and other living organisms after long-term exposure. Even sunscreen, a popular nano-enhanced consumer product, has come under scrutiny as researchers are testing the long-term exposure to sunscreen to see if nanoparticles in the substance could enter the skin and possibly damage deoxyribonucleic acid (DNA) in human cells.³ Nanomaterials could also pose future danger to the environment. Because the toxicity of nanoparticles is not yet fully understood, serious environmental contamination could occur if nanoparticles are released into the environment without proper regulation and risk oversight governance.⁴ The IRGC recently observed: “We still have only a limited understanding of passive nanomaterials’ potential environmental, health and safety risks but active and more complex nanostructures require a far greater level of knowledge to assess potential risks.”⁵

§ 26:32 Nanotechnology—Governance considerations

Given the speed at which technology is developing and the pressure to be first to market, it seems clear that the regulatory system, by itself, cannot be relied upon to manage the environmental and public health consequences of nanotechnology or to create the level of public confidence needed to ensure the viability of the industry, even if the regulatory system were to be seen as the most desirable method for assuring environmental and health protection.

This is not just a problem for regulators and the public; it is also a problem for the industry. In addition to punishing wrongdoing, regulatory systems help build public confidence in an industry, especially an industry that may involve significant risks. Over the last decade, a number of industries have faced public confidence challenges with varying results. In the 1990s, the use of bovine growth hormones became a significant issue in the United States. While the controversy has largely subsided, a number of milk products are now labeled “BGH Free” to address

⁹Nanotechnology White Paper, *supra* note 207, at 22.

¹⁰*Id.* at 24.

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¹Nat’l Research Council, A Matter of Size: Triennial Review of the National Nanotechnology Initiative 78–79 (2006).

²*Id.*

³Rick Weiss, *FDA Asked to Better Regulate Nanotechnology*, *Wash. Post*, May 17, 2006, at A14, available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/05/16/AR2006051601537.html>.

⁴Dennis, *supra* note 227, at 96.

⁵Nanotechnology Risk Governance, *supra* note 202, at 8.

concerns of some consumers.¹ Genetically modified organisms (GMOs), including such products as seed that can tolerate certain herbicides, have been similarly controversial. Concerns range from GMO “out crossing” in which GM crops cross-breed with non-GMO plants, changing the non-GMO plant’s characteristics, to fears about the potential affect of GMO foods on health, to the impact that patented GMO seeds may have on the cost of seed for farmers in developing countries.² Although GMO companies have overcome these concerns in the United States, public and political concerns resulted in a long delay in introducing GMO seeds in Europe.³ Nanotechnologies face a similar risk, at least in significant part because so little is known about the effects of these technologies.⁴

While a biotechnology type backlash has not yet affected nano-manufacturers, the level of uncertainty about the effects of some nanotechnologies, the fact the public knows little about nanotechnologies, the lack of a clear management approach that can allay public concerns, and the potential health and environmental effects of some nanomaterials all create the setting for a nano-backlash.⁵ It certainly appears to be in the best interest of the industry to work with government, NGOs, and others to create and implement a credible governance system that can build and maintain public confidence in the industry.

§ 26:33 Nanotechnology—Governance tools

Because of the speed at which the industry is growing and the range of materials and technologies that are part of the growing nano-revolution, a systematic approach to environmental governance is particularly important. If traditional government mechanisms cannot keep up with the industry, the environment and public health must be protected, and public confidence must be created through a more comprehensive approach.

§ 26:34 Nanotechnology—Governance tools—Government regulation

Government regulation must be part of the accountability system both to assure the environment and public health is protected and to build and maintain public confidence in the industry. Given the political stalemates that have occurred on environmental issues over the past few years, it is unlikely that major new legislation addressing nanotechnology will be adopted in the United States in the foreseeable future absent a dramatic incident involving nanomaterials.¹

Several environmental statutes, including the CWA, the CAA, TSCA, FIFRA, CERCLA, and the Resource Conservation and Recovery Act, may apply to nanomaterials, although each of the statutes has limitations in this context. The in-

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¹See, e.g., <http://www.environment.gov.au/soe/2006/publications/emerging/gmo/index.html> (last visited July 30, 2008).

²See, e.g., <http://abcnews.go.com/Business/IndustryInfo/WireStory?id=4242356&page=2> (last visited July 20, 2008).

³Bonny, Why Are Most Europeans Opposed to GMOs?: Factors Explaining Rejection in France and Europe, 6 *Electronic J. Biotechnology* 50, 53 (2003).

⁴Mandel, Technology Wars: The Failure of Democratic Discourse, 11 *Mich. Telecomm. & Tech. L. Rev.* 117, 119 (2005).

⁵Royal Soc’y & Royal Academy of Engineering, Nanoscience and Nanotechnologies: Opportunities and Uncertainties 61 (2004).

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¹Linda K. Breggin, Securing the Promise of Nanotechnology: Is U.S. Environmental Law Up to the Job?, 8 (*Envtl. Law Inst.* 2005).

ability to detect and monitor many nanoscale materials complicates the use of existing regulatory programs. And, given the pace at which the industry is evolving, reliance on traditional permitting approaches, which may take months or even years to complete for a new industrial process, could adversely affect competitiveness in the context of a rapidly developing global market and therefore may be strongly resisted.

The American Bar Association's Section on Energy, Environment, and Resources Law analysis of existing environmental statutes, as well as the analysis by other organizations such as the Environmental Law Institute,² indicates that these existing statutes are useful, but imprecise, mechanisms for dealing with various aspects of several nanotechnologies. Regulation of nanotechnology, given the rapid changes within the industry, is likely to be an ongoing process, with approaches evolving over time.³

EPA suggests a more product-oriented rather than emissions-related approach to managing the potential impacts of nanotechnologies:

Pollution prevention is a critical area to engage EPA resources and expertise as nanotechnology industries form and develop. It is critical that EPA apply the principles of green chemistry, green engineering, and environmentally benign manufacturing in EPA's approach to nanotechnology. EPA has the opportunity to work with stakeholders to apply approaches of pollution prevention and product stewardship to nanotechnology development, so that emissions and risks are reduced as productivity and the economy grow.⁴

§ 26:35 Nanotechnology—Governance tools—Public involvement and dialogue

If the nanotechnology industry does not address issues of public confidence in the technology, it may suffer the same fate as that of genetically modified seed crops in the European Union: rejection by the public as unsafe even though the scientific consensus identified little risk.¹ While regulatory schemes play a role in engendering public confidence, confidence is primarily an issue of values and of political and economic power. If opinion leaders view a product as antipathetic to the values they hold, products may either be banned from the market or may not survive, regardless of the actual risk involved. The specter of unfounded public rejection suggests that accountability tools must be identified that create public confidence in the industry.

A systematic approach to environmental governance for nanotechnologies requires constructive interaction among industry, government, advocacy organizations, and other public stakeholders. Prof. Gregory Mandel espouses a concept he calls dialogue and deliberation, in which representatives of all of the interest groups engage in a "culture-conscious" dialogue that focuses on values, not just competing scientific claims about benefits and risks.² The goal of the dialogue is "to help different groups learn about each other and each other's views, with a goal of cultural accommodation and understanding. Once these objectives have been achieved, a substantive policy deliberation can begin, aimed at developing widely acceptable policy

²*Id.* at 8–16.

³Glenn Harlan Reynolds, *Environmental Regulation of Nanotechnology: Some Preliminary Observations*, 31 ELR 10681, 10685 (June 2001).

⁴U.S. EPA, *Nanotechnology White Paper 73* (external review draft) (2005).

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¹Grant, 2005 Kerlin Lecture, 9 GreenLaw 7 (2006).

²Mandel, *supra* note 245, at 178.

solutions.”³

The Royal Society and Royal Academy of Engineering issued a similar call for public dialogue and debate on nanotechnology issues in its groundbreaking 2004 study of the industry:

The general case for wider societal dialogue about novel technologies, and with its greater openness about science policy, rests on three broad sets of argument The normative argument proposes that dialogue is a good thing in and of itself and as such forms a part of the wider democratic processes through which controversial decisions are made The instrumental argument suggests that dialogue, as one means of rendering decision-making more open and transparent, will increase the legitimacy of decisions and through this generate secondary effects such as greater trust in the policy-making process. . . . Finally, the substantive argument is that dialogue will help generate better quality outcomes. In the field of environmental risk, non-technical assessments and knowledge have been shown to provide useful commentary on the validity or otherwise on the assumption of experts.⁴

The Royal Society noted that with many mature technologies public dialogue has often arrived “too little too late” to be effective.⁵ With nanotechnology there is a unique opportunity to avoid the problem of too little, too late.

The IRGC has also suggested a stakeholder-based dialogue,⁶ and the Natural Resources Defense Council, Inc. (NRDC) and Environmental Defense have called upon both government and industry to do a better job of “engaging the broad array of stakeholders outside government and industry—labor, health organizations, consumer advocates and environmental NGOs—whose constituencies stand to be both beneficiaries of this new technology and those most likely to bear any risks that arise.”⁷

Dialogues engage surrogates for the general public, but it is also important to find ways to engage interested members of the general public directly. Better public education is an important element of a new public dialogue on nanotechnology. Education in this context cannot simply be a one-way effort to convince the public that nanotechnology has important societal benefits and is safe. Instead, the education process must be part of the dialogue, requiring “innovative approaches to information provision, ones that involve a genuine two-way engagement between scientists, stakeholders and the public.”⁸

Engaging a broad public in an esoteric issue like nanotechnology is difficult. Still, the Internet offers intriguing possibilities for a new form of two-way dialogue with the broader public. Such a dialogue could start with a web site on which the best and most credible information on the developments in nanotechnology is regularly posted. This could include up-to-date information on both the risks and benefits of nanotechnologies, information about developments in government regulations, and information about industry standards and self-regulation approaches. The broader public could then use the site to comment on proposed regulations or on issues that could be addressed by members of the industry.⁹

Assuring that adequate information is developed and disseminated on the health

³*Id.*

⁴Royal Soc’y & Royal Academy of Engineering, *supra* note 246, at 63.

⁵*Id.* at 64.

⁶Nanotechnology Risk Governance, *supra* note 202, at 18–19.

⁷John Balbus et al., Getting Nanotechnology Right the First Time, 21 Issues Sci. & Tech. 70 (2005).

⁸Royal Soc’y & Royal Academy of Engineering, *supra* note 246, at 66.

⁹American Bar Ass’n, Sec. on Env’t, Energy & Resources, EMS/Innovative Regulatory Approaches 16 (2006), available at <http://www.abanet.org/environ/nanotech/pdf/EMS.pdf>.

and environmental impacts of nanotechnology is critical to public credibility and an essential element of environmental governance, as is better detection and monitoring technology.

§ 26:36 Nanotechnology—Governance tools—Voluntary programs

Industry leadership programs can play an important part in environmental governance for nanotechnologies. Recognizing that environmental behavior is driven by factors beyond command-and-control regulations, EPA and many states have developed voluntary environmental leadership programs. The incentives for participating in these programs may include public recognition, improved working relationships with government agencies, penalty avoidance through auditing and self-reporting, and regulatory flexibility. As an emerging industry, it may be useful for EPA, industry leaders, and NGOs to consider the role that leadership programs could play in motivating desired environmental behavior.

Programs such as Occupational Safety and Health Administration's (OSHA's) Star Program,¹ EPA's Performance Track,² the Green Tier³ in Wisconsin, and the Clean Corporate Citizen⁴ program in Michigan are examples of well-developed leadership programs. EPA's Energy Star[®]⁵ program is another example of a leadership program, although one that exists in an area entirely unregulated by EPA.

The IRGC suggests that "[i]ndustry, governments, and other stakeholders must collaborate now to lay the foundation for later regulatory action and to assess the potential for international voluntary agreements."⁶ In the United States, Environmental Defense and DuPont have led the way in creating a risk governance structure for nanotechnology development with their Nano Risk Framework.⁷

§ 26:37 Nanotechnology—Governance tools—Liability

Nanotechnologies will face the threat of legal liability under nuisance, negligence, or strict liability theories if their use causes harm to public health or the environment. The potential for civil liability is a key element of governance because government resources to deal with environmental problems are shrinking at the same time as environmental threats are increasing. The civil liability system plays a critical role in tempering corporate decisions to introduce potentially risky products into the market prematurely.

Liability can be mitigated by a robust regulatory regime that will encourage courts to view compliance with the regulatory scheme as establishing reasonable care on the part of the industry. The risks of civil liability can also be minimized by increased transparency.

The prospect of liability for harm to public health or the environment will be an

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¹See U.S. Dep't of Labor, *OSHA Voluntary Protection Programs*, <http://www.osha.gov/dcsp/vpp/index.html> (last visited July 30, 2008).

²See U.S. EPA, *National Environmental Performance Track*, <http://www.epa.gov/performancectrack>.

³See Wis. Dep't of Nat. Resources, *Green Tier*, <http://www.dnr.state.wi.us/org/caer/cea/environmental> (last visited July 30, 2008).

⁴See Mich. Dep't of Env'tl. Quality, *Clean Corporate Citizen*, http://www.michigan.gov/deq/0,1607,7-135-3307_3666_4134--,00.html (last visited July 30, 2008).

⁵See Energy Star®, *Homepage*, <http://www.energystar.gov> (last visited July 30, 2008).

⁶Nanotechnology Risk Governance, *supra* note 202, at 17.

⁷Environmental Defense Fund, *Corporate Partnerships*, <http://www.environmentaldefense.org/page.cfm?tagID=1459> (last visited July 30, 2008).

important governance tool for the nanotechnology industry. But, equally important, the industry has the opportunity to minimize that liability by employing mechanisms such as public reporting and early public involvement.

§ 26:38 Nanotechnology—Governance tools—Industry codes and self-regulation

Industries have increasingly turned to codes of conduct and industry self-regulation as a means of assuring compliance with environmental laws, maintaining their reputation, reducing the risk of legal liability, enhancing relationships with government agencies, minimizing exposure to penalties, and building public confidence. These codes and self-regulatory mechanisms are important accountability tools, especially if the codes or self-regulatory mechanisms increase the amount of information available to the public. Modern industry environmental codes trace their origin to the Coalition for Environmental Responsible Economies (CERES) and its CERES Principles adopted in response to the Exxon Valdez disaster.¹ The American Chemistry Council (ACC, then the Chemical Manufacturers Association) adopted its Responsible Care®² program at least in part to deal with increasing public concern about the chemical industry growing out of the disclosure of the role of discarded chemicals in groundwater contamination during the late 1980s. Responsible Care® is a mandatory program for all ACC members and is practiced in 52 countries.³ The Forest Stewardship Council, an NGO, developed a code for sustainable forestry practices and certifies compliance with its code to deal with the fact that forest management practices were often little regulated.⁴

Given the likely limitations on the government's ability to respond to nanotechnology, self-regulation is important to avoiding potential adverse impacts from nanotechnology and to build public confidence in the industry. Both the NRDC and Environmental Defense have recognized the importance of corporate standards of care:

Even under the most optimistic scenario, it appears unlikely that federal agencies will put into place adequate provisions for nanomaterials quickly enough to address the materials now entering or poised to enter the market. Out of enlightened self-interest, industry must take the lead in evaluating and managing nanomaterial risks for the near term, working with other stakeholders to quickly establish and implement life cycle-based "standards of care" for nanomaterials.

These standards should include a framework and a process by which to identify and manage nanomaterials' risks across the product's full life cycle, taking into account worker safety, manufacturing releases and wastes, product use, and product disposal Such standards should be developed and implemented in a transparent and accountable manner, including publicly disclosing the assumptions, processes, and results of risk identification and risk management systems.⁵

§ 26:39 Nanotechnology—Conclusion

The development of nanotechnologies presents a unique governance challenge in that the very diverse industry is likely to evolve faster than government is able to respond using its traditional regulatory tools. In addition, the industry's self-interest

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¹See Ceres, *Homepage*, <http://www.ceres.org> (last visited July 30, 2008).

²See American Chemistry, *Responsible Care*,® http://www.americanchemistry.com/s_responsiblecare/sec.asp?CID=1298&DID=4841 (last visited July 30, 2008).

³*Id.*

⁴See Forest Stewardship Council, *Homepage*, <http://www.fscus.org> (last visited July 30, 2008).

⁵Balbus et al., *supra* note 257, at 70.

in preserving public confidence adds a different dimension to the governance discussion. Effective environmental governance for nanotechnology, and perhaps other new technologies in a world of fast moving and global technical innovation, likely will require a combination of government regulation, better information, new means of public involvement, voluntary programs, legal liability exposure, and corporate self-regulation to protect public health and the environment.

§ 26:40 Learning from the case examples

Each of the case studies demonstrates the importance of thinking about governance broadly and deploying a very wide range of approaches to help solve major environmental problems. For example, tougher regulation of point sources, new scientific research to help identify problems and to set clear goals, collaboration among a broad range of parties, new sources of funding, reliance on social marketing to change behavior by individuals and smaller organizations, and use of a number of innovative management tools are all essential to making progress on rehabilitating impaired waters over the expanse of an estuary or a state. Similarly, the response to urban ozone and particulate matter pollution has benefited from the prospect of stringent federal regulations related to non-attainment, partnerships, often initiated by parties other than government, new management tools such as voluntary diesel engine retrofits, and an engaged public.

The success of brownfields programs depended upon an accommodation of the needs of financiers and developers who were not responsible for the contamination, modest risk taking by government, a different relationship between the development community and government including the willingness to pay for government services that facilitated redevelopment, and bringing private dollars into the cleanup process. The unprecedented pace at which nanotechnologies are emerging requires a similarly multi-faceted approach to governance that includes traditional government regulation, but also includes information disclosure, public dialogue, corporate self-regulation, voluntary industry standards and exposure to legal liability.

Other critical issues of the day such as climate change will also require a diverse approach to governance. GHG emissions come from a variety of sources located in many different countries. While some classes of point sources such as coal-fired power plants are major sources of GHGs, contributing about 40% of all CO₂ emissions in the United States, reducing emissions from just one source or class of sources, or in just a few countries, will not produce the over 70% reduction in GHGs that leading scientists have estimated is needed to prevent the projected climate and accompanying changes from occurring. In fact, households in the United States are responsible for over 30% of CO₂ emissions—about 12.7 trillion tons of CO₂.¹

PART IV. RETHINKING THE GOVERNMENT'S ROLE IN ENVIRONMENTAL MANAGEMENT

§ 26:41 Government's role

Both the numerous reviews of the environmental regulatory system and the case examples explored above demonstrate that we must rethink environmental governance. In addition to restructuring some aspects of the environmental regulatory system to make it more flexible and performance-oriented, government must improve its capacity to function in at least five other areas:

- a. Utilizing and participating in partnerships, collaborative efforts and networks;

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¹Vandenbergh and Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. Rev. 1673, 1694 (2007).

- b. Understanding and taking advantage of internal economic drivers of corporate behavior;
- c. Enabling the public to directly influence environmental decisionmaking;
- d. Providing information and education that helps build public environmental values; and
- e. Identifying and mainstreaming innovative environmental management tools.

Although several environmental programs already incorporate many of these elements, no government environmental program has explicitly recognized that all of these competencies are necessary for effective green governance and created a strategic approach to both developing the competencies and deploying them in a coordinated manner.

Unfortunately, we have been in a virtual stalemate at the federal level and in many states on how to reform our system of environmental governance for the last decade. The country can no longer afford deadlock. Small, behind-the-scenes, sporadic attempts at reform are not going to clean up Chesapeake Bay or resolve urban ozone issues. Nor will they be sufficient to deal with the rapidly growing nanotechnology industry or to tackle climate change. Solving these problems will require a societywide effort and a new conception of the role of government. In this new role, government will directly control polluting activity through its regulatory system and influence a wide range of other behavior by recognizing the influence of economics and values on environmental outcomes and leveraging the influences to achieve desired environmental outcomes through a broad network of organizations, activities, and sources of funding.

The need to leverage economic and values-based motivations for environmental improvement as part of a governance system that also relies on a reconceived regulatory approach fundamentally alters the role of government in environmental protection. Robert Klitgaard and Paul Light observe:

The circumstances of the market state will transform the role of government. The government of the territorial state was a doer; students of public administration and, later, public policy learned that government's choice was "make, buy, or regulate." For tomorrow's public managers, the choice will be "cajole, incentivize, or facilitate"—a very different task (one perhaps rendered in punchier prose as "carrots, sticks, and sermons").¹

Similarly, Chertow and Esty noted that

[o]ne of the central challenges for environmental policymakers is to keep pace with the important elements of institutional realignment that are occurring in society. Notably, the role of government is narrowing, the private sector's responsibilities are broadening, and nongovernmental organizations, from think tanks to activist groups, are increasingly important policy actors.

The corporate world is not monolithic with regard to environmental performance. Some companies take environmental stewardship very seriously and are among the most progressive forces for environmental progress in the world. Other companies continue to pollute with abandon and to seize public resources (water, air, land) as though they were free for the taking. If the next generation of environmental policies is to be successful, separating the leaders from the laggards in the business world will be essential. With limited resources available, governments must target their enforcement activities on those whose performance is not up to par.²

§ 26:42 The role of regulation

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¹Gregory F. Treverton, *Governing the Market State*, in *High Performance Government: Structure, Leadership, Incentives* 89, 101 (Robert Klitgaard & Paul C. Light eds., 2005).

²Daniel C. Esty & Marian R. Chertow, *Thinking Ecologically: An Introduction to Thinking Ecologically: The Next Generation of Environmental Policy*, *supra* note 2, at 6–7.

The role of regulation is discussed throughout this Article. Regulation has been an essential element of all of the case examples. In some cases it is needed to directly control polluting activities. In others, regulation provides the context in which many of the partnerships function. In still other cases, the public participation provisions of regulatory programs are the doors through which the public enters the environmental debate. And, regulation is a key stimulus of corporate responsibility and the starting point for innovation.

In some areas, such as the control of diffuse-source pollution, more regulation is needed. For example, Wisconsin developed an imaginative way of limiting agricultural runoff by using a soil erosion performance standard that includes cost-share incentives for existing activities but is purely regulatory for new activities.¹ Further, in contrast to the voluntary bus diesel emission reduction program in Minnesota, the California Air Resources Board is planning to regulate emissions from already in use heavy-duty diesel engines.²

Enforcement also remains essential. The experience with EPA's new source review program over the last decade is emblematic of the importance of enforcement. For decades, industrial sources had skirted the CAA requirement to upgrade air emission sources to install the best available control technology at the time an emission source is being upgraded even though the operators had made significant modifications to their facilities, resulting in excess emissions counted in the tens of thousands of tons.³ A sustained enforcement effort by both EPA and NGOs through the citizen suit provisions of the CAA has been required to ensure the facilities are outfitted with the appropriate control equipment. Similarly, government and NGO enforcement has been essential in making progress in dealing with a range of water pollution issues involving combined sewer overflow, stormwater management, and large animal feeding operations.

Informational regulation will also likely need to play a bigger role in the future. David Case defines informational regulation as "government mandated public disclosure of information on the environmental performance of regulated entities" for the purpose of enlisting the "aid of nongovernmental forces, particularly economic markets and public opinion, to either complement or substitute for traditional regulatory strategies of government standard setting and enforcement."⁴ For example information disclosure is likely to be a critical element in assuring proper development of nanotechnologies.

And, as the critiques reviewed earlier discussed in detail, regulation will also have to be more flexible. It must be able to accommodate rapidly changing industrial processes and rapidly emerging industries. It must differentiate among the best and worst performers so that government resources are allocated to higher priority problems and so that companies are given additional incentives to excel. It must rely more on performance standards than technology standards in order to stimulate innovation.

As important as regulation is, it is also essential for government agencies to fully develop other mechanisms that are able to play a major role in driving environmental improvement in the context of complex ecosystem problem solving.

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¹Wisconsin Dep't of Nat. Resources, Wisconsin's Runoff Rules 1-2 (2002), available at <http://dnr.wi.gov/runoff/pdf/rules/GeneralRulesPub.pdf>.

²See California EPA, Air Resources Board, *On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation*, <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm> (last visited July 30, 2008).

³NAPA, *A Breath of Fresh Air: Reviving the New Source Review Program* 42 (2003).

⁴Case, *Corporate Environmental Reporting as Informational Regulation: A Law and Economics Perspective*, 76 U. Colo. L. Rev. 379, 383 (2005).

§ 26:43 Utilizing partnerships, collaboration, and networks¹

One of the clear lessons from the critiques and case examples is that solving environmental problems today requires an extensive network of organizations and individuals and that government has an important role to play, although not always the lead role to play in organizing, supporting, and utilizing these networks. Networks express themselves in a variety of ways, sometimes in formal partnerships, other times in collaborations among several parties, and at still other times through a broader set of organizations that enable environmental service delivery. Stephen Goldsmith and William Eggers observed that

[a] complicated world, where individuals face highly complex, individualized problems, necessitates a new approach to delivering public services but also provides the necessary tools for the solution. Networked approaches produce both abundant opportunities for substantial improvements in public services and serious management challenges.²

The Chesapeake Bay program involves hundreds of organizations functioning in partnerships, through collaborations and as part of several networks. The Minnesota Clean Water Legacy Program and CAM relied on new forms of collaboration and stakeholder involvement. The brownfields programs have succeeded because they involve new forms of collaboration between government, developers, bankers and NGOs. These collaborative interactions are critical in building the political support for new programs, for finding the funding to support new programs, and for providing the field support to execute very large programs.

The question can no longer be whether we should partner, collaborate or rely on networks to help deliver environmental services, but how can partnering, collaboration, and networks work most effectively for all participants. Don Kettle observed that

[t]hese next-generation problems stretch the EPA far beyond its traditional ways of doing business into complex new partnerships—with other nations, state and local governments, private companies, and citizens. They pose daunting technology—and political—challenges. Most important, they focus as much on governance as management. They require the EPA to chart new relationships with those who share responsibility for environmental quality. Increasingly, that means building partnerships with everyone involved.³

Partnering, collaboration, and environmental service delivery networks do not operate in a vacuum. The regulatory system is an essential element of successful collaborations in getting the attention of potential partners, bringing them to the table, and maintaining their focus on reaching important ecosystem restoration goals. For example, the collaborative efforts to restore the Chesapeake Bay have been driven in significant part by the designation of the Chesapeake Bay as an impaired water, the TMDL lawsuit against Virginia and the resulting implementation deadline of 2010, and the implementation of MS4 stormwater requirements.⁴

EPA's regulatory role has also been important in ensuring the cleanup goals track with the TMDL requirements. When states completed the initial allocation of pollutant reductions required for tributary strategies to meet the 2010 Chesapeake Bay restoration goal, the total reductions fell well short of the reduction numbers

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¹Portions of this section are derived from Appendix J of *NAPA*, *supra* note 48, that the author wrote for NAPA. Reprinted by permission.

²Goldsmith & Eggers, *supra* note 69, at 188 (2004).

³Donald F. Kettle, *Introduction to Environmental Governance: A Report on the Next Generation of Environmental Policy* 6 (Donald F. Kettle ed., 2002).

⁴See <http://cfpub.epa.gov/npdes/stormwater/munic.cfm> (last visited July 30, 2008).

required to meet the goal. EPA was able to step in and allocate the remaining reductions to the states based on the formula that the Agency had helped develop through its work on the science related to nutrient reduction. Finally, EPA's point source regulatory program has allowed the Agency and the states to require wastewater treatment plants to meet more stringent effluent limits in the Bay region.

Regulatory authority is an essential backdrop for many of the other collaborations examined in this article. The Minnesota legislature, in adopting the Clean Water Legacy Act to deal with impaired waters, noted that the purpose of the Act is to "protect, restore, and preserve the quality of Minnesota's surface waters by providing authority, direction, and resources to achieve and maintain water quality standards for surface waters as required by § 303(d) of the CWA, and applicable federal regulations."⁵ Accomplishment of this goal "will require long-term commitment and cooperation by all state and local agencies, and other public and private organizations and individuals, with responsibility and authority for water management, planning and protection."⁶ The Great Lakes Collaboration operates against the zero-discharge goal for persistent, bio-accumulative toxics and the impaired waters requirements, and the Chamber and the Minnesota Center for Environmental Advocacy launched CAM to deal with the potential that the Twin Cities would become an ozone non-attainment area without prompt voluntary action.

The Chesapeake Bay restoration effort also points out another important role for government, especially in EPA collaborative efforts: providing the scientific foundation and other information that facilitates agreement in collaborative processes. Over a period of several years, EPA provided the support needed to understand the nature of the nutrient impairment on the Chesapeake Bay, identify the sources of the impairment, allocate nutrient loads among the Chesapeake Bay tributaries, and facilitate effluent trading by creating nonpoint source nutrient removal efficiencies for agricultural best management practices. Similarly, the ability of EPA and the Minnesota Pollution Control Agency to model ozone pollution for the Twin Cities was an essential element in the Clean Air Minnesota collaboration.

Partnerships and collaboration have become one of the key tools for environmental management that EPA will use over the next several years. At least in the context of nonpoint pollution from agriculture, airborne deposition, and land use where the solutions require a broad network of players, collaboration appears to be essential to the effective delivery of environmental services. One commentator noted this need and explained that collaboration is "a pattern of governance in which lines between public and private are blurred as the boundaries between them become fluid and permeable."⁷ In collaborative efforts:

Government acts less *on* other actors in a hierarchical relationship as it does *with* them in a more collaborative and communicative way; governing consists less of the state exerting control over others in society and more of an interaction among them. There is more shared responsibility and trust. The process of governing is seen as "the creation of learning processes within the interested actors or society in general."⁸

A significant portion of the government's work will continue to focus on specific facilities under specific media programs where collaboration may at times be useful but is not essential. The challenge for the agencies, though, as they increasingly deal with large-scale problem solving is to find ways to shift resources or develop new resources needed to support these major collaborative efforts. Agencies must

⁵Minn. Stat. § 114D.10, subdiv. 1 (2007).

⁶Minn. Stat. § 114D.10, subdiv. 2.

⁷Fiorino, *supra* note 2, at 19.

⁸*Id.* at 20.

also develop a work force that understands and is capable of effectively participating in collaborative problem solving efforts.

To more fully integrate partnering collaboration and networks into environmental governance systems, NAPA has recommended that EPA:

- Clearly identify the circumstances in which EPA must function as a “partnering” agency in order to meet national environmental goals, and widely communicate those circumstances both within and outside of the Agency.
- Explicitly reaffirm the role that both direct regulation and indirect leveraging of regulatory authority must play in meeting national environmental goals, and then widely communicate that role both within and outside of the Agency.
- Develop a strategy, based on experience from the Chesapeake Bay Program and other programs that involve a significant role for partnering in both regulatory and nonregulatory programs, showing specifically how EPA can simultaneously function in both a regulatory mode and clearly perceived nonregulatory mode.
- Develop skills within EPA, and among its partners, for organizing, empowering, and leading networks of partners.
- Continue the Agency’s efforts to more closely coordinate its work with other federal agencies, including those that function in a less regulatory mode.
- Build on the Agency’s work on Cooperative Conservation and collaborative decisionmaking to expand understanding of the value of collaboration in achieving environmental results, especially where the environmental problems involve diffuse sources of pollution and where regulatory authority is limited.
- Work with states to support partnering efforts where the efforts are helpful in solving important environmental problems.
- Incorporate the Academy’s “Principles of Effective Consultation” and “Principles for Federal Managers of Community-Based Programs” into the EPA’s partnering policies, communication strategies, interagency and intergovernmental coordination process, and training programs.⁹

NAPA’s work has highlighted both the difficulty and the importance of making partnering and collaboration an integral part of environmental governance. NAPA points out that

EPA’s primary historic mission to regulate pollution has resulted in an internal culture that emphasizes the Agency’s regulatory and enforcement roles above its other missions. This dominant culture is reflected in how EPA’s principal programs are delegated to and implemented by the states, and how regulated entities perceive the Agency

The Academy Panel’s current research and findings demonstrate two important facts related to addressing impaired waters, and they likely apply to many other environmental cleanup programs as well. First, the regulatory authority under the Clean Water Act and EPA’s use of that authority—both directly in permitting and indirectly through approaches such as the TMDL program—is essential to making progress toward clean and safe waters. Second, partnering with other federal agencies, states, local governments, NGOs and regulated entities is also essential in making progress toward clean and safe waters. *These facts require EPA to continue its efforts to build programs and a culture that allow it to function effectively as both a regulatory agency and a partnering agency, and to be clearly perceived as functioning in both ways.*¹⁰

It will not be easy for EPA, or for state environmental agencies to function both as serious regulatory agencies and at the same time function as, and be perceived as capable of functioning as a reliable partner in collaborative problem solving. The

⁹NAPA, *supra* note 48, at 163; *see also* NAPA, Rural Transportation Consultation Processes 59–60 (2000); NAPA, Principles for Federal Managers of Community-Based Programs (1997).

¹⁰NAPA, *supra* note 48, at 164 (emphasis added).

case examples indicate that this dual role is possible and the nature of the environmental problems confronting the country will require even more effort on the collaborative side of the equation in the future.

§ 26:44 Understanding and taking advantage of internal economic motivations driving corporate environmental behavior

Government controls the regulatory system, and is able to directly influence some of the economics that affect corporate environmental decisionmaking through regulatory programs. Governments now also use a variety of economic instruments such as taxes, fees, subsidies, trading systems, and even liability regimes to influence corporate environmental behavior. These economic drivers have an important impact on some sectors of the economy and some issues, but they are not the only economic factors that can encourage desirable environmental performance.

Government increasingly must take into account economic drivers other than those directly controlled by government. These internal corporate economic drivers include reputation, customer desires, insurance availability, license to operate, investor preferences, lender concerns, SEC reporting requirements, government and public relations, access to markets, product differentiation, green procurement standards, industry codes of conduct, international environmental standards such as International Organization for Standardization (ISO) 14000, supply chain requirements, employee morale and recruiting, and operational efficiency. All of these factors have economic implications for companies that may be affected by environmental performance. While government does not control these economic motivators, it may be able to exercise some influence over them, and can certainly take them into account in designing governance systems and setting priorities.

As Marc Allen Eisner pointed out:

Future gains in environmental quality may be impossible without a fundamental reconsideration of regulatory design. This reconsideration must take the form of incorporating advances in corporate self-regulation, associational regulation, and standards into the regulatory system and thinking creatively about how public policies can be used to reinforce incentives or compensate for their absence.¹

Companies increasingly see the advantages of environmentalism from the perspective of their bottom line. Research has suggested a positive correlation between corporate environmental responsibility and financial performance.² There are at least five reasons a company might voluntarily regulate its environmental practices to gain a competitive advantage:

1. Shrinking waste output and production inefficiencies can reduce environmental impacts and overall costs, and increase competitiveness.
2. Environmentally responsible companies attract and retain a higher quality work force and increased worker satisfaction leads to increased productivity.
3. Environmentally responsible companies have a better reputation in the community, which can lead to more brand loyalty. These companies also have a decreased risk of being targeted by environmental activists, which can tarnish the brand reputation.
4. Environmental responsibility reduces the risk of being exposed to risks like new regulations, pressure from investors to change policies, and increasing

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¹Marc Allen Eisner, *Governing the Environment: The Transformation of Environmental Regulation* 282 (2007).

²Assadourian, *The State of Corporate Responsibility and the Environment*, 18 *Geo. Int'l Envtl. L. Rev.* 571 (2006).

business costs.

5. Environmentalism may provide access to or create a completely new market with the potential for significant revenue growth.³

In short, “being more responsible may help corporations outcompete rivals by staying ahead of tightening regulations, reducing usage of increasingly costly inputs, and attracting investment dollars from concerned consumers.”⁴

Other researchers agree that a company can gain a serious advantage when they start taking the environment into consideration.⁵ In their four years of research, Esty and Andrew Winston found that companies who are successfully and profitably implementing environmental initiatives understand the interface between environmentalism and business.⁶ These companies started out implementing environmental management plans because they had to, but now see business opportunities in going beyond compliance.⁷ They have “evolved to the point where environmental *management* is second nature and their focus is now on mining the gold in environmental *strategy*.”⁸ This is in stark contrast to companies that “have not evolved in their thinking since the 1970s . . . and are still grouching about legislation and complying with it grudgingly.”⁹

A second factor in the evolution some companies have undergone is pressure from stakeholders, although the decision to implement environmental initiatives is ultimately linked to the bottom-line. The growing push from stakeholders has caused companies to consider building their reputation for corporate responsibility. In doing research for the book, Esty and Winston were surprised at how often executives said the reason for launching an environmental initiative was because it was the “right thing to do.”¹⁰ However, building a good reputation is not just the right thing to do, it is also a point of competitive advantage because “doing the right thing attracts the best people, enhances brand value, and builds trust with customers and other stakeholders.”¹¹ Esty and Winston conclude: “The logic of corporate environmental stewardship need not stem from a personal belief that caring for the natural world is the right thing to do. If critical stakeholders believe the environment matters, then it’s the right thing to do for your business.”¹²

Stakeholder pressure can be an important source of motivation to adopt environmentally friendly policies. An increasing number of stakeholders put pressure on companies to pay attention to these issues. Aside from the government and other regulators, the public, NGOs, customers, and employees have increasingly called for action.¹³ Perhaps the most important new set of stakeholders are banks and insurance companies, which may require environmental assessments for major

³Assadourian, *The State of Corporate Responsibility and the Environment*, 18 Geo. Int’l Envtl. L. Rev. 571 at 574–75. General Electric provides the best example of this last reason. It launched “Ecomagination,” which among other things includes putting new green products on the market that are expected to generate \$20 billion in revenues by 2010. *Id.*

⁴Assadourian, *The State of Corporate Responsibility and the Environment*, 18 Geo. Int’l Envtl. L. Rev. 571 at 576.

⁵Daniel C. Esty & Andrew S. Winston, *Green to Gold: How Smart Companies Use Environmental Strategy to Innovate, Create Value, and Build Competitive Advantage* (2006).

⁶*Id.* at 21.

⁷*Id.*

⁸*Id.* at 19.

⁹*Id.*

¹⁰*Id.* at 13–14.

¹¹*Id.* at 14.

¹²*Id.*

¹³Esty & Winston, *supra* note 293, at 9.

loans and give lower lending rates to companies with carefully constructed environmental management plans.¹⁴

Community pressure is also an important force to be reckoned with. In their research on the pulp and paper industry, Neil Gunningham and colleagues found firms were motivated to go beyond compliance because of pressures from the “social license.”¹⁵ Firms are so motivated because the social license can be enforced in very real ways. It can be enforced by an enhancement or destruction of the firm’s reputation, by putting pressure on regulators to more vigilantly enforcing existing regulations, by the filing of citizen suits, by lobbying for tighter regulations, and by market pressures such as boycotts.¹⁶ The authors found that pulp and paper mill firms were generally highly motivated to stay ahead of environmental regulations so that they could remain in the public’s good graces.¹⁷

Another distinct benefit and competitive advantage to businesses that go beyond compliance is such a move could gain them “a seat at the table when regulations are designed.”¹⁸ Companies that foresee the business opportunities to be gained in influencing carbon-emissions regulations stand to benefit from becoming “green” now so that they can be seen as leaders and potentially help shape regulatory policy.¹⁹

The third variable in determining whether a company will be motivated to go beyond compliance is the attitude of the environmental manager. In a study of 14 pulp and paper manufacturing mills in Australia, British Columbia, Canada, New Zealand, and the states of Georgia and Washington, the researchers were focused on trying to understand the reasons for the wide variations in environmental performance.²⁰ One of the interesting observations of their work is “the influence of social pressures on environmental performance depends on an ‘intervening variable’—managerial attitudes.”²¹ In fact, in their analysis, “environmental management style was a much more powerful predictor of mill-level environmental performance than regulatory regime or corporate size and earnings.”²²

The factors that motivate large firms to go beyond compliance may not, however, have the same impact on smaller businesses. David Williamson and Gary Lynch-Wood found that the social license does not inspire small firms to go beyond compliance because the main motivations of the social license, stakeholder pressure and reputation, do not affect them in the same way they affect large firms and these factors therefore do not produce a response from them.²³ The authors identify five factors that influence a firm’s environmental behavior: (1) the environmental impact of the firm’s products and processes; (2) customer power; (3) customer interest; (4)

¹⁴*Id.* at 9, 11; *see also* Assadourian, *supra* note 290, at 575.

¹⁵Neil Gunningham et al., *Social License and Environmental Protection: Why Businesses Go Beyond Compliance*, *Law & Soc. Inquiry* 307, 339 (2004).

¹⁶*Id.* at 319–20.

¹⁷*Id.*

¹⁸Andrew J. Hoffman, *If You’re Not at the Table, You’re on the Menu*, *Harv. Bus. Rev.* (Special Report: *Forethought: A Survey of Ideas, Trends, People, and Practices on the Business Horizon*), Oct. 2007, at 34.

¹⁹*Id.*

²⁰Kagan et al., *Explaining Corporate Environmental Performance: How Does Regulation Matter?*, 37 *Law & Soc’y Rev.* 51, 53 (2003).

²¹*Id.*

²²*Id.* at 73.

²³Lynch-Wood and Williamson, *The Social License as a Form of Regulation for Small and Medium Enterprises*, 34 *J.L. & Soc’y* 321, 339 (2007).

corporate/brand visibility; and (5) community pressure.²⁴ They found that two or more factors must have a “high pull rating” before a firm would be motivated to go beyond compliance.²⁵ These factors often are not significant enough to drive the behavior of small firms. Thus, it is important for government, in looking at the factors that motivate corporate behavior, to be thoughtful about whether particular companies or particular industries are more or less likely to be motivated to perform beyond what the law requires.

The case examples highlight several economic factors that have driven companies to perform beyond the minimum required by law. For the Chesapeake Bay, reputation, government relations, avoiding mandatory regulations, and customer pressure driven by social marketing were among the factors involved. For the Minnesota Clean Water Legacy Act, having a direct voice in the outcome of the legislation, shifting the focus of regulatory programs away from industrial facilities and the economic value of tourism all seemed to play a role. For CAM, avoiding the cost of non-attainment regulations was a prime motivator for businesses, along with the reputation of some of the major industrial facilities and the ability to focus more attention on diffuse sources. In the case of the brownfields programs, the key factors for business investment were making risk more quantifiable to facilitate investment decisions and developing an approval process that could accommodate the time frame of typical development deals.

In order to achieve optimum results with the limited resources available to them, government agencies must continue to develop their understanding of how these internal economic factors affect corporate environmental decisionmaking and take the factors in to account in designing management systems and setting priorities.

§ 26:45 Providing information and education to facilitate the development of public values

Whether viewed in terms of individual responsibility or ethics or stewardship, values must play a growing role in environmental governance. Aldo Leopold’s views have perhaps never been more relevant than they are today when we are faced with regional crises such as the deterioration of major estuaries, and international crises such as climate change. Leopold observed that

[w]e abuse the land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanized man, nor for us to reap from it the aesthetic harvest it is capable, under science, of contributing to culture. That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics. That land yields a cultural harvest is a fact long known but latterly often forgotten.¹

In a similar vein, the Aspen Institute in its work on resource stewardship observed that

²⁴*Id.* at 331–32.

²⁵*Id.* at 332.

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¹Aldo Leopold, *A Sand County Almanac* 6 (1949). A similar approach is suggested by Robert Gordon.

The future of environmental law will involve the translation of the scientific principles of ecology and the ethical teaching of environmental ethics into positive law. As this positive law is applied to private land, the translation will necessarily involve an adjustment of the expectation of private landowners. This adjustment may be relatively insignificant as applied in many cases, but in theory, is nonetheless profound.

Robert Jay Gordon, *Ecology and Environmental Ethics: Green Wood in the Bundle of Sticks* 187 (2004).

[c]ontinued prosperity depends on our ability to protect natural heritage and learn to use it in ways that do not diminish it. Stewardship is at the core of this obligation. It calls upon everyone in society to assume responsibility for protecting the integrity of natural resources and ecosystems and, in so doing, safeguarding the interests of future generations. Without personal and collective commitment, without an ethic based on acceptance of personal responsibility, efforts to sustain natural resources protection and environmental quality cannot succeed.²

Similarly, the PCSD: “Stewardship is an essential concept that helps define appropriate human interaction with the natural world.”³

The question for government is what, if any, role could and should it have in value formation. Given that individual behavior is an inextricable element of many of our most important environmental challenges and the fact that we must increasingly rely on self-motivated behavior by organizations that are, after all, led by individuals, it is essential to seriously examine this question.

The most obvious role that government can play in value formation is providing more and better information to the public. By better understanding the nature of environmental problems, the cause of the problems, and what can be done to solve the problems, new public values can be created or existing public values strengthened. Government is statutorily obliged to provide a wide range of environmental information under both substantive environmental law and government data practices legislation. Government however, has significant freedom to go beyond the minimum requirements of statutes to provide additional information to the public that may assist with value formation. For example, EPA provides the public with information on a wide range of environmental issues such as wetlands,⁴ climate change,⁵ ground-level ozone,⁶ smart growth,⁷ and others. Providing information is not a particularly controversial idea. However, providing information with a clear purpose to promote value formation has been more controversial over the years within EPA and other environmental agencies. In 1981, the Reagan Administration eliminated the Office of Environmental Education that had been established in 1970 in the Department of Health, Education, and Welfare.⁸

But, governments have often been involved in large-scale public education campaigns. Among the many examples are Lady Bird Johnson’s Beautify America efforts,⁹ the U.S. Forest Service’s: “You can prevent forest fires” campaigns,¹⁰ Drug Abuse Resistance Education at the state and local level,¹¹ and sexual abstinence initiatives such as § 510 Social Security Act¹² that specifies, among other things, that a program must have, “as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity. . . .”¹³

The Dutch government in its National Environmental Policy Plan recognized the

²The Aspen Institute, *The Stewardship Path to Sustainable Natural Systems* 3–4 (1999).

³PCSD, *supra* note 22, at 109.

⁴See U.S. EPA, *Wetlands Fact Sheets*, <http://www.epa.gov/owow/wetlands/facts/contents.html>.

⁵See U.S. EPA, *Climate Change*, <http://www.epa.gov/climatechange/>.

⁶See U.S. EPA, *Ground-Level Ozone*, <http://www.epa.gov/air/ozonepollution/index.html>.

⁷See U.S. EPA, *About Smart Growth*, http://www.epa.gov/smartgrowth/about_sg.htm.

⁸See Competitive Enter. Inst., *Environmental Education* (undated), available at <http://www.cei.org/pdf/2316.pdf>.

⁹See http://www.pbs.org/ladybird/shattereddreams/shattereddreams_report.html (last visited July 30, 2008).

¹⁰See <http://www.smokeybear.com> (last visited July 30, 2008).

¹¹See http://www.dare.com/home/about_dare.asp (last visited July 30, 2008).

¹²42 U.S.C.A. § 710.

¹³42 U.S.C.A. § 710(b)(2)(A).

importance of public education and explicitly incorporated it as a strategic element of their plan. The country's Future Environmental Agenda embraces a public education campaign as central to achieving its environmental objectives.¹⁴

Public education efforts, including social marketing efforts such as the: "Save the crabs, then eat them" campaign¹⁵ supported by EPA and many others bay organizations, are playing an increasingly important role in Chesapeake Bay restoration.¹⁶ A public education campaign was essential to producing the legislative consensus that resulted in overwhelming bi-partisan support for the Minnesota Clean Water Legacy Act and is a central strategy in CAM's ozone reduction strategy. Building societal values that support energy efficiency, conservation, and a lower carbon economy is likely to be critical in efforts to deal with climate change. These examples point out the important role of values in driving environmentally desirable conduct and the strategic importance for government in supporting values formation through information, education and social marketing campaigns.

With diffuse sources of pollution a critical element of many of our major environmental problems, societal values will be central to solving these problems. Government agencies cannot avoid considering how they should address the question of values if they are to succeed in achieving their environmental goals.

§ 26:46 Enabling the public to influence environmental decisionmaking directly¹

Governments have been rethinking the way they involve the public in environmental decisionmaking for some time. The challenge for government is to increasingly make public engagement a part of a strategic approach to green governance that helps produce better environmental results. To do this, they must view public engagement not simply as a method of complying with legal requirements in environmental laws and under administrative procedures acts but as a mechanism for creating pressure on sources of pollution to improve their conduct.

EPA's 2003 Public Involvement Policy² is an important advance in engaging the public in a more substantive way in environmental decision-making. The 2003 Policy notes that "[t]o achieve [EPA's] mission, EPA needs to continue to integrate, in a meaningful way, the knowledge and opinions of others into its decisionmaking processes. Effective public involvement can both improve the content of the Agency's decisions and enhance the deliberative process."³ While significant progress has been made in expanding public involvement, the idea still meets with resistance from some agencies since it departs from the classic model in which government personnel are seen as the experts who are in the best position to make decisions about what best serves the public interest. Further, public engagement is often viewed relatively narrowly as the opportunity to comment on agency decisions rather than more broadly as an opportunity to engage the public to directly influ-

¹⁴VROM, Future Environmental Agenda: Clean, Clever, Competitive 50 (2006), available at <http://www2.vrom.nl/docs/international/Toekomstagenda%20-%20vertaling%20Engels.pdf>.

¹⁵Karl Blankenship, *Audiences Eating Up Chesapeake Club's Mass Media Campaign*, BAY J., Sept. 2005, <http://www.bayjournal.com/article.cfm?article=2606> (last visited July 30, 2008).

¹⁶Chesapeake Bay Soc'y Mktg. Initiative, 2004–2005 Final Report, Aug. 31, 2005, available at [http://www.epa.gov/nps/toolbox/surveys/Final Chesapeake Club Report.pdf](http://www.epa.gov/nps/toolbox/surveys/Final%20Chesapeake%20Club%20Report.pdf).

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¹Parts of the discussion on public engagement are derived from Paddock, *Environmental Accountability and Public Involvement*, 21 Pace Env'tl. L. Rev. 243 (2004), reprinted by permission.

²U.S. EPA, *Public Involvement Policy of the U.S. Environmental Protection Agency* (2003), available at <http://www.epa.gov/publicinvolvement/policy2003/finalpolicy.pdf>.

³*Id.* at 1.

ence the conduct of sources of pollution.

Public engagement can have a significant impact on environmental outcomes by, among other things:

- Creating pressure on a project proposer to produce more information about the environmental impacts of a project;
- Generating information about a project based on local knowledge and expertise that may result in modifications of a project or improved operation;
- Driving modifications in a project to address environmental concerns that may not be subject to direct regulation such as wetlands preservation, habitat protection, noise, traffic, or hours of operation;
- Creating ongoing consultative relationships between members of the public and the facility proposer;
- Pushing government agencies to more carefully consider aspects of a proposed permit that may not be obvious on the face of a permit application including environmental justice concerns;
- Making a regulatory decision more acceptable to a community leading to fewer operational issues and facilitating future modifications or expansions; and
- Raising issues about past oversight of a facility owned by a project proposer that may drive improved compliance.⁴

Unfortunately, the principal public participation methods historically used by government agencies—public hearings, public meetings, and notice-and-comment rulemaking procedures—frequently do not serve well as methods for true public engagement in government decisionmaking. They do not create conditions necessary for effective, or “authentic”⁵ public participation. King and others found the following:

Although there is theoretical and practical recognition that the public must be more involved in public decisions, many administrators are, at best, ambivalent about public involvement or, at worst, they find it problematic. . . . As a result, although many public administrators view close relationships with citizens as both necessary and desirable, most of them do not actively seek public involvement. If they do seek it, they do not use public input in making administrative decisions (as indicated by a 1989 study conducted by the Kettering Foundation). These administrators believe that greater citizen participation creates delays and increases red tape.⁶

Citizens are increasingly reluctant to defer to expert administrators.⁷ Instead, as part of a broader movement toward popular democracy, citizens increasingly want earlier access to the decisionmaking process, more opportunities to be heard and to bring local knowledge to the table, and a clearer role in decisionmaking.⁸ This is a salutary trend and should be embraced by government as another strategic tool in

⁴See Thomas C. Beierle & Jerry Cayford, *Democracy in Practice: Public Participation in Environmental Decisions* 14–15 (2002).

⁵“Authentic” public participation “implies more than finding the right tools and techniques for increasing public involvement in public decisions.” King et al., *The Question of Participation: Toward Authentic Public Participation in Public Administration*, 58 *Pub. Admin. Rev.* 317, 317 (1998). Rather it is participation that “works for all parties and stimulates interest and investment in both administrators and citizens.” *Id.*

⁶King et al., *The Question of Participation: Toward Authentic Public Participation in Public Administration*, 58 *Pub. Admin. Rev.* 317 at 319.

⁷Env'tl. L. Inst., *Building Capacity to Participate in Environmental Protection Agency Activities: A Needs Assessment and Analysis* 2 (1999).

⁸See Beierle & Cayford, *supra* note 333, at 4; see also Slovic, *Perceived Risk, Trust, and Democracy*, 13 *Risk Analysis* 675, 680 (1993).

pressuring sources of pollution to improve their performance.

Dewitt John observed:

[T]op-down regulation works best for large, clearly identifiable sources of pollution, like smokestacks, water treatment plants, and toxic waste dumps, rather than dispersed, small scale sources like individual homes. The command-and-control model is more difficult to implement when there are large numbers of polluters and when it is difficult to monitor what each polluter contributes to an environmental problem. It is simply too difficult for regulators to keep track of so many sources. As one Iowan put it: "It may take an occupying army to regulate the 100,000 farmers in our state."⁹

An informed and involved public, however, could be part of an occupying army of concerned citizens.

To more fully integrate public involvement as a strategic management tool and to enable the public to directly influence environmental decisionmaking government agencies need to do the following:

1. Recognize the limitations of the traditional public hearing, public meeting, and notice-and-comment procedures, routinely provide notice of a proposed project to the public as soon as a government agency has sufficient information to clearly define the nature and extent of the proposed project and consider adopting public participation policies that are similar to EPA's 2003 Public Involvement Policy.
2. Encourage project proposers to notify affected communities about proposed projects even before the projects are submitted to the government agency for review and holding preliminary discussions with the community to understand their concerns about the project.¹⁰
3. Set aside sufficient resources to assure that adequate information can be made available to the public about proposed projects, agency staff can regularly interact with members of the public, meetings can be held at times and in places that are convenient for the public to attend, third-party neutrals can be used in cases where third parties are needed to facilitate an effective dialogue among the parties, and communities have access to technical expertise when needed.¹¹
4. Provide staff with in-depth training on methods for effectively involving the public, the importance of taking local knowledge into account in their decisions, and how to use their expertise in a way that enables rather than deters public participation.¹²
5. Develop public participation decision trees for their staff that allow the staff to rapidly analyze which public participation technique would likely be most effective in different situations.¹³
6. Expand the use of collaborative decisionmaking processes.
7. Make information related to a proposed project, including historical information about related facilities and the facility operator, readily available to the public on the Internet or at local institutions such as libraries so that members

⁹DeWitt John, *Civic Environmentalism: Alternatives to Regulation in States and Communities* 9–10 (1994).

¹⁰See Econ. Comm'n for Europe, *The Aarhus Convention: An Implementation Guide* Art 6, ¶ 5 (2000); see also NAPA, *Environmental Justice in EPA Permitting: Reducing Pollution in High-Risk Communities Integral to the Agency's Mission* 75 (2001).

¹¹See NAPA, *supra* note 48, at 75.

¹²See King et al., *supra* note 334, at 325; see also NAPA, *Models for Change: Efforts by Four States to Address Environmental Justice* 135 (2002); NAPA, *supra* note 48, at 75.

¹³See NAPA, *supra* note 48, at 75.

of the public have the information needed to effectively participate.¹⁴

8. Consider establishing ongoing relationships with some communities in which environmental permits are frequently issued or are routinely controversial based on the federal Superfund program's community liaison model.
9. Provide training programs for citizens and citizen organizations that help them better understand the government approval processes and how to most effectively participate in the process.

§ 26:47 Identifying and mainstreaming innovative environmental management approaches

Significant innovations have been a critical factor in each of the case studies. For the Chesapeake Bay, the innovations have included new intergovernmental arrangements, the development of tributary strategies, the introduction of low-impact development concepts, the enactment of the Maryland Flush Tax, the use of social marketing campaigns, and many others. In Minnesota, the ground-breaking collaboration among a wide range of interest groups and a public education campaign boosted the impaired waters issue to the top of the political agenda and opened the door for the passage of the Clean Water Legacy Act. Similarly, CAM relied on an unprecedented partnership between an environmental organization and the state Chamber of Commerce, and was facilitated by air quality modeling produced by the Minnesota Pollution Control Agency and a diverse set of new public and private resources and partnerships that is leading to retrofits for most of the state's school bus fleet. In the brownfields context, the willingness to consider the needs of bankers and developers in rehabilitating old industrial property has dramatically changed the landscape for urban redevelopment and has helped address one of the causes of sprawl. For nanotechnology and climate change, it appears clear that the complexity of the issues will require innovative new approaches to governance to avoid or minimize environmental threats.

EPA and many state agencies have innovation offices or programs that have developed important new approaches to environmental management. However, the process of integrating these innovations into line programs has often proven difficult and controversial. EPA's flagship innovation programs of the late 1990s—the Common Sense Initiative and Project XL—have long since died a quiet death.

Perhaps the most significant challenge to innovation is that simply running existing programs use much of the environmental agencies' limited financial and human resources. For many states, most federal funds are directed to support ongoing activities in the air, water and waste programs rather than innovation efforts. Further, long-standing programs with their established constituencies and budgets often resist shifting resources to new, untested programs.¹ Other problems associated with innovation efforts can be traced to the complexity of environmental legislation and the fact that EPA has no specific innovation authority. Part of the difficulty with Project XL was that EPA had to cobble together legal authority in the form of a site specific rule to grant the flexibility in facility permits that was at the heart of the program. This slowed experimentation and reduced the number and enthusiasm of program participants. While these are all understandable reasons why innovation programs often have to take a backseat to established air, water, and waste

¹⁴See *id.*

[Section 26:47]

¹Cf. LeRoy Paddock & Suellen Keiner, *Mixing Management Metaphors: The Complexities of Introducing a Performance-Based State/EPA Partnership System Into an Activity-Based Management Culture* 11.32–11.33 and 11.45–11.46, in NAPA, Environment.gov: Transforming Environmental Protection for the 21st Century, Research Papers 11–17, Volume III (2000).

programs, this situation is increasingly problematic given the complexity of the problems discussed in this Article.

NGO acceptance of innovation efforts has also been an issue, especially for EPA. NGO concerns have often focused on priorities—asking whether innovative programs are solving important environmental problems or simply accommodating the economic interests of a few well-connected companies—and cost—asking whether these programs, which tend to be resource intensive in their start up phase, divert scarce resources away from important permitting and enforcement activities. These are important but solvable issues. Clearly, innovation should be focused on important problems and innovation programs should be cost-effective compared to other management approaches over the long run. NGOs have also been concerned about innovations being mainstreamed without adequate evaluation. Innovations should be subject to stakeholder-based evaluation before they are mainstreamed to assure that the programs have broad support among all relevant constituencies. EPA has historically not had a widely accepted stakeholder-based innovations evaluation process.

NAPA, in a recent review of EPA, observed that “most of these innovations [initiated by EPA] presently remain small and outside the mainstream of tools and coordinating mechanisms that are used to implement EPA’s primary programs.”² It found that innovation was essential to more effective environmental service delivery, noting:

Innovation programs that can have direct impact on environmental quality should be made readily available more quickly to policymakers, program directors, and implementation organizations. To accelerate innovation, EPA should place more emphasis on the importance of innovation for environmental problem solving, and on enhancing the culture of innovation within the agency.³

To accelerate innovation at EPA, NAPA recommended that EPA

- Recognize and value innovation,
- Regularly invest agency resources in innovation,
- Allow promising innovative ideas to be tested for a sufficient period of time to understand the effectiveness of the idea,
- Regularly evaluate, in consultation with key stakeholders, how innovative ideas are contributing to environmental outcomes,
- Aggressively mainstream innovations that have been demonstrated to produce results by incorporating them into the way the Agency operates, by funding them, and by helping to build capacity in implementing agencies to enable effective use of new tools,
- Seek legislative authorization for particularly promising innovations that have wide stakeholder support but that without specific legislative authorization, are unlikely to achieve desired results, and
- Assist development and promotion of model state legislation and model local ordinances needed to enable new implementation tools.⁴

Changes such as those proposed by NAPA at both the federal and state level would significantly enhance the ability of environmental agencies to develop and mainstream innovative approaches to environmental management, a process that is essential to effective green governance.

§ 26:48 Conclusion

²NAPA, *supra* note 48, at 179.

³*Id.* at 178.

⁴*Id.* at 179.

Ken Sexton in the book *Better Environmental Decisions* observed that “the major obstacle to better environmental decisions is not that we lack ideas, but rather that we have difficulty escaping from the old, familiar paradigms that have shaped our programs and policies for more than two decades. . . .”¹ Governments, businesses, and NGOs know the environmental regulatory system’s strengths and weaknesses, understand how the system functions, and have invested heavily in managing environmental problems under this system. Thus, it is not surprising that moving from a model where regulation plays the dominant role to a model in which regulation is one of several strategic approaches to improved environmental management is more than difficult. But, given the nature of the problems with which we are faced, not to adopt this new model of green governance is accepting failure.

Governments, working with NGOs and businesses, need to employ all of the drivers of environmental behavior—the regulatory system, economics and values—to achieve desired environmental results. The country needs a diverse and flexible regulatory tool box that can help solve environmental problems. It also needs a box of collaboration tools, a box of internal corporate economic tools, a box of public engagement tools, a box of public values tools, and we need inventors who will consistently test out and then replenish our tool boxes with new approaches.

Daniel Fiorino noted that the European literature on social-political governance is asking the question:

How can dynamic, complex, and diverse social-political systems be governed more democratically and effectively? Their answer is to think in terms of entirely new conceptions of governance, owing to the limits of traditional, hierarchical ideas about governance in a rapidly changing world. For these writers, “the growing complexity, dynamics, and diversity of our societies, as ‘caused by social, technological and scientific developments,’ puts governing systems under such new challenges that new conceptions of governance are needed.”

Social-political governance involves new patterns of interaction among government and others in society. These patterns are not temporary, but are built into the structures and processes of governance. Distinctions between the public (the state, regulatory agencies) and the private (society, markets) are blurred as the boundaries between them become more fluid and permeable. Government acts not *on* but *with* nongovernmental and commercial entities. There is a shift from governance as one-way traffic toward two-way traffic [if we are to expect people to take on responsibility they must know why, how, they must have information, they must have a role in design and oversight] in which “aspects, qualities, problems, and opportunities” of those governing and of those being governed are considered.²

Both the critiques and the case examples demonstrate that effective green governance must involve government acting with nongovernmental and commercial entities. This requires a different allocation of resources, new priorities, and new competencies. Ideally, new human and economic resources would be provided to allow agencies to enhance the ability of government to participate in partnerships and collaborations and operate through networks, understand and take advantage of internal corporate economic motivations, provide information and education that builds societal values, enable the public to directly influence public and private environmental decisionmaking, and identify and mainstream innovative environmental management approaches, rather than simply diverting the resources from the still critical functions of regulation and enforcement. However, even if new re-

[Section 26:48]

¹Ken Sexton et al., *Conclusion: Strategies for Integrated Decision Making*, in *Better Environmental Decisions: Strategies for Governments, Businesses and Communities* 450 (Ken Sexton et al. eds., 1999).

²Fiorino, *supra* note 1, at 161–62 (internal citations omitted).

sources are not available, it is essential that environmental agencies at all levels incorporate these other methods of driving environmental behavior into their strategic approaches to environmental management.

Effective green governance requires that we re-craft our approach to environmental management if we are to make significant progress on some of the difficult environmental issues we face today.

Chapter 27

Sustainability*

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*By **John C. Dernbach**. Excerpted, with permission, from “Acting as if Tomorrow Matters: Accelerating the Transition to Sustainability” (ELI Press 2012).

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PART I. WHAT IS SUSTAINABILITY?

§ 27:1 Introduction

Over the past several decades, we have made some progress toward sustainability but have also encountered major obstacles.¹ This chapter teases out those patterns that account for the progress, albeit modest, that we have made to date. Similarly, it describes the obstacles to sustainability. The chapter then outlines an approach for accelerating progress and overcoming obstacles.

Sustainable development—or sustainability for short—will make the United States more livable, healthy, secure, and prosperous. Policies that promote sustainability will reduce risks to our national security, improve our economic efficiency and productivity, enhance our health and communities, improve the lives of the poorest among us, and foster greater human well-being. Sustainability can provide these multiple benefits while protecting and restoring the environment for our generation and for generations that follow.

This chapter is premised on a fact that we have known for a long time, and which we ignore at our peril. The National Research Council opened its recent report on sustainability at the U.S. Environmental Protection Agency this way:

[Section 27:1]

¹See, e.g., Agenda for a Sustainable America (John C. Dernbach ed., ELI Press 2009); Stumbling Toward Sustainability (John C. Dernbach ed., ELI Press 2002).

Everything that humans require for their survival and well-being depends, directly or indirectly, on the natural environment. The environment provides the air we breathe, the water we drink, and the food we eat. It defines in fundamental ways the communities in which we live and is the source for renewable and nonrenewable resources on which civilization depends. Our health and well-being, our economy, and our security all require a high quality environment.²

Americans tend to trace such thoughts back to great conservationists, including George Perkins Marsh, John Muir, Aldo Leopold, and Theodore Roosevelt. But they actually go back further, to the founding of the nation. Our first four presidents—George Washington, John Adams, Thomas Jefferson, and James Madison—owned farms or plantations. They differed in many ways (three were slaveholders, and one, Adams, was not), yet all were convinced that the health of the soil is essential to the health of the nation.³ After James Madison's presidency, he was elected as first president of the Agriculture Society of Albemarle, Virginia. In 1818, he gave an address to the society in which he explained that preservation of adjoining forests and woodlands, use of manure as fertilizer, horizontal plowing on hill sides, and other conservation techniques were all essential to ensuring soil fertility. Failure to do these things, he emphasized, meant degraded soil, low yield, and a weaker nation. The "happiness of our country," he added, depends not just on its "soil and climate" and its "uncrowded situation" but also on actions that maintain and enhance soil fertility.⁴

It was just such thinking—applied to a broader set of problems—that motivated the United States and other countries at the 1992 U.N. Conference on Environment and Development (known widely as the Earth Summit) in Rio. The twin problems addressed at the Earth Summit were high levels of global poverty and increasing environmental degradation. It was widely recognized that each problem helped to make the other worse; environmental degradation makes it hard for people to stay healthy and earn a living, and poverty deprives individuals of the time and resources needed to protect the environment.

Twenty years later, these problems are no less pressing. Our actions as a species and as a nation are not sustainable. The situation we face at the global level is both simple and daunting: humans are making greater demands for natural resources and causing widespread environmental degradation on a planet with a finite capacity to meet those demands or absorb their effects. In addition, some people have access to abundant resources at an affordable price, and some do not. Sadly, many conditions, including climate change, are now worse than they were two decades ago.

At Rio the countries of the world, including the United States, under the farsighted leadership of President George H.W. Bush, endorsed a broad and ambitious plan to move toward sustainability (Agenda 21)⁵ and a set of principles to guide the effort (Rio Declaration).⁶ The United States endorsed this plan and these principles because, to a great degree, they were based on longstanding U.S. laws

²National Research Council, Sustainability and the U.S. Environmental Protection Agency 1 (Nat'l Acad. Press 2011) (footnote omitted).

³Andrea Wulf, *Founding Gardeners: the Revolutionary Generation, Nature, and the Shaping of the American Nation* (Knopf 2011).

⁴James Madison, *Address to the Agricultural Society of Albemarle, Virginia, in 3 Letters and Other Writings of James Madison* 63, 76–77 (1884).

⁵U.N. Conference on Environment and Development (UNCED), Agenda 21, U.N. Doc. A/CONF.151.26 (1992), available at <http://www.un.org/esa/dsd/agenda21/>.

⁶UNCED, Rio Declaration on Environment and Development, U.N. Doc. A/CONF.151/5/ Rev.1, 31 I.L.M. 874 (June 3-14, 1992), available at <http://www.unep.org/Documents/Multilingual/Default.asp?documentid=78&articleid=1163>.

and policies. Indeed, sustainability is anchored in conservation concepts that have been employed in the United States for more than a century to preserve forests, soil, fish, and game.

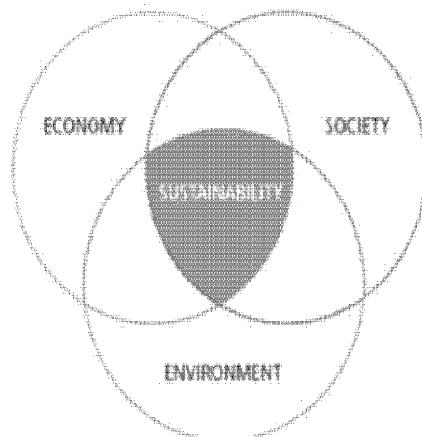
§ 27:2 Sustainability is . . .

We use the terms “sustainability” and “sustainable development” more now than we did two decades ago. Still, it is far from clear that most of us understand what sustainability and sustainable development mean. For many, perhaps most, these are just vague words in the “green” vocabulary. For more than a few others, sustainability means something negative, like tree hugging. Yet sustainability is distinctive—and positive—in at least seven ways.

First, sustainability provides a framework for humans to live and prosper in harmony with nature rather than, as we have tended to do for centuries, at nature’s expense. It is about finding ways to make our goals for environmental protection, economic growth, peace and security, and social well-being mutually reinforcing—rather than treating environmental degradation as the necessary price of progress. It is about quality of life and well-being. Although the terms *sustainability* and *sustainable development* were first used in an environmental context, they are not about the environment alone or the environment before everything else. The Venn diagram in Figure 27.1 is a common way of expressing the nexus of environmental, social, and economic goals. These are sometimes also called the three pillars of sustainability. Corporate sustainability efforts are often described in terms of a triple bottom line of, for example, “profit, people, and planet.”¹

The three pillars and triple bottom line are used so often that a fourth dimension—peace and security—is often omitted. Yet most activities are difficult or impossible in the absence of peace and security. As the Rio Declaration states, “Peace, development and environmental protection are interdependent and indivisible.”² Some sustainability issues more obviously involve security than others. The use of petroleum for transportation, for instance, involves foreign oil supplies, and thus has national security implications. In this book, we discuss security when it is appropriate to do so, but more often we refer to three goals or the triple bottom line.

Figure 27.1 Sustainability and Three Circles



[Section 27:2]

¹*Idea: Triple Bottom Line*, the Economist, Nov. 17, 2009, at <http://www.economist.com/node/14301663>.

²Rio Declaration, *supra* note 6, princ. 24.

As Figure 27.1 suggests, the object of sustainability is to maximize the positive contribution of human activities to the environment, the economy, and society at the same time. The reuse and recycling of materials provides an example. If we buy things and then throw them out, we contribute to economic growth and job creation but the environmental impact is negative. If nearly everything is recycled or reused, on the other hand, we not only contribute to economic growth but also create more jobs than if materials were simply landfilled, save energy used to make and refine those materials that would otherwise be lost, and have almost no negative environmental impact. If we mined existing disposal facilities for metal and other materials, and converted the land to park or other use, we would have a positive environmental impact. Sustainability is not just about minimizing environmental damage; it is also about the restoration of environmental quality.

Sustainability is thus about *integrating* environmental protection and restoration into economic, social, and national security decisions and goals. If the risks of environmental degradation are accounted for, sustainability will be more efficient and less costly than making a development decision first and then figuring out what to do about the environment afterward, or addressing the environment as a costly add-on to a development project or manufacturing process. In principle, a dollar spent on sustainability will yield more benefits—and a greater variety of benefits—than a dollar spent only on economic development or the environment. In fact, sustainability is consistent with the fiscal discipline that current economic circumstances require. And for energy efficiency and conservation in particular, sustainability can, and usually does, also mean lower economic costs.

Second, sustainability focuses on both the short-term and long-term effects of decisions. The most widely accepted definition of sustainable development—“development that meets the needs of the present without compromising the ability of future generations to meet their own needs”³—captures this point precisely. It is reinforced by one of the principles in the Rio Declaration—intergenerational equity. It is also consistent with much American political rhetoric that focuses on protecting the interests of our children and grandchildren. Sustainability is inconsistent with decisions that lead to long-term debts or problems that can only be resolved, if at all, by future generations—such as the federal budget deficit, climate change, overpopulation, depletion of resources, destruction of biodiversity, and the global accumulation of toxic materials.

Third, sustainability is about exercising precaution and making commonsense decisions in the face of known or likely risks. Sustainable development is not based on what we want to believe or not believe; it is anchored in reality and risk. Because sustainability is premised in part on avoiding or limiting risks, it does not require complete certainty before we act. That is how we ordinarily behave, and we should treat risks related to sustainability in the same way.

Fourth, sustainability is also a moral, ethical, and even a religious issue, not just a matter of policy or law. Environmental quality and the availability of natural resources directly affect human well-being; environmental damage hurts individuals, forcing them to breathe unhealthy air, drink filthy water, or ingest toxic chemicals. Environmental degradation also damages the vast ecological commons on which life depends. To address this problem, the Rio Declaration mirrors a basic principle of U.S. environmental law, stating that “the polluter should, in principle, bear the cost of pollution,” rather than imposing that cost on others or the

³World Commission on Environment and Development, *Our Common Future* 43 (1987), available at <http://www.un-documents.net/wced-ocf.htm>.

environment.⁴ For those who recognize the existence of God, or another deity or force larger than themselves, environmental degradation also can be an offense against God, creation, or the natural order.

Fifth, sustainability is not directed just to government or industry, but to all parts of society, all ages, and all economic sectors. The Rio Declaration identifies public participation, access to information, and access to justice—key principles of American governance—as essential to sustainability.⁵ It is also directed to individuals, not simply as participants in the development of government policy but also as consumers and users of goods and services. The problems are so large, and the opportunities so many, that virtually every individual, organization, institution, corporation, and government needs to contribute to a more-sustainable world.

Sixth, sustainability requires considerable innovation in all spheres of public and private life. Many of the legal, policy, and other tools we need to achieve sustainability do not yet exist, are only now being attempted, or have only been tried for a short time. Sustainability is an effort to change the environmental habits, scripts, and patterns that have dominated the American landscape over the past several decades, and even longer. Day after day, at home, at work, and in school, most of us act in many ways that are not environmentally sustainable. We will need to change those habits, either through the use of new technologies, new options for doing things, new or different infrastructure, new or modified laws, or changes in personal habits.

Seventh, sustainability's objectives are human freedom, opportunity, and quality of life in a world in which the environment is protected and restored and in which natural resources are readily available. The objectives of sustainable development are in many ways the same as those of conventional development. It is easy to forget that sustainable development is, after all, a form of development. In *Our Common Future*, a landmark report on sustainable development, the World Commission on Environment and Development stated: “The satisfaction of human needs and aspirations is the major objective of development.”⁶ International lawyer Rumu Sarkar explains that, “for most practitioners and theorists, the overall objectives of alleviating poverty and human suffering and of improving the human condition more generally are the desired end product of the development process.”⁷ She adds that, “development aims at enlarging the opportunities people have in their lives.”⁸ Amartya Sen, a professor of economics and philosophy at Harvard who has won the Nobel Prize in economics, describes development as a process that enlarges individual freedom.⁹

§ 27:3 Sustainability is not . . .

To be clear about what sustainability *is*, we also need to make clear what sustainability is *not*. This is particularly important because many people believe that sustainability does not fit into their own view of the world or personal values and aspirations. As John Maynard Keynes once said, “the difficulty lies not with the new ideas, but in escaping from the old ones.”

Sustainability is not about less freedom and opportunity. In fact, it is about

⁴Rio Declaration, *supra* note 6, princ. 16.

⁵*Id.* princ. 10.

⁶Our Common Future, *supra* note 9, at 43.

⁷Rumu Sarkar, *International Development Law: Rule of Law, Human Rights, and Global Finance* xvi (Oxford Univ. Press 2009).

⁸*Id.* at 32.

⁹Amartya Sen, *Development As Freedom* 3 (Knopf 1999).

providing people choices they do not now have. In the broadest sense it includes the opportunity to enjoy a high quality of life regardless of income, without interference from environmental pollutants or climate change. On a more mundane level it includes the freedom to purchase affordably priced vehicles that obtain high gas mileage and the opportunity to get to school or work conveniently by walking, biking, or using mass transit. Or the ability to buy locally grown fruits and vegetables conveniently and for an affordable and fair price.

Sustainability is not about bigger government. While government needs to steer society in particular directions, sustainability cannot be accomplished by government or regulation alone. Government needs to repeal or modify laws that inhibit progress toward sustainability, and not simply adopt new laws. And while regulation has a role to play, sustainability is primarily about unleashing the creative energies of individuals, families, entrepreneurs, businesses, nongovernmental organizations, colleges and universities, and many others to make a contribution toward our collective present and future well-being.

Sustainability is not about mindless implementation of an international plan. As Agenda 21 made clear, sustainable development needs to be realized in the particular economic, natural, and historical settings of each country. The United States will not embrace sustainability because we agreed to it at an international conference or because we care about the environment. We will move toward sustainability only if it is more beneficial to us than conventional development. We will move toward sustainability only if—and then because—it makes both us and our descendants better off.

Sustainable development is not about economic development or economic growth for its own sake. Sustainability is also not the same thing as sustained economic growth, although sustainability and sustained economic growth can certainly occur at the same time. The ultimate objectives, again, involve human well-being and environmental quality. Economic development and economic growth are means to that end, but they are not ends in themselves. On the other hand, as already suggested, sustainable development does not mean a lower standard of living.

§ 27:4 A destination or a journey?

Is sustainability a destination, or is it a journey? In a sense, it is both. Its goal is a society in which the ordinary effects of human activity protect and restore the environment and minimize or eliminate large-scale poverty. That is plainly not the world we have today, and in that sense sustainability is a destination. To reach this destination, however, we must embark upon a long journey, one that is likely to take more than a generation.¹ While it is appropriate to focus our efforts on the journey, we should nonetheless not lose sight of the destination.

The destination-versus-journey question goes to the heart of what sustainability means. In a world where a great many of our activities cause some environmental damage, actions that merely reduce our negative environmental impacts are better—and could be labeled as steps toward sustainability. By themselves, however, those steps may not represent true sustainability. To make that distinction clear, this book uses the term “more-sustainable” to describe an alternative that is better than business as usual, but not necessarily “sustainable.” A building that uses 25% less energy is a more-sustainable building, for example, but not the same as a “net

[Section 27:4]

¹National Research Council, *Our Common Journey: a Transition Toward Sustainability* 7 (Nat'l Acad. Press 1999).

zero energy” building or a building that uses renewable energy to produce more power than it uses.

In a fully sustainable society, the ordinary effect of human behavior will be to protect and restore the environment. We know that human societies will never be fixed and unchanging, but we hope to reach a point where changes within human society will always occur within the boundaries of sustainability.

However, words like “journey” and “destination” mask a hard fact about sustainability that is more challenging. If the destination were a fixed point, any progress we made toward sustainability would put us closer to the target. But sustainability is not a fixed target because it is constantly moving—or, worse, in many respects we are actually moving *away* from the target. Continuing and growing damage to the environment increases the distance between where we are and the goal of a sustainable society. To reach the destination, we need to first slow down the rate at which things are getting worse, then start making things better. When the destination is moving away from us even as we make progress toward it, it is possible to be farther away after we have started than before we began.

On issues where unsustainable activities continue to accelerate—and climate change is the most important example—there is a discrete and real risk that we will never catch up. Positive feedback loops for greenhouse gas emissions (for example, warming in the Arctic leading to large methane releases, which create more warming and more methane releases) could cause climate change to accelerate even more rapidly. At some point, climate change *could* outpace human mitigation efforts even if human societies around the world are doing everything they can to reduce their emissions.

That is the real challenge of progress toward sustainability: to make sustainability happen on a scale large enough, and at a pace fast enough, to overtake the rate at which things are getting worse. When we describe progress in this book, we are describing it in this context.

§ 27:5 Sustainability embodies American values

The goals of sustainable development—human freedom, opportunity, and quality of life—are quintessential American goals. The American colonies sought independence for these purposes, and the new nation established a legal and economic system premised on their importance, endured a civil war to protect that system and expand its opportunities to others, and fought two world wars and numerous other conflicts to protect us and help make those same opportunities available to others. At Memorial Day ceremonies throughout the United States, veterans almost inevitably talk about preservation of freedom as a key reason they were proud to serve our country. In the decades ahead, with a growing global population and economy, and growing demands on our environment, sustainability can provide a foundation on which to base continued freedom, opportunity, and quality of life.

Sustainable development would lead to a stronger and more efficient America because we would be pursuing social, economic, environmental, and security goals in ways that are mutually reinforcing or supportive, not contradictory or antagonistic. The result would be a stronger, more efficient country that provides its citizens and their descendants increasingly more opportunities in a quality natural environment. In his 1818 address to the Agriculture Society of Albemarle, Virginia, James Madison described enhancement of soil fertility as a patriotic act. During World War II, the American public was encouraged to save energy and to recycle metal and rubber, so that these resources would be available for the war effort. In recent decades, Congress has adopted legislation to limit dependence on foreign oil and thus protect national security.

Sustainable development would also lead to a safer, more stable and secure world

outside American borders. The world is deeply divided between the wealthy and the desperately poor, and there is a real risk of evolving toward an unstable world of haves and have-nots, with a huge global underclass. Such a world would pose serious threats to our security. None of the goals that this country has pursued around the world—peace and stability, human rights and democracy, expansion of trade and markets, environmental protection, or putting an end to hunger and extreme deprivation—can be accomplished if the world is not on a path of sustainable development. We can be quite sure that unsustainable development will lead to a world with less freedom, fewer opportunities, and lower quality of life.

The ethical and religious concerns that characterize the sustainability movement are also quintessentially American. The country's history is full of circumstances that combined national self-interest with doing the right thing. The Civil War did not simply preserve the Union; it also ended slavery. We created the national parks because of pride in our natural heritage and also for the public's benefit. We led the effort to create the United Nations to make both our country and the rest of the world more secure. The challenges of sustainability require a response that is similarly motivated. Moreover, the texts and beliefs of each of the world's major religions teach responsibility toward other humans as well as the environment.

Because unsustainable actions adversely affect others, more-sustainable actions are not simply better for us; they reflect our ethical and religious values. Greenhouse gas emissions from the United States, for example, do not adversely affect us alone; they have an even greater impact on developing countries that lack the money and technology to cope with drought, famine, and other effects of climate change. What we do about sustainability, in other words, is not simply a policy question or a question of national self-interest. It is also—and more fundamentally—about who we are, what we value, and how we fulfill our obligations to others.

Finally, sustainable development is not just about us, the current generation of Americans. It is, in the Constitution's words, about "ourselves and our posterity," our children, grandchildren, nieces, nephews—all of those not yet born who will someday inhabit this country. We pride ourselves on providing our descendants greater opportunities and a better quality of life. Sustainable development will do precisely that. Without it, we cannot assure our children and grandchildren a better life, and are likely to leave them a poorer one.

The United States has survived and prospered only because each generation looked after the next. When John Dernbach's maternal grandparents died in the years after World War II, their children had these words put on their gravestone: "They gave their today for our tomorrow." Art and Clara Retzlaff were not reformers or activists; they were hardscrabble people who knew war, poverty, and unemployment first hand, and who worked hard for their children. These words may connote more sacrifice than we are comfortable with today. But there is a bigger problem. We say we care about tomorrow, yet all too often our actions tell a different story. This book's title captures both the dissonance and the challenge: acting as if tomorrow matters.

§ 27:6 Looking back, looking forward

The 1992 Earth Summit is both a reasonable and imperfect date for marking a review of U.S. activities on behalf of sustainable development. It is reasonable because the United States made an international commitment to sustainability at the conference, and because that conference represented an endorsement of sustainability by virtually every nation in the world. It is imperfect because, as the following sections describe, a great many steps toward sustainability in the United States were taken before the Earth Summit, and we need to acknowledge them. Across a broad range of topics—environmental and public health protection; population,

consumption, and technology; poverty, unemployment, and social equality; development of the built environment; governance; public education and engagement; and international activity—the United States has made *some* progress in the two decades since the Earth Summit.

Yet there is nonetheless an emerging sustainability movement in the United States. It includes dedicated practitioners in a wide variety of fields who have thought deeply about what sustainability means in different contexts and why it is attractive, and whose day-to-day job is to make it happen, fix what doesn't work, and improve results. They are engaged in a wide variety of fields, including agriculture, energy, manufacturing, technology, community planning and development, business and industry, government, education, building construction, engineering, and law.

They understand that the global economy, population, and environmental degradation are all growing, and that there are huge unmet human needs due to extreme poverty throughout the world. They all see that we have no choice but to make economic development, job creation, environmental protection, and national security work together rather than against each other. And they seek to translate those basic realities into reduced risks and greater opportunities in the work that they do and in the way they live.

Across their many and varying activities, there are three broad patterns. First, they have been supported and encouraged by citizens, consumers, investors, students, parents, and other stakeholders. There is also growing support from a wide variety of corporations and nongovernmental organizations, including the religious and ethical community. Second, more-sustainable decisions have become easier to make because of the growing availability of more-sustainable alternatives, and these alternatives are increasingly attractive. And third, government lawmaking for the past two decades has emphasized economic development on behalf of sustainability—renewable energy and energy efficiency, tax incentives, and a wide range of other laws—and has not been limited to environmental regulation.

To be very sure, there are also obstacles to greater progress. It is important to “call out” the forces and circumstances that stand in the way—partly to understand them, partly to recognize that legal and policy recommendations for environmental sustainability won't necessarily happen simply because they are based on good ideas. One set of practical obstacles is the sheer force of existing unsustainable habits—personal, social, organizational, and governmental—that are reinforced by both lack of urgency and uncertainty about what more-sustainable behavior would entail. Another set of obstacles are legal and policy impediments. They include laws and policies that support or encourage unsustainable development, and thus inhibit progress toward sustainability, as well as the lack of a bipartisan consensus about critical environmental issues. Finally, and perhaps most visibly, there are political obstacles—the direct opposition of influential economic interests and the growing economic and political influence of developing countries that are more interested in pursuing conventional development than sustainable development.

How do we build on the progress made to date, overcome these obstacles, and thus accelerate the transition to sustainability? Four broad approaches are needed. First, we need better sustainability choices—options that make even greater progress toward sustainability than currently available options, and more options and tools for a greater number and variety of activities. Second, the United States needs to move from an almost exclusive reliance on environmental regulation to a greater variety of legal and policy tools, including economic development, the repeal of laws that foster unsustainable development, and the like. In addition, the United States needs to adopt legislation that directly and fully addresses climate change. Visionary and pragmatic governance for sustainability is a third needed approach—at all

levels of government. This kind of governance requires a bipartisan national strategy that can guide the nation's sustainability efforts over a long period, an equally strong commitment to research and development of innovative technology, an intensified focus on public education, and greater public participation in decision-making for sustainability.

Finally, and perhaps most fundamentally, to achieve the kind of effort needed to create a sustainable America, we need a national movement that builds on the many local, state, organizational, and sector-specific movements described in this chapter. The businesses, religious organizations, educational institutions, communities, families, individuals, government agencies, and others who work for sustainability on particular issues in specific places all do so for their own reasons, responding to their particular constituents. The integration of economic, social, environmental, and security goals lends itself to partnerships or coalitions of organizations and individuals that otherwise would not likely work together. For those discouraged by the rancorous state of national politics, this movement—which appears to be growing—provides reason for hope.

These four approaches—more and better choices, law for sustainability, visionary and pragmatic governance, and an American movement for sustainability—reinforce each other. A sustainability movement makes it more likely that the needed legal and governance changes will happen and encourages the availability of more-sustainable options and greater use of those options. Public satisfaction with more-sustainable options would, in turn, lead to even more choices and greater support for changes in law and governance that would further contribute to sustainability. Taken together, these four approaches provide a way to build on our progress to date, overcome obstacles, and thus accelerate the transition to a sustainable America.

PART II. PROGRESS TOWARD SUSTAINABILITY

§ 27:7 Introduction

Environmental laws and policies are a key part of the foundation for sustainability. Many of these laws offer important public health benefits. Pollutants and wastes that damage the environment also tend to injure human health, and vice versa.¹ In general, our environmental and natural resource laws have provided a basic level of protection to human health and the environment; without them, we can be very sure that environmental quality—including the air we breathe and the water we drink—would be in much worse shape.

The past two decades have seen some steps forward and some steps back in environmental and public health protection. This chapter includes some good news. Particular areas of progress include improvements in air quality and reductions in pesticide use. The chapter also describes issues where less change in longstanding practices and laws (but often some progress nonetheless) has been made over the last two decades. These include agriculture, fresh water, hazardous waste and Superfund remediation, and oceans and estuaries.

There is also bad news. In some areas, especially climate change, we are moving in the wrong direction on emissions even as new information unfolds about the seriousness of the risks climate change presents and the fact that it is already occurring. There are also new challenges, where our activity has tended to get ahead of our ability to manage for sustainability. These include nanotechnology,

[Section 27:7]

¹National Research Council, Sustainability and The U.S. Environmental Protection Agency (Nat'l Acad. Press 2011).

corn ethanol, and hydraulic fracturing of shale for oil and gas.

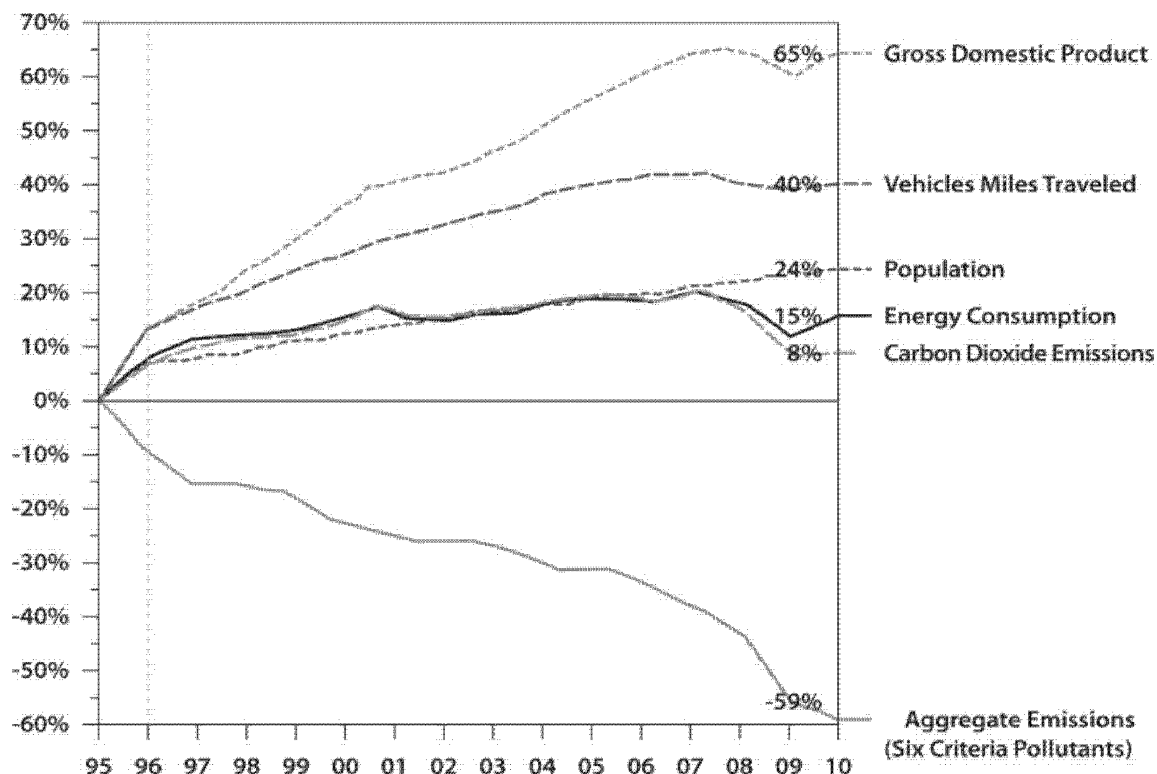
§ 27:8 Air quality

All too frequently, the quality of our air falls short of what is needed to protect public health and the environment. The 1970 Clean Air Act establishes a regulatory program to achieve these goals. Every pollutant regulated under the act is known to cause significant adverse effects to human health, the environment, or both, when present in excess concentrations. Ozone, for instance, not only injures public health but also damages crops, vegetation, and trees.

The basic accomplishment of the Clean Air Act, as shown in Figure 27.2, is both simple and fundamental: unhealthy air has substantially diminished over the past two decades, even as the economy has grown. The six criteria air pollutants—the pollutants primarily targeted by the act (sulfur dioxide, carbon monoxide, lead, ground-level ozone, particulate matter, and nitrogen dioxide)—declined by 59% while GDP grew 65%. What makes this reduction remarkable is that population, energy consumption, and vehicle miles traveled all increased during the same period. Only carbon dioxide emissions, which have only recently been regulated and not in a comprehensive manner, increased.

Figure 27.2

Comparison of Growth Measures and Air Emissions, 1990–2010¹



[Section 27:8]

¹U.S. EPA, *Our Nation's Air: Status and Trends Through 2010*, at 5 (2012), available at <http://www.epa.gov/airtrends/2011/report/fullreport.pdf>.

The United States has made a great deal of progress toward achieving air quality since 1970, when the basic framework of the Clean Air Act was first adopted, and particularly after the enactment in 1990 of comprehensive amendments to the Act. Carbon monoxide concentrations in the air have decreased significantly as cleaner cars have replaced older, more-polluting vehicles.² No areas in the country are currently classified as in violation of the air quality standards for carbon monoxide³—quite a contrast with 1990, when 30 million Americans lived in areas that exceeded the ambient air quality standards for carbon monoxide.⁴ The phaseout of leaded gasoline has caused a 99% reduction in total emissions of lead,⁵ lowering the risk of anemia and IQ loss in children. The control of lead in the air is truly one of the greatest, and most successful, public health measures of our time.

Progress also has been made in regulating stationary sources of air pollution (power plants and factories, primarily). Sulfur dioxide, which is emitted into the air mainly from the combustion of coal at electricity-generating units, decreased by nearly 50% between 1992 and 2008.⁶ These reductions are due in part to the acid deposition control program established by the 1990 amendments to the Clean Air Act.⁷ The amendments led to significant reductions in acid deposition, especially in Western Pennsylvania and the Ohio River valley, where the concentrations of sulfates and nitrates were the greatest. There has also been marked progress in the Northeast, where lakes were dying due to acid rain.⁸ Overall there appear to be no areas that are actually violating the ambient air quality standards for sulfur dioxide.⁹

The benefits from these improvements have far outstripped their costs. EPA has estimated that the benefits from 1970 to 1990 amounted to trillions of dollars.¹⁰ According to a 2011 EPA report required by Congress, in 2010 alone the Clean Air Act prevented more than 160,000 early deaths, 13 million lost work days, and 3.2 million lost school days. These benefits are projected to be even greater in 2020. In addition, the benefits of the legislation exceed its costs by a ratio of 30 to 1 (\$2 trillion in benefits to \$65 billion in costs). Apart from improved public health, benefits from the implementation of the Clean Air Act include improved agricultural productivity, higher visibility, greater quality of life, and healthier ecosystems.¹¹ Earlier studies drew similar conclusions—that the costs are frequently far less than initially estimated and the benefits of control often are orders of magnitude greater than the

²U.S. EPA, *Our Nation's Air: Status and Trends Through 2008*, at 31 (2010), available at <http://www.epa.gov/airtrends/2010/report/no2cso2.pdf>.

³U.S. EPA, *Green Book, Carbon Monoxide Information*, <http://www.epa.gov/oaqps001/greenbk/cindex.html>.

⁴Clean Air Act Amendments of 1990, Report of the Committee on Energy and Commerce, U.S. House of Representatives, 101st Cong. 2d Sess. 148 (1990).

⁵Oren, *Is the Clean Air Act at a Crossroads?*, 40 *Envtl. L. Rev.* 1231, 1235–36 (2010).

⁶U.S. EPA, *National Emissions Inventory Air Pollutant Emissions Trends Data: 1970–2011 Average Annual Emissions, All Criteria Pollutants in MS Excel* (2011), available at http://www.epa.gov/ttn/chief/trends/trends06/nationaltier1upto2011basedon2008v1_5.xls.

⁷Oren, *supra* note 6, at 1236.

⁸See U.S. EPA, *Acid Rain Program Results: 2009*, at 4, available at http://www.epa.gov/airmarkets/progress/ARP09_downloads/ARP2009Results.pdf.

⁹*Id.*; see also 40 C.F.R. Part 81; U.S. EPA, *Green Book, Sulphur Dioxide Nonattainment Areas as of August 30, 2011*, <http://www.epa.gov/oaqps001/greenbk/snc.html> (list of nonattainment areas) (last visited Oct. 15, 2011).

¹⁰Oren, *supra* note 6, at 1237.

¹¹U.S. EPA, *the Benefits and Costs of the Clean Air Act From 1990 to 2020* (2011), available at <http://www.epa.gov/air/sect812/feb11/fullreport.pdf>; see also U.S. EPA, *Benefits and Costs of the Clean Air Act Amendments of 1990* (2011), at <http://www.epa.gov/air/sect812/feb11/factsheet.Pdf> (summary of report).

costs.¹² These benefits have largely come from the regulation of particles and pollutants such as sulfur dioxide and nitrogen oxide that contribute to the formation of particles.

But there is still a long way to go. More than one-third of the nation's population live in areas where the air quality standards for ozone are violated.¹³ Areas in the Northeast and California will, under the most optimistic scenarios, need years, perhaps decades, to meet those standards. Worse, it appears that the present standards are inadequate. EPA's own scientific advisory board has said the standards are too lax to protect public health and the environment, and the agency has proposed that the standards be tightened.¹⁴ But after pressure from industry and states, President Obama, in 2011, vetoed efforts to tighten the standards for the time being.¹⁵

§ 27:9 Chemicals and pesticides

The management of chemicals is at the very heart of sustainable development because chemicals are responsible for both a great deal of our social and economic progress and much damage to human health and the environment. Principles of sustainable development that are particularly relevant to chemicals include the precautionary principle (willingness to take action in the face of uncertainty to avert irreversible and serious threats to health and the environment); intergenerational equity (avoiding the imposition of large costs for future generations); access to information; and integrated decisionmaking.

Progress over the past two decades has been based on a public-private partnership and a new statute, the 1996 Food Quality Protection Act. EPA's voluntary High Production Volume (HPV) Chemicals Program, begun in 1998 in partnership with the Environmental Defense Fund, the American Petroleum Institute, and the American Chemistry Council, has yielded an enormous amount of new information.¹ More than 2,200 HPV chemicals were "sponsored" by industry—which means that industry agreed to collect basic information about their risks—resulting in the submission of 6,500 published studies, 8,100 unpublished studies, and a large number of new tests conducted on existing high-volume chemicals. In 2010, companies that had not volunteered to provide data on HPV chemicals were directed to do so by regulation. In addition, the U.S. National Toxicology Program and EPA have collaborated to put forward the Tox 21 initiative, an effort to develop and deploy high-throughput in vitro methods (which involve many simultaneous tests on biological material) to reduce the costs and time required for assessing the hazards of the tens of thousands of chemicals about which we know very little.² Information generated from the HPV program is helping to support EPA's Enhancing Chemical Management Program, an effort launched by the agency in September 2009. The program has yielded EPA action plans, built on prior efforts, to address risks of a

¹²Oren, *supra* note 6, at 1237.

¹³*Id.* at 1237–38.

¹⁴*Id.* at 1239.

¹⁵John M. Broder, *Re-election Strategy Tied to Shift on Smog*, N.Y. Times, Nov. 16, 2011, at <http://www.nytimes.com/2011/11/17/science/earth/policy-and-politics-collide-as-obama-enters-campaign-mode.html?scp=2&sq=obama%20ozone&st=cse>.

[Section 27:9]

¹U.S. EPA, High Production Volume (HPV) Challenge: Basic Information, <http://www.epa.gov/hpv/pubs/general/basicinfo.htm>.

²Charles W. Schmidt, *TOX 21: New Dimensions of Toxicity Testing*, 117 *Envtl. Health Perspectives* A348–53 (2009), available at <http://ehp03.niehs.nih.gov/article/info%3Adoi%2F10.1289%2Fehp.117-a348>.

number of high-priority chemicals. State laws had already achieved some regulation of certain high-priority chemicals, particularly polybrominated diphenyl ether flame retardants (PBDEs), which appear to reduce fertility in women.³ EPA worked with the only U.S. manufacturer of two PBDE commercial products (pentaBDE and octaBDE), and this manufacturer voluntarily agreed to phase out production by the end of 2004. States have also begun to regulate the polycarbonate polymer compound bisphenol A (BPA), which is widely used in making plastics. A variety of studies raise “questions about its potential impact, particularly on children’s health and the environment.”⁴ At the federal level, EPA took a number of steps to limit use of the persistent and toxic polyfluorinated compounds, most notably perfluorooctanoic acid (PFOA), which is used to make nonstick coatings and many other industrial products. EPA also prosecuted reported violations by the manufacturers of both PFOA and a related compound, perfluorooctyl sulfonate (PFOS), which was once used to make stain repellents.

For pesticides, there has been much more progress. In 2008, EPA completed the reregistration of pesticides already on the market, as required under the 1988 amendments to the Federal Insecticide, Fungicide, and Rodenticide Act. Reregistration was required for pesticides registered before 1984 to make sure they met current standards. EPA also reassessed pesticide food regulations as required under the Food Quality Protection Act (FQPA) of 1996. Registration renewal—a relicensing program established under the FQPA—now is underway. The FQPA resulted in many changes in U.S. pesticide use, the best-documented being reduced use of the very toxic organophosphate pesticides. Their production peaked at 131 million pounds per year in 1980. While use already had fallen to 80 million pounds per year by 1990, it did not continue to decline. After passage of the 1996 law and a 10-year period the government was given to fully implement that law, use fell to 33 million pounds per year in 2007 and may still be declining.⁵ Another significant change in pesticide usage has resulted from implementation of the 1990 Organic Foods Act and subsequent establishment of organic food standards.

§ 27:10 Prevention of lead poisoning

Lead impedes the neurological development of children—their readiness to learn, their intellectual potential, their ability to participate in society—and hence compromises society’s future, one of the driving concerns of sustainable development. Although no one is immune to lead poisoning by virtue of income and status, it disproportionately affects impoverished and minority communities. The control and elimination of the two primary sources of lead exposure (gas and paint) has resulted in a demonstrable decrease in the incidence of lead poisoning. Since the elimination of leaded gasoline, the decrease has reached the point where the median blood level in children is 1.4 micrograms per deciliter, below the Centers for Disease Control 10-micrograms-per-deciliter threshold of concern.¹

Public-awareness campaigns catalyzed by EPA’s prevention strategy and the Res-

³Harley et al., PBDE Concentrations in Women’s Serum and Fecundability, 118 *Envtl. Health Persp.* 699 (2010).

⁴U.S. EPA, Existing Chemicals: Bisphenol A (BPA) Action Plan Summary, <http://www.epa.gov/opp/t/existingchemicals/pubs/actionplans/bpa.html>.

⁵Arthur Grube et al., U.S. EPA, Biological and Economic Analysis Division, Office of Pesticide Programs, Pesticides Industry Sales and Usage: 2006 and 2007 Market Estimates (EPA 733-R-11-001) (2011), available at http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf.

[Section 27:10]

¹U.S. EPA, America’s Children and the Environment (ACE): Measure B1: Lead in the Blood of Children, http://www.epa.gov/ace/body_burdens/b1-graph.html (last visited Nov. 23, 2011).

idential Lead-Based Paint Hazard Reduction Act of 1992, which established a “hot line” for public inquiries, have increased public vigilance of potential lead hazards. Articles and alerts on a range of possible lead hazards continue to be prominently featured in U.S. media. Reflecting and reinforcing this heightened degree of public awareness, the Consumer Product Safety Commission continues to issue highly publicized recalls and warning notices for a range of lead-containing products, especially imported toys for infants and children. These ongoing consumer protection actions highlight both the momentum established for continued progress on the prevention of lead poisoning and the need to complete the job by continuing to identify and address new sources of lead exposure.

§ 27:11 Agriculture

If there is to be a sustainable form of agriculture in the United States, it will have to be embedded within a more-sustainable food system—one that will look dramatically different from the dominant food system of today. We must produce and distribute food in a way that preserves natural resources for the future production of food and does not exceed nature’s capacity to absorb our wastes. Although this chapter is focused primarily on environmental sustainability, it is important to recognize that sustainable agriculture would also sustain farmers economically by providing them with a fair share of the food dollar, and meet the standards of equity by providing living wages for farm workers as well as reasonable access to healthy food for all consumers.¹

Today, by contrast, we produce and distribute most of our food through an industrialized system of agriculture that uses large amounts of mostly nonrenewable inputs (pesticides, fertilizers, irrigation water, fossil fuels); relies on long-distance networks for distribution; and stresses high yields of commodity crops such as corn, soybeans, and wheat, grown in monoculture (one plant species per plot of land). Most of this output then becomes inputs to animal agriculture as animal feed, the processed food industry, or the biofuels industry.² The use of commodity grains as animal feed is inherently wasteful of resources: the feed-to-animal-weight ratio for beef is 7:1, for pork 4:1, and for poultry 2:1.³

One way to gauge our progress toward sustainable agriculture is to conduct an inventory of the resources we need for agriculture and determine how well we are conserving them. We should acknowledge the importance of farmers and their knowledge base, inputs to agriculture that are often overlooked when we discuss sustainability. The farming population in the United States has been dwindling as a consequence of the mechanization and industrialization of agriculture, which tends toward fewer farms with more acreage per farm and more animals per farm.⁴ The other main ingredients in agriculture include land, soil quality and quantity, water quality and quantity, energy, and biodiversity.

§ 27:12 Farmland

According to the Natural Resources Conservation Service, the United States lost

[Section 27:11]

¹John E. Ikerd, *Crisis & Opportunity: Sustainability in American Agriculture* (2008).

²U.S. EPA, Ag 101: Major Crops Grown in the United States, <http://www.epa.gov/agriculture/ag101/cropmajor.html>.

³Horrigan, Walker and Lawrence, How Sustainable Agriculture Can Address the Environmental and Public Health Harms of Industrial Agriculture, 110 *Envtl. Health Persp.* 445 (May 2002), available at <http://ehp.niehs.nih.gov/members/2002/110p445-456horrigan/horrigan-full.html>.

⁴U.S. EPA, Ag 101: Demographics, <http://www.epa.gov/agriculture/ag101/demographics.html>.

15% of its farmland between 1982 and 2007, although half of this loss was accounted for by environmentally sensitive cropland being enrolled in the federal Conservation Reserve Program.¹ This voluntary program for agricultural landowners, inaugurated in 1985, provides annual payments in return for growing specific plants that attract wildlife, reduce soil erosion, and improve water quality.²

§ 27:13 Soil quantity

The National Resources Inventory, conducted by the Natural Resources Conservation Service of the U.S. Department of Agriculture (USDA), reports both good news and bad news on soil erosion on U.S. cropland. The good news is that the rate at which we are losing topsoil in the United States has been declining; between 1982 and 2007 the rate decreased by 43%. The bad news is that we are still losing topsoil at a rate much faster than nature can replenish it; in 2007, U.S. cropland was still losing topsoil at an average rate of 4.8 tons per acre per year.¹

More U.S. farmers have been practicing conservation tillage (a system that leaves crop residues on the surface to control erosion); the percentage of planted acreage managed under the system increased from 26% to 41% between 1990 and 2004.² However, conservation tillage systems—which often mean a no-till approach—are often heavily dependent on herbicides for controlling weeds, where tillage (turning over the soil and burying weeds) was once used to control them. According to EPA, “Pesticides are used on the vast majority of U.S. cropland . . . [H]erbicides were applied to 98% of corn acreage and 96% of soybean acreage in 2001.”³

§ 27:14 Soil quality

A National Research Council report has described how industrialized agriculture affects the quality of soil:

Some modern agricultural practices adversely affect soil quality by affecting soil physical, chemical, and biological factors through erosion, compaction [by heavy machinery], acidification, and salinization. They also reduce biological activity as a result of pesticide applications, excessive fertilization, and loss of organic matter.¹

The report also points out that modern farming methods might be reducing the nutrient content of our soils: “The nutrient density of 43 garden crops (mostly

[Section 27:12]

¹U.S. Dep’t of Agriculture, Natural Resources Conservation Service, 2007 National Resources Inventory: Summary Report (2009), *available at* http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1041379.pdf.

²U.S. Dep’t of Agriculture, Farm Service Agency, Conservation Programs, <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp> (last visited Nov. 23, 2011).

[Section 27:13]

¹U.S. Dep’t of Agriculture, Natural Resources Conservation Service, Soil Erosion on Cropland 2007 (2010), *available at* http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?&c_id=stelprdb1041887.

²Conservation Technology Information Center, 2006 Crop Residue Management Survey: A Survey of Tillage System Usage by Crops and Acres Planted (n.d.), *at* http://www.ctic.purdue.edu/media/pdf/2006_CRM_summary.pdf.

³U.S. EPA, Ag 101: Crop Production, <http://www.epa.gov/agriculture/ag101/printcrop.html#nutbmps>.

[Section 27:14]

¹National Research Council, Toward Sustainable Agricultural Systems in the 21st Century 570 (Nat’l Acad. Press, 2010), *available at* http://www.nap.edu/openbook.php?record_id=12832&page=1 [hereinafter toward Sustainable Agricultural Systems].

vegetables) has been shown to have declined between 1950 and 1999 in the United States, suggesting possible tradeoffs between yield and nutrient content.”²

Synthetic fertilizers are used as a substitute for natural fertility in the soil and are dependent on a fossil fuel (natural gas) as their feedstock. Based on these factors, synthetic fertilizers are not regarded as a long-term solution to soil fertility needs.

USDA’s Economic Research Service found that in 2006, about two-thirds of U.S. cropland was not meeting all three criteria for good nitrogen management, which are related to the rate, timing, and method of application.³

§ 27:15 Water quantity

Agriculture accounts for 80% of all water use in the United States, primarily through irrigation. Only 16% of U.S. cropland is irrigated, but that acreage accounts for nearly half of the value of all crops.¹ Most irrigation depends on groundwater withdrawals from aquifers such as the High Plains Aquifer (also known as the Ogallala Aquifer), which lies under eight U.S. states and provides water to more than 15 million irrigated acres, or about one-quarter of all irrigated acres in the United States.² Between 1950 and 2009, the aquifer was depleted by about 9%.³ The Texas portion of the aquifer had lost even more—nearly 1% of its water in storage each year between 1990 and 2004.⁴

On a more positive note, U.S. farmers have increased their adoption of pressurized irrigation systems, which usually achieve 75-85% efficiency in water use (compared to a typical 40-65% efficiency in gravity-flow systems). Between 1979 and 2003, acreage under pressurized systems increased from 37% to 57% of all irrigated acreage. Acreage using low-flow systems such as drip irrigation (which has an application efficiency of 95% or greater) increased tenfold, but it represented only 6% of all irrigated acreage.⁵

§ 27:16 Water quality

Water quality can be affected by soil erosion and the runoff of pesticides, excess fertilizer, and animal waste into watersheds. It has been estimated that crops only take up 30–50% of the nitrogen fertilizer applied to farm fields, and about 45% of applied phosphorus. Some of the excess is absorbed by soils, but some runs off the land and harms our watersheds.¹

²*Id.* at 519.

³Marc Ribaud et al., U.S. Dep’t of Agriculture, Nitrogen in Agricultural Systems: Implications for Conservation Policy (2011).

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¹U.S. Dep’t of Agriculture, Economic Research Service, Irrigation and Water Use, <http://www.ers.usda.gov/Briefing/WaterUse/> (last visited Feb. 24, 2012).

²U.S. Geological Survey, High Plains Aquifer Water-Level Monitoring Study Area-Weighted Water-Level Change, Predevelopment to 1980, 2000 Through 2009, at <http://ne.water.usgs.gov/ogw/hpw/lms/tablewlp.html> (last modified June 17, 2011).

³*Id.*

⁴Center for Geospatial Technology, Texas Ogallala Summary (n.d.), <http://www.gis.ttu.edu/OgallalaAquiferMaps/TXOgallalaSummary.aspx>.

⁵Glenn D. Schaible & Marcel P. Aillery, *Irrigation Water Management in Agricultural Resources and Environmental Indicators* (USDA Economic Research Service 2006).

[Section 27:16]

¹D. Tilman et al., *Agricultural Sustainability and Intensive Production Practices*, 418 *Nature* 671 (Aug. 8, 2002).

Between 1996 and 2008, an additional 383 million pounds of herbicides were used in the United States because of the widespread adoption of crops that are genetically engineered to tolerate herbicides; Monsanto's Roundup Ready soybean seeds, for example, now make up about 95% of commercial soybean plantings. By contrast, insecticide use decreased significantly during that same 13-year period because some major crops have been genetically engineered to produce their own insecticide, a toxin derived from *Bacillus thuringiensis* (Bt), a bacterium found in soil. These Bt crops present a serious danger, though, because their widespread use virtually ensures that insects will develop resistance to Bt, which has been a valuable tool in organic agriculture.²

Despite the successes of no-till farming in reducing soil loss, the system has not stemmed the tide of excess nutrients entering waterways and causing dead zones in water bodies, most prominently the Gulf of Mexico and the Chesapeake Bay. These dead zones are places where excess nutrients have caused blooms of algae, which as they die off and decompose, absorb most of the oxygen in the water and make it uninhabitable for aquatic life.³ As sustainable agriculture advocate Wes Jackson explains: "The water coming off a minimum-till or no-till field looks a lot better than the water coming off a conventional-till field. There's only one problem: The nitrogen level of the water from that no-till land is still three times above the acceptable level determined by the Environmental Protection Agency."⁴

The concentrated animal-feeding operations (CAFOs) that produce most of the nation's meat, milk, and eggs have severed the connection between animals and the land. Traditionally, animal manure was valuable fertilizer for farmers. Today, because so many animals are now produced in each CAFO and many CAFOs tend to be concentrated in certain areas of the country, animal manure often poses problems of air and water pollution—or, at the very least, a waste management problem. In 1997, 152 U.S. counties produced more phosphorus from animal manure than their cropland could absorb, and 68 counties produced more manure nitrogen than their land could absorb. The largest farms (more than 1,000 "animal units," each equal to 1,000 pounds of live weight) constituted only 2% of all farms but were responsible for half of the excess nutrients.⁵ Excess manure from CAFOs is stored in cesspits in the ground that the industry calls "lagoons." During heavy storms or floods, these storage pits can overflow or rupture and release excess nutrients into local waterways, killing fish and other aquatic life.⁶

§ 27:17 Energy

An estimated 7.3 units of energy are expended for every unit of food produced in

²Charles Benbrook, The Organic Center, Impacts of Genetically Engineered Crops on Pesticide Use in the United States: the First Thirteen Years (2009), available at http://oacc.info/Docs/OrganicCenterUSA/EXSUM_13Years20091116.pdf.

³Howarth, Coastal Nitrogen Pollution: A Review of Sources and Trends Globally and Regionally, 8 Harmful Algae 14 (2008); Diaz and Rosenberg, Spreading Dead Zones and Consequences for Marine Ecosystems, 321 Sci. 926 (Aug. 2008).

⁴Wes Jackson, *Tackling the Oldest Environmental Problem: Agriculture and Its Impact on Soil*, in the Post Carbon Reader: Managing the 21st Century's Sustainability Crises 552 (Richard Heinberg & Daniel Lerch eds., 2010).

⁵Marc Ribaud & Noel Gollehon, *Animal Agriculture and the Environment*, in Agricultural Resources and Environmental Indicators (USDA Economic Research Service 2006), available at <http://www.ers.usda.gov/publications/arei/eib16/Chapter4/4.5/>.

⁶Pew Commission on Industrial Farm Animal Production, Putting Meat on the Table: Industrial Farm Animal Production in America (2008), available at <http://www.ncifap.org/images/PCIFAPFin.pdf>.

the United States. Most of this energy input comes from nonrenewable fossil sources.¹ Fossil fuels are used in the production of pesticides and fertilizers; the pumping of irrigation water; the use of heavy machinery for tilling, planting, and harvesting; the processing of foods; and the shipping of raw materials and finished products, often across great distances. This industrialized food system cannot be sustained into the future using the same energy sources it now depends upon.

Although agriculture is still largely dependent on nonrenewable energy sources, it is using energy more efficiently. In 2004, the Congressional Research Service (CRS) reported that “since the late 1970s, the direct use of energy by agriculture has declined by 26%, while the energy used to produce fertilizers and pesticides has declined by 31%.” The CRS attributed these declines to improved energy efficiency inspired by the petroleum price shocks of the 1970s.² The Natural Resources Conservation Service adds: “Direct energy use has been reduced as a result of advances in equipment efficiency, irrigation efficiency, adoption of no-till or conservation tillage, and other practices and technologies.”³

§ 27:18 Biodiversity

Biodiversity can be defined as the “variety of life on Earth at all its levels, from genes to ecosystems, and the ecological and evolutionary processes that sustain it.”¹ Agriculture both depends on biodiversity and impacts it. Industrial agriculture, in particular, erodes biodiversity among domesticated plants because it relies on a small number of high-yielding crop varieties, to the exclusion of other varieties.

The United Nations Food & Agriculture Organization (FAO) points out that about three-quarters of the world’s plant genetic diversity was lost during the 20th century, “as farmers worldwide have left their multiple local varieties and landraces for genetically uniform, high-yielding varieties.” The FAO also reports that 30% of livestock breeds are threatened with extinction and that “75% of the world’s food is generated from only twelve plants and five animal species.” In addition, 60% of all the plant-based calories we eat come from just three crops—rice, corn, and wheat.² This uniformity in agriculture—and therefore our food supply—puts us at risk when there are disruptions such as extreme weather, insect infestations, or outbreaks of plant diseases.

On a brighter note, the U.S. Department of Agriculture’s Conservation Reserve Program (CRP), which has helped reduce soil loss, is also the major federal land conservation program that has a positive influence in the protection of biodiversity. Federal farm bills have been a major source of the dedication of land for biodiversity conservation purposes, through the CRP and several different programs. The 2002 Farm Bill continued the CRP and created the Wildlife Habitat Incentives Program, which pays farmers for biodiversity conservation on private land, primarily enhance-

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¹Martin C. Heller & Gregory A. Keoleian, University of Michigan Center for Sustainable Systems, Life Cycle-based Sustainability Indicators for Assessment of the U.S. Food System (2000), available at http://css.snre.umich.edu/css_doc/CSS00-04.pdf.

²Randy Schnepf, Energy Use in Agriculture: Background and Issues (Congressional Research Service 2004), available at <http://www.nationalaglawcenter.org/assets/crs/RL32677.pdf>.

³Toward Sustainable Agricultural Systems, *supra* note 32, at 43.

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¹Ian Harrison, Melina Laverty, & Eleanor Sterling, *Definition of Biodiversity*, ConExions (2004), <http://cnx.org/content/m12151/latest/>.

²U.N. Food & Agriculture Organization, What Is Happening to Agrobiodiversity? (2004), <http://www.fao.org/docrep/007/y5609e/y5609e02.htm>.

ment and restoration of fish and wildlife habitat.³ The 2008 farm bill provided a total of \$733 million over five years for the Farm and Ranch Lands Protection Program, which pays for up to 50% of the price of acquiring conservation easements or other interests to preserve private agricultural land.⁴ The legislation also reestablished the Grassland Reserve Program, which supports “working grazing operations, enhancement of plant and animal biodiversity, and protection of grassland under threat of conversion to other uses,” and has a goal of protecting 1.22 million acres.⁵ However, the 2008 bill will expire in 2012, and all of these programs will be reviewed through the lens of the drive to reduce federal spending.

§ 27:19 Freshwater

In the interrelated fields of water quality/aquatic ecosystem health and water quantity/water resources management, some progress has been made over the past 20 years. The Clean Water Act, which established a permitting and regulatory program to protect water quality, continues to serve as a reasonably effective tool for reducing pollution from major sources such as factories and sewage treatment plants, and to a lesser degree for more difficult challenges such as urban stormwater and other sources of runoff pollution. Statutes such as the Resource Conservation and Recovery Act,¹ which regulates solid and hazardous waste, and the Safe Drinking Water Act also help to protect groundwater from new sources of pollution and to ensure the safety of the tap water consumed by most Americans. Especially when compared with much of the world, most of the United States is served by modern collection and treatment systems for sewage (at secondary treatment levels or higher), and by modern treatment and conveyance systems for drinking water.

Yet there is a long way to go. Surface water and groundwater pollution remains a significant problem. In urban areas, waterways remain impaired due to the physical and chemical effects of stormwater runoff, especially after intensive storms. Urban waters can also be severely impaired by combined sewer overflows and sanitary sewer overflows, which cause the discharge of untreated waste into waterways. Suburban watersheds are impaired by intensive sprawl development, which changes the flow characteristics of many streams in addition to generating pollution by nutrients, toxic metals, and organic chemicals. Surface water and groundwater in rural watersheds, especially those with intensive row-crop agriculture, continue to be polluted by pesticides and herbicides that can contaminate fish and wildlife or directly impair drinking water sources. In many coastal regions, saltwater intrusion is already impairing or threatening the utility of groundwater supplies for domestic and other use, or requiring expensive advanced treatment systems (such as reverse osmosis filtration) to make them potable; and rising sea levels may exacerbate those problems.

Even areas served by modern infrastructure face health risks from water pollution. On a national scale there are as many as 2.5 million cases of giardia and 300,000 cases of cryptosporidiosis each year, both of which are waterborne diseases. Warnings on fish consumption and beach closures continue to provide evidence that

³U.S. Dep’t of Agriculture, Natural Resources Conservation Service, Wildlife Habitat Incentive Program, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip>.

⁴U.S. Dep’t of Agriculture, Natural Resources Conservation Service, Farm and Ranch Lands Protection Program, http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/farm_ranch.

⁵U.S. Dep’t of Agriculture, Natural Resources Conservation Service, Grassland Reserve Program, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/grassland>.

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¹42 U.S.C.A. §§ 6901 to 6992.

water pollution can cause significant threats to human health, from both pathogens and toxics. Despite massive investments in municipal sewerage and stormwater management facilities in recent decades, wastewater collection and treatment infrastructure in the United States faces tremendous challenges due to aging systems, urban and suburban growth, and new or strengthened water quality standards. EPA estimates it will cost almost \$300 billion to meet these needs over the next 20 years.²

The Clean Water Act and other tools to protect aquatic ecosystems, such as the Endangered Species Act, have also been less effective in protecting the biological integrity of aquatic ecosystems from threats such as the filling of wetlands, loss of riparian areas, stream channelization and diversion, and other kinds of habitat impairment. In the 1990s, the federal government adopted a “no net loss” policy for wetlands protection, reflecting a pledge to ensure that any future wetland loss or degradation be offset by equal or greater wetlands gains through wetland restoration or creation efforts. Wetlands improve water quality, help store flood waters, and are excellent wildlife habitat.³ Although this policy has slowed the rate of wetlands loss, there is considerable uncertainty about the effectiveness of wetlands restoration and creation, and therefore the success of the “no net loss” policy. Moreover, a series of judicial decisions has injected additional uncertainty about which waters are covered by the Clean Water Act program. Many other activities that result in aquatic ecosystem degradation, such as dam construction and operation, stream channelization, bank stabilization, and floodplain and watershed development, are not regulated directly by federal law. Intensification of this kind of land use change can lead to significant degradation of aquatic ecosystems due to the aggregate impacts of a large number of activities that are difficult to regulate or modify individually. Those kinds of pervasive impacts have presented significant barriers to even large, heavily funded, and well-designed aquatic ecosystem protection and restoration programs, such as the Chesapeake Bay Program.

Growth has also stressed water supplies in many parts of the United States, including in eastern states usually considered to have water. A protracted drought in the Southwest has left major reservoirs such as Lake Powell and Lake Mead half full, posing threats to water supplies from Denver to Los Angeles. While many have believed since the early 1990s that the era of large water projects was over, recent shortages have given rise to calls for renewed construction of storage reservoirs and other water-supply infrastructure, including some projects involving major water transfers from water-rich to arid regions. Climate change makes these challenges even harder.

§ 27:20 Hazardous and toxic wastes

A sustainable hazardous waste regime requires, if possible, that the use of chemicals that produce hazardous wastes be eliminated entirely. Where that is not possible, the use of such chemicals must be minimized, and a cycle of use and reuse must be created to minimize or eliminate their release. Hazardous wastes that were improperly disposed of in the past must be remediated in order to remove the dangers they may pose to human health, water resources, land, and wildlife. Sustainable management of hazardous waste creates genuine opportunities for industries to reduce the costs of purchasing raw materials, decrease workplace risks and accidents, minimize industrial liability, improve community relations, and ease

²U.S. EPA, Clean Watershed Needs Survey, 2008 Report to Congress (2010) *available at* <http://water.epa.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf>.

³U.S. EPA, Functions and Values of Wetlands 1 (2001), *available at* http://www.epa.gov/owow/wetlands/facts/fun_val.pdf.

the costs of waste management.

Two major federal statutes govern this effort—the Resource Conservation and Recovery Act (RCRA), which established a regulatory program for the management of hazardous wastes, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),¹ or Superfund law, which established a program for cleaning up contaminated sites. Over the past 20 years, progress toward sustainability under these two laws has been limited and inconsistent at best. Beginning in 2002, EPA created and promoted an entirely voluntary program designed to encourage industries to minimize their generation of hazardous wastes. This program achieved anecdotal progress in some areas. And in 2007, the U.S. Supreme Court handed down a decision that encouraged firms to be more proactive in cleaning up contaminated hazardous waste sites.² This ruling removed confusion over which parties engaging in a cleanup could recover some or all of their costs from other responsible parties.

These salutary developments aside, however, further necessary steps that would represent progress toward sustainability have been stalled, and in some cases, new measures have been adopted that move us away from a sustainable approach. In 1995, Congress ended the petroleum tax that had been the source of money for Superfund cleanups at sites where no solvent responsible party can be found. Since then, the Fund has been chronically underfinanced with general tax revenues. Moreover, in 1996, Congress took another step away from achieving sustainable development by removing a significant source of private financial pressure on hazardous waste site operators/debtors to manage their facilities in an environmentally sound fashion. It did so by expanding CERCLA's existing liability exemption for secured creditors (primarily banks) so long as they do not actively participate in facility operations and decisions.³

These and other statutes have not been amended in ways that would make them more sustainable. Although the EPA-sponsored voluntary hazardous waste minimization programs sparked some marginal advances, they are a far cry from new environmental legislation that would require industrial hazardous waste generators to decrease their generation of such wastes, in phased increments, by fixed dates. Between fiscal years 2007 and 2010, industrial, federal, state, and local sources reduced nearly 16 million pounds of 31 hazardous compounds and metals that EPA defines as “priority chemicals” from their waste streams—mostly by cutting releases of lead and lead compounds. Yet in 2007 (the latest year for which comparable statistics are available), those same sources continued to generate almost 85 million pounds of priority chemicals.⁴ In 2010, sources in the United States released into the environment more than 3.92 billion pounds of a more comprehensive set of toxic chemicals.⁵

RCRA has not been amended to include a consistent, straightforward, and comprehensive definition of hazardous waste. Longstanding exclusions from statu-

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¹42 U.S.C.A. §§ 9601 to 9675.

²*U.S. v. Atlantic Research Corp.*, 551 U.S. 128, 127 S. Ct. 2331, 168 L. Ed. 2d 28, 64 Env't. Rep. Cas. (BNA) 1385, 22 A.L.R. Fed. 2d 735 (2007).

³*See* Asset Conservation, Lender Liability, and Insurance Protection Act of 1996, Subtitle E, The Omnibus Consolidated Appropriations Bill for Fiscal Year 1997, Pub. L. No. 104-208 (Sept. 30, 1996).

⁴U.S. EPA, Analyzing Generation and Management of Priority Chemicals 2005–2007: The National Priority Chemicals Trends Report, <http://www.epa.gov/wastes/hazard/wastemin/trend.htm> (last visited Nov. 29, 2011).

⁵U.S. EPA, TRI Explorer, Release Reports, http://www.epa.gov/triexplorer/tri_release.chemi-cal (calculation of all 2010 releases) (last visited Dec. 30, 2011).

tory coverage—irrigation return flow waters containing pesticides and domestic sewage containing toxic chemicals—continue to exist. Similarly, while EPA continues efforts to make constructive use of the 1976 Toxic Substances Control Act to manage the introduction and use of new chemicals in the marketplace, the statute has not been amended since 1992, and there is an increasing consensus among many parties that reform is needed.⁶

§ 27:21 Oceans and estuaries

Sustainable use of the oceans requires that all human activities preserve water quality sufficient to support the biological, chemical, and physical processes of the oceans without stress, so that oceans can support a variety of healthy ecosystems; dissolve excess carbon dioxide from the atmosphere; and circulate in currents that aid human navigation, drive relatively predictable weather patterns, and cycle heat and nutrients throughout the depths and around the world. Sustainable development further requires that humans remove only the amount of biological resources—such as algae/seaweed, fish, marine mammals, and corals—that those species can comfortably replace between human harvests and that will not disrupt the greater food webs and ecosystems of which those species are a part.

The United States is not managing its oceans, coasts, and estuaries in a sustainable manner. One key stressor is overfishing, which not only removes target species in an unsustainable manner but also results in by-catch of nontarget species and in shifting food webs (that is, shifting predator-prey relationships, as target predator or prey fish are caught). As a result, overfishing can alter or destroy basic components of marine ecosystem functioning. Certain fishing methods, such as bottom trawling, can destroy marine habitat, further interfering with overall ecosystem function and productivity. In 2005, the National Oceanic and Atmospheric Administration (NOAA) instituted its Fish Stock Sustainability Index (FSSI), a performance measure for the sustainability of fish stocks selected for their importance to commercial and recreational fisheries.¹ The index provides valuable data about sustainable ocean fisheries. Although NOAA's reporting methodology has changed over time, its figures show only limited progress toward sustainability in fisheries management. Between 1997 and 2010 the number of stocks not overfished declined from 183 to 136. Yet in 2010, 43 fish stocks were considered overfished, and another 72 were considered not to be sustainable. Moreover, much remains unknown regarding

U.S. fish stocks, especially species that support only minor fisheries. In 2010, the sustainability status of 51 other major fish stocks was simply unknown.

While overfishing is one major challenge to the sustainability of oceans and estuaries, another is land-based marine pollution, which remains the last major category of marine pollution not subject to effective regulation, either in the United States or internationally. One of the most critical land-based contaminants of marine ecosystems is nutrient runoff from agricultural activities. For example, the Mississippi River drains more than two-thirds of the United States, and much of the runoff entering the river comes from farms. Nutrient runoff has been deemed a major cause of the hypoxic (low-oxygen) zone in the Gulf of Mexico. The U.S. Geological

⁶U.S. GAO, Chemical Regulation: Options Exist to Improve EPA'S Ability to Assess Health Risks and Manage its Chemical Review Program (2005), *available at* <http://www.gao.gov/products/GAO-05-458>; Goldman, Preventing Pollution? U.S. Toxic Chemicals and Pesticides Policies and Sustainable Development, 32 ELR 11018 (Sept. 2002).

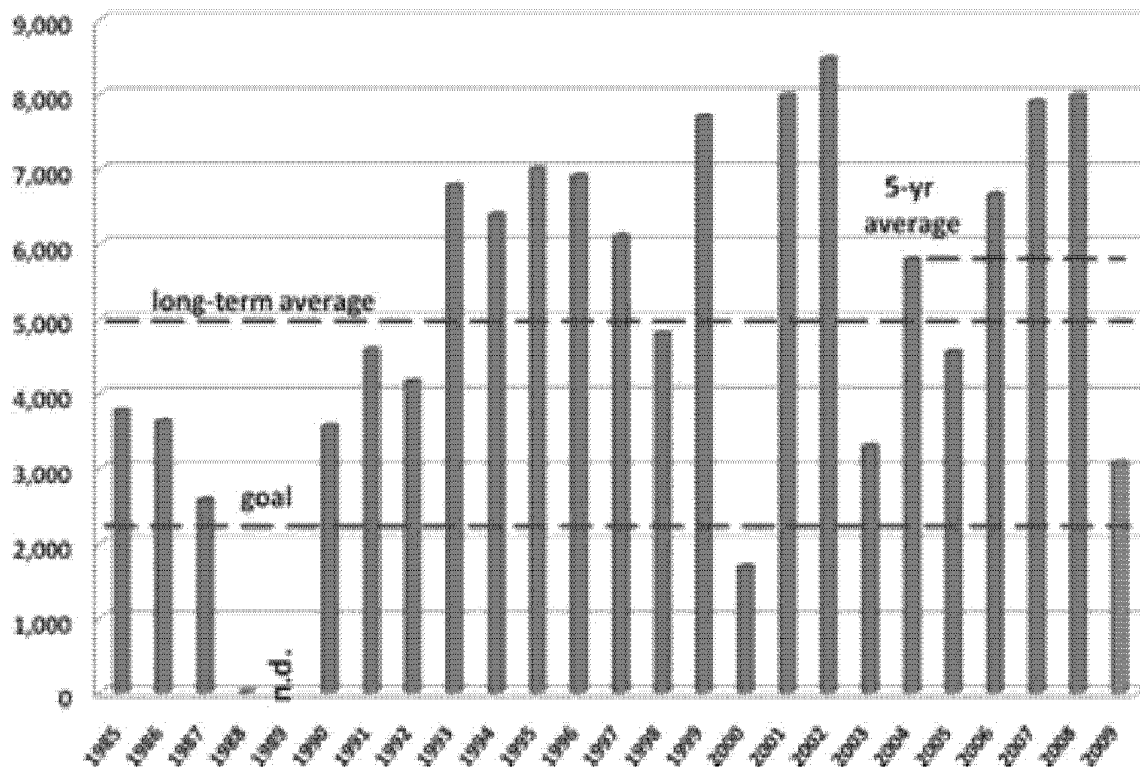
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¹National Oceanic & Atmospheric Administration, Office of Sustainable Fisheries, Status of U.S. Fisheries, <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>.

Survey's yearly summer measurements of the size of the Gulf of Mexico hypoxic zone shows that the average size of the Gulf “dead zone” continues to be very high (Figure 27.3).

Figure 27.3

The Size of the Gulf of Mexico Hypoxic Zone, 1985–2009²



²U.S. Geological Survey, The Gulf of Mexico Hypoxic Zone, http://toxics.usgs.gov/hypoxia/hypoxic_zone.html.

Area of Mid-Summer Bottom Water Hypoxia (Dissolved Oxygen < 2.0 mg/L).

Other forms of land-based marine pollution include run-off of toxics and fertilizers, intentional discharge and dumping of pollutants into the ocean, the accumulation of plastics into “garbage patches” at the gyres in the Pacific and Atlantic Oceans, and atmospheric deposition of mercury.

§ 27:22 Climate change

For some critical environmental issues, the problem is not that our progress has been too little or too slow. Rather, the problem is that we are moving in the wrong direction in spite of what we have learned in the past several decades about the magnitude of the damage being done, the risks we face, and the challenge to achieve sustainability. Climate change is the most pressing environmental, health, economic, social, and national security issue on which we are moving in the wrong direction.

Greenhouse gas pollution has steadily increased since 1990 despite U.S. agreement to the 1992 United Nations Framework Convention on Climate Change to avoid serious harm to human well-being and the environment. It is increasingly evident that climate change is having, and will continue to have, adverse effects not only on other countries but on the United States, including its biodiversity and water supplies. But the United States has not been able to adopt comprehensive national legislation to address climate change.

§ 27:23 Risks

As scientific information has developed over the past several decades, it is increasingly clear that humans are causing climate change and that climate change presents enormous risks to life, human health, property, biodiversity, plants, animals, species, and ecosystems.¹ It threatens people in the United States and around the world with rising seas, reduced agricultural production, lower water supply, drought, floods, lethal heat waves, and increases in vector-borne disease. It is also increasingly clear that climate change is already underway, as sea levels rise, growing seasons change, the number and scale of unusual weather events increases, and glaciers disappear.² And it is not just the environmental and human health risks of climate change that present sustainability challenges. Because most greenhouse gas emissions derive from the use of fossil fuels to produce energy, it is also important to be mindful of the economic costs and security risks inherent in supporting a global fossil fuel infrastructure.

Climate change is likely to have an adverse impact on biodiversity. If nothing is done to mitigate global climate change, impacts to biodiversity may include shifts in migration and breeding patterns of species; expansions or contractions of natural species ranges; a rise in sea level, water temperature, and acidity; increases in disease transmission and pest infestations; and unpredictable fluctuations in populations and habitat conditions. Climate change may also contribute to the proliferation of invasive nonnative species, which can lead to the endangerment and extinction of native species. The most immediate threat is that current habitats for species, including those protected by the Endangered Species Act, may become unsuitable and species will be forced to migrate or face increased stresses in their orig-

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¹See, e.g., U.S. Global Change Research Program, *Global Climate Change Impacts in the United States* (Cambridge Univ. Press 2009), available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>.

²National Research Council, *Adapting to the Impacts of Climate Change* (Nat'l Acad. Press 2011).

inal habitats.³ Thus existing reserves may no longer serve their intended purpose and new ones will have to be created.

Models suggest that climate disruption is likely to induce higher water demand due to rising temperatures, increased frequency and intensity of droughts in some parts of the United States, and more intensive rain leading to flooding in others. That will likely place significant additional stress on America's aquatic ecosystems, water supply, and water infrastructure.

Agriculture is also being increasingly impacted by climate change as droughts, floods, hurricanes, and tornadoes become more frequent and more severe. These extreme events diminish crop yields and damage our natural resource base. The Global Change Research Program has summed up some of the impacts to be expected:

- Many crops show positive responses to elevated carbon dioxide and low levels of warming, but higher levels of warming often negatively affect growth and yields.
- Extreme events such as heavy downpours and droughts are likely to reduce crop yields because excesses or deficits of water have negative impacts on plant growth.
- Weeds, diseases, and insect pests benefit from warming, and weeds also benefit from a higher carbon dioxide concentration, increasing stress on crop plants and requiring more attention to pest and weed control.
- Increased heat, disease, and weather extremes are likely to reduce live-stock productivity.⁴

The relatively stable climate that has existed on the planet for most of agriculture's history has been a key element of agriculture's success,⁵ even though a stable climate is not something we usually think of as an "input" to agriculture. In the coming decades, though, climate change will be the norm.

The United States also has not grappled with the fact that climate change will have a tremendous impact on marine resources as the oceans become warmer and chemically less basic (the result of dissolved carbon dioxide causing "ocean acidification") and as ocean current patterns change. Warmer oceans mean that species will shift poleward to cooler waters, a phenomenon that has already been documented for some fish species, such as Atlantic cod. Changing ocean temperatures also affect ocean current patterns, which can alter ocean nutrient upwellings and species patterns. For example, a hypoxic zone that appeared rather suddenly off the coast of Oregon has been attributed to changing current patterns. Finally, ocean acidification interferes with the basic chemistry of biological processes, such as shell-building, for many marine species.

§ 27:24 International agreements and U.S. emissions

Though most Americans are unaware of it, the United States ratified the United Nations Framework Convention on Climate Change in 1992.¹ The treaty provides an international framework for addressing climate change; it does not establish

³Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U. L. Rev. 1 (2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1014184.

⁴U.S. Global Change Research Program, *supra* note 65, at 71.

⁵Frederick L. Kirschenmann, *Cultivating an Ecological Conscience: Essays From a Farmer Philosopher* (Univ. Press of Kentucky 2010).

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¹United Nations Framework Convention on Climate Change, Status of Ratification of the Conven-

quantitative emissions reduction requirements. Yet the convention provides several ways to measure whether U.S. greenhouse gas emissions are moving toward or away from sustainability. Chief among them is Article 2, which establishes the convention's ultimate objective—"stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [human] interference with the climate system."² As one of the parties to the convention, the United States also agreed to "protect the climate system for the benefit of present and future generations of humankind, on the basis of equity" and other factors.³ Developed countries such as the United States agreed to take the lead in reducing greenhouse gas emissions because of their greater technological and economic resources and because of their large historical contribution to higher atmospheric greenhouse gas levels.⁴ This promise entails addressing the global consequences of climate change in developing climate change policy, not just pursuing national interests, because climate change is a threat to people and ecological systems around the world.

The acknowledgement in the Framework Convention of historical responsibility has particular importance for the United States. Between 1857 and 2007, the United States emitted 28.77% of the entire world's greenhouse gas emissions, more than any other developed country, and far more than any other developing country.⁵ While China has today overtaken the United States as the world's greatest emitter of greenhouse gases in absolute quantity, about one-fourth of the overall increase in global greenhouse gas concentrations over the past century and a half is attributable to the United States.

It now appears that global emissions of greenhouse gases need to be reduced by as much as 80% by 2050 to achieve nondangerous levels.⁶ Because the United States remains one of the highest per capita emitters and some nations emit greenhouse gas emissions at levels significantly below average international per capita emissions, the United States will eventually need to reduce its greenhouse gas emissions by greater amounts than most of the rest of the globe in order to achieve "equity." Although the term "equity" in the Convention is without a precise legal definition, it is usually understood to connote an obligation to fairly share needed global greenhouse gas emissions reductions burdens.⁷

Because the convention did not contain enforceable national-reduction targets that would translate these general provisions into concrete numbers, the next major step was to negotiate a protocol to do just that. The Kyoto Protocol, named after the Japanese city in which it was negotiated, grew out of a conviction, underscored by the emerging science on climate change, that developed nations needed to be bound

tion, http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php (last visited Nov. 24, 2011).

²United Nations Framework Convention on Climate Change, art. 2, May 9, 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107.

³*Id.* art 3.1.

⁴*Id.* pmbl.

⁵E-Mail from Edward J. Sonnenberg, Research Librarian, Widener University Law School, to John C. Dernbach (Nov. 30, 2011), containing calculation based on World Resources Institute, Climate Analysis Indicators Tool, available at <http://cait.wri.org/> (calculation available from John C. Dernbach).

⁶Intergovernmental Panel on Climate Change, Working Group iii Report: Mitigation of Climate Change 39, 90, & 776 (2007).

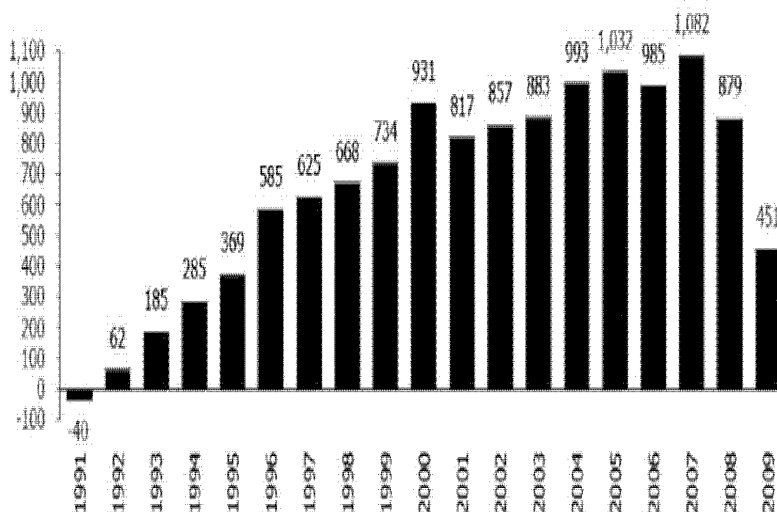
⁷For a discussion of the meaning of "equity" under the UNFCCC, see Meyer and Roser, *Distributive Justice and Climate Change, The Allocation of Emissions Rights*, 28 *Analyse and Kritik* 223 (2006); Klinsky and Dowlatabadi, *Conceptualizations of Justice in Climate Policy*, 9 *Climate Pol'y* 88 (2009).

by numerical emissions reductions targets.⁸ Under the Kyoto Protocol developed countries agreed to reduce their net greenhouse gas emissions by at least 5% from 1990 levels by 2008 to 2012; the European Union agreed to an 8% reduction, and the United States would have reduced its emissions by 7%.⁹ The protocol now has 193 parties,¹⁰ although it will end by its own terms at the end of 2012. The United States is the only developed country that did not ratify the Kyoto Protocol or adopt quantifiable greenhouse emissions targets (although Canada announced its withdrawal from the Protocol at the end of 2011).

Since ratifying the convention, the United States has failed to reduce emissions below levels that existed in 1990, the common measuring point for a country's progress. In 2009, total U.S. greenhouse gas emissions (including not only carbon dioxide but also methane, nitrous oxide, and other gases) were 6,633.2 teragrams (or million metric tons) of carbon dioxide equivalent. U.S. emissions increased by 7.3% between 1990 and 2009 (Figure 27.4). This overall increase occurred in spite of an emissions decrease from 2008 to 2009 by 6.1% (427.9 teragrams of carbon dioxide equivalent).¹¹ This recent dip in emissions was primarily due to a decrease in economic output resulting in reduced energy consumption across all sectors and a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased and the price of natural gas declined.¹²

Figure 27.4

Cumulative Change in Annual U.S. Greenhouse Gas Emissions Relative to 1990¹³



⁸Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998).

⁹*Id.* art. 3.1 & Annex B.

¹⁰United Nations Framework Convention on Climate Change, Status of Ratification of the Kyoto Protocol, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Nov. 25, 2011).

¹¹U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2009 (2011), available at http://www.epa.gov/climatechange/emissions/downloads11/US-GHG-Inventory-2011-Complete_Report.pdf.

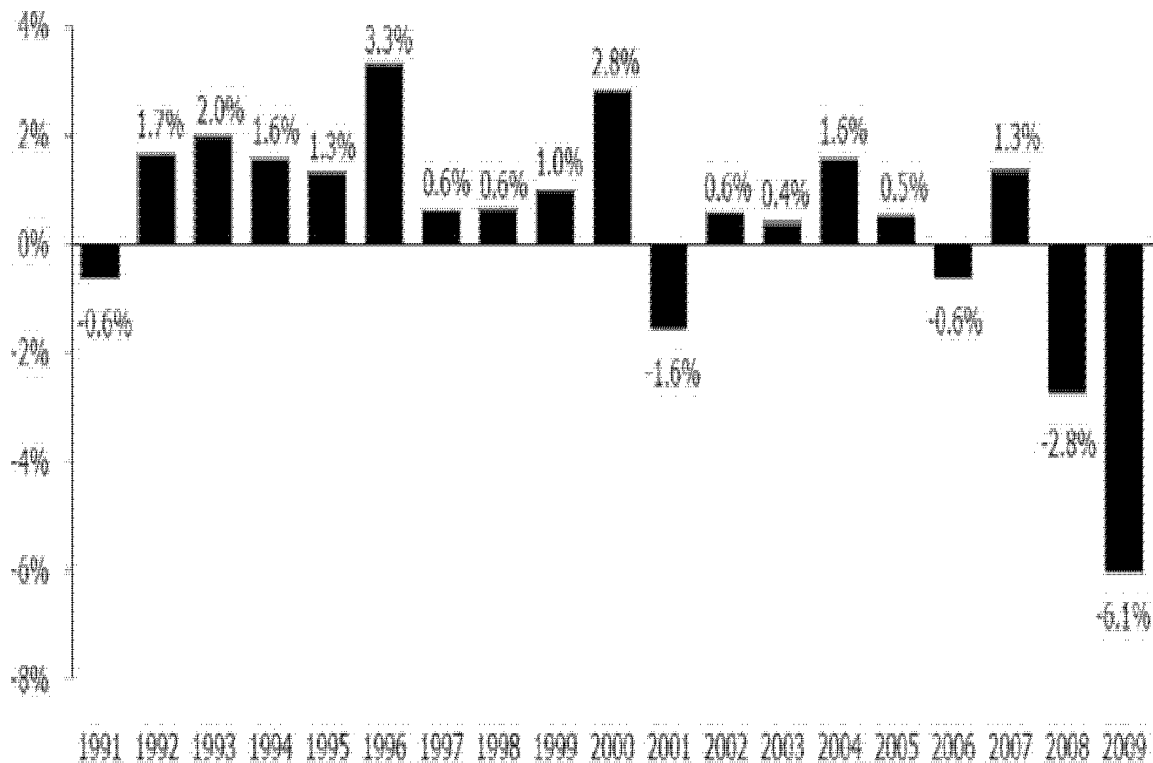
¹²*Id.*

¹³*Id.*

U.S. emissions have increased since 1990 at an average annual rate of 0.4%.¹⁴ There have been significant differences in the annual change, with the two most recent years showing decreases (Figure 27.5).

Figure 27.5

Annual Percentage Change in U.S. Greenhouse Gas Emissions¹⁵



¹⁴*Id.*

¹⁵*Id.*

When President Obama was elected in 2008, there was widespread international hope that the United States would change course on climate change. Yet the United States approached international climate negotiations under the convention in Cancun in 2010 and the year before in Copenhagen by making a voluntary commitment only to reduce its greenhouse gas emissions by 17% below 2005 emissions levels by 2020. The U.S. promise is the weakest of all of the developed country promises, falls far short of what is required of global greenhouse gas emissions reductions necessary to prevent dangerous climate change, and is without any response to what equity would require for U.S. emissions reductions.¹⁶

§ 27:25 National measures

President Obama's commitment on greenhouse gas emissions was based upon the proposed American Clean Energy and Security Act (also known as the Waxman-Markey bill after its two primary House sponsors), comprehensive cap-and-trade legislation that passed the House of Representatives in 2010 but was not passed in the Senate.¹ In the 2010 mid-term elections, control of the House of Representatives passed to the Republicans, many of whom deny the scientific consensus that humans are contributing to climate change. As of this writing, it is unlikely in the near future that Congress will take action that achieves even the weak U.S. commitment made in Cancun.

Although Congress has failed to enact legislation directly limiting greenhouse gas emissions, the Obama Administration has taken action in response to the 2007 U.S. Supreme Court decision in *Massachusetts v. EPA*.² The case arose out of a petition to EPA to regulate greenhouse gas emissions from motor vehicles under the Clean Air Act. EPA refused, saying among other things that greenhouse gases are not pollutants under the Clean Air Act. The Court, in what is widely recognized as a landmark decision, held that greenhouse gases are air pollutants subject to regulation under the Clean Air Act. The Court also interpreted the act as requiring EPA to regulate greenhouse gases unless EPA determined that greenhouse gases are not endangering human health and the environment.³ The case means that new federal legislation is not required to regulate greenhouse gas emissions, even though many believe that new legislation more specifically tailored to greenhouse gases is preferable. Moreover, because an air pollutant under the Clean Air Act is an air pollutant for all purposes, the EPA's newly recognized authority is not limited to motor vehicles but also applies to factories, power plants, and other stationary sources.

In 2009, EPA found that greenhouse gases, including those emitted from new motor vehicles, endanger human health and the environment⁴ (and subsequently refused to reconsider that finding after petitioned to do so).⁵ Since then, EPA and the Department of Transportation have worked together to both reduce greenhouse

¹⁶See Donald A. Brown, Penn State Rock Ethics Institute, Climate Ethics, The World Waits in Vain for US Ethical Climate Change Leadership as the World Warms (2011), <http://rockblogs.psu.edu/climate/2011/02/the-world-waits-in-vain-for-us-ethical-climate-change-leadership.html>.

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¹See Donald A. Brown, Penn State Rock Ethics Institute, Climate Ethics, The World Waits in Vain for US Ethical Climate Change Leadership as the World Warms (2011), <http://rockblogs.psu.edu/climate/2011/02/the-world-waits-in-vain-for-us-ethical-climate-change-leadership.html>.

²*Massachusetts v. E.P.A.*, 549 U.S. 497, 127 S. Ct. 1438, 167 L. Ed. 2d 248, 63 Env't. Rep. Cas. (BNA) 2057 (2007).

³*Id.*

⁴Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (Dec. 15, 2009).

⁵EPA's Denial of the Petitions to Reconsider the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 75 Fed. Reg. 49556 (Aug. 13,

gases from motor vehicles and improve their fuel efficiency. The Department of Transportation has authority to establish corporate average fuel efficiency (CAFE) standards for motor vehicles under the Energy Policy and Conservation Act, which was adopted in 1975 in response to national security challenges raised by the 1973 and 1974 oil embargoes by the Organization of Petroleum Exporting Countries.⁶ Efficiency improvements lagged in the United States for many years, however, and the average fuel economy of new cars and trucks was higher for model year 1985 than 2005.⁷

Fuel efficiency for motor vehicles has begun to improve again, and new standards set by Congress and advanced by the Obama Administration for passenger cars and light-duty trucks will provide the biggest increase in efficiency in 30 years—and substantial cuts in emissions—by model year 2016.⁸ The Supreme Court's decision played a lead role in prompting these standards, as well as California's efforts to advance low- and zero-emission vehicles. An agreement between the federal government and 13 automakers will accomplish even more in future model years.⁹ The new proposal would increase the CAFE standard to 49.6 miles per gallon by model year 2025 on an average industry fleetwide basis, and the proposed greenhouse gas standards are projected to require vehicles to get 54.5 miles per gallon if the standards are met solely through improvements in fuel efficiency.¹⁰ These standards are expected to trim oil consumption by 4 billion barrels and greenhouse gas emissions by 2 billion metric tons over the life of vehicles sold in model years 2017 to 2025.¹¹ This approach harmonizes CAFE standards and limits on greenhouse gas emissions from motor vehicles to produce much cleaner, more efficient vehicles. Although the proposed standards would increase the purchase price of vehicles, they also would result in far greater savings in fuel costs, which should strengthen the competitive position of the U.S. auto industry. In addition to these provisions, EPA and the Department of Transportation in 2011 announced the first program to reduce greenhouse gas emissions and fuel use in heavy-duty trucks and buses. This program will also result in significant additional reductions in air pollution and oil consumption.¹²

Using its authority under *Massachusetts v. EPA*, EPA has also adopted greenhouse gas regulations based on the best available control technology for large stationary sources such as factories and power plants.¹³ Since January 2, 2011, some new stationary sources or modifications to those sources that increase greenhouse gas emissions have been subject to permitting.¹⁴ EPA has issued guidance emphasizing the importance of energy efficiency in meeting these best available control

2010).

⁶Pub. L. No. 94-163, tit. III.

⁷U.S. EPA, Office of Transportation & Air Quality, Light-duty Automotive Technology and Fuel Economy Trends: 1975 through 2005 (2005).

⁸John M. Broder, *U.S. Issues Limits on Greenhouse Gas Emissions From Cars*, N.Y. Times, Apr. 1, 2010, at <http://www.nytimes.com/2010/04/02/science/earth/02emit.html>.

⁹Bill Vlasic, *Obama Reveals Details of Gas Mileage Rules*, N.Y. Times, July 29, 2011, at <http://www.nytimes.com/2011/07/30/business/energy-environment/obama-reveals-details-of-gas-mileage-rules.html>.

¹⁰2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 76 Fed. Reg. 74854 (Dec. 1, 2011).

¹¹*Id.* at 74859.

¹²Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, 76 Fed. Reg. 57106 (Sept. 15, 2011).

¹³Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs, 75 Fed. Reg. 17004 (Apr. 2, 2010).

¹⁴Action to Ensure Authority to Issue Permits Under the Prevention of Significant Deterioration

technology requirements for greenhouse gases.¹⁵ EPA also agreed to adopt by 2012 new performance standards for greenhouse gas emissions from electricity-generating units¹⁶ and refineries.¹⁷ As part of that agreement, EPA proposed new source performance standards for electricity-generating units in March 2012.¹⁸

§ 27:26 New challenges

A major challenge to sustainability is the fact that new environmental issues continue to arise, and will always continue to arise. Prominent among the recent developments that present challenges to sustainability are nanotechnology, increased production of corn-based ethanol for fuel, and the use of hydraulic fracturing to extract natural gas or oil from shale.

The field of nanotechnology emerged over the last 20 years, and nanomaterials have now entered the market. Nanomaterials (materials made of particles with at least one dimension of 100 nanometers or less; a nanometer is one billionth of a meter) occur in nature. Engineered nanomaterials (those made by people) have a wide array of chemistries, including fullerenes (C60 or Bucky Balls, hollow carbon molecules that are unusually stable), carbon nanotubes, metal and metal oxide particles (such as the nanozinc sunscreens and nanosilver substances that kill or resist bacteria and other microorganisms), polymers, and quantum dots (nanoscale semiconductors). Such materials are used in industrial coatings, paints, fabric treatments, pharmaceutical delivery systems, sunscreens, and cosmetics. Rapid commercialization has occurred despite a lack of knowledge about how these materials move and transform in the environment, how they affect biological systems, and what their potential for harm to human health and ecosystems might be. The assessment, indeed even the identification, of these as unique materials pose challenges for safety evaluations. During the Bush Administration, the federal government opted to use only voluntary approaches for managing risks of nanomaterials, and did not think it necessary to consider their potential risks to health and the environment.¹ More recently, the EPA has announced steps to regulate nanotechnology under its chemicals program through a new rule under the Toxic Substances Control Act (TSCA), and as pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act. The proposed TSCA rule was scheduled for release for comment at the end of 2010 but had not come forward by the time of writing.² The proposed new policies for pesticides were released for public comment in June 2011.³ Also in June 2011, the White House issued a memorandum to all government agencies emphasizing

Program to Sources of Greenhouse Gas Emissions: Finding of Failure to Submit State Implementation Plan Revisions Required for Greenhouse Gases, 75 Fed. Reg. 81874 (Dec. 29, 2010).

¹⁵PSD and Title V Permitting Guidance for Greenhouse Gases, 75 Fed. Reg. 70254 (Nov. 17, 2010) (notice of availability and public comment period); U.S. EPA, PSD and Title V Permitting Guidance for Greenhouse Gases (2010), at http://www.eenews.net/assets/2010/11/10/document_gw_04.pdf.

¹⁶New York v. EPA, No. 06-1322 (D.C. Cir. 2010) (settlement reached Dec. 23, 2010).

¹⁷American Petroleum Institute v. EPA, No. 08-1277 (D.C. Cir. 2010) (settlement reached Dec. 23, 2010).

¹⁸U.S. EPA, Greenhouse Gas New Source Performance Standard for Electric Generating Units, <http://yosemite.epa.gov/oepi/rulegate.nsf/byRIN/2060-AQ91> (last visited Mar. 31, 2012).

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¹U.S. EPA, Nanoscale Materials Stewardship Program and Inventory Status of Nanoscale Substances Under the Toxic Substances Control Act; Notice of Availability, 72 Fed. Reg. 38083 (July 12, 2007).

²U.S. EPA, Office of Pollution Prevention and Toxics, Control of Nanoscale Materials Under the Toxic Substances Control Act, <http://www.epa.gov/oppt/nano/index.html#snur>.

³Pesticides; Policies Concerning Products Containing Nanoscale Materials; Opportunity for Public Comment, 76 Fed. Reg. 35383 (June 17, 2011).

ing the promise of nanotechnology to help address multiple societal needs, and the ability of the agencies to address nanotechnology risks using existing statutory authorities and “risk-based approaches.”⁴

Increased production of biofuels, particularly ethanol made from corn, is a second major issue that has emerged in recent years. Higher fuel prices have led to an increasing adoption of renewable energy technologies such as wind and solar. However, this has also led to expanded use of biofuels; their use grew at an annual average rate of 1.8% between 1992 and 2009.⁵ While biofuel energy use increased by more than a factor of 10 between 1992 and 2009, wood energy use declined by 19%.⁶ Of particular concern is the fact is the dramatic growth in corn-based ethanol production. The United States has been the world’s largest producer of ethanol fuels since 2005,⁷ with output nearly doubling between 2005 and 2009.⁸ The current high use of corn-based ethanol is of concern because of the low energy return on energy invested in making corn-based ethanol, the low energy density of ethanol, the inflationary impact on food and energy prices, and the ecological limitations of U.S. and global corn production.⁹ Despite these significant drawbacks, the 2007 Energy Independence and Security Act mandates that the United States annually produce a certain amount of corn-based ethanol into the next decade¹⁰—a goal that was supported until the end of 2011 with tax incentives.¹¹

The economic development of natural gas and oil from shale formations such as the Barnett in Texas and the Marcellus in the Appalachian Basin has been made possible by improved technologies in directional drilling and hydrofracturing, known as “fracking.” Gas production from shale predates the 1859 Drake oil well in Pennsylvania, which gave birth to the American oil industry, but deep targets such as the Marcellus were considered uneconomical. Hydraulic fracturing, using high water pressure to open cracks in reservoir rocks and sand to keep the fractures open when pressure is released, is a long-established technique. What is new is the way operators drill horizontally to expose more shale to the wellbore, use millions of gallons of water/fluids to perforate and stimulate the wells, complete several wells on a

⁴Memorandum from John P. Holdren, Assistant to the President for Science and Technology Policy et al., to Heads of Executive Departments and Agencies, Concerning Policy Principles for the U.S. Decision-Making Concerning Regulation and Oversight of Applications of Nanotechnology and Nanomaterials (June 9, 2011), *available at* <http://www.whitehouse.gov/sites/default/files/omb/info/omb/foia-agencies/nanotechnology-regulation-and-oversight-principles.pdf>.

⁵Energy Information Administration, Annual Energy Review 2010, Table 10.1: Renewable Energy Production and Consumption by Primary Energy Source, 1949–2010 *available at* <http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb1001>.

⁶*Id.*

⁷Ralph Sims et. al., International Energy Agency, From 1st to 2nd Generation Biofuel Technologies: An Overview of Current Industry and RD&D Activities, (Nov. 2008), *available at* http://www.iea.org/papers/2008/2nd_Biofuel_Gen_Exec_Sum.pdf.

⁸Energy Information Administration, Alternatives to Traditional Transportation Fuels 2009, at 32 (Table C1. Estimated Consumption of Vehicle Fuels in the United States, by Fuel Type, 2005–2009) (2011), *available at* <ftp://ftp.eia.doe.gov/alternativefuels/afv-atf2009.pdf>.

⁹Farrell et al., Ethanol Can Contribute to Energy and Environmental Goals, 331 Sci. 506 (Jan. 27, 2006); Cassman and Liska, Food Based Fuel for All: Realistic or Foolish?, 1 Biofuels, Bioproduction, & Biorefining 18 (2007); Bruce A. Babcock & Jacinto F. Fabiosa, Center for Agricultural & Rural Development, Iowa State University, The Impact of Ethanol and Ethanol Subsidies on Corn Prices: Revisiting History (2011), http://www.card.iastate.edu/policy_briefs/display.aspx?id=1155; Hill et al., Environmental, Economic and Energetic Costs and Benefits of Biodiesel and Ethanol Fuels, 103 Proc. Nat’l. Acad. Sci. 11206 (2006).

¹⁰Energy Independence and Security Act of 2007, Pub. L. No. 110-140 (2007).

¹¹Robert Pear, *After Three Decades, Tax Credit for Ethanol Expires*, N.Y. Times, Jan. 1, 2012, *at* http://www.nytimes.com/2012/01/02/business/energy-environment/after-three-decades-federal-tax-credit-for-ethanol-expires.html?_r=1.

given pad, and produce millions of cubic feet of gas per day.

This new “unconventional” gas play, as it is called, combines three distinctive and challenging features for sustainability: it has emerged with breathtaking speed, it has enormous economic potential, and it raises a host of environmental and social issues that are not yet resolved. No one knew for sure that gas development from Marcellus shale was even economically and technologically feasible until it was successfully attempted in western Pennsylvania in 2004. Already, billions of dollars have been invested, thousands of wells have been dug, and gas is already being sent to market in considerable volumes. The rapid development of shale gas is transforming the gas market by substantially increasing the gas supply. Nobuo Tanaka, executive director of the International Energy Agency, recently described “unconventional gas” as “unquestionably a game-changer in North America with potentially significant implications for the rest of the world.”¹²

The environmental and social effects of shale gas drilling are considerable. Water management is a key issue because of the large volumes required for drilling and hydraulic fracturing, and because most of the water is returned to the surface. This “spent frac water” contains dissolved solids from the rock and brines present at depth as well as any additives used to enhance fluid and sand penetration into fractures and control bacterial growth in the well. Finding sufficient supplies of water and disposing of or treating wastewater are both challenging. There is also considerable controversy over whether fracking can cause migration of drilling fluids into near-surface groundwater. The combination of bad casing installation, which can allow well fluids to migrate out of the wellbore, and naturally occurring gas and brine in near-surface rock, raise additional problems. These issues are addressed primarily through state regulations that vary considerably in their requirements and enforcement.¹³

While new domestic sources of energy are good for energy security, the overall effect on greenhouse gas emission is not clear. Increased gas production and lower gas prices could be damaging to the coal industry (thus reducing greenhouse gas emissions because coal produces more carbon dioxide than gas), the renewable energy industry (thus increasing greenhouse gas emissions), or both. In addition, although some shale gas exploration and development is occurring in areas with prior drilling, much of it is occurring in areas where residents and local government are not familiar with the petroleum industry. The learning curve for all of the steps—from leasing to drilling to production to transporting product, not to mention their environmental effects—can be steep. And an influx of transient workers requires difficult social adjustments for both the workers and the communities where they operate.¹⁴ Even newer development of oil from the Bakken and Three Forks shale formations in North Dakota raises similar environmental and social issues. More troubling, perhaps, is that few appear to be seriously asking what sustainable development of unconventional shale even means.

§ 27:27 Conclusion

¹²Press Release, International Energy Agency, The Time Has Come to Make the Hard Choices Needed to Combat Climate Change and Enhance Global Energy Security, Says the Latest IEA World Energy Outlook (Nov. 10, 2009), at http://www.iea.org/press/pressdetail.asp?PRESS_REL_ID=294.

¹³See, e.g., Wiseman, Regulatory Adaptation in Fractured Appalachia, 21 Vill. Envtl. L.J. 229 (2010).

¹⁴See, e.g., Pa. Dep’t of Cons. and Natural Res., Marcellus and Utica Shale Research in Pennsylvania, at <http://www.dcnr.state.pa.us/topogeo/econresource/oilandgas/marcellus/index.htm>; Pa. Dep’t of Cons. and Natural Res., The Process of Natural Gas Extraction From the Marcellus Shale, at http://www.dcnr.state.pa.us/ucmprd2/groups/public/documents/document/dcnr_007598.pdf (instructor’s lesson plan for course on Marcellus Shale).

Environmental law and policy have played a significant role in moving the United States toward sustainability over the past two decades, although less through the adoption of new legislation than the administration of existing statutes. As a result, some significant improvements in environmental quality have occurred, particularly in air quality and reduced use of some toxic chemicals and pesticides. In many other areas, including agriculture, freshwater, oceans and estuaries, and hazardous and toxic chemicals, relatively little change in longstanding practices has occurred. In many cases, that means continued worsening conditions. Climate change is an especially important but controversial issue that requires a more substantial effort than the United States has been willing to muster. We have been moving away from sustainability in spite of growing scientific information about the severity and certainty of the risks of climate change. And new issues are arising—including nanotechnology, ethanol, and shale gas—before there is a policy or legal structure to address them.

PART III. SUSTAINABILITY GOVERNANCE

§ 27:28 Introduction

Sustainability raises a much bigger set of questions than those typically addressed by EPA or state environmental and natural resources regulatory agencies. Because sustainability would integrate our environmental, economic, security, and social goals, it raises questions that can be addressed only by government as a whole. This is not to say that sustainability is only about government or governance—far from it. But when issues do need to be addressed by government, one or two agencies with relatively limited cross-governmental responsibility will not be able to do the job.

Governance for sustainability is like all other governance in many respects. It requires effective governmental institutions and national laws, a favorable investment climate, public access to information, informed and science-based decisionmaking, and public participation. Yet governance for sustainability is also different from governance for other issues and purposes. It is directed at a broad, long-term goal—moving from the current condition of unsustainable development to a future condition of sustainable development. And it requires the deep integration of environment with development, and thus raises problems with which we have relatively little experience.¹

Achieving sustainability will likely take a long time. A 1999 report by the National Research Council (NRC), *Our Common Journey*, stated that “a successful transition toward sustainability is *possible* over the next two generations.”² The major climate change bills that Congress has considered (but has not passed) include goals for reducing greenhouse gas emissions to specified levels by 2050.³ Even this time horizon of 40 to 50 years falls short of the full length of the transition. The NRC report observed: “It is over this period that serious progress in a transition toward sustainability will need to take place if interactions between the earth’s human population and life support systems are not to significantly damage both.”⁴ The two-generation

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¹Dernbach, *Navigating the U.S. Transition to Sustainability: Matching National Governance Challenges with Appropriate Legal Tools*, 44 *Tulsa L. Rev.* 93 (2008).

²National Research Council, *Our Common Journey: A Transition Toward Sustainability* 7 (Nat’l. Acad. Press 1999) (emphasis supplied).

³See, e.g., *America’s Climate Security Act of 2007*, S. 2191, 110th Cong. (2007) (as reported by S. Comm. on Env’t and Pub. Works, Dec. 5, 2007).

⁴*Our Common Journey*, *supra* note 2, at 3.

time frame is also a feasible and imaginable planning and analysis period for individuals, governments, and other entities.⁵ Yet the actual length of the journey could even be longer.

Some scientists ask whether we have even that much time, emphasizing our limited understanding of how much stress physical and ecological systems can take without collapsing or changing in ways that would be disastrous to humans.⁶ They point out that we could overshoot the tolerance level of these systems without even knowing it, leading to irreversible outcomes. That story line, which does not contradict the magnitude of the required changes, nonetheless adds considerable urgency to the task.

Sustainable development requires that we reverse certain paths we have followed for decades and will likely take decades to overcome. For the United States, these include high consumption levels for materials, energy, and water—and land use that has encouraged sprawl and dependence on the automobile. We have little if any experience with law in conceiving and carrying out multigenerational projects of this scale. While the United States has considerable experience and success in maintaining policy goals over long periods of time in foreign policy (e.g., Monroe Doctrine against foreign colonization or intervention in Latin America) and domestic policy (e.g., reduction and prosecution of crime), few of our national goals involve a long-term project for moving from an unacceptable or less acceptable situation to an acceptable or more acceptable situation (balancing the budget may be an exception).

By contrast, political life in the United States is organized around two-, four-, and six-year election cycles.⁷ Sustainable development will not happen if every new president or congress starts all over again or revisits basic premises. We thus need to develop the capacity to set and achieve long-term objectives and create the institutions and political ownership necessary to realize them.

Sustainable development also requires the systematic integration of environmental concerns and goals into decisionmaking. Conventional development decisions by governments and private actors—transportation projects or economic development, for example—should include environmental considerations and result in environmental protection and even restoration.⁸ While these challenges are sometimes addressed in environmental law, they are broader. Environmental law tends to target a discrete set of problems—air and water pollution, waste management and remediation, and endangered species—with a set of legal tools that are primarily regulatory. But sustainability involves much more than regulation. “Environmental policy as a whole,” Professor Richard Andrews of the University of North Carolina explains, “includes all government actions that alter natural environmental conditions and processes, for whatever purpose and under whatever label.”⁹ This includes subsidies, economic development programs, international trade, land use, taxation, and other

⁵*Id.* (“[T]wo generations is a realistic time frame for scientific and technological analysis that can provide direction, assess plausible futures, measure success—or the lack of it—along the way, and identify levers for changing course.”).

⁶Pindyck, *Irreversibilities and the Timing of Environmental Policy*, 22 *Res. & Energy Econ.* 233 (2000); G.A. Bradshaw & Jeffrey G. Borchers, *Uncertainty as Information: Narrowing the Science-policy Gap*, 4 *Ecology & Soc’y* (2000), available at <http://www.consecol.org/vol4/iss1/art7/>; <http://www.consecol.org/vol4/iss1/art7/>; Lukey et al., *Effect of Ecological Uncertainty on Species at Risk Decision-Making*, 14 *Animal Conservation* 151 (2011).

⁷See Habiba Gitay, *Intrelinkages: Governance for Sustainability*, in *United Nations Environment Programme, Global Environmental Outlook 4, Environment for Development* 361, 377 (2007).

⁸Dernbach, *Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking*, 10 *Ind. J. Global Legal Stud.* 247 (2003).

⁹Richard N.L. Andrews, *Managing the Environment, Managing Ourselves: A History of American*

policies and laws.

So sustainable development is different from ordinary governance issues in two profound ways—by looking ahead over a much longer period of time and by systematically integrating the environment into decisionmaking through the use of a wide variety of legal and policy tools. Yet governance for sustainability is not an entirely different form of governance; it is a set of perspectives that should inform all governance. It would provide tools, a legal structure, and support for more-sustainable alternatives.

Among the three levels of governance in the United States—local, state, and national—local governments have made the most progress toward sustainability. Many municipalities even have sustainability directors or coordinators. While many state governments have engaged in a variety of sustainability activities, only a few have made a systematic effort to address sustainability. Still, states have long been doing more to advance renewable energy, energy efficiency, and reduced greenhouse gas emissions than the federal government. While the federal government has used sustainability concepts in some strategic planning and has incorporated sustainability in the planning and operations of many agencies, it does not employ a strategic process for understanding threats to national sustainability or opportunities that sustainability might provide. In recent years, the federal government appears to be catching up to state and local governments, although it is unclear whether it will continue to do so. And one of the inherent challenges for sustainability governance continues to be the lack of coordination among different levels of government.

§ 27:29 Local governance

In the past 20 years, some communities have made great strides toward becoming more sustainable, growing their local economies while minimizing damage and maximizing access to their natural environments. This effort has been aided in large part by visionary mayors and by nonprofit organizations, funding foundations, and collaborative stakeholder networks that have sprung up to offer support to local governments.

Cities pursuing sustainability strive to bring together all three components of sustainability—environment, economics, and social equity—in an integrated decision making process in both internal operations and community initiatives.¹ Cities that are successful in this endeavor have found and speak the language of the sustainability component (social, economic, environmental) that resonates most with its leaders and populace. The message of improving the bottom line and growing the tax base, for example, is most powerful in conservative portions of the country. Showing energy reduction in dollars rather than carbon, or having a new company state it relocated to an area because of its commitment to sustainability, has a huge impact on otherwise skeptical leaders.

Other cities have taken only small steps or faced challenges that have made progress more difficult—lack of political will, chronic budget shortages, or an unclear understanding of what sustainability looks like in practical application. When a city is charged with providing key services such as garbage and trash collection, other items that deal with quality of life—greenway development or public transit, for example—are often the first to be cut when a tax base declines or doesn't grow with the rate of inflation.

Environmental Policy 4 (2d ed. 2006).

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¹Jonathan D. Weiss, *Local Governance and Sustainability*, in *Agenda for a Sustainable America* 43 (John C. Dernbach ed., 2009).

Sustainable communities are attractive because the mutually reinforcing policies that protect the environment, create jobs, and build social equity are most obvious at the local level, where people actually live, work, and play. Sustainable communities are “cities and towns that prosper because people work together to produce a high quality of life that they want to sustain and constantly improve. They are communities that flourish because they build a mutually supportive, dynamic balance between social well-being, economic opportunity, and environmental quality.”² Put differently, sustainable communities strive to have thriving inhabitants with sustainable livelihoods that fit into, rather than undermine, the local web of life; they achieve social equity and ecological integrity together, in ways that value both biological wealth and cultural wealth. A company recruiting top graduates is concerned about employee diversity and retention; its prospective employees can move anywhere, so locating the business in a city that provides a sustainable lifestyle—transit and housing options, local food, proximity to green space—is key for that company. The city in turn benefits from the company, whose employees give back through taxes and support of local charities and businesses.

To date, at least eight sustainability rankings have been issued for North American cities: Green Cities Index, Nalgene Least Wasteful Cities, Popular Science Greenest Cities, Price Waterhouse Cooper’s Cities of Opportunity, SustainLane, Our Green Cities, National Resource Defense Council Smart Cities, and Corporate Knights. Each ranking organization features different criteria, methodologies, categories, and weightings. Some are more quantitative than qualitative, some account for population size while others do not, and most ignore ready access to resources (such as hydropower) that would allow one city to prosper while others remain inherently unsustainable. Very few consider education as a tool to long-term sustainability, but many count categories not directly relevant to sustainable living, such as cultural events. This variety in evaluations can result in very different rankings for the same city. For example, New York City was recently ranked 39th in the nation in the “waste” category by SustainLane and 3rd in the same category by the Green Cities Index. None of these rankings is a definitive index to measure the progress cities have made toward sustainability, and there is no federal or accepted standard of measurement. Still, the existence of so many different rating systems indicates how much work to achieve sustainability is being done at the local level.

SustainLane has conducted research since 2005 to rank the 50 most populous cities in the United States. In its most recent ranking in 2008, cities were compared and ranked across 16 different indicators of sustainability. Success in sustainability, according to SustainLane, includes city leadership and commitment to sustainability initiatives, as well as consensus and buy-in from residents and the local business community.³ SustainLane and others have found that in recent years many cities have created environmental or sustainability offices or hired sustainability coordinators.

Larger cities that have made particular progress in advancing local sustainability include Chicago, Denver, Seattle, and Portland. Seattle and Chicago lead the nation in development of a climate action plan and have adopted a broad array of sustainability initiatives, including urban greening, energy efficiency, and private-sector engagement. King County in Washington State, Arlington County in Virginia, and Sarasota County in Florida have been recognized for their innovative sustainability efforts. Smaller, more progressive towns like Santa Monica, California, and Burlington, Vermont, have perhaps the longest history on sustainability among U.S.

²President’s Council on Sustainable Development, Sustainable Communities Task Force Report vi (1997).

³SustainLane, 2008 US City Rankings, at <http://www.sustainlane.com/us-city-rankings/articles/study-overview/LTLZYA787TN23RUSSPNM8CBZR98X>.

localities, steadily building on their progress in the past two decades. In the Southeast, municipalities tend to be more active on sustainability and climate change than the states in which they are located.⁴

The most successful cities have viewed sustainability broadly, adopting policies, funding initiatives, partnering with other sectors, engaging their community members, setting specific targets and goals, and developing tracking metrics. Most important, they have tied sustainability to the community's economic and social health and have set up governing and community systems that affect everyone in the long term.⁵ Many of their stories are recounted throughout this book. Nonetheless, most localities have found it difficult to integrate the different aspects of sustainability, and many of the local initiatives are not broad enough or empowered to make a large difference. Best practices are often a combination of what is most commonly successful in other municipalities around the country adapted to local circumstances.

Two issues related to local sustainability have gained significant traction. The first, climate change, illustrates some of the challenges communities face as they try to reduce their city's carbon emissions. As noted earlier (Chapter 4), the fact that more than 1,000 mayors across the country have joined the Mayors' Climate Protection Agreement and committed to reducing their greenhouse gas emissions 7% below 1990 levels⁶ makes a strong political statement. The U.S. Conference of Mayors has recommended several policies to implement this commitment: conducting local greenhouse gas inventories, adopting anti-sprawl land-use regulations, encouraging alternative modes of transportation, promoting production of renewable energy, increasing the use of green building techniques for new construction as well as retrofits, purchasing fuel-efficient vehicles for municipal fleets, increasing the efficiency of water pumping systems, promoting the growth of urban forests, and educating the public about climate change and the need to reduce greenhouse gas pollution. Many cities have put action to words, making regulations, providing incentives, educating, collaborating, and improving their operations; these are the cities that are thriving even in difficult economic times, and capturing what remains of federal funds for sustainable initiatives. On the other hand, many of these cities have not actually made concrete steps toward reducing carbon emissions; nor have they undertaken broad sustainability measures.

The second issue is economic development, particularly in the areas of renewable energy, energy efficiency, recycling, and transportation. As Professor Joan Fitzgerald, an urban planner who directs the law and public policy program at Northeastern University, describes in her recent book, *Emerald Cities: Urban Sustainability and Economic Development*, municipalities across the country have begun to use economic development to improve quality of life, create jobs, and foster new technologies.⁷ Toledo, Ohio, which has long been a glass technology and manufacturing center, has begun to use this expertise to produce thin-film solar panels. These solar panels are made by placing a thin layer of photovoltaic material between two layers of glass. The city government is not alone in this effort; it is assisted by the Wright Center for Photovoltaics Innovation and Commercialization at

⁴Amy Morsch, Nicholas Institute for Environmental Policy Solutions, Duke University, *Profiling Local Climate Change Governance in the Southeastern United States* (2011).

⁵Jonathan D. Weiss, *Local Governance and Sustainability: Major Progress, Significant Challenges*, in *Agenda for a Sustainable America* 43 (John C. Dernbach ed., 2009).

⁶The U.S. Conference of Mayors, *Mayors Climate Protection Center*, U.S. Conference of Mayors Climate Protection Agreement (2005), available at <http://www.usmayors.org/climateprotection/documents/mcpAgreement.pdf>.

⁷Joan Fitzgerald, *Emerald Cities: Urban Sustainability and Economic Dev.* (Oxford Univ. Press 2010).

the University of Toledo, the Regional Growth Partnership (a nonprofit economic development organization), and the Ohio Department of Development's Green Places Initiative. As a result, First Solar, a leading thin-film solar panel manufacturer, is located in Toledo; more than 6,000 people are employed at First Solar and other solar-related businesses in the Toledo area.⁸

Much of the funding for staffing local sustainability initiatives, however, has been based on unreliable federal funding sources. City sustainability surveys have found that a significant portion of member offices have been originally staffed through grants. The most notable of these was the 2009 American Resource Recovery Act Energy Efficiency and Conservation Block Grants from the Department of Energy, which expire in 2012. Encouraging trends show more and more cities bringing these fledgling offices onto general funds as grants are expended.⁹

In addition, many cities have simply not developed the necessary comprehensive sustainability planning. One key challenge is that for all the progress being made in cities like Chicago and the increasing examples of energy-efficient and new urbanist development, sprawl in the largely auto-dependent suburbs in metropolitan areas has carried on. And almost every city making progress on sustainability still faces enormous social equity challenges. Of course, some of the challenges to advancing sustainability at the local level are inherently embedded in our governance system, as communities are often dependent on coordination with neighboring jurisdictions and other levels of government.¹⁰ While cities can accomplish much on their own, they are ultimately limited in achievement by the need for support from and coordination with the state and federal levels.

§ 27:30 State governance

Supportive state governance is essential to sustainability. As Professors Kirsten Engel and Marc Miller of the University of Arizona College of Law explain:

There is an almost total overlap between the major topics of sustainability discourse and the traditional functions of states in areas such as environmental protection, health, education, public safety, economic development, water policy, the provision or regulation of various natural monopolies, and social and public goods. States also continue to serve as policy innovators in our federal system. The uncertainties and variation involved in seeking a sustainable society (and even our conceptions of sustainability) counsel in favor of variation and experimentation. It is in the states where experimentation takes place—in, for example, environment, education, and health care.¹

A small yet growing number of states have moved toward sustainability by adopting a variety of green practices—to the point where there are now national sustainability rankings for states. For more than a decade, states have in many ways been a stronger force in advancing renewable energy and energy efficiency than the

⁸*Id.* at 55–59.

⁹U.S. General Accountability Office, Energy Efficiency and Conservation Grant Block Grant Recipients Face Challenges Meeting Legislative and Program Goals and Requirements (2011), *available at* <http://www.gao.gov/new.items/d11379.pdf>; International Council for Local Environmental Initiatives (ICLEI), How 38 Local Governments Fund Sustainability Staff and Operations (2011) *available at* http://www.icleiusa.org/library/documents/north-star-network-events/ICLEI_Sustainability_Funding_Fact_Sheet.pdf/view.

¹⁰Jonathan D. Weiss & Girair Simon, *Smart Growth and Sustainability*, in *Environmental Aspects of Real Estate Transactions: From Brownfields to Green Buildings* (James B. Witkin ed., 2011).

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¹Kirsten H. Engel & Marc L. Miller, *State Governance: Leadership on Climate Change*, in *Agenda for a Sustainable America* 441, 442 (John C. Dernbach ed., 2009).

federal government. Of perhaps equal importance, the states have provided a forum for experimentation and improvement, particularly for renewable energy and energy efficiency. States have also been active, to some degree, on a variety of other specific sustainability issues; the brownfields redevelopment and smart growth efforts described in Chapter 4 are based to a great extent on state laws. Yet on the broader question of sustainability in general, and not just energy policy, brownfields, or smart growth, only a handful of states have adopted systematic policies, and they have had to do so through executive orders rather than legislation.

Various nongovernmental organizations (NGOs) and media organizations rank states for their sustainable environmental practices. Greenopia, an online consumer's directory for "green, sustainability and socially conscious, daily purchase decisions" annually ranks states in terms of sustainability.² Using data from various federal and state government agencies and some NGOs, Greenopia compiles an index of sustainability based on air quality, water quality, recycling rate, number of green businesses, LEED buildings, per capita emissions, per capita energy consumption, per capita water consumption, per capita energy consumption, and per capita waste generation. Based on this index, Greenopia's 10 greenest states in 2011 were California, Maine, Massachusetts, Minnesota, Nevada, New Hampshire, New York, Oregon, Vermont, and Washington. The 10 least green states were Alabama, Alaska, Delaware, Indiana, Kentucky, Louisiana, Mississippi, North Dakota, West Virginia, and Wyoming.

In 2007 *Forbes Magazine* ranked states in terms of greenness using the six equally weighted indicators of air quality, carbon footprint, hazard waste management, energy consumption, policy initiatives, and water quality.³ The top-ranked states include Vermont, Oregon, and Washington (three states also identified as among the greenest states by Greenopia; see Table 27.1). These states, *Forbes* said, "have low carbon dioxide emissions per capita, strong policies to promote energy efficiency and air quality," and the highest number of LEED-certified buildings per capita. As with the Greenopia rankings, many southern states can be found in the lower half of the rankings. While there are striking differences in the rankings of some states, the existence of these two ranking systems indicates considerable activity at the state level.

Table 27.1
Two Rankings of States on Sustainability

State	2011 Greenopia Ranking	2007 <i>Forbes</i> Ranking
Vermont	1	1
New York	2	9
Washington	3	3
Oregon	4	2
Minnesota	5	15
California	6	14
Nevada	7	17
New Hampshire	8	19
Massachusetts	9	11

²Greenopia, at http://www.greenopia.com/LC/state_search.aspx?category=State&Listpage=0&input=Name-or-product&subcategory=None; http://www.greenopia.com/LC/state_search.aspx?category=State&Listpage=0&input=Name-or-product&subcategory=None (last visited Nov. 24, 2011).

³Brian Wingfield & Miriam Marcus, *America's Greenest States*, *FORBES*, Oct. 17, 2007, available at http://www.forbes.com/2007/10/16/environment-energy-vermont-biz-beltway-cx_bw_mm_1017greenstates.html.

State	2011 Greenopia Ranking	2007 <i>Forbes</i> Ranking
Maine	10	25
Hawaii	11	4
Arizona	12	10
Colorado	13	13
South Dakota	14	21
Idaho	15	12
Florida	16	20
Connecticut	17	6
Iowa	18	35
Maryland	19	5
Rhode Island	20	8
Georgia	21	29
Wisconsin	22	16
Arkansas	23	44
Michigan	24	24
North Carolina	25	26
Virginia	26	23
Illinois	27	27
New Mexico	28	18
Missouri	29	41
Texas	30	34
Pennsylvania	31	32
Ohio	32	39
Oklahoma	33	38
South Carolina	34	36
Tennessee	35	43
Montana	36	22
Kansas	37	31
New Jersey	38	7
Utah	39	28
Nebraska	40	33
Mississippi	41	46
Alabama	42	48
Delaware	43	30
Alaska	44	40
North Dakota	45	42
Kentucky	46	45
Wyoming	47	37
Indiana	48	49
Louisiana	49	47
West Virginia	50	50

Only four states—Minnesota, New Jersey, Oregon, and Washington—have addressed sustainability in a holistic fashion through the use of executive orders, plan-

ning, and periodic reporting on progress.⁴ Instead, states tend to be focusing principally on energy. Many of these states are focused entirely on promoting renewable energy and energy efficiency, with little or no emphasis on climate change. Other states include energy within an explicit commitment to address climate change.

For more than a decade, state governments have done more to foster renewable energy, increase energy efficiency, and reduce greenhouse gas emissions than the federal government, especially during the presidency of George W. Bush. In the Obama Administration, states still maintain their lead on many issues. As Magali Delmas, from the UCLA Institute of Environmental and Sustainability, and Maria Mones-Sancho, of the University of Madrid, Department of Business Administration, have argued:

While there are current debates about the implementation of federal renewable policy, U.S. states have taken the leading role in establishing renewable energy policies since the 1990s. These include Renewable Portfolio Standards, the requirement to sell green products, disclosure policies, and subsidies.⁵

The scope and intensity of state activity on energy efficiency, renewable energy, and climate change is so great that there are now at least two websites devoted to tracking and displaying this work: the Department of Energy's Database of State Incentives for Renewables & Efficiency (DSIRE)⁶ and the Center for Climate and Energy Solutions (C2ES) (formerly the Pew Center on Global Climate Change).⁷ The C2ES site, for example, describes 26 different kinds of state activities in four categories—climate action, energy, transportation, and buildings. For each of these, the site identifies the specific states that have taken action and the number of states that have acted. For each of these 26 categories of policy actions, at least 5 states, and as many as 45, have taken action.⁸ Several examples illustrate the range of state actions.

In the field of energy, one of the most common state actions is adoption of a renewable energy portfolio standard. According to the U.S. Department of Energy, 29 states and the District of Columbia have adopted a renewable portfolio standard (RPS).⁹ Seventeen of these states have an RPS of 20% or higher, with Maine having the highest at 40%. These states, in other words, are seeking to increase the percentage of their overall electricity that comes from renewable sources to at least 20% of their total portfolio. Southern states appear to be least likely to adopt an RPS (although Texas is a notable exception).

Another promising policy at the state level is energy efficiency resource standards, which are analogous to renewable portfolio standards. Energy efficiency standards require utilities to reduce their electricity use by a specified percentage by a specified year. So far, 27 states have adopted some form of energy efficiency resource standard, including not only most Midwestern, Northeastern, and West Coast states

⁴Kirsten H. Engel & Marc L. Miller, *State Governance: Leadership on Climate Change*, in *Agenda for a Sustainable America* 441, 444–48 (John C. Dernbach ed., 2009).

⁵Delmis and Montes-Sancho, U.S. State Policies for Renewable Energy: Context and Effectiveness, 39 *Energy Pol'y* 2273–288 (2011).

⁶U.S. Department of Energy, Database of State Incentives for Renewables & Efficiency (DSIRE), at <http://www.dsireusa.org/> (last visited Nov. 24, 2011).

⁷Center for Climate and Energy Solutions, U.S. States and Regions-Climate Action, at <http://www.c2es.org/states-regions> (last visited Jan. 27, 2012).

⁸Center for Climate and Energy Solutions, Table of All State Initiatives (Version 01/27/2009), at http://www.c2es.org/docUploads/AllStateInitiatives-01-27-09-a_0.pdf.

⁹U.S. Dept. of Energy, Database of State Incentives for Renewables & Efficiency, Summary Maps, at <http://www.dsireusa.org/summarymaps/index.cfm?ee=1&RE=1> (follow RPS Policies hyperlink) (last visited Nov. 24, 2011).

but also Texas, Arkansas, Florida, North Carolina, Virginia, and Colorado.¹⁰ Some of these states have promulgated regulations to decouple utilities' earnings from electricity sales volume. Traditionally, utilities received profits based on the quantity of electricity or gas sold. Using their utility regulatory power, some states have ended this practice and instead have offered financial incentives to utilities that reduce sales (save energy).¹¹

Some states have taken the lead in developing energy-efficiency building codes and appliance standards. Since California implemented the nation's first building energy code, 35 states have mandated residential building codes and 36 have mandate commercial codes.¹²

California has long been a leader in implementing statewide efficiency standards for appliances such as refrigerators, influencing other states and national product suppliers to improve codes and performance. California initiated appliance standards in the mid-1970's (the first state to do so) and has continued to promulgate standards on some products in spite of the jurisdiction of the federal government in this policy area. California's standards, in fact, prompted the federal government to adopt energy efficiency standards for a wide range of household appliances as well as industrial equipment (such as pumps).

Oregon and many other states also subsidize energy efficiency through the use of public-benefit fund programs. These programs impose a small charge on the distribution cost in an electric bill, ranging from 0.03 to 3 mills per kilowatt hour. (A mill is one-tenth of a cent.). Revenue is then used for energy efficiency programs like building retrofits, codes and standards, research and development, and public awareness campaigns.¹³

States have also adopted tax policies that incentivize individuals and businesses to use renewable energy. This is a preferred policy for most states, with all but six states having some form of property, sales, business, or income tax incentive to encourage renewable energy development and use.¹⁴ Other states have successfully utilized tax credits for energy efficiency purchases and upgrades.¹⁵ Since 1979, Oregon's business energy tax credit has offered significant tax savings for purchases of products that meet minimum energy savings targets. In Oregon the tax credit (equal to 50% of eligible costs) is for those businesses, trade groups or rental property owners who invest in recycling, energy conservation, renewable energy resources, and less-polluting transportation fuels.

The effect of state programs that use multiple legal and policy tools can be quite dramatic. Since the early 1970s, per capita electricity consumption in California and New York has been relatively flat, even as per capita U.S. consumption has increased by about 50% (Figure 27.6). To accomplish that, California adopted stringent building and appliance standards, decoupled utility profits from sales of electricity, imposed a charge of 0.3 cents per kilowatt hour to fund energy efficiency and other public benefit activities, and established energy efficiency goals along

¹⁰Center for Climate and Energy Solutions, Energy Efficiency Standards and Targets, at http://www.c2es.org/what_s_being_done/in_the_states/efficiency_resource.cfm (last visited Mar. 1, 2012).

¹¹Center for Climate and Energy Solutions, Decoupling Policies, http://www.c2es.org/what_s_being_done/in_the_states/decoupling (last visited March 31, 2012).

¹²Elizabeth Doris et al., Energy Efficiency Policy in the United States—Overview of Trends at Different Levels of Government (2009), available at <http://www.nrel.gov/docs/fy10osti/46532.pdf>.

¹³Center for Climate and Energy Solutions, Public Benefit Funds, http://www.c2es.org/what_s_being_done/in_the_states/public_benefit_funds.cfm (last visited Mar. 31, 2012).

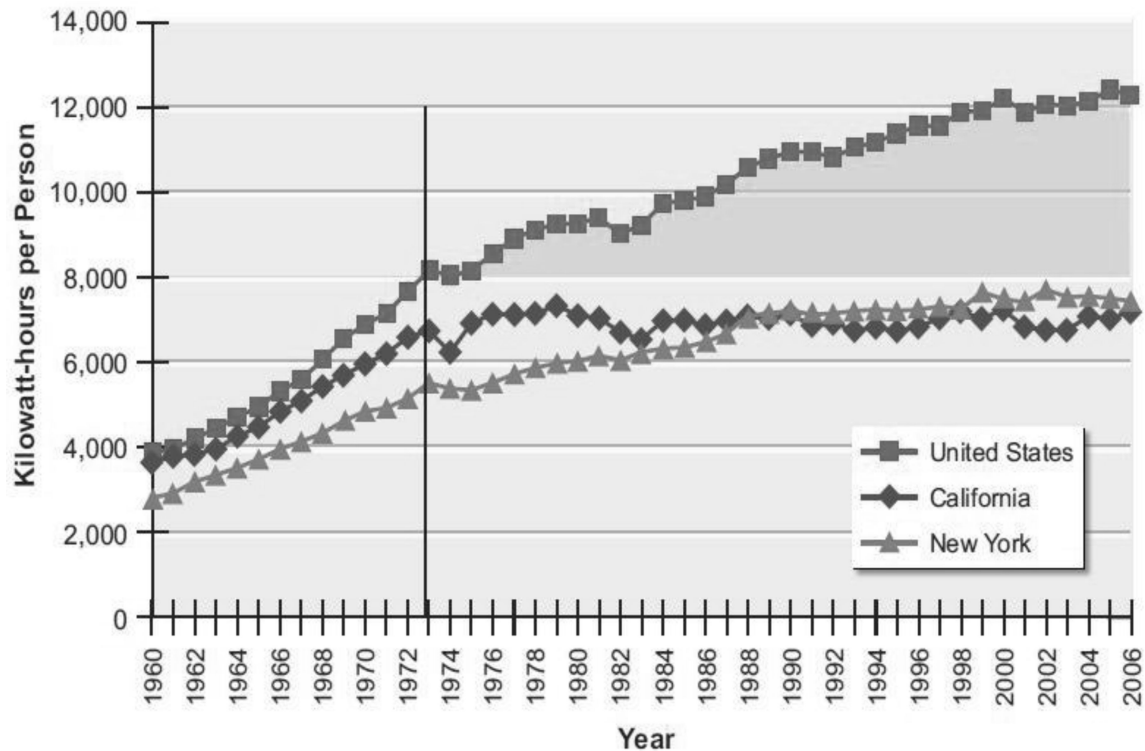
¹⁴U.S. Department of Energy, at http://apps1.eere.energy.gov/states/maps/renewable_portfolio_statistics.cfm?print (last visited Apr. 23, 2011).

¹⁵*Id.*

with incentives for utilities to achieve those goals.¹⁶ New York used a somewhat similar set of legal and policy tools that also includes considerable funding for research and development.¹⁷

Figure 27.6¹⁸

Per Capita Electricity Consumption (not including on-site generation) in California, New York, and the United States. 1960–2006



¹⁶National Research Council, Real Prospects for Energy Efficiency in the United States 282–83 (Nat'l Academies Press, 2010).

¹⁷*Id.* at 284–89.

¹⁸*Id.* at 279.

Many states have also explicitly addressed climate change. In fact, observers have argued that state climate change efforts also far exceed those of the federal government. John Byrne, of the Center for Energy and Environmental Policy, wrote in 2007:

In contrast to mostly inaction at the national level, U.S. states and localities have crafted innovative, cooperative, and increasingly bold strategies to address climate change Their motivations and strategies vary, but together suggest a sizable and growing divergence from national policy, with significant implications for the country and for international strategy.¹⁹

The Center for Climate and Energy Solutions reports that 43 states have developed an inventory of their greenhouse gas emissions, 36 have developed or are developing climate action plans, 20 have set greenhouse gas reduction targets, and 15 have climate change adaptation plans.²⁰ Such plans help state policymakers plan for the future in ways that meet their own unique economic, resource, and social needs. The Center observes that over the last decade two trends are visible at the state level: more states are taking climate change seriously, and they continue to adopt more types of climate-change policies.²¹

California has the nation's most far-reaching climate change legislation. California's Global Warming Solutions Act of 2006 (known as AB 32, after its bill number in the legislature) requires the state to reduce its greenhouse gas emissions to 1990 levels by 2020.²² AB 32 assigns to the California Air Resources Board (CARB) the task of choosing legal and policy tools to meet that goal.²³ CARB has elected to proceed with an economy-wide cap-and-trade program.²⁴ California's program launched January 1, 2012.

The program caps overall greenhouse gas emissions, and then reduces the overall emissions limit annually until the 2020 goal is met. Sources covered under the cap—which emit 85% of California's greenhouse gas emissions—are each subject to their own declining emissions caps. For each budget year, the state will issue allowances equal to the state-wide cap. Each allowance represents one metric ton of carbon dioxide or its equivalent. Every year, covered sources will need to turn in allowances equal to their emissions. For 2013, CARB will allocate allowances to cover about 90% of emissions for free. Covered sources may then purchase additional allowances at auction. In addition, sources that achieve reductions in emissions beyond what is required by law can sell “offset credits” that represent those reductions. In theory, as the cap declines and the number of allowances decreases, the price of allowances will increase, and it will become more economical for sources to reduce emissions than to purchase additional allowances.

The cap-and-trade program is only part of California's comprehensive plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions that AB 32 mandates.²⁵ For example, CARB developed low carbon fuel standards, which reduce greenhouse gas emissions by reducing the

¹⁹Byrne et al., *American Policy Conflict in the Greenhouse: Divergent Trends in Federal, Regional, State, and Local Green Energy and Climate Change*, 35 *Energy Pol'y* 4555, 4559 (2007).

²⁰Center for Climate and Energy Solutions, *Table of All State Initiatives* (Version 01/27/2009), at <http://www.c2es.org/docUploads/AllStateInitiatives-01-27-09-0.pdf>.

²¹Center for Climate and Energy Solutions, *Climate Change 101: State Action 1*, available at <http://www.c2es.org/docUploads/climate101-state.pdf>.

²²Cal. Health & Safety Code § 38500 (2007).

²³Cal. Health & Safety Code § 38500 (2007).

²⁴See 17 Cal. Code Regs. §§ 95801 to 96023.

²⁵See Cal. Health and Safety Code § 38560.

carbon intensity of transportation fuels used in the state by at least 10% by 2020.²⁶ Implementation of the low carbon fuel standards is being delayed while a federal court decides whether the rule is unconstitutional on the ground that it discriminates against out-of-state ethanol producers and crude oil sources.²⁷ California also limits the carbon intensity of new long-term electricity supply agreements so that the supplier cannot generate emissions greater than a combined-cycle natural gas-fired power plant, which is approximately one-half the emissions of a coal-fired plant.²⁸

Some states have collaborated to develop regional climate action strategies. California is a member of the Western Climate Initiative, a collaboration of western states and Canadian provinces that is working to address climate change. In addition, nine states in the Mid-Atlantic and Northeast are members of the Regional Greenhouse Gas Initiative, the “first market-based regulatory program in the United States to reduce greenhouse gas emissions [It] will reduce CO₂ emissions from the power sector 10% by 2018.”²⁹ The states participating in this initiative are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

In summary, many states have taken a leadership role—in comparison to the federal government—in the pursuit of sustainability in renewable energy, energy efficiency, and climate change policy. Vermont, Oregon, and Washington are noteworthy in their pursuit of sustainability. There also has been much progress in many other states in the West, Midwest, and East Coast. However, Southern states tend to be lagging far behind other regions.

§ 27:31 National governance

Whatever state and local governments do, effective and supportive national governance is an essential requirement for sustainable development. In the United States, none of the broad goals of sustainable development—environmental protection and restoration, economic development, and social development or human rights—can be achieved unless the federal government also works effectively to achieve those goals. Sustainability also requires the development and implementation of a national strategy that includes the articulation of goals and a planning process for defining and achieving them. A sustainable development strategy also requires bipartisan support by the country’s national leaders, a capable governmental implementing or coordinating agency or entity, sustainable development indicators to measure progress, and an effective means of involving and educating the public. More generally, a meaningful strategy requires a level of national effort and support, as well as international cooperation that corresponds to the problems and opportunities of sustainable development.¹

Over the last two decades, the United States has taken some modest steps toward sustainability—in strategic planning, in the incorporation of sustainability in agency missions and operations, and in environmental reporting and indicators. Energy efficiency and renewable energy legislation, and administrative efforts to reduce greenhouse gas emissions and implement the legislation, have increased in recent years. Still, the United States lags far behind most developed countries and a great

²⁶See 17 Cal. Code Regs. §§ 95480 to 95490 (2009).

²⁷See *Rocky Mountain Farmers Union v. Goldstene*, No. 09-cv-02234.

²⁸See Cal. Pub. Util. Code §§ 8340 to 8341.

²⁹Regional Greenhouse Gas Initiative, at <http://www.rggi.org/home> (last visited Mar. 13, 2012).

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¹John C. Dernbach, *National Governance, in Stumbling Toward Sustainability* 723, 724–25 (John C. Dernbach ed., 2002).

many developing countries in its sustainability efforts.

§ 27:32 Strategic planning

At the World Summit on Sustainable Development in Johannesburg in 2002, the United States and other countries agreed that nations should take “immediate steps to make progress in the formulation and elaboration of national strategies for sustainable development and begin their implementation by 2005.”¹ But the United States has never had an overall national strategy for sustainable development, and there appears to be no prospect for such a strategy in the near future.

The federal government engages in strategic planning on other issues, however, particularly for national security and defense. Congress requires the President to submit an annual report on the country’s national security strategy.² Congress also requires the preparation, every four years, of the Quadrennial Defense Review that sets out “the defense strategy of the United States” as well as “a defense program for the next 20 years.”³ The usefulness of the long-term, multi-year, nationwide scope of the Quadrennial Defense Review has led to proposals for such reviews in other areas. Though not required by law, quadrennial reviews were issued in 2010 for the first time by the Department of Homeland Security⁴ and the State Department/U.S. Agency for International Development,⁵ both modeled on the Department of Defense review.

Also in 2010, the President’s Council of Advisors on Science and Technology recommended the establishment of a quadrennial energy review to “establish government-wide goals, coordinate actions across agencies, and identify the resources needed for the invention, translation, adoption, and diffusion of energy technologies.”⁶ In response to that report, the Department of Energy in 2011 issued its first Quadrennial Technology Review, identifying six priority strategies to guide that agency’s work in developing and deploying new energy technologies over the next five years.⁷ The United States is thus moving in the direction of more comprehensive strategies. It is also beginning to link national defense with climate change. Congress recently required the national security strategy and the Quadrennial Defense Review to consider the effect of climate change on Defense Department

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¹U.N. Secretary-General, Plan of Implementation of the World Summit on Sustainable Development, ¶ 162 (b), U.N. Doc. A/CONF. 199/20 (Sept. 4, 2002).

²50 U.S.C.A. § 404a. See President of the United States, National Security Strategy (2010), available at http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf.

³10 U.S.C.A. § 118(a).

⁴U.S. Dep’t of Homeland Security, Quadrennial Homeland Security Review Report (2010), available at http://www.dhs.gov/xlibrary/assets/qhsr_report.pdf.

⁵U.S. Dep’t of State & U.S. Agency for International Development, Leading Through Civilian Power: The First Quadrennial Diplomacy and Development Review (2010), available at <http://www.state.gov/documents/organization/153108.pdf>. For a critique, see Anthony H. Cordesman, Center for Strategic and International Studies, The Quadrennial Diplomacy and Development Review (QDDR): Concepts Are Not Enough (2010), available at http://csis.org/files/publication/101221_QDDR_Review.pdf.

⁶Executive Office of the President, President’s Council of Advisors on Science and Technology, Report to the President on Accelerating the Pace of Change in Energy Technologies Through an Integrated Federal Agency Policy v (2010), available at <http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-energy-tech-report.pdf>.

⁷U.S. Dep’t of Energy, Report on the First Quadrennial Technology Review (2011), available at <http://energy.gov/sites/prod/files/ReportOnTheFirstQTR.pdf>.

“facilities, capabilities, and missions.”⁸

But there is no strategic planning, risk assessment, or long-term review for the challenges and opportunities of sustainable development. This is also true on such issues as climate-change funding, where, according to a General Accountability Office report, the lack of a government-wide strategic planning process means that priorities are not articulated or understood across agencies, that there appear to be mismatches between funding levels and priorities, and that many existing programs are less effective than they could be.⁹

The closest the United States has come to a national sustainability strategy was the creation in 1993 of the President’s Council on Sustainable Development (PCSD), with the mandate to develop “bold, new approaches to achieve our economic, environmental, and equity goals.” The PCSD, which was terminated in 1999, brought together stakeholders and made many thoughtful recommendations in a series of reports.¹⁰ The Council was only an advisory body, however. It did not lead to a national strategic process, the use of sustainability goals or indicators, a governmental implementing or coordinating entity, or any corresponding changes in law.¹¹ Today, the work of the PCSD is barely remembered; in a recent survey conducted by the Woodrow Wilson International Center for Scholars and the Environmental Law Institute to list our greatest environmental policy accomplishments, the PCSD came out 26th in a list of 31 items.¹²

§ 27:33 Sustainability in agency missions

Some progress has nonetheless occurred at the federal agency level through the Government Performance and Results Act of 1993 (GPRA).¹ The GPRA obligates federal agencies to develop and implement multi-year strategic plans that include a mission statement, goals and objectives for major agency activities, a description of how those goals and objectives will be achieved, and an explanation of the evaluation method that will be used to assess the achievement of those goals and objectives.² The act also requires each agency, as part of its annual budget submission, to prepare and submit to the Office of Management and Budget a performance plan that is consistent with its strategic plan.³ In addition, the act requires agencies to publish a report after each fiscal year comparing the agency’s goals for that fiscal year with its actual achievements, evaluating successes in achieving goals, and where performance goals were not met, explaining why.⁴

In January 2011, President Obama signed into law the Government Performance and Results Modernization Act of 2010, which updated and refined the GPRA.⁵ The intent of the new legislation is to better define governance structures by integrating

⁸10 U.S.C.A. § 118(g).

⁹General Accountability Office, *Climate Change: Improvements Needed to Clarify National Priorities and Better Align Them with Funding Decisions* 35-6 (2011), available at <http://www.gao.gov/new.items/d11317.pdf>.

¹⁰President’s Council on Sustainable Development, <http://clinton2.nara.gov/PCSD/http://clinton2.nara.gov/PCSD/> (last visited Nov. 30, 2011).

¹¹John C. Dernbach, *National Governance*, in *Stumbling Toward Sustainability* 723, 730–39 (John C. Dernbach ed., 2002).

¹²David Rejeski, *Any Big Ideas Left?* *Envtl. Forum*, Sept./Oct. 2001, at 36, 38.

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¹Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285.

²5 U.S.C.A. § 306(a).

³5 U.S.C.A. § 306(c).

⁴31 U.S.C.A. § 1116.

⁵*GPRA Modernization Act of 2010*, H.R. 2142, 111th Congress, available at <http://www.gpo.gov/fd>

and connecting the programs, plans, and outcomes of agencies across the federal government. The new law requires quarterly reports instead of annual reports and explicitly requires fact-based decisionmaking approaches for program implementation and management.

Environmental and sustainable development goals are contained in some, but not all, agency strategic plans under GPRA. At least half of the agencies identify environmental or natural resources protection, environmental stewardship, environmental responsibility, or sustainability as strategic goals. These agencies include the Departments of Agriculture, Commerce, Energy, Housing and Urban Development, the Interior, and Transportation, and EPA.⁶ Additionally, the State Department and U.S. Agency for International Development can be considered as an agency with some form of environmental sustainability goal. Their plans are prepared as a single report because, to some degree, the Agency for International Development operates under the umbrella of the State Department. The combined GPRA plan of the two agencies identifies promotion of economic growth and prosperity as a goal, and identifies energy security and environment as two of the strategic priorities for achieving that goal.⁷

Agencies that address sustainability tend to link environmental protection with economic development, job creation, and quality of life, both in the United States and in developing countries. Themes include sustainability and environmental protection as a way to provide opportunity to the poor (State/USAID); revitalize neighborhoods and create livable communities (EPA); sustain the economy, environment, and culture of the American West (Interior); provide economic benefits (Commerce); avoid congestion and improve motor vehicle fuel efficiency (Transportation); help farmers find new ways to make money by protecting the environment (Agriculture); and build a sustainable and competitive clean energy economy (Energy).

The question of how to institutionalize sustainability in an agency's mission was addressed in a 2011 report by the National Research Council. The report was in response to a request from EPA for recommendations on how the agency could more systematically integrate sustainability into its overall mission and programs.⁸ As the NRC recognized, EPA has for some years been applying specific sustainability concepts and tools in individual programs. The NRC recommended that EPA adopt an overall sustainability management system to guide agency priority setting and decisions. Under this management system, EPA would articulate specific sustain-

[sys/pkg/BILLS-111hr2142enr/pdf/BILLS-111hr2142enr.pdf](#).

⁶This table was constructed from agency GPRA plans as of July 2011: U.S. Dep't of Agriculture, Strategic Plan FY 2010-2015 1-33 (2010), *available at* <http://www.ocfo.usda.gov/usdasp/sp2010/sp2010.pdf>; U.S. Dep't of Commerce, Strategic Plan: FY 2007-2012 at 5-62 (2006), *available at* <http://www.osec.doc.gov/bmi/budget/07strplan/DOC07strplan.pdf>; U.S. Dep't of Defense, Quadrennial Defense Review Report 5-88 (2010), *available at* http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf; U.S. Dep't of Educ., Strategic Plan 2007-2012 at 7-33 (2007), *available at* <http://www2.ed.gov/about/reports/strat/plan2007-12/2007-plan.pdf>; U.S. Dep't of Energy, Strategic Plan v (2011), *available at* http://www.energy.gov/media/DOE_StrategicPlan.pdf; U.S. EPA, 2011-2015 Strategic Plan: Achieving Our Vision 6-24 (2010), *available at* <http://nepis.epa.gov/Adobe/PDF/P1008YOS.Pdf>; U.S. Dep't of Housing and Urban Dev., HUD Strategic Plan FY 2010-2015 at 12-45 (2010), *available at* http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_4436.pdf; U.S. Dep't of the Interior, Strategic Plan for Fiscal Years 2011-2016 at 9-38 (2011), *available at* http://www.doi.gov/bpp/data/PPP/DOI_StrategicPlan.pdf; U.S. Dep't of Transp., Strategic Plan Fiscal Years 2006-2011: New Ideas for a Nation on the Move 11-51 (2006), *available at* <http://www.dot.gov/stratplan2011/dotstrategicplan.pdf>.

⁷U.S. Dep't of State & U.S. Agency for Int'l Dev., Strategic Plan Fiscal Years 2007-2012: Transformational Diplomacy 26-8 (2007), *available at* <http://www.state.gov/documents/organization/86291.pdf>.

⁸Committee on Incorporating Sustainability in the U.S. Environmental Protection Agency, National Research Council, Sustainability and the U.S. Environmental Protection Agency (2011).

ability principles, develop a clear statement of the agency's sustainability vision, set short-term objectives and ways of measuring whether these objectives have been met, create a sustainability assessment process for new or priority issues, and conduct periodic evaluation and public reporting on how the system is working.⁹ Recognizing that the immediate adoption of such a system across the entire agency would be impossible, the NRC recommended that it be phased in as appropriate over time. The NRC also made clear that this management system could be implemented only to the extent that EPA had the statutory authority to do so; the NRC did not recommend any changes in law. Finally, the NRC suggested that this management system could be applied by other federal agencies as well.

§ 27:34 Sustainability in agency buildings and operations

The federal government has also taken steps toward sustainability in the operations of federal agencies. Executive Order 13514, signed by President Obama in fall 2009,¹ directs federal agencies to set sustainability goals for their buildings and operations. Among other things, the order requires agencies to set goals for reduction of greenhouse gases from sources they own or control by 2020; from electricity, steam, or heat they purchase; and from vendors, suppliers, and agency travel. Agencies are also required to set long-term goals (for 2015 or 2020) to reduce energy intensity, potable water intensity, and fleet petroleum use and to construct and use high-performance (green) buildings. The executive order requires each agency to “develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions based on lifecycle return on investment.”² These plans are to be integrated into agency GPRA plans and be publicly available.³ The Office of Management and Budget is required to periodically post agency performance scorecards on a website.⁴ The executive order also requires agencies to begin planning for climate change adaptation.⁵ Since the executive order was promulgated, the Council on Environmental Quality has issued instructions to federal agencies for incorporating climate change adaptation into their strategic planning, including their GPRA planning.⁶ In April 2011, OMB issued a summary of progress that each agency has made thus far in implementing the executive order.⁷

§ 27:35 Environmental reporting and indicators

⁹*Id.* at 36–49.

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¹Exec. Order No. 13,514, 74 Fed. Reg. 52,117, § 2 at 52,118 (Oct. 9, 2009). This executive order strengthens a 2007 executive order by President George W. Bush on the same subject. (Exec. Order No. 13,423, 72 Fed. Reg. 3,919 (Jan. 26, 2007)).

²Exec. Order No. 13,514, *supra* note 71, § 8 at 52,122.

³*Id.* § 8(c). See White House, Council on Environmental Quality, Federal Agency Strategic Sustainability Performance Plans, *available at* <http://www.whitehouse.gov/administration/eop/ceq/sustainability/plans> (last visited Dec. 5, 2011).

⁴Exec. Order No. 13514, *supra* note 71, § 4(b) at 52,121.

⁵*Id.* § 16 at 52,124.

⁶White House Council on Environmental Quality, Instructions for Implementing Climate Change Adaptation Planning in Accordance with Executive Order 13514 (2011), *available at* http://www.whitehouse.gov/sites/default/files/microsites/ceq/adaptation_final_implementing_instructions_3.3.pdf. See also White House Council on Environmental Quality, Progress Report of the Interagency Climate Change Adaptation Task Force: Recommended Actions in Support of a National Climate Change Adaptation Strategy (2010), *available at* <http://www.whitehouse.gov/sites/default/files/microsites/ceq/Interagency-Climate-Change-Adaptation-Progress-Report.pdf>.

⁷White House, Council on Environmental Quality, OMB Sustainability and Energy Scorecards, *available at* <http://www.whitehouse.gov/administration/eop/ceq/sustainability/omb-scorecards> (last visited Dec. 14, 2011).

Periodic national reports on the state of the environment have made a comeback in recent years. The National Environmental Policy Act of 1969 required the Council on Environmental Quality to publish an annual report on the condition of the environment, but Congress repealed that requirement in 1995.¹ In 2003, EPA published a draft report on the environment,² and followed that with a final report in 2008.³ The report uses environmental indicators to assess the environmental and public health impacts of specific human activities and to describe general environmental conditions (air quality, water quality, waste, forest conditions). In addition to the full report, EPA's website enables users to find updated information.⁴

EPA is considering the use of sustainability indicators,⁵ which unlike environmental indicators, blend social, economic, and environmental information. For sustainable communities, such indicators might include the fraction of the population that is within walking distance of public transportation or progress toward a goal of reducing potable water consumption by a specific percentage.⁶

The federal government as a whole is also beginning to consider, once again, the use of sustainability indicators, or at least something akin to such indicators. An interagency work group published an experimental set of sustainability indicators in 1998,⁷ but nothing came of it. In the absence of governmental action, State of the USA (SUSA), a nonprofit organization advised by the National Academy of Sciences, began developing a set of key economic, social, and environmental indicators. SUSA's mission is "to help the American people better assess for themselves the progress of the United States, providing scientifically selected measures, supporting statistical data and appropriate editorial context."⁸ Over the same period, a series of General Accountability Office reports helped lead to bipartisan support for legislation that would create a key national indicator system.⁹ Because they address environmental, social, and quality of life measures, these indicators address a longstanding concern that one economic indicator—gross domestic product—"has become a singular measure of national performance."¹⁰ The Patient Care and Affordable Care Act, the comprehensive health care legislation which was signed into law in March 2010, created the Commission on Key National Indicators to work with the National

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¹Federal Reports Elimination and Sunset Act of 1995, Pub. L. No. 104-66, 109 Stat. 707, 734 to 35, § 3003, 31 U.S.C.A. § 1113 (note) (repealing 42 U.S.C.A. § 4341).

²U.S. EPA, EPA's Report on the Environment (2003 Draft), *available at* <http://cfpub.epa.gov/ncea/cfm/recorddisplay.cfm?deid=56830> (last visited Dec. 14, 2011).

³U.S. EPA, EPA's Report on the Environment 2008 (2008), *available at* http://www.epa.gov/roe/docs/roe_final/EPAROE_FINAL_2008.PDF.

⁴U.S. EPA, Report on the Environment, *available at* <http://www.epa.gov/roe/> (last visited Dec. 14, 2011).

⁵Joy E. Hecht, Can Indicators and Accounts Really Measure Sustainability? Considerations for the U.S. Environmental Protection Agency (2007), *available at* <http://www.scribd.com/doc/1841126/Environmental-Protection-Agency-hechtepaordpaper>.

⁶U.S. EPA, Indicators, *available at* <http://www.epa.gov/greenkit/indicator.htm#sustain> (last visited Dec. 14, 2011).

⁷U.S. Interagency Working Group on Sustainable Development Indicators, Sustainable Development in the United States: An Experimental Set of Indicators (1998).

⁸The State of the USA, About, *at* <http://www.stateoftheusa.org/about/> (last visited Dec. 14, 2011).

⁹The State of the USA, History, *at* <http://www.stateoftheusa.org/about/history/> (last visited Dec. 14, 2011).

¹⁰General Accountability Office, Key Indicator Systems: Experiences of Other National and Subnational Systems Offer Insights for the United States 12 (2011), *available at* <http://www.gao.gov/new.items/d11396.pdf>.

Academy of Sciences to create just such a system.¹¹ Appointments to the commission, which were made by majority and minority leaders in the House and the Senate, were completed at the end of 2010.¹² As anticipated and authorized in the legislation, the Academy is working with SUSA to develop proposed measures and a website for public access to the key indicators.¹³

§ 27:36 Energy and climate legislation

Recent congressional and administrative efforts on renewable energy and energy efficiency represent the most significant national movement toward energy sustainability that has occurred in the two decades since Rio. After a long period of little activity on energy efficiency and conservation, from 2007 to 2009 Congress adopted a series of tax incentives for energy efficiency and renewable energy and provided significant additional funding for both. As previously explained, the Obama Administration has used that and other legal authority to significantly improve fuel efficiency standards for cars and trucks. The Supreme Court's 2007 decision in *Massachusetts v. EPA* gave the agency explicit authority to regulate greenhouse gas emissions under the Clean Air Act—authority it has used for mobile sources as well as factories and power plants. Still, Congress has thus far failed to adopt comprehensive climate change legislation.

§ 27:37 Lack of international leadership

It is a truism that the United States can lead internationally only by what it does at home, that actions speak louder than words. There have been two comparative reviews of various countries' environmental performance that include the United States. Neither viewed the United States as having particularly impressive environmental or sustainability programs. They also pointed out our continued unwillingness to participate fully in international agreements.

The first review, by the Organization for Economic Cooperation and Development (OECD), is part of a periodic review of each member country's environmental performance. The most recent report for the United States was issued in 2005.¹ The OECD acknowledged that the United States has a robust and well-developed set of laws to protect the environment and natural resources. It also concluded that the United States had made some progress in reducing pesticide use and the emission of some toxic air pollutants, that GPRA has fostered cooperation among federal agencies, that many "federal agencies have points of contact on sustainability," and that the Office of the Federal Executive (which is part of the Council on Environmental Quality) provides coordination on sustainability.² Nonetheless, OECD asserted:

The pollution, energy, water and material intensities of the US economy remain high in OECD terms, and the fuel supply is still among the most carbon intensive. Neither municipal waste generation nor land conversion has been decoupled from population

¹¹Patient Care and Affordable Care Act, Pub. L. No. 111-148, 124 Stat. 119, § 5605 at 680 (2010) (codified at 36 U.S.C.A. § 150303), available at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/pdf/PLAW-111publ148.pdf>.

¹²The State of the USA, Congress Appoints Key National Indicators Commission (Dec. 16, 2010), at <http://www.stateoftheusa.org/content/commission-on-key-national-ind.php>.

¹³The State of the USA, History, <http://www.stateoftheusa.org/about/history/> (last visited Mar. 2, 2012).

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¹Organization for Economic Cooperation and Development, OECD Environmental Performance Reviews: United States (2005).

²*Id.* at 25.

growth. The lack of full internalization of environmental costs in transport and energy pricing structures causes market distortions that undermine efforts to encourage energy conservation and enhance energy security through programs such as Energy Star and incentives for development of low-emission energy sources.³

The report added that integration of environmental concerns into tax policy was uneven, and that there continue to be environmentally damaging subsidies.⁴

The other report, the annual Environmental Performance Index, is a comparative global review of environmental performance by the Yale University Center for Environmental Law and Policy and the Columbia University Center for International Earth Science Information Network. In the most recent report,⁵ issued in 2011, the United States ranked 61 out of 163 countries, bracketed by Paraguay (60) and Brazil (62).⁶ Breaking down the overall ranking into specific components, the United States had comparatively good scores for forestry, fisheries, and the pollution effects on humans of air and water, but comparatively low scores for climate change and air pollution effects on ecosystems.⁷

Another measure of U.S. sustainability efforts is our willingness to ratify international treaties relating to the environment.⁸ The Framework Convention on Climate Change and the Convention on Biological Diversity—both of which were opened for signature at the 1992 Earth Summit, are suffused with sustainability principles and concepts. Treaties that have been negotiated since then also represent an effort to work out the meaning of sustainable development in specific contexts or on specific issues. It follows that ratification of these treaties, and full legal participation in the regimes they create, is an essential part of any serious U.S. sustainability effort. While the United States in 1992 was the fourth country in the world to ratify the Framework Convention on Climate Change, this country has failed to ratify a number of other international agreements that would provide greater protection of human health and the environment, or greater public access to information. These include:

- The Convention on Biological Diversity, which creates an international framework for protection of biodiversity.
- The Stockholm Convention on Persistent Organic Pollutants, which requires parties to reduce or eliminate long-lived pollutants that have significant adverse environmental and human health effects.
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, which bans the export of listed chemicals unless the importing country has consented.
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes, which aims to prohibit the export of hazardous waste to (mostly developing) countries that lack the capacity to deal with those wastes

³*Id.* at 26.

⁴*Id.*

⁵Center for Environmental Law and Policy, Yale University & Center for International Earth Science Information Network, Columbia University, Environmental Performance Index 2010, at <http://epi.yale.edu/> (last visited Dec. 14, 2011).

⁶Center for Environmental Law and Policy, Yale University & Center for International Earth Science Information Network, Columbia University, Country Scores, at <http://epi.yale.edu/Countries> (last visited Dec. 14, 2011).

⁷Center for Environmental Law and Policy, Yale University & Center for International Earth Science Information Network, Columbia University, United States of America, at <http://epi.yale.edu/Countries/UnitedStatesOfAmerica> (last visited Dec. 14, 2011).

⁸*See* Mary Jane Angelo et al., Reclaiming Global Environmental Leadership: Why the United States Should Ratify Ten Pending Environmental Treaties (2012), available at http://www.progressiverreform.org/articles/International_Environmental_Treaties_1201.pdf.

in an environmentally sound manner.

- The Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, even though U.S. statutes served as a source of inspiration for its implementing guidelines.
- The 1997 Kyoto Protocol, which would have committed the U.S. to reducing its greenhouse gas emissions by 7% below 1990 levels by 2008–2012. The United States is the only developed country that never ratified the protocol.

§ 27:38 Conclusion

Governance for sustainability is a much bigger task than regulating environmental pollutants. It requires governments at all levels to encourage and foster an ongoing long-term reduction in our overall environmental footprint at the same time as they improve opportunities for greater quality of life. And it requires a much greater range of legal and policy tools than environmental regulation alone. The United States has made some progress toward governing for sustainability over the past two decades at the local, state, and national levels, though not to the extent needed. Local governments, which are closer to their citizens and see directly how the environmental, social, and economic impacts of specific problems are intertwined, have done the most. State governments have also been active, particularly on renewable energy, energy efficiency, and even climate change. The federal government has been more active in recent years, but not to the extent of many state and local governments, nor many other countries.

Chapter 28

Space Resources*

I. INTRODUCTION TO SPACE MINING

§ 28:1 In general

II. OVERVIEW OF ENVIRONMENTAL ISSUES THAT MAY ATTEND SPACE MINING

§ 28:2 Overview

§ 28:3 Debris

§ 28:4 Pollution

§ 28:5 Contamination

§ 28:6 Nuclear contamination

III. LEGAL FRAMEWORK

§ 28:7 Regulation of space mining generally

§ 28:8 Regulation of environmental issues that may attend space mining

§ 28:9 Related issues

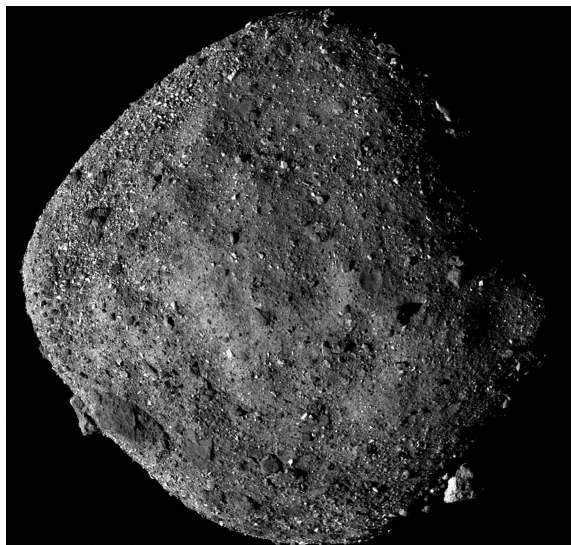
IV. CONCLUSION

§ 28:10 In general

Appendix 28A. Table of Acronyms

I. INTRODUCTION TO SPACE MINING

§ 28:1 In general



*By Scot W. Anderson, Korey J. Christensen, and Julia La Manna.

On New Year's Eve of 2018, a robot arrived at an asteroid. The Origins, Spectral Interpretation, Resource Identification and Security-Regolith Explorer ("OSIRIS-REx") made the two million kilometer journey to the asteroid known as 101955 Bennu.¹ After surveying the asteroid, OSIRIS-Rex landed in a crater 460 feet in diameter and scooped up about 60 grams of material.² As of this writing, that material is on its way back to Earth for further analysis, and should arrive in 2023.³ Bennu contains substantial carbon, and there is some evidence of water coursing over the parent asteroid that broke up to form Bennu.⁴ While the mission to Bennu was designed to help determine the origin of the universe, it turns out that the asteroid also contains an estimated \$670 million in gold.⁵

The trip to Bennu is not the first time humankind has reached out into the solar system and brought materials back to Earth. The Apollo astronauts brought back 842 pounds of samples from the Moon, with additional samples collected by several unmanned Russian missions. The Japan Aerospace Exploration Agency's Hayabusa expeditions collected material from the asteroids Itokawa and Ryugu in 2019.⁶ We are in the "golden age of space-sample returns."⁷

Humanity, then, has already started to mine the Moon and asteroids, albeit on a small, non-commercial scale. But the development of natural resources in outer space won't stop there. National governments and private enterprises are looking at ways to find and use these resources, as described below. While it may be hard to justify bringing these resources back to Earth, at least in the near term, natural resources can be developed and deployed in outer space.⁸

The Moon is the likely first stop for serious mining activities. Ice exists on the Moon, and the water extracted from this ice can be used to generate not just water for drinking, but oxygen to breath and hydrogen for rocket fuel. And the extraction and processing of ice on the Moon could be an economically viable enterprise.⁹ Moon miners could use robots and 3-D printers to convert other materials mined from the Moon into homes and vehicles, and form a base for further space exploration. Significantly, the Moon is loaded with helium-3, which can be used as fuel for fusion reactions. Not only could helium-3 be used for power on the Moon, helium-3 might be capable of economic exportation back to Earth as an energy source.¹⁰

Our imaginations run toward the human settlement of Mars, which will also

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¹Keith T. Smith and Kip V. Hodges, *Sampling the Early Solar System*, SCIENCE, at 672 (Nov. 6, 2020) [hereinafter "Smith and Hodges"].

²Chris Thompson, *An Earth Robot Is Taking Soil Samples On An Asteroid Tonight And By God You Will Know About It*, DEFECTOR (Oct. 20, 2020), <https://defector.com/an-earth-robot-is-taking-soil-samples-on-an-asteroid-tonight-and-by-god-you-will-know-about-it/>.

³Smith and Hodges, *supra* note 1.

⁴Hannah Kaplan, et al., *Bright carbonate veins on asteroid (101955) Bennu: Implications for aqueous alteration history*, SCIENCE, at 676 (Nov. 6, 2020).

⁵ASTERANK, 101955 Bennu (1999 RQ36), <http://www.asterank.com/> (last visited Dec. 15, 2020).

⁶Smith and Hodges, *supra* note 1; see also Tomokatsu Morota et al., *Sample collection from asteroid (162173) Ryugu by Hayabusa2: Implications for surface evolution*, SCIENCE, at 654–659 (May 8, 2020).

⁷Miriam Kramer, *The golden age of space-sample returns*, AXIOS SPACE (Dec. 8, 2020), <https://www.axios.com/space-samples-solar-system-evolution-9a5832c5-9e0c-48ed-b22a-755c3d2ed1a2.html>.

⁸Toni Feder, *Prospect of off-planet outposts spurs interest in space resources*, 72 PHYSICS TODAY 9, at 24 (Sept. 1, 2019).

⁹George F. Sowers and Christopher B. Dreyer, *Ice Mining in Lunar Permanently Shadowed Regions*, NEW SPACE, at 235–44 (Dec. 16, 2019).

¹⁰HARRISON SCHMITT, RETURN TO THE MOON: EXPLORATION, ENTERPRISE AND ENERGY IN THE HUMAN SETTLEMENT OF SPACE, Ch. 8 (2006) (calculating the economic return on investment in the development of

require the development of Martian resources. We might travel to Mars directly, or via the Moon or Earth orbit.¹¹ One privately-held company, SpaceX, has announced plans to develop a shuttle system between the Earth and Mars, with a target of undertaking initial steps by the mid-2020s.¹² As with the Moon, there is ice on Mars, and perhaps even liquid water.¹³ Mars also has useful minerals at or below its surface, capable of use in support of a human settlement.¹⁴ The Mars Society sponsored a contest to design a Martian colony capable of supporting 1000 people, resulting in a series of analyses showing how a colony may be able to support itself using ice and water and materials from Mars to be largely self-sustaining.¹⁵ In any design for Martian habitation, mining ice and minerals will be crucial for a sustainable presence on Mars.

Asteroids 101

Asteroids comprise three general classes: C-, S-, and M-types.¹⁶

- ▶ *C-type* asteroids are likely made up of clay and silicate rocks
- ▶ *S-types* consist of silicate rocks and nickel-iron
- ▶ *M-types* are composed of nickel-iron

Some asteroids contain platinum and other precious metals.¹⁷ The value of a single platinum-bearing asteroid could be between \$25 and \$50 billion.¹⁸ The website asterank.com provides valuation for over six hundred thousand asteroids.

Finally, asteroids have potential for mineral development. Over a million asteroids orbit the solar system in the main asteroid belt between Mars and Jupiter.¹⁹ While these asteroids are too far for commercial mining in the near term, opportunities exist to mine “near-Earth asteroids” (“NEAs”),²⁰ which are within about 120 million miles of the Earth.²¹ Scientists have documented about 18,000 NEAs, and that number is growing.²² Rather than bringing an asteroid back to earth, or near the earth, asteroids are more likely to be mined and developed in outer space. Robots can mine the asteroid, manufacture products in space, and even use ice from an

helium-3 resources on the Moon).

¹¹ROBERT ZUBRIN, *MARS DIRECT: SPACE EXPLORATION, THE RED PLANET, AND THE HUMAN FUTURE* (2013) (arguing for the efficiency of direct flight to Mars from the Earth).

¹²Nadia Drake, *Elon Musk: A Million Humans Could Live on Mars By the 2060s*, NATIONAL GEOGRAPHIC (Sept. 27, 2016), <https://www.nationalgeographic.com/news/2016/09/elon-musk-spacex-exploring-mars-planets-space-science/>.

¹³Roberto Orosei, et al., *Radar Evidence Of Subglacial Liquid Water On Mars*, SCIENCE, Vol. 361, at 490 (Aug. 3, 2018).

¹⁴Igor Levchenko, et al., *Mars Colonization: Beyond Getting There*, GLOBAL CHALLENGES (Oct. 25, 2018).

¹⁵MARS COLONIES: PLANS FOR SETTLING THE RED PLANET (Frank Crossman, ed. 2019).

¹⁶*Asteroids: In Depth*, NASA, <https://solarsystem.nasa.gov/small-bodies/asteroids/in-depth/> (last visited Dec. 15, 2020).

¹⁷Asteroid mining: US company looks to space for precious metal, THE GUARDIAN (Jan. 23, 2013), <https://www.theguardian.com/science/2013/jan/22/space-mining-gold-asteroids>.

¹⁸Jim Edwards, *Goldman Sachs: space-mining for platinum is ‘more realistic than perceived’*, BUSINESS INSIDER (Apr. 6, 2017), <https://www.businessinsider.com/goldman-sachs-space-mining-asteroid-platinum-2017-4>.

¹⁹*Asteroids: In Depth*, NASA, <https://solarsystem.nasa.gov/small-bodies/asteroids/in-depth/> (last visited Dec. 15, 2020).

²⁰An acronym table is attached to this Chapter as Appendix A.

²¹*NEO Basics*, CENTER FOR NEAR EARTH OBJECT STUDIES, https://cneos.jpl.nasa.gov/about/neo_groups.html (last visited Dec. 15, 2020).

²²*Id.*

asteroid for fuel.²³ Asteroids could also support the human exploration of outer space: as one journalist put it, “[o]nce mined, asteroids could be turned into the equivalent of gas stations and lumberyards for outbound spacecraft.”²⁴

Lumberyards and gas stations are industrial facilities, and mining is an industrial activity. That is as true in outer space as it is on Earth. As a result, mining and manufacturing on the Moon, on Mars, or of an asteroid will have environmental impacts. As discussed in this Chapter, there is existing law concerning resource extraction in outer space, and the regulation of the effects of those activities. While that law remains fairly general, it does provide guidance to space miners. As the development of resources in outer space continues to expand, these existing laws will provide the foundation for more detailed laws and regulations into the future.

II. OVERVIEW OF ENVIRONMENTAL ISSUES THAT MAY ATTEND SPACE MINING

§ 28:2 Overview

In most jurisdictions on Earth, and certainly in the United States, mining requires extensive consideration and mitigation of the environmental impacts that attend such operations. Environmental impacts of terrestrial mining include air and water pollution and soil contamination. The primary environmental issues of concern arising from space mining are a bit different. They include: (1) debris; (2) pollution of Earth’s atmosphere; (3) contamination; and (4) nuclear contamination. This section provides a high-level introduction to each of these topics. Importantly, the issues discussed in this Chapter do not relate only to mining space resources. Rather, they are relevant to many different kinds of space activities, including scientific research missions, activities related to commercial satellite communications, and military activities.

§ 28:3 Debris

The UN Committee on the Peaceful Uses of Outer Space (“UN COPUOS”) was established in 1959 and is charged with promoting “international cooperation in peaceful uses of outer space, studying space-related activities that could be undertaken by the United Nations, encouraging space research programs, and studying legal problems arising from the exploration of outer space.”¹ UN COPUOS includes the management and mitigation of the effects of space debris within its scope of oversight. Consistent with this responsibility, the Scientific and Technical Subcommittee of the UN COPUOS developed, over the course of more than a decade, Space Debris Mitigation Guidelines (the “COPUOUS Guidelines”), which the UN General Assembly endorsed in 2007.² The COPUOUS Guidelines define space debris as “all man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional.”³ In other words, space debris are objects that have been sent into space and that no longer serve a purpose.

Space debris is concerning to both governments and non-government entities. At

²³George Pendle, ‘Roid Rage’, *ESQUIRE* (Apr. 1, 2017), <https://classic.esquire.com/article/2017/4/1/roid-rage>.

²⁴*Id.*

[Section 28:3]

¹*Committee on the Peaceful Uses of Outer Space*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/copuos/index.html> (last visited Dec. 15, 2020).

²*Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS (2010).

³*Id.* at 1.

present, there are more nonfunctional than functional satellites orbiting Earth—specifically, 3,000 nonfunctional and 2,000 active satellites.⁴ Additionally, there are about 34,000 pieces of space debris bigger than 10 centimeters and 128 million pieces of space debris larger than 1 millimeter.⁵

Space debris poses significant risks for space activities of all kinds, including space mining ventures. While relatively rare at present, the consequences of collisions with space debris can be dire, even incapacitating active spacecraft.⁶ Particles as small as 1 centimeter in size can cause significant property damage, and collisions with astronauts undertaking extra-vehicular missions can be fatal.⁷ Collisions can also release harmful substances such as radioactive material (discussed below in Section 28:6).⁸ Space debris also pose a threat to Earth if any debris reenter the atmosphere and crash to Earth's surface.⁹ There is further risk that the amount of debris will be self-propagating, as bits of debris collide with each other and form more, smaller bits of debris. This phenomenon, called the Kessler Syndrome, could render certain areas of space unusable for Earth orbit.¹⁰

The effects of space debris can be mitigated by: (1) curtailing or preventing the creation of new debris; (2) designing satellites to withstand impacts by small debris; and (3) conducting operations in areas of orbit with less debris.¹¹ There are also technologies that could collect and eliminate existing space debris, but the legal framework for “Active Debris Removal” is unsettled.¹²

§ 28:4 Pollution

Another environmental consideration that may arise in the context of space mining—and, indeed, in all space activities—is pollution. Of greatest concern is the depletion of the ozone layer caused by spacecraft launches. Launches deposit emissions directly into the stratosphere layer of Earth's atmosphere, which is the atmospheric layer that lies between the troposphere (the layer closest to Earth's surface) and the mesosphere.¹ The stratosphere contains the ozone layer, making it subject to regulation under the Montreal Protocol on Substances That Deplete the

⁴See Jonathan O'Callaghan, *What is space junk and why is it a problem?*, NATURAL HISTORY MUSEUM, <https://www.nhm.ac.uk/discover/what-is-space-junk-and-why-is-it-a-problem.html> (last visited Dec. 15, 2020).

⁵See *id.* In 1978, NASA scientist Donald Kessler hypothesized that the density of space debris in low Earth orbit could one day become great enough to lead to a chain reaction in which space debris continually collide with each other, rendering Earth's orbit unusable. See *id.*, accord Paul B. Larsen, *Solving the Space Debris Crisis*, 83 J. Air L. & Com. 475, 475 n.1 (2018).

⁶See O'Callaghan, *supra* note 4 (stating that the risk of collision requiring avoidance maneuvers is 1/10,000).

⁷Lotta Viikari, *Environmental aspects of space activities*, in HANDBOOK OF SPACE LAW 717, 722 (Frans von der Dunk and Fabio Tronchetti eds., 2015).

⁸See *id.* at 723.

⁹See *id.*

¹⁰Louis de Gouyon Matignon, *The Kessler Syndrome*, SPACE LEGAL ISSUES (Mar. 27, 2020), <https://www.spacelegalissues.com/space-law-the-kessler-syndrome/> (“The Kessler syndrome, also called the Kessler effect, collisional cascading or ablation cascade, is a scenario in which the density of objects in Low Earth Orbit (LEO) is high enough that collisions between objects could cause a cascade where each collision generates space debris that increases the likelihood of further collisions.”).

¹¹*Debris Mitigation*, ASTROMATERIALS RESEARCH & EXPLORATION SCIENCE ORBITAL DEBRIS PROGRAM OFFICE, <https://orbitaldebris.jsc.nasa.gov/mitigation/> (last visited Dec. 17, 2020).

¹²See Committee on the Peaceful Uses of Outer Space, *Active Debris Removal—An Essential Mechanism for Ensuring the Safety and Sustainability of Outer Space* (2012).

[Section 28:4]

¹Martin Ross and James A. Vedula, *The Policy and Science of Rocket Emissions*, CENTER FOR SPACE

Ozone Layer (the “Montreal Protocol”).² Depletion of the ozone allows harmful ultraviolet radiation from the Sun to reach Earth’s surface.³

Researchers Martin Ross and James Vedda explain that rocket emissions of concern are: (1) chlorine and alumina particles from solid rocket motors; and (2) soot particles, which are commonly referred to as “black carbon.”⁴ Black carbon particles accumulate in the stratosphere and form a “black umbrella” that intercepts sunlight, which results in the warming of the surrounding stratosphere and cooling of the Earth’s surface.⁵ Alumina particles do the inverse—they form a “white umbrella” that reflects sunlight back into the space.⁶ This compounds the cooling of the Earth’s surface.⁷ Cooling may at first appear to have the beneficial impact of offsetting the rise in global temperatures due to climate change. But, as Ross and Vedda explain, the black umbrella and white umbrella phenomena deplete the ozone layer of the atmosphere in two ways: “First, a slightly warmer stratosphere accelerates existing chemical reactions that reduce ozone levels. Second, chemical reactions on the collective surface area of the alumina particles also reduce ozone.”⁸ They note that the effect of rocket emissions on the ozone layer is “left . . . in a policy void”⁹—likening the current moment of rocket launch regulation to the early days of space debris when the problem that debris would become was underestimated¹⁰—and urge that more research is needed to fully understand the impacts of rocket emissions on Earth’s atmosphere.¹¹

§ 28:5 Contamination

Concerns about contamination, also known as *planetary protection*, fall into two categories: forward contamination and backward contamination.

NASA’s Planetary Protection Independent Review Board (“PPIRB”) explains these categories as follows: “In its essence, [p]lanetary protection . . . refers to (i) managing contact between terrestrial life forms and organic material from celestial bodies as it relates to adversely affecting the scientific study of these bodies, called forward contamination; and (ii) mitigating harmful contact between pathogens or biology from other celestial bodies and terrestrial biology, called backward contamination.”¹

As noted, preventing forward contamination is principally concerned with safeguarding the integrity of outer space environments for science research purposes.² The non-interference principle is well-established in international law,

POLICY AND STRATEGY, at 3-4 (April 2018).

²*Id.* at 3; Montreal Protocol on Substances That Deplete the Ozone Layer, 1522 U.N.T.S. 3 (1987).

³See Lynn Shapiro, *The Need for International Agreements Concerning the Ozone Depleting Effects of Chemical Rocket Propulsion*, 4 S. CAL. INTERDISC. L.J. 739, 741 (1995).

⁴Ross and Vedda, *supra* note 1, at 5.

⁵See *id.* at 4.

⁶See *id.*

⁷See *id.*

⁸See *id.*

⁹*Id.* at 5.

¹⁰See *id.* at 2.

¹¹See *id.* at 9.

[Section 28:5]

¹*Report to NASA/SMD, Final Report*, NASA PLANETARY PROTECTION INDEPENDENT REVIEW BOARD (PPIRB) (2019), at 4.

²It is also worth pointing out, however, that some in the scientific community advocate for broadening the scope of forward contamination to include ethical, not only scientific, considerations. See, e.g., Aaron Gronstal, *Putting the Ethics into Planetary Protection*, ASTROBIOLOGY AT NASA (Aug. 13,

and in science fiction related to the exploration of outer space.³ One scholar illustrates the concern as follows:

“[I]n mid-November 2014, scientists at the [European Space Agency] announced that Philae had discovered organic molecules on the surface of Comet 67P. [European Space Agency] researchers . . . concluded that some of the molecules are of types never previously observed on a comet. Had a mining craft without proper sterilization protocols touched down on the comet, thereby contaminating the comet’s environment with organic material from Earth, the possibility of deriving scientific knowledge from the asteroid would have been forever lost.”⁴

By contrast, preventing backward contamination is principally concerned with protecting Earth from foreign contaminants as a matter of global safety.⁵

As with all of the environmental impacts discussed in this Section, contamination is not unique to space mining. The example of forward contamination described above could be caused by any space activity that involves contact with celestial bodies. That said, the probability of such contamination necessarily increases with greater human presence in space, and the level of contact with celestial bodies necessary for space mining poses perhaps a greater risk of contamination than other space activities.

§ 28:6 Nuclear contamination

For all space activities, nuclear contamination is a significant safety and environmental hazard. The risk arises from the possibility that a spacecraft carrying a nuclear power source (“NPS”) may collide with another space object or with a piece of debris in space, or crash to Earth due to mechanical or operational malfunctions. NPSs are used in outer space missions where other power sources are not viable or not practicable. For example, NPSs have been used in place of solar panels for lengthy missions to the far reaches of the Solar System, because solar panels are unsuitable for such missions.¹

The risk to Earth posed by the use of NPSs in space was highlighted by the Cosmos-954 satellite crash. The Soviet Union launched Cosmos-954 in 1977.² After the satellite’s reactor core failed to boost it into safe orbit, the satellite fell to Earth, spreading radioactive debris over a large area of northwestern Canada.³

Cosmos-954

2018), <https://astrobiology.nasa.gov/news/putting-the-ethics-into-planetary-protection/>; John Rummel et al., *Ethical Considerations for Planetary Protection in Space Exploration: A Workshop*, ASTROBIOLOGY Vol. 12, No. 11 (2012).

³Richard J. Peltz, *On a Wagon Train to Afghanistan: Limitations on Star Trek’s Prime Directive*, 25 U. Ark. L. Rev. 635 (2003).

⁴Samuel Roth, *Developing a law of asteroids: Constants, variables, and alternatives*, 54 COLUM. J. TRANSNAT’L L. 827, 865–66 (internal citations omitted).

⁵Ker Than, *Stanford’s Scott Hubbard contributed to new ‘planetary quarantine’ report reviewing risks of alien contamination*, STANFORD NEWS (May 7, 2020), <https://news.stanford.edu/2020/05/07/new-planetary-quarantine-report-reviews-risks-alien-contamination-earth/>.

[Section 28:6]

¹*Safety Framework for Nuclear Power Source Applications in Outer Space*, UNCOPUOS SCIENTIFIC AND TECHNICAL SUBCOMMITTEE AND INTERNATIONAL ATOMIC ENERGY AGENCY, Doc. A/AC.105/934 (May 19, 2009), at 1.

²See Mike Wall, *The Biggest Spacecraft Ever to Fall Uncontrolled From Space*, SPACE.COM (Oct. 13, 2019), available at <https://www.space.com/13049-6-biggest-spacecraft-falls-space.html>.

³See *id.*

The Soviet Union placed the Cosmos 954 satellite in orbit in 1977.⁴ Cosmos 954 carried a nuclear reactor. The satellite fell from orbit, and left radioactive debris in western Canada, including portions of the Northwest Territories, Alberta and Saskatchewan.⁵

The satellite was a spy satellite.⁶ That may explain why the Soviet Union did not inform Canada that the satellite might fall in Canada, and refused to provide information about the nature of the nuclear reaction on the satellite.⁷

Canada brought a claim against the Soviet Union under the Liability Convention, discussed below in Section 28.7, seeking reimbursement of cost incurred in remediating the contamination caused by the crash of Cosmos 954.⁸ Even though the total cost of remediation was CDN \$13,970,143.66, Canada only sought reimbursement of CDN \$6,041,174.70.⁹ Canada and the Soviet Union settled their dispute with a payment from the Soviet Union to Canada of CDN \$3,000,000.¹⁰

Again, concerns involving NPSs are not unique to space mining. And it does not appear that space mining would disproportionately increase the threat of nuclear contamination relative to other space activities. In any event, however, space miners will need to be aware of the regulatory requirements associated with NPSs before employing them in mining missions.

III. LEGAL FRAMEWORK

§ 28:7 Regulation of space mining generally

a. International Law

There are areas where humans are active, but which are not subject to the jurisdiction of any nation state: the deep sea, Antarctica (and perhaps the Arctic), and outer space. In these circumstances, nations tend to enter into international treaties to govern national and private actions. For example, activities in the deep seas—that area outside the territorial waters of any nation—are subject to the United Nations Convention on the Law of the Sea (or “UNCLOS”).¹ Similarly, there is a 1959 treaty setting aside Antarctica as “a natural reserve, devoted to peace and science.”² The status of the Arctic is less settled. It remains subject to UNCLOS, and to a number of competing and overlapping jurisdictional claims.³

But having a treaty in place does not provide clear and unequivocal resolution of

⁴Government of Canada, Government of the Union of Soviet Socialist Republics (1981). Cosmos 954 Satellite Claims Resolution. Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by “Cosmos 954,” Space Law, https://www.jaxa.jp/library/space_law/chapter_3/3-2-2-1_e.html (last visited Jan. 7, 2021) [hereinafter “Cosmos 954 Settlement”].

⁵*Id.*

⁶David Goren, *Nuclear Accidents in Space and on Earth: an Analysis of International Law Governing the Cosmos-954 and Chernobyl Accidents*, 5 GEO. INT’L ENVTL. L. REV. 855, 856 (1993).

⁷Cosmos 954 Settlement ¶¶ 4, 5.

⁸*Id.*

⁹*Id.* ¶ 8.

¹⁰*Id.*

[Section 28:7]

¹United Nations Convention on the Law of the Sea, Nov. 16, 1994, 1833 U.N.T.S. 3.

²The Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71.

³Reg Fowler, *The USS Manhattan Revisited: Russian Policy on Arctic Sea Passage, And Implications for Freedom of Navigation*, 2013 NO. 2 RMMLF-INST PAPER NO. 21 (2013); Reg Fowler, *Cracks*

every dispute or issue that might arise in these areas beyond national jurisdiction. First, not every country active in one of these areas may sign or ratify a treaty. The United States, for example, is not a signatory to the Law of the Sea. The Antarctic Treaty was originally signed by only twelve countries, but now has 52 signatories.⁴ Second, treaties tend to state fairly broad principles, and leave room for interpretation.

Thus, even where a treaty exists, there may be a need to call on canons of construction and general principles of international law, especially customary international law. “Customary international law” is the general practice of States, which is in turn generally accepted as law by States.⁵ For example, the United States has accepted most of the key principles of UNCLOS as customary international law, and acts consistent with those principles.⁶ The United States does not, however, accept the provisions of UNCLOS related to seabed mining, and would likely argue that those provisions do not form part of customary international law.⁷

i. Outer Space Treaty

Outer space, like the deep sea and the South Pole, does not fall under the sovereignty of any earthly nation. Rather, space law “is usually defined as a branch of general (public) international law, a subset of rules, rights and obligations of states within [international law] specifically related to outer space and activities in or with respect to that realm.”⁸ And, as with the deep sea and Antarctica, there is an international treaty that provides the fundamental framework for activities in outer space, including mineral resource development.

The Outer Space Treaty, or the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, is the fundamental treaty framing international space law.⁹ It entered into force in 1967, just prior to the Apollo 11 Moon landing, and fewer than 10 years after the launch of Sputnik.¹⁰ The Outer Space Treaty has been signed and ratified by over one hundred nations, including all space-faring nations—like the United States.

The Outer Space Treaty provides that “[t]he exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries . . . and shall be the province of all mankind. Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality

in the Ice: The Need for Review of the Legal Status of the Arctic Continental Shelf, Special Institute: International Mining and Oil and Gas Law, Development and Investment, ROCKY MT. MIN. L. FDN. (April 2011).

⁴The Antarctic Treaty Explained, BRITISH ANTARCTIC SURVEY, <https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/the-antarctic-treaty-explained/> (last visited Dec. 15, 2020).

⁵Michelle M. Kundmueller, *The Application of Customary International Law in U.S. Courts: Custom, Convention, or Pseudo-Legislation?*, 28 J. LEGIS. 359, 361 (2002).

⁶Thomas Schoenbaum, *UNCLOS and the United States*, 1 ADMIRALTY & MAR. LAW § 2:2 (6th ed. 2019).

⁷*Id.*

⁸Frans von der Dunk, *International Space Law*, in HANDBOOK OF SPACE LAW, at 29 (F. von der Dunk, ed. 2015).

⁹Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter “Outer Space Treaty”].

¹⁰Peter Jankowitsch, *The background and history of space law*, in HANDBOOK OF SPACE LAW, at 5 (F. von der Dunk, ed. 2015).

and in accordance with international law, and there shall be free access to all areas of celestial bodies.”¹¹ The Treaty also prohibits any nation from appropriating celestial bodies: “Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”¹²

As we think about resource development in outer space, and responsibility for the environmental consequences of space mining, it is important to note that the Outer Space Treaty imposes supervisory obligations on *nation-states*. As stated in the Treaty: “State Parties to the Outer Space Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Outer Space Treaty. The activities of non-governmental entities in outer space . . . shall require authorization and continuing supervision by the appropriate State Party to the Treaty.”¹³ When nation states were the only organizations acting in space, this principle was not hard to apply, and was generally uncontroversial. As noted above, however, private parties are now present in outer space, and are leading the way on the utilization of natural resources in outer space. As a result, the supervisory role of States is more meaningful and more nuanced. In the words of two prominent legal scholars, it has become necessary “to find means to transform the international obligations imposed on States to obligations incumbent on private actors in order to ensure that private entities comply with international space law and its principles.”¹⁴

The Outer Space Treaty contains some ambiguities that might be read to limit natural resource development in outer space.¹⁵ On balance, however, the Outer Space Treaty states general principles and provides a framework that would allow nations and private parties to develop and use natural resources in outer space.

The Outer Space Treaty assures a right of free access to celestial bodies for all nations, even though it prohibits appropriation or national ownership of the bodies themselves. This principle of free access is consistent with the Treaty’s statement that the exploration and use of space “shall be carried out for the benefit and in the interests of all countries.”¹⁶ The prohibition on *national* appropriation does not, on its face, prohibit the exercise of *private* rights over extracted resources, or the ownership of extracted resources by governmental or private parties. Indeed, granting private property rights to asteroid *resources* does not conflict with the international prohibition on national appropriation of asteroid *bodies*. In fact, the Outer Space Treaty anticipates the development—and hence, ownership—of extracted resources. The Treaty includes the phrase “exploration and use” twice in its terms. The word “use” seems to indicate that the drafters of the Outer Space

¹¹Outer Space Treaty, *supra* note 9, Art. I (emphasis added).

¹²*Id.* Art. II (emphasis added). In 2001, a NASA spacecraft landed on the asteroid 433, known as Eros. Gregory Nemitz claimed he owned Eros, and brought an action in federal district court seeking parking and storage fees from the United States. *Nemitz v. U.S.*, 2004 WL 3167042 (D. Nev. 2004), *aff’d*, 126 Fed. Appx. 343 (9th Cir. 2005). Nemitz claimed ownership because he had registered the asteroid with the website of the Archimedes Institute, and files a security interest under the UCC. The court rejected his ownership claim, including his argument that the ratification of the Outer Space Treaty created a right for Nemitz to own Eros. *Id.* at *2.

¹³Outer Space Treaty, *supra* note 9, Art. VI.

¹⁴Irmgard Marboe and Karen Trauttmüller, *The Legal Framework of the Use of Outer Space Technologies*, FACULTAS VERLAG, at 73 (2013).

¹⁵For an in-depth discussion of these ambiguities, see Scot Anderson, et al., *The development of natural resources in outer space*, J. OF ENERGY & NAT. RES., DOI: 10.1080/02646811.2018.1507343.

¹⁶Outer Space Treaty, *supra* note 9, Art. I.

Treaty expressly considered and authorized the development and deployment of space resources.¹⁷ The diplomatic history of the Treaty indicates that perhaps the tension between the Treaty's prohibition on the national appropriation of celestial bodies and its authorization of the use of space resources was left ambiguous to gain broader support for the Treaty.¹⁸

Notwithstanding these uncertainties, the United States State Department has consistently maintained that the Outer Space Treaty allows for commercial extraction and ownership of resources.¹⁹ It has been the State Department's position for several decades that the Treaty's non-appropriation principle applies to space resources only when such resources are "in place." This prohibition does not extend to governmental or private ownership of resources once they are removed from the celestial body.²⁰

This position of the United States is consistent with the majority view. The International Institute of Space Law, for example, takes the position that while the Outer Space Treaty does not create an express right to take and consume space resources, it also does not prohibit such action.²¹

ii. The Moon Agreement

A decade later saw an attempt to expand and recast the law of space, including principles relevant to the extraction of natural resources in outer space. In 1979, the United Nations promulgated the Moon Agreement, officially the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. The Moon Agreement affects more than the Moon; it also applies to asteroids.²² As noted above, the Outer Space Treaty declares that the Moon and other celestial bodies in the solar system, as well as their natural resources, are the "province of all mankind."²³ The Moon Agreement goes further, characterizing the bodies and their resources as being the "common heritage of all mankind,"²⁴ a phrase that some interpret to create a common interest in moon resources. UNCLOS also describes the deep sea as the common heritage of mankind, and this concept gave rise to an international regulatory body for the deep sea: The International Seabed Authority.²⁵

If the "common heritage" concept in the Moon Agreement were widely adopted,

¹⁷See Joanne Gabrynowicz, *Testimony of Joanne Irene Gabrynowicz Before the Subcommittee on Space of the Committee on Science, Space, and Technology United States House of Representatives*, at 7 (Sept. 10, 2014), available at <https://docs.house.gov/meetings/SY/SY16/20140910/102649/HHRG-113-SY16-Wstate-GabrynowiczJ-20140910-U2.pdf>.

¹⁸See Samuel Roth, *Developing a law of asteroids: Constants, variables, and alternatives*, 54 COLUM. J. TRANSNAT'L L. 827, 841–42 (2016) (internal citations omitted).

¹⁹Matthew Schaefer, *Written Testimony of Matthew Schaefer Before the Subcommittee on Space, Science, and Competitiveness of the Committee on Science, Space, and Technology United States Senate*, at 4 (May 23, 2017), available at <https://www.hsdl.org/?view&did=807259>.

²⁰Brian J. Egan, *The Next Fifty Years of the Outer Space Treaty*, GALLOWAY SYMPOSIUM ON CRITICAL ISSUES IN SPACE LAW (Dec. 7, 2016), available at <https://2009-2017.state.gov/s/l/releases/remarks/264963.htm>.

²¹Position Paper on Space Resource Mining, International Institute of Space Law (Dec. 20, 2015), available at <http://www.iislweb.org/docs/SpaceResourceMining.pdf>.

²²Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 3 [hereinafter "Moon Agreement"]; see also Samuel Roth, *Developing a law of asteroids: Constants, variables, and alternatives*, 54 COLUM. J. TRANSNAT'L L. 827, 842 (2016).

²³Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Art. I [hereinafter "Outer Space Treaty"].

²⁴Moon Agreement, *supra* note 22, Art. 11 § 1.

²⁵Dr. Betsy Baker and Catherine Danley, *Resource Rights in The Continental Shelf and Beyond: Why the Law of the Sea Convention Matters To Mineral Law*, 64 RMMLF-INST 2 (2018).

the development of natural resources in outer space might look more like the framework for mining in the deep sea. The Moon Agreement, however, has been signed by fewer than twenty countries and was not signed by any space-faring nation.²⁶ Moreover, the Trump Administration in 2020 issued an Executive Order stating explicitly that “the United States does not consider the Moon Agreement to be an effective or necessary instrument to guide nation states regarding the promotion of commercial participation in the long-term exploration, scientific discovery, and use of the Moon, Mars, or other celestial bodies,” and instructing the United States Secretary of State to “object to any attempt by any other state or international organization to treat the Moon Agreement as reflecting or otherwise expressing customary international law.”²⁷ This view reflects the majority view about the lack of efficacy of the Moon Agreement.

iii. Other international space law

The balance of space law comprises just three treaties: (1) the Convention on International Liability for Damage Caused by Space Objects (the “Liability Convention”);²⁸ (2) the Convention on Registration of Objects Launched into Outer Space (the “Registration Agreement”);²⁹ and (3) the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the “Rescue Agreement”).³⁰

The Liability Convention—opened for signature in 1972—creates a liability framework for damage caused by spacecraft. Under the Liability Convention, liability attaches to “launching States,” defined as the state that launches or procures the launch of a space object, or the state from whose territory or facility a space object is launched.³¹ It sets a strict liability standard for accidents on the Earth’s surface, providing that a launching State is “absolutely liable” for damage caused to the surface of the Earth or an aircraft in flight.³² The launching State may be relieved of this absolute liability if the claiming state (or those claiming under its jurisdiction) acted with gross negligence, or with the intent to cause damage, and if the launching state was acting in compliance with international law.³³ Where the damage occurs somewhere other than Earth’s surface, a negligence standard applies: the launching State is liable only if the damage arises from the fault of either the launching State itself or the persons for whom it is responsible.³⁴ The Liability Convention also addresses joint liability. If one state causes damage to another, and that damage creates collateral damage to a third state, the first two states are jointly and severally liable to the third.³⁵ If the damage occurs on Earth’s surface, their liability is absolute; if it occurs somewhere else, their liability is based on fault.³⁶

The Registration Agreement requires signatories to register vehicles launched

²⁶See Roth, *supra* note 22, at 844.

²⁷Exec. Order No. 13,914, 85 Fed. Reg. 20,381, § 2 (Apr. 10, 2020).

²⁸United Nations Convention on International Liability for Damage Caused by Space Objects, Sept. 1, 1972, 961 U.N.T.S. 187 [hereinafter “Liability Convention”].

²⁹Convention on Registration of Objects Launched into Outer Space, Sept. 15, 1976, 1023 U.N.T.S. 15 [hereinafter “Registration Agreement”].

³⁰Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Dec. 3, 1968, 672 U.N.T.S. 119 [hereinafter “Rescue Agreement”].

³¹Liability Convention, *supra* note 28, Art. I.

³²*Id.* Art. II.

³³*Id.* Art. VI.

³⁴*Id.* Art. III.

³⁵*Id.* Art. IV.

³⁶*Id.*

into space and provide that information to the Secretary-General of the United Nations.³⁷ These requirements can enable the identification of the State or States that launched a certain space object. This would be relevant to determining the liable party under the Outer Space Treaty and the Liability Convention in the event of an accident or other damage, and to ensure that obligations under the Rescue Agreement are met.

The Rescue Agreement, in turn, sets out requirements related to and a process for the return of objects and people who land outside their national territory upon reentry to Earth.³⁸

b. Domestic law

The United States and Luxembourg have led the way in creating national laws designed to interpret the Outer Space Treaty consistent with the general view that the Treaty allows the extraction and utilization of resources in Outer Space.³⁹

The United States enacted the Commercial Space Launch Competitiveness Act.⁴⁰ Title IV of that Act provides a legal framework for mineral development and ownership in outer space.⁴¹

Title IV, the “Space Resource Exploration and Utilization Act” creates private property rights over resources extracted from space.⁴² It directs the president to: (1) facilitate the commercial exploration for and commercial recovery of space resources by United States citizens; (2) discourage government barriers to the development of such industries, in a manner consistent with United States international obligations; and (3) promote the right of United States citizens to engage in such industries free from harmful interference.⁴³ The president must also identify the authorities that will be responsible for overseeing space resource extraction missions.⁴⁴

As noted above, anyone acting in outer space does so under the supervision and responsibility of a government. Under the Act, “[a] United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.”⁴⁵ The Act defines “asteroid resource” as “a space resource

³⁷See Registration Agreement, *supra* note 29, Arts. II, IV.

³⁸Rescue Agreement, *supra* note 30.

³⁹See Scot Anderson, et al., *The development of natural resources in outer space*, J. OF ENERGY & NAT. RES., DOI: 10.1080/02646811.2018.1507343.

⁴⁰U.S. Commercial Space Launch Competitiveness Act, Pub. L. No. 114-90, 129 Stat. 704 (2015) [hereinafter “Space Launch Act”]. For a complete analysis of the Act, see Michael Dodge, *The U.S. Commercial Space Launch Competitiveness Act of 2015: Moving U.S. Space Activities Forward*, 29 No. 3 AIR & SPACE LAW. 4 (2016).

⁴¹The other parts of the Act include the following. Title I, the “Spurring Private Aerospace Competitiveness and Entrepreneurship Act,” (“SPACE Act”) updates requirements for the commercial launch industry. Space Launch Act at §§ 102-117, now codified at 51 U.S.C. §§ 50901-50923. Title II, “Commercial Remote Sensing,” affirms congressional oversight of the commercial space industry and requires additional executive branch reports regarding the licensing process for private space-based remote sensing systems. Space Launch Act at §§ 201-202, now codified at 51 U.S.C. §§ 60121-60126. Title III, “Office of Space Commerce,” renames the “Office of Space Commercialization” the “Office of Space Commerce,” and clarifies its functions. Space Launch Act at §§ 301-302, now codified at 51 U.S.C. §§ 50701-50703.

⁴²Space Launch Act §§ 402-403, now codified at 51 U.S.C. §§ 51301-51303.

⁴³51 U.S.C. § 51302(a).

⁴⁴51 U.S.C. § 51302(b).

⁴⁵51 U.S.C. § 51303.

found on or within a single asteroid,”⁴⁶ and defines “space resource” as “an abiotic resource in situ in outer space,” which includes water and minerals.⁴⁷ To allay any concerns that the statute is inconsistent with the prohibition of appropriation in the Outer Space Treaty, the Act states that “[i]t is the sense of Congress that by the enactment of this Act, the United States does not thereby assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body.”⁴⁸ The table below summarizes the roles of various federal agencies over U.S. space activities.

Federal Agencies’ Roles in U.S. Space Activities⁴⁹

National Aeronautics and Space Administration (NASA) is an independent federal agency with primary oversight for US space flight and space operations, and related scientific research.

The U.S. Department of Commerce, through the National Oceanic and Atmospheric Administration (NOAA) includes the Office of Space Commerce, the National Environmental Satellite, Data, and Information Service, Commercial Remote Sensing Regulatory Affairs and the National Telecommunications and Information Administration.

Federal Communications Commission (FCC), an independent agency like NASA, regulates telecommunications satellites operated by the federal government and by private industry.

U.S. Department of Defense (DOD) includes oversight of the national security policy for outer space through the Assistant Secretary of Defense for Homeland Defense and Global Security. The ASD is responsible for formulating national security strategy for outer space, among other matters. DOD also includes the recently created U.S. Space Force.

U.S. Department of State includes the Office of Space and Advanced Technology and also addresses security issues related to outer space.

U.S. Department of Transportation Federal Aviation Administration (FAA) includes the Office of Commercial Space Transportation.

Note: Because space activities are under federal jurisdiction, even when conducted by private parties, those activities are subject to review under the National Environmental Policy Act (NEPA), which can require the engagement of other federal agencies. In the recent environmental analysis prepared for a Space X launch site in Texas, the FAA was the lead agency on the Environmental Impact Statement (EIS), and the cooperating agencies in the EIS were NASA, National Park Service, the U.S. Army White Sands Missile Range, and the U.S. Army Corps of Engineers. The FAA also consulted with the U.S. Fish and Wildlife Service.⁵⁰

⁴⁶51 U.S.C. § 51301(1).

⁴⁷51 U.S.C. § 51301(2).

⁴⁸51 U.S.C. § 51301(1).

⁴⁹Georgetown Law Library, Space Law: The Law of Outer Space Other U.S. Government Agencies Involved in Space Policy & Regulation, <https://guides.ll.georgetown.edu/c.php?g=1037047&p=7762102>.

⁵⁰Federal Aviation Administration, Office of Commercial Space Transportation: Final Environmen-

Building on the framework established by the Space Resource Exploration and Utilization Act, the United States developed in 2020 an international agreement designed to provide greater certainty for companies acting in space. The administrative action embodies the interpretation of the Outer Space Treaty favored by the United States, and represents movement toward solidifying that interpretation as customary international law. This agreement, called the “Artemis Accords,” relates to NASA’s Artemis program, which has targeted a return to the Moon by 2024 and, from there, further exploration on to Mars.⁵¹ Significantly, the Artemis Accords are not a unilateral action by the United States. NASA has executed the Artemis Accords with the national space agencies of Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates, and the United Kingdom.⁵² Notably, “[t]he principles set out in the [Artemis] Accords are intended to apply to civil space activities conducted by the civil space agencies of each Signatory.”⁵³

The key points addressed include the following:

- The Artemis Accords create a system in which the parties agree that space resources can be extracted and used without violating the Outer Space Treaty, thereby further reinforcing the United State’s interpretation of the Treaty’s non-appropriation principal.⁵⁴ Parties will also implement a system to create “Safety Zones” around each country’s operations to avoid interference with one another’s space activities.⁵⁵
- Parties to the Artemis Accords commit to the Outer Space Treaty’s principle of using space for only peaceful purposes, as well as to the principles of the Rescue Agreement and Registration Agreement.⁵⁶
- Parties commit “to us[ing] reasonable efforts to utilize current interoperability standards for space-based infrastructure, to establish such standards when current standards do not exist or are inadequate, and to follow such standards.”⁵⁷
- The Accords recognize the need to manage space debris, and require signatories to “commit to plan for the mitigation of orbital debris, including the safe, timely, and efficient passivation and disposal of spacecraft at the end of their missions, when appropriate, as part of their mission planning process.”⁵⁸
- Partners have agreed that they “intend to preserve” historically significant sites, such as the Apollo 11 lunar landing location, pursuant to standards to be agreed upon amongst the parties.⁵⁹

c. Hague International Space Resources Governance Working Group Building Blocks

tal Impact Statement for the SpaceX Texas Launch Site, Cameron County, Texas (May 2014).

⁵¹See *The Artemis Accords: Principles for a Safe, Peaceful, and Prosperous Future*, NASA, available at https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords_v7_print.pdf (last visited Dec. 15, 2020).

⁵²The Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes, available at <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf> [hereinafter, “The Artemis Accords”].

⁵³See *id.* § 1.

⁵⁴See *id.* § 10, ¶ 2.

⁵⁵See *id.* § 11.

⁵⁶See *id.* §§ 3, 6–7.

⁵⁷See *id.* § 5.

⁵⁸See *id.* § 12.

⁵⁹See *id.* § 9.

The Hague International Space Resources Governance Working Group (“Working Group”)⁶⁰ undertook an effort to “assess, on a global scale, the need for a regulatory framework for space resource activities and to prepare the basis for such regulatory framework.”⁶¹ The Working Group prepared a draft set of “building blocks” for a regulatory framework for the development of resources in space, and circulated that draft for comment on September 17, 2017 (the “Building Blocks”).⁶² The Working Group then formally adopted the Building Blocks on November 12, 2019.⁶³ The objective of the Building Blocks is to “create an enabling environment for space resource activities that takes into account all interests and benefits all countries and humankind.”⁶⁴ Toward this end, the Working Group rests the Building Blocks on international law and the Outer Space Treaty, including the notion that the development of space resources should be exclusively for peaceful purposes, and for the benefit and in the interests of all countries and humankind irrespective of their degree of economic and scientific development.⁶⁵

The Building Blocks provide a comprehensive, albeit high-level, outline for a legal and regulatory framework for the development of natural resources in outer space. As such, the Building Blocks could form the basis for a future comprehensive treaty related to the mining of celestial bodies, or provide a thoughtful and well-reasoned resource for governments and private parties considering how best to operate in this industry. There are several provisions of the Building Blocks that illuminate how to work on resource development in outer space, and how to manage the environmental impacts of those activities.

The Building Blocks accept the requirement in the Outer Space Treaty that States supervise activities in outer space. The Working Group builds on that concept by recommending that States and intergovernmental organizations implement this responsibility by creating laws to authorize and regulate these activities, as well as the products generated by these activities, consistent with international legal principles.⁶⁶

More specifically, the Building Blocks recommend developing a process to allow space miners to register their mining rights.⁶⁷ The Working Group also recommends an international framework assuring that raw minerals, volatile materials, and the products from these items, can be lawfully acquired with mutual recognition of

⁶⁰The Working Group platform is a Consortium serviced by a Secretariat. The founding Consortium partner is the International Institute of Air and Space Law, Leiden Law School, Leiden University (the Netherlands). Members are major stakeholders from government, industry, universities, and research centers. The number of members to the Working Group is limited to 25, at which the number currently stands. Tanja Masson-Zwaan, René Lefeber, Giuseppe Reibaldi, and Merinda Stewart, *The Hague Space Resources Governance Working Group—A Progress Report*, in *PROCEEDINGS OF THE INTERNATIONAL INSTITUTE OF SPACE LAW*, at 165 (P.J. Blount, T. Masson-Zwaan, R. Moro-Aguilar, and K. Schrogl eds. 2016).

⁶¹*Id.* at 164.

⁶²Working Group, Draft Building Blocks for the Development of an International Framework in Space Resource Activities (2017), available at <https://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht—en-ruimterecht/space-resources/revised-buildin-g-blocks-following-the-meeting-of-april-2019.pdf>.

⁶³Working Group, Final Building Blocks for the Development of an International Framework in Space Resource Activities (2019), <https://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht—en-ruimterecht/space-resources/bb-thissrwg—cover.pdf> [hereinafter “Building Blocks”].

⁶⁴*Id.* ¶ 1.1.

⁶⁵*Id.* ¶¶ 4.1–4.3.

⁶⁶*Id.* ¶ 5.

⁶⁷*Id.* ¶ 7.

these property rights.⁶⁸

The Building Blocks provide not only a foundation for resource development, but also a conceptual framework for responsible space mining. The document lays out the following principles:

- *Due regard for interests of all countries and humankind*

The Working Group proposes that governments should give due regard to the interests of all countries and humankind.⁶⁹ The concept of “due regard” has its origins in UNCLOS. Article 87 of UNCLOS recognizes the freedom of the high seas, but the exercise of this freedom is to be exercised “with due regard for the interest of other States.”⁷⁰ According to the leading commentary on UNCLOS, “[t]he standard of ‘due regard’ requires all States, in exercising their high seas freedoms, to be aware of and consider the interests of other States in using the high seas, and to refrain from activities that interfere with the exercise by other States of the freedom of the high seas. . . . ‘States are bound to refrain from any acts that might adversely affect the use of the high seas by nationals of other States.’”⁷¹ Thus, this Building Block advocates for the free use of outer space, but with some recognition of the interest of other parties using outer space.

- *Avoidance of harmful impacts resulting from space resource activities*

This Building Block suggests that parties should act in a manner to guard against unknown or unquantified risks, including potential damage to the safety of persons, the environment, or property, and to prevent adverse changes in the environment of the Earth, harmful contamination of celestial bodies or outer space, and interference with space activities or scientific resources.⁷²

- *Monitoring and redressing harmful impacts resulting from space resource activities*

States and organizations should monitor whether any harmful impacts result from space resource activities authorized by them.⁷³ This Building Block also recommends developing a process to require redressing such impacts.

- *Liability in case of damage resulting from space resource activities*

This Building Block references existing treaties concerning damage in space,⁷⁴ and suggests that an international framework should encourage operators to provide, individually or collectively, compensation for damage resulting from their space resource activities.

§ 28:8 Regulation of environmental issues that may attend space mining

a. Debris

⁶⁸*Id.* ¶ 8.

⁶⁹*Id.* ¶ 9.

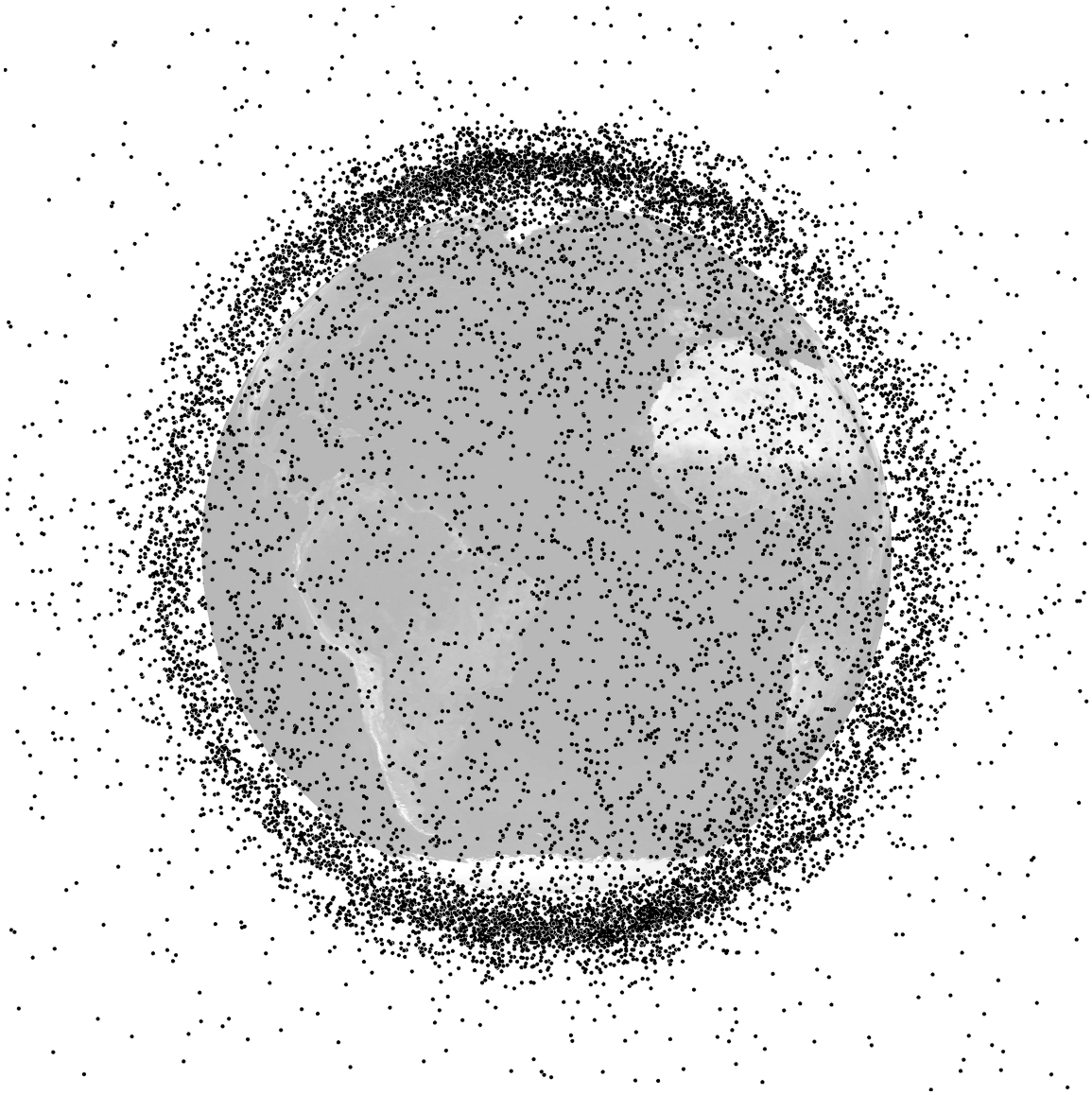
⁷⁰United Nations Convention on the Law of the Sea, Nov. 16, 1994, 1833 U.N.T.S. 3, Art. 87(2) [hereinafter “UNCLOS”].

⁷¹UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY 87.9(1) (Satya N. Nandan et al. eds., 1995).

⁷²Building Blocks, *supra* note 63, ¶ 10.

⁷³*Id.* ¶ 12.

⁷⁴Specifically, it references Articles VI and VII of the Outer Space Treaty and the 1972 Convention on International Liability for Damage Caused by Space Objects.



i. International law and policy

1. Outer Space Treaty

The issue of space debris is not addressed directly in the Outer Space Treaty or the other treaties comprising international space law. However, as the Outer Space Treaty provides a broad framework for space activities, its provisions—especially Article IX—can be interpreted to impose some obligation to mitigate space debris.

Article IX requires that activities be conducted with “due regard to the corresponding interests of all other States parties to the Treaty.”¹ As discussed above, a “due regard” standard requires that States “be aware of and consider the interests of other States . . . and . . . refrain from activities that interfere” with the interests of other States.²

Article IX also requires that “States . . . conduct exploration of [the Moon and other celestial bodies] so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter, and, where necessary, shall adopt appropriate measures for this purpose.”³ Because space debris collisions can release harmful contaminants that may damage the Moon and other celestial bodies, Article IX arguably requires mitigation of space debris to prevent that injury. And, as noted above, the accumulation of debris orbiting the Earth could escalate and compound to the point that satellites can no longer orbit the Earth.⁴ But these general principles and duties do not provide clear direction as to when and how parties are to actively undertake the mitigation or remediation of space debris.⁵

Finally, Article IX imposes a duty on parties to the treaty to undertake international consultations if there is “reason to believe that a [proposed] activity . . . would cause potentially harmful interference with activities of other States parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies”⁶ In other words, a party that reasonably suspects that a planned activity of another party would cause potentially harmful interference may request consultation.⁷ Thus, Article IX could be read to require international consultations if a proposed mission may result in the creation of space debris that compromises the ability of other parties to the Outer Space Treaty to peacefully explore and use outer space. Of course, the consultation requirement simply promotes a conversation and does not empower one party to prevent another from pursuing a potentially hazardous activity.⁸

Despite the general nature of the provisions of the Outer Space Treaty, a party creating a hazard might face a claim for liability. Parties “bear international responsibility for national activities in outer space” and, as discussed above, govern-

[Section 28:8]

¹Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Art. IX [hereinafter “Outer Space Treaty”].

²See UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY 87.9(1) (Satya N. Nandan et al. eds., 1995).

³Outer Space Treaty, *supra* note 1, Art. IX.

⁴Paul B. Larsen, *Solving the Space Debris Crisis*, 83 J. AIR L. & COM. 475, 475 n.1 (2018) (discussing the Kessler Effect).

⁵See Lotta Viikari, *Environmental aspects of space activities*, in HANDBOOK OF SPACE LAW 717, 729 (Frans von der Dunk and Fabio Tronchetti eds., 2015) (internal quotation marks omitted).

⁶Outer Space Treaty, *supra* note 1, Art. IX.

⁷See *id.*

⁸See Viikari, *supra* note 5, at 730-31.

ments must authorize and continually supervise the non-governmental entities in outer space subject to their jurisdiction.⁹ A party that launches an object or procures the launching of an object is “liable for damage to another State party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth”¹⁰ The Registration Convention might provide information that would help identify the responsible owner of a piece of debris in the event of a collision.¹¹

2. UN Committee on the Peaceful Uses of Outer Space, Space Debris Mitigation Guidelines

As noted above, the Scientific and Technical Sub-Committee of the UN COPUOS has developed the COPUOS Guidelines to address the problem of space debris accumulation. These guidelines are “the leading international arrangement to mitigate space debris.”¹² They consist of seven guidelines, which “should be considered for the mission planning, design, manufacture and operational (launch, mission and disposal) phases of spacecraft and launch vehicle orbital stages.”

UN Committee on the Peaceful Uses of Outer Space Space Debris Mitigation Guidelines¹³

The seven guidelines are:

1. Limit debris released during normal operations
2. Minimize the potential for break-ups during operational phases
3. Limit the probability of accidental collision in orbit
4. Avoid intentional destruction and other harmful activities
5. Minimize potential for post-mission break-ups resulting from stored energy
6. Limit the long-term presence of spacecraft and launch vehicle orbital stages in the low-Earth orbit . . . region after the end of their mission
7. Limit the long-term interference of spacecraft and launch vehicle orbital stages with the geosynchronous Earth orbit . . . region after the end of their mission

Though non-binding, the COPUOS Guidelines direct member states and international organizations to voluntarily implement the Guidelines through domestic law mechanisms.¹⁴ One scholar remarks that “the fact that all major spacefaring states take part in the work of the [Scientific and Technical Sub-Committee] . . . should facilitate the approval and implementation of the Guidelines on the national level.”¹⁵

There is also an Inter-Agency Space Debris Coordination Committee (“IADC”)

⁹Outer Space Treaty, *supra* note 1, Art. VI; *see also* United Nations Convention on International Liability for Damage Caused by Space Objects, Sept. 1, 1972, 961 U.N.T.S. 187, Arts. II, III.

¹⁰Outer Space Treaty, *supra* note 1, Art. VII.

¹¹*See* Convention on Registration of Objects Launched into Outer Space, Sept. 15, 1976, 1023 U.N.T.S. 15, Art. II.1. *But see* Viikari, *supra* note 5, at 737-39 (discussing the limitations of the Registration Convention in the context of space debris).

¹²Lotta Viikari, *Environmental aspects of space activities*, in HANDBOOK OF SPACE LAW 717, 743 (Frans von der Dunk and Fabio Tronchetti eds., 2015) (internal quotation marks omitted). The COPUOS Guidelines were based on a set of guidelines developed by the Inter-Agency Space Debris Coordination Committee. *See Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS § 2 (2010) [hereinafter “COPUOS Guidelines”].

¹³COPUOS Guidelines § 4.

¹⁴*Id.* § 3.

¹⁵Viikari, *supra* note 12, at 743.

that includes NASA, the European Space Agency, and other national space agencies. The IADC issued a set of space debris mitigation standards that are similar to the U.S. Orbital Debris Mitigation Standard Practices discussed below.¹⁶

3. Hague International Space Resources Governance Working Group Building Blocks

The Working Group's Building Blocks, discussed above, envision a binding international framework that addresses the environmental consequences of space mining with far more specificity than is set out under existing international law. Under the Building Blocks, the international framework should provide for the "[a]voidance and mitigation of potentially harmful impacts resulting from space resource activities[.]"¹⁷

Hague International Space Resources Governance Working Group Building Blocks*

The Building Blocks state that responsible nations and international organizations should be required to adopt measures to avoid and mitigate a number of risks, spanning risk of harm to humans, environment, or property to harmful contamination of celestial bodies:

- a) Risks to the safety of persons, the environment, or property;
- b) Damage to persons, the environment, or property;
- c) Adverse changes in the environment of the Earth, taking into account internationally agreed-on planetary protection policies;
- d) Harmful contamination of celestial bodies, taking into account internationally agreed planetary protection policies;
- e) Harmful contamination of outer space;
- f) Harmful effects of the creation of space debris;
- g) Harmful interference with other on-going space activities, including other space resource activities;
- h) Changes to designated and internationally endorsed outer space natural or cultural heritage sites;
- i) Adverse changes to designated and internationally endorsed outer space sites of scientific interest.

* Building Blocks ¶ 10.

The Building Blocks expressly recognize space debris, and would require managing the risks that accompany the accumulation of space debris (*e.g.*, damage to persons, outer space and Earth environments, and property). Under the Building Blocks, the international framework envisioned would require nations and international organizations to implement an oversight process to ensure the avoidance of harmful impacts from space debris,¹⁸ and would require nations and international organizations to monitor and respond to such harmful impacts, including considering whether a specific resource activity—such as mining platinum from

¹⁶Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines (2007), available at https://www.unoosa.org/documents/pdf/spacelaw/sd/IADC-2002-01-IADC-Space_Debris-Guidelines-Revision1.pdf.

¹⁷Working Group, Final Building Blocks for the Development of an International Framework in Space Resource Activities ¶ 10 (2019), <https://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht-en-ruimterecht/space-resources/bb-thissrwwg—cover.pdf> [hereinafter "Building Blocks"].

¹⁸*Id.* ¶ 11.

an asteroid or ice from the Moon—should be adjusted or terminated.¹⁹

ii. Domestic Law and Policy

Recognizing the risk of space debris, in 1995, NASA developed orbital debris mitigation guidelines. The United States government adopted these guidelines two years later, titled the Orbital Debris Mitigation Standard Practices, which NASA subsequently updated in 2019.²⁰ These standards helped form the basis for related international standards.²¹ Congress also passed a statute requiring NASA to engage in international efforts to address space debris, and to coordinate with other United States agencies.²²

Orbital Debris Mitigation Standard Practices: Four Key Objectives

The Orbital Debris Mitigation Standard Practices state four key objectives and provide related standard practices to accomplish those objectives.²³ The objectives are:

- 1. Control of Debris Released During Normal Operations:** Programs and projects will assess and limit the amount of debris released in a planned manner during normal operations.
- 2. Minimizing Debris Generated by Accidental Explosions:** Programs and projects will assess and limit the probability of accidental explosion during and after completion of mission operations.
- 3. Selection of Safe Flight Profile and Operational Configuration:** Programs and projects will assess and limit the probability of operating space systems becoming a source of debris by collisions with man-made objects or meteoroids.
- 4. Post-mission Disposal of Space Structures:** Programs and projects will plan for, consistent with mission requirements, cost effective disposal procedures for launch vehicle components, upper stages, spacecraft, and other payloads at the end of mission life to minimize impact on future space operations.

There was a fifth objective added in the 2019 revision of the Standard Practices, which adds several new items, discussed below.

To accomplish these objectives, NASA and other federal agencies are to design spacecraft to eliminate or minimize debris.²⁴ If there is a planned release of debris, where the debris will be larger than 5 mm and which will be in orbit for more than 25 years, then the federal agency approving the mission (including missions conducted by private parties) must evaluate and justify that outcome, and the debris must remain in orbit for under 100 years.²⁵

To reduce the risk of explosion, United States agencies are to determine whether

¹⁹*Id.* ¶ 12.

²⁰*Orbital Debris Program Office*, NASA, <https://orbitaldebris.jsc.nasa.gov/mitigation/> (last visited Dec. 16, 2020).

²¹*Id.*

²²National and international orbital debris mitigation, 42 U.S.C. § 18441.

²³U.S. Government Orbital Debris Mitigation Standard Practices, November 2019 Update, available at https://orbitaldebris.jsc.nasa.gov/library/usg_orbital_debris_mitigation_standard_practices_november_2019.pdf.

²⁴*Id.* at 1-1.

²⁵*Id.*

an explosion might result from spacecraft design, and adopt operational procedures.²⁶ The risk of an explosion must be less than 1 in 1,000.²⁷ The Standards require an analysis of the possibility of collisions, and spacecraft should be designed to reduce the chance of a collision with objects larger than 10 cm to less than 1 in 1,000 to mitigate the risk of a loss of control of the vehicle.²⁸

The Standard Practices provide more detailed guidance on how to dispose of a vehicle after its mission. The agency might design the vehicle to re-enter the atmosphere or perhaps in orbit around the sun.²⁹ If the object will re-enter the atmosphere, the risk of human casualty must be less than 1 in 10,000.³⁰ The vehicle could also place the object in a “storage orbit,” away from standard operational orbits.³¹ Finally, the space object (*i.e.*, the satellite, vehicle, or other object placed in orbit) might be placed in an eccentric orbit that would result in the eventual re-entry of the object into the atmosphere, or the vehicle might be retrieved within five years of the end of its mission.³² Tether systems—two space objects, such as satellites, connected by a wire—are subject to specialized rule due to their unusual properties.³³

The fifth objective, added in 2019, provides “Clarification and Additional Standard Practices for Certain Classes of Space Operations.”³⁴

Additional Standard Practices

Under these additional Standard Practices:

1. Large constellations of satellites (greater than 100 objects) should be disposed of by re-entry or heliocentric orbit, with a chance of success of at least 90%.³⁵
2. Small satellites should have a total orbit of less than 100 years, and less than 25 years after end of mission.³⁶
3. Satellite servicing and related operations should also be designed to minimize the risk of generating space debris.³⁷
4. Operations to remove debris should be designed to minimize the risk of generating additional debris.
5. Tethering systems require unique analysis.

²⁶*Id.* at 2-1, 2-2.

²⁷*Id.* at 2-1.

²⁸*Id.* at 3-1, 3-2.

²⁹*Id.* at 4-1(a).

³⁰*Id.*

³¹*Id.* at 4-1(c)-(d).

³²*Id.* at 4-1(e)-(f).

³³The tethering process can be used to launch an object into a high orbit from a lower-orbiting object, as well as other uses: “Tethered systems provide propellantless propulsion that can be used in attitude control, orbit transfers, momentum dumping, station-keeping, and a variety of other applications. A mechanical connection is established through the tether that enables the transfer of energy and momentum from one object to the other.” Brandon Copp, Systems in Spacecraft Propulsion, University of Colorado, ASEN 5053: Rocket Propulsion (2012). A conductive tether moving through the ionosphere could generate enough electrical current to provide propulsion for a satellite. Jeremy Hsu, Kilometer-Long Space Tether Tests Fuel-Free Propulsion: The U.S. space mission aims to demonstrate technology that could someday help clean up space junk, *Scientific American* (Nov. 2019).

³⁴*Id.* at 5.

³⁵U.S. Government Orbital Debris Mitigation Standard Practices, *supra* note 24, at 5-1.

³⁶*Id.* at 5-2.

³⁷*Id.* at 5-3.

In addition to the broad application of the Standard Practices to federal agencies, several agencies with regulatory supervision over activities in outer space have developed specific regulations relating to space debris.

The Federal Communications Commission (“FCC”) has promulgated regulations applicable to placing communication satellites in orbit since 2004.³⁸ For example, a party seeking to place a communications satellite in orbit is required to submit a debris mitigation plan to the FCC as part of its permit application.³⁹ FCC also established debris mitigation rules and broadened them in 2020. The 2020 FCC order requires “satellite operators to quantify their collision risk, probability of successfully disposing spacecraft, [and] the casualty risk associated with spacecraft that re-enter Earth’s atmosphere.”⁴⁰ The FCC order followed a public hearing on a Notice of Proposed Rulemaking first published in 2018.⁴¹ The 2018 Notice included more rigorous debris mitigation standards for consideration by the FCC, including a requirement that a satellite be maneuverable, and a requirement that satellite operators indemnify the United States government from collisions with their debris, and post a bond to back up that indemnity.⁴² Those proposals in the Notice, and others relating to risk quantification, were remanded by the FCC Commissioners for further study.⁴³

The Federal Aviation Administration (“FAA”) maintains regulatory jurisdiction over the launch of vehicles and objects into outer space. The FAA recently updated its space debris regulations.⁴⁴ The FAA currently requires a debris analysis as part of a space launch plan. The debris analysis will address: (1) each reasonably foreseeable cause of vehicle breakup and intact impact; (2) vehicle structural characteristics and materials; and (3) energetic effects during break-up or at impact.⁴⁵ The analysis must also include a debris risk analysis.⁴⁶ The debris risk calculates the predicted consequences of each reasonably foreseeable failure during the flight in terms of conditional expected casualties.⁴⁷

Finally, the National Oceanic and Atmospheric Administration (“NOAA”) licenses the operation of private remote sensing space systems under the Land Remote Sensing Policy Act of 1992.⁴⁸ NOAA’s licensing regime previously required a plan for disposal of remote sensing satellites. Given that these satellites will also require a license from the FCC, NOAA recently determined that it would remove its separate requirement and defer to the FCC regime.⁴⁹

b. Pollution

³⁸Mitigation of Orbital Debris, Second Report and Order, 19 FCC Rcd 11567 (2004).

³⁹*Id.*

⁴⁰Caleb Henry, *FCC punts controversial space debris rules for extra study*, SPACENEWS (Apr. 23, 2020), <https://spacenews.com/fcc-punts-controversial-space-debris-rules-for-extra-study/>.

⁴¹Mitigation of Orbital Debris in the New Space Age, Notice of Proposed Rulemaking, 33 FCC Rcd 11352 (2018).

⁴²Henry, *supra* note 40.

⁴³Report and Order and Further Notice of Proposed Rulemaking, In re Matter of Mitigation of Orbital Debris in the New Space Age, 35 FCC Rcd 4156 (5) (2020).

⁴⁴Streamlined Launch and Reentry License Requirements, 85 Fed. Reg. 79,566 (Dec. 10, 2020).

⁴⁵14 C.F.R. § 450.121.

⁴⁶14 C.F.R. § 450.135.

⁴⁷*Id.*

⁴⁸Licensing of Private Remote Sensing Space Systems, 84 Fed. Reg. 21,282 (Nat’l Oceanic and Atmospheric Admin. May 14, 2019).

⁴⁹Department of Commerce, National Oceanic and Atmospheric Administration, Final Rule: Licensing of Private Remote Sensing Space Systems, 85 Fed. Reg. 30,790, 30,799 (2020) (“Commerce has opted to defer to FCC license requirements regarding orbital debris and spacecraft disposal, and therefore there is no longer any license condition requiring specific orbital debris or spacecraft disposal

i. International law and policy

The Outer Space Treaty does not directly address harm to Earth's atmosphere caused by space activities, including rocket emissions. And it does not include language that lends itself to providing even an indirect hook to regulate rocket emissions. Article IX sets out certain requirements designed to mitigate harmful interference with the activities of other State Parties, and could be interpreted to extend to harmful interference with a State's launch activities, which may, theoretically, be caused by ozone depletion or other Earth-based environmental harms.⁵⁰ But, Article IX restricts activities that take place *in outer space*.⁵¹ Because the commonly-accepted definition of "outer space" is that it begins at the edge of Earth's atmosphere, activities that take place elsewhere (e.g., within Earth's atmosphere itself) appear to be outside of Article IX's scope.⁵²

However, regulation of substances that damage the ozone layer are regulated at the international level by the Montreal Protocol.⁵³ The Montreal Protocol identifies substances that deplete the ozone layer, and limits the global permissible levels of production and consumption of those identified substances.⁵⁴

But the Montreal Protocol does not limit the production and consumption of the substances used to propel rockets during launch,⁵⁵ leaving rocket launches in the "policy void" described by Ross and Vedda.⁵⁶ Scholars in the field point out two factors that inhibit the application of the Montreal Protocol, in its present form, to rocket emissions. First, the metric used to identify compounds for phase-out—"Ozone Depleting Potential"—does not capture rocket emissions because that metric is assessed at Earth's surface; thus, compounds emitted directly into the stratosphere are not assessed.⁵⁷ Second, the definition of "production" would not apply to production of the substances that harm the ozone layer during rocket launches because those substances are the result of combusting rocket fuel, rather than the components of the fuel itself.⁵⁸ Thus, the Montreal Protocol would fail to curtail release of these compounds because the compounds are not "produced" within the

practices in this final rule, and Commerce licenses will not include any such condition.").

⁵⁰Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Art. IX [hereinafter "Outer Space Treaty"]; Martin Ross and James A. Vedda, *The Policy and Science of Rocket Emissions*, CENTER FOR SPACE POLICY AND STRATEGY, at 7 (April 2018).

⁵¹Outer Space Treaty, *supra* note 1, Art. IX ("States Parties to the Treaty . . . shall conduct all their activities *in outer space* . . . with due regard to the corresponding interests of all other States Parties to the Treaty.") (emphasis added); Art. IX ("If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals *in outer space*, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceedings with any such activity or experiment.") (emphasis added).

⁵²*Where is space?*, NOAA (Feb. 22, 2016), <https://www.nesdis.noaa.gov/content/where-space> (explaining that a commonly accepted definition of the edge of the atmosphere and the beginning of space is at the "Kármán Line," which is located 100 kilometers or 62 miles above sea level). Notably, NASA and the U.S. military define space as beginning 12 miles below the Kármán Line. *See id.*

⁵³Montreal Protocol on Substances That Deplete the Ozone Layer, 1522 U.N.T.S. 3 (1987) [hereinafter "Montreal Protocol"].

⁵⁴Lynn Shapiro, *The Need for International Agreements Concerning the Ozone Depleting Effects of Chemical Rocket Propulsion*, 4 S. CAL. INTERDISC. L.J. 739, 757 (1995).

⁵⁵*Global Ozone Research and Monitoring Project—Report No. 58, Scientific Assessment of Ozone Depletion: 2018*, WORLD METEOROLOGICAL ORGANIZATION, at ES.50 (January 2019), available at <http://ozone.unep.org/science/assessment/sap> [hereinafter "2018 Scientific Assessment"].

⁵⁶*See* Ross and Vedda, *supra* note 50, at 5.

⁵⁷*Id.* at 6.

⁵⁸*See* Shapiro, *supra* note 54, at 759-60; Montreal Protocol, *supra* note 54, Art. 1 ("Production")

Protocol's definition; they are by-products generated during launch.⁵⁹

Accordingly, in the mandatory quadrennial Scientific Assessment of Ozone Depletion,⁶⁰ "the assessment [of rocket emissions] therefore regresses to subjective descriptions."⁶¹ For example, the 2018 Scientific Assessment of Ozone Depletion notes that "[r]ocket launches presently have a small effect on total stratospheric ozone (much less than 0.1%)."⁶² It recognizes, however, that "[s]pace industry developments indicate that rocket emissions may increase more significantly than reported in the previous Assessment."⁶³

In the context of ozone depletion caused by increasing numbers of rocket launches, it is worth mentioning the potential benefits that could be realized through space mining. If the Moon is used as a space base and refueling station—which would only be achievable by mining its resources—this would presumably result in fewer rocket launches from Earth's surface, thereby reducing emissions into the stratosphere. Notwithstanding the potential benefits that space mining could present related to mitigating harms from rocket launch emissions, Ross's and Vedda's cautionary point is well-taken: "[T]he launch community, in the U.S. and globally, should tackle the question of launch emissions while it is still manageable, and be prepared to respond to regulatory attention and inquiry."⁶⁴

ii. Domestic law and policy

At the domestic level, the environmental impacts of spacecraft launches are assessed under the National Environmental Policy Act ("NEPA").⁶⁵ The FAA is the agency charged with licensing United States commercial space launch activities, which is considered a major federal action under NEPA, and, therefore, conducts NEPA reviews for proposed launches.⁶⁶ As discussed in Chapter 10 of this treatise, the assessments that federal agencies produce under NEPA take one of three forms: (1) a categorical exclusion; (2) an environmental assessment; and (3) an environmen-

means the amount of controlled substances produced, minus the amount destroyed by technologies to be approved by the Parties and minus the amount entirely used as feedstock in the manufacture of other chemicals. . . . 'Consumption' means production plus imports minus exports of controlled substances.").

⁵⁹See Shapiro, *supra* note 54, at 759-60.

⁶⁰See Montreal Protocol, *supra* note 53, Art. 6.

⁶¹See Ross and Vedda, *supra* note 50, at 6.

⁶²2018 Scientific Assessment, *supra* note 55, at ES.50.

⁶³*Id.*

⁶⁴See Ross and Vedda, *supra* note 50, at 9. An interesting question exists about the interplay between "Space Law"—which is the body of law discussed in this Chapter—and "Air Law," comprising a number of conventions applicable to air space and aircraft that address, among other things, environmental impacts of aircraft. See Paul Dempsey & Maria Manoli, *Suborbital flights and the delineation of air space vis-à-vis outer space: functionalism, spatialism and state sovereignty*, COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE, LEGAL SUBCOMMITTEE, FIFTY-SEVENTH SESSION (Apr. 9-20, 2018), at 10. We do not take up that topic in this chapter, but a thorough and insightful discussion of it is contained in Mr. Dempsey's and Ms. Manoli's submission to the UNCOPUOS. See generally *id.*

⁶⁵See 42 U.S.C. § 4321 et seq. NEPA requires that federal agencies evaluate the environmental impacts of major federal actions, specifically: "(i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." 42 U.S.C. § 4332(C).

⁶⁶*Guidelines for Compliance with the National Environmental Policy Act and Related Environmental Review Statutes for the Licensing of Commercial Launches and Launch Sites*, FEDERAL AVIATION ADMINISTRATION OFFICE OF THE ASSOCIATE ADMINISTRATOR FOR COMMERCIAL SPACE TRANSPORTATION (Feb. 22, 2001), at 5 [hereinafter "FAA NEPA Guidelines"].

tal impact statement.⁶⁷ The level of review required for a proposed action will depend on the likelihood of environmental effects, and the significance of those effects.⁶⁸ In its NEPA guidelines for launches and launch sites, the FAA states that environmental impact statements should consider atmospheric impacts, including impacts to stratospheric ozone.⁶⁹

Environmental Assessment and SpaceX

One such example of an environmental assessment (“EA”) is that prepared in connection with SpaceX’s launch licenses at the Kennedy Space Center and Cape Canaveral Air Force Station, which includes discussion of ozone impacts.⁷⁰

In the EA, the FAA notes that the Clean Air Act—like the Montreal Protocol—does not regulate rocket engine emissions as ozone depleting substances.⁷¹ The FAA recognizes, however, that rocket emissions “produce gases and particles” that deplete the ozone layer.⁷² It concludes that “[t]hese emissions are a small fraction of the total emissions” and “are not expected to result in significant climate-related impacts.”⁷³

c. Contamination

i. International law and policy

Article IX of the Outer Space Treaty requires that States avoid both forward and backward contamination. It provides:

States Parties to the Treaty shall . . . conduct exploration of [the Moon and other celestial bodies] so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter, and, where necessary, shall adopt appropriate measures for this purpose.⁷⁴

To guide compliance with the general mandates of the Outer Space Treaty, the Committee on Space Research has developed a Planetary Protection Policy (the “COSPAR Planetary Protection Policy”), based on the following policy statement:

The conduct of scientific investigations of possible extraterrestrial life forms, precursors, and remnants must not be jeopardized. In addition, the Earth must be protected from the potential hazard posed by extraterrestrial matter carried by a spacecraft returning from an interplanetary mission. Therefore, for certain space mission/target planet combinations, controls on contamination shall be imposed in accordance with issuances implementing this policy.⁷⁵

The COSPAR Planetary Protection Policy sets out a sliding scale of recommended protective measures based on: (1) the degree to which the target body is of interest to understanding chemical evolution or the origin of life; and (2) the likelihood of

⁶⁷40 C.F.R. § 1501.3(a).

⁶⁸*See id.*

⁶⁹FAA NEPA Guidelines, *supra* note 66, at 62.

⁷⁰The EA is available at https://www.faa.gov/space/environmental/nepa_docs/media/SpaceX_Falcon_Program_Final_EA_and_FONSI.pdf.

⁷¹*Id.* at 71.

⁷²*Id.*

⁷³*Id.*

⁷⁴Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Art. IX [hereinafter “Outer Space Treaty”].

⁷⁵COSPAR Policy on Planetary Protection, at 1 (June 17, 2020).

contamination.⁷⁶ It also recommends highly protective standards for Earth-return missions, noting that the Moon “must [also] be protected from back contamination to retain freedom from planetary protection requirements on Earth-Moon travel.”⁷⁷

The international framework envisioned under the Building Blocks would also require the implementation of measures to prevent both forward and backward contamination. Section 10 provides that the international framework should require nations and international organizations to adopt measures to avoid and mitigate “[a]dverse changes in the environment of the Earth, taking into account internationally agreed planetary protection policies [*i.e.*, backward contamination]; [and] (d) Harmful contamination of celestial bodies, taking into account internationally agreed planetary protection policies [*i.e.*, forward contamination]”⁷⁸

ii. Domestic law and policy

Consistent with the vision of the Building Blocks, NASA has developed policies designed to comply with the Outer Space Treaty’s requirements related to planetary protection. NASA Policy Directive 8020.7G establishes that “[i]t is NASA’s policy to comply with planetary protection provisions in support of U.S. obligations under the 1967 Outer Space Treaty,”⁷⁹ and charges the Associate Administrator for the Science Mission Directorate, or its designee, with the administration of NASA’s planetary protection policy.⁸⁰ That policy includes, among other considerations, “[m]onitoring space flight missions as necessary to meet the requirements for planetary protection certification” by NASA.⁸¹ The policy further enumerates specific responsibilities of the Planetary Protection Officer, which include “[c]ertifying” prior to launch and prior to reentry, if applicable, that:

- a) All measures have been taken to assure meeting NASA policy objectives as established in this directive and all implementing procedures and guidelines.
- b) The recommendations, of relevant regulatory agencies with respect to planetary protection have been considered, and pertinent statutory requirements have been fulfilled.
- c) The international obligations assessed by the Office of the General Counsel and the Office of External Relations have been met, and international implications have been considered.⁸²

The specific requirements under Policy Directive 8020.7G are set out in: (1) NPR 8020.12D (Planetary Protection Provisions for Robotic Extraterrestrial Missions); and (2) NPD 8900.5B (NASA Health and Medical Policy for Human Space Exploration).

A key complication related to NASA’s planetary protection policies, however, is that they do not apply to private space missions that are unaffiliated with NASA. Policy Directive 8020.7G states that it applies to “all space flight missions, robotic and human, which may intentionally or unintentionally carry Earth organisms and organic constituents to the planets or other solar system bodies, and any mission

⁷⁶See *id.* at 1-2 (Categories I-IV).

⁷⁷See *id.* at 2-3 (Category V).

⁷⁸Working Group, Final Building Blocks for the Development of an International Framework in Space Resource Activities ¶ 10 (2019), <https://www.universiteitleiden.nl/binaries/content/assets/rechtsg/eelc/leiden/instituut-voor-publiekrecht/lucht-en-ruimterecht/space-resources/bb-thissrwwg—cover.pdf> [hereinafter “Building Blocks”].

⁷⁹NPD 8020.7G (Biological Contamination Control for Outbound and Inbound Planetary Spacecraft) § 1.a (effective February 19, 1999).

⁸⁰See *id.* § 5.a.

⁸¹*Id.* § 5.a.(3).

⁸²*Id.* § 5.b.

employing spacecraft which are intended to return to Earth and/or its biosphere from extraterrestrial targets of exploration.”⁸³ But, NASA is not a regulatory agency, and, therefore, appears to lack authority to require that private space missions that are wholly unaffiliated with it comply with its planetary protection policies.⁸⁴ This gap has led to the authorization of private space missions without planetary protection evaluation prior to launch.⁸⁵

This issue was taken up in a recent report by the NASA Planetary Protection Independent Review Board (“PPIRB”), which sets out how NASA’s existing planetary protection policies can be improved “in light of current plans for Mars sample return, emerging capabilities for private sector robotic missions, eventual human missions to Mars, and the exploration of the icy moons of the outer planets.”⁸⁶ While the PPIRB did not assess contamination issues specific to resource recovery,⁸⁷ it made several recommendations related to updating NASA’s planetary protection policies in light of increased private sector space activities.⁸⁸ For example, the report recommended that, “[Planetary protection] policy should also recognize that it is both a NASA and a national objective to encourage private sector space initiatives and commercial robotic and human planetary missions.”⁸⁹ Accordingly, it recommended that planetary protection governmental oversight should be “implemented in a transparent, timely, and predictable manner, minimizing costs and burdens on private sector activities where possible.”⁹⁰ And regarding implementation of these requirements, it notes that “[a]lthough NASA is not a regulatory agency, the [a]gency can likely affect control over non-NASA U.S. missions by linking [planetary protection] compliance to eligibility for current or future NASA business or NASA support.”⁹¹ The PPIRB also recommends that the federal government work to identify the appropriate agency to implement planetary protection requirements for missions not involving NASA.⁹²

In December 2020, the White House National Space Council issued a “National Strategy for Planetary Protection.”⁹³ A group of U.S. government representatives involved with the Planetary Protection Interagency Working Group, which convened earlier in the year to set the national agenda on planetary protection, developed the strategy.⁹⁴ Like the PPIRB report, development of the strategy was motivated by the changing landscape of space exploration, including the increasing role of the private sector.⁹⁵ The strategy sets out a number of objectives and action items summarized in the table below. Whether and how the Biden Administration will proceed with

⁸³*Id.* § 2.a.

⁸⁴*See* 51 U.S.C. § 20112; *see also Report to NASA/SMD, Final Report*, NASA PLANETARY PROTECTION INDEPENDENT REVIEW BOARD (PPIRB) (2019), at 10 [hereinafter “PPIRB Report”].

⁸⁵*See* Paul Voosen, *NASA must rework planetary protection plans, panel advises*, SCIENCE (Oct. 18, 2019), <https://www.sciencemag.org/news/2019/10/nasa-must-rework-planetary-protection-plans-panel-advises> (explaining that SpaceX launched the Tesla Roadster into space on board the Falcon Heavy in 2018 without planetary protection evaluation).

⁸⁶PPIRB Report, *supra* note 84, at 5.

⁸⁷*Id.* at 9.

⁸⁸*See id.* at 17-18.

⁸⁹*Id.* at 17.

⁹⁰*Id.*

⁹¹*Id.* at 10.

⁹²*Id.* at 18.

⁹³The White House National Space Council, *National Strategy for Planetary Protection* (Dec. 2020), available at <https://www.whitehouse.gov/wp-content/uploads/2020/12/National-Strategy-for-Planetary-Protection.pdf>.

⁹⁴*Id.* at i.

⁹⁵*Id.* at 2.

these objectives remains to be seen.

National Strategy for Planetary Protection	
Objective 1—Forward Contamination <i>Avoid harmful forward contamination by developing and implementing risk assessment and science-based guidelines and updating the interagency payload review.</i>	
Objective 1.1 Develop a forward contamination risk assessment framework.	Near-term deliverable: Develop a forward contamination risk assessment framework within one year.
Objective 1.2 Develop flexible science-based forward contamination guidelines.	Near-term deliverables: Develop guidelines for forward contamination mitigation within nine months. Develop risk-informed decision-making implementation strategies for human missions within one year.
Objective 1.3 Assess the interagency aspects of the U.S. Government payload review process.	Near-term deliverable: Develop a report reviewing the United States Government payload review process within nine months.
Objective 2—Backward Contamination <i>Avoid backward contamination by developing a Restricted Return Program to protect against adverse effects on the Earth environment due to the potential return of extraterrestrial life.</i>	
Objective 2.1 Develop a risk assessment framework.	Near-term deliverable: Develop a backward contamination risk assessment framework within nine months.
Objective 2.2 Develop an approval framework.	Near-term deliverable: Develop an approval framework within nine months.
Objective 2.3 Develop a return procedures framework.	Near-term deliverable: Develop a return procedures framework within one year.
Objective 3—Private Sector Engagement <i>Incorporate the perspective and needs of the private sector by soliciting feedback and developing guidelines regarding private sector activities with potential planetary protection implications.</i>	
Objective 3.1 Engage with industry.	Near-term deliverable: Develop a report on industry feedback and R&D partnership opportunities within three months.
Objective 3.2 Develop guidelines for private sector activities.	Near-term deliverable: Develop guidelines on authorization and continuing supervision within six months.

d. Nuclear contamination

i. International law and policy

Though the Outer Space Treaty prohibits placing nuclear weapons into orbit, it does not address the use of NPSs.⁹⁶ To fill this gap, the UN has adopted nonbinding Principles Relevant to the Use of Nuclear Power Sources in Outer Space (the “Nuclear Power Source Principles”). These set out, among other things, safety guidelines for the use of NPSs in space, notice requirements in the event of malfunctioning space objects containing NPSs, and a liability and compensation framework for damage caused by NPS-bearing space objects.⁹⁷ Notably, the Nuclear Power Source Principles apply only to NPSs used for electric power generation, and not to NPSs used for propulsion.⁹⁸

⁹⁶Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Art. IV [hereinafter “Outer Space Treaty”].

⁹⁷See Principles Relevant to the Use of Nuclear Power Sources in Outer Space, Adopted by the General Assembly, 14 December 1992 (Resolution 47/68), Principles 3, 5, 9.

⁹⁸See *id.* (“Affirming that this set of Principles applies to nuclear power sources in outer space

Jointly with the International Atomic Energy Agency, the Scientific and Technical Subcommittee of the UNCOPUOS has developed guidelines for the safe use of NPSs in space (the “NPS Safety Framework”).⁹⁹ The purpose of the NPS Safety Framework is to provide guidance to governments in developing their own safety frameworks, and for the development of international intergovernmental frameworks.¹⁰⁰ It sets out guidance for governments, including recommending that governments justify the use of NPSs in space at the authorization stage;¹⁰¹ guidance for management of organizations that conduct space missions involving NPSs, including that the operating organization should have primary responsibility for the safe use of such NPSs;¹⁰² and technical guidance.¹⁰³ The NPS Safety Framework is limited in scope to safety considerations for Earth’s environment, including Earth’s human population.¹⁰⁴ It does not consider the protection of humans in space or space environments, due to a dearth of scientific data available to inform such applications.¹⁰⁵

The Hague Building Blocks do not expressly address the use of NPS systems. However, Section 10 contains broad language regarding avoiding and mitigating the potential for harmful impacts, presumably including those associated with the use of NPSs.¹⁰⁶

ii. Domestic law and policy

On August 20, 2019, President Trump issued a Presidential Memorandum that “update[d] the process for launches of spacecraft containing space nuclear systems” (the “Space Nuclear Systems Memorandum”).¹⁰⁷ The Space Nuclear Systems Memorandum applies to radioisotope power systems, radioisotope thermoelectric generators and heater units, and fission reactors used for power and propulsion, and to both governmental and commercial launches.¹⁰⁸ It provides safety guidelines for launches involving nuclear systems, setting out probability thresholds of harm to the public that should not be exceeded for different levels of exposure.¹⁰⁹ It also directs NASA, in coordination with the Secretaries of Defense and Energy, to evaluate further safety guidelines that may be appropriate for the use of nuclear fission

devoted to the generation of electric power on board space objects for non-propulsive purposes, which have characteristics generally comparable to those of systems used and missions performed at the time of the adoption of the Principles[.]”.

⁹⁹See *Safety Framework for Nuclear Power Source Applications in Outer Space*, UNCOPUOS SCIENTIFIC AND TECHNICAL SUBCOMMITTEE AND INTERNATIONAL ATOMIC ENERGY AGENCY, Doc. A/AC.105/934 (May 19, 2009).

¹⁰⁰See *id.* at 1.

¹⁰¹See *id.* at 3-4.

¹⁰²See *id.* at 4-5.

¹⁰³See *id.* at 5-7.

¹⁰⁴See *id.* at 2.

¹⁰⁵See *id.*

¹⁰⁶See Working Group, Final Building Blocks for the Development of an International Framework in Space Resource Activities ¶ 10 (2019), https://www.universiteitleiden.nl/binaries/content/assets/recht_sgeleerdheid/instituut-voor-publiekrecht/lucht—en-ruimterecht/space-resources/bb-thissrwwg—cover.pdf (“[T]he international framework should provide that States and international organizations responsible for space resource activities shall adopt appropriate measures with the aim of avoiding and mitigating potentially harmful impacts, including . . . a) Risks to the safety of persons, the environment or property; b) Damage to persons, the environment or property”).

¹⁰⁷Presidential Memorandum on Launch of Spacecraft Containing Space Nuclear Systems § 1 (Aug. 20, 2019), available at <https://www.whitehouse.gov/presidential-actions/presidential-memorandum-launch-spacecraft-containing-space-nuclear-systems/>.

¹⁰⁸See *id.*

¹⁰⁹See *id.* § 3.

reactors in space.¹¹⁰

The Space Nuclear Systems Memorandum sets out a three-tiered authorization process for launches containing nuclear systems, based on: (1) the system used; (2) “the level of potential hazard”; and (3) “national security considerations.”¹¹¹ It establishes a process for conducting safety analyses, requiring the preparation of a “mission Safety Analysis Report” for all tiers of federal government launches,¹¹² and directs the Secretary of Transportation to, “if necessary,” require Safety Analysis Reports for commercial launches following a rulemaking process.¹¹³

The memorandum also directs the NASA Administrator to establish an Inter-agency Nuclear Safety Review Board, consisting of representatives of “the Departments of State, Defense, Energy, and Transportation, the Environmental Protection Agency, NASA, and, as appropriate, the Nuclear Regulatory Commission,” and spells out the Review Board’s oversight role for Tier II and Tier III missions.¹¹⁴ It requires that the Secretary of Transportation issue guidance on the process to obtain a license for the launch or reentry of spacecraft using a nuclear system.¹¹⁵ It also requires annual reports of launches involving radioactive sources in quantities above a certain threshold (“1,000 times to 100,000 times the A2 value listed in Table 2 of the International Atomic Energy Agency’s Specific Safety Requirements No. SSR-6 (Rev.1)”).¹¹⁶

Relatedly, under regulations that took effect on March 10, 2021, the FAA will evaluate launches and reentries of radionuclides “on a case-by-case basis, and issue an approval if the FAA finds that the launch or reentry is consistent with public health and safety, safety of property, and national security and foreign policy interests of the United States.”¹¹⁷ The regulations set out the following requirements related to the radionuclide that the launch applicant must satisfy: “(i) [i]dentify the type and quantity [of the radionuclide]; (ii) [i]nclude a reference list of all documentation addressing the safety of its intended use; and (iii) [d]escribe all approvals by the Nuclear Regulatory Commission for pre-flight ground operations.”¹¹⁸

§ 28:9 Related issues

a. Conservation

In addition to navigating regulatory efforts to mitigate the environmental issues

¹¹⁰*See id.*

¹¹¹*See id.* § 4. Tier 1 applies to “launches of spacecraft containing radioactive sources of total quantities up to and including 100,000 times the A2 value listed in Table 2 of the International Atomic Energy Agency’s Specific Safety Requirements No. SSR-6 (Rev. 1), Regulations for the Safe Transport of Radioactive Material, 2018 Edition (“Table 2’).” *Id.* Tier II applies to (i) launches “containing radioactive sources in excess of 100,000 times the A2 value” listed in Table 2, (ii) Tier I launches for which “the probability of an accident . . . resulting in an exposure in the range of 5 rem to 25 rem TED to any member of the public is equal to or greater than 1 in 1,000,000,” and (iii) launches containing systems utilizing low-enriched uranium “with a potential for criticality,” which the Memorandum defines as “the condition in which a nuclear fission chain reaction becomes self-sustaining.” *Id.* Finally, Tier III applies to “launches . . . containing a space nuclear system for which . . . the probability of an accident . . . resulting in an exposure in excess of 25 rem TED to any member of the public is equal to or greater than 1 in 1,000,000.” *Id.*

¹¹²*See id.* § 5(b).

¹¹³*See id.*

¹¹⁴*See id.* § 5(c).

¹¹⁵*See id.* § 5(d). As of the writing of this Chapter, the FAA is still in the process of developing this guidance.

¹¹⁶*See id.* § 6.

¹¹⁷14 C.F.R. § 450.45(e)(6).

¹¹⁸*Id.*

that may attend space mining, the space mining industry may be affected by calls to withdraw portions of the Solar System for the purposes of conservation.

One such call is to limit areas open to exploitation of space resources by a “one-eighth principle.”¹ Authors Martin Elvis and Tony Milligan describe this principle as follows:

While economic growth remains exponential, we should regard as ours[, humanity’s,] to use no more than one-eighth of the exploitable materials of the Solar System. . . . The remaining seven-eighths of the exploitable Solar System should be left as space wilderness.²

Rather than invoking concepts of protection of nature, the one-eighth principle seeks to withdraw areas from exploitation in order to avoid depletion of the Solar System’s resources.³ Thus, the wilderness designation would prevent human use of the withdrawn areas, but would not necessarily prohibit all forms of human impact.⁴

Though they do not go so far as to specify a percentage of the Solar System to be withdrawn from resource utilization, the Building Blocks do contemplate the designation of internationally-protected areas in space. Section 18 provides for “[t]he establishment and maintenance of an international database . . . for making publicly available . . . iii. [t]he list of designated and internationally endorsed outer space natural and cultural heritage sites; and iv. [t]he list of designated and internationally endorsed sites of scientific interest”⁵ An international body would be charged with listing such sites.⁶ The international framework envisioned under the Building Blocks would also require responsible States and international organizations to implement measures designed to avoid and mitigate harm to such sites.⁷

At the international level, legal efforts to protect portions of Earth’s oceans that are not subject to any national jurisdiction may foreshadow similar efforts in outer space. For example, over the past few years, UN delegates have been negotiating a new legally-binding instrument—likely an extension of UNCLOS—to protect marine life in international waters.⁸ Further negotiations have been postponed, as of the time of this writing, due to COVID-19,⁹ but the success of the negotiations and the terms of any resulting instrument will likely inform outer space conservation efforts going forward.

b. Historic site preservation

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¹See Martin Elvis and Tony Milligan, *How much of the Solar System should we leave as wilderness?*, ACTA ASTRONAUTICA 162, 574–80 (April 16, 2019).

²*Id.* at 575.

³*See id.*

⁴*See id.*

⁵Working Group, Final Building Blocks for the Development of an International Framework in Space Resource Activities ¶ 18.b (2019), <https://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht—en-ruimte-recht/space-resources/bb-thissrwwg—cover.pdf>.

⁶*See id.* ¶ 18.c.ii.

⁷*See id.* ¶ 10.

⁸Olive Heffernan, *U.N. Makes a Bold Move to Protect Marine Life on the High Seas*, SCIENTIFIC AMERICAN (Sept. 7, 2018), available at <https://www.scientificamerican.com/article/u-n-makes-a-bold-move-to-protect-marine-life-on-the-high-seas/>.

⁹*Intergovernmental Conference on an international legally binding instrument under the United Nations on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (General Assembly resolution 72/249)*, UNITED NATIONS, at <https://www.un.org/bbnj/> (last visited Dec. 3, 2020).

Significant interest similarly exists in protecting sites of historic or cultural value in space. Existing protections for historical and cultural sites located in international waters could serve as an analogous legal framework to this end. The UNCLOS and the 2001 Convention for the Protection of Underwater Cultural Heritage (the “Underwater Cultural Heritage Convention”) protects valuable archaeological and historical sites located in the “Area,” defined as “the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.”¹⁰ Specifically, the UNCLOS states that “[a]ll objects of an archaeological and historical nature found in the Area shall be preserved or disposed of for the benefit of mankind as a whole, particular regard being paid to the preferential rights of the State or country of origin, or the State of cultural origin, or the State of historical and archaeological origin.”¹¹ The Underwater Cultural Heritage Convention specifically protects “traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years,” including such traces located in the Area.¹²

At the domestic level, NASA has set out recommendations to protect certain United States Government assets located on the Moon based on their historical and scientific value.¹³

NASA Recommendations to Protect Moon-based U.S. Government Assets

NASA’s recommendations apply to the following assets:

- A. Apollo lunar surface landing and roving hardware
- B. Unmanned lunar surface landing sites (e.g., Surveyor sites)
- C. Impact sites (e.g., Ranger, S-IVB, LCROSS, lunar module [LM] ascent stage)
- D. [U.S. Government] experiments left on the lunar surface, tools, equipment, miscellaneous EVA hardware
- E. Specific indicators of U.S. human, human-robotic lunar presence, including footprints, rover tracks, etc., although not all anthropogenic indicators are protected as identified in the recommendations.¹⁴

The Artemis Accords also address protection of certain historically significant sites in outer space. They provide that “[t]he Signatories intend to preserve outer space heritage, which they consider to comprise historically significant human or robotic landing sites, artifacts, spacecraft, and other evidence of activity on celestial bodies in accordance with mutually developed standards and practices.”¹⁵ The signatories further express an intention to contribute to efforts to establish practices and rules at the international level related to the goal of preserving outer space heritage.¹⁶

Civic society also plays a role regarding historic site preservation. An organiza-

¹⁰United Nations Convention on the Law of the Sea, Nov. 16, 1994, 1833 U.N.T.S. 3, Art. 1.(1) (defining “Area”).

¹¹*Id.* Art. 149.

¹²Convention for the Protection of Underwater Cultural Heritage, Nov. 2, 2001, 2562 U.N.T.S. 3, Art. 1(a) (defining “[u]nderwater cultural heritage”); Arts. 11, 12 (describing protections for underwater cultural heritage in the Area).

¹³*Recommendations to Space-Faring Entities: How to Protect and Preserve the History and Scientific Value of U.S. Government Lunar Artifacts*, NASA (July 20, 2011) available at https://www.nasa.gov/sites/default/files/617743main_NASA-USG_LUNAR_HISTORIC_SITES_RevA-508.pdf.

¹⁴*Id.*

¹⁵The Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes § 9.1, available at <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf>.

¹⁶*Id.* § 9.2.

tion called “For All Moonkind” has worked with federal officials and appealed to the United Nations to declare that the Apollo 11 landing site and the Soviet Luna 2 spacecraft, which remains on the Moon’s surface 60 years after landing, deserve special recognition.¹⁷ These efforts, NASA’s recommendations, and the Artemis Accords may form the basis of United States law if Senator Gary Peters’ and Senator Ted Cruz’s bill—the One Small Step to Protect Human Heritage in Space Act—were to be enacted into law.¹⁸ The Act would require a commitment to abide by NASA’s requirements related to protecting U.S. Government lunar artifacts as a condition on a license to conduct lunar activities.¹⁹ It passed the Senate in July 2019.²⁰

The Outer Space Treaty presents a significant limitation on the ability of an individual nation to protect areas of concern to it. A nation would run afoul of the Outer Space Treaty’s prohibition on the national appropriation of outer space and its mandate of free access if it attempted to unilaterally protect a portion or all of outer space by excluding other states.²¹ Thus, while efforts like the United State’s to protect sites of interest located on celestial bodies through national legislation and other means are effective as applied to the missions of the enacting nation, some sort of international consensus would be necessary to enforce the protective requirements on an international basis.

IV. CONCLUSION

§ 28:10 In general

We are in the first phase of a second space age, building on the development of outer space exploration that led to the Outer Space Treaty in 1967. In 1967, there were 139 orbital launches, the high point in orbital space launches. The number dropped to a low of 51 in 2001 as space exploration lost its lustre. In 2020, however, there were 110 orbital launches, tied for the highest annual number since the low numbers in the early 2000s.¹ Humankind has again focused on outer space. But refocusing on outer space has brought new participants—private industry. In 2009, private capital invested less than \$500 million in the space industry. In 2019, that investment was just under \$6 billion, a record level of private investment.²

Renewed activity in outer space, and new sources of investment and technology, will magnify and accelerate the potential environmental effects of space activities. When the Outer Space Treaty was being negotiated, there were about 2,000 objects in orbit around the Earth. Today there are more than 25,000.³ And outer space, especially near earth orbit, will become more active, more crowded, and more regulated. Those venturing into space, or investing in those ventures, will need to

¹⁷See Nell Greenfieldboyce, *How Do You Preserve History On The Moon?*, NPR (Feb. 21, 2019), <https://www.npr.org/2019/02/21/696129505/how-do-you-preserve-history-on-the-moon>; see also Leonard David, *Space Act Calls for Protection of Apollo 11 Landing Site*, SPACE.COM (June 4, 2019), <https://www.space.com/congress-protect-apollo-11-landing-site.html>.

¹⁸David, *supra* note 17.

¹⁹See One Small Step to Protect Human Heritage in Space Act, S. 1694, 116th Cong. (2019).

²⁰See *id.*

²¹Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Arts. I, II.

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¹Space Launch Report, “2020 Launch Log,” <http://spacelaunchreport.com/>.

²Alex Knapp, *Space Industry Investments Hit Record High As Venture Capital Seeks The Next SpaceX*, FORBES (Jan. 16, 2020).

³European Space Agency, *Annual Space Environment Report*, at 13/88, Fig. 2.1(a) (Sept. 29, 2020).

keep abreast of the current applicable legal framework, as discussed in this Chapter, and also look for ways to improve the law to address concerns related to pollution, contamination, and debris while allowing exploration and development to move forward. In that way, the environmental law of outer space is no different than environmental law here on Earth.

APPENDIX 28A

Table of Acronyms

COSPAR:	Committee on Space Research
DOD:	Department of Defense
EA:	Environmental Assessment
EIS:	Environmental Impact Statement
FAA:	Federal Aviation Administration
FCC:	Federal Communications Commission
IADC:	Inter-Agency Space Debris Coordination Committee
NASA:	National Aeronautics and Space Administration
NEA:	Near-earth asteroid
NEPA:	National Environmental Policy Act
NOAA:	National Oceanic and Atmospheric Administration
NPS:	Nuclear power source
PPIRB:	NASA Planetary Protection Independent Review Board
UNCLOS:	United Nations Convention on the Law of the Sea
UN COPUOS:	United Nations Committee on the Peaceful Uses of Outer Space

Chapter 29

Oil and Gas*

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*Sections 29:1 through 29:2 by **Tara K. Righetti**; §§ 29:3 through 29:15 by **Stephanie M. Regenold**; §§ 29:16 through 29:26 by **Elena Romerdahl and Cam Jimmo**; §§ 29:27 through 29:53 by **Josh Cook, Uriah Price, and Brett Kvasnicka**; §§ 29:54 through 29:65 by **Tara K. Righetti**; §§ 29:66 through 29:68 by **Jamie Jost**; §§ 29:69 through 29:85 by **Heid Gorovitz Robertson**; §§ 29:86 through 29:90 by **Ben Norris**; §§ 29:91 through 29:101 by **Jeff Hunter**; §§ 29:102 through 29:111 by **Janet Howe and Polly Hampton**; §§ 29:112 through 29:119 by **Sarah Taylor and Michael Mills**; §§ 29:120 through 29:128 by **Andrea Driggs and Sam Burke**; §§ 29:129 through 29:137 by **Scott Janoe and Harrison Reback**; §§ 29:138 through 29:144 by **Ben Norris**; §§ 29:145 through 29:159 by **Lucille Flinchbaugh and Jeff Hunter**; §§ 29:160 through 29:165 by **David Treadaway and Andrea Driggs**; §§ 29:166 through 29:169 by **Merissa A. Moeller**; §§ 29:170 through 29:176 by **Harris Reback**; §§ 29:177 through 29:196 by **Joseph A. Schremmer**; §§ 29:197 through 29:202 by **Sara Rollet Gosman**; §§ 29:203 through 29:220 by **Christina Bonanni, Aimee Ford, Pamela Anderson, and Jane E. Rueger**. The editor would like to thank **Shahrazad Majdameli**, Visiting Attorney with the INECE Secretariat, for her in-depth review of this chapter.

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I. INTRODUCTION—REGULATION OF OIL AND GAS DEVELOPMENT

§ 29:1 General

Various statutes task state, federal, and tribal agencies and officials and local governments with protection of human health and the environment and with assuring the safe, efficient, and reasonable production and transportation of oil and gas.

The statutes that are the subject of most of this treatise relate to the regulation of oil and gas development on federal and private lands at every stage of the oil and gas development process—leasing, exploration, drilling, production, transportation, storage, refining, and marketing. Although some statutes, like the Oil Pollution Act and Natural Gas Act, relate specifically to oil and gas, many of the environmental statutes discussed herein were not specifically enacted for the purpose of regulating oil and gas. Rather, these statutes are unique in aspects of their application to oil and gas development. Even so, these statutes alone do not constitute the full extent of environmental governance of oil and gas development. Other sources of governance include obligations within contracts and encumbrances on land and common law rules related to trespass, waste, and nuisance.

The terms oil and gas, as referred to herein, refer to combustible hydrocarbons and, at times, other materials produced in association therewith. Oil and gas interests are classified as mineral interests and may be separately conveyed as an interest in real property. When produced, the oil or gas is severed from the realty and becomes personal property—which can be stored, transported, and marketed as either a gas or liquid and refined into a variety of consumer products. As the cases and laws described herein demonstrate, production of these valuable products also involves complex industrial processes with risks and environmental impacts. The land use and environmental statutes discussed herein at times provide regulators with tools to assess these risks and limit or prevent environmental harms and in others to promote and encourage new development in order to serve public demand for oil and gas and related products.

§ 29:2 History of Oil and Gas Development in the United States

Though oil seeps and hand dug wells had been discovered and produced small amounts of oil much earlier, most scholars cite Drake's discovery at Titusville Pennsylvania in 1859 as the first oil boom and the beginning of the American oil and gas industry.¹ The events that followed—land speculation, a feverish race to produce, over drilling and environmental damage, and the subsequent decline of production and economic collapse and bust of the nascent local industry—have been repeated numerous times in basins across the country. Though early wells were most often shallow, vertical wells, these trends have continued through discovery of new resource plays and following the application of new technologies.

The growth of the early oil and gas industry also precipitated legal changes throughout the late 19th and early 20th century: Courts were tasked with determining the law relative to the nature of property interests in minerals and the rights of parties within oil and gas reservoirs;² Congress, realizing that grants made pursuant to early land disposition laws had conveyed away tremendous mineral resources, passed new laws that reserved federal minerals and created split estates;³ To stem the land grab for placer-oil mining claims on public lands, President Taft withdrew lands in California and Wyoming, paving the way for the modern mineral leasing system;⁴ State legislatures, faced with high-risk technologies such as well shooting with nitroglycerine, passed laws limiting the quantities that could be brought into

[Section 29:2]

¹DANIEL YURGIN, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY & POWER* 30 (2008).

²*Wettengel v. Gormley*, 160 Pa. 559, 28 A. 934 (1894).

³*Stock-Raising Homestead Act*, ch. 9, 39 Stat. 862 (1916) (current version at 43 U.S.C. § 299 (2020)).

⁴*U.S. v. Midwest Oil Co.*, 236 U.S. 459, 466–67, 35 S. Ct. 309, 59 L. Ed. 673 (1915).

and stored within city limits.⁵ These laws, and numerous others like them, established the balance between state and federal regulatory authority over oil and gas development and defined property interests in oil and gas, establishing precedents which have since given rise to the contemporary system of conservation regulation and administrative management.

In the last two decades, new technologies and concerns related to environmental impacts and climate have reshaped environmental regulation of the oil and gas industry. The successful application of horizontal drilling technology to unconventional “tight” formations in 2005 initiated a new drilling “boom” in shale formations across the United States which again reshaped the American energy landscape.⁶ Although horizontal and directional drilling had been used successfully in both North Dakota and Texas in the 1980’s, developers in the Barnett Shale in Texas found that, when combined with hydraulic fracturing technology, it opened up entirely new sources of natural gas.⁷ The resultant boom caused a dramatic increase in United States natural gas production and also an increase in production of associated fluids and brines, called “produced water.” This, in turn, gave rise to new environmental issues related to chemicals within fracturing fluids and to the seismic impacts resulting from injection of produced water.⁸ Additionally, courts, legislatures, and local governments were confronted with new legal issues related to fracturing across property lines,⁹ subsurface trespass from transboundary migration of injected wastewater,¹⁰ damage to vertical wells resulting from nearby hydraulic fracturing operations,¹¹ and impacts of shale exploration on surrounding communities.¹² In recent years, growing concerns about the environment and climate change have animated new debates over the regulation of oil and gas and the use of public lands for mineral development, and have encouraged states and Congress to create incentives such as the 45Q tax credit for lower carbon production techniques such as Carbon Dioxide Enhanced Oil Recovery (CO₂-EOR). The application of emergent technologies and rapidly evolving understandings related to the different attributes of unconventional resources raised questions relative to preemption, the application of environmental law statutes, and the proper scope of oil and gas regulation anew.

II. FEDERAL ONSHORE OIL AND GAS DEVELOPMENT

§ 29:3 Generally

Federal regulation of onshore oil and gas development primarily involves leasing of federal minerals and development activities on federal surface lands, and 710

⁵People’s Gas Co. v. Tyner, 131 Ind. 277, 31 N.E. 59 (1892).

⁶Burt, Playing the “Wild Card” in the High-Stakes Game of Urban Drilling: Unconscionability in the Early Barnett Shale Gas Leases, 15 Tex. Wesleyan L. Rev. 1 (2008).

⁷Burt, Playing the “Wild Card” in the High-Stakes Game of Urban Drilling: Unconscionability in the Early Barnett Shale Gas Leases, 15 Tex. Wesleyan L. Rev. 1 (2008).

⁸Wiseman, Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation, 20 Fordham Envtl. L. Rev. 115, 126 (2009).

⁹See Briggs v. Southwestern Energy Production Company, 2018 PA Super 79, 184 A.3d 153 (2018), vacated and remanded, 224 A.3d 334 (Pa. 2020).

¹⁰Environmental Processing Systems, L.C. v. FPL Farming Ltd., 457 S.W.3d 414 (Tex. 2015).

¹¹Christiansen, *When the Horizontal and Vertical Collide: Frac Hits and Operator Quest for Détente in the Common Reservoir*, 61 RMMLF-INST 12-1 (2015).

¹²S.B. 19-181, 72d Gen. Assemb., Reg. Sess. (Colo. 2019).

million acres of the federal subsurface estate.¹ This section focuses on and provides a high level overview of the federal leasing process of oil and gas interests.² However, the life cycle of onshore oil and gas broadly encompasses development activities generally involving the following phases, which intersect with the other environmental and permitting requirements discussed in this chapter:³

- Exploration;⁴
- Seismic and planning operations to identify new oil and natural gas reservoirs (including obtaining site control and safety requirements);⁵
- Construction and drilling operations;
- Ongoing operations and midstream operations involving gathering, treatment, and transportation; and
- Final abandonment and reclamation of the well and location.

Although from a public policy and land management perspective there are differing views on whether to increase domestic energy supply, onshore production from federal lands continues to contribute to domestic production and revenues.⁶ The Annual Energy Outlook 2021 prepared by the U.S. Energy Information Administration reports that petroleum remains the most-consumed fuel in the United States, and that amid uncertainty, including the effects of Covid-19 and post-pandemic expectations, the United States continues to be an important global supplier of crude oil and natural gas. The 2021 Outlook predicts such production would continue to grow through 2030 with modest growth through 2051.⁷ Separately, based on an April 2021 short-term energy outlook, the U.S. Energy Information Administration projected that U.S. gasoline consumption in 2021 will average 8.6 million barrels per day, up from consumption in 2020 of 8.0 million barrels per day—but down from consumption in 2019 of 9.3 million barrels per day, based on changes and uncertainty surrounding the Covid-19 responses and related energy demand and supply patterns.⁸ The U.S. Department of the Interior estimates approximately 5.3 billion barrels of proved oil reserves located on federal onshore acreage and the Energy Information Administration estimates 69 trillion cubic feet of U.S. natural

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¹Brandon S. Tracy, Congressional Research Service, Revenues and Disbursements from Oil and Natural Gas Production on Federal Lands at 1-2 (Sept. 22, 2020) (excluding Native American lands and citing Bureau of Land Management, Public Land Statistics 2019, 2020, Table 1-3, pp. 7-8).

²This section does not cover oil and gas development on private lands, which leasing is generally governed under general contract law, and the other state and local regulations discussed in this chapter.

³*See generally*, 43 C.F.R. § 3000; BLM Manual MS-3120 (competitive leases), MS-3150 (onshore oil and gas geophysical exploration surface management requirements), MS-3160 (drainage protection manual), MS-3160-9 (communitization), MS-3485 (reports, royalties, and records); BLM Handbook H-3070-2 (economic evaluation of oil and gas properties), H-3100-1 (oil and gas leasing handbook), H-3101-1 (issuance of leases) (H-3109-1 (leasing under special acts) (H-3110-1 (noncompetitive leases), H-3150-1 (onshore oil and gas geophysical exploration surface management requirements), H-3160-5 (inspection and enforcement handbook), H-3160-9 (communitization), H-3203-1 (leasing terms and appendices).

⁴*See, e.g.*, 43 C.F.R. § 3150 (2021).

⁵*See, e.g.*, 43 C.F.R. § 3170 (2021).

⁶*See* Congressional Research Service, U.S. Crude Oil and Natural Gas Production in Federal and Nonfederal Areas (Oct. 23, 2018).

⁷U.S. Energy Information Administration, Annual Energy Outlook 2021 (Feb. 3, 2021) <https://www.eia.gov/outlooks/aeo/> (last visited June 16, 2021).

⁸U.S. Energy Information Administration, Short-Term Energy Outlook (April 6, 2021) https://www.eia.gov/outlooks/steo/report/us_oil.php (last visited June 16, 2021).

gas reserves.⁹

In FY2019, crude oil produced on federal lands hit a record value. Domestic production from oil and natural gas from onshore federal lands totaled \$4.202 billion payable to the federal government, which represented 86% of total federal revenues from energy and mineral leases on onshore federal lands, including revenues from royalties, bonuses, interest payments, Application for Permit to Drill fees, rents, and other payments.¹⁰ These revenues benefit both federal and state coffers: revenues and disbursements received from onshore oil and gas development revenues, from oil and gas leases under the Mineral Leasing Act, for example, are generally distributed 50% to the states, 40% to the Reclamation Fund, and 10% to the U.S. Treasury.¹¹ However, revenue disbursements are subject to varying statutory authorities and may fluctuate based on commodity prices, demand, and other factors, which issues are not covered in this section.¹²

§ 29:4 Background

Historically, federal management of oil and gas resources has followed in line with the nation's development, technological advances, and needs. For example, when the General Mining Law was passed in 1872, in the middle of the gold rush, oil and gas or hydrocarbon interests were not a focus of Congress. However, as the country industrialized and the U.S. Navy shifted to oil-powered ships, the focus on federal oil and gas reserves sharpened. Congress initially tried to classify petroleum reserves as locatable placer deposits (i.e., a form of mining claim) under the Oil Placer Act of 1897, but this resulted in an inefficient “race to capture,” resulting in physical and economic waste.¹ Accordingly, Congress stepped in and passed the Mineral Leasing Act (MLA) in 1920, which expressly withdrew oil and gas from the availability for mineral location under the 1872 General Mining Law. Not only did Congress act to regulate oil and gas leasing on public lands through passage of the MLA; President Warren Harding issued an executive order on February 27, 1923, setting aside what is now the National Petroleum Reserve in Alaska, as a “Naval Petroleum Reserve” for a minimum of six years for “classification, examination, and preparation of plans for development and until otherwise ordered by Congress or the President.”²

Today, there are generally three broad categories of minerals on federal lands:

- (1) locatable minerals (i.e., hardrock minerals) managed under the General Min-

⁹See Congressional Research Service, U.S. Crude Oil and Natural Gas Production in Federal and Nonfederal Areas at 2-5 (Oct. 23, 2018); U.S. Departments of the Interior, Agriculture, and Energy, Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development (Phase III) Questions and Answers, May 2008, available at https://www.blm.gov/sites/blm.gov/files/EPC_A%20Phase%20III%20Questions%20and%20Answers_VR_MF_Final4.pdf.

¹⁰Brandon S. Tracy, Congressional Research Service, Revenues and Disbursements from Oil and Natural Gas Production on Federal Lands at 1-2 (Sept. 22, 2020) (citing data from the Office of Natural Resources Revenue and excluding revenue from Native American lands).

¹¹Brandon S. Tracy, Congressional Research Service, Revenues and Disbursements from Oil and Natural Gas Production on Federal Lands at 10 (Sept. 22, 2020); *see also* U.S. Department of the Interior, Natural Resources Revenue Data, Disbursements by Month, <https://revenue.data.doi.gov/download/disbursements-by-month/> (last visited June 16, 2021).

¹²For more information on federal revenues and disbursements, *see* Brandon S. Tracy, Congressional Research Service, Revenues and Disbursements from Oil and Natural Gas Production on Federal Lands (Sept. 22, 2020).

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¹Act of Feb. 11, 1897, 29 Stat. 526.

²President Harding, Exec. Order No. 3797-A (Feb. 27, 1923) (on file with author).

ing Law of 1872,³ which covers certain valuable mineral deposits such as gold, silver, copper, and gemstones;

- (2) leasable minerals as defined by the Mineral Leasing Act of 1920,⁴ which include oil and gas, coal, phosphate, potassium, and sodium; and
- (3) salable minerals (or “common variety” minerals), such as sand and gravel, which are governed under the Materials Act of 1947.⁵

Federal onshore oil and gas interests are primarily governed under the MLA, and its subsequent amendments.

§ 29:5 BLM Management of Federal Oil and Gas Development

Under the Federal Land Policy and Management Act of 1976 (FLPMA) and the MLA, the Bureau of Land Management (BLM) is the main federal agency tasked with managing energy production and mineral development from federal subsurface lands, including mineral leasing of federal oil and gas mineral interests, and overseeing the exploration, development, and production operations for these resources on federal public lands.¹ As indicated, under the MLA, all federally owned oil, gas, coal, coalbed methane, and oil shale are considered “leasable” minerals.² Accordingly, BLM manages onshore oil and gas development under its leasing program and regulations.³ In addition to leasing, BLM’s regulations broadly cover operations associated with the exploration, permitting, development, and production of onshore oil and gas interests on federal leases.⁴

§ 29:6 Federal Land Policy and Management Act of 1976

As a high-level background, FLPMA sets up the statutory authority for the U.S. Department of the Interior and BLM to manage federal lands, including the federal mineral estate, which encompasses onshore oil and gas interests.¹ Specifically, FLPMA provides that the Secretary of the Interior “shall manage the public lands under principles of “multiple use” and “sustained yield” in accordance with land use plans developed by the agency or in accordance with any dedicated specific uses required by such law.² The term “multiple use” is broadly defined to mean:

the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of

³30 U.S.C. §§ 21 et seq.

⁴30 U.S.C. §§ 181 et seq.

⁵30 U.S.C. §§ 601 et seq.

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¹43 U.S.C. §§ 1701, et seq.

²30 U.S.C. §§ 31 et seq.; *see also* 30 U.S.C. §§ 351 et seq. (extending MLA to acquired lands, or lands obtained from a state or individual by exchange, purchase, or gift in contrast to public domain lands already covered by the MLA, which are lands originally ceded by the original states or foreign sovereigns and have not left federal ownership).

³43 U.S.C. § 1702; 43 C.F.R. § 3160 (2021).

⁴43 C.F.R. § 3100.0-3 (2021); 43 C.F.R. § 3160 (2021).

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¹43 U.S.C. §§ 1701 et seq.

²43 U.S.C. § 732(a); *see also* BLM, *The Federal Land Policy and Management Act of 1976, as amended*, September 2016, available at https://www.blm.gov/sites/blm.gov/files/documents/files/FLPMA_2016.pdf.

some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.³

The FLPMA also defines “sustained yield” to mean “the achievement and maintenance in perpetuity of a high-level annual or regular period output of the various renewable resources of public lands consistent with multiple use.”⁴

Generally, through the land use planning process required under FLPMA, BLM determines which lands under its management are available for oil and gas leasing including the particular stipulations or conditions of approval applicable to such leases. For example, conditions of approval include consultation with other Federal regulatory agencies under the Endangered Species Act, National Historic Preservation Act, and Clean Water Act, among other statutory requirements. Such leasing decisions are typically analyzed in preparation of a land management plan and environmental impact statement under the National Environmental Policy Act (NEPA), which address cumulative impacts of leasing, exploration, and development. Development of these documents involves collaboration with local, state, and tribal governments, the general public, industry, and other stakeholders on how Federal lands will be used and protected during broader landscape-level approvals and site-specific projects.⁵ However, leases may also be reviewed under a programmatic NEPA evaluation of larger project proposals, or a site-specific NEPA analysis for an individual well. As part of this review, land approved for leasing or development takes into consideration BLM’s multiple-use purposes both during and after the term of the lease and site-specific mitigation.

Notably, although there are millions of acres of federal public lands, not all public lands are open to mineral development and subject to its multiple use mandate, BLM may also withdraw lands from mineral entry and prohibit new mining and development activities. For example, lands may be withdrawn from mineral entry by the President, executive branch agencies, or Congress subject to valid and existing rights, or Presidential monument designations under the Antiquities Act.⁶ To guide oil and gas leasing decisions and to determine which lands are open to oil and gas leasing, BLM field offices prepare comprehensive Resource Management Plans (RMPs).

§ 29:7 Mineral Leasing Act of 1920, and Amendments

Up until 1988, federal onshore oil and gas leasing was governed under a dual leasing system for future oil and gas exploration and development under the MLA. Specifically, the MLA provided that: (1) competitive bidding was required within known geological structures¹ and (2) noncompetitive leases could be issued for areas

³43 U.S.C. § 1702(c).

⁴43 U.S.C. § 1702(h).

⁵See 43 C.F.R. § 1610 (2021) (BLM’s Resource Management Planning regulations).

⁶16 U.S.C. §§ 431 to 433.

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¹“Known geological structures” generally refer to lands within a structure where oil and gas production has been obtained. Originally, the regulations provided that the Director of the Geological Survey would determine the boundaries of known geologic structures of producing oil and gas fields,

not within known geological structures to the first qualified applicants.² Because noncompetitive leases had favorable lessee terms, many leases were acquired and lands were held only for speculation without completion of any drilling operations during the primary term. This resulted in a refiling competition at the end of the initial lease term to hold the same lands again. In order to address this result under the existing system, the Department of the Interior established a simultaneous lottery system, in which all interested persons could file an application for a new lease. The Department would draw the winning applicant from the lottery.³

§ 29:8 Mineral Leasing Act of 1920, and Amendments—The Federal Onshore Oil and Gas Leasing Reform Act of 1987

The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA) amended the MLA by instituting a new bidding and leasing system for oil and gas. Specifically, FOOGLRA abolished the simultaneous lottery and dual leasing procedure for known and unknown geological areas, and shifted the leasing program to a competitive bidding system.¹ Under FOOGLRA, the Secretary of the Interior may lease all lands “which are known or believe to contain oil or gas deposits,” with the exception of certain wilderness study lands.² Such authority, however, does not repeal or change other petroleum development bans (e.g., wilderness or parks),³ revoke preexisting withdrawals, or necessarily mandate that the Secretary lease any specific areas.

Except for lands within a special tar sand area,⁴ under FOOGLRA, federal lands offered for federal oil and gas leasing are leased to the highest responsible qualified bidder in a competitive bidding process at oral auction, held quarterly or according to another interval determined by the Secretary of the Interior, in units up to 2,560 acres (or 5,760 acres in Alaska).⁵ A 2014 amendment further authorizes internet-based onshore oil and gas lease sales.⁶ If lands are not leased through the competitive bidding process (e.g., no bids are received, tract of land did not receive an adequate bid), such lands are then available for noncompetitive leasing for a period of two years to the first qualified applicant.⁷

Land offered for a lease sale generally come from three sources: (1) lands identified by informal expressions of interest from the public; (2) lands included in offers for noncompetitive leases; or (3) lands identified by BLM. To be a qualified bidder,

but over time, this responsibility has been transferred to the Minerals Management Service, and now to the BLM. *See* The Story of BLM, BLM Consolidates Its Gains: The 1980s, *available at* https://www.nps.gov/parkhistory/online_books/blm/history/chap5.htm; Establishment of Organizations, 47 Fed. Reg. 4751 (Feb. 2, 1982); Transfer of Responsibility and Authority, 48 Fed. Reg. 8982 (March 2, 1983).

²30 U.S.C. §§ 226(b)(1), 226(c) (amended 1987).

³43 C.F.R. Subpart 3112 (1981); *Thor-Westcliffe Development, Inc. v. Udall*, 314 F.2d 257, 258 (D.C. Cir. 1963) (upholding agency promulgation of a regulation creating a simultaneous filing and public drawing procedure).

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¹30 U.S.C. §§ 226 et seq.

²30 U.S.C. § 226; 30 U.S.C. § 226-3(a).

³43 C.F.R. § 3100.0-3 (2021).

⁴A “tar sand area” means any consolidated or unconsolidated rock (other than coal, oil shale, or gilsonite) that either: (1) contains a hydrocarbonaceous material with a gas-free viscosity, at original reservoir temperature, greater than 10,000 centipoise, or (2) contains a hydrocarbonaceous material and is produced by mining or quarrying, 30 U.S.C. § 209.

⁵30 U.S.C. § 226(b)(1)(A).

⁶Pub. L. No. 113-291, div. B, title XXX, § 3022(a), Dec. 19, 2014, 128 Stat. 3762 (codified at 30 U.S.C. § 226(b)(1)(C)).

⁷30 U.S.C. § 226(c).

BLM regulations require that a party be a citizen of the United States (and cannot be a minor) and that the bidder must comply with: federal acreage limitations; the anti-fraud provisions of FOOGLRA; reclamation requirements; and diligent development of the leases issued to it.⁸

The Secretary is required to accept the highest bid from a responsible qualified bidder, “which is equal to or greater than the national minimum acceptable bid, without evaluation of the value of the lands proposed for lease” and must reject any bids for less.⁹ Lease of special tar sand areas are similarly leased to the highest responsible qualified bidder by competitive bidding, but for units of up to 5,760 acres, and the Secretary is authorized to lease additional lands to support any operations necessary for the recovery of tar sands.¹⁰ Following enactment of FOOGLRA, by statute the national minimum acceptable bid was \$2 per acre for a period of two years from December 22, 1987 and has remained at this rate since it was set.¹¹ Under the same provision, the Secretary may increase this minimum upon a finding that such action is necessary “(i) to enhance financial returns to the United States; and (ii) to promote more efficient management of oil and gas resources on Federal lands.” Such action is exempt from NEPA. FOOGLRA requires the Secretary to notify the Committee on Natural Resources of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate 90 days prior to making any change in the national minimum accepted bid.¹²

As a lease condition, there is a statutory minimum royalty of 12.5% on the production of oil and gas removed or sold from the lease. While the Secretary has authority to increase the royalty, the Secretary has not done so.¹³ Additionally, leases are subject to an annual rental of not less than \$1.50 per acre per year for the first five years of the lease term, and not less than \$2.00 per acre for each year thereafter.¹⁴ Both competitive and noncompetitive leases are issued for a primary term (i.e. or initial term) of 10 years, provided that each lease shall continue so long as oil and gas is produced in paying quantities (i.e. a habendum clause).¹⁵ If the Secretary suspends lease operations, a lease may be extended for the duration of the suspension.¹⁶ Similar to private leases, the federal leases have codified versions of standard oil and gas savings clauses to extend the duration of the lease in certain circumstances, and the Secretary may extend the lease if production continues.¹⁷ Federal leases may also be included in a pooling, unitization,¹⁸ or communitization

⁸43 C.F.R. § 3102 (2021).

⁹43 C.F.R. § 3102 (2021).

¹⁰30 U.S.C. § 226(b)(2)(A).

¹¹30 U.S.C. § 226(b)(1)(B).

¹²30 U.S.C. § 226(b)(1)(B).

¹³43 C.F.R. § 3103.3-1(a)(1) (2021).

¹⁴30 U.S.C. § 226(d). In comparison to private oil and gas lease transactions in which failure to timely pay rentals or other payments can result in automatic termination of the lease, federal oil and gas leases provide lessees a reinstatement route. *See* 30 U.S.C. § 188(c) and (d); 43 U.S.C. § 3108.2-1(b).

¹⁵30 U.S.C. § 226(e); *see* 43 C.F.R. § 3160.0-5 (2021) (defining “production in paying quantities” to mean “production from a lease of oil and/or gas of sufficient value to exceed direct operating costs and the cost of lease rentals or minimum royalties”).

¹⁶30 U.S.C. § 209.

¹⁷30 U.S.C. § 226(e); 30 U.S.C. § 226(i) (if a well capable of producing has been completed or production has ceased, the lessee has 60 days to achieve production, or to commence reworking or drilling operations and if such work is completed, the statute provides that the lease shall not terminate).

¹⁸43 C.F.R. § 3161.2 (2021). Unitization generally provides for exploration and development of an

agreement,¹⁹ subject to approval by the Secretary.²⁰

While FOOGLRA set up a new system for future federal oil and gas leases, it did change the rules applicable to preexisting leases, rights, or law. As a result, any pre-1987 leases are governed under pre-FOOGLRA law as long as the earlier leases continue into their secondary terms from production. However, these provisions will likely become less applicable with the passage of time.

§ 29:9 Mineral Leasing Act of 1920, and Amendments—Regulation of Onshore Oil and Gas Operations

Generally, a federal lease provides the initial authorization to develop oil and gas on federal public lands. However, a lessee also needs to comply with other BLM requirements for exploration or drilling operations. This includes (without limitation) submission of drilling applications, notification requirements (e.g., Sundry Notices), records, reporting, monitoring, measurements and sampling, operator requirements, and permitting either under BLM requirements, or requirements of other agencies. On the flip side, a federal lessee is similarly subject to additional requirements before well abandonment and completion of reclamation.¹ As one example, BLM regulations establish procedures for conducting oil and gas geophysical exploration operations.² Likewise, before drilling operations can occur, an operator must obtain an approved application for a permit to drill (APD). An APD must contain a surface plan of operations, and is subject to NEPA review, although APDs for certain exploratory wells may qualify for an EIS categorical exclusion.³ Requirements related to drilling plans or surface plan of operations required for drilling, and reclamation and bonding requirements, can also depend on the ownership and management of the surface estate, and as a result, become more complicated.

While BLM is the primary mineral management agency over oil and gas leasing, under FOOGLRA there are additional requirements for surface operations, including providing authority to other land management agencies to control surface operations on their lands. Accordingly, where the surface lands over the federal mineral estate are not federally owned or under separate federal management, BLM works with the private surface owner, or other federal agencies to manage the federal mineral estate.⁴ If BLM manages the surface estate, operators are subject to BLM regulations governing surface operations. In comparison—and by way of example—

entire geologic structure or area by a single operator so that drilling and production may proceed in the most efficient and economic manner. BLM, Unitization, Communitization, Spacing, and Drainage, <https://www.blm.gov/programs/energy-and-production/oil-and-gas/operations-and-production/unitization-communitization> (last visited June 16, 2021).

¹⁹Communitization provides for the pooling of federal and/or Indian lands, with other lands, when separate tracts under such federal and Indian lands cannot be independently developed and operated in conformity with an established well-spacing program. *See, e.g.*, BLM, Unitization, Communitization, Spacing and Drainage, <https://www.blm.gov/programs/energy-and-production/oil-and-gas/operations-and-production/unitization-communitization> (last visited June 16, 2021); BLM Handbook, H-3160-9.

²⁰30 U.S.C. § 226(m); 43 C.F.R. § 3161.2 (2021).

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¹43 C.F.R. § 3160 (2021); *see also* BLM, The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (2007) available at <https://www.blm.gov/sites/blm.gov/files/uploads/The%20Gold%20Book%20-%204th%20Ed%20-%20Revised%202007.pdf>. In addition to BLM's regulation generally at 43 C.F.R. § 3160, BLM has also issued Onshore Oil and Gas Orders that supplement its regulations. BLM, Regulations, Onshore Orders and Notices to Lessees, <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/onshore-orders> (last visited June 16, 2021), incorporated into BLM's regulations, 43 C.F.R. § 3164 (2021).

²*See* 43 C.F.R. § 3150 (2021).

³30 U.S.C. § 226(f); 43 C.F.R. § 3162.3-1(d) (2021).

⁴*See, e.g.*, *Mountain States Legal Foundation v. Hodel*, 668 F. Supp. 1466, 1470, 18 Env'tl. L. Rep.

surface disturbing activities conducted pursuant to a federal oil and gas lease located on National Forest Service lands are subject to Forest Service regulations and could entail additional restrictions or requirements consistent with the relevant forest plan.⁵

As a brief note, while BLM issued regulations to regulate hydraulic fracturing on federal and Indian land in 2015 under the Obama Administration, the BLM rescinded those regulations in their entirety under the Trump Administration in 2017. The decision was upheld by a district court and a Wyoming District Court enjoined BLM's 2015 regulations before they went into effect.⁶

Similarly, BLM's November 18, 2016 final rule concerning, *inter alia*, the waste of Federal and Indian gas through venting, flaring, and leaks (2016 Waste Prevention Rule) that became effective January 17, 2017 was also mostly vacated as discussed below.⁷ The intent of the 2016 Waste Prevention Rule was to replace BLM's prior regulation, which generally prohibited venting and flaring of gas produced by oil wells, except when the gas is "unavoidably lost" and when the operator has sought and received BLM's approval to vent or flare.⁸ The 2016 Waste Prevention Rule was never fully implemented as a result of administrative and judicial interventions.⁹ In particular, industry groups and certain states filed petitions for judicial review in the U.S. District Court for the District of Wyoming, and the court stayed implementation of the rule pending finalization of BLM's voluntary revisions of the rule.¹⁰ BLM issued a final rule revising the 2016 Waste Prevention Rule on September 28, 2018 (2018 Revision Rule).¹¹ However, a coalition of environmental groups and states then filed a lawsuit challenging the 2018 Waste Prevention Rule and, on July 15, 2020, U.S. District Court for the Northern District of California ordered that the 2018 Revision Rule be vacated.¹² Thereafter, the U.S. District Court for the District of Wyoming lifted the stay challenging the 2016 Waste Prevention Rule, and ultimately found that BLM exceeded its statutory authority and acted arbitrarily in promulgating the 2016 Waste Prevention Rule.¹³ As a result, the district court decision vacated the 2016 Waste Prevention Rule, except revisions to: (1) 43 C.F.R. subpart 3178, pertaining to royalty-free use of production; and (2) the amendment of 43 C.F.R. § 3103.3-1, pertaining to royalty rates on competitive leases, which effectively reinstated the Notice to Lessees and Operators of Onshore

20427 (D. Wyo. 1987).

⁵43 C.F.R. § 3809.203 (2021); 36 C.F.R. § 228 (2021).

⁶Oil and Gas; Hydraulic Fracturing and Indian Lands, 80 Fed. Reg. 16128, 16128 (Mar. 26, 2015); Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands; Rescission of a 2015 Rule, 82 Fed. Reg. 61924 (Dec. 29, 2017); *State v. Bureau of Land Management*, 2020 WL 1492708 (N.D. Cal. 2020), *State of Wyoming, et al. v. U.S. Dept. of Interior*, No. 2:15-cv-00043-SWS (D. Wyo. Sep. 30, 2015); *see also* *State of Wyoming v. United States Department of the Interior*, 2016 WL 3509415 (D. Wyo. 2016), judgment vacated, appeal dismissed by, 871 F.3d 1133, 85 Env't. Rep. Cas. (BNA) 1300 (10th Cir. 2017).

⁷81 Fed. Reg. 83008 (Nov. 18, 2016); 82 Fed. Reg. 58050 (Dec. 8, 2017); *Wyoming v. United States Department of the Interior*, 493 F. Supp. 3d 1046, 1053 (D. Wyo. 2020) (providing history of rule).

⁸4 Fed. Reg. 76600 (Dec. 27, 1979); Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases (NTL-4A), https://www.blm.gov/sites/blm.gov/files/energy_noticetolessee4a.pdf.

⁹*See, e.g.*, 82 Fed. Reg. 27430 (June 15, 2017).

¹⁰*Wyoming v. Dep't of Int.*, Case No. 2:16-cv-00285-SWS (D. Wyo.).

¹¹83 Fed. Reg. 49184 (Sept. 28, 2018).

¹²*California v. Bernhardt*, 472 F. Supp. 3d 573 (N.D. Cal. 2020).

¹³*Wyoming v. United States Department of the Interior*, 493 F. Supp. 3d 1046, 1056 (D. Wyo. 2020).

Federal and Indian Oil and Gas Leases (NTL-4A).¹⁴ It remains to be seen whether additional regulations will be promulgated under the Biden Administration under either situation.

As indicated above, given the numerous regulations and complexities associated with onshore oil and gas development operations, this section does not comprehensively cover oil and gas exploration, drilling, development, and production operations. Nevertheless, it is intended to provide a high-level overview and introduction to the field.

§ 29:10 FOGLRA Anti-Fraud Provisions

In addition to setting up a new leasing procedure, FOGLRA additionally enacted anti-fraud provisions to address fraud allegedly occurring under the prior provisions of the MLA.¹ Accordingly, it is now criminal to: (1) “organize or participate in any scheme, arrangement, plan, or agreement to circumvent or defeat the provisions of [the MLA] or its implementing regulations”; or (2) “to seek to obtain or to obtain any money or property by means of false statements of material facts or by failing to state material facts concerning”: (a) the value of any lease or portion thereof issued or to be issued; (b) the availability of any land for leasing; (c) the ability of any person to obtain leases; or (d) violation of any regulation implementing FOGLRA.²

A person that knowingly violates these provisions is subject to up to a \$500,000 fine and five years’ imprisonment, or both.³ The U.S. Attorney General may also institute a civil action “for a temporary restraining order, injunction, civil penalty of not more than \$100,000 for each violation, or other appropriate remedy, including but not limited to, a prohibition from participation in exploration, leasing, or development of any Federal mineral” for any violation under FOGLRA.⁴ In both a criminal and civil action, the provisions broadly apply not only to the corporation or other entity, but also to any officer, employee, or agent of the corporation or entity who knowingly authorized, ordered, or carried out the violation—unless it is shown the officer, employee, or agent, was acting without the knowledge or consent of the corporation or entity.⁵ There are similar provisions for a state to commence a civil action conducting activity within the state that violates this section after notice to the U.S. Attorney General.⁶

§ 29:11 BLM Enforcement Provisions

Separate from the anti-fraud provisions, BLM has further authority to bring enforcement actions and impose penalties against oil and gas lessees for any

¹⁴Wyoming v. United States Department of the Interior, 493 F. Supp. 3d 1046, 1087, 1056 (D. Wyo. 2020).

[Section 29:10]

¹See Thomas L. Sansonetti and William R. Murray, *A Primer on the Federal Onshore Oil and Gas Leasing Reform Act of 1987 and Its Regulations*, Land & Water Law Review: Vol. 25: Iss. 2 (1990), pp. 375-416 available at https://scholarship.law.uwyo.edu/land_water/vol25/iss2/6; Patricia J. Beneke, *The Federal Onshore Oil and Gas Leasing Reform Act of 1987: A Legislative History and Analysis*, Journal of Natural Resources & Environmental Law: Vol. 4: Iss. 1, Article 3 (1988) available at <https://uknowledge.uky.edu/jnrel/vol4/iss1/3>.

²30 U.S.C. § 195(a).

³30 U.S.C. § 195(b).

⁴30 U.S.C. § 195(c).

⁵30 U.S.C. § 195(d).

⁶See 30 U.S.C. § 195(f).

noncompliance with BLM's regulations.¹ Under these provisions, major violations carry a potential penalty of \$1,000 per violation, per inspection, whereas minor violations could result in a penalty of \$250 per violation, per inspection.² Similar to other environmental protection statutes, in circumstances where operations could result in immediate, substantial, and adverse impacts on public health, and safety, the environment, production accountability, or royalty income, the agency may shut down operations.³ Noncompliance can also result in BLM actions to remedy the noncompliance at the operator's cost, and in some cases, cancellation and termination of the lease.

§ 29:12 Leasing Under Special Acts—National Petroleum Reserve in Alaska

The Naval Petroleum Reserves Production Act of 1976, as amended (NPRPA),¹ authorizes oil and gas leasing in the National Petroleum Reserve in Alaska (NPR-A). NPR-A encompasses approximately 23 million area acres on Alaska's North Slope, and significantly contributes to BLM's 25 million areas of federally managed mineral estate. As of 2019, NPR-A oil and gas lease revenue amounted to more than \$56 million.² The area was first designated by President Warren G. Harding as an area for emergency oil supply for the U.S. Navy under a 1923 executive order. Management of the reserve was then transferred, under the NPRPA, from the Secretary of the Navy to the Secretary of the Interior and BLM. Under the NPRPA, as amended, BLM is directed to carry out "an expeditious program of competitive leasing of oil and gas in the Reserve."³ Nevertheless, oil and gas leasing in the NPR-A should also be conducted in order to protect the surface values of the River, the Teshekpuk Lake areas, and other areas designated by the Secretary of the Interior as containing any significant subsistence, recreational, fish and wildlife, or historical or scenic value.⁴

Instead of being governed by the MLA and related implementing regulations, regulations for NPR-A oil and gas leasing, exploration and operations are separately set forth under 43 C.F.R. Parts 3130, 3150, and 3160. Generally, the NPRPA establishes a competitive leasing system with a bidding system based on bidding systems in the Outer Continental Shelf Lands Act Amendments of 1978.⁵ In comparison to MLA leases, leases may be up to 60,000 acres, and leases are issued for an initial period not to exceed 10 years, but may be extended for "so long thereafter as oil or gas is produced from the lease in paying quantities, oil or gas is capable of being produced in paying quantities, or drilling or reworking operations, as approved by the Secretary, are conducted on the leased land."⁶ A lease may also

[Section 29:11]

¹43 C.F.R. § 3163 (2021).

²43 C.F.R. § 3163.1 (2021).

³43 C.F.R. § 3163.1(a)(3) (2021).

[Section 29:12]

¹42 U.S.C. §§ 6501 et seq.

²BLM, National Petroleum Reserve in Alaska, <https://www.blm.gov/programs/energy-and-mineral/oil-and-gas/about/alaska/NPR-A>.

³32 U.S.C. § 6506a.

⁴42 U.S.C. § 6504; President Harding, Exec. Order No. 3797-A (Feb. 27, 1923) (on file with author).

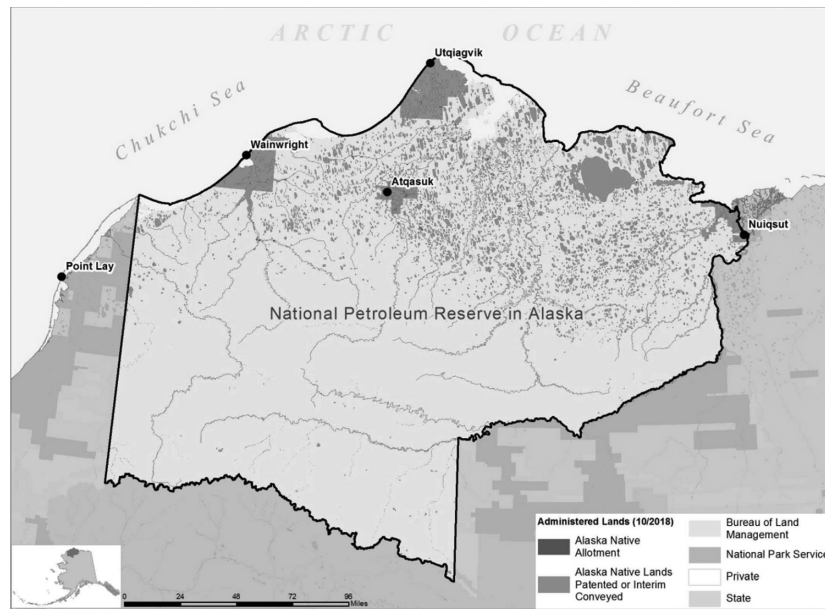
⁵42 U.S.C. § 6506a.

⁶42 U.S.C. § 6506a(i)(1).

be renewed for another 10-year period if certain terms and conditions are met.⁷ Similar to MLA leases, NPRPA leases may also be included in units, pools, or other joint development agreements, if the Secretary determines the action is in the public interest.⁸

Drilling within the NPR-A has been controversial, to say the least. In more recent times, the Trump Administration took action to expand leasing and development in the NPR-A; on June 26, 2020, BLM released a plan to allow leasing on approximately 18.7 million more acres of land (approximately 82% of the NPR-A).⁹ However, the Biden Administration temporarily suspended all onshore oil and gas leasing, including in the NPR-A for 60 days. It remains to be seen what, if any, further action the Biden Administration will take.¹⁰

Map of NPR-A¹¹



§ 29:13 Right of Way Leasing Act of 1930

A series of decisions rendered at the turn of the 20th century questioned whether or not a federal oil and gas lease could cover lands within a federal right-of-way, particularly rights-of-way previously granted to the railroads.¹ Congress, in re-

⁷42 U.S.C. § 6506a(i)(2), (3).

⁸42 U.S.C. § 6506a(j).

⁹National Petroleum Reserve in Alaska, Integrated Activity Plan Record of Decision (Dec. 2020).

¹⁰Executive Order No. 3395, Temporary Suspension of Delegated Authority, available at <https://www.doi.gov/sites/doi.gov/files/elips/documents/so-3395-signed.pdf>.

¹¹BLM, <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/about/alaska/NPR-A>.

[Section 29:13]

¹See, e.g., *Northern Pac. Ry. Co. v. Townsend*, 190 U.S. 267, 271-72, 23 S. Ct. 671, 47 L. Ed. 1044 (1903); *Rio Grande Western Ry. Co. v. Stringham*, 239 U.S. 44, 47, 36 S. Ct. 5, 60 L. Ed. 136 (1915); *Windsor Reservoir & Canal Co. v. Miller*, 51 L.D. 27, 34 (1925); compare *Great Northern R. Co. v. U.S.*, 315 U.S. 262, 279, 62 S. Ct. 529, 86 L. Ed. 836 (1942); *Solicitor Opinion*, 67 Pub. Lands Dec. 225 (1960) (clarifying the property interest under certain right-of-way statutes is an easement rather than a limited fee interest).

sponse, passed the Act of May 21, 1930 (the “Right-of-Way Leasing Act”).² Under the Right-of-Way Leasing Act, the Secretary of the Interior is authorized to “lease deposits of oil and gas in or under lands embraced in railroad or other rights of way acquired under any law of the United States, whether the same be a base fee or mere easement; Provided, That, . . . no lease shall be executed hereunder except to the . . . [owner] by whom such right of way was acquired, or to the lawful successor, assignee, or transferee of such [owner].”³ The original regulations mimicked the statutory language until the Department of the Interior amended the provisions in 1983, presumably to align with caselaw, to state:

This authority shall be exercised *only with respect to railroad rights-of-way* and easements issued pursuant either to the Act of March 3, 1875 (43 U.S.C. 934 *et seq.*), or pursuant to earlier railroad right-of-way statutes, and with respect to rights-of-way and easements issued pursuant to the Act of March 3, 1891 (43 U.S.C. 946 *et seq.*). The oil and gas underlying any other right-of-way or easement is included within any oil and gas lease issued pursuant to the Act which covers the lands within the right-of-way, subject to the limitations on use of the surface, if any, set out in the statute under which, or permit by which, the right-of-way or easement was issued, and such oil and gas shall not be leased under the Act of May 21, 1930.⁴

Although the amended regulation may conflict with the statutory provisions authorizing the right to lease “other rights of way acquired under any law of the United States,” this issue has largely been unchallenged in recent years. In any event, the Right-of-Way Leasing Act and its implementing regulations set forth a process for an owner of the right-of-way to apply for an oil and gas lease or assign its rights to apply for the lease to a third party, by submitting an application that details “the facts as to the ownership of the right-of-way, and of the transfer if the application is filed by a transferee; the development of oil or gas in adjacent or nearby lands, the location and depth of the wells, the production and the probability of drainage of the deposits in the right-of-way.”⁵ After BLM review and determination that a lease of the right-of-way is consistent with the public interest, notice is provided to the owner or lessee of the oil and gas in the adjoining lands, and such owner or lessee is provided an opportunity to submit a bid for a lease during the same timeframe as a third party lease applicant.⁶ Leases are awarded to the bidder whose offer is determined to be to the best advantage of the United States, considering the amount of royalty to be received and the better development under the respective means of production and operation. The lease is issued for a term no longer than 20 years.⁷

§ 29:14 Leasing of National Park System Units

Certain units with the National Park System shown on maps identified in 36 C.F.R. § 3109.2 may be leased for oil and gas development subject to BLM’s regulations under 43 C.F.R. Group 3100 and Parts 3160 and 3180.¹ Any lease or permit requires consent of the Regional Director of the National Park Service before issu-

²30 U.S.C. §§ 301 to 306.

³30 U.S.C. § 301.

⁴43 C.F.R. § 3109.1-1 (2021) (emphasis added).

⁵43 C.F.R. § 3109.1-2 (2021).

⁶43 C.F.R. §§ 3109.1-2, 3109.1-4 (2021).

⁷43 C.F.R. §§ 3109.1-4, 3109.1-5 (2021).

[Section 29:14]

¹43 C.F.R. § 3109.2; *see also* U.S. Department of the Interior Department Manual, 516 DM 12.3, available at: https://www.doi.gov/sites/doi.gov/files/elips/documents/chapte1_16.doc.

ance or renewal.² Additionally, such consent shall only be granted “upon a determination by the Regional Director that the activity permitted under the lease or permit will not have significant adverse effect upon the resources or administration of the unit pursuant to the authorizing legislation of the unit.”³ The Regional Director can also include conditions “to protect the surface and significant resources of the unit, to preserve their use for public recreation, and to the condition that site specific approval of any activity on the lease will only be given upon concurrence by the Regional Director.”⁴ Despite this authorization, the National Park Service 2006 Management Policies, which are still in effect, provide that all National Park Service units are closed to new federal mineral leasing, with the exceptions of the Glen Canyon, Lake Mead, and Whiskeytown-Shasta-Trinity national recreation areas.⁵

§ 29:15 Mining and Minerals Policy of 1970

As an additional overlay to onshore oil and gas development, Congress passed the Mining and Minerals Policy Act of 1970. This statute declares that it is the continuing policy of the Federal Government, and in the national interest, “to foster and encourage private enterprise in

- (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries,
- (2) the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs,
- (3) mining, mineral, and metallurgical research, including the use and recycling of scrap to promote the wise and efficient use of our natural and reclaimable mineral resources, and
- (4) the study and development of methods for the disposal, control, and reclamation of mineral waste products, and the reclamation of mined land, so as to lessen any adverse impact of mineral extraction and processing upon the physical environment that may result from mining or mineral activities.”¹

The term “minerals” is broadly defined to include all minerals and mineral fuels including oil, gas, coal, oil shale, and uranium.² While the statute does not specify certain procedures outside of the policy goals above, the statute expressly provides that it “shall be the responsibility of the Secretary of the Interior to carry out this policy” when carrying out other related programs.³

Notably, the Mining and Minerals Policy Act was passed in response to the 1970s energy crisis, but this policy continues to add to the tension behind domestic oil and gas exploration, development, and production.

III. FEDERAL OUTER CONTINENTAL SHELF DEVELOPMENT

§ 29:16 The Outer Continental Shelf Lands Act

²43 C.F.R. § 3109.2(b) (2021).

³43 C.F.R. § 3109.2(b) (2021).

⁴43 C.F.R. § 3109.2(b) (2021).

⁵National Park Service, Management Policies 2006, at 118 (Section 8.7.2) available at https://www.nps.gov/policy/MP_2006.pdf.

[Section 29:15]

¹30 U.S.C. § 21a.

²30 U.S.C. § 21a.

³30 U.S.C. § 21a.

Congress enacted the Outer Continental Shelf Lands Act (OCSLA)¹ in 1953 to authorize the Secretary of the Interior to administer the exploration, development, and production of minerals of the outer Continental Shelf (OCS). Over time, the Act has evolved far from its original “carte blanche delegation of authority”² to the Secretary of the Interior into a comprehensive, step-by-step process for issuing minerals leases in the OCS. Despite this overhaul, the basic purpose of OCSLA remains the same, and the statute achieves this purpose in two ways: (1) by establishing the jurisdiction of the United States over the OCS; and (2) by providing the framework by which the federal government opens up the OCS for resource development. This chapter provides a historical background of OCSLA, describes the current implementation of its statutory directives, and highlights some recent developments in caselaw and executive action under OCSLA.

§ 29:17 The History and Evolution of OCSLA

On September 28, 1945, in an effort to advance conservative and prudent offshore resource development, President Harry Truman issued a proclamation declaring that “the natural resources of the subsoil and sea bed [sic] of the continental shelf beneath the high seas but contiguous to the coasts of the United States” were subject to federal jurisdiction and control.¹ Jurisdictional disputes between coastal states and the federal government quickly followed, which culminated in a series of United States Supreme Court decisions holding that the federal government has exclusive jurisdiction over the entire continental shelf because it has “paramount” rights in ocean waters and submerged lands below the low water mark.² In effect, the Supreme Court ruled that coastal states had no title to submerged lands off of their respective coasts.³

In response to the U.S. Supreme Court decisions and to resolve the issue of federal-state control, Congress passed the Submerged Lands Act (SLA)⁴ and OCSLA in 1953.⁵ SLA gave coastal states exclusive jurisdiction over the submerged lands within three nautical miles offshore.⁶ OCSLA affirmed the United States’ exclusive jurisdiction lying seaward of state coastal waters and also established general directives for the Secretary in managing and leasing the OCS.⁷

Initially, OCSLA “provided essentially an open-ended grant of authority to the Secretary of the Interior to proceed with leasing on the outer Continental Shelf.”⁸ This broad discretion was due to an expectation that offshore production, a new and unproven technology, would only act as a small supplement to production from

[Section 29:16]

¹43 U.S.C. §§ 1331 to 1356b.

²H.R. REP. NO. 590, 95th Cong., 1st Sess. 74 (1977), reprinted in 1978 U.S.C.C.A.N. 1450, 1461 [hereinafter H.R. REP. NO. 590].

[Section 29:17]

¹Proclamation No. 2667, 10 Fed. Reg. 12303 (1945).

²See *U.S. v. State of Cal.*, 332 U.S. 19, 38–39, 67 S. Ct. 1658, 91 L. Ed. 1889, 1947 A.M.C. 1579 (1947), opinion supplemented, 332 U.S. 804, 68 S. Ct. 20, 92 L. Ed. 382 (1947); *U.S. v. State of La.*, 339 U.S. 699, 705, 70 S. Ct. 914, 94 L. Ed. 1216 (1950), judgment entered, 340 U.S. 899, 71 S. Ct. 275, 95 L. Ed. 651 (1950); *U.S. v. State of Tex.*, 339 U.S. 707, 717–718, 70 S. Ct. 918, 94 L. Ed. 1221 (1950).

³H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1463.

⁴43 U.S.C. §§ 1301 et seq.

⁵H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1464.

⁶43 U.S.C. § 1312.

⁷H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1464.

⁸H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1509.

onshore fields.⁹ Following passage of OCSLA and up until the late 1960s, the OCS leasing process proceeded at a relatively small scale and was subject to little national scrutiny.¹⁰ However, in 1969, a major blowout from an OCS drilling project in the Santa Barbara Channel caused what was the largest oil spill in United States history, prompting concerns about the environmental impacts of OCS operations.¹¹ The decline of domestic energy production and the Arab oil embargo of 1973 also led to the rapid acceleration of OCS development, in an effort to reduce dependence on foreign energy supplies.¹² This shift in national attention, coupled with new issues regarding the role of state and local governments in OCS leasing and management, culminated in growing concern over the direction of the OCS process under OCSLA.¹³

Congress sought to remedy these concerns with the OCSLA Amendments of 1978.¹⁴ These amendments were comprehensive and designed to provide a new statutory regime for OCS resource management, expedite the development of the OCS, and enhance environmental protections.¹⁵ While OCSLA has since been amended, the statute following the 1978 amendments has not been fundamentally changed, and those amendments remain the framework for current OCS leasing and management.

§ 29:18 Federal Jurisdiction under OCSLA, Applicability of Laws of Adjacent States, and Aboriginal Rights in the OCS

OCSLA extends exclusive federal jurisdiction to the subsoil and seabed of the OCS,¹ which is defined to include all submerged lands beyond state coastal waters but within the limits of U.S. jurisdiction (200 nautical miles offshore as established by the Exclusive Economic Zone of the United States).² Further, within the OCS, exclusive federal jurisdiction applies to all: (1) artificial islands; (2) installations and other devices permanently or temporarily attached to the seabed, which may be erected to explore, develop, or produce resources; and (3) installations or devices (other than a ship or vessel) used to transport resources.³

OCSLA also establishes that civil and criminal laws of adjacent states, “to the extent that they are applicable and not inconsistent” with federal law, are declared as surrogate federal law for the OCS.⁴ Determining when state law stands in as surrogate federal law has been contentious and was recently addressed by the United States Supreme Court in *Parker Drilling Management Services, Ltd. v. Newton*.⁵ In *Parker Drilling Management Services, Ltd.*, the plaintiff was an OCS drilling platform employee who had claimed that the defendant, his employer, had violated

⁹H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1509.

¹⁰H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1481.

¹¹H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1484, 1496.

¹²H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1496.

¹³H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1497 to 1501.

¹⁴H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1507 to 08.

¹⁵H.R. REP. NO. 590, reprinted in 1978 U.S.C.C.A.N. at 1460.

[Section 29:18]

¹43 U.S.C. § 1332(1).

²43 U.S.C. § 1331(a); see Proclamation No. 5030, 48 Fed. Reg. 10605 (March 10, 1983) (establishing Exclusive Economic Zone of the United States).

³43 U.S.C. § 1333(a)(1).

⁴43 U.S.C. § 1333(a)(2)(A).

⁵*Parker Drilling Management Services, Ltd. v. Newton*, 139 S. Ct. 1881, 204 L. Ed. 2d 165, 2019 Wage & Hour Cas. 2d (BNA) 212765, 169 Lab. Cas. (CCH) P 36713, 2019 A.M.C. 1548 (2019).

California minimum wage and overtime laws.⁶ The parties agreed that OCSLA applied to the drilling platforms but disagreed on whether relevant California law could stand in as surrogate federal law under the statute.⁷ The district court, relying on Fifth Circuit precedent that held state law only stands in to the extent necessary to “fill a significant void or gap” in federal law,⁸ found that California law was inapplicable because the Fair Labor Standards Act of 1938⁹ (FLSA) comprehensively addressed the issue.¹⁰ On appeal, the Ninth Circuit rejected this approach, holding that a gap in federal law was not required to apply state law under OCSLA.¹¹ Acknowledging the resulting circuit split, the Supreme Court granted certiorari.¹²

The Supreme Court held similarly to the Fifth Circuit and found that “state laws can be ‘applicable and not inconsistent’ with federal law . . . only if federal law does not address the relevant issue.”¹³ The Supreme Court found this interpretation supported by the context of OCSLA, which provides for exclusive federal jurisdiction of the OCS rather than overlapping state and federal jurisdiction.¹⁴ The Supreme Court further justified its interpretation by reasoning that allowing adjacent state law to govern the OCS would make much of OCSLA unnecessary,¹⁵ that the interpretation is consistent with the federal-enclave model embodied by OCSLA,¹⁶ and that the interpretation aligns with past Supreme Court precedent.¹⁷

Ultimately, the Supreme Court held that the FLSA, rather than California law, applied and therefore declined to address the question of what would constitute a gap in federal law that would allow state law to stand in as surrogate federal law.¹⁸ Thus while *Parker Drilling Management Services, Ltd.* provides a degree of clarity as to when the laws of states adjacent to the OCS apply, it is anticipated that this jurisdictional issue will continue to be litigated moving forward.

⁶*Parker Drilling Management Services, Ltd. v. Newton*, 139 S. Ct. 1881, 1886, 204 L. Ed. 2d 165, 2019 Wage & Hour Cas. 2d (BNA) 212765, 169 Lab. Cas. (CCH) P 36713, 2019 A.M.C. 1548 (2019).

⁷*Parker Drilling Management Services, Ltd. v. Newton*, 139 S. Ct. 1881, 204 L. Ed. 2d 165, 2019 Wage & Hour Cas. 2d (BNA) 212765, 169 Lab. Cas. (CCH) P 36713, 2019 A.M.C. 1548 (2019).

⁸*Continental Oil Co. v. London Steam-Ship Owners’ Mut. Ins. Ass’n*, 417 F.2d 1030, 1036, 1969 A.M.C. 1882 (5th Cir. 1969).

⁹29 U.S.C. §§ 201 et seq.

¹⁰*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1886.

¹¹*Newton v. Parker Drilling Management Services, Ltd.*, 881 F.3d 1078, 1081-82, 27 Wage & Hour Cas. 2d (BNA) 1061, 168 Lab. Cas. (CCH) P 61840, 2018 A.M.C. 1030 (9th Cir. 2018), opinion amended on denial of reh’g en banc, 888 F.3d 1085 (9th Cir. 2018), vacated and remanded, 139 S. Ct. 1881, 204 L. Ed. 2d 165, 2019 Wage & Hour Cas. 2d (BNA) 212765, 169 Lab. Cas. (CCH) P 36713, 2019 A.M.C. 1548 (2019) and cert. granted, 139 S. Ct. 914, 202 L. Ed. 2d 641 (2019) and vacated and remanded, 139 S. Ct. 1881, 204 L. Ed. 2d 165, 2019 Wage & Hour Cas. 2d (BNA) 212765, 169 Lab. Cas. (CCH) P 36713, 2019 A.M.C. 1548 (2019).

¹²*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1886–87.

¹³*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1889.

¹⁴*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1889.

¹⁵*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1889–90.

¹⁶*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1890. As the Supreme Court explained, when an area in a state becomes a federal enclave, only the state law in effect at the time jurisdiction transfers continues in force and only if it does not conflict with federal policy. *Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1890. Further, state law does not presumptively apply to the federal enclave. *Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1890. Originally, the OCSLA treated the OCS as a federal enclave, and therefore the statute suggests that state law does not apply to the OCS where federal law is on point. *Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1890–91.

¹⁷*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1891-92; see *Rodrigue v. Aetna Cas. & Sur. Co.*, 395 U.S. 352, 357-58, 89 S. Ct. 1835, 23 L. Ed. 2d 360, 1969 A.M.C. 1082 (1969) (interpreting the OCSLA to grant exclusive federal jurisdiction on the OCS, with state law able to be used to “fill federal voids”).

¹⁸*Parker Drilling Mgmt. Servs., Ltd.*, 139 S. Ct. at 1893.

Another issue that has remains unsettled in the courts is whether Alaska Natives retain aboriginal title in the OCS. The concept of aboriginal title, which extends to the right to fish and hunt on aboriginal lands and waters, originates from early United States Supreme Court precedent concerning the relationship between the federal government and Indigenous tribes.¹⁹ In Alaska, two federal statutes have significantly shaped the aboriginal rights of Indigenous tribes. The Alaska Native Claims Settlement Act (ANCSA)²⁰ extinguished aboriginal land claims to federal and state lands and resources and state waters, including any hunting or fishing rights.²¹ In exchange, ANCSA created Native-owned corporations,²² conveyed roughly 45 million acres of select land to the Native corporations;²³ and created the Alaska Native Fund, into which the federal and state government deposited \$962.5 million to be distributed among the Native corporations.²⁴ To ensure that Alaska Native rights to natural resources used for subsistence were protected, Congress later passed the Alaska National Interest Lands Conservation Act (ANILCA).²⁵ ANILCA set aside over 100 million acres of land in Alaska as conservation system units, which included national parks, wildlife refuges, forests, and monuments,²⁶ and addressed the protection of rural Alaska residents' subsistence rights under Title VIII of the Act.²⁷ The scope of these statutes, and how they affect aboriginal rights of Alaska Natives in the OCS, have been subject to extended litigation over the past few decades.

In *Amoco Production Co. v. Village of Gambell (Gambell II)*,²⁸ the Alaska Native villages of Gambell and Stebbins brought suit to enjoin the Department of the Interior from proceeding with an OCS lease sale, claiming that it would adversely affect their aboriginal hunting and fishing rights on the OCS and that the Secretary had failed to comply with Title VIII of ANILCA.²⁹ The United States Supreme Court overturned the Ninth Circuit in finding that Title VIII of ANILCA does not apply to the OCS, as the statute only applies to public lands situated within Alaska.³⁰ Following vacatur and remand of the case, a subsequent appeal of the lawsuit to the Ninth Circuit applied the same statutory analysis to the scope of extinguished aboriginal rights under ANCSA in *People of Village of Gambell v. Hodel (Gambell III)*.³¹ In *Gambell III*, the Ninth Circuit held that ANCSA only extinguished claims within the boundaries of Alaska and not the OCS.³² The Ninth Circuit also acknowledged that aboriginal rights may exist in the OCS concurrently with and

¹⁹See *Johnson v. M'Intosh*, 21 U.S. 543, 5 L. Ed. 681, 1823 WL 2465 (1823); see also *Rights and Roles: Alaska Natives and Ocean and Coastal Subsistence Resources*, 8 Fla. A & M U. L. Rev. 219, 223 (2013) (discussing the history of aboriginal rights).

²⁰43 U.S.C. §§ 1601 et seq.

²¹43 U.S.C. § 1603(b).

²²43 U.S.C. §§ 1606, 1607.

²³43 U.S.C. §§ 1610 to 13.

²⁴43 U.S.C. § 1605.

²⁵16 U.S.C. §§ 3101 to 3103.

²⁶Alaska Department of Fish and Game, *Alaska National Interest Lands Conservation Act (ANILCA) Program*, available at <https://www.adfg.alaska.gov/index.cfm?adfg=habitatoversight.anilca>.

²⁷16 U.S.C. §§ 3111 to 3126.

²⁸*Amoco Production Co. v. Village of Gambell*, AK, 480 U.S. 531, 107 S. Ct. 1396, 94 L. Ed. 2d 542, 17 Env'tl. L. Rep. 20574 (1987).

²⁹*Amoco Production Co. v. Village of Gambell*, AK, 480 U.S. 531, 535, 107 S. Ct. 1396, 94 L. Ed. 2d 542, 17 Env'tl. L. Rep. 20574 (1987).

³⁰*Amoco Production Co. v. Village of Gambell*, AK, 480 U.S. 531, 546–552, 107 S. Ct. 1396, 94 L. Ed. 2d 542, 17 Env'tl. L. Rep. 20574 (1987).

³¹*People of Village of Gambell v. Hodel*, 869 F.2d 1273, 19 Env'tl. L. Rep. 21150 (9th Cir. 1989).

³²*People of Village of Gambell v. Hodel*, 869 F.2d 1273, 1280, 19 Env'tl. L. Rep. 21150 (9th Cir.

despite the recognized paramount rights of the federal government in the OCS,³³ but left it to the district court on remand to determine whether the Alaska Native villages in fact possessed aboriginal rights in the OCS and whether OCSLA extinguishes subsistence rights in the OCS as a matter of law.³⁴ These issues were ultimately never addressed, however, as the district court granted summary judgment to the federal government because the plaintiffs did not produce enough evidence to support their claim that drilling and other activities would interfere with their exercise of aboriginal rights.³⁵

While the Ninth Circuit later clarified that Alaska Native villages do not retain exclusive rights to use or occupy the OCS based on aboriginal rights given the paramount rights of the federal government,³⁶ there still remains the possibility that non-exclusive aboriginal rights exist in the OCS. Recent efforts to establish these rights have required plaintiff villages to meet a high burden of providing sufficient evidence to demonstrate aboriginal title in federal waters and seabed,³⁷ and it remains to be seen to what extent aboriginal rights coincide with the exclusive federal jurisdiction in the OCS, particularly in the context of OCSLA.

§ 29:19 Regulatory Authority Under OCSLA

Responsibility over the regulatory regime established by OCSLA was originally designated to the former Minerals Management Service (MMS).¹ However, in 2010 the Secretary of the Interior reorganized MMS to improve management, oversight, and accountability of OCS activities.² This resulted in the creation of three separate administrative agencies: the Office of Natural Resources Revenue (ONRR), the Bureau of Safety and Environmental Enforcement (BSEE), and the Bureau of Ocean Energy Management (BOEM).³

§ 29:20 The Office of Natural Resources Revenue

Established within the Office of the Assistant Secretary for Policy, Management

1989).

³³People of Village of Gambell v. Hodel, 869 F.2d 1273, 1277, 19 Env'tl. L. Rep. 21150 (9th Cir. 1989); see also *supra* n. 4 and accompanying text (referencing paramouncy cases).

³⁴*Gambell III*, 869 F.2d at 1280.

³⁵See People of Village of Gambell v. Babbitt, 999 F.2d 403, 405 (9th Cir. 1993) (discussing district court decision and finding no remaining basis for federal jurisdiction in the case).

³⁶Native Village of Eyak v. Trawler Diane Marie, Inc., 154 F.3d 1090, 1097, 1999 A.M.C. 595, 29 Env'tl. L. Rep. 20016 (9th Cir. 1998).

³⁷See Native Village of Eyak v. Blank, 688 F.3d 619, 626 (9th Cir. 2012) (affirming district court's findings that plaintiff villages did not produce sufficient evidence of use and occupancy in OCS to establish entitlement to non-exclusive aboriginal rights).

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¹*The Reorganization of the Former MMS*, Bureau of Ocean Energy Mgmt., <http://www.boem.gov/Reorganization/> (last visited June 16, 2021).

²*The Reorganization of the Former MMS*, Bureau of Ocean Energy Mgmt., <http://www.boem.gov/Reorganization/> (last visited June 16, 2021). While management shortcomings of MMS were perceived by both the Department of the Interior and Congress beforehand, the April 20, 2010 oil spill from the Deepwater Horizon drilling rig primarily spurred the MMS reorganization. See *Reorganization of the Minerals Management Service in the Aftermath of the Deepwater Horizon Oil Spill*, Congressional Research Service (Nov. 10, 2010), at 1-3, available at <https://fas.org/sgp/crs/misc/R41485.pdf>.

³*The Reorganization of the Former MMS*, Bureau of Ocean Energy Mgmt., <http://www.boem.gov/Reorganization/> (last visited June 16, 2021). While management shortcomings of MMS were perceived by both the Department of the Interior and Congress beforehand, the April 20, 2010 oil spill from the Deepwater Horizon drilling rig primarily spurred the MMS reorganization. See *Reorganization of the Minerals Management Service in the Aftermath of the Deepwater Horizon Oil Spill*, Congressional Research Service (Nov. 10, 2010), at 1-3, available at <https://fas.org/sgp/crs/misc/R41485.pdf>.

and Budget, ONRR oversees revenue collection and disbursement from oil and gas production on the OCS.¹ Parties associated with OCS leases² are required to submit to ONRR monthly production and royalty reports,³ monthly royalty payments due for that month's production,⁴ and rental payments at a frequency specified by the terms of the OCS lease.⁵ ONRR has broad auditing authority in order to ensure compliance with reporting and payment requirements under OCS leases, as well as other applicable regulations and orders.⁶ Additionally, ONRR can effectuate debt collection by either referring debt to the U.S. Department of the Treasury or recommending revocation of a debtor's ability to engage in OCS leasing;⁷ ONRR may even assess civil penalties for a failure to make royalty payments or for other violations.⁸

ONRR's disbursement of revenue to the states is guided by multiple revenue sharing programs under OCSLA. Coastal states receive 27% of revenues generated from OCS oil and gas leases that are located within the first three nautical miles of the OCS seaward of their territorial limits (colloquially referred to as the "8(g) zone").⁹ Coastal states within 15 nautical miles of the center of an OCS renewable energy project, where the project is located at least partially in the state's "8(g) zone," share in a portion of 27% of generated revenues from that OCS lease.¹⁰ Finally, the four "Gulf producing States"—Alabama, Louisiana, Mississippi, and Texas¹¹—and their local governments are authorized to share 37.5% of qualified revenues from certain OCS leases in the Gulf of Mexico.¹²

§ 29:21 The Bureau of Safety and Environmental Enforcement

BSEE is authorized to regulate the exploration, development, and operations on the OCS,¹ ensuring that these practices are conducted in a manner that promotes human health, safety, and environmental protection.²

BSEE oversees the permitting program for OCS activities, which encompasses the drilling of wells;³ permits for the installation, modification, or repair of platforms;⁴

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¹*Interior Establishes Office of Natural Resources Revenue*, U.S. Dept. of the Interior, <https://www.doi.gov/pressreleases/news/pressreleases/Interior-Establishes-Office-of-Natural-Resources-Revenue> (last visited June 16, 2021).

²ONRR's reporting and royalty payment requirements apply to all OCS lessees or anyone "who is assigned or assumes an obligation to report or make payment to ONRR." 30 C.F.R. § 1210.02 (2021); *see also* 30 C.F.R. § 1218.52 (2021) (outlining instructions for OCS lessee on how to designate person to make payments under OCS lease).

³30 C.F.R. §§ 1210.101 to 1210.106 (2021); 30 C.F.R. §§ 1210.50 to 1210.61 (2021).

⁴30 C.F.R. § 1218.150 (2021); 30 C.F.R. § 1218.50(a) (2021).

⁵30 C.F.R. § 1218.150 (2021); 30 C.F.R. § 1218.50(a) (2021).

⁶30 C.F.R. § 1217.50 (2021).

⁷30 C.F.R. § 1218.702 (2021); 30 C.F.R. § 1218.705 (2021).

⁸30 C.F.R. §§ 1241.1 to 1241.74 (2021).

⁹43 U.S.C. § 1337(8)(g)(2).

¹⁰43 U.S.C. § 1337(8)(p)(2)(B).

¹¹*See* Gulf of Mexico Energy Security Act, Pub. L. No. 109-432, 120 Stat. 3001; 30 C.F.R. § 1219.411 (2021); 30 C.F.R. § 1219.511 (2021).

¹²30 C.F.R. § 1219.412 (2021); 30 C.F.R. § 1219.512(a) (2021).

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¹*See supra* note 58; 30 C.F.R. § 250.101 (2021).

²30 C.F.R. § 250.107 (2021).

³30 C.F.R. § 250.410 (2021).

and pipeline right-of-way grants.⁵ BSEE also requires the creation and implementation of safety and environmental management system (SEMS) programs⁶ and Oil Spill Response Plans (OSRPs).⁷ SEMS programs are a compilation of policies and procedures that address the potential safety and environmental hazards that can arise from operations,⁸ including a demonstration that the program meets industry standards adopted by the American Petroleum Institute.⁹ An OSRP must demonstrate that OCS facility owners and/or operators have sufficient measures and resources in place to mitigate or prevent a release of oil from a facility.¹⁰ These measures and resources include an emergency response action plan, equipment inventory, relevant contractual agreements, training and drills, a dispersant use plan and *in situ* burning plan, and a worst case discharge scenario.¹¹ Facility owners and/or operators must follow an OSRP in the event of an oil spill.¹²

BSEE's oversight of OCS operations extends throughout the life of the well at an OCS facility, including the decommissioning of inactive wells.¹³ With this oversight comes necessary inspection and enforcement authority,¹⁴ and BSEE even has the ability to declare an OCS facility's operation as "unacceptable," which could prompt BOEM to disapprove or revoke a party's designation as operator of an OCS facility.¹⁵

§ 29:22 The Bureau of Ocean Energy Management

BOEM oversees all leasing activities on the OCS and ensures compliance with OCS lease terms and conditions.¹ The leasing program established by OCSLA consists of four primary procedural stages:² (1) preparation and maintenance of a five-year program of proposed lease sales;³ (2) issuance of leases in accordance with the five-year program;⁴ (3) review of lessees' plans for geological and geophysical exploration of the OCS pursuant to an issued lease;⁵ and (4) review of lessees' plans for the development and production of oil or gas from the lease area.⁶

§ 29:23 The Bureau of Ocean Energy Management—Five-Year Oil and Gas Leasing Program

OCSLA requires that the Secretary of the Interior prepare a five-year program.

⁴30 C.F.R. § 250.905 (2021).

⁵30 C.F.R. § 250.1015 (2021).

⁶30 C.F.R. § 250.1900 (2021).

⁷30 C.F.R. § 254.2(a) (2021).

⁸30 C.F.R. § 250.1901 (2021); *see* 30 C.F.R. § 250.1902 (2021) (outlining SEMS program minimum requirements).

⁹30 C.F.R. § 250.1902(c) (2021); 30 C.F.R. § 250.198(h)(79) (2021).

¹⁰30 C.F.R. § 254.5(a) (2021).

¹¹30 C.F.R. § 254.21(b) (2021).

¹²30 C.F.R. § 254.5(a) (2021).

¹³30 C.F.R. § 250.1703 (2021).

¹⁴30 C.F.R. §§ 250.130, 250.1400 (2021).

¹⁵30 C.F.R. § 250.135 (2021); *see* 30 C.F.R. § 250.136 (2021) (establishing criteria for "unacceptable" operating performance).

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¹*See supra* note 58; 30 C.F.R. § 550.101 (2021).

²43 U.S.C. § 1334(a).

³43 U.S.C. § 1344(a).

⁴43 U.S.C. § 1337(a).

⁵43 U.S.C. § 1340.

⁶43 U.S.C. § 1351.

The program must include a schedule of oil and gas lease sales and indicate the size, timing, and location of proposed leasing activity, as determined by the Secretary, to best meet national energy needs for the five-year period following its approval while also addressing a variety of economic, environmental, and social considerations.¹ BOEM is tasked with oversight of the five-year program.²

In developing the five-year program, BOEM must conduct a lengthy procedural process. BOEM first considers any nominations for areas to be included or excluded from OCS leasing—this includes consulting with the U.S. Department of Energy; requesting governors of affected states to identify laws, goals, and policies to be considered; and publishing a Request for Information (RFI) in the Federal Register.³ The information collected during this process is used by BOEM to create a proposed five-year program that establishes a schedule it will use as a basis for considering where and when leasing might be appropriate over a five-year period.⁴ BOEM then issues a Draft Proposed Program (DPP) to governors of affected states for review and comment 60 days before publishing the Proposed Program (PP).⁵ The PP is then issued with a 90-day public commenting period.⁶ A Proposed Final Program (PFP) is then published and transmitted to Congress and the President.⁷ The PFP becomes the Final Program 60 days after it has been presented to Congress.⁸

The current Final Program for 2017-2022 scheduled 11 potential lease sales in two program areas: 10 sales in the combined Gulf of Mexico (GOM) Program Area, and one sale in the Cook Inlet Program Area in offshore Alaska.⁹ Eight of the 11 potential lease sales have already occurred.¹⁰ The ninth scheduled lease sale, Sale 258, was scheduled to take place in the Cook Inlet Planning Area in 2021.¹¹ On January 13, 2021, BOEM released an Area Identification Decision and draft Environmental Impact Statement (EIS) analyzing the potential environmental impacts of holding the proposed sale. A Notice of Availability of these documents was published in the Federal Register on January 15, 2021, with a public comment period set to run from January 16 to March 1, 2021.¹² But on February 4, 2021, BOEM canceled the public comment period and virtual public hearings after newly inaugurated President Joe Biden issued Executive Order 14008 directing the Secretary of the Interior to pause new oil and gas leases in offshore waters pending

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¹43 U.S.C. § 1344(a); 30 C.F.R. § 556.100 (2021).

²30 C.F.R. § 556.200 (2021).

³30 C.F.R. § 556.202 (2021).

⁴30 C.F.R. § 556.203 (2021).

⁵30 C.F.R. § 556.203(a) (2021).

⁶30 C.F.R. § 556.204 (2021).

⁷30 C.F.R. § 556.205 (2021).

⁸30 C.F.R. § 556.205 (2021).

⁹BUREAU OF OCEAN ENERGY MANAGEMENT, “2017-2022 Outer Continental Shelf Oil and Gas Leasing Proposed Final Program” (November 2016), at S-4, *available at* <https://www.boem.gov/sites/default/files/oil-and-gas-energy-program/Leasing/Five-Year-Program/2017-2022/2017-2022-OCS-Oil-and-Gas-Leasing-PFP.pdf> (last visited June 16, 2021).

¹⁰BUREAU OF OCEAN ENERGY MANAGEMENT, “2017-2022 Lease Sale Schedule,” *available at* <https://www.boem.gov/2017-2022-lease-sale-schedule> (last visited June 16, 2021). As described on the schedule, lease sale numbers 249-257 were in the Gulf of Mexico Region, lease sale number 258 was for the Cook Inlet region, and lease sales 259 and 261 are scheduled for the Gulf of Mexico Region.

¹¹BUREAU OF OCEAN ENERGY MANAGEMENT, “Lease Sale 258,” *available at* <https://www.boem.gov/ak258> (last visited June 16, 2021).

¹²BUREAU OF OCEAN ENERGY MANAGEMENT, “Lease Sale 258,” *available at* <https://www.boem.gov/ak258> (last visited June 16, 2021).

review of federal oil and gas permitting and leasing policies.¹³ The executive order requires the Secretary to reconsider these practices in light of its stewardship responsibilities, “including potential climate and other impacts associated with oil and gas activities.”¹⁴ The Secretary of the Interior is also required to consider whether to adjust royalties associated with OCS resources to account for corresponding climate costs.¹⁵

§ 29:24 The Bureau of Ocean Energy Management—Leasing

With a five-year program established, BOEM can begin OCS leasing. The lease sale process is initiated with a Call for Information and Nomination that is published in the Federal Register, which requests information on areas of interest, including potential multiple uses and other socioeconomic, biological, and environmental information.¹ Considering this input and other relevant information, BOEM develops a recommendation of areas proposed for leasing for the Secretary of the Interior.² Areas approved by the Secretary of the Interior are identified and announced in the Federal Register, and BOEM evaluates these areas for further consideration of potential human and environmental impacts, in some cases developing measures (including lease stipulations) to mitigate these impacts.³

BOEM then develops a proposed notice of sale that, once approved by the Secretary of the Interior, is sent to the governor of any affected state for comments and published in the Federal Register.⁴ After consideration of any comments received in response to the proposed notice of sale,⁵ BOEM will publish final notice of a lease sale in the Federal Register at least 30 days before the date of the sale.⁶

Lease sales are conducted by competitive sealed bidding.⁷ BOEM requires formal qualification in order to bid on or to be approved as an assignee of an OCS lease;⁸ even if an entity meets qualification requirements, BOEM has the discretion to disqualify that entity if they fail to meet due diligence requirements or have an unacceptable operating performance.⁹ Further, BOEM retains the discretion to reject any bid.¹⁰ Once BOEM accepts a bid, the winning bidder is required to execute the lease documents and make all remaining payments (including the first year’s rent) within 11 days of acceptance.¹¹ The lease is effective beginning the month following

¹³BUREAU OF OCEAN ENERGY MANAGEMENT, “BOEM Cancels Comment Period, Virtual Meetings for Proposed Lease Sale Offshore Alaska” (February 04, 2021), *available at* <https://www.boem.gov/boem-cancels-comment-period-virtual-meetings-proposed-lease-sale-offshore> (last visited June 16, 2021).

¹⁴Exec. Order No. 14008, “Tackling the Climate Crisis at Home and Abroad,” 86 Fed. Reg. 7619 (Feb. 1, 2021) at § 208.

¹⁵Exec. Order No. 14008, “Tackling the Climate Crisis at Home and Abroad,” 86 Fed. Reg. 7619 (Feb. 1, 2021) at § 208.

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¹30 C.F.R. § 556.301 (2021).

²30 C.F.R. § 556.302(a) (2021).

³30 C.F.R. § 556.302(b) (2021).

⁴30 C.F.R. § 556.304 (2021); 30 C.F.R. § 556.305(a) (2021).

⁵30 C.F.R. § 556.307 (2021).

⁶30 C.F.R. § 556.308(a) (2021).

⁷30 C.F.R. § 556.308(b) (2021).

⁸30 C.F.R. § 556.400 (2021); *see* 30 C.F.R. § 556.401 (2021) (describing qualification requirements).

⁹30 C.F.R. § 556.403(b), (c) (2021).

¹⁰30 C.F.R. § 556.516(b) (2021).

¹¹30 C.F.R. § 556.520 (2021).

the date that BOEM executes the lease.¹²

§ 29:25 The Bureau of Ocean Energy Management—Plans Required for Exploration, Production, and Development

Once an OCS lease is issued, the operator may not begin exploration, development, or production until submission and approval of an Exploration Plan (EP) and a Development and Production Plan (DPP) or Development Operations Coordination Document (DOCD).¹ Generally, all of these plans must demonstrate that the proposed activities conform with OCSLA, are safe, do not reasonably interfere with other OCS uses, and adequately protect human health and the environment.²

An EP must include a description and schedule of the proposed exploration activity from start to completion that includes the locations of proposed wells as well as descriptions of drilling units and any other equipment to be used.³ Further, BOEM regulations require a significant amount of information to accompany any submitted EP.⁴ General information that needs to accompany the EP includes a listing of approvals and permits that must be obtained for exploration activities; information on drilling fluids, chemical products, and “new and unusual technology”⁵ that will be used during exploration activities; bonds, oil spill financial responsibility, and well control statements; a discussion on suspension of operations; a blowout scenario; and relevant contact information.⁶ While the general information alone seems comprehensive, this category pales in comparison to the more specific required information related to environmental protection, human health and safety, resources, and planning listed at length in BOEM regulations.⁷ Once an EP is properly submitted, BOEM, while coordinating with affected states, will review the EP to determine compliance with OCSLA, BOEM regulations, and other applicable law.⁸ BOEM has 30 days to approve, disapprove, or require modification of the EP.⁹

The requirements for what must be included in a DPP or DOCD,¹⁰ as well the information to accompany either plan,¹¹ are substantially similar to EP requirements. Once a DPP or DOCD has been properly submitted, however, BOEM consults with affected states and local governments, and issues a copy for public review and comment when determining whether the plans comply with all applicable requirements.¹² As with an EP, BOEM has 30 days to approve, disapprove, or require modification

¹²30 C.F.R. § 556.521 (2021).

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¹30 C.F.R. § 550.201(a) (2021). A DPP is required to conduct any development and production activities in OCS areas other than the Western Gulf of Mexico; for those areas, a DOCD is required. 30 C.F.R. § 550.201(a) (2021).

²30 C.F.R. § 550.202 (2021).

³30 C.F.R. § 550.211 (2021).

⁴30 C.F.R. § 550.212 (2021).

⁵“New or unusual technology” means technology that has not been previously or extensively used by BOEM, has not been previously used under the anticipated operating conditions, or has operating characteristics outside of established performance parameters. 30 C.F.R. § 550.200 (2021).

⁶30 C.F.R. § 550.212(a) (2021); 30 C.F.R. § 550.213 (2021).

⁷30 C.F.R. § 550.212(b) to (p) (2021).

⁸30 C.F.R. § 550.232 (2021).

⁹30 C.F.R. § 550.233 (2021).

¹⁰30 C.F.R. § 550.241 (2021).

¹¹30 C.F.R. § 550.242 (2021).

¹²30 C.F.R. § 550.267 (2021).

of a DPP or DOCD.¹³

Failure to conduct OCS lease activities according to an approved EP, DPP, or DOCD can result in a BOEM enforcement action, which may include civil penalties.¹⁴ BOEM also has the authority to forfeit or cancel an OCS lease for failure to follow an approved plan.¹⁵

IV. PRESIDENTIAL WITHDRAWAL AUTHORITY UNDER OCSLA AND LEAGUE OF CONSERVATION VOTERS

§ 29:26 Generally

OCSLA provides that the President “may, from time to time, withdraw from disposition any of the unleased lands of the outer Continental Shelf.”¹ This broad authority allows the President to withdraw any area of the OCS, either temporarily or permanently, for any public purpose. Since passage of OCSLA in 1953, six presidents have used this executive authority.² In 2015, President Barack Obama withdrew coastal areas in the Arctic’s Beaufort and Chukchi Seas, citing the importance of these areas to Alaska Natives’ subsistence as well as wildlife protection.³ In 2016, President Obama withdrew more areas from the U.S. Arctic Ocean and areas of the Atlantic Ocean, citing similar reasons concerning conservation and environmental protection.⁴ The combined withdrawals from 2015 and 2016 totaled 128 million acres.⁵

In 2017, in an unprecedented move, President Donald Trump purported to revoke these withdrawals with the issuance of Executive Order 13795,⁶ which prompted a lawsuit in the United States District Court for the District of Alaska.⁷ In *League of Conservation Voters v. Trump*, the plaintiffs, various environmental groups, alleged that the President’s revocation violated the Property Clause of the U.S. Constitution⁸ and the withdrawal authority under OCSLA.⁹

The U.S. District Court for the District of Alaska resolved the issue by means of statutory interpretation.¹⁰ First, the court found that OCSLA’s text was ambiguous

¹³30 C.F.R. § 550.270 (2021).

¹⁴30 C.F.R. § 550.280(a)(1) (2021).

¹⁵30 C.F.R. § 550.280(a)(2) (2021).

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¹43 U.S.C. § 1341(a).

²*Briefer on Presidential Withdrawal Under OCSLA Sec. 12(a)*, Nat. Res. Def. Council (2016), available at https://www.nrdc.org/sites/default/files/briefer-on-ocsla-withdrawal-authority_20161121_0.pdf (last visited June 16, 2021).

³Memorandum on Withdrawal of Certain Areas of the United States Outer Continental Shelf Offshore Alaska From Leasing Disposition, (Jan. 27, 2015) available at: <https://obamawhitehouse.archives.gov/the-press-office/2015/01/27/presidential-memorandum-withdrawal-certain-areas-united-states-outer-con> (last visited June 16, 2021).

⁴Memorandum on Withdrawal of Certain Portions of the United States Arctic Outer Continental Shelf From Mineral Leasing, DCPD201600860 (Dec. 20, 2016); Memorandum on Withdrawal of Certain Areas off the Atlantic Coast on the Outer Continental Shelf From Mineral Leasing, DCPD201600861 (Dec. 20, 2016).

⁵*League of Conservation Voters v. Trump*, 303 F. Supp. 3d 985, 990 (D. Alaska 2018).

⁶Exec. Order No. 13795, 82 Fed. Reg. 20815, §§ 4(c), 5 (Apr. 28, 2017).

⁷*League of Conservation Voters v. Trump*, 363 F. Supp. 3d 1013 (D. Alaska 2019), vacated and remanded, 843 Fed. Appx. 937 (9th Cir. 2021).

⁸U.S. Const. art. IV, § 3, cl. 2.

⁹*League of Conservation Voters*, 363 F.Supp.3d at 1017.

¹⁰*League of Conservation Voters*, 363 F.Supp.3d at 1017.

and could be interpreted to permit the President to revoke prior withdrawals.¹¹ However, considering the context of OCSLA, the court found that interpreting the language concerning withdrawal authority as “entirely protective” gives best effect to all of the statute’s provisions.¹² The court also acknowledged the general principle that, “had Congress intended to grant the President revocation authority, it could have done so explicitly.”¹³ For these and other reasons, the court held that OCSLA did not grant a president the authority to revoke prior withdrawals of unleased land and that President Trump’s executive order was unlawful because it exceeded the executive authority under the statute.¹⁴

The court’s decision has since been appealed to the Ninth Circuit.¹⁵ However, on January 20, 2021, President Biden issued Executive Order 13990, which, among other executive actions, reinstated President Obama’s withdrawals and revoked President’s Trump’s Executive Order 13795.¹⁶ Thus it is unclear whether the Ninth Circuit will fully address the limits of the President’s withdrawal authority under OCSLA, as it appears for the time being that the current administration has returned to the traditional exercise of executive power under the statute.

V. DEVELOPMENT ON TRIBAL LANDS

§ 29:27 Introduction

Indian lands in the United States are commonly comprised of a combination of fee,¹ tribal,² and allotted lands.³ This fragmented ownership creates unique issues not normally encountered outside of an Indian reservation.⁴ This situation is particularly relevant for oil and gas development because Indian lands are estimated to contain 3-4% of the known oil and gas reserves in the United States.⁵

Any oil and gas company contemplating development on Indian lands must be aware of a few basic principles of Indian law: (1) the federal government has jurisdiction over Indian trust lands;⁶ (2) Congress has plenary power over Indian affairs and lands, subject only to constitutional limitations;⁷ and (3) no interest in trust lands, whether beneficially owned by a tribe or by an individual allottee, may be

¹¹*League of Conservation Voters*, 363 F.Supp.3d at 1024.

¹²*League of Conservation Voters*, 363 F.Supp.3d at 1024–25.

¹³*League of Conservation Voters*, 363 F.Supp.3d at 1027; *League of Conservation Voters*, 363 F.Supp.3d at 1025–28.

¹⁴*League of Conservation Voters*, 363 F.Supp.3d at 1027.

¹⁵*League of Conservation Voters v. Biden*, 2021 WL 279079 (9th Cir. 2021).

¹⁶Exec. Order 13990, 86 Fed. Reg. 7037, §§ 4(b), 7 (Jan. 20, 2021).

[Section 29:27]

¹“Fee lands,” as used in this paper, mean privately-owned lands.

²“Tribal lands,” as used in this paper, mean lands owned by the United States in trust for an Indian tribe, or owned by the tribe itself, subject to Federal restrictions on alienation or encumbrance.

³“Allotted lands” as used in this paper, mean lands owned by the United States in trust for individual Indian owners, or owned by individual Indian owners themselves, subject to Federal restraints on alienation or encumbrance.

⁴See COLBY L. BRANCH AND ALAN C. BRYAN, *Indian Lands Right-of-Way*, Energy and Mineral Development in Indian County (Rocky Mt. Min. L. Fdn. 2014) (Hereinafter “Branch”).

⁵See Felix S. Cohen’s Handbook of Federal Indian Law, § 7.03[1] (Nell Jessup Newton ed., 2017) (Hereinafter “COHEN”).

⁶The term “trust lands” is used in this paper to collectively refer to tribal and allotted lands.

⁷*Delaware Tribal Business Committee v. Weeks*, 430 U.S. 73, 84, 97 S. Ct. 911, 51 L. Ed. 2d 173 (1977).

transferred or conveyed absent congressional approval.⁸

This discussion is intended to provide useful background information for anyone interested in oil and gas development on Indian lands. An exhaustive review of statutory or regulatory procedure is not attempted. Issues specific to particular reservations or to particular applications are not discussed.

A. APPLICABLE LAW

1. Federal Jurisdiction

§ 29:28 Background on Federal Indian Policy

During the early 19th century, the rapid growth of the United States created a demand for territorial expansion into the American West. Through conquest, treaties, and purchases, the United States acquired numerous Indian homelands. As settlement encroached on Indian lands, the Federal Government entered into treaties with Indian tribes which recognized the tribes' aboriginal right to occupy certain lands in exchange for cession of other lands.¹ National policy then shifted from removal of Indians to concentration on fixed reservations.² Therefore, certain lands were "reserved" from the public domain for the sole use and benefit of individual tribes.³ Legal title to the reserved tribal lands remained in the United States, but beneficial title vested with the tribe, to be held in common for the benefit of all living members of the tribe.⁴ This arrangement laid the foundation for the Federal Trust Doctrine.

§ 29:29 Federal Trust Obligation

As a general matter, the federal government has plenary power over Indian trust lands. The most basic cornerstone of Indian law is the federal government's long-established trust responsibility over Indian lands. The United States Supreme Court has long recognized "the distinctive obligation of trust incumbent upon the United States Government" with regards to matters affecting Indian tribes.¹ As the trustee of federal Indian lands, the government is held to the "most exacting fiduciary standards" in protecting the interests of Indian beneficial owners.² This trust obligation extends to all government officials, whether they are merely local federal employees or national decision-makers directing federal policy.³

As the legal title holder to tribal and individually allotted trust lands, the federal

⁸See *Oneida Indian Nation of N. Y. State v. Oneida County, New York*, 414 U.S. 661, 678, 94 S. Ct. 772, 39 L. Ed. 2d 73 (1974) (asserting that "the Nonintercourse Acts . . . put in statutory form what was or came to be the accepted rule—that the extinguishment of Indian title required the consent of the United States").

[Section 29:28]

¹COHEN, § 1.03[1].

²COHEN, § 1.03[6][a].

³COHEN, § 1.03[6][a].

⁴See *Johnson v. M'Intosh*, 21 U.S. 543, 588, 5 L. Ed. 681, 1823 WL 2465 (1823).

[Section 29:29]

¹*Seminole Nation v. U.S.*, 316 U.S. 286, 296, 62 S. Ct. 1049, 86 L. Ed. 1480, 86 L. Ed. 1777 (1942); see also *Cherokee Nation v. State of Ga.*, 30 U.S. 1, 8 L. Ed. 25, 1831 WL 3974 (1831); *U.S. v. Kagama*, 118 U.S. 375, 6 S. Ct. 1109, 30 L. Ed. 228 (1886); *Choctaw Nation v. U.S.*, 22 Ct. Cl. 476, 119 U.S. 1, 7 S. Ct. 75, 30 L. Ed. 306 (1886).

²*Coast Indian Community v. U. S.*, 213 Ct. Cl. 129, 550 F.2d 639, 652 (1977); *U.S. v. Mason*, 412 U.S. 391, 398, 93 S. Ct. 2202, 37 L. Ed. 2d 22, 73-2 U.S. Tax Cas. (CCH) P 12935, 32 A.F.T.R.2d 73-6217 (1973).

³*Seminole Nation*, 316 U.S. at 297; *Coast Indian Cmty.*, 550 F.2d at 653.

government's trust obligations are vast.⁴ Federal statutes and regulations give the government full responsibility to manage trust resources and land for the benefit of Indian owners.⁵ This responsibility includes the management of mineral resources. In fact, based on its statutory delegations, the federal government has developed a regulatory scheme that addresses all aspects of oil and gas development on trust lands.⁶ The Secretary of the Interior (Secretary), through the Bureau of Indian Affairs (BIA), is obligated to maximize consideration and protect Indian payments under such leases.⁷ In accordance with this regulatory scheme, there exist areas of exclusive federal jurisdiction where the Secretary or its federal agencies hold sole authority to address certain issues.⁸ Whether the federal government holds exclusive authority or shares concurrent authority with state or tribal governments will depend on the nature of the dispute and the potential occupation of the issue by the federal agency. To the extent a company commences any development involving tribal or individually allotted trust lands, the federal government, mainly through the BIA, will have a significant role in reviewing and approving these transactions.

a. Trust Lands and Allotments

§ 29:30 General Allotment Act

Throughout the nineteenth century, Congress entered into various treaties and agreements, whereby tribal land was allotted to individual Indians in fee, subject to restrictions on alienation.¹ In 1887, Congress passed the General Allotment Act, also known as the "Dawes Act," to break apart tribal lands into separate tracts, which would then be allotted to individual tribal members or allottees.² Any lands remaining after each eligible tribal member received his or her allotment were considered "surplus lands," which were then "disposed of" to the public at large under the existing homestead laws.³ As originally contemplated under the General Allotment Act, title to each allotment was to be held in trust by the United States for the individual Indian owner for a period of 25 years.⁴ The purpose of this provision was to allow the Indian owner time to become "competent" to manage his or her affairs.⁵ After such time, a patent was to issue to the Indian owner in fee simple, thereby terminating the United States' ownership and control over the land.

§ 29:31 Burke Act

In 1906, Congress enacted the Burke Act, which amended the General Allotment Act to eliminate all trust restrictions on allotments and authorized the Secretary to issue a fee patent to an allottee before expiration of the 25-year trust period established by the General Allotment Act, upon a conclusion that the allottee was

⁴See *Pawnee v. U.S.*, 830 F.2d 187, 190-91 (Fed. Cir. 1987).

⁵See *U.S. v. Mitchell*, 463 U.S. 206, 224, 103 S. Ct. 2961, 77 L. Ed. 2d 580 (1983).

⁶See 25 C.F.R. §§ 162.501 et seq (2021).

⁷*Pawnee*, 830 F.2d at 190-91.

⁸See, e.g., *Rainbow Resources, Inc. v. Calf Looking*, 521 F. Supp. 682, 684 (D. Mont. 1981).

[Section 29:30]

¹See COHEN, § 16.03[2][a].

²General Allotment Act, 24 Stat. 388 (1887).

³COHEN, § 1.04.

⁴General Allotment Act, ch. 119, § 5, 24 Stat. 388.

⁵General Allotment Act, ch. 119, § 5, 24 Stat. 388.

“competent and capable of managing his or her affairs.”¹ The Burke Act led to the increased alienation of Indian lands.² Notably, the Act did not require an allottee’s approval prior to the issuance of a fee patent and the Secretary of the Interior granted fee patents both to willing allottees and to a large numbers of Indians that did not seek fee title to the land.³

§ 29:32 Indian Reorganization Act

As a result of the United States’ allotment policy, many Indians received a fee patent, and some sold their land to non-Indians. Significant “surplus lands” within the Reservation were also sold to non-Indians.¹ The policy of allotment effectively transformed large portions of tribal lands into a checkerboard of allotted and fee lands. By 1934, nearly 27 million acres of the land allotted to tribal members had transferred from Indian ownership into non-Indian fee ownership.² In response to this and other matters, Congress passed the Indian Reorganization Act of 1934.³ This Act halted the practice of allotment, restored undisposed-of “surplus lands” to tribal trust ownership, and indefinitely extended the trust period over allotted lands.⁴ Consequently, most allotments that had not been transferred to fee ownership by 1934 remain held by the United States in trust today, with the beneficial ownership held by the heirs and successors of the original allottees.⁵

§ 29:33 Statutory Authority

The Constitution vests in Congress broad authority to regulate commerce with the Indian tribes.¹ Pursuant to this authority, Congress may authorize the non-Indian leasing of trust lands for oil and gas development. In 1891, Congress passed the first general leasing act which authorized the leasing of Indian lands for grazing and mining purposes.² The Act of 1891 was amended several times. Unfortunately, each amendment added another layer of confusion to the existing leasing process.³

§ 29:34 Indian Mineral Leasing Act

In 1938, Congress enacted the Indian Mineral Leasing Act (IMLA) in order to cre-

[Section 29:31]

¹Pub. L. No. 59-149, 34 Stat. 182 (1906) (amending 25 U.S.C. § 349).

²9-67 Powell on Real Property § 67.07.

³COHEN, § 16.03[4][b][iii].

[Section 29:32]

¹COHEN, § 1.04.

²COHEN, § 16.03[2][b] at 1073.

³Wheeler-Howard Act (Indian Reorganization Act), 48 Stat. 984–988 (1934) (codified as amended at 25 U.S.C. §§ 5101 et seq.).

⁴Wheeler-Howard Act (Indian Reorganization Act), 48 Stat. 984–988 (1934) (codified as amended at 25 U.S.C. §§ 5101 et seq.).

⁵See COHEN, § 16.03[2][b].

[Section 29:33]

¹U.S. CONST., art. I, § 2, cl. 3.

²See 25 U.S.C. § 397.

³COHEN, § 17.03[2][a]. The existing leasing structure had no uniformity concerning tribal consent, state taxation, or lease duration. 25 U.S.C. § 397.

ate a uniform process for leasing tribal minerals.¹ The stated purposes of the IMLA included: (1) to achieve uniformity in mineral leasing laws governing Indian lands; (2) to help achieve the goal of the Indian Reorganization Act to revitalize Indian tribal governments; and (3) to promote tribal economic development by ensuring the greatest return on tribal minerals.² Tribal leases could only be granted upon the consent of the Tribe and the approval of the Secretary.³ The duration of IMLA leases were “not to exceed 10 years and so long thereafter as minerals are produced in paying quantities.”⁴ The IMLA also included a public notice and competitive bidding process for leases, but the Secretary retained the authority to reject bids and re-advertise the lease when a bid was not in the best interest of the Tribe.⁵ The standard for “best interest” of a tribe is found in BIA’s regulations implementing the IMLA:

In considering whether it is “in the best interest of the Indian mineral owner” to take a certain action (such as approval of a lease, permit, unitization or communitization agreement), the Secretary shall consider any relevant factor, including, but not limited to: economic considerations, such as date of lease expiration; probable financial effect on the Indian mineral owner; leasability of land concerned; need for change in the terms of the existing lease; marketability; and potential environmental, social, and cultural effects.⁶

While the IMLA clarified the oil and gas leasing process, it was not ideal for all situations. Namely, the IMLA did not apply to leases of allotted lands.⁷ Also, from the Indian mineral owners’ perspective, leases provided no mechanism that would enable tribes to share in the profits generated from the minerals.⁸ For example, bonuses, rents, and royalties were claimed to be lower than warranted by market conditions.⁹ In addition, Indian tribes had limited authority to participate in development and management decisions, to bargain for lease terms,¹⁰ or to provide environmental and cultural protections.¹¹ As a result of these issues, several tribes began to negotiate oil and gas leases on their own outside the scope of IMLA. Although the Secretary approved several of these non-IMLA leases, in 1980 it determined that it had no such authority, raising doubts on the legality of the existing negotiated leases.¹²

§ 29:35 Allotted Lands Leasing Act

In 1909, Congress enacted the Allotted Lands Leasing Act (Act of 1909) in order

[Section 29:34]

¹Act of May 11, 1938, 52. Stat. 347 (codified at 25 U.S.C. §§ 396a to 396g).

²See COHEN at § 17.03[2][a].

³25 U.S.C. § 396a.

⁴25 U.S.C. § 396a.

⁵25 U.S.C. § 396b.

⁶25 C.F.R. § 211.3 (2021).

⁷25 U.S.C. § 396a.

⁸COHEN, § 17.03[2][a].

⁹COHEN, § 17.03[2][a].

¹⁰If the bid received in the public notice and competitive bidding process was not in the best interest of the tribe, the Secretary could enter into negotiations on behalf of the tribe. 25 U.S.C. § 396b.

¹¹COHEN, § 17.03[2][a].

¹²COHEN, § 17.03[2][a].

to authorize the general leasing of allotted lands for mining purposes.¹ The Act specifically authorized the Secretary to make all such rules and regulations as may be necessary to carry out the purposes of the Act.² BIA Regulations implementing the Allotted Lands Leasing Act in 25 C.F.R. part 212 generally incorporate by reference the corresponding IMLA tribal lands regulations in 25 C.F.R. part 211. Pursuant to the Act of 1909, the Secretary may issue a lease, based on the best interest of the allottees, upon the consent of a majority of the allottees owning an interest in the tract.³

§ 29:36 Indian Mineral Development Act

In 1982, Congress passed the Indian Mineral Development Act (IMDA) in an effort to further the United States' new policy of Indian self-determination.¹ The IMDA authorized Indian mineral owners to negotiate and enter into mineral development agreements. The term "Minerals Agreement" is flexible and includes:

Any joint venture, operating, production sharing, service, managerial, lease . . . contract, or other minerals agreement; or any amendment, supplement or other modification of such minerals agreement, providing for the exploration for, or extraction, processing, or other development of minerals in which an Indian mineral owner owns a beneficial or restricted interest, or providing for the sale or other disposition of the production or products of such minerals.²

A Minerals Agreement is still subject to approval by the Secretary.³ Therefore, while the IMDA does not require any particular form of Minerals Agreement, the Secretary's approval of a Minerals Agreement will be affected by the agreement's terms and whether the agreement is "in the best interest of the Indian tribe."⁴ In approving or disapproving a Mineral Agreement, the Secretary must consider "the potential economic return to the tribe; the potential environmental, social, and cultural effects on the tribe; and provisions for resolving disputes that may arise between the parties to the agreement."⁵ After the Secretary approves a Minerals Agreement under the provisions of the IMDA, the United States is shielded from liability for losses sustained by a tribe under a Minerals Agreement, but will still protect the tribe or individual Indian against a violation by the mineral development company.⁶

§ 29:37 Indian Tribal Energy Development and Self-Determination Act

Consistent with the policy of tribal self-determination, Congress enacted the Indian Tribal Energy Development and Self-Determination Act of 2005 (Act of 2005) which authorized tribes to develop their own economic and environmental review

[Section 29:35]

¹Act of March 3, 1909, 35 Stat. 783 (codified at 25 U.S.C. § 396).

²Act of March 3, 1909, 35 Stat. 783 (codified at 25 U.S.C. § 396).

³25 C.F.R. § 212.20 (2021); 25 U.S.C. § 2218(b).

[Section 29:36]

¹Act of December 22, 1982, Pub. L. No. 97-382, 96 Stat. 1938 (codified at 25 U.S.C. §§ 2101 to 2108). The IMDA was intended "first, to further the policy of self-determination and second, to maximize the financial return tribes can expect for their valuable mineral resources." *Quantum Exploration, Inc. v. Clark*, 780 F.2d 1457, 1458 (9th Cir. 1986).

²25 C.F.R. § 225.3 (2021).

³25 U.S.C. § 2102(a).

⁴25 U.S.C. § 2103(b).

⁵25 U.S.C. § 2103(b).

⁶25 U.S.C. § 2103(e).

capabilities and secure secretarial approval to review and approve certain agreements, eliminating the need for BIA approval.¹ Specifically, the Act of 2005 authorizes tribes and the Secretary to enter into Tribal Energy Resource Agreements (TERAs) pursuant to which a tribal agency may alone review, approve, and regulate energy resource development.² The TERA process allows the Secretary to pre-approve certain mineral development agreements. Under Section 3504, an approved TERA may allow the tribe to enter into a lease or business agreement for the “exploration for, extraction of, processing of, or other development of energy mineral resources of the Indian tribe located on tribal land.”³ The Act of 2005 also authorizes the pooling, unitization, or communitization of tribal minerals located on trust land.⁴

A TERA may also authorize a tribe to grant rights-of-way over trust land if the right-of-way serves any of the following:

- (A) an electric production, generation, transmission, or distribution facility (including a facility that produces electricity from renewable energy resources) located on tribal land;
- (B) a facility located on tribal land that extracts, produces, processes, or refines energy resources; or
- (C) the purposes, or facilitates in carrying out the purposes, of any lease or agreement entered into for energy resource development on tribal land.⁵

The regulations implementing the Act of 2005 contain a detailed process for approving a TERA.⁶ The Act of 2005 appears to be underutilized. Although several tribes initiated the TERA process, no tribe has yet entered into a TERA.⁷ This may be due to the complexity of the Act of 2005 regulations, as well as the anticipated cost and time involved in creating and administering such an agreement.

b. Agency roles in Oil and Gas Development on Indian Lands

§ 29:38 Bureau of Indian Affairs

Congress delegated substantial authority to the Secretary for the implementation of the laws which apply to the development of oil and gas on trust lands.¹ The Sec-

[Section 29:37]

¹42 U.S.C. §§ 7144e & 16001 (Title V of the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594).

²25 U.S.C. § 3504.

³25 U.S.C. § 3504(a)(1)(A).

⁴25 U.S.C. § 3504(a)(1)(C).

⁵25 U.S.C. § 3504(b)(1). The Act of 2005 originally did not authorize rights-of-way for roads or other non-pipeline, non-transmission access or other facilities often required for energy development. The Act of 2005 was amended by Act of Dec. 18, 2018, P.L. 115-325, Title I, §§ 103(a), 105(d), 132 Stat. 4447, 4456 to include subsection C. Subsection C is on its face broad enough to include rights-of-way for roads or other facilities.

⁶See 25 C.F.R. pt. 224 (2021).

⁷TANA FITZPATRICK, *Tribal Energy Resource Agreements (TERAs): Approval Process and Selected Issues for Congress*, Congressional Research Service (July 9, 2020).

[Section 29:38]

¹In 25 U.S.C. § 2, Congress specifically provided that “[t]he Commissioner of Indian Affairs shall, under the direction of the Secretary of the Interior, and agreeably with such regulations as the President may prescribe, have the management of all Indian Affairs and all matters arising out of Indian relations.” See also 25 U.S.C. § 13 (“[T]he Bureau of Indian Affairs, under the supervision of the Secretary of the Interior, shall direct, supervise, and expend such moneys as Congress may from time to time appropriate, for the benefit, care, and assistance of the Indians throughout the United States.”).

retary of the Interior has further delegated this authority to the BIA.² Consequently, the BIA has the authority to promulgate regulations necessary to implement its statutory obligations and duties related to the management of Indian trust lands.³ Most relevant for oil and gas operations, BIA's responsibilities include the negotiation, approval, and cancellation of oil and gas leases;⁴ the management of leasing of oil and gas resources;⁵ the environmental review of proposed operations;⁶ and the acquisition of land in trust status for the benefit of individual Indians and Indian tribes.⁷

§ 29:39 Bureau of Land Management

The Bureau of Land Management (BLM)'s regulations govern oil and gas operations on "restricted Indian land leases," as well as leases under the jurisdiction of the Secretary.¹ BLM's responsibilities on Indian lands include "resource evaluation, approval of drilling permits, mining and reclamation, production plans, mineral appraisals, inspection and enforcement, and production verification."² BLM's oil and gas regulations apply to leases that are approved under the IMLA and the IMDA, as well as leases of allotted lands.³ BLM has general authority over Applications for Permits to Drill (APDs) for wells drilled on Indian Lands, but will consult with BIA as part of the APD process.⁴ BLM also has responsibility of split estate lands when federal minerals are beneath tribal surface.⁵

§ 29:40 Office of Natural Resources Revenue

In 1982, Congress enacted the Federal Oil and Gas Royalty Management Act (FOGRMA) to improve royalty collection, management, and enforcement.¹ The Office of Natural Resources Revenue (ONRR) is the federal agency responsible for the collection and disbursement of royalties paid on production from leases on Indian lands.² ONRR's responsibilities include the collection of certain rents, royalties, and other payments; the receipt of sales and production reports; determining royalty liability; maintaining accounting records; auditing royalty payments and obligations; and for any and all other functions relating to royalty management on Indian oil

²COHEN, § 5.03 [1].

³COHEN, § 5.03 [1].

⁴25 C.F.R. pt. 162 (2021).

⁵25 C.F.R. §§ 200, 211, 212, 225 (2021).

⁶40 C.F.R. § 1500.6 (2021); 25 C.F.R. § 211.7 (2021).

⁷25 C.F.R. pt. 151 (2021).

[Section 29:39]

¹43 C.F.R. § 3160.0-1 (2021).

²25 C.F.R. § 211.4 (2021).

³25 C.F.R. § 211.4 (2021); 25 C.F.R. § 212.4 (2021); 25 C.F.R. § 225.4 (2021); 43 C.F.R. § 3161.1 (2021).

⁴43 C.F.R. § 3162.3-1 (2021); *see also* Federal Onshore Oil and Gas Order No. 1, 72 Fed. Reg. 10308 (Mar. 7, 2007).

⁵43 C.F.R. § 3162.3-1 (2021); *see also* Federal Onshore Oil and Gas Order No. 1, 72 Fed. Reg. 10308 (Mar. 7, 2007).

[Section 29:40]

¹Federal Oil and Gas Royalty Management Act, 96 Stat. 2448, codified at 30 U.S.C. §§ 1701 et seq.

²25 C.F.R. § 211.6 (2021).

and gas leases.³

2. Other Federal Delegations

§ 29:41 Environmental Compliance

Most major federal environmental laws are relevant to oil and gas operations in Indian country.¹ For example, oil and gas development on Indian lands will generally be subject to the National Environmental Policy Act's (NEPA)² requirement that an environmental impact statement be prepared for all "major Federal actions significantly affecting the quality of the human environment."³ Secretarial approval of tribal and allotted leases constitutes a major federal action; therefore, the Secretary must comply with NEPA in the approval process.⁴ The Secretary must also determine whether an IMDA agreement does not have an adverse environmental impact before granting approval.⁵ In addition, the Surface Mining Control and Reclamation Act of 1977 (SMCRA) governs the environmental aspects of surface exploration, drilling, and reclamation on Indian lands.⁶

Federal environmental laws operate under the principle of cooperative federalism, whereby the federal government establishes minimum standards and encourages state or local governments to implement and administer these federal minimums.⁷ As a general rule, the United States Environmental Protection Agency (EPA) has primary environmental regulatory authority over operations within Indian reservations.⁸ For purposes of enforcing applicable federal environmental laws, Indian reservations are considered "single administrative units."⁹ State governments generally do not have environmental regulatory authority on Indian reservations absent a specific delegation from the EPA. With regard to Indian reservation lands (including non-Indian fee lands), a local tribe may receive delegations of environmental regulatory authority from the EPA, similar to those received by state governments outside the reservation, but only if that tribe meets certain conditions.¹⁰ Specifically, the tribe must apply for Treatment as a State (TAS) status and be approved by the EPA in order to administer federal environmental standards.¹¹ Once a tribe has obtained TAS status for one environmental statute, it is much easier for the tribe to apply and have the status granted for another statute.

Even when a tribe has not obtained TAS status, the EPA and other federal agencies are required to consult with the tribes with respect to historic preservation

³30 C.F.R. § 1201.100 (2021).

[Section 29:41]

¹COHEN, § 17.03[3].

²42 U.S.C. §§ 4321 et seq.

³42 U.S.C. § 4332(2)(C).

⁴See 25 C.F.R. § 211.7(a) (2021); 25 C.F.R. § 225.24(a) (2021).

⁵25 C.F.R. § 225.22(c)(2) (2021).

⁶30 U.S.C. §§ 1201 to 1328; the regulations provide that the act applies to both IMLA leases, 25 C.F.R. § 211.5 (2021), and IMDA minerals agreements, 25 C.F.R. § 225.5 (2021).

⁷See, e.g., *Bell v. Cheswick Generating Station*, 734 F.3d 188, 190, 77 Env't. Rep. Cas. (BNA) 1395 (3d Cir. 2013).

⁸See EPA Policy for the Administration of Environmental Programs on Indian Reservations (1984).

⁹See EPA Policy for the Administration of Environmental Programs on Indian Reservations (1984).

¹⁰See, e.g., 33 U.S.C. § 1377(e) (Clean Water Act); 42 U.S.C. § 7601 (Clean Air Act); 42 U.S.C. § 300j-11(a) (Safe Drinking Water Act).

¹¹See, e.g., 33 U.S.C. § 1377(e) (Clean Water Act); 42 U.S.C. § 7601 (Clean Air Act); 42 U.S.C. § 300j-11(a) (Safe Drinking Water Act).

prior to the issuance of any oil and gas lease as discussed below.¹² From an environmental standpoint, any activity causing significant surface disturbance, in need of a federal permit, is likely to also trigger these consultation requirements.

§ 29:42 Historic Preservation

Congress has determined that it is in the public's best interest to preserve the historical heritage of this country. In furtherance of this policy, Congress enacted the National Historic Preservation Act (NHPA)¹ which affirmatively requires all federal agencies approving any federal undertaking and prior to the issuance of any license to "take into account the effect of the undertaking on the district, site, building, structure, or object that is included in or eligible for inclusion in a national register (i.e. historic resources) and shall provide the advisory counsel on historic preservation a reasonable opportunity to comment with regard to the undertaking."² Tribes typically each have their own Tribal Historic Preservation Officer (THPO) whose mission is to integrate cultural resource compliance into a comprehensive planning process.³ The THPO coordinates and consults with other state-specific historical agencies, and may assume the functions of the State Historic Preservation Officer (SHPO) with respect to trust land, if certain qualifications are met.⁴ The tribes' THPO agency will require strict compliance with the Native American Graves Protection and Act (NAGPRA),⁵ NHPA, and NEPA, and will likely require operators to pay for a cultural resource inventory along any ground disturbance routes.

Under NHPA, the federal government is required to consult with federally recognized Indian tribes whenever an undertaking has the potential to cause adverse effects to culturally or religiously significant properties.⁶ Because the consultation requirements are government-to-government, oil and gas developers do not consult with the tribe directly. Consultations with the THPO and conducting an archeological resource survey will likely be required prior to commencing operations under any lease or right-of-way on tribal or individually allotted trust lands.⁷ Therefore, an oil and gas company should communicate with federal agencies directly to determine whether consultation has occurred or whether site visits/consultation should be set up with the THPO and SHPO. A company should keep thorough records of any attempt to consult with a tribe.

B. TRIBAL JURISDICTION

§ 29:43 *Montana* line of cases determining jurisdiction

"Tribal jurisdiction" refers to the ability of a tribal government to exercise authority over a person or entity; generally speaking, this includes the power of a tribe to tax, regulate, or subject a person or entity to adjudication in its courts. Questions of tribal jurisdiction can be very complicated and have been the subject of many papers,

¹²54 U.S.C. § 306108.

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¹Pub. L. No. 89-665, 80 Stat. 915 (1966), 54 U.S.C. §§ 300101 et seq.

²*Attakai v. U.S.*, 746 F. Supp. 1395, 1405, 21 Env'tl. L. Rep. 20433 (D. Ariz. 1990); 16 U.S.C. § 470F.

³36 C.F.R. pt. 800 (2021).

⁴54 U.S.C. § 302702.

⁵25 U.S.C. §§ 3001 et seq.

⁶54 U.S.C. § 302706.

⁷*See* 36 C.F.R. § 800.16 (2021). An undertaking, as defined as "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval." 36 C.F.R. § 800.16 (2021).

presentations, and publications.¹ Tribal jurisdiction is determined by federal case law. While the United States Supreme Court has plainly stated that there is no tribal criminal jurisdiction over non-Indians,² determinations of civil jurisdiction require a complex analysis of multiple factors, including land status and contractual relationships with tribal members. The scope of any tribe's jurisdiction is limited by federal law.³

With respect to a tribe's civil and regulatory jurisdiction, the general rule established by the United States Supreme Court is that Indian tribes lack jurisdiction over non-Indians who come within their borders.⁴ There are two exceptions to this general rule. First, "a tribe may regulate, through taxation, licensing, or other means, the activities of nonmembers who enter consensual relationships with the tribe or its members, through commercial dealings, contracts, leases, or other arrangements."⁵ Second, "a tribe may . . . exercise civil authority over the conduct of non-Indians on fee lands within its reservation when that conduct threatens or has some direct effect on the political integrity, the economic security, or the health or welfare of the tribe."⁶ Federal courts apply the first exception only where a sufficient nexus exists between the relationship and the conduct over which the tribe seeks to exercise jurisdiction. The second exception is limited to those circumstances directly impacting the tribe's ability to govern itself, or directly affecting the health and welfare of the tribe.

The question of whether a tribe may exercise civil jurisdiction over a non-Indian is a question of fact in each case. There are very few certainties in this analysis. One must start with the presumption that the tribe has no civil jurisdiction, and thereafter examine the specific facts of each case to determine whether tribal jurisdiction is warranted. The most common method by which non-Indians subject themselves to tribal jurisdiction is by entering into a consensual relationship (a contract) with a tribe or its members.⁷

Another key factor in determining the extent of tribal jurisdiction is land ownership. Federal courts are more likely to find tribal jurisdiction if the events at issue occurred on tribal or allotted trust lands. In many cases, this is due to the reasoning that the tribe's power to exclude a person from trust lands necessarily includes the lesser power to regulate a non-Indian's activities while on those lands. In general, a tribe's ability to regulate or tax non-Indian activities is most limited when the activities at issue are restricted to non-Indian owned fee lands.⁸ On the other hand, non-Indian companies are most likely to be subject to tribal jurisdiction

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¹See, e.g., Westesen, *From Montana to Plains Commerce Bank and Beyond: The Supreme Court's View of Tribal Jurisdiction over Non-Members*, 2 Natural Resources Development on Indian Lands 9-1 (Rocky Mt. Min. L. Found. 2011) and sources cited therein.

²*Oliphant v. Suquamish Indian Tribe*, 435 U.S. 191, 194, 98 S. Ct. 1011, 55 L. Ed. 2d 209 (1978).

³*Iowa Mut. Ins. Co. v. LaPlante*, 480 U.S. 9, 15, 107 S. Ct. 971, 94 L. Ed. 2d 10 (1987).

⁴*Plains Commerce Bank v. Long Family Land and Cattle Co.*, 554 U.S. 316, 128 S. Ct. 2709, 171 L. Ed. 2d 457 (2008).

⁵*Montana v. U. S.*, 450 U.S. 544, 101 S. Ct. 1245, 67 L. Ed. 2d 493 (1981).

⁶*Montana v. U. S.*, 450 U.S. 544, 566, 101 S. Ct. 1245, 67 L. Ed. 2d 493 (1981) (citing *Fisher v. District Court of Sixteenth Judicial Dist. of Montana*, in and for Rosebud County, 424 U.S. 382, 386, 96 S. Ct. 943, 47 L. Ed. 2d 106 (1976)).

⁷See, e.g., *Gustafson v. Estate of Poitra*, 2011 ND 150, 800 N.W.2d 842 (N.D. 2011).

⁸*Plains Com. Bank*, 554 U.S. at 328; see also *Strate v. A-1 Contractors*, 520 U.S. 438, 446, 117 S. Ct. 1404, 137 L. Ed. 2d 661 (1997).

when they conduct activities on tribal trust or individually allotted trust lands.⁹

Although land status is not purely dispositive, it often makes the difference in a federal court's determination between tribal jurisdiction and state or federal jurisdiction. Because of the General Allotment Act of 1887,¹⁰ there are many acres of fee lands located within the boundaries of Indian reservations.¹¹ "[U.S. Supreme Court] cases have made it clear that once tribal land is converted into fee simple, the tribe loses plenary jurisdiction over it."¹² For example, based on the General Allotment Act, courts have stated that county and local governments may impose ad valorem taxes on fee lands within a reservation.¹³

Given this background, tribal attempts to regulate and tax operations limited to non-Indian fee lands or fee interests may be subject to challenge. The inclusion of tribal or individually allotted trust lands in oil and gas operations, however, would likely result in tribal jurisdiction over at least part of the oil and gas development. Whether the tribes' resulting power to regulate would extend to the entire development due to the partial inclusion of tribal or allotted trust tracts is an open question.

§ 29:44 *Montana* line of cases determining jurisdiction—Employment Requirements

In contemplating development on Indian lands, it is important to keep in mind that the tribes have enacted, and will enforce, many tribal laws relevant to operations within their boundaries. Oil and gas development on a reservation would likely be subject to a tribe's Tribal Employment Rights Office (TERO) requirements.¹ TERO primarily deals with tribal hiring preferences and fees. It may also address matters of business licensing and require nonmember companies to register with the agency prior to commencing operations on the reservation. TERO agencies often require initial license filings and compliance plans, and may impose fees on an operator's construction activities, in addition to preferential treatment for hiring of tribal contractors and tribal employees. Federal courts have upheld the establishment of tribal employment preferences based on the operator's consensual relationship with the tribe.² Questions have been raised, however, regarding the extent to which TERO regulations apply to non-Indian activities on non-Indian fee lands.³ The *Montana* analysis, discussed above, is applicable to any such analysis. The applicability of TERO laws as well as other tribal agency requirements can be negoti-

⁹*Merrion v. Jicarilla Apache Tribe*, 455 U.S. 130, 102 S. Ct. 894, 71 L. Ed. 2d 21 (1982) (upholding tribal severance taxes on oil & gas production from tribal leases).

¹⁰24 Stat. 388, as amended, 25 U.S.C. §§ 331 et seq.

¹¹*See Atkinson Trading Co., Inc. v. Shirley*, 532 U.S. 645, 648, 650 n.1, 121 S. Ct. 1825, 149 L. Ed. 2d 889 (2001).

¹²*Plains Commerce Bank*, 554 U.S. at 328; *see also Brendale v. Confederated Tribes and Bands of Yakima Indian Nation*, 492 U.S. 408, 430, 109 S. Ct. 2994, 106 L. Ed. 2d 343 (1989) (opinion of White, J., stating that the tribe has no authority itself, by way of tribal ordinance or actions in the tribal courts, to regulate the use of fee land).

¹³*County of Yakima v. Confederated Tribes and Bands of Yakima Indian Nation*, 502 U.S. 251, 254-255, 112 S. Ct. 683, 116 L. Ed. 2d 687 (1992); *see also Goudy v. Meath*, 203 U.S. 146, 149-150, 27 S. Ct. 48, 51 L. Ed. 130 (1906) (explaining that the General Allotment Act exposed allotted lands to state assessment and forced sale for taxes by allowing them to be alienated).

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¹*See NEIL G. WESTESEN & JOSHUA B. COOK, Fort Berthhold: A 'Real World' Indian Law Oil and Gas Development Case Study*, Indian Law and Natural Resources: The Basics and Beyond 13-1 (Rocky Mt. Min. L. Found. 2017).

²*See FMC v. Shoshone-Bannock Tribes*, 905 F.2d 1311, 53 Empl. Prac. Dec. (CCH) P 40020 (9th Cir. 1990); *see also MacArthur v. San Juan County*, 497 F.3d 1057, 1071-72 (10th Cir. 2007).

³*See State of Mont. Dept. of Transp. v. King*, 191 F.3d 1108 (9th Cir. 1999).

ated with a tribe as part of the lease acquisition process.

§ 29:45 *Montana* line of cases determining jurisdiction—Taxation

Assessing whether tribes or states have a right to tax oil and gas operations on Indian land is a complex issue and answers may vary based on land status, tribal status, or the extent to which the operator has subjected itself to tribal contracts. In general, tribes may tax severance of minerals under tribal leases.¹ A state may also tax severance of minerals under tribal leases when the state is providing services in the area.² This results in a “dual taxation” situation, where an operator is being taxed twice for the same activity.³ Dual taxation can be fairly common when operating on trust lands and most courts will uphold the state’s severance tax so long as the economic burden falls on the nonmember developer instead of the tribe.⁴ Due to potential dual taxation liability, a prudent operator should consider alternatives to minimize overall tax burdens, including tax credits or other incentives for energy and mineral development on trust lands.⁵

When operating on fee lands within a reservation, tribal taxes can likely be avoided. Tribes commonly rely on the *Montana* exceptions to assert broad claims of authority across their reservation. Nevertheless, as demonstrated in *Big Horn Electric v. Adams*, federal courts are reluctant to allow tribes to tax non-Indian fee lands or rights of way, even when tribes assert that these exceptions are present.⁶ The federal courts’ reluctance to allow tribal taxation on non-Indian fee lands would likely extend to oil and gas operations.⁷

C. STATE AND LOCAL AUTHORITY

§ 29:46 Generally

In general, a state may not regulate property or conduct of tribes or Indian mineral owners within a reservation.¹ State conservation boards can generally regulate the development of minerals on fee lands within Indian reservations. These regulatory agencies have little, if any, authority over trust lands, and may not enforce state spacing or pooling orders as to included trust lands.² The exercise of state authority may also be barred to the extent that it imposes an undue burden on

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¹See *Merrion v. Jicarilla Apache Tribe*, 455 U.S. 130, 152, 102 S. Ct. 894, 71 L. Ed. 2d 21 (1982); *Kerr-McGee Corp. v. Navajo Tribe of Indians*, 471 U.S. 195, 105 S. Ct. 1900, 85 L. Ed. 2d 200 (1985).

²*Cotton Petroleum Corp. v. New Mexico*, 490 U.S. 163, 182, 109 S. Ct. 1698, 104 L. Ed. 2d 209 (1989). A state may not tax the Indian royalty received under IMLA leases. See *Montana v. Blackfeet Tribe of Indians*, 471 U.S. 759, 105 S. Ct. 2399, 85 L. Ed. 2d 753 (1985).

³See *Cotton Petroleum*, 490 U.S. at 191–192.

⁴*Cotton Petroleum*, 490 U.S. at 191–192; see also *Ute Mountain Ute Tribe v. Rodriguez*, 660 F.3d 1177, 1200, 173 O.G.R. 127 (10th Cir. 2011) (State severance tax upheld despite limited services provided to the operator).

⁵SLADE, “*Mineral and Energy Development on Native American Lands: Strategies for Addressing Sovereignty, Regulation, Rights, and Culture*,” 56 Rocky Mt. Min. L. Inst. 5A-1 (2010).

⁶*Big Horn County Elec. Co-op., Inc. v. Adams*, 219 F.3d 944 (9th Cir. 2000); see also *Plains Com. Bank*, 554 U.S. at 330.

⁷See *Big Horn County Elec. Co-op., Inc. v. Adams*, 219 F.3d 944 (9th Cir. 2000).

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¹*McClanahan v. State Tax Commission of Arizona*, 411 U.S. 164, 168, 93 S. Ct. 1257, 36 L. Ed. 2d 129 (1973) (“‘[T]he policy of leaving Indians free from state jurisdiction and control is deeply rooted in the Nation’s history.’”); *Oklahoma Tax Com’n v. Chickasaw Nation*, 515 U.S. 450, 458, 115 S. Ct. 2214, 132 L. Ed. 2d 400 (1995).

²*Assiniboine and Sioux Tribes of Fort Peck Indian Reservation v. Board of Oil and Gas Conserva-*

tribal government, or, in the Supreme Court's words, "unlawfully infringes on the right of reservation Indians to make their own laws and be ruled by them."³ Absent explicit congressional authorization, a state or local regulation is categorically preempted by federal law if the legal incidence of the regulation falls upon an Indian tribe or an individual Indian with respect to income arising, property located, or a transaction occurring within Indian country.⁴ Where the legal incidence of a state or local regulation falls on non-Indian persons or entities, however, federal law does not categorically preempt the regulation. Instead, courts apply a flexible analysis that makes "a particularized inquiry must be made into the nature of the state, federal and tribal interests at stake, an inquiry designed to determine whether, in the specific context, the exercise of state authority would violate federal law."⁵

D. LEASING, EXPLORATION, DEVELOPMENT, PRODUCTION

1. Leasing

§ 29:47 Standard Form Leases

The leasing process for tribal and allotted minerals is found in 25 C.F.R. Parts 211 and 212.¹ An oil and gas company seeking to lease tribal minerals should request that BIA offer an identified tract for leasing. Tribal leases for oil and gas must first be offered for sale at a public auction.² After consultation with the tribe, the Secretary will advertise the lease for sale at an appropriate rental rate and royalty.³ The advertisement for public auction must provide that the "Secretary reserves the right to reject any and all bids."⁴ If no satisfactory bid is received at the auction, then the company may enter into private negotiation with the Secretary.⁵ Allotted leases for oil and gas can also be offered for sale at a public auction, or an individual allottee can request that the Secretary negotiate the lease on behalf of the allottee(s).⁶ However, the lessee must receive consent from the majority of the allottees in each tract.⁷ Once a company is awarded the lease, it has the option to post one bond for each lease, a \$75,000 bond for all oil and gas leases in each state, or a \$150,000 bond for full nationwide coverage of oil and gas leases.⁸ While a practitioner should conduct careful review of the form lease and applicable regulations, there are several lease regulations that a potential lessee of trust minerals should be aware of:

tion of State of Montana, 792 F.2d 782, 794 (9th Cir. 1986).

³Assiniboine and Sioux Tribes of Fort Peck Indian Reservation v. Board of Oil and Gas Conservation of State of Montana, 792 F.2d 782, 794 (9th Cir. 1986) (citing *Williams v. Lee*, 358 U.S. 217, 220, 79 S. Ct. 269, 3 L. Ed. 2d 251 (1959) and other cases).

⁴Oklahoma Tax Com'n v. Chickasaw Nation, 515 U.S. 450, 115 S. Ct. 2214, 132 L. Ed. 2d 400 (1995).

⁵White Mountain Apache Tribe v. Bracker, 448 U.S. 136, 100 S. Ct. 2578, 65 L. Ed. 2d 665 (1980).

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¹25 C.F.R. §§ 211.1 to 211.58 (2021) (tribal minerals); 25 C.F.R. §§ 212.1 to 212.58 (2021) (allotted minerals).

²25 U.S.C. § 396b; 25 C.F.R. § 211.20(a) (2021).

³25 C.F.R. § 211.20(b) (2021).

⁴25 C.F.R. § 211.20(b)(2). The secretary will reject the highest bid if it is not "in the best interest of the tribe." 25 C.F.R. § 211.20(b)(6) (2021).

⁵25 U.S.C. § 396b.

⁶25 C.F.R. § 212.20(b) (2021). If the allotted lease is offered for public sale, the auction process is identical to that of the tribal lease. 25 C.F.R. § 212.20(b) (2021).

⁷25 U.S.C. § 2218(b).

⁸25 C.F.R. § 211.24 (2021); 25 C.F.R. § 212.24 (2021).

- (1) BIA has set the minimum royalty rate at 16 $\frac{2}{3}\%$ and requires the lessee to pay an annual rental of at least \$2.00 per acre.⁹
- (2) A lease may not exceed 640 acres.¹⁰
- (3) The standard lease term is for 10 years and so long thereafter as the oil and gas are produced in paying quantities.¹¹ A standard form lease does not contain a savings clause.¹² To halt production from the lease, a lessee should obtain a suspension of operations from BIA.¹³
- (4) The lease will be segregated into separate leases when a portion of the lease is committed to a communitization agreement.¹⁴
- (5) To assign the lease, the lessee must obtain BIA consent. An allotted lease may also contain consent-to-assign language.¹⁵

§ 29:48 Standard Form Leases—IMDA Minerals Agreements

The IMDA authorized tribes to enter into Minerals Agreements providing for “the exploration for, or extraction, processing, of, oil, gas . . . or other energy or nonenergy mineral resources . . . in which such Indian tribe owns a beneficial or restricted interest.”¹ The regulations governing Minerals Agreements are found at 25 C.F.R. Part 225.² There is no form agreement or required terms, but a Minerals Agreement shall address 21 specified provisions, including, but not limited to: (1) duration of the agreement; (2) indemnity of the Indian Mineral Owner; (3) valuation, reporting, and accounting procedures; (4) bonding and insurance; (5) reclamation; and (6) dispute resolution.³ The Indian mineral owner may seek assistance from the Secretary in negotiating the Minerals Agreement, but assistance is not required.⁴ Allottees can also become parties to a tribal IMDA agreement.⁵ After the parties submit an agreement to the Secretary, the Secretary must generally approve or disapprove the agreement within 180 days of submission or 60 days after compliance with federal environmental laws.⁶ The tribe may withdraw its consent at any time prior to final approval from the Secretary.

2. Exploration, Development and Production

§ 29:49 Surface Use and Access Issues

Any company planning oil and gas operations within an Indian reservation must ensure access to and from the leasehold. This can be accomplished through several means, including statutory rights-of-way, public roads and highways, BIA roads, IMDA Agreements, and, in some circumstances, condemnation.

⁹25 C.F.R. § 211.41(b) (2021); 25 C.F.R. § 212.41(b) (2021).

¹⁰25 C.F.R. § 211.27(a) (2021); 25 C.F.R. § 212.27(a) (2021).

¹¹25 C.F.R. § 211.27 (2021); 25 C.F.R. § 212.27 (2021).

¹²WEBSTER, *Mineral Development of Indian Lands: Understanding the Process and Avoiding the Pitfalls*, 39 Rocky Mt. Min. L. Inst. 2-1 (1993).

¹³25 C.F.R. § 211.44(a) (2021); 25 C.F.R. § 212.44(a) (2021).

¹⁴25 C.F.R. § 211.28(g) (2021); 25 C.F.R. § 212.28(g) (2021).

¹⁵25 C.F.R. § 211.53 (2021); 25 C.F.R. § 212.53 (2021).

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¹25 U.S.C. § 2102(a).

²25 C.F.R. §§ 225.20 to 225.40 (2021).

³See 25 C.F.R. § 225.21(b) (2021) for the full list of necessary provisions.

⁴25 C.F.R. § 225.21(a) (2021).

⁵25 U.S.C. § 2102(b); 25 C.F.R. § 225.20(b) (2021).

⁶25 C.F.R. § 225.22(a) (2021).

The process for obtaining a statutory right of way can be found in 25 C.F.R. part 169.¹ A right-of-way applicant must obtain both tribal consent and the consent of individual landowners.² However, rights-of-way may be granted without landowner consent in the following circumstances: (1) the land is owned by more than one person, and the owners of a majority interest consent; (2) one or more owners are unlocatable but a majority of the owners that are locatable consent; (3) the heirs or devisees of the Landowner have not been determined; or (4) the owners are so numerous that it would be impracticable to obtain their consent.³ The right-of-way application must also include a bond, insurance, or other form a security to cover annual rentals, damages, remediation costs, and other fees.⁴

The compensation paid for a right-of-way must be “not less than Fair Market value.”⁵ The BIA defers to the tribes in determining the fair market value of trust land.⁶ Rights-of-way for oil and gas operations are granted for an initial term of 20 years and can be renewed up to a maximum term of 50 years.⁷ If an operator goes beyond the scope of the right-of-way, it may be liable for trespass.⁸

An operator can also utilize state highways, local roads, and BIA roads to access the leasehold. State highways and local roads properly opened and established in Indian reservations may be used by the general public in the same manner as any other public road.⁹ While BIA roads are owned and maintained by the BIA, they are also open for general public use.¹⁰ However, public use of BIA roads may be restricted for certain public safety reasons.¹¹

Another way to obtain access is through an IMDA Minerals Agreement. If an operator enters a Minerals Agreement with the tribe, the operator can negotiate surface access and use to the particular leasehold, including across adjacent land.¹² A Minerals Agreement can also apply to allotted lands and minerals if all landowners consent to the agreement.¹³ However, if none of the other measures are available, an operator could seek condemnation of a right-of-way. Congressional authorization is necessary to exercise eminent domain over tribal trust lands.¹⁴ This process involves Congress demonstrating an intent to abrogate applicable treaty rights and

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¹The regulations were “modernized” in 2016 through a Final Rule entitled Rights-of-Way on Indian Land, 81 Fed. Reg. 14976 (March 21, 2016).

²25 U.S.C. § 324; 25 C.F.R. § 169.107 (2021). In addition, a grantee must obtain landowner consent it can assign a right-of-way. 25 C.F.R. § 169.207 (2021).

³25 U.S.C. § 324; 25 C.F.R. § 169.107 (2021). In addition, a grantee must obtain landowner consent it can assign a right-of-way. 25 C.F.R. § 169.207 (2021).

⁴25 C.F.R. § 169.103 (2021).

⁵25 C.F.R. § 169.112 (2021). Fair market value is defined as “the amount of compensation that a right-of-way would most probably command in an open and competitive market.” 25 C.F.R. § 169.2 (2021).

⁶25 C.F.R. § 169.110 (2021). Tribes generally receive more than fair market value for rights-of-way across trust land. *See* Branch, *supra* note 4 and accompanying text.

⁷25 C.F.R. § 169.201 (2021).

⁸25 C.F.R. § 169.2 (2021).

⁹Branch, *supra* note 4 and accompanying text.

¹⁰25 C.F.R. § 170.114(a) (2021); *see also* *Brendale v. Confederated Tribes and Bands of Yakima Indian Nation*, 492 U.S. 408, 439, 109 S. Ct. 2994, 106 L. Ed. 2d 343 (1989); *Benjamin Carrywater v. Rocky Mountain Regional Director*, 38 IBIA 116 (Sept. 13, 2002).

¹¹25 C.F.R. § 170.114(a) (2021).

¹²25 C.F.R. § 225.21 (2021).

¹³25 U.S.C. § 2102(b).

¹⁴*See* Branch, *supra* note 4 for a detailed summary on the condemnation process.

authorize suits against the United States.¹⁵ Condemnation of allotted lands has been specifically authorized “for any public purpose.”¹⁶ Allotted lands are to be condemned under the laws of the state in which the land is located, but the action must be filed in federal district court because state and tribal courts do not have jurisdiction over such actions.¹⁷

§ 29:50 Surface Use and Access Issues—Royalty Reporting and Valuation

FOGROMA requires ONRR to develop “enforcement practices that ensure the prompt and proper collection and disbursement of oil and gas revenues to Indian lessors.”¹ In 1988, ONRR promulgated the current Indian oil and gas valuation regulations.²

§ 29:51 Surface Use and Access Issues—Reporting

Each month, for oil and gas production on Indian lands, an operator must submit an Oil and Gas Operations Report (the “OGOR Report”), Form 4054, and the Report of Sales and Royalty Remittance, Form ONRR-2014 (the “Form ONRR-2014”).¹ It is the responsibility of the operator to ensure that all of the information in the reports is accurate and, if an error is discovered in a previous report, to file an amended report within 30 days of discovery.² Failure to submit accurate reports or update inaccurate reports could result in ONRR assessing up to \$1,288 per day in civil penalties.³

§ 29:52 Surface Use and Access Issues—Valuation

The Indian oil valuation regulations are codified at 30 C.F.R. Part 1206—Subpart B.¹ The key factor in determining the value of the oil is whether it is sold under an arm’s length transaction. Most Indian leases contain a “major portion provision” that provides that the lessee must determine the value of oil based on the highest price paid or offered at the time of production “for the major portion of oil produced

¹⁵See e.g., *State of Minnesota v. U.S.*, 305 U.S. 382, 59 S. Ct. 292, 83 L. Ed. 235 (1939); *Lone Wolf v. Hitchcock*, 187 U.S. 553, 23 S. Ct. 216, 47 L. Ed. 299 (1903); *Oneida Indian Nation of N. Y. State v. Oneida County, New York*, 414 U.S. 661, 678, 94 S. Ct. 772, 39 L. Ed. 2d 73 (1974); *Nicodemus v. Washington Water Power Co.*, 264 F.2d 614 (9th Cir. 1959).

¹⁶25 U.S.C. § 357.

¹⁷*State of Minnesota v. U.S.*, 305 U.S. 382, 389-91, 59 S. Ct. 292, 83 L. Ed. 235 (1939); *Fredericks v. Mandel*, 650 F.2d 144, 147, (8th Cir. 1981).

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¹30 U.S.C. § 1701(b)(3).

²See 53 Fed. Reg. 1184-01, 1988 WL 278009 (F.R.) for the 1988 oil valuation regulations and 53 Fed. Reg. 1230-01, 1988 WL 278010 (F.R.) for the 1988 gas valuation regulations. These regulations have been revised several times since 1988. See the Indian Payor Handbook available at ONRR.gov for a more detailed summary of a lessee’s reporting and valuation requirements.

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¹See 30 C.F.R. § 1210.102 (2021); 30 C.F.R. § 1210.52 (2021).

²30 C.F.R. § 1210.30 (2021).

³30 C.F.R. § 1210.30 (2021); 30 C.F.R. pt. 1241 (2021).

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¹30 C.F.R. §§ 1206.50 to 1206.65 (2021). These regulations apply to all gas produced from tribal and allotted oil and gas leases, except for leases located on the Osage Indian Reservation. See 25 C.F.R. pt. 226 (2021)—Leasing of Osage Reservation Lands for Oil and Gas Mining.

from the same designated area for the same type of crude.”² When oil is sold pursuant to an arm’s length transaction, the value for royalty purposes is the higher of the gross proceeds or the Index-Based Major Portion (IBMP) value determined under 30 C.F.R. § 1206.54.³ When oil is not sold under an arm’s length transaction, the value is the greater of the proceeds received or paid in sales and purchases of like-quality oil produced in the same field or area or the IBMP price.⁴ The regulations provide allowances for transportation costs incurred under arm’s-length contracts.⁵

The Indian gas valuation regulations are codified at 30 C.F.R. Part 1206—Subpart E.⁶ When gas is produced from a lease located in an index zone, the operator must pay royalty based on the Index price assigned to the specific area.⁷ If an index-based method cannot be used, the royalty value is determined using the gross proceeds less any applicable allowances.⁸ For processed gas, ONRR employs a “Dual Accounting” of tribal leases whereby royalty is to be paid on the greater of the value of the gas or the value of the products derived from gas.⁹ In general, if gas from an Indian lease is processed, even when the gas is processed after it is sold, the lessee is required to calculate both the unprocessed and processed value of the gas, and to pay royalties based on the greater of the two values.¹⁰ For unprocessed gas, ONRR may use the major portion price for gas in the same designated area to determine the value of the gas.¹¹ The lessee must bear all costs which are necessary to place the gas into a “marketable condition.”¹² After the gas reaches a “marketable condition,” a lessee may take allowances for transportation costs incurred under arm’s-length contracts.¹³

E. CONCLUSION

§ 29:53 Generally

This section has provided an overview of oil and gas development on tribal lands. The area is extremely complicated and a prudent developer must exercise the utmost caution in operating on any particular Indian reservation. Indian nations are independent sovereigns. Each reservation has its own history, codes, and conventions. The field of law governing legal relations on Indian reservations is never static, and rarely settled. Therefore, when contemplating oil and gas development on tribal lands, a developer must examine the law under each particular set of circumstances and should never assume rights not clearly granted by law or enforceable contract.

²30 C.F.R. § 1206.51 (2021).

³30 C.F.R. § 1206.52(a) (2021).

⁴30 C.F.R. § 1206.53 (2021).

⁵30 C.F.R. § 1206.57 (2021).

⁶30 C.F.R. §§ 1206.170 to 1206.181 (2021).

⁷30 C.F.R. § 1206.172(d) (2021). “Index zone” is defined as “a field or an area with an active spot market and published indices applicable to that field or area that are acceptable to ONRR.” 30 C.F.R. § 1206.171 (2021). ONRR publishes the index zones that are eligible for index prices in the Federal Register.

⁸30 C.F.R. § 1206.174 (2021).

⁹See 30 C.F.R. § 1206.172(a) (2021) to determine how the price should be calculated.

¹⁰30 C.F.R. § 1206.172 (2021).

¹¹30 C.F.R. § 1206.174(c)(2) (2021).

¹²30 C.F.R. § 1206.174(h) (2021). “Marketable condition” has been interpreted by the Interior Board of Land Appeals to require the processed gas to meet the specifications for transporting gas on the mainline pipeline where the gas is actually sold. Encana Oil & Gas (USA), Inc., 185 IBLA 133 (2014).

¹³30 C.F.R. § 1206.174(h) (2021).

VI. STATE AND LOCAL GOVERNMENT REGULATION OF OIL AND GAS

A. STATE REGULATION—IN GENERAL

§ 29:54 Early Era of Regulation

Although comprehensive federal environmental laws and land management laws govern certain aspects of oil and gas development, for the most part, state regulation controls the time, place, intensity, and manner of development on private lands. State conservation laws regulate oil and gas development activities to assure responsible production of oil and gas and to prevent the waste and environmental degradation that resulted from the unconstrained application of the *rule of capture*, and which characterized the oil and gas industry's early years. Today, expansive state regulatory frameworks control numerous aspects of oil and gas development which continue to evolve in response to new technologies, production techniques, and evolving public policies.

The rule of capture provides that “[t]he owner of a tract of land acquires title to the oil and gas which he produces from wells drilled thereon, though it may be proved that part of such oil or gas migrated from adjoining lands.”¹ In its most absolute form, the rule allowed an owner to take any lawful means, whether or not motivated by malice, to increase its share from the common source of supply without fear of injunction or liability for conversion.² Although, in the most extreme cases of purposeless production, other mineral owners in the common pool successfully sued for common law waste,³ for the most part the rule of capture left mineral owners in the same reservoir with only one remedy: to drill.⁴ Thus, the rule of capture incentivizes a mineral owner of a tract of land, however small, to drill anywhere on the tract and in the maximum density in order to capture as much of the common resource as possible.⁵ Relatively unconstrained by common law rules and unregulated, scholars at the time characterized the early era of oil and gas development as a period of “profligate drilling and tremendous physical waste.”⁶

An early Supreme Court precedent established the constitutionality of state laws regulating production. In 1893, the Indiana General Assembly enacted a statute that made it unlawful to “allow or permit the flow of gas or oil . . . into the open air” for more than two days after “gas or oil shall have been struck in such well.”⁷ Following allegations that it had violated the statute, Ohio Oil Co. argued that enforcement of the statute unconstitutionally deprived Ohio Oil Co. of its right to produce oil, thus amounting to a denial of its Fourteenth Amendment due process.⁸ On appeal, the Supreme Court of the United States upheld the Indiana statute,

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¹Hardwicke, *The Rule of Capture and Its Implications as Applied to Oil and Gas*, 13 TEX. L. REV. 391, 393 (1935); see also Elliff v. Texon Drilling Co., 146 Tex. 575, 210 S.W.2d 558, 561-62, 4 A.L.R.2d 191 (1948) (quoting this language verbatim).

²See Hague v. Wheeler, 157 Pa. 324, 27 A. 714, 719 (1893); Kelly v. Ohio Oil Co., 57 Ohio St. 317, 49 N.E. 399 (1897).

³Louisville Gas Co. v. Kentucky Heating Co., 132 Ky. 435, 33 Ky. L. Rptr. 912, 111 S.W. 374, 375-77 (1908).

⁴See Barnard v. Monongahela Natural Gas Co., 216 Pa. 362, 65 A. 801 (1907); see also Kelly v. Ohio Oil Co., 57 Ohio St. 317, 49 N.E. 399 (1897).

⁵See Hague v. Wheeler, 157 Pa. 324, 27 A. 714, 719 (1893).

⁶See Williams, *Conservation of Oil and Gas*, 65 HARV. L. REV. 1155 (1952); Kramer & Anderson, *The Rule of Capture—An Oil and Gas Perspective*, 35 ENVT. L. 899, 900 (2005).

⁷See Ohio Oil Co. v. State of Indiana, 177 U.S. 190, 190-91, 20 S. Ct. 576, 44 L. Ed. 729 (1900) (quoting the relevant language of the 1893 statute in question).

⁸Ohio Oil Co. v. State of Indiana, 177 U.S. 190, 198-99, 20 S. Ct. 576, 44 L. Ed. 729 (1900).

holding that “a lessee’s or landowner’s right to capture oil or gas from the property is restricted by the duty to exercise that right without waste or negligence.”⁹ Consistent with this holding, a number of states enacted early conservation legislation to prevent spillage or venting into the atmosphere and to require the proper plugging of abandoned wells.¹⁰

By 1920, it was quickly becoming apparent to lawmakers that a piecemeal approach would be insufficient to prevent concerns such as depletion and the exhaustion of oil and gas resources, thus prompting the need for a more coordinated approach to these issues facing the industry.¹¹ President Calvin Coolidge’s created the cabinet-level Federal Oil Conservation Board (FOCB) in 1924, to study problems in the oil industry.¹² Following months of deliberations, the FOCB concluded that overproduction was preventing the conservation of the nation’s wasting oil reserves by promoting inefficient uses and by dissipating reservoir pressure.¹³ Around the same time, legal, professional, and industry associations advocated for the use of federal unitization laws to promote the conservation of these oil reserves.¹⁴ Although initially unreceptive, in 1929 the FOCB and other notable organizations endorsed federal unitization.¹⁵ This prompted Governor William H. Murray of Oklahoma to call on other oil-producing states in 1931 to form the Oil States Advisory Committee (OSAC) in order to keep regulation of the petroleum industry at the state level.¹⁶ In 1932, the OSAC formulated a bill that called for the formation of an interstate oil compact.¹⁷ However, compact plans, as well as the OSAC itself, were halted by the passage of the National Industrial Recovery Act of 1933 (NIRA).¹⁸ NIRA imposed “hot oil” laws which prohibited the production of oil in violation of a state’s prorationing rules and implemented state-by-state quotas on monthly oil production.¹⁹ In 1935, however, the Supreme Court of the United States invalidated NIRA as “an unconstitutional delegation of legislative power,” reopening a pathway for a compact and for state regulation.²⁰ Despite this, by the conclusion of the 1930s, only Arkansas, California, Louisiana, Oklahoma, and Texas had enacted legislation to create oil and gas conservation agencies or delegate authority to existing agencies to

⁹BLACK’S LAW DICTIONARY 1938 (11th ed. 2019); For an analysis of parallels to the rule of capture in groundwater law, see, Schremmer, *Pore Space Property*, 2021 UTAH L.REV. 1 (2021).

¹⁰See, e.g., 1901 Kan. Legis. Serv. Ch. 224, § 1 (West).

¹¹*Oil and Gas Conservation*, 43 HARV. L. REV. 1137, 1138–40 (1930).

¹²Murphy, *Tennessee and the Interstate Compact to Conserve Oil and Gas*, TENN. L. REV. 551, 551–552 (1946); see also DEP’T. OF INTERIOR, CONSERVATION IN THE DEPARTMENT OF THE INTERIOR, *The States Act for Oil Conservation*, https://www.nps.gov/parkhistory/online_books/doi/interior-conservation/chap7.htm (last visited June 29, 2021); see also OKLAHOMA HISTORICAL SOCIETY, INTERSTATE OIL COMPACT COMMISSION, <https://www.okhistory.org/publications/enc/entry.php?entry=IN032> (last visited June 29, 2021, 2020).

¹³See Blakely, *supra* note 194.

¹⁴Weaver, *The Politics of Oil and Gas Jurisprudence: The Eighty-Six Percent Factor*, 33 WASHBURN L.J. 492, 518 (1994).

¹⁵See Weaver, *The Politics of Oil and Gas Jurisprudence: The Eighty-Six Percent Factor*, 33 WASHBURN L.J. 492, 518 (1994) (stating that the American Institute of Mining and Metallurgical Engineers, the American Petroleum Institute, the American Bar Association, and the Midcontinent Oil and Gas Association joined in endorsing federal unitization laws).

¹⁶OKLAHOMA HISTORICAL SOCIETY, *supra* note 194.

¹⁷See Blakely, *supra* note 194.

¹⁸See Blakely, *supra* note 194.

¹⁹National Industrial Recovery Act, 73 P.L. 67, 48 Stat. 195, § 9(c) (1933).

²⁰A.L.A. Schechter Poultry Corporation v. U.S., 295 U.S. 495, 542, 55 S. Ct. 837, 79 L. Ed. 1570, 97 A.L.R. 947 (1935).

regulate the industry and oil and gas production and exploration activities.²¹

§ 29:55 Interstate Oil and Gas Compact Commission

In 1935, Congress approved the creation of the Interstate Compact to Conserve Oil and Gas (IOC) for the purpose of “conserv[ing] oil and gas by the prevention of physical waste. . . from any cause.”¹ The compact required signatory states to enact or continue enforcing conservation laws addressing wasteful practices and to enact stringent penalties for the waste of oil or gas, including denied access to commerce for violators.² In addition to coordinating state legislative efforts, the IOC also created a transboundary governing body comprised of one representative from each member state.³ This group, originally designated as the Interstate Oil Compact Commission and now termed the Interstate Oil and Gas Compact Commission (IOGCC), ascertains and reports on “methods, practices, circumstances and conditions . . . for bringing about conservation and prevention of physical waste of oil and gas.”⁴ The compact vests the IOGCC with rulemaking powers and empowers it to make recommendations to the states regarding coordination of the states’ respective police powers “to promote the maximum ultimate recovery from the petroleum reserves.”⁵ Since its creation, the IOGCC has drafted a number of model statutes,⁶ including one in 1949 which first authorized creation of drilling units and require cost sharing.⁷ This precipitated a wave of state legislative action to enact oil and gas conservation laws and marked the beginning of the modern conservation period.⁸ Although initially only ratified by six states,⁹ the compact now includes 31 member states encompassing nearly all domestic oil and gas production.¹⁰

B. CONSERVATION STATUTES

§ 29:56 Interstate Oil and Gas Compact Commission—Purposes

²¹Hardwicke, *supra* at note 183, at 420; Walker, Jr., *supra* note 215, at 380-8; *see also* Wilson, *Conservation Acts and Correlative Rights: Has the Pendulum Swung Too Far?*, 35 RMMLF-INST 18 (1989); *see also* Anderson, *Foreword: The Evolution of Oil and Gas Conservation Law and the Rise of Unconventional Hydrocarbon Production*, 68 ARK. L. REV. 231, 232 (2014); *see also* *Oil and Gas Conservation*, *supra* note 14, at 1138.

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¹Interstate Oil Compact, 49 Stat. 939, 74 Pub. Res. 64, 74 Cong. Ch. 781, art. II (1935); *see* H.R.J. Res. 407, 74th Cong. (1935); *see also* Sullivan, *The History and Purpose of Conservation Law, Oil and Gas Conservation Law and Practice*, 18A RMMLF-INST 1-1, 1-17-18 (Sep. 1985).

²IOC, *supra* note 204, at art. IV.

³IOC, *supra* note 204, at art. VI.

⁴IOC, *supra* note 204, at art. VI.

⁵IOC, *supra* note 204, at art. VI.

⁶*See* Interstate Oil & Gas Compact Comm’n, *Model Statutes*, <http://iogcc.ok.gov/Default.aspx?shortcut=model-statutes> (last visited June 29, 2021).

⁷Walker, *Discussion L: A Model Oil and Gas Conservation Law*, 26 TUL. L. REV. 267, 270 (1952); Daily, *Rules Done Right: How Arkansas Brought its Oil and Gas Law into a Horizontal World*, 68 ARK. L. REV. 259, 260 (2015).

⁸*See* Colo. Rev. Stat. Ann. § 34-69-10-130; Wyo. Stat. Ann. § 30-5-101-28; *see also* Oil and Gas Conservation Law, Act of July 25, 1961, Pub. L. 825, No. 359 (codified at 58 Pa. Cons. Stat. §§ 401 to 419 (West 1996)).

⁹*See generally* Colo. Rev. Stat. Ann. § 34-69-10-130; Wyo. Stat. Ann. § 30-5-101-28; *see also* Oil and Gas Conservation Law, Act of July 25, 1961, Pub. L. 825, No. 359 (codified at 58 Pa. Cons. Stat. §§ 401 to 419 (West 1996)).

¹⁰*See* Interstate Oil & Gas Compact Comm’n, *Member States*, <http://iogcc.ok.gov/member-states> (last visited June 29, 2021) (map showing current membership in the Interstate Oil Compact); Nat’l Ctr. For Interstate Compacts, *Interstate Compact to Conserve Oil and Gas*, <http://apps.csg.org/ncic/Compact.aspx?id=81> (last visited June 29, 2021).

Today, every oil and gas producing state has some form of conservation law.¹ These closely mirror the model act proposed by the IOC and are consistent with the public purposes first established in *Ohio Oil*: the prevention of waste and the protection of correlative rights.² Despite some variation on specific conservation regulations over the years, “the basic pattern is essentially the same.”³ These statutes create or designate an agency for administration of state conservation programs and establish the powers and duties of the agency to prevent waste, including underground waste, surface waste, economic waste, and the waste that results from production exceeding the current demand or the capacities of transportation or marketing facilities.⁴

Over time, the tactics employed by conservation agencies to prevent waste and protect correlative rights have undergone substantial change.⁵ Early state conservation efforts focused on surface waste limitations, such as those addressing spillage,⁶ flaring,⁷ and manufacture of carbon black,⁸ and economic waste restrictions, such as prorationing,⁹ common purchase orders requiring ratable take, and, at times, minimum wellhead pricing.¹⁰ Subsequent regulations, including those for setbacks, spacing, and pooling, focused more directly on underground waste.¹¹ Recently, a number of state legislatures have authorized their respective agencies to consider public safety, health, welfare, and environmental concerns in exercising their delegated authority.¹²

§ 29:57 Interstate Oil and Gas Compact Commission—Conservation Agencies

Thirty-eight states currently have some form of agency responsible for regulating

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¹Nancy Saint-Paul, *Summers, Oil and Gas*, § 4:2 (3rd ed., 2015).

²Walker, Jr., *Property Rights in Oil and Gas and their Effect Upon Police Regulation of Production*, 16 TEX. L. REV. 370, 377 (1938).

³Sullivan, *The History and Purpose of Conservation Law, Oil and Gas Conservation Law and Practice*, 18A RMMLF-INST 1-18 (Sep. 1985).

⁴See *Conservation of Natural Gas and the Federal-State Conflict*, Note, 64 COLUM. L. REV. 888, 891–92 (1964); Hardwicke, *Oil-Well Spacing Regulations and Protection of Property Rights in Texas*, 31 TEX. L. REV. 99, 107 (1952); see also Williams, *supra* note 183, at 1163–77; see also Kramer, *Compulsory Pooling and Unitization: State Options in Dealing with Uncooperative Owners*, 7 J. ENERGY L. & POL’Y 255, 276–78 (1986).

⁵See Anderson, *supra* note 203, at 244.

⁶See, e.g., *Green v. General Petroleum Corp.*, 205 Cal. 328, 270 P. 952, 60 A.L.R. 475 (1928); *Helms v. Eastern Kansas Oil Co.*, 102 Kan. 164, 169 P. 208 (1917); *Teel v. Rio Bravo Oil Co.*, 47 Tex. Civ. App. 153, 104 S.W. 420 (1907).

⁷See, e.g., 1919 Wyo. Sess. Laws ch. 125, § 1.

⁸See, e.g., *Quinton Relief Oil & Gas Co. v. Corporation Com’n of State of Oklahoma*, 1924 OK 217, 101 Okla. 164, 224 P. 156 (1924) (holding that the State of Oklahoma may prohibit the use of natural gas for the manufacture of carbon black under Okla. Stat. Ann. tit. 52, § 237 when deemed a “wasteful utilization” of the resource).

⁹See, e.g., Tex. Nat. Res. Code § 85.053 (West 2019); Wash. Rev. Code Ann. § 78.52.270 (West 2020).

¹⁰2 Ernest E. Smith & Jacqueline Lang Weaver, TEXAS LAW OF OIL & GAS § 9.3(A) (2d ed. 2018).

¹¹Patrick H. Martin & Bruce H. Kramer, *The Law of Pooling and Unitization*, ch. 5 (3d ed. 2017).

¹²See, e.g., Alaska Stat. § 31.05.030(e) (2018); Ariz. Rev. Stat. Ann. § 27-515 (1995); Colo. Rev. Stat. § 34-60-102, 106(2)(d); Ky. Rev. Stat. Ann. § 353.500 (2003); Mich. Comp. Laws Ann. § 324.61501(q)(ii)(B) (defining surface waste to include damage to environmental values).

the conservation of each respective state's oil and gas resources.¹ Ten of these states have explicitly named these agencies as oil or gas conservation commissions or boards,² while others have created similar agencies under different names or empowered existing agencies to undertake these duties.³ State oil and gas conservation statutes create conservation agencies,⁴ and authorize such agencies to exercise reasonable and necessary rulemaking powers to promote the conservation of the state's natural oil and gas resources.⁵

As with other agency decisions, the rules and regulations promulgated by these oil and gas conservation agencies are entitled to considerable deference under state administrative procedure acts modeled after the federal Administrative Procedure Act (APA) and the Model State Administrative Procedure Act (MSAPA).⁶ This

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¹Ala. Code § 9-17-3 (2020); Alaska Stat. Ann. § 31.05.005 (West 2020); Ariz. Rev. Stat. Ann. § 27-514 (West 2020); Ark. Code Ann. § 15-71-101 (West 2020); Cal. Pub. Res. Code § 3106 (West 2020); Colo. Rev. Stat. Ann. § 34-60-104 (West 2020); Fla. Stat. Ann. § 377.07 (West 2020); Ga. Code Ann. § 12-4-43-50 (West 2020); Idaho Code Ann. § 47-314 (West 2020); 225 Ill. Comp. Stat. Ann. 725/4 (West 2020); Ind. Code Ann. §§ 14-3-2-2 through 14-37-3-17 (West 2020); Iowa Code Ann. §§ 458A.4, 458A.6-7 (West 2020); Kan. Stat. Ann. § 74-623 (West 2020); Ky. Rev. Stat. Ann. § 353.565 (West 2020); La. Rev. Stat. Ann. § 36:358C (2020); Mich. Comp. Laws Ann. § 324.62505 (West 2020); Miss. Code Ann. § 53-1-17 (West 2020); Mo. Ann. Stat. § 259.070 (West 2020); Mont. Code Ann. §§ 2-15-3303; 82-11-124 (West 2020); Neb. Rev. Stat. Ann. § 57-904 (West 2020); Nev. Rev. Stat. Ann. § 522.040 (West 2020); N.M. Stat. Ann. § 70-2-4 (West 2020); N.Y. Env'tl. Conserv. Law § 23-0305 (McKinney 2019); N.C. Gen. Stat. Ann. § 143B-293.1 (West 2020); N.D. Cent. Code Ann. § 38-08-04 (West 2019); Ohio Rev. Code Ann. § 1509.02 (West 2020); Ohio Rev. Code Ann. § 1509.36 (West 2020); Okla. Stat. Ann. tit. 17, § 51 (West 2020); Or. Rev. Stat. Ann. § 520.055 (West 2020); 58 Pa. Cons. Stat. Ann. §§ 404 to 409 (West 2020); S.C. Code Ann. § 48-43-30 (2020); S.D. Codified Laws § 45-9-1.1 (2020); Tenn. Code Ann. § 60-1-202 (West 2020); Tex. Nat. Res. Code § 81.051 (West 2019); Utah Code Ann. § 40-6-5 (West 2020); Va. Code Ann. §§ 361.13 to 14 (West 2020); Wash. Rev. Code Ann. § 78.52.040 (West 2020); W. Va. Code Ann. § 22C-9-4 (West 2020); Wyo. Stat. Ann. § 30-5-101(a)(ii) (West 2020).

²Alaska Stat. Ann. § 31.05.005 (West 2020) (creating the Alaska Oil and Gas Conservation Commission); Ariz. Rev. Stat. Ann. § 27-514 (West 2020) (creating the Arizona Oil and Gas Conservation Commission); Colo. Rev. Stat. Ann. § 34-60-104 (West 2020) (creating the Colorado Oil and Gas Conservation Commission); Ky. Rev. Stat. Ann. § 353.565 (West 2020) (creating the Kentucky Oil and Gas Conservation Commission); Idaho Code Ann. § 47-314 (West 2020) (creating the Idaho Oil and Conservation Commission); Mont. Code Ann. §§ 2-15-3303; 82-11-124 (West 2020) (creating the Montana Board of Oil and Gas Conservation); Neb. Rev. Stat. Ann. § 57-904 (West 2020) (creating the Nebraska Oil and Gas Conservation Commission); N.M. Stat. Ann. § 70-2-4 (West 2020) (granting concurrent jurisdiction over the conservation of oil and gas and prevention of waste to the New Mexico Oil Conservation Division and the New Mexico Oil Conservation Commission); W. Va. Code Ann. § 22C-9-4 (West 2020) (creating the West Virginia Oil and Gas Conservation Commission); Wyo. Stat. Ann. § 30-5-101(a)(ii) (West 2020) (creating the Wyoming Oil and Gas Conservation Commission).

³See, e.g., Ala. Code § 9-17-3 (2020) (creating the State Oil and Gas Board of Alabama); Ark. Code Ann. § 15-71-101 (West 2020) (creating the Arkansas Oil and Gas Commission); Iowa Code Ann. §§ 458A.4, 458A.6-7 (West 2020) (granting oil and gas regulatory authority to the Iowa Department of Natural Resources and the director of that department); Okla. Stat. Ann. tit. 17, § 51 (West 2020) (granting the Oklahoma Corporation Commission the power to create an Oil and Gas Department under its jurisdiction and supervision); Tenn. Code Ann. § 60-1-202 (West 2020) (granting rulemaking and enforcement authority to the Tennessee Board of Water Quality, Oil and Gas); Tex. Nat. Res. Code § 81.051 (West 2019) (granting the Railroad Commission of Texas jurisdiction over oil and gas operations within the state).

⁴See, e.g., Colo. Rev. Stat. Ann. § 34-60-105 (West 2020); N.M. Stat. Ann. § 70-2-6 (West 2020); Okla. Stat. tit. 17, § 52 (West 2020); 58 Pa. Stat. Ann. § 405 (West 2020); Tex. Nat. Res. Code § 81.051 (West 2020); Wyo. Stat. Ann. § 30-5-104 (West 2020); MARTIN, THE JURISDICTION OF STATE OIL AND GAS COMMISSION OIL AND GAS CONSERVATION LAW AND PRACTICE, 18A RMMLF-Inst 3, 3-1, 3-4-3-5 (1985).

⁵Adams, Note, *Judicial Review of Determinations of Oil and Gas Conservation Agencies*, 18 Miss. L.J. 456, 456 (1947).

⁶See REVISED MODEL STATE ADMIN. PROCEDURE ACT (NAT'L CONFERENCE OF COMM'RS ON UNIF. STATE LAWS 2010). Pursuant to its own terms, the APA does not apply to state administrative agencies. Thus, a

deferential standard of review commonly provides that a reviewing court may set aside an agency decision only upon a finding that: the decision is arbitrary, capricious, or not in accordance with law; the agency has exceeded the scope of its statutory authority; the agency decision violates the state or federal constitution or denies a person of constitutional rights; or the agency decision was made upon unlawful procedure.⁷

§ 29:58 Interstate Oil and Gas Compact Commission—Spacing & Density

Prior to enactment of spacing and density regulations, wasteful and dangerous practices related to overdrilling proliferated throughout the oil and gas industry.¹ These practices depleted reservoir energy through over-production and contributed to safety concerns regarding the increased danger of fire or blowout due to the close spacing of wells.² In response, state legislatures enacted legislation regulating spacing between wells, setbacks from property lines, and authorizing conservation agencies to establish drilling density within fields.

One such rule, Rule 37 in Texas, demonstrates the function of spacing requirements and the balance between limiting over drilling while still protecting the property rights of mineral owners. As early as 1919, the Texas state legislature enacted waste prevention legislation, prompting the Railroad Commission of Texas (RRC) to promulgate the first statewide spacing regulation, Rule 37.³ At the time of its passage, Rule 37 implemented a prohibition against drilling oil or gas wells closer than 300 feet apart and fewer than 150 feet from property lines.⁴ These distances have been increased a number of times throughout the course of Rule 37's more than one hundred year history,⁵ and the current version of this rule provides for a setback of 1200 feet between wells and 467 feet from any property line.⁶ Since its amendment in 1933,⁷ the rule has authorized the RRC to grant exceptions "where necessary either to prevent waste or to prevent the confiscation of property."⁸ The Supreme Court of Texas has noted that the dominant purpose of this exception is to protect property rights by "guarantee[ing] the opportunity in each owner to recover his oil by providing an exception to a uniform spacing regulation that would otherwise prevent him from doing so."⁹

Today, 38 states have some form of state-wide spacing regulations in place to

state agency's obligation to respond to a petition for rulemaking is governed by each state's respective administrative procedure act. 5 U.S.C. § 701(b)(1).

⁷Larsen v. Oil and Gas Conservation Commission, 569 P.2d 87, 92 (Wyo. 1977).

[Section 29:58]

¹Harrison, *Regulation of Well Spacing in Oil and Gas Production*, 8 ALTA. L. REV. 357 (1970); see also Myers, *Spacing, Pooling and Field-Wide Unitization*, 18 MISS. L.J. 267 (1947).

²Harrison, *supra* note 233, at 357.

³Harrison, *Regulation of Well Spacing in Oil and Gas Production*, 8 ALTA. L. REV. 357 (1970); see also Myers, *supra* note 233, at 267; see also Summers, *Legal Rights Against Drainage of Oil and Gas*, 18 TEX. L. REV. 27, 33 (1939); see also Sylvester & Malmshemer, *Oil and Gas Spacing and Forced Pooling Requirements: How States Balance Energy Development and Landowner Rights*, 40 U. DAYTON L. REV. 47, 49 (2015).

⁴Myers, *supra* note 233, at 267; see also Rowland, *supra* note 233, at 361.

⁵See Harrison, *Regulation of Well Spacing in Oil and Gas Production*, 8 ALTA. L. REV. 357 (1970).

⁶16 Tex. Admin. Code § 3.37(a)(1) (2020).

⁷Brown v. Humble Oil & Refining Co., 126 Tex. 296, 83 S.W.2d 935, 940, 99 A.L.R. 1107 (1935).

⁸Brown v. Humble Oil & Refining Co., 126 Tex. 296, 83 S.W.2d 935, 940, 99 A.L.R. 1107 (1935); see also Myers *supra* note 233, at 267; see also Rowland, *supra* note 233, at 363.

⁹Brown v. Humble Oil & Refining Co., 83 S.W.2d at 944; see also Summers, *supra* note 235, at 35; see also Rowland, *supra* note 233, at 364.

conserve oil or gas and protect the correlative rights of adjacent landowners through the establishment of optimal well patterns.¹⁰ Nevertheless, there is considerable variation among the optimal spacing patterns adopted by states.¹¹ Setbacks, those which specify the minimum distance that an oil or gas well may be drilled from a property boundary, are the most common of these requirements. Of the 38 states applying some type of spacing requirements, Idaho is the only state that does not specify a minimum distance from which a well can be drilled along property lines.¹² Oregon applies its property boundary setback requirements only to gas wells.¹³ Comparatively, the number of states applying spacing rules to regulate the minimum distance between wells is considerably lower.¹⁴ Only 23 of these states apply well spacing regulations to oil wells; in addition, Pennsylvania and Oregon apply their requirements only to gas wells.¹⁵ The application and specified distance of setbacks in many states vary between oil and gas wells,¹⁶ based on the depth,¹⁷ and in rarer circumstances may establish separate setbacks from exploration (wildcat) wells¹⁸ in untested formations or those associated with enhanced recovery operations.¹⁹

In addition to these setback requirements, most state conservation statutes impose density regulations that set standards for establishing drilling and spacing units.²⁰ In most states, units are limited to “the maximum area that may be economically and efficiently drained by one well.”²¹ These too vary between states.²² Some states merely require that the parcel encompass more than one acre of land before certain wells may produce,²³ whereas others require as much as 640 acres.²⁴ Most states require somewhere in between.²⁵ Density requirements may also vary based

¹⁰See Sylvester & Malsheimer, *supra* note 235, at 55–57 (providing a table that illustrates the requirements imposed by well spacing rules on a state-by-state basis); see also 055-3 WYO. CODE R. § 3 (LexisNexis 2020).

¹¹*Compare*, Alaska Admin. Code tit. 20, § 25.055 (2020) (providing for well spacing of 1,000 feet for oil wells and 3,000 feet for gas wells), *with* Okla. Admin. Code § 165:10-1-21 (2020) (providing for well spacing of 600 feet for both oil and gas wells with a depth of 2,500 feet or more, and a separate spacing of 300 feet for both oil and gas wells with a depth of less than 2,500 feet).

¹²Idaho Code Ann. § 47-319 (West 2020).

¹³Or. Admin. R. 632-010-0230 (2020).

¹⁴See Sylvester & Malsheimer, *supra* note 235, at 55–57.

¹⁵Or. Admin. R. 632-010-0230 (2020); 58 Pa. Stat. Ann. §§ 407, 507 (2020).

¹⁶See, e.g., Iowa Admin. Code r. 561-17.16(458A) (2020); La. Admin. Code tit. 43, Pt. XIX, § 1905 (2020).

¹⁷See, e.g., 2 Code of Colo. Regs. § 404-1:318(c) to (d) (2020); La. Admin. Code tit. 43, Pt. XIX, § 1905 (2020); Okla. Admin. Code § 165:10-1-21 (2020); Tenn. Comp. R. & Regs. 0400-52-04-.01 (2020).

¹⁸See, e.g., 178-00-1 ARK. CODE R. § B-3(e) (LexisNexis 2020); N.M. CODE R. § 19.15.15.9(A) (LexisNexis 2020).

¹⁹See, e.g., 178-00-1 ARK. CODE R. § B-3(g) (LexisNexis 2020); 62 Ill. Admin. Code 240.430(b) (2020); Mo. Code Regs. Ann. tit. 10, § 50-3.020 (2020); N.M. CODE R. § 19.15.15.13(A) (LexisNexis 2020); Okla. Admin. Code § 165:10-1-21 (2020).

²⁰See Sylvester & Malsheimer, *supra* note 235, at 55–57; see also Kuntz, *Statutory Well Spacing and Drilling Units*, 31 OKLA. L. REV. 344, 344 (1978).

²¹See, e.g., Ohio Rev. Code Ann. § 1509.01(g) (West 2019); Mont. Code Ann. § 82-11-201(3) (West 2019); N.M. Stat. Ann. § 70-2-17 (West 2020).

²²See Sylvester & Malsheimer, *supra* note 235, at 55–57.

²³See, e.g., Cal. Pub. Res. Code § 3608 (West 2020); Ohio Admin. Code 1501:9-1-04(E) (2020).

²⁴See, e.g., Ariz. Admin. Code § 12-7-107(D) (2020); Iowa Admin. Code r. 561-17.16(458A) (2020).

²⁵See, e.g., Iowa Admin. Code r. 561-17.16(458A) (2020); Mont. Admin. R. 36.22.702 (2020); N.M. CODE R. § 19.15.15 (LexisNexis 2020).

on the depth of the well,²⁶ the substance produced from said well,²⁷ or for enhanced recovery projects.²⁸

In response to the proliferation of hydraulic fracturing and horizontal drilling, many state conservation agencies have increased both the size of spacing unit and density within the spacing units. Depending on the language of the conservation statutes, increases in density or the size of drilling units may require additional legislative approval. For instance, Louisiana's statutes formerly defined a drilling unit as "the maximum area which may be efficiently and economically drained by one well."²⁹ In *Gatti v. State Department of Conservation*, the Louisiana Court of Appeals found that the drilling statute did not authorize the State Department of Conservation's practice of approving multi-well drilling units for both conventional and unconventional development.³⁰ Although the opinion was later reversed on jurisdictional grounds,³¹ the Louisiana Legislature then amended the statute to redefine a drilling unit as "the maximum area which may be efficiently drained by the well or wells designated to serve the drilling unit."³² Other states have similarly adapted through approval of larger units to accommodate longer laterals,³³ development of specific rules—such as Colorado's special rules of the greater Wattenburg area³⁴—and comprehensive drilling plans,³⁵ creation of overlying horizontal and vertical spacing units for in-fill development,³⁶ approval of stacked laterals,³⁷ and Texas' allocation well policy.³⁸

State oil and gas conservation agencies have also enacted setbacks from occupied structures. Unlike well spacing rules designed to protect correlative rights, conservation agencies enact setback restrictions for the purpose of protecting the health, safety, and welfare of landowners and communities by establishing minimum distances between development and areas of human habitation such as homes and schools.³⁹ Like spacing rules, these vary significantly between states—with a minority of states like Montana having no setbacks, others establishing shorter setbacks of 500 feet,⁴⁰ and among the longest, in Colorado, creating setbacks of 2,000 feet.⁴¹

Conservation agencies may also grant variances in order to accommodate new

²⁶See, e.g., Ohio Admin. Code 1501:9-1-04(E) (2020); Tenn. Comp. R. & Regs. 0400-52-04-.01 (2020).

²⁷See, e.g., Ariz. Admin. Code § 12-7-107(A) to (B) (2020); Iowa Admin. Code r. 561-17.16(458A) (2020); Tenn. Comp. R. & Regs. 0400-52-04-.01 (2020).

²⁸See, e.g., 62 Ill. Admin. Code 240.430(b) (2020); Mo. CODE REGS. ANN. tit. 10, § 50-3.020 (2020).

²⁹La. Rev. Stat. Ann. § 30:9(B) (2020).

³⁰*Gatti v. State ex rel. Dept. of Conservation*, 2013-289 La. App. 1 Cir. 1/15/14, 2014 WL 3517548 (La. Ct. App. 1st Cir. 2014), writ granted, judgment rev'd, 146 So. 3d 541 (La. 2014), and writ granted, judgment rev'd, 146 So. 3d 196 (La. 2014) and writ granted, judgment rev'd, 146 So. 3d 540 (La. 2014) and writ granted, judgment rev'd, 146 So. 3d 541 (La. 2014).

³¹*Gatti v. State ex rel. Office of Conservation*, 146 So. 3d 196 (La. 2014).

³²LA. STAT. ANN. § 30:9; Hall, *Single Well Spacing and Pooling: State Spacing and Jurisdiction over Conservation*, 2019 NO. 6 RMMLF-INST 12 (2019).

³³2 Colo. Code Regs. § 318A (2015), allows wells within the Wattenburg to be located in the middle of a section in order to "mitigate conflicts between mineral rights developer and surface owners."

³⁴2 Colo. Code Regs. § 404-1:216(a) (2015).

³⁵Okla. Admin. Code § 165:5-7-6(g) (2020).

³⁶Okla. Stat. Ann. tit. 52, sec. 87.1 (West 2020); Okla. Admin. Code § 165:5/7/6 (2020).

³⁷Statewide Rule 86(f)(1), 16 Tex. Admin. Code § 3.86 (2020).

³⁸*Squibb, The Age of Allocation: The End of Pooling As We Know It?*, 45 TEX. TECH L. REV. 929 (2013).

³⁹Righetti, *The Incidental Environmental Agency*, 3 UTAH L. REV. 685 (2020).

⁴⁰N.D. Cent. Code Ann. § 38-08-05 (West 2019); WYO. RULES & REGS. OIL GEN ch. 3, § 47(a).

development techniques and to prevent waste and protect correlative rights where development within standard drilling, setback, or density rules would be impracticable. All conservation statutes provide a process by which the applicable conservation agency, after notice and hearing, may grant exceptions to distance and density regulations on an individual or field-wide basis.⁴² Although requirements vary, at a minimum most state conservation statutes require a showing that an exception is necessary to prevent waste or protect correlative rights.⁴³ In some states, the conservation agency is specifically authorized to grant an exception for purposes of environmental protection.⁴⁴ Among other considerations, state agencies may be authorized to consider, *inter alia*, the increase in burden or hazard involved with a properly spaced well,⁴⁵ the ability of that well to produce in paying quantities,⁴⁶ written consent from affected landowners,⁴⁷ or other “good cause” that may warrant an exception.⁴⁸

§ 29:59 Interstate Oil and Gas Compact Commission—Pooling & Unitization

“Pooling” and “unitization” are perhaps the most significant tool conservation

⁴¹2 CODE OF COLO. REGS. 404-1-604 (December 2020) (effective January 15, 2021).

⁴²Ala. Admin. Code r. 400-1-2-.02(2)(g) (2020); Ala. Code § 9-17-12(c) (2020); Alaska Admin. Code tit. 20, § 25.055(d) (2020); Ariz. Admin. Code § 12-7-107(D) (2020); 178-00-1 ARK. CODE R. § B-3(i) (LexisNexis 2020); Cal. Code Reg. tit. 14, § 1721.7 (2020); 2 Code of Colo. Regs. § 404-1:318(c) to (d) (2020); Fla. Admin. Code Ann. R. 62C-26.004(6) (2020); Ga. Comp. R. & Regs. 391-3-13.05(1) (2020); Idaho Admin. Code r. 20.07.02.330.06 (2020); 62 Ill. Admin. Code 240.420-430 (2020); 312 Ind. Admin. Code 29-13-6 (West 2020); Iowa Admin. Code r. 561-17.16(458A) (2020); Kan. Admin. Regs. § 82-3-108(c) to (d) (2020); Ky. Rev. Stat. Ann. § 353.620 (West 2020); La. Admin. Code tit. 43, Pt. XIX, § 1907 (2020); Mich. Admin. Code r. 324.301(4) (2020); 26-1 MISS. CODE R. § 1.9 (LexisNexis 2019); Mo. Code Regs. Ann. tit. 10, § 50-3.010(4) (2020); Mont. Admin. R. 36.22.702 (2020); 267 Neb. Admin. Code § 013.02 (2020); Nev. Admin. Code § 522.240 (2020); N.M. CODE R. § 19.15.15.13(B) (LexisNexis 2020); N.Y. Env'tl. Conserv. Law § 3-0503(3) (McKinney 2020); 15A N.C. Admin. Code §§ 1205 to 1206 (2020); N.D. Admin. Code 43-02-03-18.1 (2020); Ohio Admin. Code 1501:9-1-04(E) (2020); Okla. Admin. Code § 165:10-1-21 (2020); Or. Admin. R. 632-010-0235 (2020); 25 Pa. Code § 79.26 (2020); S.C. Code Ann. Regs. 121-8.9 (2020); S.D. Admin. R. 74:12:02:08 (2020); Tenn. Comp. R. & Regs. 0400-52-11-.01 (2020); 16 Tex. Admin. Code § 3.37 (2020); Utah Admin. Code r. 649-3-3 (2020); 4 Va. Admin. Code § 25-160-60 (2020); Va. Code Ann. § 45.1-361.17 (2020); Wash. Admin. Code § 344-12-043-045 (2020); W. Va. Code R. § 39-1-4.3 (2020); 055-3 WYO. CODE R. § 3 (LexisNexis 2020).

⁴³*See, e.g.*, Ariz. Admin. Code § 12-7-107(D) (2020) (waste only); Kan. Admin. Regs. § 82-3-108(c) to (d) (2020); La. Admin. Code tit. 43, Pt. XIX, § 1907 (2020); Okla. Admin. Code § 165:10-1-21 (2020); Mich. Admin. Code r. 324.301(4) (2020) (waste only); N.M. CODE R. § 19.15.15.13(B) (LexisNexis 2020); N.Y. Env'tl. Conserv. Law § 3-0503(3) (McKinney 2020); N.D. Admin. Code 43-02-03-18.1 (2020); Ohio Admin. Code 1501:9-1-04(E) (2020); Tenn. Comp. R. & Regs. 0400-52-11-.01 (2020).

⁴⁴*See, e.g.*, Cal. Code Reg. tit. 14, § 1721.7 (2020); 2 Code of Colo. Regs. § 404-1:318(c) (2020); Colo. Rev. Stat. Ann. § 34-60-104 (2020) (defining waste to exclude “the nonproduction of oil from a formation if necessary to protect public health, safety, and welfare, the environment, or wildlife resources as determined by the commission”); Mich. Admin. Code r. 324.301(4) (2020); Ohio Admin. Code 1501:9-1-04(E) (2020); Or. Admin. R. 632-010-0235 (2020); 16 Tex. Admin. Code § 3.37 (2020).

⁴⁵*See, e.g.*, Ariz. Admin. Code § 12-7-107(D) (2020); 62 Ill. Admin. Code 240.420 (2020); Ky. Rev. Stat. Ann. § 353.620 (West 2020); 26-1 MISS. CODE R. § 1.9 (LexisNexis 2019); N.D. Admin. Code 43-02-03-18.1 (2020); S.D. Admin. R. 74:12:02:08 (2020); Wash. Admin. Code § 344-12-043-045 (2020).

⁴⁶*See, e.g.*, N.D. Admin. Code 43-02-03-18.1 (2020); 25 Pa. Code § 79.26 (2020); S.D. Admin. R. 74:12:02:08 (2020); Wash. Admin. Code § 344-12-043-045 (2020).

⁴⁷*See, e.g.*, 2 Code of Colo. Regs. § 404-1:318(c) (2020); Utah Admin. Code r. 649-3-3 (2020); Wash. Admin. Code § 344-12-043-045 (2020).

⁴⁸*See, e.g.*, 2 Code of Colo. Regs. § 404-1:318(c) to (d) (2020); S.D. Admin. R. 74:12:02:08 (2020); Wash. Admin. Code § 344-12-043-045 (2020).

agencies use to protect correlative rights.¹ “Pooling” refers to “the bringing together of two or more small or irregularly shaped tracts of land to form a drill site in connection with a program of uniform well spacing,” while “unitization” typically involves “a consolidation of a sufficient majority of the royalty and working interests in a geological pool that permits the reservoir engineers to plan operation of the pool as a natural energy mechanism.”² Once combined, pooling or unitization permits operation of the pool or unit without regards to individual property boundaries and fractional interests, and establishes a method for allocation of production and costs associated with development.

Without pooling, density and spacing requirements would render many parcels undevelopable. Individual tracts may alone be smaller than the state’s minimum acreage requirement for a spacing unit, but pooling allows an operator to combine interests within two or more tracts, or portions thereof, within a spacing unit to meet this requirement.³ Owners within a pool equitably share expenses and production.⁴ As a result, pooling prevents the drilling of unnecessary wells and protects the correlative rights of the owners of small tracks or portions thereof which would otherwise be undevelopable alone without a variance.⁵ Spacing and pooling requirements are so linked that many conservation agencies will not issue a permit to drill unless interests within the spacing unit have been pooled.

A conservation agency may order pooling as part of either “voluntary pooling” or “compulsory pooling” processes.⁶ In voluntary pooling, the owner of a mineral interest or its lessee, relying on authority within the oil and gas lease, voluntarily reaches agreement to pool the interest with the owners of other interests or tracts. If the parties do not reach a voluntary agreement to pool, the conservation agency may be able to force pool. Under compulsory pooling statutes, a state’s conservation agency may,⁷ or in some states must,⁸ issue a pooling order at the request of an interested party for the purpose of preventing waste or protecting correlative rights. Notable outliers include Texas, which does not have compulsory pooling,⁹ Pennsylvania, which allows compulsory pooling without a commission order,¹⁰ and

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¹King, *Pooling and Unitization of Oil and Gas Leases*, 46 Mich. L. Rev. 311, 312–13 (1948).

²See King, *supra* note 281, at 313.

³See Bruce M. Kramer, *Onshore Pooling and Unitization, Chapter 1 Principles and Historical Context of Pooling and Unitization*, 1-1 (Jan. 1997).

⁴See Keith B. Hall, *Federal Onshore Oil & Gas Pooling & Unitization—part 1, Chapter 11 Single Well Spacing and Pooling: State Spacing and Jurisdiction Over Conservation*, 11-6 to 11-10 (Oct 2014).

⁵See § 102; Smith, *The Texas Compulsory Pooling Act*, 43 Tex. L. Rev. 1003, 1009 (1965).

⁶See § 102; Smith, *The Texas Compulsory Pooling Act*, 43 Tex. L. Rev. 1003, 1009 (1965); *see also* King, *supra* note 281, at 317.

⁷See, e.g., Alaska Stat. Ann. § 31.05.100(c) (West 2020); Ariz. Rev. Stat. Ann. § 27-505 (2020); Colo. Rev. Stat. Ann. § 34-60-116 (West 2020); Mont. Code Ann. § 82-11-202 (West 2019); Neb. Rev. Stat. Ann. § 57-909 (West 2020); Nev. Rev. Stat. Ann. § 522.060(3) (West 2020); Utah Code Ann. § 40-6-6.5(2)(a) (West 2020); Wyo. Stat. Ann. § 30-5-109(f) (West 2020).

⁸See, e.g., Ala. Code § 9-17-13 (2020); Ark. Code Ann. § 15-72-303; Ind. Code Ann. § 14-37-9-1 (West 2020); Ky. Rev. Stat. Ann. § 353.630 (West 2020); N.D. Cent. Code Ann. § 38-08-08 (West 2020); Okla. Stat. Ann. tit. 52, § 87.1(e) (West 2020); 58 Pa. Stat. Ann. § 408 (West 2020); Tex. Nat. Res. Code Ann. § 102.011 (West 2019).

⁹Some scholars have argued that the Mineral Interests Pooling Act may provide an avenue for forced pooling, *see*, Tex. Nat. Res. Code § 102.011; Vaughn, *New Facets of Old Alternatives for Unleased Mineral Interests*, 16 Tex. Wesleyan L. Rev. 113 (2009).

¹⁰58 Pa. Stat. and Cons. Stat. Ann. § 34.1 (West 2020).

Mississippi, which applies “judicial” or “equitable pooling.”¹¹ Under Mississippi’s “judicial pooling” regime, the land within a unit is pooled as a matter of law when a well is drilled within an existing spacing unit.¹²

Unitization involves field-wide, or partially field-wide, cooperation to promote efficient development of the underlying common reservoir.¹³ Unitization has been characterized as “the ultimate conservation tool,” because of its propensity to encourage the use of enhanced recovery methods and thereby increase the ultimate recovery that may be had from a particular reservoir.¹⁴ Though more common on federal lands, a minority of states also authorize exploratory unitization to encourage orderly development in “one or more pools.”¹⁵ The 2004 Model Oil and Gas Conservation Act, developed by the IOGCC, includes provisions for exploratory unitization; however, it has not been adopted by all states.¹⁶

Like pooling, unitization may also occur on either a voluntary or compulsory basis.¹⁷ In the context of voluntary unitization, working-interest and nonworking-interest owners must reach a unit operating agreement.¹⁸ These agreements establish governance mechanisms and allocation formulas to equitably distribute production and costs within the unit.¹⁹ Frequently, however, it is not possible to obtain unanimous consent to the unit operating agreement.²⁰ In these instances, many state statutes authorize the conservation agency to compel unitization, provided that a threshold percentage of interest owners—usually around 80%, consent.²¹ When a field is compulsorily unitized, the state’s conservation agency makes allocational and operational determinations after considering the correlative rights of owners within the unit.²²

Courts have routinely upheld pooling and unitization statutes against constitutional challenges.²³ In one of the first cases, *Marrs v. City of Oxford*, the Eighth Circuit upheld local location, density, and pooling requirements as a constitutional exercise of police power concerning public safety and necessary to protect correlative

¹¹See Miss. Code Ann. § 53-3-7 (West 2020); see also *Superior Oil Co. v. Foote*, 214 Miss. 857, 59 So. 2d 85, 37 A.L.R.2d 415 (1952), error overruled, 214 Miss. 857, 59 So. 2d 844 (1952); see also *Green v. Superior Oil Co.*, 59 So. 2d 100 (Miss. 1952).

¹²Miss. Code Ann. § 53-3-7 (West 2020).

¹³See Owen L. Anderson & Ernest E. Smith, *The Use of Law to Promote Domestic Exploration and Production*, 50 INST. ON OIL & GAS L. & TAX’N 2-1, 2-64 to 2-67 (1999).

¹⁴See Anderson & Smith, *supra* note 293; see also Owen L. Anderson, *Mutiny: The Revolt Against Unsuccessful Unit Operations*, 30 RMMLF-Inst. 13, 13-1, 13-3 to 13-8 (1984) (providing a brief overview of enhanced recovery methods, such as water flooding and carbon dioxide flooding).

¹⁵See, e.g., Wyo. Stat. Ann. § 30-5-110(c) (West 2020).

¹⁶IOGC 2004 Model Oil and Gas Conservation Act, Part VII at §§ 22-28 (<http://www.iogcc.state.ok.us/docs/ModelAct-Dec2004.pdf>); Pierce, *Minimizing the Environmental Impact of Oil and Gas Development by Maximizing Production Conservation*, 85 N. D. L. REV. 759, 766 (2009).

¹⁷See IOGC 2004 Model Oil and Gas Conservation Act, Part VII at §§ 22-28 (<http://www.iogcc.state.ok.us/docs/ModelAct-Dec2004.pdf>).

¹⁸See, e.g., Alaska Stat. Ann. § 31.05.110 (West 2020); Nev. Rev. Stat. Ann. § 522.0824 (West 2020); N.D. Cent. Code Ann. § 38-08-09 (West 2019); see also Hardwicke, *Unitization Statutes: Voluntary Action or Compulsion*, 24 ROCKY MTN. L. REV. 29, 36 (1951).

¹⁹See Anderson, *supra* note 294.

²⁰See Hardwicke, *supra* note 298, at 37 (providing a list of potential problems that may arise in the course of negotiating a unit operating agreement); see also Anderson, *supra* note 294.

²¹See, e.g., Alaska Stat. Ann. § 31.05.110 (West 2020); Kan. Stat. Ann. § 55-1304 (West 2020); Nev. Rev. Stat. Ann. § 522.0824 (West 2020).

²²See, e.g., Mich. Comp. Laws Ann. § 324.61705 (West 2020); S.D. Codified Laws § 45-9-55 (2020).

²³See generally *Marrs v. City of Oxford*, 32 F.2d 134, 67 A.L.R. 1336 (C.C.A. 8th Cir. 1929); see also *Patterson v. Stanolind Oil & Gas Co.*, 305 U.S. 376, 59 S. Ct. 259, 83 L. Ed. 231 (1939).

rights.²⁴ Shortly thereafter, in *Patterson v. Stanolind Oil & Gas Co.*, the Supreme Court upheld a similar compulsory pooling law promulgated by Oklahoma's Corporation Commission.²⁵ Rejecting challenges based on the Due Process and Equal Protection Clauses of the Fourteenth Amendment, as well as under the Constitution's Contracts Clause, the Court upheld the Corporation Commission's use of statewide compulsory unitization statutes to effect proper drainage, achieve the greatest ultimate recovery of oil, conserve reservoir energy, and protect correlative rights.²⁶ In 1952, the Supreme Court rejected similar challenges to Oklahoma's 1941 statute authorizing the Corporation Commission to approve unitization plans.²⁷ Relying on its past decisions and the lack of a federal question, the court rejected arguments that the pooling statute was an unreasonable exercise of police power, an unreasonable delegation of legislative and judicial power, and the statute was too vague to provide guidance to the Commission's decisions.²⁸ A federal court in Colorado recently rejected a constitutional challenge to Colorado's forced pooling law on the basis that it violated owners due process rights, thus strengthening precedent on force pooling.²⁹

§ 29:60 Interstate Oil and Gas Compact Commission—Economic Waste Restrictions

State conservation regulations may also limit economic waste.¹ Some of the earliest conservation efforts were aimed at preventing the unnecessary, inefficient, reckless, or uneconomic waste of oil and gas resources.² Indiana's 1893 law limiting venting of oil and gas was the first of these economic waste restrictions implemented by a state legislature, paving the way for future economic waste restrictions on useless or low value uses of production.³ These included use of oil in inefficient manufacturing processes, for example the production of carbon black or lampblack, among others.⁴ Today, some states' conservation statutes continue to prohibit excessive venting and flaring as the waste of gas.⁵ In addition to preventing physical waste without a corresponding economic benefit, venting and flaring restrictions can also be environmentally beneficial by limiting the emissions of greenhouse gases (GHGs) and volatile organic compounds (VOCs) associated with oil and gas

²⁴See *Marrs*, 32 F.2d at 135-37.

²⁵See *Patterson*, 305 U.S. at 377-78.

²⁶*Patterson*, 305 U.S. at 377.

²⁷See *Palmer Oil Corp. v. Amerada Petroleum*, 343 U.S. 390, 391, 72 S. Ct. 842, 96 L. Ed. 1022 (1952).

²⁸*Palmer Oil Corp. v. Amerada Petroleum*, 343 U.S. 390, 391, 72 S. Ct. 842, 96 L. Ed. 1022 (1952).

²⁹*Wildgrass Oil and Gas Committee v. Colorado*, 447 F. Supp. 3d 1051 (D. Colo. 2020), judgment aff'd, 843 Fed. Appx. 120 (10th Cir. 2021).

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¹Wells, *Please Give Us One More Oil Boom—I Promise Not to Screw It Up This Time: The Broken Promise of Casinghead Gas Flaring in the Eagle Ford Shale*, 9 TEX. J. OIL GAS & ENERGY L. 319, 325 (2014); Coleman, *State Energy Cartels*, 42 CARDOZO L. REV. — (forthcoming Aug. 2021).

²See discussion *supra* Part [§ 29.55].

³See *Ohio Oil Co. v. State of Indiana*, 177 U.S. 190, 190, 20 S. Ct. 576, 44 L. Ed. 729 (1900) (quoting the relevant language of the 1893 statute in question).

⁴See, e.g., *Quinton Relief Oil & Gas Co. v. Corporation Com'n of State of Oklahoma*, 1924 OK 217, 101 Okla. 164, 224 P. 156 (1924) (holding that the State of Oklahoma may prohibit the use of natural gas for the manufacture of carbon black under Okla. Stat. Ann. tit. 52, § 237 when deemed a "wasteful utilization" of the resource).

⁵See, e.g., 225 Ill. Comp. Stat. Ann. 732/1-75(d)(4) (West 2020); N.D. Cent. Code Ann. § 38-08-06.4 (West 2019); see also Cal. Pub. Res. Code § 3300 (West 2020) ("[T]he blowing, release, or escape of gas into the air shall be prima facie evidence of unreasonable waste").

operations.⁶

Some conservation agencies are also authorized to use “proration units” to set “production allowables” to curtail economic waste by limiting production in excess of market demand and curtailing production rates.⁷ In 1913, Oklahoma introduced the first laws limiting production to no more than “25% of the daily natural flow” and requiring wellhead metering of production for monitoring purposes.⁸ Over the years, states have taken a variety of approaches to implement similar policies within their jurisdictions. Examples include laws designed to limit production to reasonable market demand, which require the state conservation agency to: (1) determine maximum allowable production at a statewide level; (2) determine each field’s share of that production; and (3) establish an allocational formula that distributes this field allowable amongst the various owners.⁹ Although some states do not explicitly recognize market-demand prorationing, at least once a court has found that the agency had implied authority and upheld prorationing in the name of waste prevention.¹⁰ In contrast, however, many state legislatures have explicitly prohibited the use of market-demand prorationing.¹¹

The Supreme Court has upheld state and proration statutes against constitutional challenges. In *Champlin Refining Co. v. Corp. Comm’n of State of Oklahoma*, the plaintiff argued that Oklahoma’s proration statute constituted a violation of the Due Process and Equal Protection Clauses of the Fourteenth Amendment and it “operates to burden interstate commerce” in violation of the Commerce Clause.¹² Rejecting both arguments, the court found that the right to take oil is “subject to the reasonable exertion of the power of the state to prevent unnecessary loss, destruction, or waste.”¹³ The Court further held that prorationing laws “apply only to production and not to sales or transportation of crude oil or its products” and therefore do not affect interstate commerce, even if the products are actually shipped in such commerce.¹⁴

§ 29:61 Regulating to Prevent Environmental Damage

In recent years, some states and courts have begun to shift oil and gas conservation law towards assuring environmental and wildlife protection, providing conser-

⁶See Ehrman, *Lights Out in the Bakken: A Review and Analysis of Flaring Regulation and its Potential Effect on North Dakota Shale Oil Production*, 117 W. VA. L. REV. 549, 560–62 (2014); see also Thomas, *Capping the Flame: Solving North Dakota’s Natural Gas Flaring Problem Through Cap and Trade*, 8 GEO. WASH. J. ENERGY ENVTL. L. 137, 138–39 (2017).

⁷See, e.g., N.M. Stat. Ann. § 70-2-17 (West 2020); Tex. Nat. Res. Code Ann. §§ 85.053, 85.054 (West 2019).

⁸See King, *supra* note 281; see also Ford, *Controlling the Production of Oil*, 30 MICH. L. REV. 1170, 1191 (1932) (quoting the applicable statute); see also discussion *infra* Part I.A.3.vi.

⁹See, e.g., N.D. Cent. Code § 38-08-06 (West 2019); Tex. Nat. Res. Code § 85.053 (West 2019); Wash. Rev. Code Ann. § 78.52.270 (West 2020).

¹⁰See *Lion Oil Refining Co. v. Bailey*, 200 Ark. 436, 139 S.W.2d 683 (1940).

¹¹See, e.g., Colo. Rev. Stat. Ann. § 34-60-102(1)(b) (West 2020); Miss. Code Ann. § 53-1-1 (West 2020); Mont. Code Ann. § 82-11-305 (West 2019); Utah Code Ann. § 40-6-13 (West 2020); Wyo. Stat. Ann. § 30-5-204 (West 2020).

¹²See generally *Champlin Refining Co. v. Corporation Com’n of State of Okl.*, 286 U.S. 210, 223-24, 235, 52 S. Ct. 559, 76 L. Ed. 1062, 86 A.L.R. 403 (1932).

¹³*Champlin Refining Co. v. Corporation Com’n of State of Okl.*, 286 U.S. 210, 223-24, 233-34, 235, 52 S. Ct. 559, 76 L. Ed. 1062, 86 A.L.R. 403 (1932).

¹⁴*Champlin Refining Co. v. Corporation Com’n of State of Okl.*, 286 U.S. 210, 223-24, 235, 52 S. Ct. 559, 76 L. Ed. 1062, 86 A.L.R. 403 (1932).

vation agencies with greater authority to consider environmental.¹ Colorado is the most explicit in this mandate. Colorado's 1994 amendments added numerous usages of the words "environment" and "environmental" to the state's Oil and Gas Conservation Act,² and limited to the Colorado Oil and Gas Conservation Commission's use of the Oil and Gas Environmental Response Fund to conditions causing "a significant adverse environmental impact on any air, water, soil, or biological resource."³ The state's Oil and Gas Conservation Act was amended once again in 2007 to further require the commission to consider the impact of oil and gas operations on wildlife resources and to allow production within the state insofar as it is "consistent with the protection of public health, safety, and welfare, including protection of the environment and wildlife resources."⁴ This Act was most recently amended in 2019, when language was added to require the promulgation of emissions control regulation by the Colorado Air Quality Control Commission "to minimize emissions of methane and other hydrocarbons, volatile organic compounds, and oxides of nitrogen from oil and gas exploration and production"⁵ Moreover, the 2019 legislative changes explicitly pivoted the mission of the Colorado's Oil and Gas Conservation Commission towards one of environmental production, directing the agency to regulate, rather than promote, oil and gas production. In so doing, the amended Oil and Gas Conservation Act authorized the commission to consider cumulative and landscape scale environmental impacts, provided new opportunities for public input and consultation with other agencies, and redefined waste to exclude non-production where necessary to prevent damage to the environment.⁶ Although no other state has yet pursued legislative amendments to this extent, Colorado may indicate an alternative direction for conservation law.

C. OTHER STATE REGULATION

§ 29:62 Split Estate/Surface Damage Acts

In situations where the mineral estate is severed from the surface estate, otherwise known as a split estate, the mineral owner enjoys an implied right to use the surface to the extent reasonably necessary to develop the underlying minerals.¹ At common law, the mineral owner had no obligation to compensate the surface owner for damage or disruption resulting from its enjoyment of the dominant estate. Perhaps unsurprisingly, disputes frequently arise regarding access and use of the surface estate amongst the various owners.² State legislatures in a majority of oil and gas producing states have enacted statutes to address split estate disputes and

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¹See, e.g., Colo. Rev. Stat. Ann. § 34-60-102(1)(a)(I) (West 2020) (providing that development and production of oil and gas in the state should be regulated "in a manner that protects public health, safety, and welfare, including protection of the environment and wildlife resources"); see also Mich. Admin. Code r. 324.301(4)(c) (2020) (providing that a spacing exception may be granted if the supervisor determines the exception "will prevent waste, protect environmental values, and not compromise public safety"); see also Or. Admin. R. 632-010-0235 (2020) (providing that a spacing exception may be granted for, inter alia, "environmental protection").

²See 1994 Colo. Legis. Serv. S.B. 94-177 (West).

³1994 Colo. Legis. Serv. S.B. 94-177 (West).

⁴1994 Colo. Legis. Serv. S.B. 94-177 (West).

⁵Colo. Rev. Stat. § 34-60-102(1)(I) (West 2020).

⁶Colo. Rev. Stat. § 34-60-103(1)(B) (West 2020).

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¹See Lear & Barber-Renteria, *Split Estates and Severed Minerals: Rights of Access and Surface Use After the Divorce (and Other Leasehold Access-Related Problems)*, No. 1 RMMLF-Inst. Paper No. 12 (2005).

²Lear & Barber-Renteria, *Split Estates and Severed Minerals: Rights of Access and Surface Use*

allocate liability for certain categories of surface damages sustained in the course of oil and gas operations on split estates.³ Even in states that have not enacted split-estate legislation requiring compensation, courts have developed doctrines requiring accommodation or otherwise limiting the scope of the mineral owners use.⁴

Split estate or surface-damage statutes, as they are often informally called, most often include provisions relative to notice, compensation, reclamation, surveying, and dispute resolution. Many of these statutes require the mineral developer to provide notice to the surface owner prior to commencing drilling operations, and the procedures for providing such notice varies from state to state.⁵ Typically, either in conjunction with this notice requirement or separately, these statutes require good faith negotiations between the surface owner and the mineral owner to reach a surface use agreement.⁶ Often times, these statutes explicitly enumerate damages that obligate a developer to tender compensation to the surface owner.⁷ Furthermore, these statutes commonly impose surface restoration obligations on the mineral developer.⁸ Split-estate statutes often delegate enforcement to the oil and gas conservation agency in the state, which may integrate compliance with the statutes into permitting procedures.⁹ For instance, in Wyoming a proposed operator must certify its compliance with the split estate statute as part of submitting an Application for Permit to Drill to the conservation agency.¹⁰ Although the agency does not review surface use agreements or independently verify that the act's requirements have been met, incorporation of that requirement provides an avenue for surface owners and other mineral owners to protest the application and to later challenge issuance of the permit. Where surface and mineral owners cannot agree to damages, some states will allow the surface owner to bring a suit for compensation in court,¹¹ while others will allow such a determination through binding arbitration.¹² In addition, some states also provide a similar framework that a mineral owner must

After the Divorce (and Other Leasehold Access-Related Problems), No. 1 RMMLF-Inst. Paper No. 12 (2005).

³Ark. Code Ann. § 15-72-214, -216 to -219 (West 2020); Colo. Rev. Stat. Ann. § 34-60-127 (West 2020); Ky. Rev. Stat. Ann. § 353.595 (West 2020); Mont. Code Ann. §§ 82-10-501 to -511 (West 2019); N.M. Stat. Ann. §§ 70-12-1 to -10 (West 2020) ("Surface Owners Protection Act"); N.C. Gen. Stat. Ann. §§ 113-420 to 113-425 (West 2020); N.D. Cent. Code Ann. §§ 38-11.1-01 to -10 (West 2020) ("Oil and Gas Production Damage Compensation Act"); Ohio Rev. Code Ann. §§ 1509.072, .32 (West 2020); Okla. Stat. Ann. tit. 52, §§ 318.2 to 318.9 (West 2020); Okla. Stat. Ann. tit. 52, §§ 318.21 to 318.23 (West 2020) ("Seismic Exploration Regulation Act"); S.D. Codified Laws §§ 45-5A-1 to -11 (2020); Tenn. Code Ann. §§ 60-1-601 to -608 (West 2020) ("Oil and Gas Surface Owners Compensation Act of 1984"); Utah Code Ann. §§ 40-6-20 to -21 (West 2020); W. Va. Code Ann. §§ 22-7-1 to -8 (West 2020); Wyo. Stat. Ann. §§ 30-5-401 to -410 (West 2020) ("Wyoming Split Estate Act").

⁴*See, e.g.*, *Getty Oil Co. v. Jones*, 470 S.W.2d 618, 53 A.L.R.3d 1 (Tex. 1971).

⁵*See, e.g.*, Ky. Rev. Stat. Ann. § 353.595(3) (West 2020); Mont. Code Ann. § 82-10-503 (West 2019); N.M. Stat. Ann. § 70-12-5 (West 2020); N.C. Gen. Stat. Ann. § 113-420 (West 2020); N.D. Cent. Code Ann. § 38-11.1-04.1 (West 2020); Okla. Stat. Ann. tit. 52, § 318.3 (West 2020).

⁶*See, e.g.*, Mont. Code Ann. § 82-10-504 (West 2019); N.M. Stat. Ann. § 70-12-5 (West 2020); N.C. Gen. Stat. Ann. § 113-420 (West 2020); N.D. Cent. Code Ann. § 38-11.1-08 (West 2020); Okla. Stat. Ann. tit. 52, § 318.3 (West 2020); Wyo. Stat. Ann. § 30-5-402(f) (West 2020).

⁷*See, e.g.*, N.C. Gen. Stat. Ann. § 113-421 (West 2020); Wyo. Stat. Ann. § 30-5-405 (West 2020).

⁸*See, e.g.*, Ky. Rev. Stat. Ann. § 353.595(7); N.C. Gen. Stat. Ann. § 113-421 (West 2020).

⁹*See, e.g.*, Wyo. Stat. Ann. § 30-5-406(a) (West 2020).

¹⁰Wyo. Stat. Ann. § 30-5-403 (West 2020).

¹¹*See, e.g.*, N.C. Gen. Stat. Ann. § 113-421(c) (West 2020), Okla. Stat. Ann. tit. 52, § 318.5 (West 2020); W. Va. Code Ann. § 22-7-7 (West 2020); Wyo. Stat. Ann. § 30-5-406(c) (West 2020).

¹²*See, e.g.*, Tenn. Code Ann. § 60-1-107 (West 2020); W. Va. Code Ann. § 22-7-7 (West 2020).

comply with before conducting geophysical exploration on a split estate.¹³

§ 29:63 Industrial Siting

Authority for siting oil and gas and other energy operations may also be subject to industrial siting requirements. Some states have authorized a new or existing board, agency, or commission to be responsible for industrial siting,¹ while others have directly conferred authority to the state's oil and gas conservation agency.² Industrial siting regimes vary significantly between states. For instance, in Wyoming, the Wyoming Oil and Gas Conservation Commission regulates most oil and gas drilling locations; however, a permit from the state's Industrial Siting Council is required for projects exceeding a certain monetary amount, waste facilities, and any commercial wind or solar electric generation facilities regardless of size.³ In contrast, West Virginia's industrial siting laws apply only to solid waste facilities and include siting, location, design, construction, installation, establishment, financial assurance, permitting, modification, operating, groundwater monitoring, and closure and post-closure care.⁴

§ 29:64 Induced Seismicity and Chemical Disclosure

State legislatures have also enacted laws and regulations to address issues related to hydraulic fracturing and fluid disposal, including induced seismicity and chemical disclosure regulations.¹ Induced seismicity statutes and regulations allow regulatory agencies to respond to earthquakes attributed to underground injection activities.² Subsurface injection activities can contribute to an increase in seismic events. For instance, Oklahoma historically averaged about 1.6 earthquakes of magnitude 3.0 or greater, but this number dramatically rose to 584 by 2015.³ The Oklahoma Geological Survey has attributed this increase in seismic activity to subsurface injections of produced water.⁴ In response to the increase in seismic activity, the Oklahoma Corporation Commission promulgated a regulation that imposes monitoring and reporting obligations regarding induced seismicity upon Class II wells within the state.⁵ Other states have enacted similar laws and regulations which apply to wells regulated pursuant to Class II of the Underground Injec-

¹³See, e.g., Mont. Code Ann. §§ 82-1-101 to -111 (West 2019), Okla. Stat. Ann. tit. 52, §§ 318.21 to 318.23 (West 2020).

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¹See, e.g., Neb. Rev. Stat. Ann § 57-1401 to -1413 (West 2020).

²See, e.g., N.M. Stat. Ann. § 70-2-12 (West 2020).

³Wyo. Stat. Ann. §§ 35-12-102, 106 (West 2020).

⁴W. Va. Code Ann. § 22-15-1 *et seq.* (West 2020).

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¹See Keith B. Hall & Scott Anderson, *Chapter 2B Hydraulic Fracturing Impact Studies: Recent Highlights, Summaries, and Analysis*, WATER ACQUISITION AND MANAGEMENT FOR OIL & GAS DEVELOPMENT (2016); see also NATHAN RICHARDSON ET AL., RESOURCES FOR THE FUTURE, THE STATE OF STATE SHALE GAS REGULATION 1 (2013).

²See INTERSTATE OIL AND GAS CONSERVATION COMMISSION & GROUNDWATER PROTECTION COUNCIL, POTENTIAL INJECTION-INDUCED SEISMICITY ASSOCIATED WITH OIL & GAS DEVELOPMENT: A PRIMER ON TECHNICAL AND REGULATORY CONSIDERATIONS INFORMING RISK MANAGEMENT AND MITIGATION (2015); see also Hall & Anderson, *supra* note 347, at 2B-16.

³See Hall & Anderson, *supra* note 347, at 2B-16; see also RICHARD D. ANDREWS, OKLAHOMA GEOLOGICAL SURVEY, STATEMENT ON OKLAHOMA SEISMICITY (2015).

⁴See Andrews, *supra* note 349.

⁵See Okla. Admin. Code § 165:10-5-7(c)(5) (2020); see also Okla. Admin. Code § 165:10-5-1 (2020) (providing that "underground injection well" includes enhanced recovery injection wells, disposal wells,

tion Control (UIC) program, which regulates oil and gas fluid injection wells.⁶ Some states only impose monitoring and reporting requirements,⁷ while others authorize state regulatory agencies to deny, modify, suspend, or terminate injection permits if the proposed injection is likely to or found to induce seismicity.⁸ Another type of induced seismicity mitigation measure comes in the form of using so-called “traffic light systems,” which involves monitoring injection rates and pressures, as well as the surrounding area for evidence of seismic activity.⁹ An operator will be given a “green light” to continue injecting if no seismic activity is detected, or if only low magnitude events are detected.¹⁰ However, if seismic events of a higher magnitude are detected, the operator will be given a “yellow light,” which allows injection to continue but the operator must take the necessary precautions to mitigate these risks.¹¹ Furthermore, if seismic events above an even greater threshold are detected, the operator will be given a “red light” and operations will be required to cease.¹²

Chemical disclosure statutes and regulations require operators to disclose certain chemicals used in the hydraulic fracturing process.¹³ Requirements among chemical disclosure laws vary. Many states chemical disclosure regulations refer to the Occupational Safety and Health Administration (OSHA) material safety data sheets for minimum quantities required to be disclosed.¹⁴ In addition, all states with chemical disclosure laws allow for exemptions to protect trade secrets when the chemicals are considered “confidential business information.”¹⁵ Some states require that additive volume and concentration be disclosed, and, in some case, operators must categorize their disclosures by additive type.¹⁶ Wyoming’s regulations also require prior approval from the State Oil and Gas Supervisor for the use of VOCs, such as benzene, toluene, ethylbenzene, and xylene, and the same regulation expressly prohibits the injection of these VOCs into groundwater.¹⁷ Fifteen states imposed requirements on chemical disclosure between 2010 and 2012, exemplifying the rapid pace at which this area of law is evolving.¹⁸

§ 29:65 Review by Wildlife Agencies

Some states have also incorporated environmental and wildlife protection goals in

storage wells, and simultaneous injection wells).

⁶See, e.g., 16 Tex. Admin. Code §§ 3.46(d), 3.9, 5.203 (2020).

⁷See, e.g., Ill. Admin. Code tit. 62, § 240.796 (2020); Okla. Admin. Code § 165:10-5-7(c)(5) (2020).

⁸See, e.g., 16 Tex. Admin. Code § 3.46(d) (2020); Ohio Rev. Code Ann. § 6111.044 (West 2020).

⁹See, e.g., Okla. Admin. Code § 165:10-5-7 (2020); see also Hall, *Induced Seismicity: An Energy Lawyer’s Guide to Legal Issues and the Causes of Man-Made Earthquakes*, 61 RMMLF-Inst. 5, 5-20 (2015).

¹⁰Hall, *supra* note 355, at 5-21.

¹¹Hall, *supra* note 355, at 5-21. (stating the above proposition and providing that these precautions include “some combination of reduced injection rates, reduced pressures, and increased monitoring for seismicity”).

¹²Hall, *supra* note 355, at 5-21.

¹³See RICHARDSON ET AL., *supra* note 347, at 43-44; Gosman, *Reflecting Risk: Chemical Disclosure and Hydraulic Fracturing*, 48 GEORGIA L. REV. 83 (2013); see also Hall & Anderson, *supra* note 347, at 2B-22.

¹⁴RICHARDSON ET AL., *supra* note 347, at 44.

¹⁵See, e.g., 2 Colo. Code Regs. § 404-1:205A (LexisNexis 2020); Mont. Code Ann. § 82-10-604 (West 2020); see also RICHARDSON ET AL., *supra* note 347, at 43.

¹⁶See, e.g., 2 Colo. Code Regs. § 404-1:205A (LexisNexis 2020); Mont. Code Ann. § 82-10-604 (West 2020); see also RICHARDSON ET AL., *supra* note 347, at 43.

¹⁷Wyo. Rules & Regs. 055.0001.3 § 45 (West 2020).

¹⁸RICHARDSON ET AL., *supra* note 347, at 44.

the regulation of oil and gas operations,¹ conferring certain oil and gas regulatory authority to the state's Department of Environmental Quality (DEQ) or wildlife agency.² In 2007, Colorado passed the Colorado Habitat Stewardship Act of 2007 for the purpose of minimizing adverse impacts to wildlife resources that are affected by oil and gas operations.³ Under this Act, the COGCC is required to consult with the Parks and Wildlife Commission and Division of Parks and Wildlife on decisions that impacts wildlife resources.⁴ This consultation also involves the implementation of "best management practices and other reasonable measures to conserve wildlife resources."⁵ Additionally, rulemaking powers having been conferred to the COGCC, which again must be accompanied by consultation with the Parks and Wildlife Commission, to establish standards for minimizing adverse impacts and to ensure for the proper reclamation of wildlife habitat during and following oil and gas operations.⁶ Similarly, in Wyoming, executive orders have required agencies, including the Wyoming Oil and Gas Conservation Commission, to "prioritize the maintenance and enhancement" of sage grouse habitat consistent with the Greater Sage Grouse Management Plan through permit stipulations and changes to drilling and spacing units, among other measures.⁷

D. COUNTY REGULATION

§ 29:66 Generally

Under local land use laws generally, counties have various types of authority to control or guide industrial activities. However, such control and guidance must be compliant with the respective enabling act standard and statutory allowance.¹ The lines get blurred when legislative actions result in co-existing dual, yet independent, authority by state conservation agencies and local governments as such authority relates to oil and gas operations.² This Section provides a general background on the applicability of county regulations to oil and gas operations as well as a specific look at Colorado Senate Bill 19-181, a national precedent-setting law governing county authority over oil and gas locations and siting within local government boundaries.³

§ 29:67 County Authority and Governance of Oil and Gas Operations

Local land use authority is typically derived from a state constitution or statutory enabling act that outlines the extent and scope of county authority.¹ It is important to understand how a county's jurisdiction over land use, and therefore oil and gas

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¹See discussion *supra* Part I.A.4.

²See, e.g., Ark. Code Ann. § 15-72-219(b) (West 2020); Cal. Fish & Game Code § 1016 (West 2020).

³Colo. Rev. Stat. Ann. § 34-60-128(2) (West 2020).

⁴Colo. Rev. Stat. Ann. § 34-60-128(3) (West 2020).

⁵Colo. Rev. Stat. Ann. § 34-60-128(3)(c) (West 2020).

⁶Colo. Rev. Stat. Ann. § 34-60-128(3)(d) (West 2020).

⁷Wyo. Exec. Order No. 2019-3 (replacing prior orders 2015-4 and 2017-2), *Greater Sage Grouse Core Area Protection*, (August 21, 2019), available at: https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/Sage%20Grouse/Governor-Gordon-Greater-Sage-Grouse-EO-2019-3_August-21-2019_Final-Signed_1.pdf.

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¹C.R.S. §§ 29-20-101, et seq. (Colo. 2019).

²See generally, S.B. 19-181.

³S.B. 19-181, 72d Gen. Assemb., Reg. Sess. (Colo. 2019).

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¹To the extent "home rule powers" may relate to a County, please see § 29:77. The state legal

operations generally, is derived.

Upon review of several state constitutions and statutes, it is helpful to point out the differences in the establishment of county authority as it applies to oil and gas operations. In Wyoming, for example, the state distinguishes between municipal corporations and corporations of a public charter, such as counties, townships, and school districts.² Cities and counties in Wyoming differ in the way they are created, the authority they possess, and in the functions they perform.³ Under the Wyoming Constitution, “[a]ll cities and towns are . . . empowered to determine their local affairs and government as established by ordinance passed by the governing body, . . . subject . . . to statutes uniformly applicable to all cities and towns”⁴ Since Wyoming’s statehood, the legislature has controlled municipalities, granting whatever powers they have.⁵ Wyoming municipalities are “creatures of the state” having no inherent powers and possessing only the powers granted to them by the legislature.⁶ Counties, however, are a “political subdivision of the state,” created to aid in the administration of government by enforcing state statutes and laws—and *not* enacting them.⁷ “As an arm of the state, the county has only those powers expressly granted by the constitution or statutory law or reasonably implied from powers granted.”⁸ Unlike municipalities, the Wyoming Constitution does not grant counties the power to establish ordinances.⁹ “Counties being created for purposes of government, and authorized to exercise to a limited extent a portion of the power of the state government, have always been held to act strictly within the powers granted by the legislative act establishing them.” Accordingly, the statute is to them their fundamental law, and their power is only coextensive with the power thereby expressly granted, or necessarily or reasonably implied from its granted powers.¹⁰

Based on the foregoing, very few counties in Wyoming have regulations that apply to oil and gas. Johnson County, however, adopted a comprehensive land use plan in 2005 identifying oil and gas development as an industrial use.¹¹ The plan sets some general development criteria for future oil and gas exploration and production activities and establishes issues to address reasonable development criteria.¹² Douglas County’s Unified Land Development Code has an “Oil and Gas Operations” section to “ensure the safety, preserve the health, promote the prosperity and improve the morals, order, comfort and convenience of the present and future residents of the City” and “to facilitate the development of oil and gas resources within the City, while mitigating potential land use conflicts between such develop-

environment: home rule, preemption, and interpretation; *see also* Colo. Const., Art. XX and Art. XIV. Municipalities and counties that are not classified as “home rule” must abide by the authority granted through state statutes.

²Dunnegan v. Laramie County Com’rs, 852 P.2d 1138, 1141 (Wyo. 1993).

³Dunnegan v. Laramie County Com’rs, 852 P.2d 1138, 1141 (Wyo. 1993).

⁴Wyo. Const. Art. XIII, § 1.

⁵Stewart v. City of Cheyenne, 60 Wyo. 497, 154 P.2d 355, 360 (1944).

⁶K N Energy, Inc. v. City of Casper, 755 P.2d 207, 210 (Wyo. 1988).

⁷Dunnegan, 852 P.2d at 1142.

⁸Dunnegan, 852 P.2d at 1142.

⁹*See generally* Wyo. Const. Art. XII.

¹⁰Hyde v. Board of Com’rs of Converse County, 47 Wyo. 101, 109, 31 P.2d 75, 77 (1934).

¹¹Johnson County Comprehensive Land Use Plan, Adopted April 19, 2005 http://www.johnsoncoun.tywyoming.org/jcco/wp-content/uploads/2017/09/jc_land_use_plan_mar05.pdf (June 15, 2021).

¹²Johnson County Comprehensive Land Use Plan, Adopted April 19, 2005 http://www.johnsoncoun.tywyoming.org/jcco/wp-content/uploads/2017/09/jc_land_use_plan_mar05.pdf (June 15, 2021).

ment and existing, as well as planned, land uses.”¹³

Under the Utah Constitution, counties are recognized as subdivisions of the state and their powers are not enumerated.¹⁴ The Constitution states that “[t]he Legislature shall by statute provide for optional forms of county government.”¹⁵ Section 17-53-223 of the Utah Code grants broad authority to counties to enact ordinances and make regulations “necessary for carrying into effect or discharging the powers and duties conferred by this title, and as are necessary and proper to provide for the safety, and preserve the health, promote the prosperity, improve the morals, peace, and good order, comfort, and convenience of the county and its inhabitants, and for the protection of property in the county,” so long as they are not “repugnant to law.”¹⁶ Utah’s Land Use, Development, and Management Act was modified in 2005 with the following additions in bold and deletions stricken: “municipalities may enact all ordinances, resolutions, and rules and may enter into other forms of land use controls and development agreements that they consider necessary or appropriate for the use and development of land within the municipality, including ordinances, resolutions, rules, restrictive covenants, easements, and development agreements governing uses, density, open spaces, structures, buildings, energy efficiency, light and air, air quality, transportation and public or alternative transportation, infrastructure, street and building orientation and width requirements, public facilities, and height and location of vegetation, trees, and landscaping, unless expressly prohibited by law.”¹⁷ As such, Uintah County ordinances provide that “gas and oil wells shall not be located closer than one thousand (1,000) feet to any dwelling unit, unless written permission is given by the owner of such dwelling unit.”¹⁸ The County also puts the “burden to provide sufficient evidence to the satisfaction of the county legislative body that the proposed activity will not pollute, clog, alter, impair, or diminish water flow through the Ashley Springs system” on any proponent of oil and gas excavation.¹⁹ Davis County requires a permit to excavate natural resources.²⁰ Duchesne County has an ordinance addressing oil and gas drilling facilities and production with sundry provisions.²¹

In New Mexico, the Constitution grants broad authority to municipalities, including counties, stating, “[a] municipality which adopts a charter may exercise all legislative powers and perform all functions not expressly denied by general law or charter The purpose of this section is to provide for maximum local self-government. A liberal construction shall be given to the powers of municipalities.”²² Cities and counties “shall have and enjoy all rights, powers and privileges asserted in its charter not inconsistent with its general laws, and, in addition thereto, such rights, powers and privileges as may be granted to it, or possessed and enjoyed by cities and counties of like population separately organized.”²³ “An incorporated

¹³Douglas, Wyoming Code of Ordinances Sec. 6.40.

¹⁴Utah Const. Art. XI, § 1.

¹⁵Utah Const. Art. XI, § 4.

¹⁶Utah Code Ann. § 17-53-223 (LexisNexis, Lexis Advance through May 1, 2021).

¹⁷2005 Bill Text UT S.B. 60.

¹⁸Uintah County, Utah Code of Ordinances Sec. 17.33.020 3-D-2.

¹⁹Uintah County, Utah Code of Ordinances Sec. 17.24.070.

²⁰Davis County, Utah Code of Ordinances Section 14.12.040.

²¹Duchesne County, Utah Code of Ordinances Section 8-13-5-4 https://codelibrary.amlegal.com/codes/duchesnecountyut/latest/duchesneco_ut/0-0-0-3397#JD_8-13-5-4 (last visited June 15, 2021).

²²N.M. Const. Art. X, § 6.

²³N.M. Const. Art. X, § 4.

county may exercise . . . all powers granted to municipalities by statute.”²⁴

The governing body of a municipality and, by virtue of Article X § 5 of the New Mexico Constitution, incorporated counties may adopt regulations that are not inconsistent with the laws of New Mexico to effect or discharge the powers and duties conferred by law upon the municipality, and provide for the safety, preserve the health, promote the prosperity and improve the “morals, order, comfort and convenience” of its inhabitants.²⁵ Under this authority, Farmington’s municipal code, for example, states, “[a]ll proposals for oil, gas, or thermal drilling shall be referred to the oil and gas and geologic and engineering hazards advisory commission for recommendation in accordance with the provisions of the Municipal Code.”²⁶ Silver City requires that at the conclusion of drilling, sites “shall be restored in accordance with a restoration plan approved by the Community Development Director and designed to minimize adverse impacts to neighboring properties.”²⁷

§ 29:68 Oil and Gas Location and Siting Authority—Case Study: Colorado

In Colorado, a self-proclaimed “home rule” state, the legislature expressly provided that most land use decisions are driven by local governments and not the State:

- (1) The general assembly hereby finds and declares that to provide for planned and orderly development within Colorado and a balancing of basic human needs of a changing population with legitimate environmental concerns, the policy of this state is to clarify and provide broad authority to local governments to plan for and regulate the use of land within their respective jurisdictions. Nothing in this article shall serve to diminish the planning functions of the state or the duties of the division of planning.
- (2) The general assembly further finds and declares that local governments will be better able to properly plan for growth and serve new residents if they are authorized to impose impact fees as a condition of approval of development permits. However, impact fees and other development charges can affect growth and development patterns outside a local government’s jurisdiction, and uniform impact fee authority among local governments will encourage proper growth management.¹

As such, Colorado designates land use authority to local governments through various laws.² Counties are authorized to prepare master plans (or comprehensive plans) in order to prepare and plan for the physical surface development within their respective jurisdictions, including oil and gas operations.³ Counties are also authorized to adopt local zoning regulations to promote the public health, safety, and welfare of residents.⁴ County zoning is commonly used to ensure development does not occur in sensitive, highly populated or hazardous areas.⁵ Counties can also identify, designate, and regulate areas and activities of statewide impacts such as

²⁴N.M. Const. Art. X, § 5.

²⁵N.M. Stat. Ann. § 3-17-1 (LexisNexis, Lexis Advance through chapter 14 of the First Regular Session of the 55th Legislature (2021)).

²⁶Farmington, New Mexico Code of Ordinances Sec. 2.4.36.

²⁷Silver City, New Mexico Code of Ordinances Sec. 3.3.1.W.5.

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¹C.R.S. § 29-20-102(1), (2).

²See C.R.S. §§ 29-20-101, et seq., Colorado’s Local Government Land Use Control Enabling Act of 1974.

³C.R.S. §§ 30-28-106, 31-23-206.

⁴C.R.S. §§ 30-28-111, 31-23-301.

⁵C.R.S. §§ 30-28-111, 31-23-301.

natural resource development areas and development of new communities.⁶ If such areas are identified, then the county is allowed to control and require permits for development within such areas.⁷

On April 16, 2019, Senate Bill 19-181 “Concerning Additional Public Welfare Protections Regarding the Conduct of Oil and Gas Operations, and, in connection therewith, Making an Appropriation” was made effective and applied to oil and gas operations in Colorado “occurring on or after the effective date of this act, including determinations of applications pending on the effective date.”⁸ The adoption of Senate Bill 19-181 substantially changed the historic separate authority of the Colorado Oil and Gas Conservation Commission (“Commission”), the state conservation agency, and County governance to a co-existing, dual authority over oil and gas operations—meaning that both the County and the Commission must issue an operator a permit prior to any conduct of oil and gas operations on a proposed location.⁹ This the new law received national attention and has been heralded as one for the current federal administration to review and utilize as an example of a successful regulatory regime.

Senate Bill 19-181 changed the Commission’s mission from one of “fostering” oil and gas development to one that mandates that the Commission “regulate development and production of the natural resources of oil and gas in the state of Colorado in a manner that protects public health, safety, and welfare, including protection of the environment and wildlife resources.”¹⁰ This change from “foster” to “regulate” has resulted in years of lengthy rulemaking proceedings by the Commission and Colorado Department of Public Health and Environment, as well as new regulations and ordinances at a County level.¹¹

Senate Bill 19-181 also changed the governing authority over oil and gas operations to expressly allow local governments, including Counties, to regulate the use of the surface within its boundaries as such regulation relates to oil and gas operations.¹² Specifically, § 29-20-104(1)(g) and (h), C.R.S. provide:

- (1) . . . Each local government within its respective jurisdiction has the authority to plan for and regulate use of land by:
 - (g) Regulating the use of land on the basis of the impact of the use on the community or surrounding areas;
 - (h) Regulating the surface impacts of oil and gas operations in a reasonable manner to address matters specified in this subsection (1)(h) and to protect and minimize adverse impacts to public health, safety, and welfare and the environment For purposes of this subsection (1)(h), “Minimize adverse impacts” means, to the extent necessary and reasonable, to protect public health, safety, and welfare and environment by avoiding adverse impacts from oil and gas operations and minimizing and mitigating the extent and severity of those impacts that cannot be avoided. The following matters are covered by this subsection (1)(h):
 - (I) Land use;
 - (II) The location and siting of oil and gas facilities and oil and gas

⁶C.R.S. § 24-65.1-101.

⁷C.R.S. § 24-65.1-101.

⁸S.B. 19-181, § 19.

⁹S.B. 19-181, §§ 3, 4 and 6.

¹⁰C.R.S. § 34-60-102(1)(a)(I).

¹¹C.R.S. § 34-60-102(1)(a)(I).

¹²C.R.S. § 29-20-104(1)(h).

- locations, as those terms are defined in section 34-60-103(6.2) and (6.4);
- (III) Impacts to public facilities and services;
 - (IV) Water quality and source, noise, vibration, odor, light, dust, air emissions and air quality, land disturbance, reclamation procedures, cultural resources, emergency preparedness and coordination with first responders, security and traffic and transportation impacts;
 - (V) Financial securities, indemnification, and insurance as appropriate to ensure compliance with the regulations of the local government; and
 - (VI) All other nuisance-type effects of oil and gas development; and
- (i) Otherwise planning for and regulating the use of land so as to provide planned and orderly use of land and protection of the environment in a manner consistent with constitutional rights.”¹³

Under this provision, a County now has the ability to regulate any oil and gas operation that affects the surface of land within its jurisdiction.¹⁴ The County, however, must ensure that such regulations are “necessary and reasonable” under the legislative standard set forth in Senate Bill 19-181.¹⁵ If the County’s regulation of oil and gas operations fall outside of the mandates provided in § 29-20-104(1)(h) or the regulations are deemed by an applicable court of law to be unnecessary or unreasonable, then the County will have exceeded the scope of its authority under Senate Bill 19-181 and the enacted regulations will not apply.¹⁶ In order for a County to implement the powers and authority granted by Senate Bill 19-181 under § 29-20-104(1)(h), the County has authority to: (a) inspect all facilities subject to local government regulations; (b) impose fines for leaks, spills and emissions, and (c) impose fees on operators or owners to cover the reasonably foreseeable direct and indirect costs of permitting and regulation and the costs of any monitoring and inspection program necessary to address the impacts of development and to enforce local government requirements.¹⁷ Each of these sections in Senate Bill 19-181 work in tandem to provide Colorado counties with the newly allowed, express authority over locating and siting new oil and gas operations within their respective jurisdiction.¹⁸

E. MUNICIPAL REGULATION

¹³C.R.S. § 29-20-104(1)(g), (h); *see also* Colorado Oil and Gas Conservation Commission 300 and 500 series rules at 2 CCR 404-1 (2021).

¹⁴Prior to the adoption of Senate Bill 19-181, the primary authority for regulating oil and gas operations was clearly within the realm of the Commission. *See generally*, 34-60-102, C.R.S. (2018); *City of Longmont v. Colorado Oil and Gas Association*, 2016 CO 29, 369 P.3d 573, 82 Env’t. Rep. Cas. (BNA) 1509, 182 O.G.R. 210 (Colo. 2016); *City of Fort Collins v. Colorado Oil*, 2016 CO 28, 369 P.3d 586, 82 Env’t. Rep. Cas. (BNA) 1549, 182 O.G.R. 227 (Colo. 2016).

¹⁵C.R.S. § 29-20-104(1)(h).

¹⁶C.R.S. § 29-20-104(1)(h).

¹⁷C.R.S. § 29-20-104(2)(a) to (c).

¹⁸As of the date of this publication, at least six Colorado Counties have either adopted new ordinances and regulations, or have revised existing regulations, to allow for the inclusion of Senate Bill 19-181’s express local government authority over oil and gas operations into their respective codes. *See generally*, Adams County—<https://www.adcogov.org/oil-and-gas-information>; Arapahoe County—<https://www.arapahoe.gov/597/Oil-and-Gas>; Boulder County—<https://www.bouldercounty.org/property-and-land/land-use/planning/oil-gas-development/>; Broomfield County—<https://broomfield.org/1820/Oil-and-Gas>; Larimer County—<https://www.larimer.org/planning/phase-ii-larimer-county-land-use-code/oil-gas-regulations-phase-ii-update>; and Weld County—<https://www.weldgov.com/Government/Departments/Oil-and-Gas-Energy>. There have also been over 15 Colorado towns, cities or municipalities adopt new ordinances or revise existing oil and gas regulations.

§ 29:69 Municipal Regulation—Introduction

This Section explains why municipal governments often seek to regulate or otherwise control or influence oil and gas-related activities within their jurisdictions. It describes the potentially negative impacts municipal governments and their citizens confront with the introduction of oil and gas-related activities, and the methods municipal governments use to control or influence those activities to address their concerns. It also addresses some of the obstacles municipal governments confront that limit or thwart their efforts.

Some municipal governments hope to use their limited authority to attract oil and gas-related activities for the jobs and tax revenue they believe will follow. Others hope to control or influence oil and gas-related activities to protect their communities from the environmental and other harms that may accompany them. Either way, it is clear that municipal governments often seek to exert some measure of control or influence over the oil and gas-related activities that either seek to operate in their jurisdictions or are already operating there.

The methods or legal tools municipal governments might use to address their concerns vary according to the legal environment of the state, particularly the home rule and preemption environments, discussed below. They also may vary according to the focus of control over which the municipality seeks to exert authority. For example, the focus of control may be on the locations within a jurisdiction where oil and gas-related activities will (or will not) take place, or it may be on the safety or manner in which those activities may be conducted. It might also focus on issues not directly related to place or safety but pertaining instead to the local economy or the ability of the local government to carry out essential services.

Some local governments have enacted total bans on the use of hydraulic fracturing technology, while others have enacted bans on all fossil-fuel development.¹ If a local government cannot, or does not, ban either the use of hydraulic fracturing technology or the development of hydrocarbons, it may still attempt to control the location in which it finds oil and gas activities to be most appropriate; for example, in an industrial zone rather than a residential zone. A local government might use its traditional power of land use control to exclude oil and gas activities from land use zones in which they would be inappropriate, or confine them to occur in zones for which they are better suited.² Some local governments may allow these activities only with conditional use permits.³

In addition to using zoning authority to control the location of oil and gas activities, municipal governments may use ordinances to control how close oil and gas-related activities may be to potentially vulnerable locations.⁴ Municipal governments might impose setback requirements to protect their citizens in schools and other buildings the municipal government deems vulnerable or at-risk from proxim-

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¹See Shaun A. Goho, at 7, citing Food & Water Watch, Local Actions Against Fracking, *available at* <http://www.foodandwaterwatch.org/water/fracking/fracking-action-center/local-action-documents> (last visited Feb. 6, 2021).

²See *In Re Morrison, Ohio*, where, while striking down Munroe Falls, Ohio's attempt to impose a local permit and other controls, a concurring Ohio Supreme Court Justice suggested that the proper local authority for local governments seeking to influence or control oil and gas-related decisions lay in the city's power over traditional land use controls.

³See, e.g. COUNTY OF VENTURA RESOURCE MANAGEMENT AGENCY, *Oil and Gas Program*, <https://www.vcrma.org/oil-and-gas-program> (last visited June 22, 2021); see, e.g. MUNICIPALITY OF MURRYSVILLE, PA. MUN. CODE § 220-28 (2010), <https://ecode360.com/11539700>.

⁴See, e.g., *Natale v. Everflow E., Inc.*, 195 Ohio App. 3d 270, 2011-Ohio-4304, 959 N.E.2d 602, 180 O.G.R. 202 (11th Dist. Trumbull County 2011) (analyzing a nuisance claim for placing an offensive and odorous oil and gas tank on a property adjacent to the plaintiff's).

ity to oil and gas-related activities.⁵ Municipal governments may also use setbacks to protect rivers, lakes, or other environmentally vulnerable locations.⁶ Municipal governments may attempt to exercise many of these controls by enforcing their own local permit or hearing requirements on oil and gas-related activities.⁷ For example, although the Supreme Court of Ohio ultimately rejected this effort, Monroe Falls, Ohio used its ordinance authority to attempt to control oil and gas activities within municipal limits.⁸ Other cities attempt to use zoning authority to accomplish similar goals.⁹

In addition to using their regulatory authority to control the location and manner of oil and gas activities, some municipal governments may choose to address other potentially negative impacts of oil and gas-related activities; for example, noise and traffic concerns. Most municipal governments already have either specific noise level ordinances or nuisance ordinances that can serve a similar, but broader purpose.¹⁰ To enforce those in a manner that does not discriminate against incoming or existing oil and gas-related activities could be an effective means of control.¹¹ Certainly, if these ordinances existed prior to the arrival of the oil and gas-related activities, the case for upholding them is strong.

With respect to traffic controls, local governments have authority to set and enforce speed limits and other traffic-related controls. Some local governments have entered into agreements, called Road Use and Maintenance Agreements, with incoming oil and gas developers to pay for new and improved roads built according to the needs of the incoming industry.¹²

§ 29:70 Impacts of Oil and Gas Activities on Local Jurisdictions

Local governments hope to be involved in decision-making regarding incoming or existing oil and gas-related activities because their communities and constituents feel the effects of these activities. Some communities are new to oil and gas develop-

⁵See, e.g., *Robinson Tp., Washington County v. Com.*, 623 Pa. 564, 612, 695, 83 A.3d 901, 181 O.G.R. 102 (2013).

⁶See *Robinson Tp., Washington County v. Com.*, 623 Pa. 564, 612, 695, 83 A.3d 901, 181 O.G.R. 102 (2013).

⁷See, e.g., *State ex rel. Morrison v. Beck Energy Corp.*, 143 Ohio St. 3d 271, 2015-Ohio-485, 37 N.E.3d 128 (2015); see also, e.g., *Huntley & Huntley, Inc. v. Borough Council of Borough of Oakmont*, 600 Pa. 207, 964 A.2d 855, 168 O.G.R. 524 (2009); see also, e.g., *Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012); see also, e.g., *Association of Irrigated Residents v. Department of Conservation*, 11 Cal. App. 5th 1202, 1206-07, 218 Cal. Rptr. 3d 517 (5th Dist. 2017); see also, e.g., *Robinson Tp., Washington County v. Com.*, 623 Pa. 564, 83 A.3d 901, 181 O.G.R. 102 (2013).

⁸See *State ex rel. Morrison v. Beck Energy Corp.*, 143 Ohio St. 3d 271, 2015-Ohio-485, 37 N.E.3d 128 (2015).

⁹*Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012); see also *Protect PT v. Penn Township Zoning Hearing Board*, 220 A.3d 1174 (Pa. Commw. Ct. 2019), appeal denied, 233 A.3d 677 (Pa. 2020); see also, e.g., *City of Longmont v. Colorado Oil and Gas Association*, 2016 CO 29, 369 P.3d 573, 82 Env't. Rep. Cas. (BNA) 1509, 182 O.G.R. 210 (Colo. 2016).

¹⁰Goho, *Municipalities and Hydraulic Fracturing: Trends in State Preemption*, 64 PLANNING & ENV'T L. 3, 4-6 (2012).

¹¹See Goho, *Municipalities and Hydraulic Fracturing: Trends in State Preemption*, 64 PLANNING & ENV'T L. 3, 4-6 (2012).

¹²See *Best Practices of Road User Maintenance Agreements Amongst Local Government Agencies in Ohio*, Ohio Department of Transportation, available at http://www.dot.state.oh.us/groups/oril/project_s/Pages/Best-Practices-of-Road-User-Maintenance-Agreements.aspx (last visited June 22, 2021), see also *Ohio's Oil and Gas Industry Road Improvement Payments*, Ohio Oil and Gas Association and Energy in Depth at 4 (2017) available at <https://www.energyindepth.org/wp-content/uploads/2017/11/2017-Utica-Shale-Local-Support-Series-Ohios-Oil-and-Gas-Industry-Road-Payments.pdf>.

ment, and the technologies required for shale development differ substantially from those used in the communities in which conventional oil and gas extraction has occurred.¹ These new technologies allow development to move from rural areas, which are accustomed to it, to some suburban and ex-urban communities, which are not.²

Regardless of whether local governments seek to promote, control, or limit incoming or existing oil and gas-related activities, there are several issues they face when these activities ultimately arrive. These issues fall broadly into the categories of environmental law, and also in the related areas of traffic, infrastructure, employment, housing, and social and economic concerns.³ Some argue that municipal governments seek involvement in oil and gas-related decision-making, at least in part, because they are dissatisfied with the protections afforded by state and federal legal controls.⁴

§ 29:71 Impacts of Oil and Gas Activities on Local Jurisdictions—Environmental

With the coming of oil and gas-related activities, municipal governments face environmental concerns of various kinds, most pointedly regarding air pollution, and water use and pollution.

§ 29:72 Impacts of Oil and Gas Activities on Local Jurisdictions—Air pollution concerns

Air pollution concerns arise from various aspects of facility construction and facility operations. The types of facilities related to oil and gas production vary. For example, truck traffic, engines and compressors that run drilling rigs and other equipment, and flaring of excess gasses are all sources of air pollution. The air pollutants they emit varies, too, including volatile organic compounds, dust, methane, sulfur dioxide and nitrogen oxides.¹ Particulate air pollution—meaning various sizes of dust—can increase in the ambient air during the construction of the facility and also during its operation, especially deriving from traffic over local roads.² Increased truck traffic due to a new facility can also lead to increase exhaust emissions.³ Methane emissions can occur at wellhead sites and during materials transfers, all concerning to local governments. Even the outflow of brine can cause air pollutant emissions due to the nature of the brine itself and the pollutants it collects on its journey into and out of fractured wells.⁴ For example, engines, compressors, venting,

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¹Goho, *supra* note 10, at 3–9.

²Goho, *supra* note 10, at 3–9.

³Goho, *supra* note 10, at 3–9.

⁴Goho, *supra* note 10, at 3–9.

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¹Goho, *supra* note 10, at 3–9.

²Goho, *supra* note 10, at 3–9; see also EARTHWORKS, *Sources of Oil and Gas Air Pollution*, available at https://www.earthworks.org/issues/sources_of_oil_and_gas_air_pollution/ (last visited June 22, 2021).

³Lesley Fleischman, et al., *Fossil Fumes: A Public Health Analysis of Toxic Air Pollution From the Oil and Gas Industry*, CLEAN AIR TASK FORCE 14 (2016), available at https://www.catf.us/wp-content/uploads/2016/06/CATF_Pub_FossilFumes.pdf.

⁴Mary Kang, *CO₂, Methane, and Brine Leakage Through Subsurface Pathways: Exploring Modeling, Measurement, and Policy Options* (2014) (Ph.D. Dissertation, Princeton University).

and flaring all emit air pollutants which may be concerning for local governments.⁵

§ 29:73 Impacts of Oil and Gas Activities on Local Jurisdictions—Water-related concerns

Water-related concerns are multifaceted for local governments. They might be concerned about the volume of water necessary for hydraulic fracturing operations and/or with the method of disposal of the large amounts of used fracturing fluid, or the brine these operations generate. Fracturing operations use an enormous amount of clean, fresh water—millions of gallons for every fractured well.¹ Local governments may not want these large quantities drawn from local sources for fear they would quickly diminish them or divert them from local uses.

Shale oil and gas facility operators mix fresh water with chemicals and proppants to prepare it for effective use as injection fluid to fracture the shale and stimulate production at the well. Operators inject the fracturing fluid into the well at high pressure to create fissures in the shale rock layer that allow oil and gas to escape. The fluid, or brine, then reemerges from the well along with naturally occurring pollutants it collected on its journey, such as salts, metals, and radioactive materials.² How and where safely to dispose of the resulting fluid has long been a concern. Because it is no longer clean water, it cannot be discharged from whence it came. Operators have been working on developing and improving methods for cleaning and re-using the brine it in future fracturing operations,³ but still often send it wastewater treatment facilities,⁴ or to deep well injection disposal locations as allowed in some states.⁵ Sometimes, when a well casing is not as it should be, it can crack or leak and cause oil, gas, or fracturing fluid to leak into groundwater.⁶

§ 29:74 Impacts of Oil and Gas Activities on Local Jurisdictions—Other concerns facing municipal governments

Noise is also a concern for municipal governments and their citizens at both the construction and operation stages of oil and gas operations.¹ They may seek to use regulatory authority to control it. Another area of concern is the potential negative impact oil and gas operations may have on the conditions of local roads. Increased road use due to construction and operation could cause deterioration of local roadways, which may not have been constructed to bear increased loads. There might be increased traffic congestion due to oil and gas facilities business operations

⁵Fleischman, *supra* note 19, at 16-7.

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¹Goho, *supra* note 10 (citing U.S. Dep't of Energy, Modern Shale Gas Development in the United States, A Primer 64 (2009)).

²Goho, *supra* note 10 (citing U.S. Dep't of Energy, Modern Shale Gas Development in the United States, A Primer 64 (2009)).

³See Timothy J. Drake, *Renewable Water: Cleaning Flowback, Brine and Produced Well Water for Reuse, Discharge and Disposal*, ONG MARKETPLACE 6-7 (May 2015).

⁴*Fracking Water: It's Just So Hard to Clean*, NATIONAL GEOGRAPHIC (Oct. 2013), available at <https://www.nationalgeographic.com/environment/article/fracking-water-its-just-so-hard-to-clean>.

⁵See Deep Injection Wells: How Drilling Waste Is Disposed Underground, State Impact Pennsylvania on National Public Radio, available at <https://stateimpact.npr.org/pennsylvania/tag/deep-injection-well/#:~:text=Deep%20injection%20wells%20are%20also,drilling%2C%20including%20frack%20waste%20water.&text=Much%20of%20the%20frack%20water,which%20has%20more%20disposal%20wells>.

⁶*Groundwater Protection in Oil and Gas Production*, AMERICAN GEOSCIENCES INSTITUTE (2018).

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¹Goho, *supra* note 10, at 5.

and worker ingress and egress. There may be concerns surrounding enforcement of traffic laws.

Although employment-related concerns are not always the first to come to mind when oil and gas-related activities are coming to town, these issues are real. Incoming oil and gas industry jobs may take employees away from local employers. The added oil and gas industry jobs may be a net-positive for the area, if they pay well and if they stay. But, if they do not—both pay well and remain in the area, the ultimate situation is less positive. When non-oil and gas-related local employers lose employees, they may not survive, and when the oil and gas facilities leave, the other employers may no longer be in the area to re-hire the employees they lost. When industry, such as that related to oil and gas development, overtakes a local economy, it becomes more difficult for that economy to recover in the face of its eventual absence.²

Local jurisdictions may face upward pressure on housing costs resulting from the influx of temporary oil and gas industry workers.³ Local governments, therefore, may be concerned about the ability of their permanent residents to find and retain reasonably priced housing. The increased temporary population may also cause concerns related to emergency response and social service loads.⁴

§ 29:75 Law-based obstacles to municipal control or influence of oil and gas-related decisions

Municipal governments face numerous barriers to their ability to influence or control oil and gas-related activities. This section will describe some of those barriers and the legal environments in which they operate. In particular, although many municipal governments appear to have authority to act on local concerns under the ‘home rule’ provisions in their state constitutions or enabling statutes, some state courts have interpreted these provisions in ways that prevent local jurisdictions from regulating in areas related to oil and gas-activities. The fundamental question here is whether a municipal government may enact and enforce ordinances that attempt to control or influence oil and gas-related activities, or the state has taken away that authority.

§ 29:76 The state legal environment: home rule, preemption, and interpretation

Many states include ‘home rule’ provisions in their state constitutions.¹ These provisions generally grant authority to municipal governments to enact ordinances on issues of local concern, particularly in the areas of public safety and welfare and local self-governance.² Some states grant home rule by statute rather than through

²Goho, *supra* note 10, at 4, citing Headwaters Economics, Fossil Fuel Extraction as a County Economic Development Strategy: Are Energy-Focusing Counties Benefitting? 2-3 (2008), available at <https://headwaterseconomics.org/energy/oil-gas/fossil-fuel-extraction/> (last visited June 24, 2021).

³*Impact on Property Values*, AMERICAN PETROLEUM INSTITUTE (2017), <https://www.api.org/-/media/Files/Oil-and-Natural-Gas/Hydraulic-Fracturing/Health-and-Community/Impact-on-Property-Values.pdf>.

⁴See Horner, et al., *Water Use and Management in the Bakken Shale Oil Play in North Dakota*, 50 ENV'T SCI. & TECH. 3275 (2016); see also *Social Impacts of Oil and Gas Development on Eastern Montana Communities*, MONTANA BOARD OF CRIME CONTROL (2013).

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¹J. Jon D. Russell & Aaron Bostrom, *Federalism, Dillon Rule and Home Rule*, AMERICAN CITY COUNTY EXCHANGE 6 (Jan. 2016).

²See generally Robertson, *When States' Legislation and Constitutions Collide with Angry Locals: Shale Oil and Gas Development and Its Many Masters*, 41 WM. & MARY ENVTL. L. & POL'Y REV. 55

their constitutions.³ This section does not attempt to catalog state constitutions' home rule provisions or grants of home rule authority by state legislation. Instead, it describes some examples of the circumstances municipal governments face when attempting to use regulatory authority to address the environmental and related concerns described above.

§ 29:77 State constitution-based home rule authority

An example of constitution-based home rule authority, the Ohio Constitution provides that “[m]unicipalities shall have authority to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary and other similar regulations, as are not in conflict with general laws.”¹ This suggests that municipal governments should be able to enact ordinances to address the local concerns set forth above. But that is not the case in Ohio. The problem for Ohio municipal governments comes both in the form of state legislation and state court interpretation of its constitution's home rule amendment.

§ 29:78 Preemption by a general law of the state

Explaining its position, the Supreme Court of Ohio considered a municipal ordinance in which “the city of Canton . . . prohibited the placement or use of mobile homes as principal or accessory structures for residential use”¹ then amended its ordinances to include “manufactured homes” within the definition of “mobile homes,” thus prohibiting their residential use.² Concurrently, the Ohio General Assembly enacted a statute purporting to preclude political subdivisions from “prohibiting or restricting the location of permanently sited manufactured homes in any zone or district in which a single-family home is permitted.”³ Canton challenged the state legislature's authority arguing that the state law was unconstitutional because it encroached on municipality home-rule power.⁴

The Supreme Court of Ohio established a three-part test to determine when state legislation takes precedence over a municipal ordinance.⁵ “A state statute takes precedence over a local ordinance when (1) the ordinance is in conflict with the statute, (2) the ordinance is an exercise of police power, rather than of local self-government, and (3) the statute is a general law.”⁶ While the first two prongs of the test were not contested in the *Canton* case, under the third prong, the Court found this state statute was not a general law. The Court explained that “[t]o constitute a general law for purposes of home-rule analysis, a statute must (1) be part of a statewide and comprehensive legislative enactment, (2) apply to all parts of the state alike and operate uniformly throughout the state, (3) set forth police, sanitary, or similar regulations, rather than purport only to grant or limit legislative power of a munic-

(2016).

³See, e.g., N.C. Gen. Stat. § 113-415.1; see also, e.g., 52 Okla. Stat. Ann. § 137.1.

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¹Ohio Const. art. XVIII, § 3.

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¹This codified under § 1129.11 of Canton's Codified Ordinances.

²Canton Ordinance 49/98 (amending Canton Codified Ordinances § 1123.57(b)).

³See Ohio Rev. Code Ann. § 3781.184 (West 2019).

⁴See Ohio Const. art. XVIII, § 3.

⁵See *Canton v. State*, 95 Ohio St. 3d 149, 2002-Ohio-2005, 766 N.E.2d 963, 966 (2002) (holding modified by, *Mendenhall v. Akron*, 117 Ohio St. 3d 33, 2008-Ohio-270, 881 N.E.2d 255 (2008)).

⁶See *Canton v. State*, 95 Ohio St. 3d 149, 2002-Ohio-2005, 766 N.E.2d 963, 966 (2002) (holding modified by, *Mendenhall v. Akron*, 117 Ohio St. 3d 33, 2008-Ohio-270, 881 N.E.2d 255 (2008)).

ipal corporation to set forth police, sanitary, or similar regulations, and (4) prescribe a rule of conduct upon citizens generally.” The Ohio Supreme Court held that the applicable sections of the state law violated the Ohio Constitution’s home rule amendment because it was an improper attempt to limit Canton’s home-rule powers.⁷ So, in the *Canton* case, the Court upheld the local action because the state law did not qualify as a general law such that it could preempt the local action. This appears initially hopeful for the prospects of municipal home rule.

Still, even when it appears that local governments have home rule authority through a state constitution, interpretation of the state’s home rule provision and state legislatures’ commitment to enacting statutes that qualify as ‘general laws’ can prevent municipal governments from regulating in the area of oil and gas regulation. For example, addressing home rule, conflict with state law, and express state preemption of local authority in the context of municipal regulation of oil and gas-related activities, the Ohio Supreme Court held Ohio’s oil and law to be a general law preempting municipal regulatory authority. In *State ex rel. Morrison v. Beck Energy Corp.*,⁸ Beck Energy Corporation (Beck Energy), an oil and gas developer, secured the state-required permit from Ohio’s Department of Natural Resources to drill on private property in Munroe Falls, Ohio.⁹ After Beck Energy had begun drilling, Munroe Falls issued a Stop Work Order as authorized under an existing ordinance and sought an injunction arguing that Beck Energy failed to comply with Munroe Falls’ drilling, zoning, and construction ordinances. The Supreme Court of Ohio affirmed the judgment of the appellate court, which held that because the ordinances were in direct conflict with several sections of the *Ohio Revised Code*, a general law under the *Canton* test,¹⁰ the state law preempted the local ordinances, which Munroe Fall could not enforce against Beck Energy.¹¹

§ 29:79 Express preemption by state law

State statutes may preempt local control by expressly preempting the activities the local government hopes to control.¹ For example, in Ohio, the Ohio oil and gas law grants ‘sole and exclusive’ authority over all aspects of the locating, drilling, and operating of oil and gas wells to the Ohio DNR.² Because the local ordinance purported to act in an area over which the state statute explicitly exerted control for

⁷*Canton*, 766 N.E.2d at 965.

⁸*State ex rel. Morrison v. Beck Energy Corp.*, 143 Ohio St. 3d 271, 2015-Ohio-485, 37 N.E.3d 128 (2015) (holding that the ordinance was preempted by state law).

⁹*State ex rel. Morrison v. Beck Energy Corp.*, 143 Ohio St. 3d 271, 273, 2015-Ohio-485, 37 N.E.3d 128 (2015).

¹⁰Under *Canton*, “[T]o constitute a general law for purposes of home-rule analysis, a statute must (1) be part of a statewide and comprehensive legislative enactment, (2) apply to all parts of the state alike and operate uniformly throughout the state, (3) set forth police, sanitary, or similar regulations, rather than purport only to grant or limit legislative power of a municipal corporation to set forth police, sanitary, or similar regulations, and (4) prescribe a rule of conduct upon citizens generally.” 766 N.E.2d at 968.

¹¹*Beck Energy*, 989 N.E.2d at 280.

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¹*Natale v. Everflow E., Inc.*, 195 Ohio App. 3d 270, 2011-Ohio-4304, 959 N.E.2d 602, 605, 180 O.G.R. 202 (11th Dist. Trumbull County 2011) (holding that the ordinance in question was preempted by state law because it dealt with the “location and operation of the oil and gas well,” which was explicitly reserved for the Ohio Department of Natural Resources in the state statute).

²“The regulation of oil and gas activities is a matter of general statewide interest that requires uniform statewide regulation, and this chapter and rules adopted under it constitute a comprehensive plan with respect to all aspects of the locating, drilling, well stimulation, completing, and operating of oil and gas wells within this state, including site construction and restoration, permitting related to those activities, and the disposal of wastes from those wells.” Ohio Rev. Code. § 15.09.02.

itself, the state statute preempted the local ordinance.³ One example is supplied by a Warren, Ohio ordinance that prohibited oil and gas well storage tanks from being located within two hundred feet of any building or structure without a local waiver. The Eleventh District Court of Appeals (Ohio) held that the preemption provision in Ohio's oil and gas law, Ohio Rev. Code § 1509.02 preempted Warren's ordinance because the ordinance purports to act on an issue the statute explicitly prohibits.⁴

§ 29:80 Operational conflict with state law

Colorado provides home rule authority by statute, rather than by Constitutional provision. The Colorado home rule statute states that “[e]ach local government within its respective jurisdiction has the authority to plan for and regulate the use of land”¹ However, the state also employs an operational conflict test which would void any local action that would materially impede or destroy a state interest.² For example, La Plata County, Colorado, enacted an ordinance that authorized the creation of a county planning commission to enact local zoning plans for unincorporated territory. Four years prior, Colorado had passed the Oil and Gas Conservation Act creating a state Oil and Gas Commission with jurisdiction over all persons and property in enforcing the rules and regulations set forth under the Act.³ Oil and gas firms sued La Plata County. The Supreme Court of Colorado relied on *Ray v. City & County of Denver*, where it had held that while a county cannot adopt an ordinance that is in conflict with any state statute, stating that “an ordinance and a statute may both remain effective and enforceable as long as they do not contain express or implied conditions that are irreconcilably in conflict with each other.” The Court considered the purpose of the ordinance at issue and found it to align with the state's interests, rather than impeding it.⁴ Therefore, the Court concluded that there was no operational conflict between the state statute and the local ordinance.⁵ Although the case illustrating the concept of operational conflict pertained to a county ordinance, the principles would likely hold true for conflict in municipal ordinances as well.

For example, and pertaining to oil and gas regulation, the Colorado Supreme Court held a city's hydraulic fracturing ban “[to be preempted because it] . . . materially impeded the effectuation of the state's interest” because it prohibited all fracking, including procedures allowed by the Colorado Oil and Gas Commission's

³§ 731.06 of the Codified Ordinances of Warren, Ohio.

⁴*Smith Family Trust v. Hudson Bd. of Zoning & Bldg. Appeals*, 2009-Ohio-2557, at ¶ 10, 2009 WL 1539065 (Ohio Ct. App. 9th Dist. Summit County 2009) (“[T]he test is whether the ordinance permits or licenses that which the statute forbids and prohibits, and vice versa.”).

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¹C.R.S.A. § 29-20-104.

²*See Board of County Com'rs, La Plata County v. Bowen/Edwards Associates, Inc.*, 830 P.2d 1045, 1058 (Colo. 1992).

³The declared purposes of the Oil and Gas Conservation Act are as follows: to promote the development, production, and utilization of the natural resources of oil and gas in the state; to protect public and private interests against the evils of waste; to safeguard and enforce the coequal and correlative rights of owners and producers in a common source or pool of oil and gas so that each may obtain a just and reasonable share of production therefrom; and to permit each oil and gas pool to produce up to its maximum efficient rate of production subject to the prohibition of waste and subject further to the enforcement of the coequal and correlative rights of common-source owners and producers to a just and equitable share of profits.

⁴“The purpose of the county regulations is to ‘facilitate the development of oil and gas resources within the unincorporated area of La Plata County while mitigating potential land-use conflicts between such development and existing, as well as planned, land uses.’”

⁵The Court stated that it was unable to make a determination given the record before them.

regulations.⁶ In Colorado, each local government has the authority to reasonably plan for and regulate the use of land by regulating many functions, including the “surface impacts of oil and gas operations” to best protect and serve public health, safety, welfare, and the environment.⁷ This statute is not meant to limit, alter, or expand any power already granted to local governments. In *City of Longmont*, Longmont added an article to its home-rule charter, prohibiting fracking,⁸ and the Colorado Oil and Gas Association sued Longmont to invalidate it. Granting summary judgment for the Oil and Gas Association, the trial court found the amendment preempted by the Oil and Gas Conservation Act.⁹ The Colorado Supreme Court of Colorado agreed and further found fracking to be exceptionally important in the production of oil and gas.¹⁰ Because hydraulic fracturing is a commonly used technology in oil and gas extraction, banning it could lead to an extreme decrease in extraction efficiency across Colorado, making this local amendment a matter of statewide concern.¹¹ The Court did not want this one local charter amendment to create a “ripple effect” and influence other municipalities to ban the extraction method, because that would cause a drift away from statewide uniformity.¹²

Like Colorado, many states consider whether the municipal ordinance and state statute work together in supporting similar goals, or are in conflict. For example, in Pennsylvania, oil and gas operators, Huntley and Huntley (Huntley),¹³ sought to operate a natural gas well on residential properties in “the Borough.”¹⁴ Huntley entered into commercial lease agreements with the affected property owners and obtained the required permit from the state. Later, however, the Borough Council and the municipal zoning officer directed Huntley to cease operations on the well because it violated the Borough’s zoning ordinance.¹⁵ In accordance with the local ordinance, Huntley then submitted a conditional use application. The Council conducted a standard hearing to consider the application, then it denied the application. The Council found, in part, that state law did not preempt its restriction.¹⁶ In *Huntley & Huntley*, however, the Supreme Court of Pennsylvania cited *United Tavern Owners*, which said “[e]ven where the state has granted power to act in a particular field, . . . such powers do not exist if the Commonwealth preempts the field.”¹⁷ The Court looked to the purposes of both the local ordinance and Pennsylvania’s Oil and Gas Statute. The main purpose of the Borough’s ordinance was to protect and preserve the character of residential areas, whereas the state legislature’s main purposes in the Oil and Gas Act were public health and

⁶See *City of Longmont v. Colorado Oil and Gas Association*, 2016 CO 29, 369 P.3d 573, 586, 82 Env’t. Rep. Cas. (BNA) 1509, 182 O.G.R. 210 (Colo. 2016) (holding that a city’s fracking ban [to be preempted because it] . . . materially impeded the effectuation of the state’s interest).

⁷Colorado Rev. Stat. Ann. § 29-20-104.

⁸Hydraulic fracturing (or fracking) is a process used to stimulate oil and gas production from an existing well.

⁹See Colo. Rev. Stat. Ann. § 34-60-101.

¹⁰*Longmont*, 369 P.3d at 580.

¹¹*Longmont*, 369 P.3d at 580.

¹²*Longmont*, 369 P.3d at 581.

¹³*Huntley & Huntley, Inc. v. Borough Council of Borough of Oakmont*, 600 Pa. 207, 225, 964 A.2d 855, 168 O.G.R. 524 (2009). Huntley is an engineering company involved in the oil and gas industry in Pennsylvania.

¹⁴“The Borough” is the Borough of Oakmont, Allegheny County, Pennsylvania.

¹⁵The ordinance considered drilling for natural gas to be an extraction of minerals, which was only permitted in an R-1 district on a conditional basis.

¹⁶*Huntley*, 600 Pa. at 213.

¹⁷See *United Tavern Owners of Philadelphia v. School Dist. of Philadelphia*, 441 Pa. 274, 279, 272 A.2d 868 (1971).

safety.¹⁸ So, the purposes were different, and not in support of similar goals. Although the ordinance likely also responded to some public health concerns, its main purposes did not align with the main purposes of the Act. Thus, the Court held that the statute preempted the local ordinance.¹⁹

Although local governments may enact local regulations enacted pursuant to state law, a local government cannot enact a regulatory scheme that presents an obstacle to the purposes behind state law.²⁰ In *Range Res.—Appalachia v. Salem Twp. (Range Resources)*, Salem Township, Pennsylvania, enacted an ordinance regulating surface and land development associated with oil and gas drilling.²¹ In response, several oil and gas producers sued, arguing that Pennsylvania’s Oil and Gas Act preempted this ordinance.²² The trial court held that Pennsylvania’s Oil and Gas Act had addressed the alleged purposes behind the ordinance and that once the state has acted pursuant to such purposes, municipalities are prohibited from exercising police power to accomplish the same.²³ Both the Commonwealth and Supreme Courts of Pennsylvania affirmed stating that “[t]he comprehensive and restrictive nature of [the ordinance’s] regulatory scheme represents an obstacle to the legislative purposes underlying the Act, thus implicating principles of conflict preemption.”²⁴

§ 29:81 Dillon’s rule

Some states apply Dillon’s Rule to the scope of local regulatory authority. Dillon’s Rule provides that non-home rule governmental units possess only those powers specifically granted to them by the state’s constitution or by the state legislature.¹ Therefore, municipal government units subject to Dillon’s Rule, may regulate in a field occupied by state legislation, sometimes oil and gas activities, only when the state’s constitution or state legislation specifically granted that authority.² In Illinois, for example, a place is a non-home-rule unit if it has fewer than 25,000 inhabitants and has not elected by referendum to become a home rule unit of government.³

In *Village of Sugar Grove v. Rich*, a resident received citations for violating several ordinances within the village of Sugar Grove, Illinois. Following his conviction on several of the violations, he appealed others arguing, for example, that the noise ordinances were preempted by state law.⁴ Although the court found that Sugar Grove’s population was not sufficient to exercise home rule power, the court held that the Illinois Environmental Protection Act did not reserve noise regulation to

¹⁸*Huntley*, 600 Pa. at 223–25.

¹⁹*Huntley*, 600 Pa. at 225.

²⁰*Range Resources Appalachia, LLC v. Salem Tp.*, 600 Pa. 231, 964 A.2d 869, 168 O.G.R. 507 (2009) (citing *Huntley*, but clarifying that local regulations enacted pursuant to state laws are permitted).

²¹*Range Resources Appalachia, LLC v. Salem Tp.*, 600 Pa. 231, 964 A.2d 869, 168 O.G.R. 507 (2009).

²²Appellees also argued that other federal and state enactments preempted the ordinance, but those are not at issue here.

²³*Range Res. Appalachia*, at 234.

²⁴The Supreme Court frequently cites *Huntley* for its similar facts and analysis.

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¹See *Owens v. City Council of City of Norfolk*, 78 Va. Cir. 436, 440 (2009) (citing *City of Richmond v. Board of Sup’rs of Henrico County*, 199 Va. 679, 101 S.E.2d 641, 644–45 (1958)).

²*Owens v. City Council of City of Norfolk*, 78 Va. Cir. 436, 440 (2009) (citing *City of Richmond v. Board of Sup’rs of Henrico County*, 199 Va. 679, 101 S.E.2d 641, 644–45 (1958)).

³*Village of Sugar Grove v. Rich*, 347 Ill. App. 3d 689, 283 Ill. Dec. 559, 808 N.E.2d 525 (2d Dist. 2004).

⁴*Rich* cites the Environmental Protection Act.

only the state. Further, the court held that the purpose of the ordinance harmonizes well with the statute. Therefore, because they could coexist peacefully, the statute did not preempt the ordinance.⁵

In the realm of oil and gas regulation, an Illinois court has held that a non-home-rule unit of government may prohibit the drilling or operation of an oil or gas well within its municipal limits.⁶ In *Tri Power Resources v. City of Carlyle*, a developer entered into an oil and gas lease and obtained the required drilling permit from Illinois's Department of Natural Resources.⁷ Three months later, the City of Carlyle annexed the land, deeming it a residential district under its zoning ordinance.⁸ Because of this new zoning classification, there could be no drilling or operating oil and gas wells on the parcel. The developer sued Carlisle, seeking a declaration that the new zoning ordinance was preempted by state law.⁹ The court, citing *Rich*, first determined that Carlyle is a non-home rule municipality, so Dillon's Rule governs. The court then looked at the language of Illinois's Oil and Gas Act. Under § 13 of the state law, corporate authorities of each municipality have the authority to issue permits for the oil and gas mining to protect property. Here, Carlyle acted within the parameters of its powers under the state law; thus, the state law did not preempt Carlisle's ordinance.¹⁰

§ 29:82 State constitution and statute-based home rule

New York has witnessed more local governments move to ban or control oil and gas-related activities than any other state.¹ These local efforts have been effective for two primary reasons. First, New York's constitution contains a home rule provision—similar to other states—granting local government the power to adopt and amend local laws not inconsistent with the state constitution or any general law of the state.² Second, New York has enacted legislation to further buttress home rule powers of local jurisdictions. In support of the constitutional provision, the New York legislature has adopted the Municipal Home Rule Law, empowering local governments to pass laws for the “protection and enhancements of their physical and visual environment” and the health and well-being of persons and property in a local jurisdiction.³ Additionally, the legislature enacted the Town Law, which authorizes towns to enact zoning laws to effectuate local police powers, and the

⁵*Village of Sugar Grove*, 808 N.E.2d at 531.

⁶*Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 817, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012) (holding that “a non-home-rule unit of government may prohibit the drilling or operation of an oil or gas well within its municipal limits”).

⁷*Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 812, 817, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012).

⁸*Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 817, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012).

⁹*Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 817, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012).

¹⁰*Tri-Power Resources, Inc. v. City of Carlyle*, 359 Ill. Dec. 781, 967 N.E.2d 811, 816–17, 84 A.L.R.6th 663 (App. Ct. 5th Dist. 2012).

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¹See FRACTRACKER ALLIANCE, <https://www.fractracker.org/map/us/new-york/moratoria/> (last visited June 29, 2021); see also OFFICE OF THE GOVERNOR, NEW YORK STATE, *Governor Cuomo Announces Legislation to Make the Fracking Ban Permanent Included in FY 2021 Executive Budget* (Jan. 22, 2020), <https://www.governor.ny.gov/news/governor-cuomo-announces-legislation-make-fracking-ban-permanent-included-fy-2021-executive>.

²See N.Y. Const. art. IX, § 2(c)(ii).

³Robertson, *When States' Legislation and Constitutions Collide with Angry Locals: Shale Oil and Gas Development and its Many Masters*, 41 WM. & MARY ENVTL. L. & POL'Y REV. 55, 122–23

Statute of Local Governments—granting towns the power to shape zoning regulations.⁴

In *City of Dryden*, Dryden, New York amended its Zoning Ordinance to prohibit all activities related to exploration for, production of, and storage of natural gas and petroleum.⁵ Anschutz Exploration, an oil and gas developer, owned gas leases throughout Dryden and had invested millions of dollars into those operations. The developer sued Dryden, arguing that the charter amendment was preempted by New York's Oil, Gas and Solution Mining Law (OGSML).⁶ The Supreme Court of Tompkins County, New York, citing *Matter of Frew Run*, analyzed preemption under New York's Mined Land Reclamation Law (MLRL). Similar to the OGSML, the MLRL includes a supersedure clause. The court reasoned that neither state law explicitly preempted local zoning authority. Further, the OGSML's purpose was to regulate all production and development of oil and gas, not to maximize the development of the oil and gas resources in New York. Therefore, the Court held that this purpose does not abridge local power to regulate delegated powers, meaning there was no preemption.

Similarly, Texas employs a home rule system based both in statute and its constitution⁷ stating that, “absent an express limitation, if the general law and local regulation can coexist peacefully without stepping on each other's toes, both will be given effect, or the latter will be invalid only to the extent of any inconsistency.”⁸ Texas applies an analysis that is similar to that of *Bowen/Edwards*.⁹ In *City of Laredo v. Laredo Merchs. Ass'n*, Laredo enacted an ordinance banning the use of certain plastic checkout bags by commercial establishments. Its declared purpose was to reduce litter. The Laredo Merchants Association sued the City of Laredo, arguing that the Texas Health and Safety Code preempted the ordinance.¹⁰ The trial court held that the ordinance and the state law could exist without encroaching on one another. The Supreme Court of Texas agreed that general laws and local regulations could coexist peacefully; however, the Court also stated that the Texas legislature clearly intended to preempt municipalities from exercising its police powers in this particular area of governance. On this point, it said “[the statute] describes a state interest in ‘controlling the management of solid waste’ that is plenary.”¹¹ Finally, the Court held that the home-rule provision did not authorize Laredo's regulatory method. Therefore, the state law preempted the municipal

(2016).

⁴Robertson, *When States' Legislation and Constitutions Collide with Angry Locals: Shale Oil and Gas Development and its Many Masters*, 41 WM. & MARY ENVTL. L. & POL'Y REV. 55, 122–23 (2016).

⁵*Anschutz Exploration Corp. v. Town of Dryden*, 35 Misc. 3d 450, 469, 940 N.Y.S.2d 458, 181 O.G.R. 1127 (Sup 2012), judgment aff'd, 108 A.D.3d 25, 964 N.Y.S.2d 714, 181 O.G.R. 1143 (3d Dep't 2013), order aff'd, 23 N.Y.3d 728, 992 N.Y.S.2d 710, 16 N.E.3d 1188, 181 O.G.R. 1166 (2014). The underlying purpose was to prohibit fracking. Dryden is located in the Marcellus shale region, and faced a proposed use of high-volume fracking to obtain natural gas from Marcellus black shale formation. See *Anschutz Exploration Corp. v. Town of Dryden*, 35 Misc. 3d 450, 452, 469, 940 N.Y.S.2d 458, 181 O.G.R. 1127 (Sup 2012), judgment aff'd, 108 A.D.3d 25, 964 N.Y.S.2d 714, 181 O.G.R. 1143 (3d Dep't 2013), order aff'd, 23 N.Y.3d 728, 992 N.Y.S.2d 710, 16 N.E.3d 1188, 181 O.G.R. 1166 (2014).

⁶OGSML has a supersedure clause that stated: “The provisions of this article shall supersede all local laws or ordinances relating to the regulation of the oil, gas, and solution mining industries”

⁷See Tex. Local Gov't. § 9.001, available at <https://statutes.capitol.texas.gov/Docs/LG/htm/LG.9.htm>.

⁸*City of Laredo v. Laredo Merchants Association*, 550 S.W.3d 586 (Tex. 2018).

⁹*Board of County Com'rs, La Plata County v. Bowen/Edwards Associates, Inc.*, 830 P.2d 1045 (Colo. 1992).

¹⁰See § 342.001 of this Code.

¹¹*City of Laredo*, 550 S.W.3d at 594.

ordinance.

§ 29:83 Explicit statutory preemption of oil and gas activities

Some state statutes explicitly prohibit municipal regulation of oil and gas activities. For example, like many states, North Carolina's legislature seeks to maintain a uniform system of oil and gas regulation (among other things) and prohibits local governments from restricting or conditioning oil and gas exploration, development, and production, including the use of drilling and hydraulic fracturing to achieve those purposes.¹ Similarly, in Ohio, the legislature has adopted a uniform system of comprehensive statewide legislation that has been recognized as a general law by the Ohio Supreme Court for purposes of oil and gas regulation.² Pursuant to this general law, local governments may not interfere with the state regulation of any oil and gas activities covered by the legislation and any local ordinance which conflicts with the general law is preempted.³ Louisiana has also adopted express state preemption statutes concerning the grant of oil and gas well permits.⁴ Pursuant to Louisiana Revised Statute 30:28, no person may drill an oil or gas well without first obtaining a drilling permit from the Office of Conservation, and no local ordinance or zoning authority may interfere with a permit so obtained.⁵

Other states' legislatures specifically allow local regulation of oil and gas activities. For example, Oklahoma allows for municipalities, counties, or other political subdivisions to enact reasonable ordinances concerning oil and gas operations, so long as those ordinances are not inconsistent with any state statutes.⁶ The statute further explains that political subdivisions may not explicitly or effectively prohibit oil and gas operations.⁷ Pennsylvania allows municipalities permitting authority over oil and gas activities.⁸ As discussed above, New York municipalities may utilize zoning authority to regulate oil and gas activities.⁹

§ 29:84 Zoning

As discussed, municipal governments still seek influence over the oil and gas-related activities within their jurisdictions. Some have turned to ordinance-based zoning approaches; that is, using their traditional zoning authority to regulate oil

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¹See N.C. Gen. Stat. § 113-415.1.

²State ex rel. Morrison v. Beck Energy Corp., 143 Ohio St. 3d 271, 275-77, 2015-Ohio-485, 37 N.E.3d 128 (2015).

³State ex rel. Morrison v. Beck Energy Corp., 143 Ohio St. 3d 271, 275-77, 2015-Ohio-485, 37 N.E.3d 128 (2015); see also Ohio Rev. Code Ann. § 1509.02 (West 2017). See also McCready, *Like it or Not, You're Fracked: Why State Preemption of Municipal Bans are Unjustified in the Fracking Context*, 62 Drexel L. Rev. Online 9, 75 (2016), <https://ansp.org/~media/Files/law/law%20review/v9-1/McCready.ashx>.

⁴Hall, *When Do State Oil and Gas or Mining Statutes Preempt Local Regulations?*, 27 NAT. RES. & ENV'T 3 (2013).

⁵Hall, *When Do State Oil and Gas or Mining Statutes Preempt Local Regulations?*, 27 NAT. RES. & ENV'T 3, 14 (2013).

⁶See 52 Okla. Stat. Ann. § 137.1.

⁷"Operations" includes exploration, drilling, fracking, completion, maintenance, plugging, and abandonment to name a few.

⁸See 53 Pa. Con. Stat. § 10101 (1968).

⁹See *Anschutz Exploration Corp. v. Town of Dryden*, 35 Misc. 3d 450, 469, 940 N.Y.S.2d 458, 181 O.G.R. 1127 (Sup 2012), judgment aff'd, 108 A.D.3d 25, 964 N.Y.S.2d 714, 181 O.G.R. 1143 (3d Dep't 2013), order aff'd, 23 N.Y.3d 728, 992 N.Y.S.2d 710, 16 N.E.3d 1188, 181 O.G.R. 1166 (2014).

and gas or prohibit related activities in specific land use zones.¹ For example, in New York State, the Town of Dryden enacted a zoning ordinance that would control certain oil and gas-related activities. In *Norse Energy Corp. USA v. Town of Dryden*,² the court found Dryden's use of its zoning authority to be a permissible use of the home-rule power. In *Norse*, an oil and gas developer sued Dryden, arguing that the OGSML preempted Dryden's ordinance.³ The court followed the *Anschutz* analysis due to factual similarities and found the ordinance not preempted by the state statute. Similarly, in *Cooperstown Holstein Corp. v. Town of Middlefield*,⁴ the Town of Middlefield, New York banned oil, gas, and solution mining and drilling within the town. A holder of oil and gas leases in the town sued Middlefield arguing, again, that New York's OGSML preempted Middlefield's ordinance. Relying on *Norse*,⁵ the court disagreed and upheld the ordinance.⁶ In Pennsylvania, too, municipalities have used their zoning authority as allowed under that state's constitution.⁷

§ 29:85 Related obstacles to municipal authority

In some states, corporate influence has an outsized impact on state legislatures and pushes to increase state preemption of local control in the purported interest of a state-controlled unified system of regulation. For example, Florida SB 712—an amendment to Florida's Environmental Protection Act—passed in 2020 and was billed largely as a landmark environmental bill for the state envisioned as restoring water treatment standards and environmental protections for water systems in the state.¹ However, buried in the large regulatory bill was a late-stage amendment establishing state preemption of local rights based ordinances and charter amendments, such as the local laws discussed throughout this writing.² Following SB 712's adoption, environmentalists in the state filed numerous federal lawsuits challenging this state level preemption of local protection efforts.³

In Ohio, the state legislature included an effort to enact a statewide preemption of local environmental protection in an omnibus budget bill in 2019.⁴ Emails obtained in a FOIA request show that, weeks before a vote on the budget bill, Ohio Chamber of Commerce Director of Energy and Environmental Policy, Zack Frymier,

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¹See generally Giller, *Implied Preemption and Its Effect on Local Hydrofracking Bans in New York*, 21 J.L. & Pol'y 631, 647 (2013).

²*Norse Energy Corp. USA v. Town of Dryden*, 108 A.D.3d 25, 964 N.Y.S.2d 714, 181 O.G.R. 1143 (3d Dep't 2013), order aff'd, 23 N.Y.3d 728, 992 N.Y.S.2d 710, 16 N.E.3d 1188, 181 O.G.R. 1166 (2014) (holding the zoning approach to be a permissible use of the home-rule power).

³This is the same ordinance and statute at issue in *Anschutz*.

⁴*Cooperstown Holstein Corp. v. Town of Middlefield*, 106 A.D.3d 1170, 1171, 964 N.Y.S.2d 431, 181 O.G.R. 1164 (3d Dep't 2013), order aff'd, 23 N.Y.3d 728, 992 N.Y.S.2d 710, 16 N.E.3d 1188, 181 O.G.R. 1166 (2014) (affirming *Norse*).

⁵Since the Court relied on *Norse*, it also must have relied on *Anschutz*.

⁶*Cooperstown*, 106 A.D.3d at 1171.

⁷*Huntley & Huntley, Inc. v. Borough Council of Borough of Oakmont*, 600 Pa. 207, 225, 964 A.2d 855, 168 O.G.R. 524 (2009) (applying the Colorado Home Rule Approach and the zoning approach).

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¹Renzo Downey, *Gov. DeSantis signs Clean Waterways Act*, FLORIDA POLITICS (June 30, 2020), Available at <https://floridapolitics.com/archives/345170-gov-desantis-signs-clean-waterways-act>.

²Scott Powers, *Environmentalists challenge 'rights of nature' preemption in SB 712*, FLORIDA POLITICS (July 2, 2020), available at <https://floridapolitics.com/archives/345753-environmentalists-challenge-rights-of-nature-preemption-in-sb-712>.

³See, e.g., *Speak Up Wekiva, Inc. v. Desantis*, No. 6:20-CV-01173 (M.D. Fl. July 29, 2020).

⁴Ohio Rev. Code Ann. § 2305.011 (West 2019).

requested a meeting with Chairman Hoops of the Ohio House Finance Subcommittee on Agriculture, Development, and Natural Resources to discuss inclusion of preemption language in the final bill.⁵ Some activists have viewed this as a direct response to the Lake Erie Bill of Rights and related local ordinances throughout Ohio which seek to establish local control over natural resources.⁶

Additionally, Ohio recently faced a widely publicized legislative scandal—the Householder scandal—in which the Speaker of the Ohio House of Delegates, Larry Householder, and other state house members accepted bribes from energy corporations and lobbyists to pass favorable energy legislation.⁷ Although the FBI has arrested and is currently investigating Householder,⁸ he remains in the Ohio legislature.⁹

VII. ENVIRONMENTAL LAWS AND OIL AND GAS

A. NATIONAL ENVIRONMENTAL POLICY ACT

§ 29:86 Introduction

The National Environmental Policy Act (NEPA) applies to projects and other activities undertaken by private oil and gas companies in the United States in much the same way the law applies to the development of other private infrastructure, agriculture, and similar activity that qualifies as a “major federal action.”¹ Common examples of industry activity subject to NEPA include exploration and production of oil and gas resources on Federal lands and the Outer Continental Shelf, construction of interstate natural gas pipelines and oil and natural gas pipelines that cross Federal lands or international borders, and construction and operation of petroleum refineries and liquefied natural gas (LNG)² terminals. Accordingly, industry operations are subject to NEPA review decisions and consultations made by the Bureau of Land Management (BLM), the Bureau of Ocean Energy Management, the Department of Energy (DOE), the Environmental Protection Agency, the Federal Energy Regulatory Commission (FERC), the Department of State (DOS), the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, and the U.S. Forest Service, among others.

Given the size and complexity of many industry activities, discrete projects may require multiple permits or authorizations from several federal agencies that would be subject to NEPA review, in addition to any required authorizations from state

⁵H. Claire Brown, *How Ohio’s Chamber of Commerce Killed an Anti-Pollution Bill of Rights*, THE INTERCEPT (Aug. 29, 2019, 8:00 AM), <https://theintercept.com/2019/08/29/lake-erie-bill-of-rights-ohio/>.

⁶H. Claire Brown, *How Ohio’s Chamber of Commerce Killed an Anti-Pollution Bill of Rights*, THE INTERCEPT (Aug. 29, 2019, 8:00 AM), <https://theintercept.com/2019/08/29/lake-erie-bill-of-rights-ohio/>.

⁷Andrew J. Tobias, *Nuclear Bailout Bill Shows How Big Money Can Be Put to Work in the Ohio Statehouse*, CLEVELAND.COM (May 23, 2019), <https://www.cleveland.com/news/g66l-2019/05/ce7f1b02ee6954/nuclear-bailout-bill-shows-how-big-money-can-be-put-to-work-in-the-ohio-statehouse.html>.

⁸Anna Staver, *Former House Speaker Larry Householder Won’t Be Removed for Now, Despite GOP Assurances*, COLUMBUS DISPATCH (Jan. 4, 2021), <https://www.dispatch.com/story/news/politics/elections/2021/01/04/larry-householder-will-remain-in-house-as-ohio-general-assembly-sets-priorities-legislative/4072168001/>.

⁹Anna Staver, *Former House Speaker Larry Householder Won’t Be Removed for Now, Despite GOP Assurances*, COLUMBUS DISPATCH (Jan. 4, 2021), <https://www.dispatch.com/story/news/politics/elections/2021/01/04/larry-householder-will-remain-in-house-as-ohio-general-assembly-sets-priorities-legislative/4072168001/>.

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¹42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1508.1(q) (2021); §§ 10:13 to 10:18 of this treatise.

²LNG is natural gas that has been cooled to -260° Fahrenheit, after which large-scale export facilities can load it into specialized tank vessels for overseas transport.

and local agencies.³ For example, the construction and operation of an LNG export facility may require, at a minimum, authorization from FERC to site and construct the facility,⁴ as well as authorization from DOE to export the LNG commodity,⁵ both of which may be subject to separate NEPA reviews. Depending on the type of project and whether it can rely on existing permitted infrastructure, such an export facility may also require NEPA-triggering permits to construct and operate interstate natural gas pipelines feeding the facility, permits under the Clean Water Act to dredge and fill waterways, and potentially many others.

The NEPA process to permit large infrastructure projects, including oil and gas projects, has had the potential to be complex and lengthy since the law's inception. In recent years, the process has grown even more complicated, owing to, among other factors, evolving regulations and guidance documents implementing NEPA issued by federal agencies that oversee oil and gas permitting, increased opposition to oil and gas projects nationwide, and increased litigation or the threat of litigation regarding the scope and adequacy of NEPA review.⁶ As a result, NEPA can present significant procedural hurdles to private companies in the form of lengthy permitting times at agencies, additional mitigation measures or other conditions placed on projects by agencies conducting NEPA reviews, and, in extreme cases, vacatur of permits, leases, or other authorizations by courts.

Part of the problem may be that NEPA, as currently drafted, is ill-equipped to properly address the nature of modern oil and gas projects in the 21st century. The text of the NEPA statute has not been amended since 1970, and its application to increasingly complex projects deploying new technologies and generating potentially adverse effects not foreseen by Congress has arguably grown more difficult for implementing agencies, the regulated community, affected stakeholders, and courts. In particular, whether the scope of NEPA reviews should include assessments of greenhouse gas emissions related to oil and gas projects has been a major source of uncertainty for over a decade.

§ 29:87 Role of White House Council on Environmental Quality in Oil and Gas Projects

As a formal matter, the Council on Environmental Quality (CEQ) established by NEPA has no specific role with respect to oil and gas projects. CEQ's original 1978 regulations and its recent 2020 amendments do not mention oil and gas, and the details of how to conduct NEPA reviews of proposed industry activity have been left to individual permitting agencies such as BLM and FERC. However, many of CEQ's guidance documents hold significance for certain oil and gas activities. For example, CEQ's 2014 "Effective Use of Programmatic NEPA Reviews" was intended to "address the general environmental issues relating to broad decisions, such as those establishing policies, plans, programs, or suite of projects [P]rogrammatic NEPA review provides the basis for decisions to approve such broad or high-level decisions such as identifying geographically bounded areas within which future proposed activities can be taken or identifying broad mitigation and conservation

³Several states have also enacted NEPA-like statutes applicable to industry activity, such as exploration and production, on state and private lands or that requires state authorization. *See, e.g.*, Cal. Pub. Res. Code §§ 21000, et seq. (California Environmental Quality Act); N.Y. Env'tl. Conserv. Law §§ 8 et seq. (New York State Environmental Quality Review Act); § 7:12 of this treatise.

⁴15 U.S.C. § 717b(e).

⁵15 U.S.C. § 717b(a) to (c).

⁶According to CEQ, from 2001 through 2013 alone, 1,499 actions raising NEPA claims were filed in federal courts. CEQ, "NEPA LITIGATION SURVEYS: 2001-2013," available at <https://ceq.doe.gov/docs/ceq-reports/nepa-litigation-surveys-2001-2013.pdf>.

measures that can be applied to subsequent tiered reviews.”¹ The guidance could apply to resource management planning decisions by BLM that govern the disposition of millions of acres of public lands under a single NEPA document, and increased use of high-level programmatic reviews in place of individual site-specific reviews could foreclose or limit disposition for oil and gas leases on individual parcels.²

In addition, CEQ has also grappled with how to address assessments of greenhouse gas emissions under NEPA in several guidance documents. A 2016 guidance document,³ originally proposed in 2010,⁴ provided information to agencies on quantification tools and how to weigh the impact of emissions when considering alternatives. This guidance was revoked in 2017.⁵ In 2019, CEQ issued a new, less-detailed guidance document addressing some of the same issues,⁶ but it was never finalized, and that too was revoked in early 2021.⁷ In the absence of coherent guidance from CEQ, individual agencies have been left to consider questions related to greenhouse gas emission assessments in NEPA reviews on their own, with the potential for conflicting answers for combusive or emitting oil and gas projects.

§ 29:88 Process overview for oil and gas projects

The first question in determining whether NEPA review is required for a proposed industry action is whether the authorization required for the action under other applicable statutes is a “major federal action.” While there is no specific test for oil and gas projects, as a practical matter, most new industry infrastructure development with a federal nexus (such as whether the activity occurs on Federal lands or waters or requires a permit or authorization from a Federal agency) will qualify. For example, if an oil and gas developer seeks to acquire a lease on onshore Federal lands to explore and drill for oil and gas deposits in the future, it typically must

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¹CEQ, “EFFECTIVE USE OF PROGRAMMATIC NEPA REVIEWS,” at 9–10 (Dec. 18, 2014), *available at* http://ceq.doe.gov/docs/ceq-regulations-and-guidance/Effective_Use_of_Programmatic_NEPA_Reviews_Final_Dec2014_searchable.pdf.

²The U.S. Supreme Court has favored limiting programmatic NEPA requirements even in the context of fossil fuel extraction on large swaths of Federal lands. For example, in *Kleppe v. Sierra Club*, 427 U.S. 390, 96 S. Ct. 2718, 49 L. Ed. 2d 576, 8 Env’t. Rep. Cas. (BNA) 2169, 6 Env’tl. L. Rep. 20532 (1976), the Court held that the Department of the Interior and other federal agencies “responsible for issuing coal leases, approving mining plans, and taking other actions to enable private companies and public to develop coal reserves on Federally owned or controlled land” were not required to issue a programmatic EIS for the entire Northern Great Plains region. *Kleppe v. Sierra Club*, 427 U.S. 390, 393, 96 S. Ct. 2718, 49 L. Ed. 2d 576, 8 Env’t. Rep. Cas. (BNA) 2169, 6 Env’tl. L. Rep. 20532 (1976). *Kleppe* reflects skepticism by the Court regarding programmatic reviews even for projects that share a number of factors in common, including location and type of activity. *See also* National Wildlife Federation v. Appalachian Regional Commission, 677 F.2d 883, 15 Env’t. Rep. Cas. (BNA) 1945, 11 Env’tl. L. Rep. 20386 (D.C. Cir. 1981) (promulgating factors for consideration of programmatic assessment).

³CEQ, “FINAL GUIDANCE FOR FEDERAL DEPARTMENTS AND AGENCIES ON CONSIDERATION OF GREENHOUSE GAS EMISSIONS AND THE EFFECTS OF CLIMATE CHANGE IN NATIONAL ENVIRONMENTAL POLICY ACT REVIEWS” (Aug. 1, 2016), *available at* https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf.

⁴CEQ, “DRAFT NEPA GUIDANCE ON CONSIDERATION OF THE EFFECTS OF CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS” (Feb. 18, 2010), *available at* <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf>.

⁵“Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews,” 82 Fed. Reg. 16576 (Apr. 5, 2017).

⁶“Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions,” 84 Fed. Reg. 30097 (June 26, 2019).

⁷“National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions,” 86 Fed. Reg. 10252 (Feb. 19, 2021).

purchase a lease from BLM. In order to dispose of leases, BLM must conduct a lease sale pursuant to the Mineral Leasing Act.¹ Lease sales are usually considered a “major federal action,” and BLM will determine what level of NEPA review applies to a particular proposed sale. In most cases, potential lease sales to oil and gas companies have been considered under a BLM Resource Management Plan (RMP), a land use planning document also subject to NEPA review, usually in the form of an Environmental Impact Statement (EIS). The specific lease sale under consideration is generally limited to a portion of the acreage that is part of the larger RMP, and may consist of dozens or even hundreds of individual leases.

The next step is for an agency to determine if any applicable categorical exclusions apply to the action under review.² Categorical exclusions are set by individual agencies. In the example of leasing public lands for oil and gas development, it is unlikely that any categorical exclusions would apply to any of the major steps in the process—development of the RMP, conducting a lease sale, and ultimately issuing a permit to drill.³ But BLM and other agencies have developed categorical exclusions applicable to industry activity for various reasons. DOE has promulgated categorical exclusions for LNG export authorizations,⁴ on the basis that approval of the export of the LNG commodity alone would only entail environmental impacts in the form of marine transportation, which DOE has historically found to be not significant.⁵ Other potential impacts related to LNG exports—such as those associated with the construction of new export facilities or combustion of LNG overseas—are outside of DOE’s authority to prevent.⁶

If no categorical exclusion applies to the proposed action, an agency will next determine whether to conduct a shorter, more concise Environmental Assessment (EA), or to proceed to a longer detailed EIS. Like with categorical exclusions, many agencies herd particular types of actions into one of these groups under regulations and guidance.⁷ As with any other action subject to NEPA review, the relevant agency determination at this stage is a Finding of No Significant Impact (FONSI). Actions for which a FONSI is issued conclude with an EA; otherwise, a complete EIS is conducted. For federal onshore oil and gas lease sales, BLM usually conducts an EA which can be “tiered” from the EIS accompanying the relevant RMP.

For larger and more complex oil and gas projects, many agencies may be involved in permitting different aspects of the project or consulting with permitting agencies on particular effects. When such projects require an EIS, practical and efficiency concerns may arise when determining which agency is in charge of preparing the EIS, as well as sequencing the timing of individual authorizations in a logical fashion to facilitate safe operations. In some cases, Congress has addressed this issue. For example, FERC has been statutorily designated as the “lead agency” for

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¹30 U.S.C. §§ 181 et seq.

²See § 10:10 of this treatise.

³BLM has created categorical exclusions for certain routine operations related to existing federal oil and gas wells. See BUREAU OF LAND MGMT., NEPA HANDBOOK App’x 4 (2008).

⁴10 C.F.R. § 1021 (2021), Appx. B, § 5:7.

⁵“National Environmental Policy Act Implementing Procedures,” 85 Fed. Reg. 78197, 78198 (Dec. 4, 2020).

⁶“National Environmental Policy Act Implementing Procedures,” 85 Fed. Reg. 78197, 78198 (Dec. 4, 2020) (citing *Department of Transp. v. Public Citizen*, 541 U.S. 752, 768–770, 124 S. Ct. 2204, 159 L. Ed. 2d 60, 58 Env’t. Rep. Cas. (BNA) 1545, 26 Int’l Trade Rep. (BNA) 1097, 34 Env’tl. L. Rep. 20033 (2004); *Sierra Club v. Federal Energy Regulatory Commission*, 827 F.3d 59, 82 Env’t. Rep. Cas. (BNA) 1860, 182 O.G.R. 1060 (D.C. Cir. 2016)).

⁷See, e.g., BUREAU OF LAND MGMT., NEPA HANDBOOK 70 (2008) (listing BLM actions that normally require an EIS).

such in-depth and interlocking reviews under its jurisdiction. FERC prepares the EIS for jurisdictional projects like interstate natural gas pipelines, and coordinates with other state and federal permitting agencies to the extent practicable.⁸ Historically, not every agency has been able to replicate this model due to statutory constraints, lack of interagency cooperation, or other reasons. To address these challenges (which are not exclusive to oil and gas projects), a 2017 Executive Order⁹ requires agencies to conduct reviews and issue decisions for “major infrastructure projects”¹⁰ under “One Federal Decision,” with a goal of reducing average NEPA review and permitting timelines to two years from the date of publication of a notice of intent to prepare an EIS.

Last, final agency actions related to oil and gas projects are subject to judicial review. For decades, challenges to oil and gas projects have focused on the adequacy of NEPA review accompanying a permit or authorization. Plaintiffs may challenge an agency EA on grounds that the agency should not have issued a FONSI and instead conducted a full EIS. They may also challenge the substance of an EA or EIS on grounds that it failed to consider certain environmental impacts or alternatives to the authorized action, including the “no action” alternative. A major theme of NEPA litigation challenging oil and gas projects in recent years is whether and to what extent the agency considered the effects of greenhouse gas emissions related to the project.

§ 29:89 Major NEPA issues for oil and gas projects

Oil and gas projects can encounter any number of changes, setbacks, and other issues throughout the review process—including after judicial review, where NEPA defects may be remanded to agencies to correct or, in some instances, provide grounds for vacatur. Some of the biggest hurdles encountered by project sponsors in recent years include the proper scope of consideration of environmental “effects,” the adequacy of alternatives considered, and agency mitigation measures imposed as a condition of authorization.

Effects Generally.¹ The U.S. Supreme Court has compared the relevant test for “effects” that must be considered in all NEPA reviews to the tort principle of “proximate cause.”² Further, the action under review must be “the legally relevant cause” of such effects.³ Thus, for example, an agency need not consider environmental effects of actions over which the agency has no control.⁴ In its original 1978 NEPA regulations, which were not significantly amended until 2020, CEQ directed agen-

⁸15 U.S.C. § 717n(b).

⁹Exec. Order No. 13807, 82 Fed. Reg. 40463 (Aug. 24, 2017).

¹⁰“[A]n infrastructure project for which multiple authorizations by Federal agencies will be required to proceed with construction [where] the lead Federal agency has determined that it will prepare an [EIS], and the project sponsor has identified the reasonable availability of funds sufficient to complete the project.” Exec. Order No. 13807, at § 3(e).

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¹See §§ 10:17 to 10:18.

²Department of Transp. v. Public Citizen, 541 U.S. 752, 124 S. Ct. 2204, 159 L. Ed. 2d 60, 58 Env’t. Rep. Cas. (BNA) 1545, 26 Int’l Trade Rep. (BNA) 1097, 34 Env’tl. L. Rep. 20033 (2004) (citing W. Keeton, et al., Prosser and Keeton on Law of Torts 264, 274-75 (1983) for proximate cause standard). See also Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 774, 103 S. Ct. 1556, 75 L. Ed. 2d 534, 18 Env’t. Rep. Cas. (BNA) 1985, 52 Pub. Util. Rep. 4th (PUR) 189, 13 Env’tl. L. Rep. 20515 (1983); § 10:17.

³Pub. Citizen, 541 U.S. at 769.

⁴Pub. Citizen, 541 U.S. at 770 (“We hold that where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect.”); National Ass’n of Home Builders v. Defenders of Wildlife, 551

cies to consider three major categories of environmental effects in their NEPA reviews: (1) direct effects; (2) indirect effects; and (3) cumulative effects. The terms “direct,” “indirect,” and “cumulative” do not appear in the text of the relevant provisions of NEPA, which refer only to “environmental impact[s]” and “adverse environmental effects” generally.⁵ The 2020 CEQ regulations eliminate these three categories, and direct agencies to consider only those effects that are proximately caused by the action under review *and* for which the agency action is the legally relevant cause.⁶

Prior to the 2020 regulations entering into effect, a significant body of case law had considered the proper scope of assessing the direct, indirect, and cumulative effects of oil and gas projects, and many cases concerning projects reviewed under the 1978 regulations are still awaiting decision.⁷ In addition, the durability of the 2020 regulations, particularly the changes to the definition of “effects,” is in some doubt. The regulations were challenged in five separate cases pending in four federal courts, although only one court reached a decision dismissing a challenge for lack of justiciability.⁸ The Biden Administration also announced that it would revisit the 2020 regulations.⁹ For these reasons, an examination of major NEPA cases involving oil and gas infrastructure under the 1978 regulations remains instructive.

Direct vs. Indirect Effects: Some NEPA challenges to oil and gas infrastructure, such as oil and natural gas pipelines and LNG export facilities, have asserted that FERC must consider the “indirect” effects of permitting such a project in the form of emissions and other impacts of hydrocarbon extraction “upstream,” and combustion “downstream,” of the project under review—*i.e.*, the environmental effects of drilling wells feeding into the pipeline or export facility, as well as combustion of the product after transmission or export. As the Supreme Court has explained, the concept of causation is central to understanding an agency’s obligation under NEPA to consider any effect, regardless of whether it is deemed direct or indirect. While an effect may bear some relationship to a Federal action, that is not the test for inclusion in a NEPA review. Effects must only be considered when there is a “reasonably

U.S. 644, 667, 127 S. Ct. 2518, 168 L. Ed. 2d 467, 64 Env’t. Rep. Cas. (BNA) 1513 (2007) (same).

⁵42 U.S.C. § 4332(2)(C)(i) to (ii).

⁶Both elements of this test must be satisfied, and CEQ’s 2020 definitional changes codify earlier case law on the issue. *See, e.g.*, *City of Shoreacres v. Waterworth*, 420 F.3d 440, 452–54, 60 Env’t. Rep. Cas. (BNA) 2068, 35 Env’t. L. Rep. 20162 (5th Cir. 2005) (explaining that it does not reach the issue of whether the agency’s action is the legally relevant cause of the effect because the relevant effect is not reasonably foreseeable); *Border Power Plant Working Group v. Department of Energy*, 260 F. Supp. 2d 997, 1016–17 (S.D. Cal. 2003) (finding that although it was reasonably foreseeable that two turbines would use transmission line at issue, only one turbine was the effect of DOE’s approval of the transmission line and, therefore, DOE only was required to evaluate the environmental effects of that turbine in its NEPA analysis).

⁷For pending NEPA cases concerning the assessment of indirect effects of Federal oil and gas leases, *see, e.g.*, *WildEarth Guardians v. Bernhardt*, No. 20-56 (D.D.C.) (challenge to approval of 2,067 oil and gas leases across five western states); *WildEarth Guardians v. Bernhardt*, No. 19-505 (D.N.M.) (challenge to 210 federal oil and gas leases); *Diné Citizens Against Ruining our Environment v. Bernhardt*, No. 19-703 (D.N.M.) (alleged NEPA violations in approving 255 APDs authorizing hydraulic fracturing in the Mancos Shale formation in the San Juan Basin); *Ctr. for Biological Diversity v. BLM*, No. 19-2869 (D. Colo.) (challenge to Grand Junction Field Office’s RMP and accompanying EIS under NEPA for allegedly failing to consider GHG emission-related impacts and alternatives); *Rocky Mtn. Wild v. Bernhardt*, No. 18-2468 (D. Colo.) and *Rocky Mtn. Wild v. Bernhardt*, No. 19-929 (D. Utah) (challenge to 121 federal oil and gas leases, severed into two cases); *WildEarth Guardians v. Bernhardt*, No. 16-1724 (D.D.C.) (challenge to 397 federal oil and gas leases for allegedly failing to consider emission-related impacts).

⁸*Wild Virginia v. Council on Environmental Quality*, 2021 WL 2521561 (W.D. Va. 2021).

⁹“Deadline for Agencies To Propose Updates to National Environmental Policy Act Procedures,” 86 Fed. Reg. 34154, 34156 (June 29, 2021) (“CEQ will initiate further rulemaking to propose amendments to the 2020 Rule to revise the NEPA implementing regulations . . .”).

close causal relationship” that would satisfy a proximate cause analysis under tort law. While some commentators have argued for broader consideration of indirect effects under NEPA,¹⁰ without some rational boundary, it would be possible to say that there are an infinite number of indirect effects from an action by an agency, making it impossible to consider all such effects and for the applicant to mitigate all such effects. A boundary must be set, and the Supreme Court has said that boundary is proximate cause.

For “upstream” effects, litigants challenging pipeline and export projects have argued that the development of oil and gas resources feeding into an infrastructure project must be considered in permitting decisions. Notably, this question formed the nucleus of legal arguments made in opposition to the permitting of the controversial Keystone XL pipeline carrying heavy crude oil from Alberta’s oil sands into the United States. Opponents of the project sought a full assessment of development of higher-emitting oil sands projects in Canada as part of the NEPA review for the cross-border permit required from DOS to build the pipeline. DOS has permitted cross-border pipelines since long before the Keystone XL controversy emerged, and courts have upheld NEPA reviews for such pipelines that did not examine “upstream” effects, even of allegedly higher-emitting hydrocarbon sources. In *Sierra Club v. Clinton*,¹¹ a district court considered whether DOS was required to assess impacts associated with development of Canadian oil sands in its NEPA analysis accompanying a cross-border permit for the Alberta Clipper Pipeline.¹² *Sierra Club* filed suit alleging that DOS’s NEPA analysis was insufficient because it did not take into account the environmental impacts of the Canadian oil sands development.¹³ But, citing *Public Citizen*, the court found that DOS’s actions were not the legally relevant cause of the environmental effects at issue, explaining that because the pipeline was not the only cross-border pipeline that would transport Canadian oil sands, this particular permit could not be the proximate cause of additional oil sands development.¹⁴

In the context of “downstream” effects, courts have arrived at different answers regarding when effects like combustion must be considered, depending on the facts of individual projects. For example, in *Sierra Club v. FERC*, the D.C. Circuit required FERC to consider the greenhouse gas emissions generated by a natural gas power plant fed by the Sabal Trail natural gas pipeline as part of the pipeline’s EIS.¹⁵ Even though the facility was beyond the footprint of the project and outside of FERC’s jurisdiction, the court found the plant’s emissions to be reasonably foreseeable and reasonably related to the project because it was the primary outlet for the pipeline and the reason for its construction. But under different facts, the D.C. Circuit has declined to require these assessments. In *Sierra Club v. FERC*, a case challenging the permitting of the Corpus Christi LNG export facility, the court held that FERC’s “NEPA analysis did not have to address the indirect effects of the anticipated export of natural gas . . . because the Department of Energy, not the Commission, has sole authority to license the export of any natural gas.”¹⁶

While the scope of “indirect” effects assessments in NEPA reviews of oil and gas

¹⁰See, e.g., Michael Burger and Jessica Wentz, “Downstream and Upstream Greenhouse Gas Emissions:

“The Proper Scope of NEPA Review,” 41 HARV. ENVTL. L. REV. 109 (2017).

¹¹*Sierra Club v. Clinton*, 746 F. Supp. 2d 1025, 177 O.G.R. 754 (D. Minn. 2010).

¹²*Sierra Club v. Clinton*, 746 F. Supp. 2d 1025, 1028–30, 177 O.G.R. 754 (D. Minn. 2010).

¹³*Sierra Club v. Clinton*, 746 F. Supp. 2d 1025, 177 O.G.R. 754 (D. Minn. 2010).

¹⁴*Sierra Club v. Clinton*, 746 F. Supp. 2d 1025 1045–46 and n.11, 177 O.G.R. 754 (D. Minn. 2010).

¹⁵*Sierra Club v. Federal Energy Regulatory Commission*, 867 F.3d 1357, 85 Env’t. Rep. Cas. (BNA) 1035 (D.C. Cir. 2017).

¹⁶*Sierra Club v. Federal Energy Regulatory Commission*, 672 Fed. Appx. 38, 39 (D.C. Cir. 2016)

permits is far from settled, as a general matter, reviewing courts have tended to tie any requirements to assess particular indirect effects to the individual facts of a project, rather than send agencies on endless efforts to uncover any potential effects. This case-by-case inquiry, however, has been less easily applied in the context of “cumulative effects.”

Cumulative Effects. Identifying the proper scope for assessment of “cumulative effects” has been a particularly difficult issue for CEQ and courts to address in recent years. As CEQ itself has pointed out, determining what a cumulative effect is has led to “confusion,” “been interpreted expansively[,]” and “result[ed] in excessive documentation about speculative effects[.]”¹⁷ Generally speaking, cumulative effects in the context of oil and gas projects could include the effects of historical oil and gas well construction in a particular area and, potentially, the incremental effects of new permitting decisions on global climate change.

As one federal court has recently suggested, cumulative effects in the context of Federal oil and gas leasing might be so broad as to require assessments of the effects of all individual leasing decisions whenever BLM seeks to hold a lease sale.¹⁸ In that court’s view, BLM must “quantify the emissions from each leasing decision—past, present, or reasonably foreseeable—and compare those emissions to regional and national emissions, setting forth with reasonable specificity the cumulative effect of the leasing decision at issue.”¹⁹ This would be a herculean task for BLM to undertake prior to holding any individual lease sale. While several other courts have addressed this question in the oil and gas context, the agencies at issue had made at least some attempt to consider emissions-related cumulative effects, and were not directed to do more.²⁰ But no Court of Appeals has affirmed the expansive “past, present, or reasonably foreseeable” cumulative effects requirement in the oil and gas context, while some have explicitly rejected it in the context of LNG export facilities.²¹ Even more than assessments of indirect effects, which can more easily be tied to specific factual considerations in the context of discrete projects, it is difficult to divine useful guideposts for what cumulative effects must be reviewed in the context of oil and gas projects—which is perhaps why CEQ no longer requires their consideration.

Attempts to require agencies to consider wider scopes of “indirect” and “cumulative” effects in the context of challenges to oil and gas infrastructure in recent years clearly reflect concerns over the effects of global climate change. Such concerns are rooted in active and worthy public policy conversations. However, as CEQ has said,

(emphasis in original) (quoting *Sierra Club v. Federal Energy Regulatory Commission*, 827 F.3d 36, 47, 82 Env’t. Rep. Cas. (BNA) 1849, 182 O.G.R. 1046 (D.C. Cir. 2016)). See also *EarthReports, Inc. v. Federal Energy Regulatory Commission*, 828 F.3d 949, 82 Env’t. Rep. Cas. (BNA) 1970 (D.C. Cir. 2016).

¹⁷“Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act,” 85 Fed. Reg. 1684, 1707 (Jan. 10, 2020).

¹⁸*WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41 (D.D.C. 2019).

¹⁹*Id.* at 77.

²⁰*WildEarth Guardians v. Bureau of Land Management*, 8 F. Supp. 3d 17 (D.D.C. 2014) (Bureau of Land Management properly considered cumulative emissions impacts of oil and gas lease sale). Cf. *Indigenous Environmental Network v. United States Department of State*, 347 F. Supp. 3d 561 (D. Mont. 2018), order amended and supplemented, 369 F. Supp. 3d 1045 (D. Mont. 2018) and appeal dismissed and remanded, 2019 WL 2542756 (9th Cir. 2019) (agency conducted separate cumulative greenhouse gas emission impacts for two different pipeline authorizations, but was required to assess the cumulative impacts of both pipelines together).

²¹See *EarthReports, Inc. v. Federal Energy Regulatory Commission*, 828 F.3d 949, 82 Env’t. Rep. Cas. (BNA) 1970 (D.C. Cir. 2016); *Sierra Club v. Federal Energy Regulatory Commission*, 827 F.3d 36, 82 Env’t. Rep. Cas. (BNA) 1849, 182 O.G.R. 1046 (D.C. Cir. 2016).

“NEPA is a procedural statute”²² that requires the identification and analysis of a proposed action’s impact to environmental resources.²³ It does not mandate that certain outcomes be achieved or prohibit any impacts to environmental resources.²⁴ As further evidenced by CEQ’s tumultuous history in issuing durable guidance regarding assessments of greenhouse gas emissions in NEPA reviews, the current statute may simply be ill-suited to meaningfully address such a titanic challenge.²⁵

Alternatives. Agency actions facilitating oil and gas project development are also frequently challenged on grounds that agencies did not consider a sufficient range of alternatives, including a “no action” alternative, or that the rejection of alternatives was not sufficiently justified. In *Citizens for a Healthy Community v. BLM*, a challenge to oil and gas well development on Federal lands in Colorado, the court found that BLM’s analysis of alternatives complied with NEPA where the agency considered alternatives proposed by plaintiffs regarding a phased development approach, and provided reasoned explanations for their rejection.²⁶ However, in *Wilderness Workshop v. BLM*, the same court found that BLM failed to adequately consider a “no action” alternative, even where BLM had considered scenarios in which development would have been minimal.²⁷

Mitigation. As the Supreme Court has noted, “one important ingredient of an EIS is the discussion of the steps that can be taken to mitigate adverse environment consequences.”²⁸ The Court went on to explain that “[t]here is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted on the other.”²⁹ Citing *Methow Valley*, appellate courts have routinely confirmed that there is no substantive obligation to adopt mitigation measures identified in an EIS,³⁰ and this rule also applies in the oil and gas context.

In addition, extractive projects have also encountered mitigation measures imposed by agencies but over which the reviewing agency has no statutory authority or even particular expertise.³¹ In response, CEQ’s 2020 regulations impose new

²²“Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act,” 85 Fed. Reg. 1684, 1686.

²³See 42 U.S.C. § 4332(2)(C) (agency obligation under NEPA is only to prepare detailed statement on “adverse environmental effects which cannot be avoided”); *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 551, 98 S. Ct. 1197, 55 L. Ed. 2d 460, 11 Env’t. Rep. Cas. (BNA) 1439, 8 Env’t. L. Rep. 20288 (1978).

²⁴*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350, 109 S. Ct. 1835, 104 L. Ed. 2d 351, 29 Env’t. Rep. Cas. (BNA) 1497, 19 Env’t. L. Rep. 20743 (1989).

²⁵*Cf.* Michael Burger and Jessica Wentz, “Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review,” 41 HARV. ENVTL. L. REV. 109, 112–13 (2017) (“A significant part of the problem is that federal agencies have been slow to use [NEPA] to fully evaluate how decisions about the extraction and transportation of fossil fuels contribute to global climate change The net effect of this analytic gap is that neither the agencies nor the public have a clear understanding of how these decisions impact the nation’s overall climate goals.”).

²⁶*Citizens for a Healthy Community v. United States Bureau of Land Management*, 377 F. Supp. 3d 1223, 1234–35 (D. Colo. 2019).

²⁷*Wilderness Workshop v. United States Bureau of Land Management*, 342 F. Supp. 3d 1145, 1166 (D. Colo. 2018).

²⁸*Robertson v. Methow Valley*, 490 U.S. at 351.

²⁹*Robertson v. Methow Valley*, 490 U.S. at 352.

³⁰See, e.g., *Westlands Water Dist. v. U.S. Dept. of Interior*, 376 F.3d 853, 873, 58 Env’t. Rep. Cas. (BNA) 2024, 34 Env’t. L. Rep. 20054 (9th Cir. 2004); *Mississippi River Basin Alliance v. Westphal*, 230 F.3d 170, 176–77, 31 Env’t. L. Rep. 20175 (5th Cir. 2000).

³¹See, e.g., *High Country Conservation Advocates v. United States Forest Service*, 52 F. Supp. 3d

requirements for agency mitigation to include an express statutory basis.³² Changes to the definition of “mitigation” make clear that mitigation must have an actual nexus to the proposed action and be limited to those actions that have an environmental effect while excluding those that do not.³³

§ 29:90 Legislative proposals

In part as a response to the challenges posed by NEPA review of oil and gas projects, several proposals to amend NEPA or create parallel procedures were considered in the 116th Congress. One proposal would have required agencies to more directly consider issues related to environmental justice, including how greenhouse gas emissions and global climate change uniquely affect disadvantaged communities, both under NEPA and under a new “Community Impact Report.”¹ Another would have streamlined and codified the “one federal decision” concept for projects requiring interlocking reviews by multiple agencies.² Amendments to NEPA are likely to be considered again in the 117th Congress.

B. RESOURCE CONSERVATION AND RECOVERY ACT—THE REGULATION OF WASTE GENERATED AT OIL AND GAS EXPLORATION AND PRODUCTION FACILITIES

§ 29:91 Introduction

This section discusses the application of the Resource Conservation and Recovery Act (RCRA)¹ to wastes generated at oil and gas production facilities. Contrary to popular belief, RCRA applies. There is no exemption under RCRA that excludes *all* waste generated at oil and gas production facilities. While wastes generated from the exploration, development, or production of crude oil or natural gas (referred to herein as E&P Waste) are excluded from the definition of “hazardous wastes” under RCRA, those wastes are “solid wastes” and remain subject to RCRA and state law regulating the management of solid waste. Wastes that are not considered E&P Waste are also solid waste and may be regulated as hazardous waste if they contain listed hazardous waste or exhibit a hazardous waste characteristic. Those wastes must be properly managed and disposed.

To assist oil and gas production facilities, this chapter summarizes: (1) the statutory and regulatory exemptions for E&P Waste; (2) what wastes generated at oil and gas production facilities the U.S. Environmental Protection Agency (EPA) considers to be subject to regulation as a hazardous waste; and (3) how various states regulate E&P Waste. Generally, most of the waste generated at oil and gas production facilities should be E&P Waste and exempt from regulation as a hazardous waste under RCRA and delegated state programs.

1174 (D. Colo. 2014) (U.S. Forest Service, part of the Department of Agriculture, could not rely on development of future coal mining mitigation technology to avoid disclosure of impacts in NEPA review).

³²“Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act,” 85 Fed. Reg. 1684, 1722.

³³“Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act,” 85 Fed. Reg. 1684, 1729.

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¹H.R. 4447, 116th Cong. §§ 11001 et seq. (2020).

²H.R. 7130, 116th Cong. (2020).

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¹The Resource Conservation and Recovery Act of 1976, 42 U.S.C.A. §§ 6901 to 6939g. For further discussion regarding RCRA *see* Law of Environmental Protection, Fall 2019 Edition, Environmental Law Institute, Chapter 14.

§ 29:92 The Resource Conservation and Recovery Act

RCRA, originally passed in 1976, establishes a framework governing the generation, treatment, storage, and disposal of both hazardous and non-hazardous solid wastes under Subtitles C and D respectively.¹ RCRA charged EPA with developing and promulgating criteria used to identify and list hazardous wastes to be regulated under RCRA Subtitle C.² RCRA authorizes EPA to delegate the primary responsibility of implementing the RCRA hazardous waste program to individual states in lieu of EPA.³ Many states have also been authorized to implement additional parts of the RCRA program that EPA has since promulgated including corrective action, land disposal restrictions, and underground storage tanks. State RCRA programs must be at least as stringent as the federal requirements, but states can adopt more stringent requirements.

1. The Exploration and Production Waste Statutory Exemption

§ 29:93 History of the exemption

Following the passage of RCRA, EPA in 1978 published a proposed rule indicating categories of wastes the agency deemed “hazardous” and identifying the need for a separate regulatory scheme for (E&P Waste).¹ The proposed regulations recognized “some portion of certain very large volume exploration and production wastes will be hazardous”² under the statutory definition, which will subject the wastes to the authority of Subtitle C. Instead of subjecting large quantities of E&P Waste to Subtitle C, EPA instead suggested regulating the wastes as “special wastes” with less stringent requirements.³ The proposed regulations highlighted many implications of regulating E&P Waste under Subtitle C, including the cost to the energy industry, the precedential nature of granting special treatment to certain industries, the possible interference with other applicable federal laws, and a fear of delegating too much authority to EPA.⁴

In response to the proposed rulemaking, Congress introduced legislation to determine whether and how these wastes should be regulated. Because it appeared that Congress would act, EPA temporarily excluded these wastes from the final hazardous waste regulations, stating that “this exclusion will be revised, if necessary, to conform to the legislation which is ultimately enacted.”⁵

§ 29:94 The Bentsen Amendment

Through the Solid Waste Disposal Act Amendments of 1980, Senator Lloyd Bentsen of Texas sponsored an amendment exempting oil, gas, and geothermal E&P Wastes from EPA’s hazardous waste regulatory authority.¹ Colloquially referred to as “Bentsen wastes,” the amendment exempts “drilling fluids, produced waters, and

[Section 29:92]

¹42 U.S.C.A. §§ 6901 et seq.

²42 U.S.C.A. § 6921(b).

³42 U.S.C.A. § 6926.

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¹43 Fed. Reg. 58946 (Dec. 18, 1978).

²43 Fed. Reg. 58991 (Dec. 18, 1978).

³43 Fed. Reg. 58992 (Dec. 18, 1978).

⁴Congressional Record, June 4, 1979, pp. 13243–47.

⁵45 Fed. Reg. 33084 (May 19, 1980).

[Section 29:94]

¹Solid Waste Disposal Act Amendments of 1980, Pub. L. No. 96-482, 94 Stat. 2334 (Oct. 21, 1980).

other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy” from regulation as hazardous wastes under Subtitle C of RCRA until EPA studied and, after public hearing and opportunity for comment, determined regulation is warranted.² The amendment placed an additional limit on EPA authority: any proposed hazardous waste regulations governing Bentsen wastes must be approved by both Houses of Congress prior to taking effect.³ It is important to note the Bentsen amendment only shields E&P Wastes from regulation as a hazardous waste under Subtitle C of RCRA. E&P Wastes are still considered solid wastes and remain subject to regulation under Subtitle D of RCRA and states are not restricted from imposing more stringent requirements on the management and disposal of E&P Waste.

The legislative history of the Bentsen amendment provides insight into which wastes do and do not fall within the scope of the amendment. While “drilling fluids” and “production wastes” are relatively straight forward terms, Congress included the term “other wastes associated” to cover “waste materials intrinsically derived from the primary field operations associated with exploration, development, or production of crude oil, natural gas, or geothermal energy.”⁴ This language differentiates “exploration, development, and production operations from transportation (from the point of custody transfer or of production separation and dehydration) and manufacturing operations.”⁵ In addition, Congress directed EPA to study the impact on the environment, human health, and the economy of regulating Bentsen wastes. RCRA tasks EPA to specifically consider:

- (A) the sources and volume of discarded material generated per year from such wastes;
- (B) present disposal practices;
- (C) potential danger to human health and the environment from the surface runoff or leachate;
- (D) documented cases which prove or have caused danger to human health and the environment from surface runoff or leachate;
- (E) alternatives to current disposal methods;
- (F) the cost of such alternatives; and
- (G) the impact of those alternatives on the exploration for, and development and production of, crude oil and natural gas or geothermal energy.⁶

In 1987, EPA submitted a report to Congress summarizing its studies in compliance with the Bentsen amendment. EPA concluded that regulation of Bentsen wastes under Subtitle C was not warranted. According to EPA, regulation under Subtitle C would be “logistically difficult to enforce and could pose a substantial financial burden on the oil and gas industry.”⁷ EPA also concluded that the potential hazards posed by E&P wastes are relatively low and best addressed through existing federal and statute regulations.⁸ The report included a list of wastes the agency considered exempt under the Bentsen amendment, as well as factors to help industry

²42 U.S.C.A. § 6921(b)(2)(B).

³42 U.S.C.A. § 6921(b)(2)(C).

⁴H.R. Conf. Rep. 96-1444.

⁵H.R. Conf. Rep. 96-1444.

⁶42 U.S.C.A. § 6982(m)(1)(A) to (G).

⁷“Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas and Geothermal Energy,” EPA/530-SW-88-003 (December 1987), at VIII-11, *hereinafter* (“Report to Congress”).

⁸“Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas and Geothermal Energy,” EPA/530-SW-88-003 (December 1987), at VIII-11, *hereinafter* (“Report to Congress”).

members determine if a waste fits into the exemption.⁹ EPA published its findings in 1988, elaborating that Subtitle C regulations present an “unusually large number of highly detailed statutory requirements” that would be too costly and unnecessary for the safe management of E&P Waste.¹⁰ Since the initial determination, EPA has reviewed the need for E&P Waste regulation under Subtitle C and consistently found no such regulation is necessary.¹¹

2. Applying the Exploration and Production Waste Statutory Exemption

§ 29:95 The Bentsen Amendment—EPA Guidance on categorizing E&P waste

Any person who generates a solid waste must determine whether it is a hazardous waste and whether it falls within the E&P Waste statutory exemption. The procedure for making this determination is both important and complex.¹ The statutory exemption of E&P Waste does not specifically define “drilling water, production wastes, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy” covered by the exemption.² While EPA incorporates the statutory exemption into its regulations excluding certain types of solid waste as hazardous waste,³ EPA has never promulgated rules defining these terms.

EPA has issued a number of guidance documents categorizing E&P Waste as exempt and non-exempt with EPA paying particularly close attention to “primary field operations” as a means of differentiating exempt E&P Waste from waste generated during transport or from downstream manufacturing and processing activities. In the 1987 report to Congress, EPA indicated that “primary field operations” include “the primary, secondary, and tertiary production of oil or gas” and *not* wastes generated by transportation.⁴ Exempt E&P Wastes must also be “uniquely associated with exploration, development, and production” operations. EPA guidance defines this as waste “generated from a material or procedure that is necessary to locate and produce crude oil or natural gas. . . .[or] only occurs during the exploration and production of crude oil or natural gas.”⁵ This means that not all wastes produced during the exploration, development and production of crude oil or natural gas are automatically exempt from regulation as hazardous waste.⁶

For crude oil exploration, development and production operations, EPA guidance

⁹“Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas and Geothermal Energy,” EPA/530-SW-88-003 (December 1987), at VIII-11, II-18, *hereinafter* (“Report to Congress”).

¹⁰54 Fed. Reg. 25466, 25456.

¹¹EPA most recently reviewed state and federal regulations governing E&P Waste in compliance with a Consent Decree entered by EPA and Environmental Integrity Project. *See* Environmental Integrity Project v. McCarthy, No. 16-824(JDB), Consent Decree (D.D.C. Dec 28, 2016).

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¹For further discussion regarding hazardous waste determinations, *see* Law of Environmental Protection, Fall 2019 Edition, Environmental Law Institute, Chapter §§ 14:24-32.

²42 U.S.C.A. § 6921(b)(2)(A).

³40 C.F.R. § 261.4(b)(5) (2021).

⁴Report to Congress at II-19.

⁵*Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations*, EPA530-K-01-004 (2002) at 22, *hereinafter* (“E&P Guidance”).

⁶For example, wastes such as solvents used to clean surface equipment or machinery is not exempt, because these same cleaning activities are not uniquely associated with the exploration and production of crude oil or natural gas. However, if the same cleaning solvent were used in a well, it would be exempt because the well is unique to production operations. *Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations*, EPA530-K-01-004 (2002) at

indicates “primary field operations” include “activities occurring at or near the wellhead, but prior to the transport of oil from an individual field facility or a centrally located facility to a carrier for transport to a refinery.”⁷ Specific examples of these activities include “crude oil processing, such as water separation, demulsifying, degassing, and storage tank batteries *associated with a specific well or wells*.”⁸ This exemption does not apply to wastes created by the transport of product from the exploration and production sites or downstream refining, but does cover wastes generated directly by exploration and production operations which are then moved off-site for further treatment or disposal. As EPA explained in its 1993 guidance, “wastes derived from the treatment of an exempt waste, including any recovery of product from an exempt waste, generally remain exempt from the requirements of RCRA Subtitle C.”⁹

For natural gas exploration, development and production operations, “primary field operations” include “those activities occurring at or near the wellhead or at the gas plant but prior to that point at which the gas is transferred from an individual field facility, a centrally located facility, or a gas plant to a carrier for transport to market.”¹⁰ Because natural gas typically requires processing to remove impurities before entering the sales line, EPA considers gas plants part of primary field operations regardless of their distance from the wellhead.¹¹

To assist industry members in interpreting these definitions, EPA has provided two “rule of thumb” questions to consider when categorizing E&P Wastes:

1. Has the waste come from down-hole, i.e., was it brought to the surface during crude oil or natural gas exploration, development and production operations?
2. Has the waste otherwise been generated by contact with the oil and gas production stream during the removal of produced water or other contaminants from the product?¹²

If the answer to *either* of these questions is yes, the waste is likely a Bentsen waste exempt from regulation under Subtitle C of RCRA.

§ 29:96 EPA List of Exempt and Non-Exempt E&P Waste

In addition to providing a framework for case-by-case waste determination, EPA has identified wastes the agency categorizes as exempt and non-exempt:¹

18, *hereinafter* (“E&P Guidance”).

⁷*Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations*, EPA530-K-01-004 (2002) at Report to Congress at II-18, *hereinafter* (“E&P Guidance”).

⁸E&P Guidance at 7.

⁹Clarification of the Regulatory Determination for Wastes From the Exploration, Development and Production of Crude Oil, Natural Gas and Geothermal Energy, 58 Fed. Reg. 15284, 15285 (March 22, 1993).

¹⁰Report to Congress at II-18.

¹¹E&P Guidance at 7.

¹²E&P Guidance at 8.

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¹E&P Guidance at 10–11.

Exempt Wastes	Non-Exempt Wastes
<ul style="list-style-type: none"> • Produced water • Drilling fluids • Drill cuttings • Rigwash • Drilling fluids and cuttings from offshore operations disposed of onshore • Geothermal production fluids • Hydrogen sulfide abatement wastes from geothermal energy production • Well completion, treatment, and stimulation fluids • Basic sediment, water, and other tank bottoms from storage facilities that hold product and exempt waste • Accumulated materials such as hydrocarbons, solids, sands, and emulsion from production separators, fluid treating vessels, and production impoundments • Pit sludges and contaminated bottoms from storage or disposal of exempt wastes • Gas plant dehydration wastes, including glycol-based compounds, glycol filters, and filter media, backwash, and molecular sieves • Workover wastes • Cooling tower blowdown • Gas plant sweetening wastes for sulfur removal, including amines, amine filters, amine filter media, backwash, precipitated amine sludge, iron sponge, and hydrogen sulfide scrubber liquid and sludge • Spent filters, filter media, and backwash (assuming the filter itself is not hazardous and the residue in it is from an exempt waste stream) • Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation • Produced sand • Packing fluids • Hydrocarbon-bearing soil • Pigging wastes from gathering lines • Wastes from subsurface gas storage and retrieval • Constituents removed from produced water before it is injected or otherwise disposed of • Liquid hydrocarbons removed from the production stream but not from oil refining • Gases from the production stream, such as hydrogen sulfide and carbon dioxide, and volatilized hydrocarbons • Materials ejected from a producing well during blowdown • Waste crude oil from primary field operations • Light organics volatilized from exempt wastes in reserve pits, impoundments, or production equipment 	<ul style="list-style-type: none"> • Unused fracturing fluids or acids • Gas plant cooling tower cleaning wastes • Painting wastes • Waste solvents • Oil and gas service company wastes such as empty drums, drum rinsate, sandblast media, painting wastes, spent solvents, spilled chemicals, and waste acids • Vacuum truck and drum rinsate from trucks and drums transporting or containing non-exempt waste • Refinery wastes • Liquid and solid wastes generated by crude oil and tank bottom reclaimers • Used equipment lubricating oils • Waste compressor oil, filters, and blowdown • Used hydraulic fluids • Waste in transportation pipeline related pits • Caustic or acid cleaners • Boiler cleaning wastes • Boiler refractory bricks • Boiler scrubber fluids, sludges, and ash • Incinerator ash • Laboratory wastes • Sanitary wastes • Pesticide wastes • Radioactive tracer wastes • Drums, insulation, and miscellaneous solids

Many of the waste determinations identified by EPA provide clarity to the limits of the E&P Waste exemption. For example, unused products, such as unused fracking fluids, waste solvents or used oil from equipment, are *not* exempt from regulation as a hazardous waste if disposed because they are not “uniquely associated” with the exploration and production operations.² Similarly, the exemption of pigging wastes stemming from *gathering* lines but not *transportation* lines emphasizes the difference between field and transportation activities. These slight distinctions highlight the importance EPA places on the waste being both associated with a primary field operation and uniquely associated with the exploration, development, or production of crude oil or natural gas. Before disposing of any waste generated at exploration and production sites, operators should carefully review EPA and state applicable guidance to ensure they are managing the waste appropriately. The failure to properly manage and dispose of the waste can lead to significant civil penalties and potentially criminal sanctions.

§ 29:97 E&P Waste Mixtures

In determining a waste’s status as exempt or non-exempt, EPA guidance also highlights the dangers of mixing exempt E&P Waste with other waste which may not fall into the exemption.¹ Recall, the Bentsen amendment only exempts E&P Wastes from regulation as hazardous wastes under RCRA Subtitle C; it does not ad-

²E&P Guidance at 19.

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¹E&P Guidance at 13–17.

dress mixtures of exempt and non-exempt waste. EPA, however, maintains authority to regulate mixtures of exempt and non-exempt wastes to ensure protection of human health and the environment. Three possible mixtures implicate the E&P Waste statutory exemption:

1. When an exempt E&P Waste is mixed with another exempt waste or a non-hazardous waste, the mixture remains exempt.
2. When an exempt E&P Waste is mixed with a non-exempt, characteristic hazardous waste, and the mixture does not exhibit any hazardous characteristic exhibited by the non-exempt waste, the mixture remains exempt.² However, if the mixture exhibits a hazardous characteristic exhibited by the non-exempt characteristic waste, the waste is considered a non-exempt characteristic hazardous waste and subject to RCRA Subtitle C.
3. When an exempt E&P Waste is mixed with a listed hazardous waste, the mixture is considered a listed hazardous waste and subject to RCRA Subtitle C.³

Operators of oil and gas production facilities and gas processing facilities need to be careful not to mix waste streams or could risk losing the Bentsen exemption all together. Even small amounts of listed hazardous wastes (spent solvents, lubricants or unused fracking fluids) is enough to lose the exemption. When bringing chemicals or other products to the site, a good rule of thumb is to separately manage those chemicals and products.

§ 29:98 Regulation of E&P Waste under RCRA

The Bentsen amendment, while excluding E&P Wastes from regulation as hazardous wastes under RCRA Subtitle C, did not extend the exemption to any other provisions of RCRA. Because the exemption only applies to RCRA Subtitle C, all E&P Waste which meet the definition of “solid wastes” remain subject to regulation under RCRA Subtitle D as well as other provisions under RCRA.¹ Subtitle D regulations typically impose less stringent requirements on waste management.²

RCRA defines “solid waste” as “any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities.”³ EPA interprets this definition as “any discarded material that is not excluded under § 261.4(a).”⁴ RCRA Subtitle D bans open dumping of solid wastes and sets minimum federal criteria for waste disposal methods.⁵ The D.C. Circuit in *American Iron and Steel Institute v. EPA* found that E&P Wastes are only exempt from regulation as “hazardous,” because exempting the wastes from *all* provisions of RCRA would “elevate Bevill-Bentsen wastes to a privileged position

²Note that EPA has taken the position that mixing non-hazardous or exempt waste with characteristic hazardous waste may be considered treatment for purposes of EPA’s hazardous waste regulations and could separately require a permit.

³E&P Guidance at 17.

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¹*American Iron and Steel Institute v. U.S. E.P.A.*, 886 F.2d 390, 396, 30 Env’t. Rep. Cas. (BNA) 1393, 20 Env’tl. L. Rep. 20027 (D.C. Cir. 1989).

²*American Petroleum Institute v. U.S. E.P.A.*, 216 F.3d 50, 54, 50 Env’t. Rep. Cas. (BNA) 1833, 30 Env’tl. L. Rep. 20686 (D.C. Cir. 2000), as amended, (Aug. 18, 2000).

³42 U.S.C.A. § 6903(27).

⁴40 C.F.R. § 261.2(a)(1) (2021).

⁵42 U.S.C.A. §§ 6941 to 6949a.

above all other nonhazardous solid wastes.”⁶

Improper management of E&P Waste can trigger additional RCRA provisions, including RCRA citizen suit provisions and corrective action in addition to claims arising under state law. RCRA § 7002 states that:⁷

Any person may commence a civil action on his own behalf:

against any person . . . who is alleged to be in violation of any permit, standard, regulation, condition, requirement, prohibition, or order which has become effective pursuant to this chapter; or

against any person . . . and including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any **solid** or hazardous waste which may present an imminent and substantial endangerment to health or the environment.⁸

The citizen suit provisions are not limited to only the handling and management of hazardous wastes.⁹ Further, courts have liberally interpreted the terms “imminent and substantial endangerment to health or the environment.”¹⁰ Courts have the authority to grant injunctive relief and can award costs and fees.¹¹

In addition, RCRA § 3004(u) requires “corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a facility seeking a permit.”¹² The D.C. Circuit held in *American Iron and Steel* that because this provision pertains to hazardous *constituents* as well as hazardous waste, the provision applies to constituents which migrated from E&P Waste.¹³

3. Regulation of E&P Waste Under State and Other Federal Law

§ 29:99 State regulation of E&P waste

⁶*American Iron & Steel*, at 394–5.

⁷42 U.S.C.A § 6972.

⁸(emphasis added).

⁹For further discussion regarding the citizen provisions under RCRA see Law of Environmental Protection, Fall 2019 Edition, Environmental Law Institute, Chapter 9:211.

¹⁰See *Maine People’s Alliance And Natural Resources Defense Council v. Mallinckrodt, Inc.*, 471 F.3d 277, 63 Env’t. Rep. Cas. (BNA) 1737 (1st Cir. 2006) (after first noting that at least four of its sister circuits have also construed the terms liberally, the court did so as well holding that “reasonable prospect of future harm” is adequate so long as the threat, as opposed to the harm, is near-term, and involves potentially serious harm, but not need be an emergency situation and does not require a showing an immediate threat of grave harm); *Liebhart v. SPX Corporation*, 917 F.3d 952, 959, 103 Fed. R. Serv. 3d 215 (7th Cir. 2019) (“imminent and substantial endangerment to health” does not require existing harm, or even threatened irreparable harm. It merely require a plaintiff to show that contaminants on the property are seriously dangerous to human health or will be, given prolonged exposure over time); *Price v. U.S. Navy*, 39 F.3d 1011, 1019, 39 Env’t. Rep. Cas. (BNA) 1673, 30 Fed. R. Serv. 3d 854, 25 Env’tl. L. Rep. 20177 (9th Cir. 1994) (holding that RCRA does not require actual harm, but threatened or potential harm will suffice). *U.S. v. Conservation Chemical Co.*, 619 F. Supp. 162, 24 Env’t. Rep. Cas. (BNA) 1008, 16 Env’tl. L. Rep. 20193 (W.D. Mo. 1985) (endangerment need not be immediate to be imminent; specific quantification of the endangerment not required, rather a consideration of all factors is proper based on the unique facts of each case; and, if an error is to be made in applying the endangerment standard, it must be made in favor of protecting the environment); *Paper Recycling, Inc. v. Amoco Oil Co.*, 856 F. Supp. 671, 678, 40 Env’t. Rep. Cas. (BNA) 2043, 25 Env’tl. L. Rep. 20135 (N.D. Ga. 1993), on reconsideration, (Dec. 14, 1993) (“imminent and substantial endangerment” to “health or the environment” requires only a showing that a risk of threatened harm is present, not that actual harm will immediately occur).

¹¹42 U.S.C.A. § 6972(e).

¹²42 U.S.C.A. § 6924(u). For further discussion regarding the corrective active provisions under RCRA see Law of Environmental Protection, Fall 2019 Edition, Environmental Law Institute, Chapter 14.

¹³*American Iron & Steel*, 886 F.2d at 395.

A major motivating factor in the Bentsen amendment exemption for E&P Waste was the state and federal regulations existing at the time Congress passed the amendment. Under RCRA, states may implement their own waste management programs so long as those programs are as stringent as the federal regulations.¹ States may adopt more stringent requirements if they desire. As part of the decision not to regulate E&P Waste under RCRA Subtitle C, EPA relied on the state regulatory programs which manage E&P Waste.

In 2019, EPA re-visited state regulation of E&P Wastes to ensure state regulations adequately address the technological developments in the field of hydraulic fracturing.² In its study, EPA reviewed regulations from 28 of the 34 states with reported production of oil and gas, as tracked by the Energy Information Administration.³ EPA found that the 11 highest oil and gas producing states account for 90% of the United States oil and gas production and,⁴ as such, have regulatory programs tailored specifically to E&P Waste. EPA found the remaining states generally have more general programs addressing E&P Waste under the framework of other solid wastes. As further discussed in the 2019 State Report, the majority of high production states regulate E&P Waste management and disposal through imposing: protection of groundwater, surface water, floodplains and endangered species; waste management location restrictions and requirements to protect these resources; storage tank requirements including construction, containment and monitoring; pit construction, operation, and closure requirements; spill notification requirements and corrective action requirements; restrictions or controls on venting or flaring natural gas; treating produced water prior placement in produced water pits; promoting proper reuse and recycling including beneficial re-use and land application; testing of wastes prior to disposal including testing for radionuclides and radioisotopes; and waste minimization and best practices.⁵

A comprehensive review of the state regulations for managing E&P Waste is beyond the scope of this Chapter. Oil and gas practitioners should carefully review their respective state laws regarding the management of E&P Waste. As noted above, non-exempt wastes are subject to RCRA Subtitle C and must be properly characterized, managed, and disposed.

§ 29:100 Applicability of additional federal statutes

RCRA is not the only statutory scheme which governs E&P Wastes, and E&P Waste is not exempt from regulation by alternative federal statutes simply because they are exempt from regulation as a hazardous waste. Owners and operators can be held liable under the Oil Pollution Act for releases of E&P Waste, including damages to natural resources.¹ E&P wastes may also be subject to the Clean Water Act's National Pollutant Discharge Elimination System permitting requirements as they pertain to the release of a pollutant from a point source into a water of the United

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¹42 U.S.C.A. § 6926.

²Management of Exploration, Development and Production Wastes: Factors Informing a Decision on the Need for Regulatory Action (April 2019), *hereinafter* ("2019 State Report").

³Management of Exploration, Development and Production Wastes: Factors Informing a Decision on the Need for Regulatory Action at 6-29 (April 2019), *hereinafter* ("2019 State Report").

⁴TX, PA, AK, OK, ND, CO, WY, NM, LA, OH, WV.

⁵2019 State Report, at 6-30, 31.

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¹33 U.S.C.A. §§ 2701 et seq.

States;² and the Safe Drinking Water Act's underground injection control program.³

§ 29:101 Conclusion

EPA continues to exempt E&P Waste from regulation under RCRA Subtitle C. While EPA has released limited guidance on waste categorization, state regulations continue to form the basis of E&P Waste regulation.

C. CLEAN WATER ACT

Water is both an integral part of oil and gas operations and a produced waste. Produced water contains TDS, chloride, bromide, metals, and radioactive materials that may be harmful to human and environmental health.¹ The Clean Water Act (CWA) and its state proxy programs govern discharges of pollutants into the “waters of the United States,” including industrial wastewater, stormwater, and runoff from construction activities from oil and gas operations.²

§ 29:102 Section 402—NPDES Regulation (33 U.S.C. § 1342)

Of the regulated oil and gas wastes, *produced water* is the largest source by volume. Produced water is the fluid or brine “brought up by the hydrocarbon-bearing strata during the extraction of oil and gas and includes, where present, formation water, injection water, and any chemicals added downhole or during drilling, production or maintenance processes.”¹ The ratio and chemical makeup of produced water can vary drastically from formation to formation. Most of this water is regulated under the Safe Drinking Water Act because it is disposed of in underground injection wells used to recover more oil.² The portions of produced water disposed into surface waters or sent to treatment facilities are regulated under CWA § 402.³

§ 29:103 State programs

States may administer their own NPDES permit programs and submit them to the EPA for approval.¹ As of March 2021, 46 states and the Virgin Islands have been delegated the authority to administer at least a partial NPDES program. New

²33 U.S.C.A. § 1342.

³42 U.S.C.A. §§ 300f et seq.

¹CLEAN WATER ACTION, CLEAN WATER ACT REGULATION OF OIL AND GAS WASTEWATER DISCHARGES: A CALL FOR IMPROVED OVERSIGHT AND TRANSPARENCY (January 2020), <https://cleanwateraction.org/sites/default/files/docs/publications/Report%20—%20Clean%20Water%20Act%20Regulation%20of%20Oil%20and%20Gas%20Wastewater%20—%20Clean%20Water%20Action%20Jan%202020.pdf>.

²See Chapter 13 of this treatise (overview of the CWA).

[Section 29:102]

¹U.S. EPA, SUMMARY OF INPUT ON OIL AND GAS EXTRACTION WASTEWATER MANAGEMENT PRACTICES UNDER THE CLEAN WATER ACT 7 (May 2020), *available at* <https://www.epa.gov/sites/production/files/2020-05/documents/oil-gas-final-report-2020.pdf> [hereinafter SUMMARY OF WASTEWATER MANAGEMENT PRACTICES].

²See § 14:68 of this treatise (Underground injection control program).

³33 U.S.C. § 1342; *South Florida Water Management Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102, 124 S. Ct. 1537, 158 L. Ed. 2d 264, 58 Env't. Rep. Cas. (BNA) 1001, 34 Env'tl. L. Rep. 20021 (2004); U.S. EPA, GROUNDWATER PROTECTION COUNCIL, PRODUCED WATER REPORT 15 (June 2019), *available at* https://www.gwpc.org/sites/gwpc/uploads/documents/Research/Produced_Water_Full_Report_Digital_Use.pdf [hereinafter PRODUCED WATER REPORT] See § 13:63 of this treatise.

[Section 29:103]

¹PRODUCED WATER REPORT, *supra* note 5, at 16. In Massachusetts, New Hampshire, New Mexico, Washington D.C., U.S. territories, and federal and tribal trust lands the EPA issues the NPDES permits. All other have states have state entities that have been delegated by the EPA to issue their

Mexico, Massachusetts, New Hampshire, and Washington, D.C. do not have an authorized state program. Oklahoma and Texas have partial programs, which do not include permitting for activities associated with the exploration, development, or production of oil, gas, or geothermal resources, including transportation of crude oil or natural gas by pipeline. The EPA is the permitting authority for these activities in Texas and Oklahoma.² No Tribe currently has TAS approval to operate the NPDES permit program.³

§ 29:104 NPDES Permits

NPDES permits can be issued individually to authorize and establish regulatory controls from a single facility, or they can be issued generally to permit discharges from multiple facilities with similar operations and/or pollutants.¹ General permits are written to cover one or more categories or subcategories of discharges, sludge use, disposal practices, or facilities described in the permit.² An individual permit may be required if the discharger is a significant pollutant contributor, a status which is determined by considering: (1) the location of the discharge with respect to waters of the United States; (2) the volume of the discharge; (3) the quantity and nature of the pollutants discharged; and (4) other relevant factors.³ NPDES regulation specifically directs the Regional Administrator to issue general permits to offshore oil and gas facilities, but this is not applicable to state programs.⁴ Further, where the offshore facility is in an area of biological concern, for which separate permit conditions are required, EPA may issue separate general permits, individual permits, or both to accommodate any additional required permit conditions.⁵ The Regional Administrator always has the ability to require an individual permit.⁶

A NPDES permit will specify both narrative and numerical limits on one or more regulated pollutants determined by technology- and water-quality-based standards.⁷ First, the permit writer must determine a pollutant's minimum discharge standard or effluent limitation guidelines (ELGs).⁸ This is done by identifying the best available technology that is economically achievable for that industry and setting regulatory requirements based on the performance of that technology.⁹ Different levels of control are established based on whether the pollutant is a priority pollutant,

own permits. See § 13:46 of this treatise

²U.S. EPA, *National Pollutant Discharge Elimination System: NPDES State Program Authority*, <https://www.epa.gov/npdes/npdes-state-program-authority> (last visited June 22, 2021).

³U.S. EPA, *Tribes Approved for Treatment as a State (TAS)*, Tribes Approved for Treatment as a State (TAS) | Environmental Protection in Indian Country | US EPA (last visited June 21, 2021).

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¹U.S. EPA, *National Pollutant Discharge Elimination System (NPDES)*, <https://www.epa.gov/npdes/npdes-state-program-authority> (last visited June 22, 2021); PRODUCED WATER REPORT, *supra* note 5, at 18.

²40 C.F.R. § 122.28 (2021).

³40 C.F.R. § 122.28(b)(3)(i)(G) (2021).

⁴40 C.F.R. § 122.28(c) (2021). There is no similar regulation for onshore facilities. As discussed above, discharge is generally prohibited from onshore facilities.

⁵40 C.F.R. § 122.28(c) (2021). See § 14:68 of this treatise; 122.28(c)(1).

⁶40 C.F.R. § 122.28(c)(3) (2021).

⁷40 C.F.R. § 122.28(c)(3) (2021).

⁸These are also known as “technology-based effluent limitations.” See 40 C.F.R. § 122.44 (2021).

⁹SUMMARY OF WASTEWATER MANAGEMENT PRACTICES, *supra* note 3, at 11; See §§ 13:52 to 13:67 of this treatise.

conventional pollutant, or a nonconventional pollutant.¹⁰ Pollution guidelines come in several forms: (1) best practicable control technology (BPT); (2) best conventional pollutant control technology (BCT); (3) best available technology economically achievable (BAT); and (4) best available demonstrated control technology for new sources, or new source performance standards (NSPS).¹¹ Which guideline is applicable will depend on whether a discharge is existing or new and whether it is direct or indirect.¹² A direct discharge is just a point source that discharges pollutants directly to the waters of the United States; an indirect discharge is “a nondomestic discharg[e] that] introduc[es] ‘pollutants’ to a ‘publicly owned treatment works.’”¹³ Only direct discharges are governed by BPT, BAT, BCT, and NSPS standards. Indirect discharges are governed by pretreatment standards established under section 307 of the CWA.¹⁴ New sources face more immediate compliance deadlines than existing sources—if the EPA establishes new ELG standards, existing dischargers only need to comply with the standards current when their NPDES permits are issued, reissued or modified.¹⁵

The EPA publishes national ELGs for the oil and gas extraction industry in the Code of Federal Regulations at 40 C.F.R. Part 435.¹⁶ These regulations are subcategorized—onshore, offshore, agricultural and wildlife water, coastal, and stripper¹⁷—with varying guidelines assigned to each subpart. Each subcategory may have specific, additional requirements. For example, the specifications range from zero allowable discharge for onshore wells to no national ELG for stripper wells.¹⁸ The onshore subcategory contains pretreatment standards for new and existing wastewater sources from unconventional oil and gas extraction.¹⁹ The coastal subcategory contains pretreatment standards for sources that introduce pollutants into a POTW. These pretreatment standards allow no amount of discharge of produced water, workover and completion fluids, produced sand, or deck drainage.²⁰

ELGs serve as a baseline, but they do not always ensure that all designated ben-

¹⁰SUMMARY OF WASTEWATER MANAGEMENT PRACTICES, *supra* note 3, at 11.

¹¹SUMMARY OF WASTEWATER MANAGEMENT PRACTICES, *supra* note 3, at 12.

¹²SUMMARY OF WASTEWATER MANAGEMENT PRACTICES, *supra* note 3, at 12.

¹³40 C.F.R. § 122.2 (2021).

¹⁴There are two pretreatment standards—pretreatment standards for new sources (PSNS) and pretreatment standards for existing sources (PSES). Both standards are national, uniform, technology-based standards that are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. PSNS should be issued at the same time as NSPS. Under PSNS, new indirect dischargers are required to incorporate the best available demonstrated technologies within 90 days of commencing discharge. EPA, *Learn About Effluent Guidelines*, <https://www.epa.gov/eg/learn-about-effluent-guidelines> (last visited June 23, 2021).

¹⁵Memorandum from Linda Boornazian, EPA, New Source Dates for Direct and Indirect Dischargers at 2–3 (Sept. 28, 2006), *available at* https://www3.epa.gov/npdes/pubs/newsource_dates.pdf. A new source discharge is any building, structure, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after promulgation of standards under § 306 of the CWA or after proposal of such standards. 40 C.F.R. § 122.22.

¹⁶Memorandum from Linda Boornazian, EPA, New Source Dates for Direct and Indirect Dischargers at 2–3 (Sept. 28, 2006), *available at* https://www3.epa.gov/npdes/pubs/newsource_dates.pdf; 40 C.F.R. § 435 (2021).

¹⁷A stripper well is “any oil or natural gas well whose maximum daily average oil production does not exceed 15 barrels of oil, or any natural gas well whose maximum daily average gas production does not exceed 90 thousand cubic feet of gas [] per day, during any 12-month consecutive time period.” NAT’L STRIPPER WELL ASSOC., *What is a Stripper Well?* Stripper Wells | National Stripper Well Association (nswa.us) (last visited June 21, 2021).

¹⁸40 C.F.R. § 435 (2021). However, produced waters may be discharged to surface waters west of the 98th meridian under Subpart E.

¹⁹40 C.F.R. § 435.33 (2021).

²⁰40 C.F.R. § 435.46 (2021).

eficial uses of the surface water will be protected. Thus, the permit writer may take a second step and consider more stringent water-quality-based effluent limits (WQBELs) when drafting NPDES permits. These limits may be numerical or narrative (“e.g., no toxic substances in toxic quantities”). To establish these limits, the permit writer must consider the “designated beneficial use of the water body; the amount of the pollutant in the effluent, toxicity, and assimilative capacity; and, where appropriate, dilution in the receiving water (including discharge conditions and water column properties).”²¹

§ 29:105 Off-Site Waste Treatment

Analogous treatment standards will apply if oil and gas wastewater is sent to a POTW or a centralized waste treatment facility (CWT). CWTs that accept produced water are also subject to ELGs.¹ Produced water is required to go through the CWT before it may be sent to a municipal wastewater treatment facility.² The waste treatment must meet one of three standards: pretreatment standards for existing sources (PSES), pretreatment standards for new sources (PSNS), or NSPS standards.³ These processing facilities are regulated as off-site facilities.⁴ Thus, these regulations will not apply unless the discharge facility is considered off-site. The EPA defines “site” as “the land or water area where any ‘facility or activity’ is physically located.”⁵ A “facility or activity” is defined as any NPDES “point source” or any facility or activity that is subject to regulation under the NPDES program.⁶ Despite these definitions, it is still somewhat unclear what processing facility would be treated as off-site. In a recent compliance guidance document, the EPA has defined “site” for the purpose of gas drilling activities as: “The land identified in the drilling permit; including the location of wells, access roads, lease areas, and any lands where the facility is conducting its exploratory, development or production activities, or adjacent lands used in connection with the facility or activity.”⁷ Using that definition, any land outside of those boundaries would be considered off-site and thus subject to the POTW and CWT regulations.

§ 29:106 Oil and gas stormwater discharge

Aside from wastewater discharge, industrial stormwater dischargers are typically required to apply for an individual permit or seek coverage under a general stormwater permit. Operators of oil and gas explorations, production, processing, treatment operation, or transmission facility are not required to submit an application for an individual permit so long as any stormwater runoff is not contaminated with “overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.”¹ These limitations apply

²¹PRODUCED WATER REPORT, *supra* note 6 at 19.

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¹PRODUCED WATER REPORT, *supra* note 6 at 15–18.

²PRODUCED WATER REPORT, *supra* note 6 at 15.

³40 C.F.R. §§ 437.24 to 26 (2021); SUMMARY OF WASTEWATER MANAGEMENT PRACTICES, *supra* note 3, at 12.

⁴40 C.F.R. § 437.1(a)(1) (2021).

⁵40 C.F.R. § 122.2 (2021).

⁶40 C.F.R. § 122.2 (2021).

⁷SUMMARY OF WASTEWATER MANAGEMENT PRACTICES, *supra* note 3, at 16.

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¹33 U.S.C. § 1342(l)(2).

even if the oil and gas activities are considered “construction activities.”² The exception, however, does not apply if the facility (a) “[h]as had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 C.F.R. 117.21”; (b) “[h]as had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 C.F.R. 110.6 at any time since November 16, 1987”; or (c) “[c]ontributes to a violation of a water quality standard.”³ But the third water-quality-standard exception does not apply to discharges of sediment from “construction activities associated with oil and gas exploration.”⁴ In other words, an individual permit is *not* required if the WQS violation arises from discharges of sediment caused by construction activities.

§ 29:107 Section 401—Water Quality Certificates (33 U.S.C. § 1341)

Under § 401 of the CWA, a federal agency may not issue any permit or license to conduct any activity that may result in any discharge into waters of the United States unless a § 401 water quality certification is issued by the state and/or authorized tribe where the discharge would originate, verifying compliance with water quality requirements.¹

States and tribes have used § 401 authority to deny federally permitted/licensed energy projects. For example, in 2017 the state of Washington denied a § 401 water quality certification for a joint aquatic resource permit application from Millennium Bulk Terminals to build a coal export terminal along the Columbia River. The state cited unavoidable harm to the Columbia River and surrounding environment and a failure to provide reasonable assurance that Millennium would, or even could, implement the identified mitigation steps necessary to protect clean water.² New York and New Jersey similarly denied a § 401 water quality certification for a FERC licenses needed to build a fracked natural gas transmission pipeline, citing potential harms to water quality, threatened marine life, and the need to transition away from fossil fuels and address climate change.³

It was in response to actions like those and at the behest of the Trump administra-

²40 C.F.R. § 122.26(a)(2)(ii) (2021).

³40 C.F.R. § 122.26(c)(1)(iii) (2021); Delaware Riverkeeper Network v. Sunoco Pipeline L.P., 2020 WL 1888954, at *10 (E.D. Pa. 2020) (“The ‘exception to the exemption’ covers discharges from only a ‘facility.’”).

⁴40 C.F.R. § 122.26(a)(2)(ii) (2021).

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¹EPA, *Basic Information on CWA Section 401 Certification*, <https://www.epa.gov/cwa-401/basic-information-cwa-section-401-certification> (last visited June 23, 2021). See § 13:37 of this treatise.

²Letter from Maia D. Bellon, Wash. Dep’t of Ecology, to Kristin Gains, Millennium Bulk Terminals (Sept. 26, 2017); DEP’T OF ECOLOGY, STATE OF WASH., *Millennium Bulk Terminals Longview*, <https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-at-Ecology/Millennium> (last visited Nov. 2, 2020). Specifically, the Washington Department of Ecology found that the project would: (1) require driving 537 pilings into the riverbed; (2) destroy 24 acres of wetlands; (3) eliminate five acres of aquatic habitat; (4) increase ship traffic on the Columbia River by 1,680 trips a year; and (5) impair tribal access to protected fishing sites. These findings along with other broader issues in the project’s EIS, all led to the rejection of the water quality permit and other permits requested by Millennium. See Letter from Maia D. Bellon, Wash. Dep’t of Ecology, to Kristin Gains, Millennium Bulk Terminals (Sept. 26, 2017); see also *Millennium Bulk Terminals-Longview, LLC v. State*, 12 Wash. App. 2d 1060, 2020 WL 1651475 (Div. 2 2020), review denied, 195 Wash. 2d 1032, 468 P.3d 615 (2020).

³Letter from Daniel Whitehead, Dir., Div. of Env’t Permits, to Joseph Dean, Manager, Env’t Health & Safety, Transcon. Gas Pipe Line Co., LLC (May 15, 2020), available at https://www.dec.ny.gov/docs/permits_ej_operations_pdf/nese-wqcd denial05152020.pdf; Letter from Christopher Jones for Diane Dow, Dir. of Div. of Land Use Regul., to Tim Powell, Transcon. Gas Pipe Line Co. (May 15, 2020), available at https://www.nrdc.org/sites/default/files/media-uploads/new_jersey_dep_nese_denial_may_15_2020.pdf; see also Rob Friedman, *New York State Rejects the Williams Fracked Gas Pipeline*, EXPERT

tion that the EPA revised its § 401 certification regulations to address scope and timing issues raised by commenters, the regulated community, and permitting agencies. The revised rule limits the scope of the § 401 certification to “assuring that a discharge from a Federally licensed or permitted activity will comply with water quality requirements.”⁴ Proponents of the new rule assert that the scope of authority afforded to states is consistent with CWA statutory language and is necessary to rein in states that are improperly using their § 401 certification authority to condition or deny a permit, which in turn results in the failure of entire projects. Recently, the American Petroleum Institute and the Natural Gas Association of America won a motion to intervene on behalf of the EPA in a suit brought by environmental advocacy organizations, states, tribes, and other environmental group to challenge the new rule.⁵ The intervening oil and gas parties argued that prior to the new rule, states had improperly used § 401 to delay approving oil and gas projects based on “non-water quality considerations, such as preferences regarding energy policy[.]”⁶ The case is ongoing in a California district court. The Biden administration has also targeted this rule for reevaluation and has announced its intent to revise the rule.⁷

§ 29:108 Section 403—Ocean Discharge Criteria (33 U.S.C. § 1343)

Under § 403, a project proponent can obtain an NPDES permit authorizing discharges to the ocean, rather than to jurisdictional waters of the United States, if the applicant can satisfy additional discharge criteria.¹

Section 403 NPDES permits affect offshore oil and gas exploration activities.² For example, in *Alaska Eskimo Whaling Commission v. United States Environmental Protection Agency*, the whaling community challenged a permit authorizing oil and gas exploration discharges in the Beaufort Sea.³ The permit authorized the discharge of 13 waste streams in accordance with specific “effluent limitations, monitoring requirements, and other conditions” set forth in the permit. The permit imposed a seasonal limitation on discharge of water-based drilling fluids and drill

BLOG, NRDC (May 15, 2020), <https://www.nrdc.org/experts/rob-friedman/new-york-state-rejects-williams-fracked-gas-pipeline>. Oregon has similarly denied certification for a § 404 permit for a liquefied natural gas export facility. See Letter from Richard Whitman, Dir. Or. Dep’t of Env’t Quality, to Derek Vowels & Jordan Cove, Pac. Connector Gas Pipeline, and Tyler Kurg, Army Corp. of Engineers (May 6, 2019).

⁴See § 13:37 of this treatise.

⁵American Rivers v. Wheeler, 2020 WL 5993229, at *1 (N.D. Cal. 2020).

⁶Motion to Intervene at 1 (Sept. 4, 2020), American Rivers v. Wheeler, 2020 WL 5993229 (N.D. Cal. 2020), available at <https://www.law360.com/articles/1307914/attachments/0>. Stayed as of February 22, 2021. Order Granting Motion to Stay, American Rivers v. Wheeler (No. C 20-04636) (N.D. Cal. filed Feb. 22, 2021). Litigation is pending in multiple federal district courts. Delaware Riverkeeper Net. v. EPA (No. 20-cv-3412) (E.D. Pa. July 13, 2020); California v. Wheeler, No. 20-cv-04869 (N.D. Cal. July 21, 2020); South Carolina Coastal Conservation League v. Wheeler, No. 20-cv-03062 (D.S.C. Aug. 26, 2020); Suquamish Tribe v. Wheeler, No. 20-cv-06137 (N.D. Cal. Aug. 31, 2020).

⁷Exec. Order No. 13990, “Protecting Public Health & the Environment & Restoring Science to Tackle the Climate Crisis,” 86 Fed. Reg. 7037 (Jan. 20, 2021), available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/>; U.S. EPA, Press Release, *EPA Takes Action to Bolster State and Tribal Authority to Protect Water Resources* (May 27, 2021) available at <https://www.epa.gov/newsreleases/epa-takes-action-bolster-state-and-tribal-authority-protect-water-resources-0> (last visited July 18, 2021).

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¹See § 13:78 of this treatise.

²See *Alaska Eskimo Whaling Com’n v. U.S. E.P.A.*, 791 F.3d 1088, 1090–91, 80 Env’t. Rep. Cas. (BNA) 1789 (9th Cir. 2015).

³*Alaska Eskimo Whaling Com’n v. U.S. E.P.A.*, 791 F.3d 1088, 1090–91, 80 Env’t. Rep. Cas. (BNA) 1789 (9th Cir. 2015).

cuttings to accommodate the fall bowhead whale hunting season, and it required the permittees to monitor to the “maximum extent possible” for deflection of marine mammals when discharging water-based drilling fluids, drilling cuttings, and non-contact cooling water.”⁴ There, the Ninth Circuit found the permit conditions and the EPA’s conclusions regarding degradation of the marine environment sufficiently supported by the record but the conclusion regarding non-contact cooling water was made in error. Thus, the court remanded for consideration of whether the non-contact cooling water will cause degradation of the marine environment and the effect or non-effect of this cooling water on the bowhead whale migration and subsistence whale hunting in the Beaufort Sea.⁵

§ 29:109 Section 404 Discharge of Dredge or Fill Material (33 U.S.C. § 1344)

Under 404, the Secretary of the Army Corps of Engineers (the Secretary) may, after notice and opportunity for public hearings, issue permits for the discharge of dredge or fill material into waters of the United States.¹ The Secretary may issue specific permits or general permits on a state, regional, or nationwide basis “for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment.”² General permits may not be issued for a duration of more than five years, and the Secretary may revoke or modify any permit for an activity that results in an adverse impact on the environment.³

One such permit, Nationwide Permit 12 (NWP 12), authorizes discharge of dredged or fill material into jurisdictional waters as required for the construction, maintenance, repair and removal of utility lines and associated facilities.⁴ Oil and gas pipelines qualify as utility lines under NWP 12.⁵ The Secretary reissued the NWP-12 in 2017 after a public notice and comment period.⁶ When a project falls under a regional or nationwide permit, the evaluation guidelines are only applied once—when the general permits are issued.⁷ Reissuance of a nationwide permit also requires a national-scale cumulative impact assessment in accordance with the National Environmental Policy Act (NEPA) and evaluation under the Endangered Species Act (ESA).⁸

To be covered under the NWP 12, a potential project may not result in the loss of greater than one-half acre of jurisdictional waters for each single and complete

⁴Alaska Eskimo Whaling Com’n v. U.S. E.P.A., 791 F.3d 1088, 1090–91, 80 Env’t. Rep. Cas. (BNA) 1789 (9th Cir. 2015).

⁵Alaska Eskimo Whaling Com’n v. U.S. E.P.A., 791 F.3d 1088, 1090–91, 1093, 80 Env’t. Rep. Cas. (BNA) 1789 (9th Cir. 2015).

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¹See §§ 13:100 to 115 of this treatise; 33 U.S.C. § 1344; Mingo Logan Coal Company Inc. v. U.S. Environmental Protection Agency, 70 F. Supp. 3d 151, 156, 79 Env’t. Rep. Cas. (BNA) 2139 (D.D.C. 2014), judgment aff’d, 829 F.3d 710, 82 Env’t. Rep. Cas. (BNA) 1933 (D.C. Cir. 2016).

²33 U.S.C. § 1344(e)(1).

³33 U.S.C. § 1344(e)(2).

⁴Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020) (citing 82 Fed. Reg. at 1985 to 86 (Jan. 6, 2017)).

⁵Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020).

⁶Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020).

⁷Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020), at *13.

⁸Sierra Club v. United States Army Corps of Engineers, 482 F. Supp. 3d 543 (W.D. Tex. 2020).

project.⁹ A “loss” under the NWP 12 is defined by a permanent adverse effect caused by filling, flooding, excavation, or drainage.¹⁰ Thus, the conversion of a wetland will not constitute a loss if the wetland continues to function as a wetland.¹¹ Further, if wetlands or waters are restored, there is similarly no loss—any loss or conversion must be permanent.¹² Under the NWP 12, a single and complete project is measured by separate and distant utility line crossings of a water body—“each crossing is considered a distinct ‘single and complete project.’”¹³ It is not appropriate to have a national threshold for determining “when water crossings are ‘separate and distant’” because of various factors, including “topography, geology, hydrology, soils, and the characteristics of wetlands, streams, and other aquatic sources.”¹⁴ The regulations allow the Secretary to establish local guidelines for identifying “separate and distant” water crossings, and District Engineers are also able to use their own discretion to identify whether a crossing is separate and distant or whether a project proponent needs an individual permit.¹⁵

On April 15, 2020, a Montana District Court vacated the NWP 12, finding the Secretary failed to consult with the U.S. Fish and Wildlife Service under the ESA.¹⁶ The court held that “substantial evidence exists that the [Secretary’s] reissuance of NWP 12 may affect listed species and a critical habitat.”¹⁷ The Montana District Court eventually narrowed its remedy so that it only vacated application of the NWP 12 for new pipeline projects. The court ordered the Secretary to withhold approval of “the discharge of dredged or fill material under NWP 12 for projects constructing new oil and gas pipelines.”¹⁸ The decision was appealed to the Ninth Circuit, and a petition for certiorari was filed with the U.S. Supreme Court. The Supreme Court granted a stay of the district court’s injunction for all except the part that applies to the Keystone XL pipeline, which was the subject of the original case.¹⁹ The grant of the stay relied on a brief from the Solicitor General that argued that a broad NWP 12 injunction was not necessary because the Secretary could always demand an individual permit from the pipeline developers.²⁰ Since the vacatur of the Montana injunction, the NWP 12 remains active,²¹ but project opponents will undoubtedly consider the Solicitor General’s argument and invoke the authority to challenge project approvals and demand individual permits in the

⁹Sierra Club v. United States Army Corps of Engineers, 482 F. Supp. 3d 543 (W.D. Tex. 2020).

¹⁰Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020).

¹¹Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020).

¹²Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020).

¹³Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020), at *12 (citing 82 Fed. Reg. 1860, 1986).

¹⁴Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020).

¹⁵Optimus Steel, LLC v. U.S. Army Corps of Engineers, 492 F. Supp. 3d 701 (E.D. Tex. 2020), at *2.

¹⁶Northern Plains Resource Council v. U.S. Army Corps of Engineers, 454 F. Supp. 3d 985, 993-94 (D. Mont. 2020), order amended, 460 F. Supp. 3d 1030 (D. Mont. 2020).

¹⁷Northern Plains Resource Council v. U.S. Army Corps of Engineers, 454 F. Supp. 3d 985, 993-94 (D. Mont. 2020), order amended, 460 F. Supp. 3d 1030 (D. Mont. 2020).

¹⁸Northern Plains Resource Council v. U.S. Army Corps of Engineers, 460 F. Supp. 3d 1030 (D. Mont. 2020).

¹⁹United States Army Corps of Engineers v. Northern Plains Resource Council, 141 S. Ct. 190, 207 L. Ed. 2d 1116 (2020).

²⁰Christopher Thomas et al., *Supreme Court Revives Clean Water Act General Permit for Pipeline and Utility Line Projects* (July 14, 2020), <https://www.perkinscoie.com/en/news-insights/supreme-court-revives-clean-water-act-general-permit-for-pipeline-and-utility-line-projects.html>.

²¹Sierra Club v. United States Army Corps of Engineers, 482 F. Supp. 3d 543 (W.D. Tex. 2020).

future.²²

In the waning days of the Trump administration, the Corps. issued a final rule on the Reissuance and Modification of Nationwide Permits.²³ The final rule reissued and modified 12 existing nationwide permits and issued four new nationwide permits. These NWP went into effect on March 15, 2021.²⁴ The Biden Administration released a memorandum to all agencies in late January suggesting that they postpone the effective date of final rules for at least 60 days. That did not happen, and the new NWP rules are now effective.²⁵ The final rule removes the 300 linear foot stream impact threshold for 10 of the nationwide permits while retaining the 1/2-acre limit on loss of jurisdictional waters to satisfy the “no more than minimal adverse effects” requirements for nationwide permits.²⁶ The final rule also divides the previous NWP 12 into three new permits: NWP 12 for oil and gas pipelines, a new NWP 57 for the construction of electric and telecommunication utility lines, and a new NWP 58 for the construction of water and sewer lines.²⁷ In February, environmental groups, like the Sierra Club and Center for Biological Diversity, issued 60-day notice of intent to sue the Corps over the final NWP rules.²⁸

§ 29:110 Oil Pollution Prevention (33 U.S.C.A. § 1321)

The CWA prohibits the discharge of oil or other hazardous substances into or upon the navigable waters of the United States.¹ In addition to regulating the discharge of oil or hazardous substances, the EPA has promulgated the Oil Pollution Prevention regulations under the CWA.² Originally published in 1973, the Oil Pollution Prevention regulations established requirements for prevention of, preparedness for, and response to, oil discharges at specific non-transportation related facilities.³ This included an oil spill prevention and education program for small vessels, which provided for the assessment, outreach, and training and voluntary compliance activities to prevent and improve the effective response to oil spills from vessels and facilities not required to prepare a vessel response plan under CWA, such as recreational vessels, commercial fishing vessels, marinas, and aquaculture facilities.⁴ The goals of these regulations were to prevent oil from reaching navigable waters, contain discharges of oil, and for facilities to implement and maintain Spill

²²Thomas et al., *Supreme Court Revives Clean Water Act*, *supra* note 72.

²³Reissuance and Modification of Nationwide Permits, 86 Fed. Reg. 2744 (Jan. 13, 2021).

²⁴86 Fed. Reg. 2744 (Jan. 13, 2021).

²⁵William Mullen & Channing Martin, *Corps' Nationwide Permits Rule Hits Blue Wall*, JD SUPRA (Mar. 17, 2021), <https://www.jdsupra.com/legalnews/corps-nationwide-permits-rule-hits-blue-5686715> (last visited June 26, 2021).

²⁶William Mullen & Channing Martin, *Corps' Nationwide Permits Rule Hits Blue Wall*, JD SUPRA (Mar. 17, 2021), <https://www.jdsupra.com/legalnews/corps-nationwide-permits-rule-hits-blue-5686715> (last visited June 26, 2021).

²⁷William Mullen & Channing Martin, *Corps' Nationwide Permits Rule Hits Blue Wall*, JD SUPRA (Mar. 17, 2021), <https://www.jdsupra.com/legalnews/corps-nationwide-permits-rule-hits-blue-5686715> (last visited June 26, 2021).

²⁸William Mullen & Channing Martin, *Corps' Nationwide Permits Rule Hits Blue Wall*, JD SUPRA (Mar. 17, 2021), <https://www.jdsupra.com/legalnews/corps-nationwide-permits-rule-hits-blue-5686715> (last visited June 26, 2021).

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¹33 U.S.C. § 1321(b)(1); *see also* § 13:143 of this treatise.

²U.S. EPA, *Clean Water Act (CWA) Compliance Monitoring*, <https://www.epa.gov/compliance/clean-water-act-cwa-compliance-monitoring> (last visited June 26, 2021).

³U.S. EPA, *Oil Pollution Act (OPA) and Federal Facilities*, <https://www.epa.gov/enforcement/oil-pollution-act-opa-and-federal-facilities> (last visited June 26, 2021).

⁴33 U.S.C. § 1321(a).

Prevention, Control, and Countermeasure Plans.⁵

In 1990, the Oil Pollution Act (OPA) amended the CWA to require some oil storage facilities to prepare Facility Response Plans. These plans should detail a facility's response to a "worst-case discharge of oil."⁶ Under the OPA, any person who discharges oil will be strictly liable for all resulting removal and damage costs, unless specific statutory defenses apply.⁷ Facility Response Plans are required from the owners or operators of any non-transportation-related onshore facility that could "reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines[.]"⁸

The Regional Administrator will make the determination whether a facility is required to submit a response plan subject to the ensuing considerations.⁹ A facility must submit a response plan if it meets any of the following criteria: (1) the facility transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gallons; or (2) the facility's total oil storage capacity is greater than or equal to 1 million gallons, and one of the following is true: (A) the facility does not have secondary containment for each aboveground storage area sufficiently large to contain the capacity of the largest aboveground oil storage tank within each storage area plus sufficient freeboard to allow for precipitation; (B) the facility is located at a distance where discharge could cause injury to fish and wildlife in sensitive environments; (C) the facility is located at a distance where a discharge from the facility would shut down a public drinking water intake; or (D) the facility had had a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last five years.¹⁰ The Regional Administrator may consider: (1) frequency of past discharges; (2) proximity to navigable waters; (3) age of oil storage tanks; and (4) other facility-specific and region-specific information, including impacts on public health.¹¹ Any person may petition the Regional Administrator to determine whether a facility meets this criteria and should be required to submit a facility response plan.¹²

Facility Response Plans must be consistent with the National Oil and Hazardous Substance Pollution Contingency Plan and any applicable Area Contingency Plan and coordinated with the local emergency response plan.¹³ EPA provides a model format and requires all plans to include, at a minimum an emergency response action plan which must contain:

- (1) the identity and telephone number of a qualified individual having full authority, including contract authority, to implement removal actions;
- (2) a description of information to pass to response personnel in the event of a reportable discharge;
- (3) a description of the facility's response equipment and its location;
- (4) a description of response capabilities, include the duties of persons at the fa-

⁵U.S. EPA, *Overview of the Spill, Prevention, Control and Countermeasure Regulation*, <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/overview-spill-prevention-control-and> (last visited June 26, 2021).

⁶U.S. EPA, *Overview of the Spill, Prevention, Control and Countermeasure Regulation*, <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/overview-spill-prevention-control-and> (last visited June 26, 2021); *see also* § 13:143 of this treatise.

⁷33 U.S.C. § 2702.

⁸40 C.F.R. § 112.20 (2021).

⁹40 C.F.R. § 112.20(c) (2021).

¹⁰40 C.F.R. § 112.20(f)(1) (2021).

¹¹40 C.F.R. § 112.20(f)(3) (2021).

¹²40 C.F.R. § 112.20(f)(2)(iii) (2021).

¹³40 C.F.R. § 112.20(g)(1) (2021).

- cility during a response action and their response times and qualifications;
- (5) plans for evacuation;
- (6) a description of immediate measures to secure the source of the discharge, and to provide adequate containment and drainage of discharged oil; and
- (7) a diagram of the facility.¹⁴

The Facility Response Plan should also include (1) facility information, and (2) information about emergency response—both of which contain descriptions almost identical to the emergency response action plan requirements. Finally, the Facility Response Plan should contain:

- (1) a hazard evaluation that discuss the facility’s known or reasonably identifiable discharges;
- (2) response planning levels, including specific planning scenarios for a worst-case discharge, a discharge of 2,100 gallons or less, and a discharge greater than 2,100 gallons but less than 36,000 gallons (or 10% capacity of the largest tank at the facility);
- (3) discharge detection systems;
- (4) plan implementation;
- (5) methods for self-inspection, including drills, exercises, response training, and records of inspections;
- (6) safety diagrams;
- (7) security systems; and
- (8) a response plan cover sheet.¹⁵

If an owner or operator of a facility disagrees that it should be required to submit a Facility Response Plan, it may request reconsideration of the Regional Administrator’s decision.¹⁶ If reconsideration is denied, an appeal may be made to the EPA.¹⁷

§ 29:111 Enforcement and Penalties (33 U.S.C. § 1319)

The CWA authorizes enforcement through both government and citizen suits.¹ Oil is included in § 1321’s increased fines for the discharge of oil and other hazardous substances.² *Oil* is defined to include “any kind in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil[.]”³ *Discharge* includes “any spilling, leaking, pumping, pouring, emitting, emptying or dumping, but excludes discharges in compliance with a permit under § 1342[.]”⁴ For the purposes of this section, the president must determine “those quantities of oil and any hazardous substances the discharge of which may be harmful to the public health or welfare or the environment of the United States, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines, and beaches.”⁵

Section 1321 also provides for the establishment of a National Contingency Plan

¹⁴40 C.F.R. § 112.20(h)(1) (2021).

¹⁵40 C.F.R. § 112.20(h) (2021).

¹⁶40 C.F.R. § 112.20(i)(1) (2021).

¹⁷40 C.F.R. § 112.20(i)(3) (2021).

[Section 29:111]

¹See §§ 13:119 to 13:131 of this treatise.

²Referenced in § 13:119 n.1 of this treatise.

³33 U.S.C. § 1321(a)(1).

⁴33 U.S.C. § 1321(a)(2).

⁵33 U.S.C. § 1321(b)(4).

for an “efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharges, including containment, dispersal, and removal of oil and hazardous substances[.]”⁶ Under § 1321, the owner or operator of a onshore or offshore facility is liable for actual costs of removal and any other restoration costs incurred by the federal or state government in the restoration or replacement of natural resources damaged or destroyed as a result of a discharge of oil or hazardous substance.⁷ The president, or an authorized state representative, can act on behalf of the public as trustee of the natural resources to recover the costs of replacing or restoring those resources.⁸

Adjusted for inflation, Class 1 administrative penalties may not exceed \$19,505 per violation, except that the maximum amount of any Class 1 administrative civil penalties shall not exceed \$48,762.⁹ For Class 2 penalties, the maximum is \$19,505 per day for each day during which the violation continues, except that the maximum amount of any Class 2 civil penalty shall not exceed \$243,808.¹⁰ For civil penalty actions

[a]ny person who is the owner, operator, or person in charge of any vessel, onshore facility, or offshore facility from which oil or a hazardous substance is discharged in violation [the CWA], shall be subject to a civil penalty in an amount up to [\$48,762] per day of violation or an amount up to [\$1,951] per barrel of oil or unit of reportable quantity of hazardous substances discharged.¹¹

For violations where the person failed to properly carry out removal of the discharge or fails to comply with an order the penalty is \$48,762 per day or an amount up to 3 times the costs incurred by the Oil Spill Liability Trust Fund.¹² When a person fails or refuses to comply with any regulation promulgated pursuant to the National Response System, the maximum penalty is \$48,762 per day of the violation.¹³ And, for any violation that was the result of gross negligence or willful misconduct, the person shall be subject to a civil penalty not less than \$195,047 and not more than \$5,851 per barrel of oil or unit of reportable quantity of hazardous substance discharged.¹⁴

D. SAFE DRINKING WATER ACT

§ 29:112 Background Information

Before an oil and gas operator can drill a water disposal well, a steam injection well, or a carbon sequestration well, it must obtain a permit from the U.S. Environmental Protection Agency (EPA), or a state agency equivalent. The permit ensures that the applicant will meet the requirements set out in the federal Safe

⁶33 U.S.C. § 1321(d)(2).

⁷33 U.S.C. § 1321(f)(4).

⁸33 U.S.C. § 1321(f)(5).

⁹33 U.S.C. § 1321(b)(6)(B)(i) (original statutory amount \$10,000 per violation with a maximum of \$25,000); Civil Monetary Penalty Inflation Adjustments, 85 Fed. Reg. 83818, 83820 (Dec. 23, 2020).

¹⁰33 U.S.C. § 1321(b)(6)(B)(ii) (original statutory amount \$10,000 per violation with a maximum of \$125,000); Civil Monetary Penalty Inflation Adjustments, 85 Fed. Reg. 83818, 83820 (Dec. 23, 2020).

¹¹33 U.S.C. § 1321(b)(7)(A) (original statutory amount \$25,000 per day and \$1,000 per barrel of oil); Civil Monetary Penalty Inflation Adjustments, 85 Fed. Reg. 83818, 83820 (Dec. 23, 2020).

¹²33 U.S.C. § 1321(b)(7)(B) (original amount \$25,000); Civil Monetary Penalty Inflation Adjustments, 85 Fed. Reg. 83818, 83820 (Dec. 23, 2020).

¹³33 U.S.C. § 1321(b)(7)(C) (original amount \$25,000); Civil Monetary Penalty Inflation Adjustments, 85 Fed. Reg. 83818, 83820 (Dec. 23, 2020).

¹⁴33 U.S.C. § 1321(b)(7)(D) (original amounts \$100,000 and \$3,000); Civil Monetary Penalty Inflation Adjustments, 85 Fed. Reg. 83818, 83820 (Dec. 23, 2020).

Drinking Water Act (SDWA).¹ The SDWA was originally passed by the United States Congress in 1974 and was subsequently amended in 1986 and 1996. The SDWA is intended to protect the nation's drinking water and sources of drinking water, including rivers, lakes, reservoirs, springs, and certain groundwater supply wells. Under the SDWA, the EPA sets health-based standards for drinking water quality to protect against both naturally occurring and manmade contaminants, and monitors states, local authorities, and water suppliers who enforce those standards.²

§ 29:113 Enforcement Responsibility and Implementation

The SDWA is implemented and enforced by the EPA, but the EPA can delegate enforcement responsibility to the states when a state's program meets certain criteria.¹ This is called primary enforcement responsibility, or primacy. A state has primary enforcement responsibility for public water systems when the EPA determines that the state has: (1) adopted drinking water regulations that are no less stringent than the national primary drinking water regulations promulgated by the EPA; (2) adopted and is implementing adequate procedures for the enforcement of such state regulations;² (3) established and will maintain record keeping and reporting of its activities; (4) established adequate variance procedures as stringent as the federal procedures; (5) the authority to assess administrative penalties; (6) adopted and can implement an adequate plan for the provision of safe drinking water under emergency circumstances; and (7) adequate electronic records regulations.³

§ 29:114 Procedures/Process for State Delegation

A state may apply to the EPA for a determination that the state has primary enforcement responsibility for public water systems in the state pursuant to § 1413 of the SDWA.¹ The SDWA regulations specify that the application should be as concise as possible and include a side-by-side comparison of the federal requirements and the corresponding state authorities, including citations to specific statutes and administrative regulations or ordinances, and judicial decisions where appropriate, which demonstrate adequate authority to meet the requirements of § 142.10, described above.² State applications for primary enforcement responsibility must include, among other information, the text of the state's primary drinking water

[Section 29:112]

¹42 U.S.C. §§ 300f, et seq.

²42 U.S.C. § 300g-1.

[Section 29:113]

¹42 U.S.C. § 300g-1; 42 U.S.C. § 300g-2.

²These procedures include maintenance of an inventory of public water systems, a systematic program for conducting sanitary surveys of public water systems in the state, the establishment and maintenance of a state program for the certification of laboratories conducting analytical measurements of drinking water contaminants, assurance of the availability to the state of laboratory facilities certified by the EPA and capable of performing analytical measurements of all contaminants specified in the state primary drinking water regulations, the establishment and maintenance of an activity to assure that the design and construction of new or substantially modified public water system facilities will be capable of compliance with the state primary drinking water regulations, and statutory or regulatory enforcement authority adequate to compel compliance with the state primary drinking water regulations. 40 C.F.R. § 142.10 (2021).

³40 C.F.R. § 142.10 (2021).

[Section 29:114]

¹40 C.F.R. § 142.11 (2021).

²40 C.F.R. § 142.11 (2021).

regulations and a description of the state's enforcement procedures.³ The EPA must act on an application for primary enforcement responsibility within 90 days after receiving such application.⁴ Once a state's program has been approved, in order to retain primary enforcement responsibility, states must adopt all new and revised national primary drinking water regulations promulgated under the SDWA.⁵

§ 29:115 Underground Injection Control Program

Of particular interest to the oil and gas industry and its permitting needs for oil and gas operations is Part C of the SDWA. Part C is intended to ensure protection of underground sources of drinking water against contamination by underground injection (steam flooding, produced water re-injection, CO₂ injection, and the like in the context of oil and gas operations) and directs the establishment of statewide programs to control underground injections.¹ All state underground injection control (UIC) programs must prohibit “any underground injection in such State which is not authorized by a permit,” and require permit applicants to demonstrate that “the underground injection will not endanger drinking water sources.”² The EPA's regulations define an “underground source of drinking water” as an aquifer, or a portion thereof, which (1) supplies any public water system, or (2) contains a sufficient quantity of groundwater to supply a public water system, and currently supplies drinking water for human consumption, or contains fewer than 10,000 mg/l total dissolved solids; and is not an exempted aquifer.³ This means that oil and gas operators must obtain a UIC permit from either the EPA, or the state if primacy has been granted, before drilling disposal wells, enhanced recovery wells, or hydrocarbon storage wells.

A state's UIC program may be administered by the EPA, or the state may apply to the EPA for primary enforcement responsibility for the program by demonstrating that its UIC program meets the requirements set forth in the EPA's regulations.⁴ The EPA has approved UIC primacy programs for Class I, II, III, IV, and V wells in 33 states, for Class II wells in just eight states and two tribal reservations, and for all well classes in just two states.⁵

§ 29:116 UIC Well Classes

There are six different classes of injection wells.¹ Class I wells are industrial and municipal waste disposal wells and are used to inject hazardous and non-hazardous wastes into deep, confined rock formations. Class II wells are oil- and gas-related injection wells and are used only to inject fluids associated with oil and natural gas production. Class II fluids are primarily brines that are brought to the surface dur-

³40 C.F.R. § 142.11 (2021).

⁴40 C.F.R. § 142.11(b)(1) (2021).

⁵40 C.F.R. § 142.12(a) (2021).

[Section 29:115]

¹Center for Biological Diversity v. Department of Conservation, 26 Cal. App. 5th 161, 166, 236 Cal. Rptr. 3d 729 (1st Dist. 2018); 42 U.S.C. § 300h-1.

²42 U.S.C. §§ 300h(b)(1)(A) to (B), 300h-4(a).

³40 C.F.R. § 144.3 (2021). “Exempted aquifers” are discussed below.

⁴42 U.S.C. § 300h-1(b), (c).

⁵U.S. EPA, *Underground Injection Control (UIC), Primary Enforcement Authority for the Underground Injection Control Program*, <https://www.epa.gov/uic/primary-enforcement-authority-under-ground-injection-control-program> (last visited June 26, 2021).

[Section 29:116]

¹40 C.F.R. § 144.6 (2021).

ing oil and gas production. Class III wells are injection wells for solution mining and are used to inject fluids to dissolve and extract minerals. Class IV wells are shallow hazardous and radioactive injection wells and are used to dispose of hazardous or radioactive wastes into or above a geologic formation that contains an underground source of drinking water.² Class V wells are for the injection of non-hazardous fluids underground, usually into or above underground sources of drinking water. Class VI wells are used for geologic sequestration of carbon dioxide.

§ 29:117 Focus on Class II Wells

As described above, Class II wells are used only to inject fluids associated with oil and gas production. There are three categories of Class II wells: (1) disposal wells; (2) enhanced recovery wells; and (3) hydrocarbon storage wells.¹

§ 29:118 UIC Permitting

Oil and gas operators cannot conduct any injection activity in a manner that allows for the movement of fluid containing any contaminant into underground sources of drinking water if the contaminant will violate a primary drinking water regulation or adversely affect people's health.¹ All underground injections must be authorized either by rule or by permit.² Permit applications for Class II wells must contain the information listed in 40 C.F.R. § 144.31(e), which includes information regarding the proposed injection activities, facility and operator information, a list of all permit approvals required for the project, and a topographic map.

§ 29:119 Aquifer Exemptions

Another important aspect of the SDWA as applied to oil and gas operations is the ability of the EPA to find an underground groundwater aquifer that is exempt from the SDWA's strictures. Aquifer exemptions allow certain underground sources of water to be used for oil or mineral extraction or disposal purposes in compliance with the EPA's UIC requirements.¹ UIC permit applicants can seek an aquifer exemption by submitting an application package to the primary agency. If a state has been granted primacy, the state reviews the applicant's submittal. If the information submitted supports a determination that the proposed aquifer exemption meets federal regulatory criteria contained in 40 C.F.R. § 146.4, the state proposes to exempt the aquifer, provides an opportunity for public participation and comment, and submits a request for approval of the exemption to the EPA.² No designation of an exempted aquifer is final until approved by the EPA Administrator as

²40 C.F.R. § 144.6 (2021); The EPA banned the use of Class IV injection wells in 1984, and these wells may only operate as part of an authorized groundwater cleanup action.

[Section 29:117]

¹U.S. EPA, *Underground Injection Control (UIC), Class II Oil and Gas Related Injection Wells*, <https://www.epa.gov/uic/class-ii-oil-and-gas-related-injection-wells> (last visited June 26, 2021).

[Section 29:118]

¹40 C.F.R. § 144.12 (2021).

²40 C.F.R. § 144.11 (2021).

[Section 29:119]

¹U.S. EPA, *Underground Injection Control (UIC), Aquifer Exemptions in the Underground Injection Control Program*, <https://www.epa.gov/uic/aquifer-exemptions-underground-injection-control-program> (last visited June 26, 2021).

²U.S. EPA, *EPA Oversight of California's Underground Injection Control (UIC) Program*, <https://www.epa.gov/uic/epa-oversight-californias-underground-injection-control-uic-program> (last visited June 26, 2021).

part of an approved UIC program.

As stated above, in order for the EPA to approve an aquifer exemption, it must follow the regulatory criteria laid out in 40 C.F.R. § 146.4. The EPA must find that the state, or the applicant if the state does not have primacy, has shown that the aquifer proposed for exemption does not currently serve as a source of drinking water.³ Next, the EPA must find that the aquifer cannot now, and will not in the future, serve as a source of drinking water, or that the total dissolved solids content of the groundwater is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.⁴

E. COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

§ 29:120 Overview

On December 11, 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).¹ It was prompted by environmental disasters such as the one that occurred at Love Canal and operates as a companion law to the Resource Conservation and Recovery Act (RCRA), although its purpose is different.² While RCRA provides cradle to grave regulation, CERCLA was designed to allow a federal response to releases, past releases, or threatened releases of hazardous substances that could endanger public health or the environment.³

CERCLA has two fundamental goals: the first is to clean up hazardous substances that are released into the environment, and the second is to hold responsible parties liable for the costs of these clean-ups.⁴ As a general matter, “[t]o state a prima facie case under CERCLA, 42 U.S.C. § 9607(a), a plaintiff must allege that:

- (1) The waste disposal site is a ‘facility’ within the meaning of 42 U.S.C. § 9601(9);
- (2) A ‘release’ or ‘threatened release’ of a ‘hazardous substance’ from the facility has occurred, *id.* § 9607(a)(4);
- (3) Such release or ‘threatened release’ will require the expenditure of response costs that are ‘consistent with the national contingency plan,’ *id.* §§ 9607(a)(4) and (a)(4)(B); and,
- (4) The defendant falls within one of four classes of persons subject to CERCLA’s liability provisions.”⁵

The following four categories of parties may be held liable under CERCLA (often

³40 C.F.R. § 146.4 (2021).

⁴40 C.F.R. § 146.4 (2021).

[Section 29:120]

¹42 U.S.C. §§ 9601 to 9675; See U.S. EPA, *Superfund: CERCLA Overview*, <https://www.epa.gov/superfund/superfund-cercla-overview> (last visited June 24, 2021). CERCLA was then amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986. Pub. L. No. 99-499.

²See U.S. EPA, *What is Superfund?*, <https://www.epa.gov/superfund/what-superfund> (last visited June 24, 2021).

³See *What is Superfund?*, note 2. “Environment” is defined, in relevant part, as “any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.” 42 U.S.C. § 9601(8).

⁴See *Price Trucking Corp. v. Norampac Industries, Inc.*, 748 F.3d 75, 79, 78 Env’t. Rep. Cas. (BNA) 1133 (2d Cir. 2014) (“CERCLA’s primary purposes are axiomatic: (1) to encourage the timely cleanup of hazardous waste sites; and (2) to place the cost of that cleanup on those responsible for creating or maintaining the hazardous condition.”) (citation omitted).

⁵*Cose v. Getty Oil Co.*, 4 F.3d 700, 703–04, 37 Env’t. Rep. Cas. (BNA) 1153, 23 Env’tl. L. Rep. 21335, 129 O.G.R. 583 (9th Cir. 1993), as amended, (Oct. 1, 1993).

called Potentially Responsible Parties or PRPs):

- (1) Present owners and operators of facilities;
- (2) Those who, at the time of disposal of the hazardous substances, owned or operated facilities;⁶
- (3) Those who arranged for transport of hazardous substances for disposal or treatment;⁷ and
- (4) Certain transporters of hazardous substances.⁸

Unless a statutory defense or exclusion (including the petroleum exclusion) applies, covered parties are liable for “all costs of removal or remedial action incurred by the United States Government or a State . . . not inconsistent with the national contingency plan[.]” and “any other necessary costs of response incurred by any other person consistent with the national contingency plan[.]”⁹

§ 29:121 The Petroleum Exclusion

While CERCLA is discussed in detail elsewhere in this treatise, particular aspects are relevant to the oil and gas industry.

CERCLA provides that a “hazardous substance”¹ does not include:

- “petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance”;²
- “and the term does not include natural gas, natural gas liquids, liquefied nat-

⁶The Supreme Court held that, under CERCLA, “an operator must manage, direct, or conduct operations specifically related to pollution, that is, operations having to do with the leakage or disposal of hazardous waste, or decisions about compliance with environmental regulations.” *U.S. v. Bestfoods*, 524 U.S. 51, 66–67, 118 S. Ct. 1876, 141 L. Ed. 2d 43, 46 Env’t. Rep. Cas. (BNA) 1673, 28 Env’tl. L. Rep. 21225, 157 A.L.R. Fed. 735 (1998).

⁷An arranger is defined as “any person who by contract, agreement, or otherwise arranged for disposal or treatment . . . of hazardous substances owned or possessed by such person, by any other party or entity, at any facility . . . owned or operated by another party or entity and containing such hazardous substances[.]” 42 U.S.C. § 9607(a)(3).

⁸42 U.S.C. § 9607(a)(4).

⁹42 U.S.C. § 9607(a)(4)(A) to (B). CERCLA § 113, added in 1986 as part of SARA, contains a subsection entitled “Contribution.” This subsection states: “Any person may seek contribution from any other person who is liable or potentially liable under [§ 107(a)], during or following any civil action under [§§ 106 or 107(a)] In resolving contribution claims, the court may allocate response costs among liable parties using such equitable factors as the court determines are appropriate. Nothing in this subsection shall diminish the right of any person to bring an action for contribution in the absence of a civil action under [§§ 106 or 107].” 42 U.S.C. § 9613(f)(1). Under § 113, a party that “has resolved its liability to the United States or a State in an administrative or judicially approved settlement” is immune from contribution claims made by other Potentially Responsible Parties “regarding matters addressed in the settlement.” 42 U.S.C. § 9613(f)(2). *See* § 14:143 of this treatise.

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¹The term “hazardous substance” means:

(A) any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act . . . , (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act . . . (but not including any waste the regulation of which under the Solid Waste Disposal Act . . . has been suspended by Act of Congress), (D) any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act . . . , (E) any hazardous air pollutant listed under section 112 of the Clean Air Act . . . , and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

42 U.S.C. § 9601(14).

²42 U.S.C. § 9601(14).

ural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).³

This is known as the “petroleum exclusion.” Courts have found that “the primary purpose of the exclusion for petroleum, which is defined principally in terms of crude oil and crude oil fractions, was to exclude from CERCLA’s coverage ‘spills or other releases strictly of oil,’ S. Rep. No. 96-848, 96th Cong., 2d Sess. 29 to 30 (1980), not releases of hazardous substances mixed with oil.”⁴

Courts have noted that “CERCLA has acquired a well-deserved notoriety for vaguely-drafted provisions and an indefinite, if not contradictory, legislative history.”⁵ While the exact intent behind the exclusion is unclear from an examination of the hastily-drafted statute and its history, one potential basis for the exclusion is the fact that petroleum is covered by other statutes. These include the Oil Pollution Act of 1990 (P.L. 101-380), passed after the Exxon Valdez oil spill and decades of debate over a comprehensive law governing oil spills.

In analyzing the limits of the exclusion, the EPA took the position in a 1987 memo that when petroleum is mixed with hazardous substance(s) before it is released into the environment, the entire mixture should be considered hazardous under CERCLA.⁶ This allows the EPA to respond to releases of hazardous substances that occur together with petroleum releases.

The outlines of this exclusion have been litigated in a number of cases.⁷ However, the practical effect of the exclusion has been to exclude CERCLA itself as a favorable statute for petroleum cleanups in many cases.

§ 29:122 The petroleum exclusion: Excluded as a “Hazardous Substance”

One of the early cases analyzing the petroleum exclusion, *Wilshire Westwood Associates*, held that “the application of the standards governing statutory construction to the words of the petroleum exclusion requires us to exclude gasoline, even leaded gasoline, from the term ‘hazardous substance’ for purposes of CERCLA.”¹ The effect of this is to apply the petroleum exclusion to unrefined and refined gasoline, despite the fact that “certain of its indigenous components and certain addi-

³42 U.S.C. § 9601(14); “Mineral spirits that are distilled from petroleum are considered petroleum for the purpose of CERCLA Section 101(14) and, therefore, are excluded from the definition of hazardous substance.” U.S. EPA, *Mineral Spirits Excluded From the CERCLA?*, <https://www.epa.gov/epcra/mineral-spirits-excluded-cercla> (last visited June 24, 2021).

⁴*City of New York v. Exxon Corp.*, 744 F. Supp. 474, 490, 31 Env’t. Rep. Cas. (BNA) 1963, 21 Env’t. L. Rep. 20248 (S.D. N.Y. 1990), adhered to on reconsideration, 766 F. Supp. 177, 34 Env’t. Rep. Cas. (BNA) 1623, 22 Env’t. L. Rep. 20145 (S.D. N.Y. 1991).

⁵*U.S. v. Mottolo*, 605 F. Supp. 898, 902, 22 Env’t. Rep. Cas. (BNA) 1529, 15 Env’t. L. Rep. 20444 (D.N.H. 1985).

⁶See U.S. EPA, Office of General Counsel, *Scope of the CERCLA Petroleum Exclusion Under Sections 101(14) and 104(a)(2)* (July 31, 1987), <https://www.epa.gov/sites/production/files/2013-09/documents/petro-exclu-mem.pdf>; see also *Franklin County Convention Facilities Authority v. American Premier Underwriters, Inc.*, 240 F.3d 534, 541, 51 Env’t. Rep. Cas. (BNA) 2125, 31 Env’t. L. Rep. 20470, 2001 FED App. 0041P (6th Cir. 2001) (“[P]etroleum products mixed with hazardous substances [that are] not constituent elements of petroleum are hazardous substances.”).

⁷Disputes over the categorization of the chemicals may preclude summary judgment. See *U.S. v. Poly-Carb, Inc.*, 951 F. Supp. 1518, 1528, 44 Env’t. Rep. Cas. (BNA) 1306, 27 Env’t. L. Rep. 20902 (D. Nev. 1996) (“[I]f we cannot say what was in those tanks, we likewise cannot say whether it was ‘spent,’ a ‘by-product,’ a ‘feedstock,’ or ‘being reclaimed.’ Summary judgment is not appropriate.”).

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¹*Wilshire Westwood Associates v. Atlantic Richfield Corp.*, 881 F.2d 801, 804, 30 Env’t. Rep. Cas. (BNA) 1065, 19 Env’t. L. Rep. 21313 (9th Cir. 1989); see *Kuneman v. Redwood Oil Co.*, 32 Fed. Appx. 962, 963 (9th Cir. 2002) (“petroleum exclusion applies to refined and unrefined gasoline”).

tives during the refining process have themselves been designated as hazardous substances within the meaning of CERCLA.”²

The *Wilshire Westwood* principle that indigenous compounds which are, by themselves, hazardous substances, but when combined with petroleum in the refining process trigger the petroleum exclusion, has been applied under numerous circumstances.³ As one court succinctly put it, “whether the petroleum exclusion applies depends both on *what* is spilled and on *how* it is spilled,” noting that lead in spilled gasoline would be excluded under CERCLA, while lead in the form of abandoned lead acid batteries would not.⁴

Similarly, a plume of a hazardous substance, such as benzene, that effectively separates from and migrates away from an oil spill will likely still be subject to the exclusion.⁵ A self-evident extension of the principle is that the addition to petroleum of substances or compounds that are *not* themselves deemed “hazardous,” such as spacer fluid and drilling mud, will not vitiate application of the exclusion.⁶

Under a liberal application of the exclusion, the mere presence of particular hazardous substances, such as benzene, ethylbenzene, toluene, xylene, and lead, can lead a court to the “inescapable conclusion” that those hazardous substances were derived from petroleum products onsite, resulting in dismissal of a CERCLA lawsuit.⁷ Moreover, even if concentrations of hazardous substances are above those normally found in unused petroleum, a court may still apply the petroleum exclusion if the evidence indicates that those higher concentrations are due to natural volatilization and biodegradation of petroleum over time.⁸

Some courts have also held that “used petroleum products are covered by the petroleum exclusion,” as long as “CERCLA-listed hazardous substances have not been added to the petroleum product during its use, nor have the concentrations of CERCLA-listed hazardous substances in the petroleum product been increased by its use.”⁹ At least one court has ruled that even an allegedly intentional “spill” of a refined petroleum product was exempt from CERCLA’s purview.¹⁰ The EPA’s “rules and regulations also provide that the petroleum exclusion applies to crude oil, petroleum feedstocks, and refined petroleum products.”¹¹

§ 29:123 The petroleum exclusion: Included as a “Hazardous Substance”

²*Wilshire Westwood*, 881 F.2d at 810; *see* *Gardner v. Chevron Capital Corporation*, 715 Fed. Appx. 737 (9th Cir. 2018); *Petrovic v. Amoco Oil Co.*, 200 F.3d 1140, 1154, 49 Env’t. Rep. Cas. (BNA) 1972, 45 Fed. R. Serv. 3d 948, 30 Env’t. L. Rep. 20259 (8th Cir. 1999); *Foster v. U.S.*, 922 F. Supp. 642, 659, 42 Env’t. Rep. Cas. (BNA) 1775, 26 Env’t. L. Rep. 21327 (D.D.C. 1996) (“because the plaintiff fails to demonstrate that the PAHs, TPHs, and kerosene present at the Site fall outside of the CERCLA’s exception for petroleum products, no CERCLA liability may attach for contamination related to such”).

³*Poly-Carb, Inc.*, 951 F. Supp. at 1526.

⁴*Poly-Carb, Inc.*, 951 F. Supp. at 1526.

⁵*White Plains Housing Authority v. Getty Properties Corp.*, 80 Env’t. Rep. Cas. (BNA) 1163, 2014 WL 7183991, at *9 (S.D. N.Y. 2014).

⁶*In re Oil Spill by the Oil Rig Deepwater Horizon in the Gulf of Mexico, on April 20, 2010*, 81 Env’t. Rep. Cas. (BNA) 1867, 2015 WL 5363039, at *6 (E.D. La. 2015).

⁷*Bunger v. Hartman*, 797 F. Supp. 968, 972, 36 Env’t. Rep. Cas. (BNA) 1496, 23 Env’t. L. Rep. 20255 (S.D. Fla. 1992).

⁸*Organic Chemical Site PRP Group v. Total Petroleum Inc.*, 58 F. Supp. 2d 755, 763 (W.D. Mich. 1999).

⁹*Southern Pacific Transp. Co. v. California (Caltrans)*, 790 F. Supp. 983, 986, 34 Env’t. Rep. Cas. (BNA) 1188, 22 Env’t. L. Rep. 20351 (C.D. Cal. 1991).

¹⁰*Foster*, 922 F. Supp. at 652 (finding no CERCLA liability where a defendant “sprayed” kerosene onto the facility).

¹¹*In re Oil Spill by the Oil Rig Deepwater Horizon in the Gulf of Mexico, on April 20, 2010*, 81 Env’t. Rep. Cas. (BNA) 1867, 2015 WL 5363039, at *5 (E.D. La. 2015).

Many courts, and the EPA itself,¹ have concluded that, while “Congress intended to exclude oil spills from the coverage of CERCLA,” it “did not intend to exclude waste oils . . . which are by no means strictly ‘crude oil or any fraction thereof.’”² Courts have regularly applied the distinction between excluded crude oil or refined petroleum and non-excluded used or waste oils, and have held that used motor oil, emulsions containing used oil, and used oil sludge are all subject to CERCLA.³

Additional caselaw further refined this basic principle: for example, in *Cose v. Getty Oil*, the Ninth Circuit held that “crude oil tank bottoms are not ‘petroleum, including crude oil or a fraction thereof’ under CERCLA and therefore do not fall within CERCLA’s petroleum exclusion in the first instance.”⁴ Crucial to the court’s holding was the fact that “crude oil tank bottoms are never ‘subjected to various refining processes’ . . . [or] used ‘for producing useful products,’” and therefore are not “petroleum” under the Ninth Circuit’s definition announced in *Wilshire Westwood*.⁵

As an elaboration of *Wilshire Westwood* and its progeny, when hazardous substances are added to waste oil, resulting in larger amounts of hazardous components than would occur in crude or refined petroleum products, the exemption does not apply.⁶ Even a *de minimis* amount of additional hazardous substances can lead to CERCLA liability,⁷ and the fact that the addition was unintentional does not save the defendant from liability.⁸ Likewise, hazardous substances that have “comingled with the petroleum products in the soil and [are] floating on the groundwater” have also been held to render the CERCLA petroleum exclusion inapplicable.⁹

The EPA has distinguished between “oil that naturally contains low levels of haz-

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¹Notification Requirements; Reportable Quantity Adjustments, 50 Fed. Reg. 13456, 13460 (Apr. 4, 1985) (to be codified at 40 C.F.R. §§ 117, 302 (2021)).

²*City of New York*, 744 F. Supp. at 490. In cases involving waste oils or other used petroleum products, courts may accept circumstantial evidence and conclude that oil contains non-excluded hazardous substances; this then places the burden on the defendant claiming the petroleum exclusion to show that the deposited oil did not contain contaminants. See *Members of Beede Site Group v. Federal Home Loan, Mortg. Corp.*, 968 F. Supp. 2d 455, 461, 77 Env’t. Rep. Cas. (BNA) 1811 (D.N.H. 2013).

³*Ekotek Site PRP Committee v. Self*, 932 F. Supp. 1319, 1327 (D. Utah 1996); *U.S. v. Alcan Aluminum Corp.*, 964 F.2d 252, 266–67, 35 Env’t. Rep. Cas. (BNA) 1073, 22 Env’t. L. Rep. 21124 (3d Cir. 1992); *U.S. v. Western Processing Co., Inc.*, 761 F. Supp. 713, 722, 32 Env’t. Rep. Cas. (BNA) 2029, 21 Env’t. L. Rep. 20976 (W.D. Wash. 1991).

⁴*Cose v. Getty Oil Co.*, 4 F.3d 700, 708, 37 Env’t. Rep. Cas. (BNA) 1153, 23 Env’t. L. Rep. 21335, 129 O.G.R. 583 (9th Cir. 1993), as amended, (Oct. 1, 1993) (emphasis omitted); see *W. Processing Co.*, 761 F. Supp. at 724 (“drums of tank bottom sludge generated by GATX is a waste material contaminated with PAHs and, additionally, in some instances, with lead, and is not a ‘fraction of petroleum’ exempted from coverage under CERCLA”).

⁵*Cose*, 4 F.3d at 705.

⁶*State of Wash. v. Time Oil Co.*, 687 F. Supp. 529, 532, 27 Env’t. Rep. Cas. (BNA) 2076, 18 Env’t. L. Rep. 21376 (W.D. Wash. 1988); see also *Darbouze v. Chevron Corp.*, 47 Env’t. Rep. Cas. (BNA) 1480, 1998 WL 512941, at *5 (E.D. Pa. 1998) (if a hazardous substance “is at a level exceeding what is normally found in petroleum, or if the ‘hazardous substance’ is not normally found in petroleum, then the ‘petroleum exclusion’ does not apply”); *USOR Site PRP Group v. LEI Rone Engineers, Ltd.*, 85 Env’t. Rep. Cas. (BNA) 1183, 2017 WL 2840018, at *4 (S.D. Tex. 2017) (in a cost-recovery action for the remediation of a former oil processing and waste treatment facility, the court rejected application of the petroleum exclusion to an oily discharge that has been infused with hazardous substances, determining the “fuel discharged was introduced into a petroleum product used in machines that allowed for the transfer of heavy metals into the water”).

⁷*Members of the Beede Site Grp.*, 968 F. Supp. 2d at 460.

⁸*City of New York*, 766 F. Supp. at 187.

⁹*Tosco Corp. v. Koch Industries, Inc.*, 216 F.3d 886, 893, 30 Env’t. L. Rep. 20647 (10th Cir. 2000).

ardous substances and oil to which hazardous substances have been added through use.”¹⁰ While the EPA has “extended the petroleum exclusion to the former category of oily substances, it has specifically declined to extend such protection to the latter category.”¹¹ Some courts have held that this interpretation of the petroleum exclusion comports with the relevant legislative history, which indicates that the “exclusion was intended for oil spills, not for releases of oil which has become infused with hazardous substances through use.”¹²

§ 29:124 Reportable Quantity reporting

Despite the petroleum exclusion, some oils are regulated under CERCLA because they are specifically listed. For example, “40 CFR 302.4, Table 302.4 specifically lists a number of waste oils (e.g., F010, and K048 through K052)” and their Reportable Quantities (“RQs”).¹ If those chemicals are released in quantities equal to or greater than their RQs, the release is required to be reported.²

CERCLA requires the reporting of releases of a hazardous substance into the environment in an amount that exceeds a reportable quantity within a 24-hour period.³ Section 101(22) defines “release” as any “spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant).” Further, the term “hazardous substance” is defined in § 101(14) by reference to the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, and the Toxic Substances Control Act.

RQs can initially be provisionally set by Congress.⁴ After further evaluation and notice and comment, the EPA can then further adjust them in order to protect public health and the environment from the hazard.⁵ The EPA employs a two-step process: the first step evaluates the “intrinsic physical, chemical, and toxicological properties of each substance” and the second step evaluates the substance’s “susceptibility to certain degradative processes.”⁶

CERCLA provides exemptions from the notification requirement in limited circumstances. Section 103(f) exempts reporting for “any release of a hazardous substance . . . which is a continuous release, stable in quantity and rate and is . . . a release of which notification has been given [pursuant to reporting requirements]

¹⁰In re LandSource Communities Development LLC, 485 B.R. 310, 321 (Bankr. D. Del. 2013) (citation omitted).

¹¹In re LandSource Communities Development LLC, 485 B.R. 310, 321 (Bankr. D. Del. 2013).

¹²In re LandSource Communities Development LLC, 485 B.R. 310, 321 (Bankr. D. Del. 2013).

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¹U.S. EPA, *Specific Substances Excluded Under CERCLA Petroleum Exclusion*, <https://www.epa.gov/epcra/specific-substances-excluded-under-cercla-petroleum-exclusion> (last visited June 25, 2021). The EPA has either established or proposed adjustments to the RQs for all of the roughly 800 Superfund substances. U.S. EPA, *CERCLA and EPCRA Continuous Release Reporting*, <https://www.epa.gov/epcra/cercla-and-epcra-continuous-release-reporting> (last visited June 25, 2021).

²*Specific Substances Excluded Under CERCLA Petroleum Exclusion*.

³42 U.S.C. § 9603(a); Notification Requirements; Reportable Quantity Adjustments, 50 Fed. Reg. 13456, 13460 (Apr. 4, 1985) (to be codified at 40 C.F.R. §§ 117, 302 (2021)).

⁴Note that the Clean Water Act and CERCLA RQs are the same. Notification Requirements; Reportable Quantity Adjustments, 50 Fed. Reg. at 13473 (Apr. 4, 1985).

⁵See U.S. EPA, *Reportable Quantity (RQ) Adjustment Methodology*, <https://www.epa.gov/epcra/reportable-quantity-rq-adjustment-methodology> (last visited June 25, 2021).

⁶See U.S. EPA, *Reportable Quantity (RQ) Adjustment Methodology*, <https://www.epa.gov/epcra/reportable-quantity-rq-adjustment-methodology> (last visited June 25, 2021).

for a period sufficient to establish the continuity, quantity, and regularity of such release.”⁷ This provision addresses releases from sources that are “routine, anticipated, and intermittent and incidental to normal operations or treatment processes.”⁸

§ 29:125 Federally permitted releases

Although CERCLA requires that any release of a hazardous substance in excess of the reportable quantity of the substance be reported; there is an exception when the release is a federally permitted release, defined by reference to various environmental statutes.¹ For that category of releases, 42 U.S.C. § 9607(j) states that “[r]ecovery by any person (including the United States . . .) for response costs or damages resulting from a federally permitted release shall be pursuant to existing law in lieu of this section.”

Typically, the emissions in question are required to comply with the relevant permits in order to be exempt from the reporting requirements.² However, in the recent *Clean Air Council* case, which involved the releases of hydrogen sulfide, benzene, and other hazardous components, the court was asked to determine whether “emissions from a facility that holds Clean Air Act [CAA] permits are exempt from CERCLA’s reporting requirements, regardless of whether the emissions comply with those permits.”³ There, the court concluded that “the phrase ‘subject to,’ as used in § 9601(10) of CERCLA, is unambiguous and does not require that the air emissions comply with a Clean Air Act permit in order to be exempt.”⁴ In the court’s opinion, the phrase “[s]ubject to” means only that the “responsible facility must abide by the requirements of that permit,” in addition to the requirements of the CAA and the reporting requirements of that law, “rather than the reporting requirements of CERCLA.”⁵ This court’s interpretation was unusually broad, and the case has been appealed as of the date of this publication.

⁷Such continued releases are governed by 40 C.F.R. § 302.8 (2021).

⁸40 C.F.R. § 302.8(b) (2021). According to the EPA’s CERCLA and EPCRA Continuous Release Reporting guidance, located at <https://www.epa.gov/epcra/cercla-and-epcra-continuous-release-reporting>, releases that may qualify as continuous releases include those that:

- “Are normal plant operation or treatment processes;
- Are stable in quantity and rate; and either
- Occur without interruption of abatement, or
- Are routine, anticipated and intermittent.”

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¹“Congress defined the term ‘federally permitted release’ in relation to other environmental protection laws: the Clean Water Act (which includes the Federal Water Pollution Control Act); the Solid Waste Disposal Act; the Marine Protection, Research, and Sanctuaries Act of 1972; the Safe Drinking Water Act; the Clean Air Act; the Atomic Energy Act of 1954; and state laws related to crude oil and natural gas. 42 U.S.C. § 9601(10).” *Clean Air Council v. United States Steel Corporation*, 2020 WL 2490023, at *2 (W.D. Pa. 2020), *aff’d*, 2 F.4th 112 (3d Cir. 2021), *on reh’g*, 4 F.4th 204 (3d Cir. 2021) and *reh’g* granted, judgment vacated, 3 F.4th 605 (3d Cir. 2021) and *aff’d*, 4 F.4th 204 (3d Cir. 2021).

²*See, e.g.*, *U.S. v. Washington State Dept. of Transp.*, 716 F. Supp. 2d 1009, 1016, 72 Env’t. Rep. Cas. (BNA) 1506 (W.D. Wash. 2010).

³*Clean Air Council v. United States Steel Corporation*, 2020 WL 2490023, at *2 (W.D. Pa. 2020), *aff’d*, 2 F.4th 112 (3d Cir. 2021), *on reh’g*, 4 F.4th 204 (3d Cir. 2021) and *reh’g* granted, judgment vacated, 3 F.4th 605 (3d Cir. 2021) and *aff’d*, 4 F.4th 204 (3d Cir. 2021).

⁴*Clean Air Council v. United States Steel Corporation*, 2020 WL 2490023, at *4 (W.D. Pa. 2020), *aff’d*, 2 F.4th 112 (3d Cir. 2021), *on reh’g*, 4 F.4th 204 (3d Cir. 2021) and *reh’g* granted, judgment vacated, 3 F.4th 605 (3d Cir. 2021) and *aff’d*, 4 F.4th 204 (3d Cir. 2021).

⁵*Clean Air Council v. United States Steel Corporation*, 2020 WL 2490023, at *4 (W.D. Pa. 2020), *aff’d*, 2 F.4th 112 (3d Cir. 2021), *on reh’g*, 4 F.4th 204 (3d Cir. 2021) and *reh’g* granted, judgment vacated, 3 F.4th 605 (3d Cir. 2021) and *aff’d*, 4 F.4th 204 (3d Cir. 2021).

§ 29:126 CERCLA Defenses

Significantly, CERCLA provides for the imposition of strict and retroactive liability, which can also be joint.¹ This was done because CERCLA's focus is on the cleanup of sites contaminated with hazardous waste. Defenses under CERCLA are limited to the following:

- (1) Acts of God;²
- (2) Acts of war;
- (3) “[A]n act or omission of a third party other than an employee or agent of the defendant, . . . if the defendant establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, . . . and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions”;³ or
- (4) Any combination of (1), (2), or (3).⁴

These defenses are generally unsuccessful. In the oil and gas context, for example, courts have denied the “act of war” defense to oil companies who released hazardous substances during wartime while acting at the Government’s direction.⁵

The petroleum exclusion has been characterized by courts as a “statutory exception” and not, technically speaking, an affirmative defense. This is true because the exclusion makes petroleum-related contamination “nonactionable for policy reasons even though such contamination might otherwise be actionable under CERCLA’s general definition of ‘hazardous material.’”⁶

In January of 2002, Congress enacted the Small Business Liability Relief and Brownfields Revitalization Act,⁷ which amended CERCLA to provide liability limitations for the following:

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¹42 U.S.C. § 9601(32) (“The terms ‘liable’ or ‘liability’ under this subchapter shall be construed to be the standard of liability which obtains under section 311 of the Federal Water Pollution Control Act”); *U.S. v. Alcan Aluminum Corp.*, 964 F.2d 252, 259, 35 Env’t. Rep. Cas. (BNA) 1073, 22 Env’tl. L. Rep. 21124 (3d Cir. 1992).

²CERCLA defines an “act of God” as “an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.” 42 U.S.C. § 9601(1). Courts have construed the “act of God” defense narrowly. *See U.S. v. M/V Santa Clara I*, 887 F. Supp. 825, 843, 41 Env’t. Rep. Cas. (BNA) 1101, 1996 A.M.C. 910, 26 Env’tl. L. Rep. 20264 (D.S.C. 1995) (“Even a poorly forecasted storm has been held under the Clean Water Act not to constitute an act of God because it was predicted and was avoidable.”); *U.S. v. Stringfellow*, 661 F. Supp. 1053, 1061, 17 Env’tl. L. Rep. 21134 (C.D. Cal. 1987) (“[T]he Court finds that the rains were not the kind of ‘exceptional’ natural phenomena to which the narrow act of God defense . . . applies. The rains were foreseeable . . . and any harm caused by the rain could have been prevented through design of proper drainage channels.”).

³42 U.S.C. § 9607(b)(3).

⁴42 U.S.C. § 9607(b)(4).

⁵*See U.S. v. Shell Oil Co.*, 294 F.3d 1045, 1061–62, 55 Env’t. Rep. Cas. (BNA) 1052, 32 Env’tl. L. Rep. 20783 (9th Cir. 2002).

⁶*Nixon-Egli Equipment Co. v. John A. Alexander Co.*, 949 F. Supp. 1435, 1443, 27 Env’tl. L. Rep. 20584 (C.D. Cal. 1996); *see further Morgan v. Exxon Corp.*, 869 So. 2d 446, 452, 159 O.G.R. 829 (Ala. 2003) (“we disagree with those cases that have required the defendant to prove the applicability of the petroleum exclusion”).

⁷Small Business Liability Relief and Brownfields Revitalization Act, Pub. L. No. 107-118, 115 Stat. 2356 (2002).

- (1) Bona fide prospective purchasers (BFPPs);⁸
- (2) Contiguous property owners (CPOs);⁹ or
- (3) Innocent landowners (ILOs).¹⁰

While an extensive discussion of these protections is beyond the scope of this chapter, parties who seek these protections are required to perform “all appropriate inquiries” into property before acquisition; and, for BFPPs and CPOs, must demonstrate no “affiliation” with a liable party.¹¹

There are also several common continuing obligations, as detailed by the EPA in a recent guidance memo entitled *Enforcement Discretion Guidance Regarding Statutory Criteria for Those Who May Qualify as CERCLA Bona Fide Prospective Purchasers, Contiguous Property Owners, or Innocent Landowners*:¹²

- “Demonstrating that no disposal of hazardous substances occurred at the facility after acquisition by the landowner (for BFPPs and ILOs);”
- “Complying with land use restrictions and not impeding the effectiveness or integrity of institutional controls”;
- “Taking ‘reasonable steps’ with respect to hazardous substance releases affecting a landowner’s property”;
- “Providing cooperation, assistance, and access to persons authorized to conduct response actions or natural resource restoration”;
- “Complying with information requests and administrative subpoenas (for BFPPs and CPOs);” and
- “Providing legally required notices (for BFPPs and CPOs).”¹³

One example of the attempted use of the innocent landowner defense in the context of petroleum contamination occurred in *Washington v. Time Oil Co.*¹⁴ There, the court held that the innocent landowner defense was not available where (1) contaminants found on the property “were found in amounts in excess of the amounts that would have occurred in petroleum during the oil refining process” and (2) other “substances found on the property would not have occurred due to the refining process.”¹⁵ Because of this, the petroleum exclusion could not effectively shield the defendant from liability.¹⁶

§ 29:127 Penalties for CERCLA violations

A liable party under CERCLA is responsible for all costs of response (cleanup and

⁸The BFPP, found in CERCLA § 107(r), protects a party from liability if the party acquires property after January 11, 2002 and meets the criteria in CERCLA §§ 101(40) and 107(r).

⁹CERCLA § 107(q).

¹⁰See CERCLA § 107(b)(3) and CERCLA § 101(35); Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. No. 99-499, 100 Stat. 1613 (1986).

¹¹Pub. L. No. 107-118, § 222(a)(B), (H).

¹²Memorandum from Susan Parker Bodine, EPA Assistant Administrator for Enforcement & Compliance, to Regional Counsels, Superfund National Program Managers (July 29, 2019), <https://www.epa.gov/sites/production/files/2019-08/documents/common-elements-guide-mem-2019.pdf>.

¹³Memorandum from Susan Parker Bodine, EPA Assistant Administrator for Enforcement & Compliance, to Regional Counsels, Superfund National Program Managers (July 29, 2019) at 2, <https://www.epa.gov/sites/production/files/2019-08/documents/common-elements-guide-mem-2019.pdf>.

¹⁴State of Wash. v. Time Oil Co., 687 F. Supp. 529, 531, 27 Env’t. Rep. Cas. (BNA) 2076, 18 Env’tl. L. Rep. 21376 (W.D. Wash. 1988).

¹⁵State of Wash. v. Time Oil Co., 687 F. Supp. 529, 531, 532, 27 Env’t. Rep. Cas. (BNA) 2076, 18 Env’tl. L. Rep. 21376 (W.D. Wash. 1988).

¹⁶State of Wash. v. Time Oil Co., 687 F. Supp. 529, 531, 27 Env’t. Rep. Cas. (BNA) 2076, 18 Env’tl. L. Rep. 21376 (W.D. Wash. 1988).

investigation) incurred by the United States, a State, or a Tribe “not inconsistent with the National Contingency Plan” (the CERCLA cleanup blueprint) or “necessary” costs of response incurred by any other person, to the extent affirmatively consistent with the NCP.¹ Additionally, defendants are responsible for natural resource damages (e.g., to wildlife, habitat, waters, etc.).²

CERCLA provides for a range of penalties for violations, which the EPA may adjust to account for inflation.³ If a liable party “fails without sufficient cause to properly provide removal or remedial action upon order of the President pursuant to section 9604 or 9606 of this title,” that party may be also held to be liable “for punitive damages in an amount at least equal to, and not more than three times, the amount of any costs incurred by the Fund as a result of such failure to take proper action.”⁴

In addition to significant fines, criminal penalties of three years imprisonment (up to five years for second or subsequent convictions), are possible for notification failures.⁵ Any person in charge of a facility or vessel who fails to immediately notify the appropriate agency of the U.S. Government as soon as that person became aware of the release into the environment of a hazardous substance in an amount equal to or greater than a reportable quantity without a federal permit may be subject to such penalties.⁶

§ 29:128 Conclusion

Given the potentially broad reach of CERCLA liability, which has been described as “a black hole that indiscriminately devours all who come near it,”⁷ parties in the oil and gas industries should be aware of the limits of the petroleum exclusion and reporting requirements applicable to specific situations.

F. CLEAN AIR ACT

§ 29:129 Generally

The federal Clean Air Act (CAA) imposes permitting (both preconstruction and operating) obligations and technical standard on oil and gas operations. States are often the primary regulator under the CAA, based on delegated authority from the U.S. Environmental Protection Agency (EPA). While states are only required to meet federal minimum standards, they have significant discretion in how they implement their programs and what limits they set. This can lead to dramatic differences in permitting and operational requirements applicable to the same oil and gas operations in different states. Permitting requirements also vary based on the emissions associated with a source. Typically, oil and gas operations are considered

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¹42 U.S.C. § 9607(4); *U.S. v. Chapman*, 146 F.3d 1166, 1170, 28 Env'tl. L. Rep. 21392 (9th Cir. 1998).

²42 U.S.C. § 9607(4)(C).

³*See* Civil Monetary Penalty Inflation Adjustment, 85 Fed. Reg. 83818 (Dec. 23, 2020) (to be codified at 40 C.F.R. § 19).

⁴42 U.S.C. § 9607(c)(3).

⁵42 U.S.C. § 9603(b); U.S. EPA, *Penalties for Failure to Report a Release*, <https://www.epa.gov/epcra/penalties-failure-report-release> (last visited June 29, 2021).

⁶42 U.S.C. § 9603(b); *Penalties for Failure to Report a Release*.

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⁷*Long Beach Unified School Dist. v. Dorothy B. Godwin California Living Trust*, 32 F.3d 1364, 1366, 93 Ed. Law Rep. 1163, 39 Env't. Rep. Cas. (BNA) 1065, 24 Env'tl. L. Rep. 21279 (9th Cir. 1994) (citation omitted).

“minor sources,” which qualifies them for more streamlined permits. The CAA also imposes requirements related to the accidental release of certain substances, but oil and gas operations are generally exempt from these requirements.

§ 29:130 Cooperative federalism under the Clean Air Act

The CAA is administered by the EPA, in coordination with state, local, and tribal governments. At the federal level, the EPA promulgates National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. Specifically, the NAAQS establish standards for six criteria pollutants (carbon monoxide, lead, nitrogen oxide, ozone, particulate matter, and sulfur dioxide) that must be met in all states.

Although EPA establishes federal standards, much of the implementation is left to the states. In fact, the CAA statute establishes that “air pollution prevention . . . is the primary responsibility of States and local governments.”¹ Accordingly, states have the ability to determine how to achieve those standards and meet the associated requirements within their own borders. As the U.S. Supreme Court noted shortly after the implementation of the CAA, provided that a state’s choice of emission limitations is compliant with the NAAQS, “the State is at liberty to adopt whatever mix of emission limitations it deems best suited to its particular situation.”²

States regulate air pollution within their borders by promulgating and enforcing State Implementation Plans or “SIPs.” A SIP is the overall body of regulations that governs air emissions in the state. In some cases, a tribal government will also implement its own body of regulations, referred to as a Tribal Implementation Plan or “TIP.” EPA has responsibility for reviewing and approving SIPs and TIPs that meet the NAAQS. If a state fails to submit a SIP or the SIP does not fully comply with the NAAQS, EPA will issue a federal implementation plan or “FIP” to ensure that the state complies with the relevant NAAQS. EPA may also develop FIPs for tribal lands if the tribe does not adopt its own implementation plan. Currently, EPA oversees a handful of FIPs spread across several states and tribal governments. For example, EPA administers a FIP for the Fort Berthold Indian Reservation that focuses on emissions from upstream oil and gas operations. This FIP establishes requirements to reduce emissions of volatile organic compounds (VOCs) from well completions, recompletions, and production and storage operations.³

§ 29:131 Preconstruction Permitting

The CAA requires operators to obtain a preconstruction permit before commencing construction or operation of a source as part of New Source Review (NSR) permitting. NSR permitting falls into one of three categories: (1) prevention of significant deterioration (PSD) permitting for construction of a “major source” or “major modification” within an area that meets all NAAQS; (2) nonattainment NSR permitting for construction of “major sources” or “major modifications” in areas that do not meet all NAAQS; and (3) minor NSR permitting for those sources that do not trigger PSD or nonattainment NSR permitting (*i.e.*, for sources or modifications that do not meet the “major” thresholds). In the oil and gas segment, operators are required to permit emissions from air emitting equipment associated with their activities, including but not limited to storage tanks, engines, flares and other

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¹42 U.S.C. § 7401(a)(3).

²*Train v. Natural Resources Defense Council, Inc.*, 421 U.S. 60, 79, 95 S. Ct. 1470, 43 L. Ed. 2d 731, 7 Env’t. Rep. Cas. (BNA) 1735, 5 Env’tl. L. Rep. 20264 (1975).

³*See* 40 C.F.R. § 49.4161 (2021).

combustion devices, compressors, and heater treaters.

EPA's regulations establish the federal NSR permitting requirements and set the minimum requirements for state permitting programs to receive approval under the state SIP. States or tribes may assume delegation of NSR permitting pursuant to their SIP or TIP. Once a state or tribe receives delegation, it takes responsibility for issuing preconstruction permits. At that point, the state or tribe may implement its own unique (and sometimes more stringent) permitting requirements, provided they meet EPA's basic requirements. If the state or tribe fails to develop a SIP or TIP that establishes delegation of NSR permitting, EPA retains responsibility for permitting. EPA currently has authority to issue nonattainment, PSD, and minor NSR permits on tribal lands.¹

For PSD permitting, a "major source" generally refers to new facilities that have the potential to emit 250 tons per year (tpy) or more of a pollutant. EPA regulations establish a major source threshold of 100 tpy for 28 named sources, with 250 tpy the relevant threshold for unnamed sources.² Although the 28 named sources include petroleum refineries and certain petroleum storage and transfer units, they do not cover typical upstream oil and gas operations. Accordingly, the 250 tpy threshold is relevant for oil and gas operations.

A "major modification" is a physical change or change in the method of operation at a major stationary source that results in a net significant increase in criteria emissions above defined modification thresholds.³ The thresholds for a major modification vary from 0.6 tpy to 100 tpy based on the pollutant.⁴

New major sources and major modifications in nonattainment areas (those that do not meet all NAAQS) are subject to a similar permitting program. However, the thresholds for what constitutes a major source and major modifications are lower than the thresholds applicable to PSD permitting.⁵

Both PSD and nonattainment NSR permitting processes require a Best Available Control Technology (BACT) evaluation.⁶ For PSD permitting, this requires a case-by-case analysis of the available control technologies for the pollutant and the source. These control technologies are ranked by effectiveness, but technologies that are technically infeasible or economically unreasonable may be excluded.⁷ In contrast, the BACT review for nonattainment NSR permitting is subject to a heightened standard that does not consider costs.⁸

Finally, minor NSR permitting applies when a source does not meet the major source or major modification thresholds of PSD and nonattainment NSR permitting. States take a variety of approaches to minor NSR permitting. However, in some cases, states have established a one-size approach for these minor sources, rather than requiring an individual case-by-case permit. For example, Texas allows operators to claim a permit by rule (PBR) for certain facilities that have emissions below

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¹See 76 Fed. Reg. 38748, 38753 (July 1, 2011).

²40 C.F.R. § 51.166(b)(1)(i) (2021).

³40 C.F.R. § 51.166(b)(2)(i) (2021).

⁴40 C.F.R. § 51.166(b)(23)(i) (2021).

⁵40 C.F.R. § 51.165(a)(iv)(A) (2021).

⁶See U.S. EPA, *New Source Review Workshop Manual*, <https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf> (last visited June 25, 2021).

⁷U.S. EPA, *New Source Review Workshop Manual*, <https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf> (last visited June 25, 2021).

⁸U.S. EPA, *New Source Review Workshop Manual*, <https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf> (last visited June 25, 2021).

25 tpy of VOCs and can satisfy a suite of other requirements.⁹ Operators can claim PBRs for oil and gas production facilities, temporary oil and gas facilities, flares, and other upstream oil and gas operations or equipment. Similarly, operators may permit oil and gas minor sources in New Mexico using a general construction permit for oil and gas facilities, which is available for sources with VOC emissions below 95 tpy.¹⁰

Preconstruction permits must generally be obtained prior to construction and startup of oil and gas facilities. However, oil and gas exploration and production activities can present unique issues related to estimating emissions for permit applications. In contrast to those sources with generally consistent emissions as part of normal operations, production rates and the resulting emissions from wells often dramatically decline following startup. As a result, operators may not be able to precisely estimate annual emissions until after the startup of an oil or gas well. To address this relative uncertainty, states have established permitting programs that allow operators to secure preconstruction authorization based on initial estimates that they can then refine based on actual production data. For example, minor source wells in North Dakota's Bakken Pool may submit a well registration rather than a preconstruction permit.¹¹ The well registration is not required to be submitted until 90 days following the first date of production, which gives the operator time to develop more accurate emissions estimates based on the first month of production activity. At the same time, the registration requires the operator to establish enforceable emissions limitations and commit to certain emission control requirements.

§ 29:132 Title V Permitting

Title V of the CAA establishes the requirement for operating permits. These operating permits (referred to as Title V Permits) are designed to consolidate all applicable air quality requirements—both emissions limits and monitoring methods for demonstrating compliance with those limits—into one permit. All sources with the potential to emit 100 tpy or more of a regulated pollutant or combination of pollutants are required to obtain a Title V permit.¹ Title V permits are generally issued by delegated state authorities. However, as with other permits and air quality regulations, EPA implements a federal program if the state fails to do so. All operators with Title V permits must submit a deviation report identifying noncompliance with the many terms of the permit every six months and submit an annual certification of their compliance with the conditions of the permit.²

§ 29:133 Technology-Based Standards

The CAA also requires that EPA develop technology-based standards for specific categories of stationary sources. These New Source Performance Standards (NSPS) apply to new, modified, and reconstructed facilities. One example within upstream

⁹See 30 T.A.C. § 106.4(a).

¹⁰See N.M. Env't Dep't, *Air Quality Bureau General Construction Permit for Oil and Gas Facilities GCP-Oil & Gas* (Apr. 27, 2018), <https://www.env.nm.gov/wp-content/uploads/sites/2/2018/06/GCP-Oil-Gas-Final-002.pdf>.

¹¹See N.D. Dep't of Health, *Bakken Pool Oil and Gas Production Facilities Air Pollution Control Permitting & Compliance Guidance* (May 2, 2011), available at https://deq.nd.gov/publications/AQ/policy/PC/20110502_OilGas_Permitting_Guidance.pdf.

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¹42 U.S.C. § 7661(2).

²See Tex. Comm'n on Env't Quality, *Title V Deviation Reporting and Compliance Certification*, at 2 (Nov. 2012).

operations is NSPS OOOOa. The NSPS OOOOa standard applies EPA’s “best system of emissions reduction” for reducing emissions of greenhouse gases and VOCs across a number of emissions sources in the oil and natural gas source category, including wells, compressors, pneumatic controllers, storage vessels, and collections of fugitive components.¹ This includes the use of reduced emission completions and completion combustion devices for well completion operations and semiannual monitoring and repairs for fugitive emissions from well sites and compressor stations.²

States may also impose technology-based standards for new sources through the BACT analysis discussed above. In addition, the CAA requires that SIPs for nonattainment areas include reasonably available control technology (RACT) requirements for existing sources.³ RACT is the “lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility.”⁴ States and tribal authorities make their own determination as to what constitutes RACT for a specific source category. As is often the case with state implementation, states will sometimes impose more stringent requirements than the federal equivalent. For example, Colorado’s Regulation 7 imposes control requirements for VOC emissions that are more stringent than those found in NSPS OOOOa.⁵

§ 29:134 Greenhouse Gas Regulation

In addition to technology-based standards, EPA requires annual greenhouse gas emission reporting under NSPS Subpart W. Pursuant to NSPS Subpart W, owners and operators of onshore and offshore oil and gas operations must report data concerning their greenhouse gas emissions for production, processing, transmission, and distribution facilities.¹ The emissions estimates must include emissions from equipment leaks identified during leak inspections that track those required under NSPS OOOOa.²

President Biden’s stated commitment to addressing climate change and the country’s reentry into the Paris Agreement (an international agreement focused on reducing climate change), will likely spur new regulatory initiatives by the EPA. In addition, individual states have recently taken steps to advance greenhouse gas regulation from oil and gas activities. For example, in January 2019, the governor of New Mexico signed an executive order that includes a goal of reducing statewide greenhouse emissions by at least 45% by 2030 and directed the state environmental and oil and gas regulatory agencies to jointly develop a statewide, enforceable regulatory framework to secure reductions in oil and gas sector methane emissions.

§ 29:135 Risk management plan

Section 112(r) of the CAA requires that EPA establish regulations to prevent the accidental release and minimize the consequence of the release of certain listed sub-

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¹81 Fed. Reg. 35824, 35825 (June 3, 2016).

²81 Fed. Reg. 35824, 35825 (June 3, 2016).

³42 U.S.C. § 7502(c)(1).

⁴See 44 Fed. Reg. 53761, 53762 (Sept. 17, 1979).

⁵See 5 C.C.R. 1001-9 (2021).

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¹See 40 C.F.R. § 98.231 (2021).

²40 C.F.R. § 98.234 (2021).

stances and other extremely hazardous substances.¹ To effectuate this mandate, EPA's risk management plan (RMP) regulations at 40 C.F.R. Part 68 establish requirements for operators to develop and implement a risk management program if they have any processes at their facilities that meet or exceed certain threshold quantities of flammable or toxic chemicals. Facilities must submit a facility-specific RMP and revise the RMP every five years.² This submittal includes assessments of offsite consequences, potential worst-case releases, accident history, release prevention, and emergency planning.³ Facilities are also subject to additional requirements depending on their program level, which is assessed based on the level of risk associated with their processes.⁴ However, as discussed in more detail in Section 29:172 below, upstream oil and gas operations are generally excluded from RMP regulation under an exemption for naturally occurring hydrocarbons.

In addition to EPA's RMP regulations, § 112(r) of the CAA establishes a general duty, often referred to as the "general duty clause." The provision states that "owners and operators of stationary sources producing, processing, handling or storing such substances have a general duty in the same manner and to the same extent as section 654 of title 29 to identify hazards which may result from such releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur."⁵ EPA has taken the position that the general duty clause applies to any facility that uses a regulated substance or other extremely hazardous substance in "any amount."⁶ In other words, even a facility with less than a threshold quantity of a flammable substance or toxic chemical that is otherwise excluded from the RMP regulations can be cited for a violation of the general duty clause. EPA often uses this general duty clause as the basis for enforcement actions following industrial incidents.

§ 29:136 Enforcement

The CAA also provides robust authority for EPA to take enforcement action against any person who violates CAA requirements. EPA may seek administrative, civil, or criminal penalties, the cost of which can be substantial. Although the CAA sets statutory maximum civil and administrative penalties of up to \$25,000 per violation per day, this amount has been increased over the years to adjust for inflation.¹ Currently, EPA can seek up to \$48,762 per day in administrative penalties and up to \$102,638 per day in civil penalties.²

In some cases, the injunctive relief associated with a CAA enforcement action can be more costly than the penalties themselves. In recent years, EPA has imposed broad injunctive obligations for upstream and midstream oil and gas operations. For example, in 2015 and the years following, EPA entered several consent decrees with exploration and production companies addressing alleged violations associated with

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¹42 U.S.C. § 7412(r).

²40 C.F.R. § 68.12 (2021).

³40 C.F.R. § 68.12 (2021).

⁴40 C.F.R. § 68.12 (2021).

⁵42 U.S.C. § 7412(r).

⁶See U.S. EPA, *The General Duty Clause Fact Sheet*, at 2 (April 2020), <https://www.epa.gov/sites/production/files/2013-10/documents/gdc-fact.pdf>.

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¹42 U.S.C. § 7413(b).

²See 85 Fed. Reg. 83818, 83821 (Dec. 23, 2020).

emissions from storage tanks and vapor control systems. In addition to imposing millions of dollars in civil penalties and mitigation projects, these consent decrees also required operators to complete extensive engineering evaluations, third-party audits, inspections, and modifications to vapor control systems across thousands of tank batteries. EPA has also targeted midstream operations, with a focus on pigging operations in recent years. In 2018, EPA entered a consent decree with one operator that imposed over \$600,000 in civil penalties and required injunctive relief (valued at approximately \$2.6 million according to EPA's estimates) aimed at reducing emissions associated with pigging operations for compressor stations and stand-alone facilities in a natural gas gathering system.

§ 29:137 Carbon sequestration

In the wake of the Paris Agreement and continued focus on the impact of greenhouse gases from industry, including oil and gas operations, both public and private interests are looking more closely at carbon sequestration technologies. Carbon sequestration involves capturing carbon dioxide from emitting activities (power plants and other large industrial sources) and permanently storing it, typically via injection into deep subsurface formations. These subsurface formations can include depleted oil and gas reservoirs. For example, Texas statutes establish jurisdiction for the Railroad Commission of Texas—the state's primary oil and gas regulator—over wells used for the injection of carbon dioxide into a reservoir that is initially or may be productive of oil and gas.¹

Utilization of carbon sequestration in the U.S. is still in the early stages, but there have been recent initiatives to deploy carbon sequestration at scale. In 2010, EPA issued a rule establishing minimum requirements for all aspects of the injection process for carbon sequestration as part of the Safe Drinking Water Act's Underground Injection Control (UIC) program.² These requirements covered permitting, geologic site characterization, well construction, operation, mechanical integrity testing, plugging, and site closure.³ Although the rule was primarily designed to protect drinking water resources, EPA's statements at the time it published the rules identified the potential benefits of carbon sequestration. Specifically, EPA noted that although carbon sequestration "is occurring now on a relatively small scale, it could play a larger role in mitigating greenhouse gas (GHG) emissions from a wide variety of stationary sources" and "even if only a fraction of [the US] geologic capacity is used, [carbon sequestration] would play a sizeable role in mitigating US GHG emissions."⁴ To date, there have been only six carbon sequestration well permits issued and only two wells exist. But tax credit incentives, government-funded research, an increase in corporate commitments to carbon neutrality, and anticipated market opportunities have converged to create a recent surge in interest in carbon sequestration projects.

In 2017, Secretary of Energy Rick Perry requested that the National Petroleum Council (NPC) provide advice concerning carbon capture, use, and storage (CCUS).⁵ In response, the NPC released a report in late 2019 that determined the US is "uniquely positioned" and has "substantial capability" to drive widespread deploy-

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¹See Tex. Water Code § 27.041.

²75 Fed. Reg. 77230, 77233 (Dec. 10, 2010).

³75 Fed. Reg. 77230, 77233 (Dec. 10, 2010).

⁴75 Fed. Reg. 77234 (Dec. 10, 2010).

⁵Nat'l Petroleum Council, *Meeting the Dual Challenge a Roadmap to At-Scale Deployment of Carbon Capture, Use, and Storage*, at 1-2 (2019), <https://dualchallenge.npc.org/> (last visited June 28, 2021).

ment of CCUS technology.⁶ The NPC determined that the expansion potential for CCUS depends in part on improving financial incentives and further developing the regulatory framework.⁷

G. OIL POLLUTION ACT

§ 29:138 Introduction

The Oil Pollution Act (OPA)¹ was enacted in 1990 in response to the *Exxon Valdez* oil spill in Prince William Sound, Alaska.² OPA imposes strict and limited liability on the owners and operators of vessels, oil producing and handling facilities, and pipelines for discharges or substantial threats of discharges of oil into navigable waters, adjoining shorelines, and the exclusive economic zone.³ “Oil” is defined as “oil of any kind or in any form, including petroleum [and] fuel oil,” but exclusive of listed or designated hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).⁴ Prior to the enactment of OPA, federal liability for marine oil spills was governed by the Clean Water Act (CWA).

§ 29:139 *Exxon Valdez*

On March 24, 1989, the crude oil tank vessel *Exxon Valdez* ran aground on the Bligh Reef in Prince William Sound, Alaska. The *Exxon Valdez* carried over one million barrels of crude oil, supplied from the Trans-Alaska Pipeline connected to producing fields in Alaska’s North Slope, and bound for refineries on the West Coast.¹ The single-hulled vessel was breached, causing a release of over 260,000 barrels of crude which, at the time, was the largest oil spill in U.S. history. After extensive cleanup efforts in the unique ecosystem of the Sound, images of which remain indelible to practitioners and the public alike over 30 years later, Exxon was eventually liable for \$2.1 billion in restitution and other fines. This included \$125 million in fines under the CWA and hundreds of million more under a consent decree with the United States and the State of Alaska.²

Just a few months later, the Senate Environment and Public Works Committee approved the bill that would become OPA,³ finding that the *Exxon Valdez* spill, as well as three other significant spills across the lower-48 in the same year, “have demonstrated that oil pollution from accidental tanker spills is a real and continuing threat to the public health and welfare and the environment. The disaster

⁶Nat’l Petroleum Council, *Meeting the Dual Challenge a Roadmap to At-Scale Deployment of Carbon Capture, Use, and Storage*, at 8 (2019), <https://dualchallenge.npc.org/> (last visited June 28, 2021).

⁷Nat’l Petroleum Council, *Meeting the Dual Challenge a Roadmap to At-Scale Deployment of Carbon Capture, Use, and Storage*, at 8 (2019), <https://dualchallenge.npc.org/> (last visited June 28, 2021).

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¹33 U.S.C. §§ 2701 to 2762.

²While the incident was a major precipitating event, commentators have observed that OPA “is actually the product of nearly 20 years of Congressional debate on oil pollution liability and tanker safety.” GOV’T INSTITUTES, ENV’T L LAW HANDBOOK 222 (12th ed. 1993).

³33 U.S.C. §§ 2702(a), 2701(32)(A) to (F).

⁴42 U.S.C. §§ 9601 et seq.

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¹*Exxon Shipping Co. v. Baker*, 554 U.S. 471, 476, 128 S. Ct. 2605, 171 L. Ed. 2d 570, 66 Env’t. Rep. Cas. (BNA) 1545, 2008 A.M.C. 1521 (2008); DAVID LEBEDOFF, *CLEANING UP 1* (Free Press 1997).

²*Exxon Shipping Co. v. Baker*, 554 U.S. at 479.

³S. 686, 101st Cong. (1989).

caused by the nation's largest oil spill in Prince William Sound was exacerbated greatly by an unreasonably slow, confused and inadequate response by industry and government that failed miserably in containing the spill and preventing damage.”⁴

§ 29:140 Liability

OPA imposes strict liability on a “responsible party” for removal costs and damages resulting from a release or threatened release. A “responsible party” is generally the owner or operator of a vessel, facility, or pipeline. Multiple responsible parties (e.g., the owner and charterer of a vessel) may be jointly and severally liable.¹ Responsible parties are liable for removal costs, including costs incurred by federal, state, and tribal governments.² Responsible parties are also liable for natural resource damages, damages to property, and loss of profits and earning capacity, among other costs.³

In circumstances not involving gross negligence, willful misconduct, violation of federal regulation, or failure to report or assist with a spill,⁴ OPA liability is limited based on the type of facility from which the discharge occurs. Statutory liability for discharges from tank vessels is limited to the greater of \$1,900 per gross ton, or \$4 million for vessels 3,000 gross tons or smaller or \$16 million for larger vessels.⁵ For discharges from offshore facilities (such as offshore oil wells), excluding deepwater ports, the limit is \$75 million plus removal costs.⁶ For discharges from onshore facilities (such as refineries and pipelines) and deepwater ports, liability is limited to \$350 million.⁷ For discharges from mobile offshore drilling units (MODUs), the limits for vessels apply, unless removal costs and damages exceed the applicable vessel liability limits, in which case the offshore facility limits apply.⁸

OPA gives the president the ability to adjust liability limits for every type of facility discharge except discharges from vessels,⁹ but he or she shall adjust limits for all facility spills to reflect increases in the Consumer Price Index.¹⁰ And unlike the pre-OPA CWA framework applicable to oil spills, “any person,” not just the federal government, can recover costs and damages from responsible parties.¹¹

Responsible parties can assert certain defenses to liability. OPA provides three complete statutory defenses that a responsible party may assert: an act of God, act of war, and act or omission of a third party other than the responsible party's em-

⁴S. Rep. No. 101-94, at 2 (1989).

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¹See GOV'T INSTITUTES, ENV'T'L LAW HANDBOOK, Twelfth Ed. 225.

²33 U.S.C. § 2702(b)(1).

³33 U.S.C. § 2702(b)(2).

⁴33 U.S.C. § 2704(c)(1) to (2).

⁵33 U.S.C. §§ 2704(a)(1)(B), (C)(ii)(II), (C)(i)(II). Higher limits exist for single-hull tank vessels, like *Exxon Valdez*, but OPA directed that single-hull tank vessels be phased out by 2015. 46 U.S.C. § 3703a(c)(4).

⁶33 U.S.C. § 2704(a)(3).

⁷33 U.S.C. § 2704(a)(4).

⁸33 U.S.C. § 2704(b).

⁹33 U.S.C. § 2704(d).

¹⁰33 U.S.C. § 2704(d)(4). These limits have been adjusted several times. See, e.g., Consumer Price Index Adjustments of Oil Pollution Act of 1990 Limits of Liability—Vessels, Deepwater Ports and Onshore Facilities, 84 Fed. Reg. 39970 (Aug. 13, 2019).

¹¹33 U.S.C. § 2702(b)(1)(B). Under the CWA, only the Federal government could recover removal costs. CONG. RESEARCH SERV., OIL POLLUTION ACT OF 1990 (OPA): LIABILITY OF RESPONSIBLE PARTIES 1 (June 2, 2010).

ployee or agent.¹² A fourth defense is also available with respect to particular claimants who can be shown to have caused a discharge through their own gross negligence or willful misconduct.¹³ While facts will vary from incident to incident, as a general matter, these defenses can be fairly limited. For example, as a statutory threshold to asserting any of the complete defenses, a responsible party must have complied with other obligations under OPA, including release reporting requirements, compliance with removal orders, and compliance and assistance with cleanup efforts.¹⁴ In addition, third party liability cannot be asserted as a defense if the third party's act or omission occurred in connection with a contractual relationship with a responsible party,¹⁵ or if the responsible party failed to exercise due care or failed to take precautions as to foreseeable actions by the third party.¹⁶

Importantly, OPA's liability limits do not preempt state laws regarding oil spill liability or financial responsibility.¹⁷ Responsible parties can therefore be liable under both OPA and state law equivalents for the same discharge.

§ 29:141 Oil Spill Response

OPA amended existing provisions in the CWA regarding the National Contingency Plan (NCP) and individual facility oil spill response plans.¹ The NCP, overseen and implemented by the U.S. Environmental Protection Agency and the U.S. Coast Guard, is a comprehensive plan for oil spill response and removal that divides response efforts into nationwide regional teams and coordinates efforts among 16 federal agencies. Individual response efforts are led by a single designated Federal On-Scene Coordinator.²

Vessels and onshore and offshore oil facilities are also required to prepare and maintain individual facility oil spill response plans that are consistent with the NCP.³ For example, tank vessel spill response plans must include a list of contacts, shore-based response activities, training and exercise procedures, and plan review and update procedures.⁴ Responsible parties may not assert acts in accordance with individual spill response plans as a defense to OPA liability.⁵

OPA also firmly established the Oil Spill Liability Trust Fund (OSLTF) by fully funding and authorizing expenditures from a fund established by Congress (but never used) in 1986.⁶ The OSLTF is available to pay removal costs incurred by governments and uncompensated damages claims,⁷ up to a limit of \$1 billion per incident.⁸ The primary source of funding for the OSLTF is a per-barrel tax imposed

¹²33 U.S.C. § 2703(a)(1) to (3).

¹³33 U.S.C. § 2703(b).

¹⁴33 U.S.C. § 2703(c).

¹⁵33 U.S.C. § 2703(a)(3)(A). This requirement does not apply to releases of oil transported by rail.

¹⁶33 U.S.C. § 2703(a)(3)(A).

¹⁷33 U.S.C. §§ 2718(a), 2719.

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¹33 U.S.C. § 1321(j).

²AMER. PETROLEUM INST., "OIL SPILL RESPONSE PLANNING," available at <https://www.oilspillprevention.org/oil-spill-preparedness/oil-spill-response-planning>. See also 40 C.F.R. pt. 300 (2021).

³33 U.S.C. § 1321(j)(5).

⁴33 C.F.R. § 155.1030 (2021).

⁵33 U.S.C. § 1321(j)(5)(H).

⁶26 U.S.C. § 9509; 33 U.S.C. §§ 2701(11), 2712.

⁷33 U.S.C. § 2712(a)(1) to (4).

⁸26 U.S.C. § 9509(c)(2)(A).

on crude oil imported into, exported from, or consumed in the United States.⁹ The OSLTF can also recover removal costs from responsible parties.¹⁰ Between FY2007 and FY2018, appropriations from the OSLTF totaled \$3.37 billion. In addition to excise tax receipts, the OSLTF collected \$2.13 billion from OPA fines and penalties and \$1.28 billion in other cost recovery.¹¹ This includes \$2.1 billion collected following the *Deepwater Horizon* incident, which is expected to generate an additional \$76 million in receipts through 2031.¹²

§ 29:142 *Deepwater Horizon*

On April 20, 2010, the MODU *Deepwater Horizon*, owned by Transocean Ltd., experienced a loss of well control while operating above BP's Macondo offshore oil well in the U.S. Gulf of Mexico, resulting in an explosion and fire aboard the dynamically-positioned drilling vessel. The vessel eventually sank, laden with nearly 700,000 gallons of diesel fuel, and causing a subsea release of more than 4 million barrels of crude oil from the Macondo well¹ that was not brought under control for 87 days after the subsea blowout preventer failed to stop the flow of oil from the well.² It was the largest oil spill by volume in U.S. history.

In ensuing Multi-District Litigation, involving hundreds of claimants and consolidated in the Eastern District of Louisiana, the Court found that both BP and Transocean were responsible parties under OPA. With respect to the subsurface discharge of oil from the Macondo well, BP was the responsible party because the Court found that the MODU was operating as an "offshore facility" at the time of the discharge, in which case OPA defines the offshore lessee as the responsible party.³ Transocean was also found to be a responsible party for removal costs as an "operator" of an offshore facility.⁴ The Court apportioned OPA's joint and several liability in the amounts of 67% to BP and 30% to Transocean.⁵ In addition, the Court found that OPA's liability limits did not apply on grounds that failures in well construction violated applicable federal regulations.⁶

While the previous largest U.S. oil spill, *Exxon Valdez*, spurred the enactment of

⁹26 U.S.C. § 4611(a) to (b).

¹⁰33 U.S.C. § 2715(c).

¹¹CONG. RESEARCH SERV., THE OIL SPILL LIABILITY TRUST FUND TAX: BACKGROUND AND REAUTHORIZATION ISSUES IN THE 116TH CONGRESS 2 (April 3, 2019).

¹²CONG. RESEARCH SERV., THE OIL SPILL LIABILITY TRUST FUND TAX: BACKGROUND AND REAUTHORIZATION ISSUES IN THE 116TH CONGRESS 2 (April 3, 2019).

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¹NAT'L COMM'N ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, "DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING" (2011), at 130, 1.

²In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d 657, 667, 2014 A.M.C. 2113 (E.D. La. 2014). Judge Barbier's opinion provides an excellent and concise description of the complex technical facts that led to the blowout and explosion.

³In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d 657, 754 and n.283, 2014 A.M.C. 2113 (E.D. La. 2014). BP was also subject to enhanced civil penalties under the CWA for gross negligence and willful misconduct. In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d 657, 754, 757 and n.283, 2014 A.M.C. 2113 (E.D. La. 2014).

⁴In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d 657, 756, 2014 A.M.C. 2113 (E.D. La. 2014); 33 U.S.C. § 2704(c)(3).

⁵In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d 657, 757, 2014 A.M.C. 2113 (E.D. La. 2014). The remaining 3% was assigned to Halliburton, a contractor providing cementing services at the Macondo well, under general maritime law. In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d 657, 757, 2014 A.M.C. 2113 (E.D. La. 2014).

⁶In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F. Supp. 3d

OPA, the *Deepwater Horizon* incident did not result in major changes to federal statutes. But it did precipitate major changes in other areas, including the reorganization of Department of the Interior (DOI) agencies responsible for offshore oil and gas operations,⁷ as well as the creation of industry-led safety initiatives such as the Helix Well Containment Group and the Center for Offshore Safety. These changes were intended to separate revenue collection and industry regulation functions in federal oversight, and to augment industry's ability to prevent and respond to major offshore spill incidents.

§ 29:143 Other Major U.S. Oil Spill Incidents

- ***Santa Barbara Oil Spill.*** Prior to the *Deepwater Horizon* incident, the largest offshore oil spill incident in the U.S. occurred offshore California in 1969. A Union Oil platform in the Santa Barbara channel experienced a blowout that released at least 80,000 barrels of crude. While the blowout preventer functioned as intended, unlike during the *Deepwater Horizon* incident, crude continued to flow through fissures in the seabed as a result of the well being permitted at a shallower than typical depth.¹ Like *Deepwater Horizon*, no major statutory changes specific to oil spills were enacted in the immediate wake of the incident, but the spill and resulting images of slicks along beaches catalyzed significant changes in offshore oil regulation, including a temporary offshore drilling moratorium and enactment of new offshore regulations.² The incident may also have contributed to Congressional action in the form of the National Environmental Policy Act, enacted in 1970.³
- ***Athos I.*** In 2004, the tank vessel *Athos I* was laden with heavy Venezuelan crude oil when it struck an abandoned and uncharted anchor in the Delaware River en route to a refinery in Paulsboro, New Jersey.⁴ The anchor punctured the single-hulled vessel, resulting in a discharge of over 6,000 barrels of crude into the river. While the owner of the *Athos I* was found to be the responsible party and subject to OPA's liability limits, the U.S. Supreme Court was asked to resolve a related contract dispute regarding the scope of a "safe berth" provision in the vessel's charter agreement and whether the presence of the anchor in the river affected its application. The Court found that the safe berth provision imposed a warranty of safety, which shifted contractual liability to the

657, 754-55, 2014 A.M.C. 2113 (E.D. La. 2014); 33 U.S.C. § 2704(c)(1)(B); 30 C.F.R. § 250.420(a)(2) (2021) (Department of the Interior regulation regarding cementing and casing of offshore wells).

⁷Pre-Macondo, the Minerals Management Service ("MMS") was responsible for offshore permitting, safety, and collection of royalty revenue. Following the incident, MMS was reorganized as the Bureau of Ocean Energy Management, Regulation, and Enforcement; and, later, as the Bureau of Ocean Energy Management (responsible for permitting), the Bureau of Safety and Environmental Enforcement (responsible for operations), and the Office of Natural Resources Revenue (responsible for royalty collection).

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¹NAT'L COMM'N ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, "DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING" (2011), at 28-29.

²NAT'L COMM'N ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, "DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING" (2011), at 29. A drilling moratorium in the Gulf of Mexico was also temporarily imposed by DOI immediately after the *Deepwater Horizon* blowout, but the moratorium was enjoined by a federal court as violative of the Administrative Procedure Act. *Hornbeck Offshore Services, L.L.C. v. Salazar*, 696 F. Supp. 2d 627, 72 Env't. Rep. Cas. (BNA) 1601, 177 O.G.R. 399 (E.D. La. 2010).

³NAT'L COMM'N ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, "DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING" (2011), at 29.

⁴*CITGO Asphalt Refining Company v. Frescati Shipping Company, Ltd.*, 140 S. Ct. 1081, 1085, 206 L. Ed. 2d 391 (2020).

refinery for failure to scan for and warn the *Athos I* about the presence of the anchor.⁵ The dispute revealed another seam in OPA's ostensibly clear liability scheme.

- **Cosco Busan.** In late 2007, the cargo vessel *Cosco Busan* allided with the Bay Bridge, causing a discharge of over 1,000 barrels of bunker fuel into the San Francisco Bay. The owner of the *Cosco Busan* was the responsible party under OPA, but argued that it was not liable for cleanup and removal costs because the government had failed to comply with all of OPA's claim presentment requirements.⁶ The Court concluded this argument was foreclosed by OPA's plain language, which provides that claims for removal "may be commenced . . . at any time."⁷ This reading was found to further OPA's major purpose of allowing the government to "recover removal and cleanup costs [with] greater flexibility . . . than individuals seeking damages."⁸ Because OPA is primarily concerned with expedient and economically efficient environmental remediation, mere technical deficiencies in claims presentment will not foreclose cost recovery.

§ 29:144 State law

Because OPA does not preempt state laws on oil spill liability, standards for liability and the types of parties that can be held liable vary widely from state to state. Some states impose strict liability on even "passive" parties to a discharge incident, such as holders of title to oil cargoes transported by vessel.¹ Any party with even limited interests in physical oil or means of transportation of oil should therefore carefully vet any applicable state laws to understand potential liability in the event of a release.

H. TOXIC SUBSTANCES CONTROL ACT—APPLICATION TO OIL AND GAS OPERATIONS

§ 29:145 Introduction

This section discusses the application of the Toxic Substances Control Act (TSCA)¹ to oil and gas operations. Specifically, this chapter will briefly discuss the three TSCA Sections that are most applicable to the oil and gas industry: chemical data reporting under Section 8, pre-manufacturer notices and significant new use rules under Section 5, and testing requirements under Section 4. For each of these Sections, this part of the chapter analyzes the potential impacts on upstream oil and gas exploration and production, downstream processing and refining, and drilling and service providers.

Generally, upstream oil and gas production facilities will have few obligations under TSCA unless they are importing chemicals for use in fracking or enhanced oil recovery operations. Downstream processors and refineries are not exempt; they will have limited reporting obligations under Section 8 and are subject to Section 5

⁵CITGO Asphalt Refining Company v. Frescati Shipping Company, Ltd., 140 S. Ct. 1081, 1087, 206 L. Ed. 2d 391 (2020).

⁶U.S. v. M/V COSCO BUSAN, 557 F. Supp. 2d 1058, 1059–60, 2008 A.M.C. 1360 (N.D. Cal. 2008).

⁷33 U.S.C. § 2717(f)(2).

⁸U.S. v. M/V COSCO BUSAN, 557 F. Supp. 2d 1058, 1061, 2008 A.M.C. 1360 (N.D. Cal. 2008).

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¹See, e.g., Md. Env'tl Code § 4-401(j)(1)(i) (persons responsible for discharges include "[t]he owner of the discharged oil[.]").

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¹15 U.S.C. §§ 2601 et seq.

and Section 4 of TSCA. Well drilling and service providers may also be subject to TSCA if they manufacture or import chemicals. With the recent change in the presidential administration as of publication, there also exists the possibility that the use of fracking chemicals may come under greater scrutiny. This could lead to additional reporting or testing obligations and potential restrictions on the use of such chemicals.

§ 29:146 The Toxic Substances Control Act

Following World War II, commercial production of industrial chemicals remained largely unregulated despite having become pervasive in agriculture, manufacturing, mining, construction, and consumer products.¹ The first major piece of legislation regulating industrial chemicals was enacted by Congress in 1976 under the Toxic Substances Control Act.² The purpose of TSCA was to empower the Environmental Protection Agency (EPA) to evaluate the potential risks of new and existing chemicals and to find ways to prevent or reduce pollution caused by these chemicals before they can enter the environment.

Despite its substantial policy goals, the original TSCA was, for the most part, a chemical recording and notification act. Following its enactment, the EPA compiled an inventory of 62,000 industrial chemicals then in use. These chemicals, including many naturally occurring and petroleum stream chemicals discussed below, were grandfathered into commercial use and assumed to be safe.³ However, the EPA's ability to assess the risks of these existing chemicals was limited. For example, in the first 15 years of its enactment, the agency was only able to review about 2% of the existing chemicals listed, despite the fact that the agency estimated that about 26% were potentially of concern based on their production volume and chemical properties.⁴

Due to these and other drawbacks, Congress enacted its first major revision to TSCA on June 22, 2016, under the Frank R. Lautenberg Chemical Safety for the 21st Century Act (the "Lautenberg Act.")⁵ The Lautenberg Act adopted several significant changes, including new obligations and deadlines imposed on the EPA, enhancements to the EPA's authority to regulate, and a clearer explanation of the process for the review and determination of risks.⁶ One of the most substantial new obligations is a mandate to review the safety of existing chemicals.⁷ Under the Lautenberg Act, chemicals are evaluated against a new risk-based safety standard to determine whether a chemical use poses an "unreasonable risk."⁸ Given that there are over 83,000 chemicals currently listed in the TSCA inventory, this is a

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¹U.S. EPA, *About the TSCA Chemical Substance Inventory* (Sept. 24, 2019), <https://www.epa.gov/t-sca-inventory/about-tsca-chemical-substance-inventory>.

²Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976).

³Wilson & Schwarzman, *Toward a New U.S. Chemicals Policy: Rebuilding the Foundation to Advance New Science, Green Chemistry, and Environmental Health*, 117 ENV. HEALTH PERSP. 1202–1209 (Aug. 1, 2009).

⁴See *About the TSCA Chemical Substance Inventory*, *supra* note 2.

⁵Frank R. Lautenberg Chemical Safety for the 21st Century Act, Pub. L. No. 114-182, 130 Stat. 448 (2016).

⁶Delong, *Toxic Results: The EPA's Power, Process, and Potential to Regulate Chemicals Under the Toxic Substances Control Act*, 68 DRAKE L. REV. 213, 219 (2020).

⁷Delong, *Toxic Results: The EPA's Power, Process, and Potential to Regulate Chemicals Under the Toxic Substances Control Act*, 68 DRAKE L. REV. 213, 219 (2020).

⁸U.S. EPA, *Summary of the Toxic Substances Control Act* (Sept. 9, 2020), <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>.

considerable undertaking.⁹

§ 29:147 Chemical Data Reporting

Under Section 8, manufacturers and importers are required to provide the EPA with information on chemicals, currently listed on the TSCA inventory, that they manufacture domestically or import into the United States.¹ EPA has promulgated regulations to implement the reporting requirements.² This is commonly called the Chemical Data Reporting rule (CDR rule). Examples of required information includes: chemical or mixture identity, categories of use, quantity manufactured or processed, by-product description, health and environmental effects information, number of individuals exposed, and method(s) of disposal.³ The EPA uses this data to help assess the potential human health and environmental impacts of these chemicals and makes the non-confidential business information it receives available to the public.⁴ Generally, the EPA collects this information every four years from those manufacturers and importers who produce or import 25,000 lbs. or more of a chemical substance at a single site for a specific reporting year.⁵ However, a lower threshold may apply for chemical substances that are the subject of certain TSCA actions, such as those mandated by TSCA sections 4, 5, or 6.⁶

§ 29:148 Application of CDR to Oil and Gas Exploration and Production Facilities

Under the CDR rule, certain categories of chemical substances—including polymers, microorganisms, naturally occurring chemical substances, and certain forms of natural gas and water—are fully exempt from the reporting requirements.¹ Therefore, oil and gas exploration and production companies generally do not have any obligations to report under the CDR rule unless they are importing chemical substances that are not fully exempt under 40 C.F.R. § 711.6.

Although oil and gas exploration and production facilities may not be subject to the regular reporting requirements under Section 8(a), these companies may still be subject to Section 8(e). Section 8(e) states that any person who “manufactures,

⁹For more information on TSCA generally, see chapter 17 of this treatise.

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¹15 U.S.C. § 2607.

²40 C.F.R. §§ 711 et seq. (2021).

³U.S. EPA, *Legislative and Regulatory Authority for Chemical Data Reporting* (Feb. 17, 2021), <https://www.epa.gov/chemical-data-reporting/legislative-and-regulatory-authority-chemical-data-reporting#small>.

⁴See U.S. EPA, *TSCA Chemical Data Reporting Fact Sheet: Chemical Substances which are the Subject of Certain TSCA Actions* available at https://www.epa.gov/sites/default/files/2015-03/documents/chemical_substances_which_are_the_subject_of_certain_tsc_a_actions.pdf.

⁵40 C.F.R. § 711.15 (2021). Any person who must report under this part, as described in § 711.8, must submit the information described in this section for each chemical substance described in § 711.5 that the person manufactured (including imported) for commercial purposes in an amount of 25,000 lb. (11,340 kg) or more (or in an amount of 2,500 lb. (1,134 kg) or more for chemical substances subject to the rules, orders, or actions described in § 711.8(b)) at any one site during any calendar year since the last principal reporting year (e.g., for the 2020 submission period, consider calendar years 2016, 2017, 2018, and 2019, because 2015 was the last principal reporting year).

⁶40 C.F.R. § 711.8(b) (2021).

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¹40 C.F.R. § 711.6 (2021).

processes,² or distributes in commerce a chemical substance or mixture and who obtains information which reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment shall immediately inform the Administrator of such information unless such person has actual knowledge that the Administrator has been adequately informed of such information.”³ This is unlikely to apply to naturally occurring substances produced from the well, but could apply to fracking chemicals or chemicals used in enhanced recovery operations. Further, this Section does *not* provide exemptions for small businesses, small production or importation volumes, or commercial activities such as manufacture for export only or research and development.⁴

§ 29:149 Application of CDR to Downstream Processors and Refiners

Under the CDR Rule, petroleum process streams are only partially exempt from reporting.¹ Therefore, downstream petroleum manufacturers and refiners are required to provide some information to the EPA under the CDR rule, such as a certification statement signed and dated by an authorized official of the submitter company, company and site information, and some chemical-specific information, if they manufacture or import such materials above the requisite thresholds.² Downstream processors and refiners are exempt from the requirement to provide chemical-specific information related to processing and use, including consumer and commercial use information and production volumes.³ After considering the totality of information available regarding petroleum streams, including the chemical substance’s chemical and physical properties or potential for persistence, bioaccumulation, health effects, environmental effects, and several other risk factors,⁴ the EPA concluded that this chemical-specific information related to processing and use of petroleum is of “low current interest” and therefore, not necessary to report at this time.⁵

In light of the events at the time of TSCA’s enactment, such as the 1973 oil crisis and ensuing enactment of Energy Policy and Conservation Act of 1975, the EPA’s choice not to impose potentially burdensome reporting requirements on petroleum manufacturers that could have slowed petroleum production is understandable. However, with the adoption of the Lautenberg Act in 2016 and based on recent information regarding the link between petroleum use and climate change, some TSCA critics argue that these chemicals may pose a substantial risk of injury to health or the environment pursuant to Section 8(e). They maintain that the EPA should therefore reassess the petroleum stream exemption to reflect government policies on the reduction of greenhouse gas emissions.⁶

§ 29:150 Application of CDR to Well Drilling and Service Providers

²A “processor” is someone who prepares a substance or mixture, after its manufacture, for distribution in commerce either (a) in the same form or physical state or in a different form or physical state, or (b) as part of an article containing the chemical substance or mixture. *See* 15 U.S.C. § 2602(13).

³15 U.S.C. § 2607(e).

⁴U.S. EPA, *Reporting a TSCA Chemical Substantial Risk Notice* (Apr. 26, 2018), <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/reporting-tsca-chemical-substantial-risk-notice>.

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¹40 C.F.R. § 711.6(b)1 (2021).

²40 C.F.R. § 711.15 (2021).

³40 C.F.R. § 711.15(b)(4) (2021).

⁴40 C.F.R. § 711.6 (b)2(ii) (2021).

⁵40 C.F.R. § 711.6 (b)2(i).

⁶*Supra* note 7, at 232.

Well drilling and service providers that are not manufacturing or importing chemical substances will not have any reporting obligations under the CDR rule. However, if a well drilling company or service provider imports non-exempt chemical substances, such as hydraulic fracturing (a.k.a., “fracking”) fluids, at or above the reporting threshold, they would have an obligation to report under the CDR rule.

§ 29:151 Pre-Manufacture Notices and Significant New Use Rules

For purposes of regulation under TSCA, if a chemical is listed on the TSCA inventory as described above, the substance is considered an “existing” chemical substance in commerce. Any chemical that is not on the inventory is considered a new chemical substance.¹ The purpose of Section 5 of TSCA is to help manage the potential risk to human health and the environment from these new chemicals. Section 5 functions as a gatekeeper that can identify potential conditions or restrictions, up to a complete ban on production, that should be placed on the use of a new chemical before it enters commerce.² Any person who intends to manufacture or import a new chemical substance for a non-exempt commercial purpose is required to submit a pre-manufacture notice (PMN) at least 90 days prior to the manufacture or import of the chemical.³ PMN submissions must include all available data, pursuant to 40 CFR §§ 720.45 and 720.50, for consideration by EPA risk assessors, on the following: chemical identity; structure and formula process; diagram and description; production volume; byproducts and impurities; intended use; environmental release; disposal practices; human exposure; and existing available test data on the effect on human health or the environment.⁴

Additionally, Section 5 can regulate “new significant uses” of existing chemicals substances or mixtures. Significant New Use Rules (SNURs) can be used to require notice to EPA before chemical substances and mixtures are used in new ways that might create concerns.⁵ Once the EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1)(B) requires persons to submit a significant new use notice (SNUN) to the EPA at least 90 days before they manufacture or process the chemical substance for that use.⁶ In determining whether to issue SNURs for particular chemicals, the EPA will consider all relevant factors, including those listed in TSCA section 5(a)(2): [p]rojected volume of manufacturing and processing of a chemical substance; [e]xtent to which a use changes the type or form of exposure of humans or the environment to a chemical substance; [e]xtent to which a use increases the magnitude and duration of exposure of humans or the environment to a chemical substance; [and] [r]easonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a

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¹U.S. EPA, *Basic Information for the Review of New Chemicals* (May 18, 2017), <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/basic-information-review-new>.

²U.S. EPA, *Basic Information for the Review of New Chemicals* (May 18, 2017), <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/basic-information-review-new>.

³U.S. EPA, *Basic Information for the Review of New Chemicals* (May 18, 2017), <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/basic-information-review-new>; 15 U.S.C. § 2604.

⁴U.S. EPA, *Filing a Pre-manufacture Notice with EPA* <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/filing-pre-manufacture-notice-epa>; 15 U.S.C. § 2604.

⁵U.S. EPA, *Actions under TSCA 5* (Jan. 8, 2021), <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/actions-under-tsca-section-5#SNURs>.

⁶15 U.S.C. § 2604(a)(1)(B)(i).

chemical substance.”⁷

If the EPA determines that a new chemical or significant new use presents unreasonable risk of injury to health or the environment, the “EPA may: (1) limit the amount manufactured/processed/distributed in commerce or impose other restrictions on the substance via an immediately effective proposed rule under section 6 of TSCA; or (2) issue an order to prohibit or limit the manufacture, processing or distribution in commerce to take effect on the expiration of the applicable review period.”

§ 29:152 Application of PMN and SNURs to Oil and Gas Exploration and Production Facilities

Oil and gas exploration and production facilities would typically not be subject to any PMN regulations. Naturally occurring chemical substances are automatically included in the TSCA chemical inventory.¹ Specifically included on the list are any chemical substances which are naturally occurring and: (1) which are (i) unprocessed or (ii) processed only by manual, mechanical, or gravitational means; by dissolution in water; by flotation; or by heating solely to remove water; or (2) which are extracted from air by any means, will automatically be included in the inventory under the category “Naturally Occurring Chemical Substances.”² Examples of such substances include: raw agricultural commodities; water, air, natural gas, and crude oil; and rocks, ores, and minerals.³ Similarly, it would be unlikely that the EPA would, considering the criteria listed above, issue a SNUR for any of these naturally occurring substances.

§ 29:153 Application of PMN and SNURs to Downstream Processors and Refiners

Downstream processors and refiners are subject to both PMNs and SNURs. In December of 2020, the EPA posted a Compliance Advisory entitled “*Applicability of the Toxic Substances Control Act to Chemicals made from Petroleum and Renewable Sources Used as Fuels and Fuel Additives and Distillates*.”¹ The Compliance Advisory reaffirmed that chemical substances used as fuels, fuel additives, and distillates made from either petroleum or renewable sources are subject to the TSCA and anyone who plans to manufacture or import a chemical made from petroleum or renewable sources must comply with the statutory and regulatory new chemical requirements under TSCA Section 5.² Currently, there are about 142 “naphthas” and 178 “distillates” on the TSCA Inventory, and they are considered Unknown, Variable composition, Complex, or Biological (UVCB) substances.³ The EPA clearly states that anyone who desires to manufacture or import a chemical that is not on the TSCA Inventory must submit a PMN. If a manufacturer is unsure whether

⁷U.S. EPA, *Actions under TSCA Section 5* (Jan. 8, 2021), <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/actions-under-tsca-section-5#SNURs>.

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¹40 C.F.R. § 710.4 (2003).

²40 C.F.R. § 710.4 (2003).

³40 C.F.R. § 710.4 (2003).

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¹U.S. EPA, *Applicability of the Toxic Substances Control Act to Chemicals made from Petroleum and Renewable Sources used as Fuels and Fuel Additives and Distillates* (Dec. 2020), https://www.epa.gov/sites/production/files/2020-12/documents/renewable_naphtha_compliance_advisory_web_v3_1.pdf.

²*Id.*

³*Id.*

their chemical is listed, they are encouraged to submit a Bona Fide Intent to Manufacture or Import Notice under 40 C.F.R. § 720.25. The EPA will consider the information submitted in a bona fide notice and will provide a determination on the TSCA Inventory status for the chemical substance.

A SNUN will be required at least 90 days before any person may manufacture or process a chemical substance subject to a SNUR. There are several existing and proposed SNURS that may apply to petroleum manufactures, such as those with NAICS codes 325 and 324110 (e.g., chemical manufacturing and petroleum refineries).⁴ Manufacturers are encouraged to search their chemicals on the EPA's Substance Registry Services site to determine if any manufactured or imported chemical is subject to a SNUR, or any other TSCA actions.⁵

§ 29:154 Application of PMN and SNURs to Well Drilling and Service Providers

As discussed above, well drilling and service providers that do not manufacture or import chemicals will not be subject to TSCA. However, a well drilling or service provider who *is* manufacturing or importing chemicals would be subject to the same Section 5 requirements as other manufacturers or importers. As noted above, importers need to submit a PMN to the EPA if they intend to import an unlisted chemical, and they will need to submit a SNUN in the event they import a chemical subject to a SNUR.

Companies that manufacture or import hydraulic fracking fluids are also subject to the TSCA Section 5 requirements. The fracking fluid used to recover gas and oil from shale rock usually contains mostly water in addition to some chemical additives and proppants.¹ Different chemicals are added depending on the rock type and other specifics of the extraction site.² The EPA identified 1,084 chemicals that were reported to have been used in fracking fluids between 2005 and 2013. The EPA's analysis of FracFocus 1.0 data indicates that between 4 and 28 chemicals were used per well between January 2011 and February 2013 and that no single chemical was used in all wells.³ As fracking companies continue to alter and refine the composition of their fracking fluids, the new chemicals added to these fluids are subject to TSCA Section 5. Additionally, many of the chemicals already used in this process have not been fully evaluated or tested, making it possible that the EPA could issue a SNUR if it determines that any new or increased use of these existing chemicals could pose a potential risk under the criteria listed above.⁴

§ 29:155 Chemical testing

Under Section 4 of TSCA, the EPA has authority to require chemical manufacturers, importers, or processors to test chemical substances and mixtures and report

⁴See, for example, 85 Fed. Reg. 26419 (May 4, 2020); 84 Fed. Reg. 43266 (Aug. 20, 2019); 85 Fed. Reg. 45109 (July 27, 2020); 80 Fed. Reg. 2885 (Jan. 21, 2015); 84 Fed. Reg. 66591 (Dec. 5, 2019).

⁵See U.S. EPA, *Help with Chemical Data Reporting: How to Search for Chemicals Subject to TSCA Actions* (May 2020), <https://www.epa.gov/chemical-data-reporting/help-chemical-data-reporting-how-search-chemicals-subject-certain-tsca>.

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¹U.S. EPA, ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES (2015) (EPA/600/R-15/047) (External Review Draft).

²U.S. EPA, ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES (2015) (EPA/600/R-15/047) (External Review Draft).

³U.S. EPA, ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES (2015) (EPA/600/R-15/047) (External Review Draft).

⁴*Actions under TSCA Section 5*, *supra* note 31.

the results to the EPA.¹ The EPA can require testing on the health and environmental effects of a chemical if there is insufficient information and if the testing is relevant to make a determination of whether the substance would cause an “unreasonable risk of injury to health and the environment.”² The EPA can also order testing to review notices, perform a risk evaluation, or to prioritize a chemical substance.³

Prior to the 2016 Lautenberg Act, the EPA’s testing authority was limited and, absent an Enforceable Consent Agreement (as discussed below), could only be exercised through the passing of a formal rule with public notice and comment. The EPA had to show a more than theoretical probability of a hazard or significant exposure risk that poses an “unreasonable risk of injury.”⁴ This created a “catch-22” where the EPA had to prove the existence of a risk that it needed testing to assess the presence of.⁵ Because of this high standard, very few chemicals were actually tested, creating a gap in knowledge about certain chemical risks.⁶

The amended rule gave the EPA broader authority to order the testing of substances without issuance of a formal rule. In order to compel testing, the EPA need only to: (1) identify the need for the information to be gleaned from testing; (2) describe how readily available information was used to inform the decision to require new information; and (3) where applicable, explain why the use of an order is warranted rather than a rule or consent agreement.⁷ Testing must be conducted in a tiered fashion where the results of screening tests inform future tests.⁸ Additionally, under Section 21, any person can petition to the EPA to initiate a proceeding for the issuance, amendment, or repeal a Section 4 rule.⁹

The EPA also has the option to enter into Enforceable Consent Agreements (ECAs).¹⁰ With an ECA, the EPA works with members of the U.S. chemical industry who have volunteered to perform testing on certain chemicals.¹¹ ECAs are designed to provide the EPA with data identified as necessary to evaluate a particular chemical substance without the need for the EPA to first make the risk or exposure based findings for a TSCA Section 4 test rule, and without introducing delays inherent in the rulemaking process.¹² As of 2018, there were 52 substances being evaluated

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¹15 U.S.C. § 2603(a); EPA may require “any person who manufactures or processes, or intends to manufacture or process” to develop information under this rule. 15 U.S.C. § 2603(b)(3)(C).

²15 U.S.C. § 2603(a)(1).

³15 U.S.C. § 2603(a)(2).

⁴DeLong, *supra* note 7, at 217.

⁵DeLong, *supra* note 7, at 218.

⁶DeLong, *supra* note 7, at 218.

⁷15 U.S.C. § 2603(a)(3).

⁸15 U.S.C. § 2603(a)(4).

⁹15 U.S.C. § 2620. In addition to Section 4, Section 21 allows citizens to file petitions under Section 6 rules imposing regulatory controls on chemicals, Section 8 rules requiring information, Section 5(e) orders affecting new chemical substances, or Section 6(b)(2) orders affecting quality control procedures. 15 U.S.C. § 2620; *see* U.S. EPA, *TSCA Section 21* (Nov. 12, 2019), www.epa.gov/assessing-and-managing-chemicals-under-tsca/tsca-section-21.

¹⁰40 C.F.R. § 790 (2021); <https://www.federalregister.gov/documents/2010/02/19/2010-3242/amendments-to-enforceable-consent-agreement-procedural-rules>.

¹¹U.S. EPA, *Data Development and Information Collection to Assess Risks* (Mar. 3, 2020), www.epa.gov/assessing-and-managing-chemicals-under-tsca.

¹²75 Fed. Reg. 56472 (Sep. 16, 2010), <https://www.federalregister.gov/documents/2010/09/16/2010-23131/amendments-to-enforceable-consent-agreement-procedural-rules>.

under ECAs.¹³

§ 29:156 Applicability of Testing Requirements to Oil and Gas Exploration and Production Facilities

Oil and gas exploration and production companies are technically subject to Section 4 of TSCA.¹ Unlike Section 8, there are no express exemptions under Section 4 for naturally occurring chemical substances, such as crude oil and natural gas.² Despite this, these naturally occurring chemical substances are extremely common in commerce and have generally be considered low-risk. It is unlikely that the EPA would determine the existence of a need to compel testing for crude oil and natural gas.

However, while traditional crude oil and gas production are unlikely to be subject to testing at this time, oil and gas producers that develop their own fracking fluids have been under particular scrutiny in recent years. For example, in August 2011, the environmental group Earthjustice petitioned EPA requesting that the EPA pursue regulation of chemicals used in hydraulic fracturing, including drilling muds and fracturing fluids, under both Section 4 and Section 8.³ Specific to Section 4, the group asked the EPA to pursue a requirement for manufacturers and processors of fracturing fluids to identify all chemicals used and to conduct toxicity testing on those chemicals.⁴ Earthjustice argued that the chemicals used in fracking may present an unreasonable risk of injury to health and the environment for several reasons.⁵ The group also argued that the large volume of chemicals used in hydraulic fracturing of wells in the United States could result in substantial human exposure to the chemicals, as well as a substantial release of the chemicals into the environment.⁶ In the group's view, testing was required to obtain sufficient data on the chemicals' effects because existing federal and state disclosure requirements were inadequate.⁷

In November 2011, the EPA denied the petitioners' request for adoption of a rule under Section 4, stating that the petition did not set forth facts sufficient to support the required findings under TSCA Section 4(a)(1)(A) or 4(a)(1)(B) for issuance of a test rule. The EPA concluded that Earthjustice did not demonstrate that the

¹³U.S. EPA, *TSCA 4 ECA—TSCA Section 4 Enforceable Consent Agreements* (Jan. 23, 2021), http://sor.epa.gov/sor_internet/registry/substreg/searchandretrieve/searchbylist/search.do?search=&searchCriteria.substanceList=227&searchCriteria.substanceType=-1.

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¹15 U.S.C. § 2602(9) (the term “manufacture” means to produce or manufacture hazardous substance).

²*See* 15 U.S.C. § 2602(2).

³Maule et. al., *Disclosure of Hydraulic Fracturing Fluid Chemical Additives: Analysis of Regulations*, 23 NEW SOLUTIONS 167–87 (2013), <https://journals.sagepub.com/doi/pdf/10.2190/NS.23.1.j>.

⁴Citizen Petition under Toxic Substances Control Act Regarding the Chemical Substances and Mixtures Used in Oil and Gas Exploration or Production, Earthjustice to Lisa P. Jackson, Admin. EPA (Aug. 4, 2011), https://earthjustice.org/sites/default/files/fracking_petition.pdf.

⁵ADAM VANN ET AL., CONG. RSCH. SERV., R43152, HYDRAULIC FRACTURING: SELECTED LEGAL ISSUES (Nov. 15, 2013), <https://library.law.uiowa.edu>; <https://library.law.uiowa.edu/sites/library.law.uiowa.edu/files/R43152.pdf>.

⁶ADAM VANN ET AL., CONG. RSCH. SERV., R43152, HYDRAULIC FRACTURING: SELECTED LEGAL ISSUES (Nov. 15, 2013), <https://library.law.uiowa.edu>; <https://library.law.uiowa.edu/sites/library.law.uiowa.edu/files/R43152.pdf>.

⁷Earthjustice and 114 other organizations. Letter from Deborah Goldberg, Earthjustice to Wendy Cleland-Hamnett, Director, Office of Pollution Prevention and Toxics. Re: Citizen Petition Under Toxic Substances Control Act Regarding the Chemical Substances and Mixtures Used in Oil and Gas Exploration or Production, (Aug. 4, 2011), 78 Fed. Reg. 41768, 41771 (Jul. 11, 2013), http://www.epa.gov/opp/t/chemtest/pubs/Section_21_Petition_on_Oil_Gas_Drilling_and_Fracking_Chemicals8.4.2011.pdf.

chemicals presented an “unreasonable risk of injury to human health or the environment.”⁸ Additionally, the group failed to identify an “exposure trigger” demonstrating that the chemical will be produced or released into the environment in substantial quantities.⁹ The authors of *Disclosure of Hydraulic Fracturing Fluid Chemical Additives: Analysis of Regulations* pointed to the inherent tension that existed in the regulations before the adoption of the Lautenberg Act. While EPA was able to require testing if it found that insufficient data existed, often the agency still had to prove an “unreasonable risk” for the risk trigger and “substantial quantities” for the exposure trigger.¹⁰ In short, without the necessary data, the agency could not properly assess a chemical’s risks, and without an identifiable risk, the agency could not collect a chemical’s data.

While Earthjustice’s petition for Section 4 testing was not successful, the EPA’s testing authority has been considerably expanded since 2011 under the Lautenberg Act. While hydraulic fracking fluids are not currently being considered for further testing, this expanded authority leaves open the possibility that similar substances may be tested in the future.

§ 29:157 Applicability of Testing Requirements to Downstream Processors and Refiners

Downstream processors and refiners are subject to the EPA’s testing authority under Section 4. Again, there are no exemptions or partial exemptions under this rule for petroleum stream chemicals. Petroleum manufactures have previously been subject to both ECAs and, more recently, test orders.

For example, in January 2021, EPA ordered the testing of several chemicals involved in petrochemical manufacturing (1,2,2-Trichloroethane, 1,2-Dichloroethane) and petroleum products (p-Dichlorobenzene, o-Dichlorobenzene).¹ The evaluation process for these chemicals began in December 2019 as part of the second batch of chemicals ordered to undergo testing after the passage of the Lautenberg Act.² Prior to the issuance of the test orders for these chemicals, the EPA designated 20 high priority substances for risk evaluation based on factors such as hazard potential, persistence and bioaccumulation, and potential uses of the chemical.³ The EPA then released draft scope of risk evaluations for 13 of the 20 high priority substances prior to initiating testing.⁴ All steps in the testing order process provided the opportunity for public input through notice and comment procedures. Although the testing of these chemicals was ordered after prioritization and risk evaluation, the information provided by Section 4 may also be used as the basis for prioritization findings as well.⁵

Prior to these test orders, the EPA negotiated ECAs with gasoline manufactures

⁸Maule, *supra* note 61.

⁹Maule, *supra* note 61.

¹⁰Maule, *supra* note 61.

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¹U.S. EPA, *TSCA Section 4 Test Orders* (Feb. 23, 2021), <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/tsca-section-4-test-orders>.

²U.S. EPA, *Chemicals Undergoing Risk Evaluation under TSCA* (Feb. 17, 2021) <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/chemicals-undergoing-risk-evaluation-under-tsca>.

³84 Fed. Reg. 44300 (Aug. 22, 2019), <https://www.regulations.gov/document?D=EPA-HQ-OPPT-2018-0427-0009>.

⁴*Draft Scopes of the Risk Evaluations to be Conducted for Thirteen Chemical Substances Under the Toxic Substances Control Act; Notice of Availability*, REGULATIONS.GOV (Apr. 8, 2020), <https://www.regulations.gov/document?D=EPA-HQ-OPPT-2018-0427-0027>.

⁵See *TSCA Section Test Orders*, *supra* note 69.

and processors for the development and submission of test data for methyl tertiary-butyl ether (MTBE), tertiary-amyl methyl ether (TAME) and the nine-carbon aromatic hydrocarbon fraction (C9 fraction) used in gasoline blending.⁶ The EPA's choice to use ECAs for these petroleum additives instead of a formal test rule was controversial. In his article, *MTBE: A Precautionary Tale*, Tom McGarity describes the several "critical points" at which EPA or Congress could have avoided the regulatory pitfalls that lead to groundwater contamination from MTBE.⁷ One of these critical points was EPA's decision to allow for industrial users of MTBE, rather than the manufacturers of the chemical, to conduct their own chemical testing. After more than a year of additional negotiations, the EPA published notice of a Consent Order to which the EPA and five major oil companies had agreed on.⁸ The companies agreed to conduct several different types of tests to identify potential risk factors for human exposure.⁹ However, despite the EPA's concerns regarding groundwater contamination, the companies were able to avoid any environmental testing, and conducted little testing regarding risks posed by ingestion, one of the most common ways humans would be exposed to MTBE in drinking water.¹⁰ Ultimately, after conducting this limited testing on MTBE, and similar testing on TAME, and C-9 fraction, the EPA closed each project and determined to take no further action.¹¹

§ 29:158 Applicability of Testing Requirements to Well Drillers and Service Providers

Finally, as with the Sections discussed above, Section 4 would not have any major implications for well drillers or service providers that do not manufacture or import chemicals in their operations. The Section 4 testing requirements apply only to parties that currently or intend to produce, process, import, or manufacture chemicals.¹ However, as noted above, service companies that import chemicals into the customs territory of the U.S. are subject to the same testing requirements as manufacturers, and these imported chemicals may be subject to testing.² Additionally, fracking companies that manufacture or import chemicals may be subject to testing requirements.

§ 29:159 Conclusion

In total, oil and gas exploration and production operations have not typically been a high priority under TSCA. Most traditional oil and gas exploration and production operations are exempt from reporting under Section 8, and unlikely to be heavily

⁶Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENV'T L. REV. 115, 168 (2009).

⁷McGarity, *MTBE: A Precautionary Tale*, 28 HARV. ENV'T L. REV. 281, 299 (2004), <https://harvardelr.com/wp-content>.

⁸McGarity, *MTBE: A Precautionary Tale*, 28 HARV. ENV'T L. REV. 281, 299, 301 (2004).

⁹Id.

¹⁰Id.

¹¹Swick et al., *Gasoline toxicology: Overview of regulatory and product stewardship programs*, 70 REGUL. TOXICOLOGY & PHARMACOLOGY S6 (Nov. 2014), <https://reader.elsevier.com/reader/sd/pii>.

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¹U.S. EPA, *Data Development and Information Collection to Assess Risks* (Feb. 17, 2021), <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/data-development-and-information-collection-assess-risks>; see also 15 U.S.C. § 2602 ("manufacture" is defined as importing, producing, or manufacturing chemicals).

²See 15 U.S.C. §§ 2602 to 2603; <https://www.federalregister.gov/documents/2021/01/11/2020-28585/fees-for-the-administration-of-the-toxic-substances-control-act-tsca>.

impacted by PMN rules and SNURs under Section 5, and testing rules under Section 4. This is because naturally-occurring chemical substances are excluded from the reporting requirements and are generally well-known and extremely common in commerce. Downstream processors and refiners, on the other hand, have obligations under Section 8 and have historically been minimally impacted by PMN rules, SNURs, or testing requirements.

However, innovation in refinement processes may bring about the introduction of new chemicals that could be identified as higher risk and in need of further evaluation. Additionally, the EPA has more recently signaled through its December 2020 Compliance Advisory and January 2021 test orders that petroleum manufacturers may be under greater scrutiny in the future.

Finally, while many well drilling and field service providers are not regulated under TSCA because they do not manufacture or import any chemicals, those companies that import chemicals and companies that manufacture chemicals used for fracking are regulated and are subject to the reporting requirements under TSCA Section 8, the PMN requirements under TSCA Section 5 and possibly the testing requirements under TSCA Section 4. The manufacturing of fracking chemicals is likely one area that will be subject to much higher scrutiny under TSCA, especially under Sections 5 and 4.

I. EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

§ 29:160 Introduction

The Emergency Planning and Community Right-to-Know Act (EPCRA), passed by Congress on October 17, 1986, enables nimble community emergency response to chemical releases and promotes public disclosure of possible chemical hazards.¹ EPCRA ensures that communities and state governments work together to protect public health through a series of measures including: the preparation of chemical emergency response plans, required emergency notifications subsequent to release, the submission of Safety Data Sheets (SDSs) to state, local, and tribal officials, and annual reporting of toxic chemical release inventory forms—each of which are applicable in some fashion to oil and gas operations.²

EPCRA utilizes tiers of commissions and levels of reporting to ensure compliance and prompt response.³ The pertinent parties are:

- State Emergency Response Commissions (SERCs)
- Local Emergency Planning Committees (LEPCs)
- Tribal Emergency Response Commissions (TERCs)
- Tribal Emergency Planning Committees (TEPCs)

The Governor and Chief Executive Officer of the tribe establish SERCs and TERCs respectively. The SERCs and TERCs in turn oversee LEPCs and TEPCs. LEPCs and TEPCs then develop emergency response plans, review them annually, and inform the public about chemicals in the community. As a practical matter, the

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¹42 U.S.C. §§ 11001 to 11005, 11021 to 11023, 11041 to 11050.

²The major EPCRA provisions include emergency planning (§§ 301–303), emergency release notification (§ 304), hazardous chemical storage reporting requirements (§§ 311–312), and toxic chemical release inventory (§ 313). The regulations implementing these provisions are codified in 40 C.F.R. §§ 350 to 372 (2021).

³See U.S. EPA, *Guide to the Emergency Planning and Community Right-to-Know Act*, available at https://www.epa.gov/sites/production/files/2020-10/documents/guide_to_epcra.pdf. (Last visited on June 29, 2021).

Environmental Protection Agency (EPA) is responsible for EPCRA regulation and oversight.

§ 29:161 Emergency Planning Notification (Section 302)

Section 302 requires facilities containing any Extremely Hazardous Substance (EHS) to develop an Emergency Response Plan, to be provided to the appropriate SERC and LEPC (or TERC and TEPC). Broadly, these plans contain information that help community officials react swiftly in the event of an accident.¹ The EPA maintains a list of EHSs and respective Threshold Planning Quantities (TPQs), based on acute toxicity in the event of an accidental release, above which facilities must provide these planning reports.² There are currently around 355 EHSs listed by the EPA.³

§ 29:162 Hazardous Substance Release Notification (Section 304)

Section 304 requires facilities to immediately report releases of EHSs or hazardous substances (HSs) listed under CERCLA regulations, that are equal to or in excess of the minimum Reportable Quantities (RQs) allowed, where such releases could result in exposure to people outside the boundary of the facility.¹ In addition to the 355 EHSs listed under EPCRA, there are over 800 HSs listed under CERCLA—a release of any one of these substances would trigger the need for an emergency release notification.

In 1990, the EPA revised the definition of “facility” to include “manmade structures as well as natural structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use.”² This change expanded the confines of facilities to cover subsurface areas where there are subterranean operations. This is particularly applicable to upstream oil and gas operations engaged in exploration and production. By virtue of drilling, these operations extend their “facility,” and the related release notification obligations, underground.

As an example, hydrogen sulfide can frequently be found in the ground where drilling for oil and gas. Because drilling operations risk releasing this gas, the subsurface area where drilling occurs falls within the definition of “facility.”

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¹40 C.F.R. § 355.20 (2021).

²40 C.F.R. § 355, App. A (alphabetical order) and B (CAS number order). “TPQs are based on acute mammalian toxicity and potential for airborne dispersion and represent those quantities of substances that can cause significant harm should an accidental release occur.”; U.S. EPA, *What is the relationship between reportable quantities (RQs) and threshold planning quantities (TPQs)?*, <https://www.epa.gov/epcra/what-relationship-between-reportable-quantities-rqs-and-threshold-planning-quantities-tpqs> (last visited June 29, 2021).

³40 C.F.R. § 355, App. A.

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¹40 C.F.R. § 355 (2021) App. A (alphabetical order) and B (CAS number order). “The reportable quantity (RQ) that triggers emergency release notification (Section 304) was developed as a quantity that when released, poses potential threat to human health and the environment.” U.S. EPA, *Emergency Planning and Community Right-to-Know Act Frequent Questions*, <https://www.epa.gov/epcra/what-relationship-between-reportable-quantities-rqs-and-threshold-planning-quantities-tpqs> (last visited June 29, 2021) (explaining the relationship between RQs and TPQs); As a practical matter the release notification requirement is in addition to and independent of the release notification requirements of Section 103 of CERCLA—releases at a facility that are not reportable under EPCRA Section 304 may still be reportable under CERCLA Section 103.

²55 Fed. Reg. 30632, 30644 (July 26, 1990).

Hydrogen sulfide is an EHS,³ meaning the quantity the facility generates must be included in TPQ determinations for Section 302 notifications. Further, as a result of drilling, any release of this hydrogen sulfide that affects persons off-site would also be subject to Section 304 reporting.

Oil and gas operations should be aware of one release notification distinction between EPCRA and CERCLA. Whereas petroleum, including crude oil or any fraction thereof, is excluded from the list of HSs under CERCLA,⁴ no such “petroleum exclusion” exists under EPCRA.⁵ Under CERCLA, petroleum contamination, and petroleum’s constituent substances such as benzene, toluene, and xylene, do not need to be reported as long as the constituent substances do not exceed levels normally found in refined petroleum.⁶ Under EPCRA however, if there is a petroleum release, and the constituent substances of that petroleum are EHSs or HSs that exceed the RQs, then that release would need to be reported.

The Fifth Circuit, in *Center for Biological Diversity, Inc. v. BP America Production Co.*, affirmed this distinction between CERCLA and EPCRA reporting for petroleum.⁷ In response to the Deepwater Horizon oil spill, the Center for Biological Diversity brought suit against BP alleging, *inter alia*, current/continuing violations of CERCLA and EPCRA. The trial court dismissed the claims for lack of standing, mootness, and a failure to state a claim.⁸ However, on appeal, the Fifth Circuit remanded the EPCRA claim for further proceedings to determine whether BP’s EPCRA notifications were sufficient. In remanding, the court implicitly acknowledged the possibility that the petroleum exclusion does not extend to EPCRA, rather than affirming on the basis of failure to state a claim.

The petroleum exclusion under EPCRA was later formally acknowledged in comments to a proposed final rule regarding the exclusion of air emissions from animal waste at farms.⁹ In this final rule, the EPA buttressed the rationale for excluding air emissions from animal waste by comparing to the petroleum exclusion. Although acknowledging that petroleum (including crude oil or any fraction thereof) is “expressly excluded from the definition of ‘hazardous substance’ in CERCLA,” the EPA affirmatively stated that a release of petroleum containing an EHS is still subject to Section 304 reporting under EPCRA.¹⁰

§ 29:163 Hazardous Chemical Inventory Reporting

Under Section 311 and 312 of EPCRA, facilities that have SDSs for chemicals held above certain threshold quantities must submit copies of the SDSs to the SERC (or TERC), LEPC (or TEPC), and local fire department. The minimum thresh-

³40 C.F.R. § 355 (2021) Apps. A (alphabetical order) and B (CAS number order); 40 C.F.R. § 302.4 (2021).

⁴40 C.F.R. § 302.4 (2021).

⁵U.S. EPA, *Emergency Planning and Community Right-to-Know Act Frequent Questions*, <https://www.epa.gov/epcra/does-cercla-petroleum-exclusion-apply-epcra-release-notifications> (last visited June 29, 2021).

⁶CERCLA §§ 101(14), 104(a)(2).

⁷*Center for Biological Diversity, Inc. v. BP America Production Co.*, 704 F.3d 413, 76 Env’t. Rep. Cas. (BNA) 1017, 2013 A.M.C. 221 (5th Cir. 2013).

⁸*Center for Biological Diversity, Inc. v. BP America Production Co.*, 704 F.3d 413, 418, 76 Env’t. Rep. Cas. (BNA) 1017, 2013 A.M.C. 221 (5th Cir. 2013).

⁹Amendment to Emergency Release Notification Regulations on Reporting Exemption for Air Emissions From Animal Waste at Farms, Emergency Planning and Community Right-to-Know Act, 84 Fed. Reg. 27533, 27536 (June 13, 2019) (codified at 40 C.F.R. § 355 (2021)).

¹⁰Amendment to Emergency Release Notification Regulations on Reporting Exemption for Air Emissions From Animal Waste at Farms, Emergency Planning and Community Right-to-Know Act, 84 Fed. Reg. 27533, 27536 (June 13, 2019) (codified at 40 C.F.R. § 355 (2021)).

old for Section 311 and 312 reporting is the TPQ or 500 pounds, whichever is less, for EHSs. For all other hazardous substances, the reporting threshold level is 10,000 pounds.

Each facility must submit an individual report unless the facilities are adjacent and contiguous or are otherwise similar.¹ To be considered similar, facilities must have the “same EHSs and HSs on-site at any one time in similar amounts.”² If similar, facilities can submit a single generic report applicable to all facilities as long as they meet statutory information requirements.³ This is particularly applicable for oil drilling operations. While a single company might operate multiple wells across an oil field that accesses a single subsurface oil deposit, they are still considered separate facilities under EPCRA.⁴ But because the oil wells in a single oil field are likely similar, generic reporting is a beneficial alternative for drilling operations hoping to avoid multiple filings.

As part of Section 311–312 reporting, the EPA made clear that facilities must aggregate EHSs for TPQ exceedance evaluation.⁵ In response to a 1989 notice of proposed rulemaking, specific questions arose regarding the treatment of hazardous components in crude oil. The EPA responded that “[a]ny EHS component of crude oil must be aggregated unless the crude oil is reported as a mixture.”⁶ Where crude oil is reported as a mixture, instead of the aggregate of its component parts, all EHSs must still be evaluated across the facility to determine, whether in the aggregate, they exceed the TPQ. For example, if a facility has two vessels on site that each hold 10,000 pounds of crude oil containing three percent by weight hydrogen sulfide, that facility can choose to report that hydrogen sulfide, an EHS, in either of two ways. First, they can aggregate the amount across the two tanks and report only 600 pounds of hydrogen sulfide (10,000 lbs * 2 tanks * 3% H₂S concentration). Or second, they can report 20,000 lbs of a mixture containing 3% H₂S. And because this applies to all EHSs, oil and drilling facilities must be cognizant of all potential sources of EHSs; these include both produced sources, such as crude oil, as well as stored sources, such as the hydrofluoric acid commonly found in drilling fluid.

§ 29:164 Toxic Chemical Release Inventory

The Toxic Release Inventory (TRI), established under Section 313, is a database available to the public that details information about certain toxic chemicals released annually to air, water and land, or managed as waste by facilities throughout the United States.¹ Facilities are required to submit annual reports, by July 1 each year, that list toxic chemicals or chemical categories manufactured, processed, or used in the previous calendar year that exceed the reporting threshold as defined by EPA. The goal of TRI is to empower citizens, through information, to hold companies and local governments accountable for how toxic chemicals are

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¹42 U.S.C. § 11049(4).

²U.S. EPA, *Generic 311/312 reporting for oil fields and wells*, <https://www.epa.gov/epcra/generic-311312-reporting-oil-fields-or-wells> (last visited June 29, 2021).

³U.S. EPA, *Generic 311/312 reporting for oil fields and wells*, <https://www.epa.gov/epcra/generic-311312-reporting-oil-fields-or-wells> (last visited June 29, 2021).

⁴See 42 U.S.C. § 11049(4).

⁵Community Right-to-Know Reporting Requirements, 55 Fed. Reg. 30632 (July 26, 1990).

⁶55 Fed. Reg. 30641 (July 26, 1990).

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¹U.S. EPA, *Toxic Release Inventory (TRI) Program*, <https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools> (last visited June 29, 2021).

managed. While natural gas processing facilities are subject to Section 313, other oil and gas extraction operations—for example, other operations classified under SIC code 13—are exempt.²

§ 29:165 Transportation Exemptions

Both transportation of chemicals and storage of chemicals incident to transportation, including natural gas, such as that at warehouses and transfer facilities, are largely exempt from EPCRA's reporting requirements.¹ This extends to oil and gas transportation in pipelines.² There are two exceptions to this rule: (1) transporters are still required to follow the emergency notification of release provisions under Section 304;³ and (2) hazardous chemicals must have active shipping papers and stored chemicals must still be “moving under active shipping papers and which have not reached the ultimate consignee.”⁴

J. IMPACTS TO WILDLIFE

§ 29:166 Generally

The law of oil and gas is closely intertwined with federal wildlife law. The oil and gas industry and the nation's wildlife both depend upon natural resource lands and, as a result, oil and gas developers and legal practitioners routinely interact with federal statutes designed to protect wildlife. The law in this area continues to evolve as policymakers, industry, conservation interests, and courts seek to balance the need for energy development with conservation values. Those themes are reflected throughout recent federal wildlife policies, including the greater sage-grouse conservation effort and the polar bear listing decision, both discussed further below.

This section summarizes three key federal wildlife statutes that oil and gas practitioners are likely to encounter: the Endangered Species Act, the Migratory Bird Treaty Act, and the Marine Mammal Protection Act. These statutes present potentially significant regulatory implications for individual oil and gas project proponents and the industry as a whole.

§ 29:167 Endangered Species Act

The cornerstone federal environmental law protecting wildlife and habitat is the Endangered Species Act of 1973 (ESA).¹ The oil and gas industry routinely encounters the ESA through two main entrance points. First, the expansive “take” prohibition in Section 9 of the ESA poses liability risk for many activities commonly associated with oil and gas exploration and development. Second, all federal agencies are obligated, under Section 7 of the ESA, to avoid actions that are likely to jeopardize the continued existence of any species protected under the ESA or adversely affect species' critical habitat. As a result, project proponents seeking federal approvals or permits or entering into federal contracts or leases may trigger

²Addition of Natural Gas Processing Facilities to the Toxics Release Inventory, 82 Fed. Reg. 1651, 1653 (Jan. 6, 2017) (codified at 40 C.F.R. § 372 (2021)).

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¹EPCRA § 327, 42 U.S.C. § 11047.

²Extremely Hazardous Substance List and Threshold Planning Quantities; Emergency Planning and Release Notification Requirements, 52 Fed. Reg. 13378 (Apr. 22, 1987) (codified at 40 C.F.R. § 355 (2021)).

³EPCRA § 304, 42 U.S.C. § 11004(d).

⁴H.R. Rep. No. 99-962 (1986) (Committee of Conference). 99 CONG. CONF. H REP. 962, at 311.

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¹16 U.S.C. §§ 1531 to 1543.

additional regulatory requirements under Section 7.

The ESA's provisions apply to species that are "listed" through a federal rulemaking process as "endangered" or "threatened" pursuant to Section 4(a).² In conjunction with the listing process, the ESA also requires the federal government to designate "critical habitat" for each listed species "to the maximum extent prudent and determinable."³

Two federal agencies have primary responsibility to implement the ESA's provisions. The National Marine Fisheries Service (NMFS) has authority (delegated by the Secretary of Commerce) extending to most marine species and to anadromous species, such as salmon. The U.S. Fish and Wildlife Service (USFWS) has authority (delegated by the Secretary of the Interior) extending to all species not overseen by NMFS. The ESA refers to each Secretary as the "Secretary," and the two implementing agencies are colloquially referred to as the "Services."

As noted, two key provisions of the ESA most commonly affect individual oil and gas project proponents. First, the ESA's "take" prohibition in Section 9 prohibits any person—including any business entity—from "taking" an endangered species of fish or wildlife on public or private lands.⁴ The "take" prohibition is expansive and imposes strict liability for both direct and indirect acts that injure or kill wildlife,⁵ as well as acts that are "incidental to"—i.e., not the purpose of—other lawful actions. The Services have authority to enforce the take prohibition through administrative

²16 U.S.C. § 1533(a). An "endangered" species is one that "is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). A "threatened" species is one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. § 1532(20).

³16 U.S.C. § 1533(a)(3)(A). The term "critical habitat" refers to (1) specific areas within the geographical area occupied by the species at the time of listing, which contain physical or biological features essential to the conservation of the species and that may require special management considerations or protection, and (2) specific areas outside the species' geographical area at the time of listing that the Secretary determines to be "essential" for the species' conservation. 16 U.S.C. § 1532(5)(A). For further discussion of the ESA's listing and critical habitat designation processes, see Environmental Law Institute, *Law of Environmental Protection*, Spring 2021, Environmental Law Institute, §§ 21.9–21.22).

⁴16 U.S.C. § 1538(a)(1)(B). Historically, the USFWS had presumptively extended the take prohibition to all threatened species as well, unless the Service had promulgated a "4(d) rule" specifying special management requirements for a particular threatened species. In 2019, the USFWS promulgated a new regulation reversing that presumption and providing that threatened species are *not* subject to the ESA's take prohibition unless either Service has promulgated a species-specific rule extending the take prohibition to that species. See U.S. Department of the Interior, *Endangered and Threatened Wildlife and Plants; Regulations for Prohibitions to Threatened Wildlife and Plants*, 84 Fed. Reg. 44753 (Aug. 27, 2019); 50 C.F.R. § 17.31 (2021). That approach was consistent with the approach that NMFS has historically taken to extend the take prohibition to threatened species on a species-specific basis. See generally 50 C.F.R. pt. 223, Subpart B ("Restrictions Applicable to Threatened Marine and Anadromous Species"). As of June 2021, the Biden Administration's USFWS had announced that it intended to reverse the Trump Administration's approach and reinstate the "blanket 4(d)" rule presumptively extending the take prohibition to all threatened species. See U.S. Fish and Wildlife Service, *Endangered Species: ESA Implementation—Regulation Revisions*, https://www.fws.gov/endangered/improving_ESA/regulation-revisions.html. For further discussion of this issue, refer to *Law of Environmental Protection*, Spring 2021, Environmental Law Institute, § 21.33.

⁵The ESA broadly defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). The ESA's implementing regulations, in turn, define "harass" as any "intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." 50 C.F.R. §§ 17.3, 222.102 (2021). "Harm" is defined as "an act which actually kills or injures wildlife"; the term may include significant habitat modification or degradation that significantly impairs essential behavioral patterns, such as breeding, feeding, or sheltering. 50 C.F.R. §§ 17.3, 222.102 (2021); see also *Law of Environmental Protection*, Spring 2021, Environmental Law Institute, § 21.34.

and, in some cases, civil and criminal actions.⁶ And, as further discussed below, the Services may also authorize “incidental,” unintentional take under certain circumstances. In addition, the ESA’s citizen suit provision enables private citizens to enforce the take prohibition in federal court.⁷

Second, Section 7 of the ESA requires that each federal agency “consult” with the relevant Service to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of any critical habitat of such species.⁸ Oil and gas projects routinely trigger the consultation requirement through requests for federal agency permits or other authorizations, including but not limited to Federal Energy Regulatory Commission (FERC) approvals, oil and gas leases and rights-of-way on federal lands and the Outer Continental Shelf, and permits needed under the Clean Water Act, Clean Air Act, and other environmental statutes for oil and gas development and/or operations. Through the Section 7 consultation process, the Services may impose conditions on project operations to minimize impacts to ESA-listed species.⁹ For that reason, the Services can play a key role in conditioning and minimizing the impacts of oil and gas projects or operations, even though the Services do not authorize the actual projects or operations. Further, federal agency actions triggering Section 7 are subject to judicial review in federal court under the Administrative Procedure Act (APA), as are the Services’ consultation documents issued through the Section 7 process.¹⁰ Therefore, the Section 7 process provides another litigation avenue for project opponents.

The ESA does provide a number of mechanisms for project proponents and operators to proactively limit their liability under the statute. Project proponents may enter into a variety of voluntary conservation agreements with the federal government. As one example, project proponents can prepare a “habitat conservation plan” and apply to the relevant Service for an “incidental take permit” under Section 10.¹¹ A “biological opinion” issued through the Section 7 process may also include an “incidental take statement” authorizing the activities that are the subject of the consultation, subject to terms and conditions imposed by the consulting Service.¹²

Because of the regulatory reach of both Section 9 and Section 7, a decision to list

⁶See 16 U.S.C. § 1540.

⁷16 U.S.C. § 1540(g); *see, e.g.*, *In re Oil Spill by Oil Rig Deepwater Horizon*, 792 F. Supp. 2d 926, 932, 74 Env’t. Rep. Cas. (BNA) 1027 (E.D. La. 2011), *aff’d in part, rev’d in part*, 704 F.3d 413, 76 Env’t. Rep. Cas. (BNA) 1017, 2013 A.M.C. 221 (5th Cir. 2013) (addressing environmental plaintiffs’ Section 9 claims for injunctive relief against companies associated with the Deepwater Horizon oil spill), *aff’d in part, rev’d in part sub nom.* *Center for Biological Diversity, Inc. v. BP America Production Co.*, 704 F.3d 413, 76 Env’t. Rep. Cas. (BNA) 1017, 2013 A.M.C. 221 (5th Cir. 2013).

⁸16 U.S.C. § 1536.

⁹See 16 U.S.C. § 1536(a).

¹⁰*See, e.g.*, *Center for Biological Diversity v. Bernhardt*, 982 F.3d 723 (9th Cir. 2020) (environmental groups challenged the Bureau of Ocean Energy Management’s approval of an offshore oil drilling and production facility under the APA for noncompliance with Section 7 of the ESA); *Defenders of Wildlife v. United States Department of the Interior*, 931 F.3d 339 (4th Cir. 2019) (environmental groups challenged USFWS’s “no jeopardy” conclusions under Section 7 in connection with FERC licensing for proposed natural gas pipeline construction project); *Bennett v. Spear*, 520 U.S. 154, 177–78, 117 S. Ct. 1154, 1168–69, 137 L. Ed. 2d 281, 44 Env’t. Rep. Cas. (BNA) 1161, 27 Env’t. L. Rep. 20824 (1997) (holding that U.S. Fish and Wildlife Service’s biological opinion was a final agency action subject to judicial review under the APA).

¹¹16 U.S.C. § 1539(a)(1)(B).

¹²16 U.S.C. § 1536. For further discussion of these and related mechanisms, refer to Law of Environmental Protection, §§ 21:39–21:44.

a particular species as endangered or threatened may have significant implications for oil and gas interests. For example, the USFWS's final decision to list the polar bear as a threatened species in 2008 has resulted in extensive litigation in addition to material practical implications for oil and gas activities impacting polar bears. In 2005, motivated in large part by its opposition to oil and gas exploration and development in and offshore of Alaska, the Center for Biological Diversity (CBD) petitioned the Service to list the polar bear under the ESA, citing the projected loss of the bears' sea ice habitat resulting from the effects of global climate change.¹³ The Service failed to act within certain statutory deadlines triggered by the petition, resulting in litigation filed by CBD and, ultimately, a court order directing the Service to issue a final listing decision by May 15, 2008.¹⁴ The Service's final decision listing the polar bear as a threatened species,¹⁵ as well as its accompanying 4(d) rule,¹⁶ and subsequent critical habitat designation,¹⁷ resulted in multiple litigation challenges, including opposition by the oil and gas industry.¹⁸ Ultimately, the courts upheld the Service's listing decision, final 4(d) rule, and critical habitat designation, meaning that oil and gas activities with the potential to cause take of polar bears are subject to direct regulation under the ESA. The USFWS has since issued multiple biological opinions for oil and gas activities impacting polar bears, pursuant to Section 7 of the ESA, and those biological opinions have themselves resulted in additional litigation.¹⁹

In another significant example, the USFWS determined in 2010 that the greater sage-grouse warranted protection as a threatened species under the ESA but that higher-priority actions precluded listing at that time.²⁰ Because of the ESA's Section 7 consultation requirement, the decision to list sage-grouse would have had sweeping consequences for activities requiring federal leases or permits, including oil and gas exploration activities on millions of acres of public lands managed by the Bureau of Land Management (BLM) throughout the western United States. The Service's

¹³See Center for Biological Diversity, Before the Secretary of the Interior: Petition to List the Polar Bear (*Ursus maritimus*) as a Threatened Species Under the Endangered Species Act (Feb. 16, 2005) 87–105, available at https://www.biologicaldiversity.org/species/mammals/polar_bear/pdfs/15976_7338.pdf.

¹⁴Center for Biological Diversity v. Kempthorne, 2008 WL 1902703 (N.D. Cal. 2008).

¹⁵U.S. Department of the Interior, Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear (*Ursus maritimus*) Throughout Its Range, 73 Fed. Reg. 28212 (May 15, 2008).

¹⁶As noted, a 4(d) rule is a special rule pertaining to a species listed as threatened under the ESA. Through a 4(d) rule, the relevant Service can customize prohibitions and regulate activities to provide for the conservation of the threatened species. After several years of litigation over the initial polar bear 4(d) rule, the USFWS issued the final polar bear 4(d) rule in 2013. See U.S. Department of the Interior, Endangered and Threatened Wildlife and Plants; Special Rule for the Polar Bear Under Section 4(d) of the Endangered Species Act, 78 Fed. Reg. 11766 (Feb. 20, 2013). The final 4(d) rule is intended to align management of the polar bear under the ESA with management provisions under the Marine Mammal Protection Act, discussed below. 78 Fed. Reg. 11768; see also Center for Biological Diversity v. Salazar, 695 F.3d 893, 910–11, 75 Env't. Rep. Cas. (BNA) 1919, 183 O.G.R. 92 (9th Cir. 2012) (discussing intersection between the ESA's and MMPA's management provisions for polar bears).

¹⁷See United States Department of the Interior, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Polar Bear (*Ursus maritimus*) in the United States, 75 Fed. Reg. 76086 (Dec. 7, 2010); Alaska Oil and Gas Ass'n v. Jewell, 815 F.3d 544, 550, 82 Env't. Rep. Cas. (BNA) 1128 (9th Cir. 2016) (upholding critical habitat designation rule challenged by oil and gas trade associations, among other plaintiffs, as unjustifiably large).

¹⁸See In re Polar Bear Endangered Species Act Listing and Section 4(d) Rule Litigation—MDL No. 1993, 709 F.3d 1, 76 Env't. Rep. Cas. (BNA) 1057 (D.C. Cir. 2013) (upholding final listing rule).

¹⁹See, e.g., Center for Biological Diversity v. Salazar, 695 F.3d 893, 75 Env't. Rep. Cas. (BNA) 1919, 183 O.G.R. 92 (9th Cir. 2012).

²⁰U.S. Department of the Interior, Endangered and Threatened Wildlife and Plants; Determination for the Gunnison Sage-Grouse as a Threatened or Endangered Species, 75 Fed. Reg. 59804 (Sept. 28, 2010).

2010 decision led to litigation that ultimately resulted in the largest landscape-scale conservation planning effort in U.S. history between federal agencies, states, and private stakeholders to address threats to sage-grouse habitat without listing the species under the ESA.²¹ The resulting conservation approach relies heavily on land management plans adopted by the BLM in coordination with state and local decision-makers, which prioritize public lands based on their relative value as sage-grouse habitat and limit development activities in priority sage-grouse habitat areas.²² BLM's decisions to issue oil and gas leases on public lands pursuant to those management plans have been the subject of ongoing litigation,²³ and the sage-grouse's ultimate listing fate under the ESA remains to be seen.

§ 29:168 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) is one of the oldest federal wildlife conservation statutes.¹ The MBTA's protections extend to nearly every bird species found in North America,² and, as a result, the statute has potentially far-reaching implications for oil and gas development projects across the country.³ Like the ESA, the MBTA prohibits “take” of species protected by the Act. However, unlike the ESA, the MBTA does not include an express pathway to authorize incidental, unintentional take. For many oil and gas developers, that risk of liability under the MBTA may materially impact how a project is designed and implemented.

The MBTA's key section provides:

Unless and except as permitted by regulations made [by the Secretary of the Interior], it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof, included in the terms of [various international conventions].⁴

The USFWS's definition of take under the MBTA does not include activities that “harm” or “harass” wildlife and is, therefore, narrower than under the ESA.⁵ The MBTA also departs from the ESA in that it does not contain a citizen suit provision.

²¹See U.S. Fish & Wildlife Service, *Greater Sage-Grouse, 2015 Not Warranted Finding Under the Endangered Species Act* (Sept. 2015), https://www.fws.gov/greaterSageGrouse/PDFs/GrSG_Finding_FINAL.pdf.

²²See U.S. Department of the Interior, Bureau of Land Management, BLM Greater Sage-Grouse Plans, <https://www.blm.gov/programs/fish-and-wildlife/sagegrouse/blm-sagegrouse-plans> (last visited June 30, 2021).

²³See, e.g., *Montana Wildlife Fed'n v. Bernhardt*, CV-18-69-GF-BMM, Order, Dkt. 147 (D. Mont. May 22, 2020).

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¹16 U.S.C. §§ 703 to 712.

²See 50 C.F.R. § 10.13 (2021) (“List of Migratory Birds”).

³In addition, the Bald and Golden Eagle Protection Act (BGEPA) prohibits the “take” of eagles and their parts, nests, or eggs, unless authorized by a permit issued by the USFWS. 16 U.S.C. § 668. Practitioners should be aware of the possible applicability of the BGEPA for oil and gas activities with the potential to impact eagles.

⁴16 U.S.C. § 703(a).

⁵See 50 C.F.R. § 21.3 (2021).

As a result, the USFWS is the sole entity responsible for enforcing the Act.⁶

Under the MBTA, knowingly taking a protected bird with intent to sell, barter, or offer for sale or barter is a felony.⁷ More importantly for oil and gas activities, the MBTA provides that “any person, association, partnership, or corporation” that violates the MBTA is guilty of a misdemeanor punishable by a fine of not more than \$15,000, six months’ imprisonment, or both.⁸ Courts have split regarding whether the misdemeanor provision imposes strict liability on any activities that cause “take” of migratory birds or is limited to intentional or direct acts.⁹

The scope of the MBTA’s take prohibition has specific relevance to the oil and gas industry. The penalty for violating the MBTA is criminal liability, and recent high-profile examples indicate that MBTA penalties can be a significant source of exposure for the industry. Criminal penalties under the MBTA were a major component of the settlement for the Deepwater Horizon oil spill of 2010, totaling \$100 million.¹⁰ However, more routine oil and gas exploration and development activities also have the potential to incidentally kill or harm birds, including via well drilling and pipeline construction in nesting areas. Unlike the ESA, the MBTA includes no express authority to permit incidental take of protected birds.¹¹ As of this writing, Incidental take permits are currently unavailable under the MBTA. Therefore, the only risk management option historically available to project proponents has been to design operations to minimize the risk of unpermitted incidental take to birds—for example, by scheduling pipeline construction to occur outside of the nesting season or by covering oil waste pits.

During the Obama Administration, the USFWS considered establishing an incidental take permitting program under the MBTA.¹² The agency ultimately abandoned that effort and, in the final days of the Obama Administration in January 2017, the Department of the Interior issued a Solicitor’s Opinion affirming its strict liability interpretation of the MBTA. The Solicitor’s Opinion concluded that “the MBTA’s prohibitions on taking and killing migratory birds apply broadly to any activity, subject to the limits of proximate causation,” including “direct incidental take.”¹³ Later that year, the Trump Administration issued a new Solicitor’s Opinion (the “Trump M-Opinion”) withdrawing and replacing the Obama Administration’s previous opinion.¹⁴ Contrary to the prior opinion, the Trump M-Opinion concluded that the MBTA does *not* prohibit the incidental take of MBTA-protected birds and instead “is a law limited . . . to affirmative and purposeful actions, such as hunting and poaching, that reduce migratory birds and their nests and eggs, by killing or

⁶See 16 U.S.C. § 706.

⁷16 U.S.C. § 707(b).

⁸16 U.S.C. § 707(a).

⁹*Contrast* U.S. ex rel. Schumer v. Hughes Aircraft Co., 119 F.3d 796, 805 (9th Cir. 1997) (interpreting MBTA as strict liability statute) and U.S. v. Engler, 806 F.2d 425, 431, 21 Fed. R. Evid. Serv. 1398, 17 Env’tl. L. Rep. 20334 (3d Cir. 1986) (same), *contrast with* U.S. v. Brigham Oil and Gas, L.P., 840 F. Supp. 2d 1202, 1213 (D.N.D. 2012) (“[I]t is highly unlikely that Congress ever intended to impose criminal liability on the acts or omissions of persons involved in lawful commercial activity which may indirectly cause the death of birds protected under the [MBTA].”).

¹⁰See United States v. BP Exploration & Prod., Inc., No. 2:12-cr-00292-SSV-DEK, Judgment, Dkt. 66 (E.D. La. Jan. 29, 2013).

¹¹See 16 U.S.C. §§ 703 to 712.

¹²See U.S. Department of the Interior, Migratory Bird Permits; Programmatic Environmental Impact Statement, 80 Fed. Reg. 30032 (May 26, 2015) (announcing notice of intent to prepare environmental impact statement evaluating the impacts of proposed rulemaking to regulate incidental take of migratory birds).

¹³U.S. Department of the Interior, Solicitor’s Opinion M-37041 (Jan. 10, 2017).

¹⁴U.S. Department of the Interior, Solicitor’s Opinion M-37050 (Dec. 22, 2017).

capturing, to human control.”¹⁵ The USFWS subsequently issued further guidance interpreting the Trump M-Opinion “to mean that the MBTA’s prohibitions on take apply when the *purpose* of an action is to take migratory birds, their eggs, or their nests.”¹⁶ The scope of the MBTA’s liability provisions and the availability of incidental take permits under the MBTA remain key issues for oil and gas practitioners and project proponents going forward. On January 7, 2021, the USFWS published a Final Rule clarifying that “[i]njury to or mortality of migratory birds that results from, but is not the purpose of, an action (*i.e.*, incidental taking or killing) is not prohibited by the Migratory Bird Treaty Act.”¹⁷ However, on March 8, 2021, the Biden Administration issued Memorandum M-37065 permanently revoking and withdrawing the Trump M-Opinion,¹⁸ and on May 7, 2021, the Service published a notice proposing to revoke the Final Rule, previewing its legal interpretation that the MBTA prohibits incidental take.¹⁹

§ 29:169 Marine Mammal Protection Act

Offshore oil and gas developers will almost certainly encounter the Marine Mammal Protection Act of 1972 (MMPA).¹ The MMPA imposes a “moratorium on the taking and importation of marine mammals and marine mammal products.”² The term “marine mammal” encompasses all marine mammals, including sea otters, manatees, walrus, dugongs, seals, whales, dolphins, and porpoises, and “any mammal” that “primarily inhabits the marine environment (such as the polar bear).”³ The term “take” means “to harass, hunt, capture, collect, or kill . . . any marine mammal,” or to attempt to engage in such conduct.⁴ The term “harassment” means “any act of pursuit, torment, or annoyance” that (i) “has the potential to injure a marine mammal or marine mammal stock in the wild” (known as “Level A harassment”) or (ii) “has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering” (known as “Level B harassment”).⁵ Thus, the definition of “take” under the MMPA is similar—but not identical to—the scope of “take” under the ESA.

The USFWS and NMFS are tasked with implementing the MMPA, with a jurisdictional division of species that mirrors that of the ESA.⁶ Additionally, the Marine Mammal Commission, a three-member independent federal agency, provides

¹⁵U.S. Department of the Interior, Solicitor’s Opinion M-37050 (Dec. 22, 2017), at 41.

¹⁶U.S. Department of the Interior, Fish and Wildlife Service, *Guidance on the recent M-Opinion affecting the Migratory Bird Treaty Act* (Apr. 11, 2018) (emphasis in original).

¹⁷50 C.F.R. § 10.14 (2021); see U.S. Department of the Interior, Fish and Wildlife Service, *Regulations Governing Take of Migratory Birds*, 86 Fed. Reg. 1134 (Jan. 7, 2021).

¹⁸U.S. Department of the Interior, Office of the Solicitor, Memorandum M-37065 (March 8, 2021).

¹⁹U.S. Department of the Interior, Fish and Wildlife Service, *Regulations Governing Take of Migratory Birds; Proposed Rule*, 86 Fed. Reg. 24573 (May 7, 2021).

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¹16 U.S.C. §§ 1361 to 1423h.

²16 U.S.C. § 1371(a).

³16 U.S.C. § 1362(6).

⁴50 C.F.R. § 18.3 (2021); 50 C.F.R. § 216.3 (2021).

⁵16 U.S.C. § 1362(18)(A); 50 C.F.R. § 216.3 (2021).

⁶16 U.S.C. § 1362(12)(A). NMFS is responsible for implementing the MMPA’s provisions with respect to whales, dolphins, porpoises, and seals and sea lions. The USFWS has responsibility for all other marine mammals, including walrus, manatees, sea otters, and polar bears. 16 U.S.C. § 1362(12)(A).

policy and scientific oversight for activities under the MMPA.⁷ Unlike the ESA, the MMPA does not contain a citizen suit enforcement provision. Therefore, the USFWS and NMFS are the entities that enforce the MMPA.⁸

The MMPA includes exceptions to the take prohibition. Key among them, Section 101(a)(5) of the act authorizes the Services to “issue permits which authorize the taking or importation of any marine mammal.”⁹ The Services issue two forms of incidental authorization.

First, the Services may issue an incidental take regulation (ITR) through formal rulemaking.¹⁰ An ITR prescribes requirements to authorize the “incidental, but not intentional, taking . . . of small number of marine mammals” as the result of a “specified activity . . . within a specified geographical region,” and is effective for up to five years.¹¹ Once an ITR has been established, an individual project proponent may apply for a Letter of Authorization (LOA) authorizing incidental take within the scope of the specific regulations. Second, the Services may issue an incidental harassment authorization (IHA), without undertaking a formal rulemaking process.¹² IHAs are project-specific authorizations that function like other types of incidental take authorizations. IHAs may authorize only take by harassment and are limited to a period of one year.¹³ The key requirements for both ITRs and IHAs are that the permitted activity be a “specified activity” that occurs in a “specified geographic region,” involve the taking of “small numbers” of a marine mammal species or population stock, have a “negligible impact” on such species or stock, and “not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence.”¹⁴

Pursuant to Section 101(a)(5) of the MMPA, the Services have issued many incidental take authorizations for oil and gas activities.¹⁵ For example, since the early 1990s, the oil and gas industry has routinely requested, and the USFWS has issued, ITRs applicable to oil and gas exploration, development, and production activities in the Beaufort and Chukchi Seas off the coast of Alaska.¹⁶ Individual operators seek and are granted LOAs pursuant to those regulations identifying, among other things, monitoring and mitigation plans for impacts to polar bears and walrus.¹⁷ Environmental advocacy groups have filed unsuccessful challenges to many of those regulations.¹⁸ As another example, in 2021, NMFS issued the first-ever ITR addressing oil and gas exploratory activities in the Gulf of Mexico. The ITR, which became effective April 19, 2021, is the result of more than a decade of effort by the industry and is the most extensive ITR ever issued.¹⁹ NMFS has also recently issued IHAs for oil and gas seismic survey activities in the Atlantic Ocean,

⁷16 U.S.C. § 1401.

⁸16 U.S.C. § 1377.

⁹16 U.S.C. § 1374(a).

¹⁰16 U.S.C. § 1371(a)(5)(A).

¹¹16 U.S.C. § 1371(a)(5)(A)(i).

¹²16 U.S.C. § 1371(a)(5)(D).

¹³16 U.S.C. § 1371(a)(5)(D).

¹⁴16 U.S.C. § 1371(a)(5)(A).

¹⁵16 U.S.C. § 1371(a)(5)(A).

¹⁶See 50 C.F.R. Subpart J (2021).

¹⁷See 50 C.F.R. § 18.124 (2021).

¹⁸See, e.g., *Center for Biological Diversity v. Salazar*, 695 F.3d 893, 75 Env’t. Rep. Cas. (BNA) 1919, 183 O.G.R. 92 (9th Cir. 2012); *Center For Biological Diversity v. Kempthorne*, 588 F.3d 701, 69 Env’t. Rep. Cas. (BNA) 1897, 174 O.G.R. 607 (9th Cir. 2009); *Alaska Wilderness League v. Jewell*, 99 F. Supp. 3d 112 (D.D.C. 2015).

¹⁹See Department of Commerce, National Oceanic and Atmospheric Administration, Taking and

which were challenged by environmental plaintiffs in federal court.²⁰ As these examples reflect, MMPA incidental take authorizations can be a significant source of litigation. Developing an early strategy to engage with the relevant Service and build a strong administrative record is essential.

VIII. HEALTH AND SAFETY IN THE OILFIELD

§ 29:170 Generally

The federal agencies with primary oversight for health and safety issues related to industrial operations include the EPA, the Occupational Safety and Health Administration (OSHA), and the Pipeline and Hazardous Material Safety Administration (PHMSA). However, two of the most well-known industrial safety programs—EPA’s Risk Management Plan (RMP) regime and OSHA’s Process Safety Management of Highly Hazardous Chemicals (PSM) standard—generally do not apply to upstream oil and gas operations. In addition to these federal agencies, operations can also be regulated under state counterparts that have received delegation of workplace safety programs from OSHA and regulation of intrastate pipelines from PHMSA.

§ 29:171 U.S. Environmental Protection Agency

EPA’s RMP regulations are focused on reducing and responding to offsite health and safety impacts from releases. Facility-specific RMPs evaluate worst-case scenarios and outline release prevention and emergency planning considerations. RMPs for regulated facilities are also publicly available and facilities are required to hold a public meeting after any RMP reportable accident with a known offsite impact. EPA’s RMP regulations require coordination with local emergency planning organizations—including scheduled emergency response exercises—to ensure an effective response in the event of a release.¹

As discussed in Section 29:135, EPA’s RMP regulations require facilities with more than a threshold quantity of a regulated substance to develop an RMP. These regulated substances are divided between two categories—regulated toxic substances and regulated flammable substances. Threshold quantities for regulated toxic substances varies depending on the substance, but all flammable substances are subject to a 10,000 pound threshold.² If a facility has a covered process that involves 10,000 pounds or more of a listed flammable substance, it must comply with RMP requirements. However, EPA’s regulations provide several exemptions to the calculation of the 10,000 threshold, including an exemption for “naturally occurring hydrocarbon mixtures.”³ This includes “any combination of the following: condensate, crude oil, field gas, and produced water.”⁴

Based on the exclusion for naturally occurring hydrocarbon mixes, most upstream oil and gas operations are exempt from compliance with EPA’s RMP regulations.

Importing Marine Mammals; Taking Marine Mammals Incidental to Geophysical Surveys Related to Oil and Gas Activities in the Gulf of Mexico, 86 Fed. Reg. 5322 (Jan. 19, 2021).

²⁰*See, e.g.,* S.C. Coastal Conservation League v. Ross, Case No. 18-cv-03326 (D.S.C.). This litigation has since been dismissed without prejudice, in light of the expiration of the challenged IHAs in 2020. *See* S.C. Coastal Conservation League v. Ross, Case No. 18-cv-03326 (D.S.C.), Order, Dkt. 463 (Oct. 6, 2020).

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¹*See* 40 C.F.R. §§ 68.93 to 68.96 (2021).

²*See* 40 C.F.R. § 68.130 (2021).

³40 C.F.R. § 68.115(b)(2)(iii) (2021).

⁴40 C.F.R. § 68.115(b)(2)(iii) (2021).

Typically, EPA's RMP regulations are a larger concern for downstream operations (e.g., refineries), where threshold levels of flammable substances are more likely to be met. However, even if a facility is not subject to the RMP regulations based on operation of a process meeting or exceeding threshold quantities, EPA may seek to enforce for noncompliance with the general duty clause.⁵

§ 29:172 U.S. Occupational Safety and Health Administration

In contrast to EPA's RMP regulations, which focus on offsite impacts, the U.S. Occupational Safety and Health Administration's (OSHA's) regulations focus on worker health and safety within the fence line. One of OSHA's flagship regulations is the PSM standard, which applies to processes involving a chemical at or above a listed threshold quantity, or flammable substances with a threshold of 10,000 pounds.¹ The PSM standard includes 14 elements, covering among other things: employee involvement, process safety information, process hazard analyses, operating procedures, training mechanical integrity, management of change, and emergency preparedness.²

Like EPA's RMP program, OSHA's PSM standard excludes certain oil and gas activities. In contrast to EPA's exclusion based on determination of threshold quantities, OSHA's regulations explicitly exclude "oil or gas well drilling or servicing operations" from applicability of the PSM standard.³ OSHA has evaluated this exemption and the potential extension of PSM applicability to oil and gas production facilities several times over the years. In 2000, OSHA issued a stay on enforcement of the PSM standard at oil and gas production facilities.⁴ However, OSHA continues to enforce the PSM standard for natural gas processing.⁵

Even when the PSM standard does not apply, operators are required to comply with standards for general industry (e.g., requirements for personal protective equipment, environmental controls, and materials handling). In addition, the Occupational Safety and Health Act of 1970 establishes a general duty for each employer to "furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."⁶ OSHA uses this general duty clause when it identifies a hazard that is not otherwise addressed by a specific OSHA standard. As with the EPA RMP general duty clause, OSHA commonly ap-

⁵EPA's guidance on implementing the general duty clause states that "EPA has jurisdiction to implement and enforce the general duty clause through Sections 113 and 114 of the Clean Air Act at any facility where extremely hazardous substances are present." See EPA, *Guidance for Implementation of the General Duty Clause Clean Air Act Section 112(r)(1)*, at 10 (May 2000), <https://www.epa.gov/sites/production/files/documents/gendutyclause-rpt.pdf>. In addition, EPA issued recent guidance to "[r]emind upstream (exploration and production) oil and gas facility owners and operators of public safety hazards associated with their facilities, and their obligations under the Clean Air Act general duty clause." See EPA, *Safety Alert Public Safety at Oil and Gas Upstream Facilities*, at 1 (March 2021), https://www.epa.gov/sites/production/files/2021-03/documents/safety_alert_for_oil_and_gas_storage_3-18-21.pdf.

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¹See 29 C.F.R. § 1910.119 (2021).

²29 C.F.R. § 1910.119 (2021).

³29 C.F.R. § 1910.119 (a)(2)(ii) (2021).

⁴OSHA, *Standard Interpretation: Production facilities that recover natural gas liquids may have enforceable PSM-covered processes*, December 19, 2018, <https://www.osha.gov/laws-regs/standardinterpretations/2018-12-19> (last visited June 29, 2021).

⁵OSHA, *Standard Interpretation: Production facilities that recover natural gas liquids may have enforceable PSM-covered processes*, December 19, 2018, <https://www.osha.gov/laws-regs/standardinterpretations/2018-12-19> (last visited June 29, 2021).

⁶29 U.S.C. § 654(a)(1).

plies the general duty clause in enforcement actions following an incident.

§ 29:173 Pipeline and Hazardous Materials Safety Administration

PHMSA, within the U.S. Department of Transportation, develops and enforces regulations applicable to interstate pipelines, covering gathering, transmission, and distribution systems. PHMSA's regulations for oil and gas pipelines set minimum safety requirements, including requirements concerning design, construction, testing, and operation standards.

A key aspect of PHMSA's regulation of oil and gas pipelines is the requirement for operators to establish and implement integrity management programs. These integrity management programs apply to those pipelines where a leak of failure could impact a high consequence area (certain areas with high populations or potential impacts on waterways or drinking water or ecological resources).¹ Integrity management programs must meet a suite of requirements associated with periodic testing/integrity assessments (e.g., in-line inspection tools, pressure tests, or similar approaches) and the repair of any identified integrity concerns.²

§ 29:174 EPA

In keeping with the cooperative federalism framework of the CAA, while EPA is the primary regulatory authority for accidental releases pursuant to its RMP program, states may also receive delegated authority to implement and enforce a state program comparable to EPA's RMP program.¹ As with other CAA delegation standards, the state must establish standards at least as stringent as the federal requirements, though states may also set different or more stringent requirements or procedures.² Currently, nine states have received delegation from EPA to implement and enforce the RMP program.³ The EPA remains the primary regulator in those states that have not received delegation.

§ 29:175 OSHA

Although OSHA establishes federal minimum standards, the Occupational Safety and Health Act allows states to assume responsibility for development and enforcement of occupational safety and health standards. States may receive delegation from OSHA if they establish a plan that imposes standards that are "at least as effective in providing safe and healthful employment" as OSHA's standards.¹ OSHA must review and approve the plan before the state can take delegation.² Currently, 22 states have received OSHA approval for their state plans covering private sector

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¹See 49 C.F.R. §§ 195.452, 192.911 (2021).

²49 C.F.R. §§ 195.452, 192.911 (2021).

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¹42 U.S.C. § 7412(l).

²42 U.S.C. § 7412(l).

³U.S. EPA, *States with authority to implement/enforced the risk management program rule*, <https://www.epa.gov/rmp/states-authority-implement-enforce-risk-management-program-rule> (last visited June 29, 2021).

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¹29 U.S.C. § 667(c).

²29 U.S.C. § 667(c).

workers.³ Delegated states may impose their own additional requirements, procedures, and penalty calculations. States also have the flexibility to impose stricter requirements than the federal minimum. OSHA continues to enforce federal requirements in states without an approved state plan.

§ 29:176 PHMSA

While PHMSA regulates *inter* state pipelines, states may take responsibility for promulgating and enforcing standards applicable to *intrastate* pipelines. Every state—except Hawaii and Alaska—has entered a form of certification or agreement with PHMSA to take authority for at least certain aspects of the pipeline safety program.¹ As with the other programs that involve cooperative federalism, states may adopt more stringent regulations for pipeline safety, provided they continue to meet federal minimum standards. For example, a 2013 study by the National Association of Pipeline Safety Representatives noted that as of the date of the report “[t]here are at least 1,361 state regulatory administrative rules, legislative provisions and state agency orders that address pipeline safety requirements exceeding the federal pipeline safety code. This demonstrates that the majority of state pipeline safety programs are actively and constantly pursuing pipeline safety at a level responsive to local conditions.”²

Those states that do not establish their own programs are subject to PHMSA’s federal standards and PHMSA enforcement actions. In addition, although the majority of states have primary jurisdiction over intrastate pipelines through these agreements with PHMSA, interstate pipelines remain subject to PHMSA’s jurisdiction. States may inspect pipelines on PHMSA’s behalf, but PHMSA remains responsible for ensuring compliance and commencing enforcement actions.³

IX. REGULATION OF REFINING AND MARKETING (THE “DOWNSTREAM” SECTOR)

³See OSHA, *State Plan Frequently Asked Questions*, <https://www.osha.gov/stateplans/faqs> (last visited June 29, 2021).

[Section 29:176]

¹National Association of Pipeline Safety Representatives, *Executive Summary Compendium of State Pipeline Safety Requirements & Initiatives Compared to Code of Federal Regulations*, 3 (September 18, 2013).

²49 C.F.R. §§ 195.452, 192.911 (2021).

³National Association of Pipeline Safety Representatives, *Compendium of State Pipeline Safety Requirements & Initiatives Providing Increased Public Safety compared to Code of Federal Regulations*, 10 (September 9, 2013).



Source: U.S. Farm Security Administration; Photograph: Marion Post Wolcott (Barnsdall refinery in Wichita, Kansas) (Oct. 1941), Library of Congress call number: LC-USF34-059840-D [P&P] LOT 117.

§ 29:177 History and Overview of Petroleum Refining

On the receiving end of the transportation (midstream) sector of the oil and gas industry lies the downstream sector, consisting of the functions of petroleum refining and marketing. Petroleum refineries perform a simple function in society—they convert crude oil and liquids into a myriad of petroleum-based fuels and other products that people use every day. How refineries *perform* this function is, in contrast, technically and legally complex. This section and those that follow provide a brief background into the history, technical operation, and federal environmental regulation of petroleum refining and marketing in the United States.

Petroleum refining techniques were practiced as far back as the early first century in China, but the advent of modern commercial refining happened in late nineteenth century, following the discovery of oil in Titusville, Pennsylvania in 1859. The development of modern refining was driven by technological changes, both on the supply side by improved refining techniques and on the demand side by innovations requiring new fuels and refined products.

Initially, crude oil was refined to produce kerosene—a relatively heavy fraction of oil—to compete with whale oil as an illumination product. Generally considered a waste byproduct, gasoline—a lighter fraction of oil—was allowed to evaporate or was dumped into pits or nearby streams for disposal.¹ Early refining techniques for separating heavy from light fractions to render these products were highly inefficient. The method of separation used today, fractional distillation, did not come into widespread use in the United States until the 1920s, when alcohol distillers looking for work in the wake of Prohibition brought the technology to their new jobs

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¹WILLIAM L. LEFFLER, PETROLEUM REFINING IN Nontechnical Language 1 (4th ed. 2008).

in the refining industry.²

Meanwhile, the invention of the internal combustion engine and the widespread adoption of automobiles amplified demand for gasoline. Fractional distillation alone could not produce enough gasoline to satisfy demand, necessitating the advent in the early 1900s of cracking technology to cook heavier fractions until they “crack” into lighter ones like gasoline. Over the ensuing decades, increasing demand for ever-lighter and more-efficient fuels led to the emergence of the techniques of catalysis and catalytic cracking in the 1930s and 1940s, and hydrocracking and reforming processes in the 1950s, which define modern refining.³

On the strength of demand for refined products, oil refineries proliferated through the first half of the twentieth century. By the 1970s, however, concerns over air emissions from the burning of refined fuels and their additives—in particular, lead—ushered in federal environmental regulation of the refining industry.⁴ As regulation increased, the number of operating refineries decreased. From 1982 to 1994, the number of U.S. refineries fell by around 71%.⁵ Small independent refineries constituted the bulk of the closures. In large part, the attrition owes to the difficulty in constructing new ones; the newest refinery with significant downstream capacity came online in 1977.⁶ Environmental permitting and compliance costs contribute substantially to the already enormous capital investment and working capital requirements for constructing and operating a refinery, creating a barrier to entry that did not exist before the 1970s.⁷ Additionally, some environmental regulations, such as federal and state fuel standards, have a direct impact on the value of refined products,⁸ and therefore on refineries’ profit margins. While difficult to predict, current efforts to increase regulation of greenhouse gas emissions from both the upstream industry and downstream sources of power generation, as well as fluctuating demand for refined products in the United States and abroad, may accelerate the trend of refinery closures in the coming decade. Notwithstanding the challenges, however, refineries may remain profitable enterprises, so long as there remains a margin between the cost of crude oil inputs and the composite value of the refined products.⁹

While the number of operable petroleum refineries has fallen, overall capacity has been creeping up, indicating the increase in efficiency achieved in recent decades. As of January 1, 2020, there were only 135 operable petroleum refineries in the United States, but refining capacity (referred to as “distillation capacity”) reached an all-time high of 19 million barrels per day.¹⁰ As depicted in the below map, these refineries are concentrated on the Texas and Louisiana shores of the Gulf of Mexico and other coastal locales where there is ready access to shipping lanes for refined products.

²WILLIAM L. LEFFLER, *PETROLEUM REFINING IN NONTECHNICAL LANGUAGE* 1 (4th ed. 2008).

³WILLIAM L. LEFFLER, *PETROLEUM REFINING IN NONTECHNICAL LANGUAGE* 3 (4th ed. 2008).

⁴WILLIAM L. LEFFLER, *PETROLEUM REFINING IN NONTECHNICAL LANGUAGE* 3 (4th ed. 2008).

⁵Saha & Gamkar, *Evaluating the Distribution of Environmental and Social Impacts of the Petroleum Refining Industry: A Preliminary Analysis*, 18 LBJ J. OF PUB. AFFS. 38, 39 (2005).

⁶U.S. EIA, *When Was the Last Refinery Built in the United States?*, <https://www.eia.gov/tools/faqs/faq.php?id=29&t=6> (last visited June 24, 2021).

⁷MOHAMED A. FAHIM, TAHER A. ALSAHAF & AMAL ELKILANI, *FUNDAMENTALS OF PETROLEUM REFINING* 404–05 (2010).

⁸See Chapter 12 of this treatise (for a discussion of the fuel regulation program under the CAA and state boutique fuel requirements).

⁹FAHIM ET AL., *supra* note 7, at 408.

¹⁰U.S. EIA, *supra* note 6.

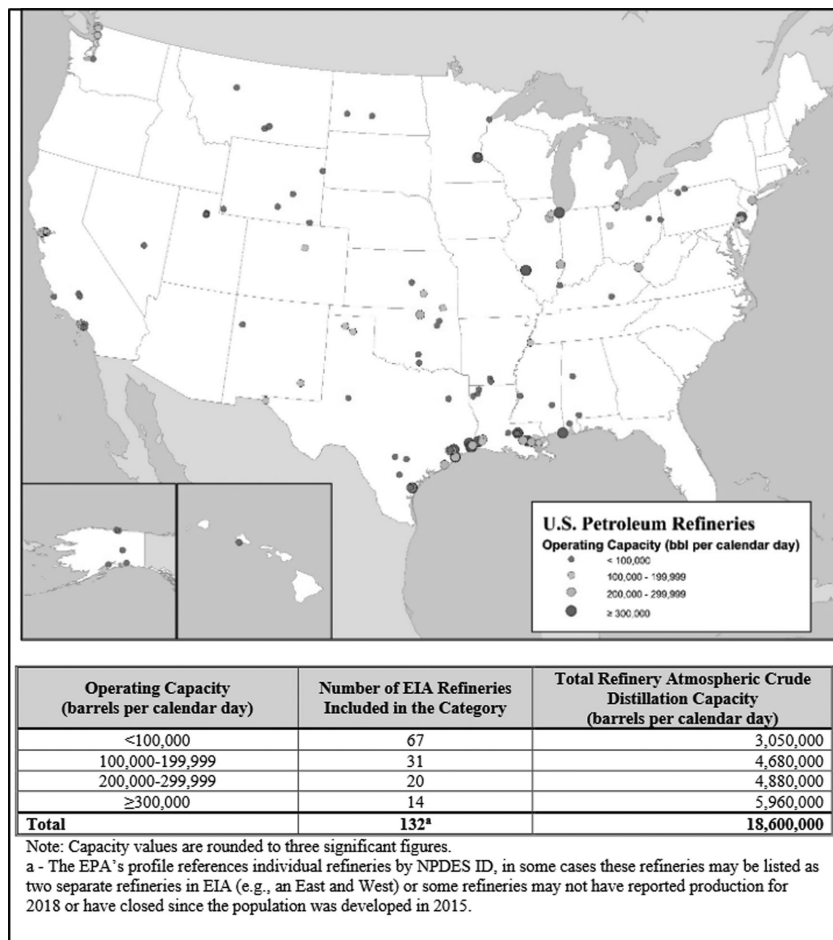


Figure 4-1. Map of United States Petroleum Refineries

Source: U.S. EPA, DETAILED STUDY OF THE PETROLEUM REFINING CATEGORY—2019 REPORT 4-2 (2019).

Under the Defense Production Act of 1950, the nation's refineries are aggregated into five geographical districts, called Petroleum Administration for Defense Districts (PADDs), for purpose of federal regulation.¹¹ The federal government uses PADDs to collect, organize, and report data on petroleum refining through the Energy Information Administration (EIA) and to organize regulatory standards under various environmental statutes and regulations. PADDs are depicted in the following map:

¹¹50 U.S.C. §§ 4501 to 68.



U.S. Energy Info. Admin. (Feb. 7, 2012), <https://www.eia.gov/todayinenergy/detail.php?id=4890>.

§ 29:178 Overview of the Marketing Sector

Together with the refining sector, petroleum marketing makes up the “downstream” side of the oil and gas industry. Marketing refers to the wholesale and retail distribution of refined products to end users in industry, business, and government sectors, as well as to individual consumers.¹ A significant portion of the marketing sector involves retail sale of fuels to consumers through gasoline stations. In addition to gasoline stations, refined products are marketed directly to factories, power plants, and transportation-related industries.² The significant diversity of marketing operations is revealed by the number of individual North American Industry Classification categories that fall within the downstream industry—nine in total, excluding petroleum refining.³ These categories include fuel dealers; bulk stations and terminals; manufacturers of petroleum products, asphalt products, lubricating oil and grease; and wholesalers of manufactured products.

Though not nearly as heavily regulated as the petroleum refining sector, petroleum marketing operations are subject to significant environmental regulation. This regulation focuses primarily on (1) the operation, monitoring, and remediation of leaking underground storage tanks used at gasoline stations,⁴ and (2) the types of fuels that may be sold in any particular region of the country, under the Clean Air Act’s (CAA’s) fuel standards programs and related state boutique fuel requirements.⁵ These fuel standards influence both the refining and marketing sectors by limiting the regions where certain fuels may be marketed.⁶

§ 29:179 Technical Operation of Refineries

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¹LIBRARY OF CONGRESS, DOWNSTREAM: REFINING AND MARKETING, <https://guides.loc.gov/oil-and-gas-industry/downstream> (last visited June 24, 2021).

²LIBRARY OF CONGRESS, DOWNSTREAM: REFINING AND MARKETING, <https://guides.loc.gov/oil-and-gas-industry/downstream> (last visited June 24, 2021).

³LIBRARY OF CONGRESS, DOWNSTREAM: REFINING AND MARKETING, <https://guides.loc.gov/oil-and-gas-industry/downstream> (last visited June 24, 2021).

⁴See §§ 14:72 to 14:82 of this treatise.

⁵See also Chapter 12 of this treatise.

⁶Pierce Jr., *Environmental Regulation, Energy, and Market Entry*, 15 DUKE ENVTL. L. & POL’Y F.

To comprehend the environmental regulation of refineries, it is helpful to understand some basic aspects of refinery operations. Modern petroleum refineries are massive and complex. Refineries operate around the clock, typically 24 hours per day and 365 days per year. They employ large numbers of employees and occupy massive tracts of land.¹ The details of a refinery's operations are determined by the kind and quality of crude oil and other liquids available as inputs,² as well as the prevailing market demand for particular refined products.³ Because the refining process generally decreases the density of crude oil, a standard 42-gallon (U.S.) barrel of crude oil yields about 45 gallons of refined petroleum products.⁴ These refined products include, in various proportions, gasoline, distillate (diesel and heating oil), kerosene, jet fuel, and many other residual products and products used in petrochemical manufacturing.

167, 170 (2005).

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¹U.S. EIA, *Oil and Petroleum Products Explained: Basics*, <https://www.eia.gov/energyexplained/oil-and-petroleum-products/refining-crude-oil.php> (last visited June 24, 2021).

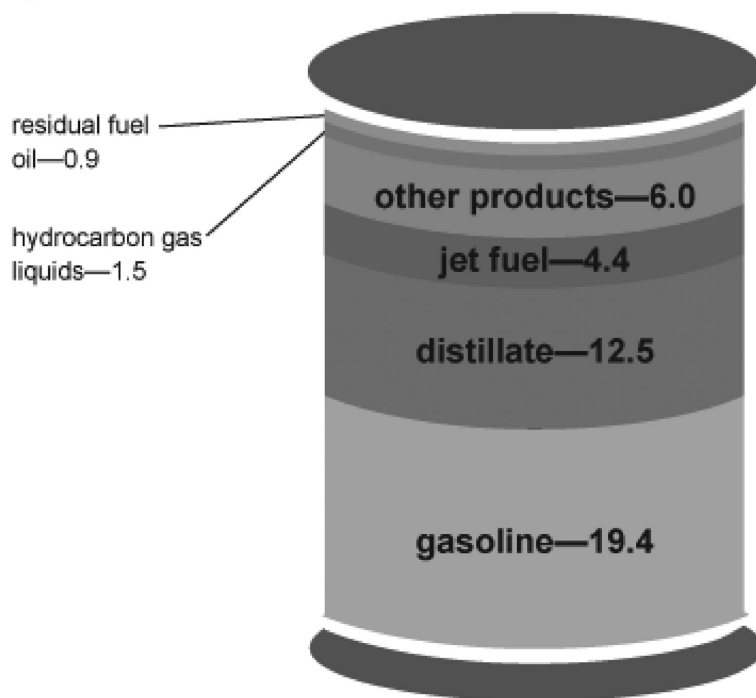
²U.S. EIA, *Oil and Petroleum Products Explained: Refining Crude Oil*, <https://www.eia.gov/energyexplained/oil-and-petroleum-products/refining-crude-oil-inputs-and-outputs.php> (last visited June 24, 2021).

³U.S. EIA, *supra* note 6.

⁴U.S. EIA, *supra* note 6.

Petroleum products made from a barrel of crude oil, 2019

gallons



Note: A 42-gallon (U.S.) barrel of crude oil yields about 45 gallons of petroleum products because of refinery processing gain. The sum of the product amounts in the image may not equal 45 because of independent rounding.

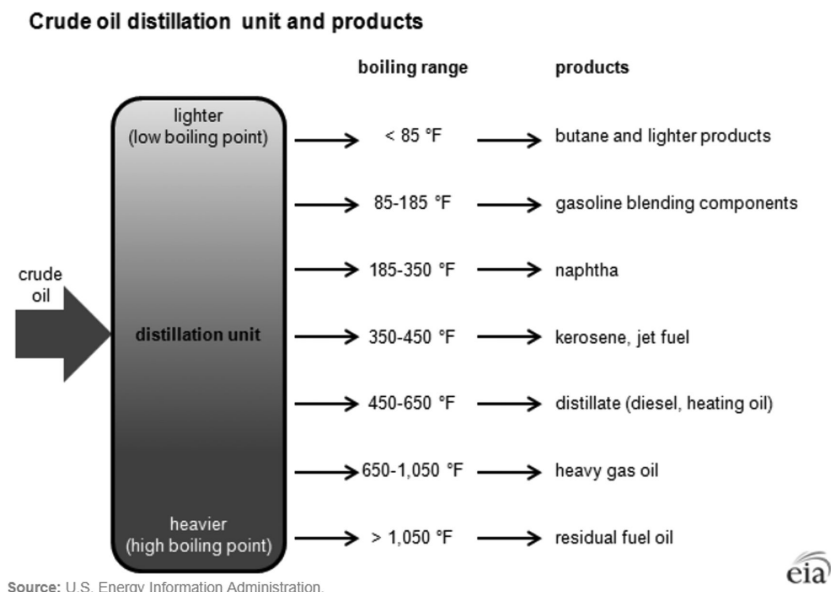
Source: U.S. Energy Information Administration, *Petroleum Supply Monthly*, April 2020, preliminary data

A bit of background into the chemistry of petroleum refining is also helpful. Crude oil refining proceeds in three basic sequential steps: (1) separation; (2) conversion; and (3) treatment.

Step 1: Separation. The first step is intended to break the crude oil into its component fractions to derive valuable products from each fraction. In the physical separation process, crude oil is first “desalted” by running it through hot furnaces to remove certain solids. The resulting fluids are discharged into atmospheric distillation units where they are introduced to super-heated steam.⁵ Inside the distillation units, the liquids and vapors separate according to their various boiling points into petroleum components called “fractions.” Light fractions rise to the top of the distillation tower and heavier fractions remain on the bottom.⁶ As the following graphic illustrates, light fractions include gasoline, medium fractions include kerosene and jet fuel, and heavy fractions include residual fuel oils and heavy gas oils.

⁵FAHIM ET AL., *supra* note 7, at 1–3.

⁶U.S. EIA, *supra* note 6.



At most modern refineries, the heaviest fractions (bottoms) are then introduced to a vacuum distillation tower where additional products are obtained.⁷ Unlike *atmospheric* distillation, *vacuum* distillation towers operate below atmospheric pressure.⁸ This is necessary because, at atmospheric pressure, heavy fractions cannot be heated to the needed temperatures without thermally cracking and degrading the oil. At the lower pressures present in vacuum distillation units, the boiling point of bottoms is low enough that lighter products can be obtained without cracking.

Step 2: Conversion. In this step, heavy fractions are processed into lighter products of higher economic value, like high-octane gasoline, jet fuel, and diesel fuel. Unlike in the separation stage, conversion typically employs chemical processes, often using catalysts, to break down the molecular structure of heavy fractions to create new petroleum products. The processes of “cracking,” “coking,” and “visbreaking” break large petroleum molecules into smaller ones. Cracking is the most commonly employed. It uses heat, pressure, and sometimes catalyst (cat-cracking) or hydrogen (hydrocracking) to break apart (crack) large petroleum molecules into smaller ones. Hydrocracking is an important source of diesel and jet fuels.⁹ The primary source of gasoline is fluid catalytic cracking (FCC), which employs a fluid catalyst and heat in the cracking process.¹⁰ Coking is a mode of thermal cracking in which residue from vacuum distillation is heated in a furnace and flashed into large drums where coke is then deposited on the walls. Coking produces gases, gasoline, and gas oils.¹¹ Visbreaking is another thermal cracking process used to break the high viscosity of heavy fractions.¹²

Other conversion processes create useful products by rearranging, rather than breaking down, the molecular structures of fractions. “Polymerization” and “alkyla-

⁷FAHIM ET AL., *supra* note 7, at 1.

⁸U.S. EIA, *Vacuum Distillation Is a Key Part of the Petroleum Refining Process*, <https://www.eia.gov/todayinenergy/detail.php?id=9130> (last visited June 24, 2021).

⁹U.S. EIA, *Hydrocracking Is an Important Source of Diesel and Jet Fuel*, <https://www.eia.gov/todayinenergy/detail.php?id=9650> (last visited June 24, 2021).

¹⁰FAHIM ET AL., *supra* note 7, at 3.

¹¹FAHIM ET AL., *supra* note 7, at 4.

¹²FAHIM ET AL., *supra* note 7, at 4.

tion” processes are like cracking in reverse; they combine small petroleum molecules into larger ones. Similarly, “isomerization” and “reforming” processes rearrange petroleum molecules to produce high-value products.¹³

Step 3: Treatment. The final step in the process is treatment. Here, technicians combine a variety of streams from the conversion process to blend fuels with varying octane levels, vapor pressure ratings, and other special considerations dictated by market demand and federal and state regulation.¹⁴ The finished products are typically stored in large above-ground tanks in a tank farm on or near the premises of the refinery until they are transported to market by pipeline, rail, marine vessel, or truck.

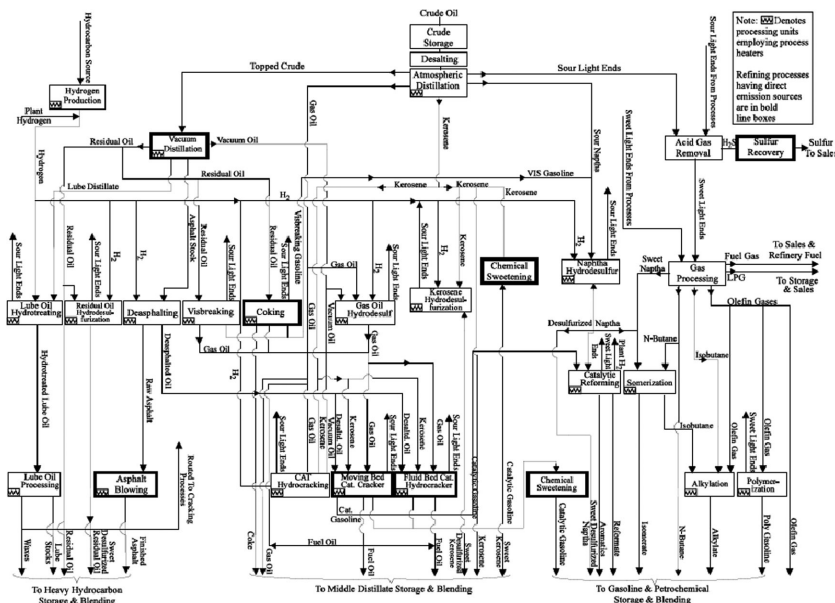


Figure 5.1-1. Schematic of integrated petroleum refinery.

I EPA, COMPILATION OF AIR POLLUTANT EMISSIONS FACTORS-42, Figure 5.1-1 (5th ed. 1995).

§ 29:180 Types and Sources of Pollution from Refineries

As described above, the refining process involves a complicated, technical, and multi-layered manufacturing procedure to develop many of the products we continue to rely on nationwide, from gasoline to diesel to petrochemical feedstocks. The process can also produce multiple kinds of waste and pollution. Broadly, refining processes generate three categories of waste: air emissions, solid waste and sludge, and polluted wastewater. Air emissions may be further subdivided into point source emissions, which are emitted from stacks, vents, and flares and are relatively easy to monitor and control, and non-point (or fugitive) emissions, which leak from valves, flanges, pumps, tanks, and the like and are more difficult to monitor and control.¹ Air emissions include greenhouse gasses (GHGs), volatile organic compounds (VOCs), all the criteria pollutants defined under the CAA—carbon monoxide, ground-level ozone, lead, nitrogen oxides, particulate matter, and sulfur

¹³FAHIM ET AL., *supra* note 7, at 3–4; U.S. EIA, *supra* note 6.

¹⁴FAHIM ET AL., *supra* note 7, at 3–4; U.S. EIA, *supra* note 6.

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¹FAHIM ET AL., *supra* note 7, at 427.

dioxide—and numerous air toxins such as the so-called BTEX compounds of benzene, toluene, ethylbenzene and xylene.² During the separation process, the desalter emits hydrogen sulfide to the atmosphere and produces large volumes of “wash water” that contain chlorides, sulfides, ammonia, hydrocarbons, and suspended solids.³ Distillation produces emissions of hydrocarbons (which contain VOCs) and hydrogen sulfide, as well as wastewater containing hydrocarbons and a number of chemicals, such as antifoam and corrosion additives.⁴ The conversion process may be the greatest source of pollution. Catalytic cracking can cause air emissions of carbon monoxide, sulfur dioxide, nitrogen oxides, hydrogen sulfide, particulates, hydrocarbons, benzene, ammonia, and aldehydes.⁵ The primary point sources for air emissions from the coking process are furnace stacks and flares, where off gas is rejected from the coking unit and combusted. Coking emissions can include hydrogen sulfide, carbon monoxide, in addition to hydrocarbons and VOCs.⁶ Coking also uses large volumes of water as a coolant and to clean coking drums. While much of this water is recycled through the system, resulting wastewater may contain pollutants such as oil, sulfides, ammonia, and phenol.⁷ Steam boilers, process furnaces, process heaters, and engines to run compressors, which are used throughout the refining process, may emit carbon monoxide, sulfur oxides, nitrogen oxides, and hydrocarbons.⁸ In transportation and marketing operations downstream of the refining process, air emissions result from evaporation of vapors from refined products. Evaporative losses occur from large storage tanks; during loading into rail cars, tank trucks, and marine vessels; while products are stored in underground storage tanks at fuel stations (breathing losses); and during fueling of vehicles.⁹

§ 29:181 Regulation of Air Emissions: Greenhouse Gas Emissions Reporting Program

The following sections survey the major federal environmental laws that pertain to each of the above-described categories of waste generated by the refining process: air emissions, water discharges, and solid and hazardous wastes. This survey begins with regulation of air emissions under the federal Clean Air Act (CAA), and, specifically, with a relatively recent program for the regulation of GHG emissions.

In 2008, Congress appropriated money for the U.S. Environmental Protection Agency (EPA) to use its authority under the CAA to “require mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy of the United States,” including the downstream sector of the oil and gas industry.¹ The resulting regulations impose extensive monitoring, reporting, and record-keeping requirements on petroleum refineries,² as well as suppliers of petroleum products (defined as refineries and importers and exporters of petroleum products

²FAHIM ET AL., *supra* note 7, at 427; I U.S. EPA, COMPILATION OF AIR POLLUTANT EMISSIONS FACTORS-42, ch. 5.1 tbl. 1 (5th ed. 1995).

³FAHIM ET AL., *supra* note 7, at 423.

⁴FAHIM ET AL., *supra* note 7, at 424.

⁵FAHIM ET AL., *supra* note 7, at 424–25; I U.S. EPA, *supra* note 33, ch. 5.1 tbl. 1.

⁶FAHIM ET AL., *supra* note 7, at 424–25.

⁷FAHIM ET AL., *supra* note 7, at 424–25.

⁸I U.S. EPA, *supra* note 33, ch. 5.1 tbl. 1.

⁹I U.S. EPA, *supra* note 33, ch. 5.1 tbl. 2-1.

[Section 29:181]

¹74 Fed. Reg. 56259, 56264 (Oct. 30, 2009) (citing H.R. 2764, FY 2008 Omnibus Appropriations Bill; Pub L. 110-161; 121 Stat. 2128).

²40 C.F.R. §§ 98.250 to 98.258 (2021).

and natural gas liquids)³ that emit certain GHGs above applicable annual thresholds.⁴ Annual GHG reports must be submitted to EPA no later than March 31 of each calendar year for GHG emissions produced in the previous calendar year.⁵

§ 29:182 Regulation of Air Emissions: New Source Review

One of the most significant sources of pollution regulation of petroleum refineries is the CAA's new source review (NSR) program, which requires facility operators to obtain a preconstruction permit before constructing a new source or a major modification of an existing source.¹ The key question for owners and operators of refineries under this program is whether a proposed modification to the refinery will constitute a "major modification." NSR was enacted in 1977, after all the significant United States refineries had already been constructed. This means that, to trigger the stringent requirements of the program, a refinery must undertake a "major modification."² Refineries are highly motivated to characterize any modifications as not major, as non-major modifications trigger only the laxer requirements of Minor NSR. A modification is "major" if it would cause a net increase in the source's actual emissions or its potential to emit (PTE) in excess of thresholds set for various pollutants by regulation,³ or if the modification occurs within 10 kilometers of a designated Class I area (a wilderness area, for example) and the increased emissions would increase the 24-hour average concentration of any regulated pollutant in the ambient air by at least one microgram per cubic meter.⁴ For a new petroleum refinery to qualify as a "major stationary source" and trigger major NSR, it must emit 100 tons per year (tpy) or more of any criteria pollutant (including fugitive emissions). As a practical matter, virtually any significant new refinery would exceed this threshold.⁵ Alternatively, if a new refinery were to voluntarily accept federally enforceable limits on its emissions to keep the emissions below the major source threshold, it may avoid major NSR requirements as a "synthetic minor source."⁶

§ 29:183 Regulation of Air Emissions: New Source Performance Standards

In addition to the preconstruction permitting programs under NSR, the CAA imposes emissions standards for criteria pollutants on designated industrial or source categories of new sources under the new source performance standards (NSPS) program.¹ Sources subject to NSPS requirements must install best demonstrated technology (BDT), which refers to the best system of emission reductions that EPA determines has been adequately demonstrated, considering the costs of achieving such emission reductions, any non-air quality health and environmental

³40 C.F.R. §§ 98.390 to 98.398 (2021).

⁴40 C.F.R. § 98.2 (2021).

⁵40 C.F.R. § 98.3(b) (2021).

[Section 29:182]

¹The NSR program is discussed in Chapter 12 of this treatise.

²Note, however, that existing refineries located in nonattainment regions are subject to RACT requirements under NA NSR.

³40 C.F.R. § 51.166(b)(23)(i) (2021).

⁴40 C.F.R. § 51.166(b)(23)(iii) (2021).

⁵40 C.F.R. § 52.21(b)(1)(i)(a) (2021).

⁶40 C.F.R. § 49.167 (2021).

[Section 29:183]

¹CAA §§ 111(d) & 129, 42 U.S.C. §§ 7411(d) & 7601. For discussion of NSPS, see Chapter 12 of this treatise.

impact, and energy requirements.²

Petroleum refineries are subject to a number of NSPS, each promulgated at 40 C.F.R. Part 60. Subpart J imposes NSPS for fluid catalytic cracking units, fluid coking units, delayed coking units, fuel gas combustion devices, and sulfur recovery plants that were constructed as part of a petroleum refinery between 1970 and 2007.³ Subpart J sets emissions control standards for particulate matter, carbon monoxide, and sulfur oxides,⁴ and imposes monitoring, testing, and reporting and recordkeeping requirements.⁵ Subpart Ja imposes NSPS for the same category of refinery components (i.e. parts within refineries) that are constructed, reconstructed, or modified after May 14, 2007.⁶ The emissions limitations of Subpart Ja cover the same criteria pollutants as Subpart J plus sulfur dioxides.⁷ Subpart Ja also requires operators of flares to develop and implement a written flare management plan,⁸ and imposes operational requirements for certain flares, combustion devices, and sulfur recovery plants.⁹ It further permits owners and operators to apply to EPA for permission to employ alternative means of emission limitation.¹⁰ Like Subpart J, Ja requires performance testing, leak monitoring, reporting, and recordkeeping.¹¹

Subparts GGG and GGGa establish standards of performance for equipment leaks of VOCs at petroleum refineries constructed, reconstructed, or modified between January 1983 and November 2006 and after November 2006, respectively.¹² Similarly, Subpart QQQ sets standards of performance for VOCs emissions from petroleum refinery wastewater systems,¹³ including drain systems, oil-water separators, and aggregate facilities.¹⁴ In addition to the performance standards, the regulations require leak repairs, monitoring, reporting, recordkeeping,¹⁵ and permit alternative standards of emission limitation.¹⁶

The petroleum marketing sector is also subject to NSPS. Subpart XX establishes VOCs emissions from new and modified bulk gasoline terminals. A bulk gasoline terminal transfers and stores gasoline and other refined petroleum products as they are distributed from refineries to service stations, bulk plants, etc.¹⁷ These regulations set emission standards for loading racks and on the loading of liquid product, vapor tightness standards for tank trucks, and pressure standards for pressure-vacuum vents on a vapor collection system.¹⁸ Subpart XX also requires the use of vapor collection equipment and requires monthly inspections for equipment leaks.¹⁹

²72 Fed. Reg. 27178, 27179 (May 14, 2007).

³40 C.F.R. § 60.100(a) to (b) (2021).

⁴40 C.F.R. §§ 60.102 to 60.104 (2021).

⁵40 C.F.R. §§ 60.105 to 60.108 (2021).

⁶40 C.F.R. § 60.100(a) to (b) (2021).

⁷40 C.F.R. § 60.102a(b) (2021).

⁸40 C.F.R. § 60.103a(a) (2021).

⁹40 C.F.R. § 60.103a(c)(i) (2021).

¹⁰40 C.F.R. § 60.103a(j) (2021).

¹¹40 C.F.R. §§ 60.104a to 60.108a (2021).

¹²40 C.F.R. §§ 60.590 to 60.590a (2021).

¹³40 C.F.R. § 60.690 (2021).

¹⁴40 C.F.R. §§ 60.692-1 to 60.692-4 (2021).

¹⁵40 C.F.R. §§ 60.692-5, 60.695 to 60.698 (2021).

¹⁶40 C.F.R. §§ 60.693-1 to 60.694 (2021).

¹⁷For the regulatory definition, see 40 C.F.R. § 60.501 (2021).

¹⁸40 C.F.R. § 60.502 (2021).

¹⁹40 C.F.R. §§ 60.502(a), 60.505 (2021).

§ 29:184 Regulation of Air Emissions: National Emissions Standards for Hazardous Air Pollutants

The national emissions standards for hazardous air pollutants (NESHAPs) program of the CAA is another significant source of pollution regulation of petroleum refineries.¹ NESHAPs sets emissions standards for hazardous air pollutants (HAPs) applicable to new, modified, and existing major sources within defined source categories. Subject facilities must install the maximum achievable control technology (MACT) to control emissions of HAPs.

HAPs are air toxics. In addition to those specifically listed by statute,² HAPs may include “substances which are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive disruption, or which are acutely or chronically toxic[]”³ The list of HAPs emitted by petroleum refineries is published at 40 CFR Part 63, Appendix to Subpart CC, Table 1. Notably, these HAPs include the BTEX compounds (benzene, toluene, ethylbenzene, and xylene).

MACT refers to

the maximum degree of reduction in emissions . . . that . . . , taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable . . . through application of measures, processes, methods, systems or techniques⁴

MACT may include measures that:

- 1) Reduce or eliminate emissions of HAPs through process changes, substitutions of materials, or other modifications;
- 2) Enclose systems of processes to eliminate emissions;
- 3) Collect, capture or treat such pollutants when released from a point source;
- 4) Are design, equipment, work practice, or operational standards (including requirements for operator training or certification); or
- 5) Are a combination of these.⁵

A stationary source is a “major source” subject to NESHAPs if it falls within an EPA-designated source category and emits at least 10 tpy of any single HAP or 25 tpy of any combination of HAPs.⁶ On October 1, 2020, EPA finalized a new rule that allows sources once categorized as “major” to reclassify as a non-major “area source” after reducing emissions below the major threshold.⁷

EPA has designated multiple source categories subject to NESHAPs that affect petroleum refining and marketing operations. Two of these, commonly referred to as “MACT 1” and “MACT 2,” pertain directly to refineries. MACT 1, promulgated at 40 C.F.R. Part 63 Subpart CC, regulates HAPs emissions from miscellaneous process vents, storage vessels, wastewater, equipment leaks, gasoline loading racks, marine tank vessel loading, and heat exchange systems at petroleum refineries.⁸ MACT 2, promulgated at Subpart UUU, regulates HAPs emissions from process vents on

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¹CAA § 112(d)(2) to (3), 42 U.S.C. § 7412(d)(2) to (3).

²CAA § 112(b)(1), 42 U.S.C. § 7412(b)(1).

³CAA § 112(b)(2), 42 U.S.C. § 7412(b)(2).

⁴CAA § 112(d)(2), 42 U.S.C. § 7412(d)(1).

⁵CAA § 112(d)(2), 42 U.S.C. § 7412(d)(1).

⁶CAA § 112(a)(1), 42 U.S.C. § 7412(a)(1).

⁷40 C.F.R. § 63 subpart A (2021).

⁸40 C.F.R. § 63.640 (2021).

catalytic cracking units (CCUs, including fluid catalytic cracking units (FCCUs)), catalytic reforming units, and sulfur recovery units (SRUs).⁹ The regulations include operational standards for decoking of delayed coking units¹⁰ and “fenceline monitoring” requirements for monitoring for regulated HAPs in the proximity of refineries.¹¹

EPA has also promulgated NESHAPs for industrial process cooling towers, which are common components of petroleum refineries. Subpart Q sets standards for emissions of chromium compounds, which are released from towers during the cooling process.¹² NESHAPs also exist for certain site-remediation technologies and practices, which are often used at petroleum refineries to clean up contaminated soil and water. These regulations, at Subpart GGGGG, aim to control emissions of organic HAPs by imposing MACT requirements and work practices designed to limit emissions.¹³

The distribution and marketing segment of the downstream industry is also subject to NESHAPs. Subparts R,BBBBBB, and CCCCCC impose limitations on the emission of air toxics from, respectively, area source categories such as bulk gasoline terminals and pipeline breakout stations;¹⁴ gasoline distribution bulk terminals, bulk plants, and pipeline facilities;¹⁵ and gasoline dispensing facilities.¹⁶ The general aim of these NESHAPs is to control releases of HAPs during the loading, unloading, and transportation of refined products like gasoline, and limit vapor leaks from pumps, valves, and similar equipment. Subpart Y requires large marine loading terminals for refined products to reduce emissions of VOCs using Reasonably Available Control Technology (RACT) and to limit emissions of HAPs using MACT.¹⁷ Special NESHAPs also apply, under Subpart BB, to facilities which transfer benzene (a refined product), such as where it is loaded into trucks, railcars, or marine vessels.¹⁸

§ 29:185 Regulation of Air Emissions: Refined Fuel Products

One of the distinctive features of environmental regulation of petroleum refineries is that, in addition to their operation, the products that refineries manufacture are themselves subject to significant regulation. Described as the most burdensome and costly regulation of the industry,¹ the CAA Amendments of 1990 established national gasoline standards and empowered states to adopt their own unique fuel programs to meet local air quality needs.² To implement one of these so-called “boutique” fuel program, states must receive approval from EPA in their SIPs. Approval is conditioned on a demonstration that the state fuel program is strictly necessary to achieve the NAAQs that the SIP implements.³ A list of approved state fuel programs

⁹40 C.F.R. § 63.1562 (2021).

¹⁰40 C.F.R. § 63.657 (2021).

¹¹40 C.F.R. § 63.658 (2021).

¹²40 C.F.R. § 63 subpart Q (2021).

¹³40 C.F.R. § 63 subpart GGGGG (2021).

¹⁴40 C.F.R. § 63 subpart R (2021).

¹⁵40 C.F.R. § 63 subpart BBBBBB (2021).

¹⁶40 C.F.R. § 63 subpart CCCCCC (2021).

¹⁷40 C.F.R. § 63 subpart Y.

¹⁸40 C.F.R. § 61 subpart B (2021).

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¹Saha & Gamkar, *supra* note 5, at 38.

²71 Fed. Reg. 78192, 78192 to 99 (Dec. 28, 2006).

³CAA § 211(c)(4)(C)(i), 42 U.S.C. § 7545(c)(4)(C)(i).

is maintained in the Federal Register and EPA's website.⁴

The purpose of the gasoline standards programs is to reduce ground-level ozone (smog) and toxic emissions from fuel burned in motor vehicles.⁵ The programs cover standards for sulfur content,⁶ the content of toxic chemicals like benzene,⁷ Reid vapor pressure (RVP),⁸ winter oxygenates,⁹ and reformulated gasoline (RFG).¹⁰ RVP standards require use of specially formulated gasoline that evaporates at a higher temperature than normal gasoline, which reduces emissions of VOCs and hydrocarbons that contribute to smog. The winter oxygenates program mandates addition of oxygenates to gasoline during winter months to increase combustion efficiency and reduce carbon monoxide emissions. The RFG program prohibits the sale of non-reformulated gasoline, or "conventional" gasoline, in certain areas of the country in nonattainment for ozone. The program aims to improve air quality in certain areas of the county through the use of gasoline that is specifically formulated to reduce motor vehicle emissions of ozone-forming compounds.¹¹

The gasoline standards programs had a profound effect on the refining industry. Before the 1990 Amendments, there were three types of gasoline sold in the United States: regular, midgrade, and premium. By 2002, under federal and state fuel programs, that number had increased to 21 types of gasoline.¹² The proliferation of gasoline types disrupted the operation of refineries as well as the gasoline distribution system. Individual gasoline types must be fed through product pipelines in batches and cannot be comingled. To produce a new type of gasoline, refineries often must incur large capital investments. These investments are difficult to recoup when the gasoline may be marketed in a limited number of states and localities.¹³ Owing to these dislocations, by 2005 the gasoline production and distribution system had become vulnerable to supplies problems and disruption.¹⁴

In response to these and related issues in the gasoline market, the Energy Policy Act of 2005 amended the CAA to restrict EPA's authority to approve state boutique fuel programs.¹⁵ Under the 2005 Act, EPA cannot approve a state fuel if it would cause the total number such fuels to increase above the number that had been approved as of September 1, 2004. Further, before approving a new fuel, EPA must consult with the Department of Energy to ensure the new fuel will not cause a supply or distribution interruption or have a significant adverse impact on fuel producibility in the affected or continuous areas.¹⁶ With certain exceptions, EPA also has the discretion to deny approval of a state fuel unless the fuel is already in an existing SIP within the same PADD.¹⁷

⁴CAA § 211(k)(1); 71 Fed. Reg. 78192, 78192 to 99 (Dec. 28, 2006); U.S. EPA, *State Fuels*, <https://www.epa.gov/gasoline-standards/state-fuels>.

⁵The gasoline regulations are under 40 C.F.R. pt. 80 (2021).

⁶40 C.F.R. pt. 80 subparts H & O (2021).

⁷40 C.F.R. pt. 80 subparts J & L (2021).

⁸40 C.F.R. § 80.27 (2021).

⁹40 C.F.R. § 80 subpart C (2021).

¹⁰40 C.F.R. § 80 subparts D & E (2021).

¹¹CAA § 211(k)(5), 42 U.S.C. § 7545(k)(5); 80 Fed. Reg. 6658, 6659 (Feb. 6, 2015).

¹²Pierce Jr., *supra* note 17, at 169.

¹³Pierce Jr., *supra* note 17, at 169–70.

¹⁴Koschnitzky, *Refining Regulation: The Oil Refinery Regulatory Framework after the Energy Policy Act of 2005*, 15 Mo. ENVT'L. L. & POL'Y REV. 89, 104–08 (2007).

¹⁵71 Fed. Reg. 78192, 78192 to 99 (Dec. 28, 2006).

¹⁶CAA § 211(v)(4)(C)(v)(IV), 42 U.S.C. § 7545(v)(4)(C)(v)(IV).

¹⁷CAA § 211(v)(4)(C)(v)(V), 42 U.S.C. § 7545(v)(4)(C)(v)(V).

§ 29:186 Regulation of Water Discharges: Effluent Limitations for Petroleum Refining Point Sources

Refineries use thousands of gallons of water per day for production and cooling processes, and much of this becomes wastewater. Sources of wastewater include, without limitation, the desalting process, tank bottoms, cooling towers, and condensate blowdown.¹ Most of the wastewater that is not reused is generally treated on site and discharged into surface waters or publicly owned treatment works (POTWs).² Since 1974, these discharges have been subject to EPA's petroleum refining effluent guidelines and standards, promulgated under the national pollutant discharge elimination system (NPDES) of the Clean Water Act (CWA).³ In general, the NPDES program prohibits discharges of pollutants through a point source into the waters of the United States without a NPDES permit.⁴

For direct discharges into surface water, effluent guidelines and standards are incorporated into a required NPDES permit. The standards require that existing point sources in the following source subcategories achieve certain effluent limitations for various pollutants: topping, cracking, petrochemical, lube manufacturing, and integrated operations.⁵ The applicable effluent limitations depend on the type of pollutant and are based variously on the best available technology economically achievable (BAT), best practicable control technology currently available (BPT), and best conventional pollutant control technology (BCT).⁶ The regulations additionally impose new source performance standards (NSPS) for new point sources in each category, which function similarly to NSPS under the CAA.⁷

Discharges into POTW are subject to the national pretreatment program component of the NPDES program. Under this program, the effluent guidelines and standards require separate pretreatment standards for existing and new sources in each of the covered source subcategories.⁸

§ 29:187 Regulation of Water Discharges: Stormwater Discharges

The NPDES program requires industrial facilities to obtain a permit for wastewater discharges from the facility.¹ Petroleum refineries are subject to this additional requirement of NPDES despite a broad exemption from the program for upstream oil and gas facilities. Section 402(l)(2) of the CWA prohibits EPA and states from requiring a NPDES permit for uncontaminated stormwater runoff

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¹See *supra* §§ 29:103 to 29:112 (discussing the refining process and sources of water discharges).

²Saha & Gamkar, *supra* note 5, at 42.

³The regulations are under 40 C.F.R. pt. 419 (2021).

⁴FWPCA § 404, 33 U.S.C. § 1342.

⁵40 C.F.R. § 419 subparts A to E (2021). For EPA's summary of the applicability of each subpart, see U.S. EPA, DETAILED STUDY OF THE PETROLEUM REFINING CATEGORY—2019 REPORT, Table 2-1 (2019).

⁶40 C.F.R. § 419.12 to 419.14 (2021) (topping subcategory), 419.22 to 419.24 (2021) (cracking subcategory), 419.32 to 419.34 (2021) (petrochemical subcategory), 419.42 to 419.44 (2021) (lube subcategory), 419.52 to 419.54 (2021) (integrated subcategory).

⁷40 C.F.R. § 419.16 (2021) (topping subcategory), 419.26 (2021) (cracking subcategory), 419.36 (2021) (petrochemical subcategory), 419.46 (2021) (lube subcategory), 419.56 (2021) (integrated subcategory).

⁸40 C.F.R. §§ 419.15 & 419.17 (2021) (topping subcategory), 419.25 & 419.27 (2021) (cracking subcategory), 419.35 & 419.37 (2021) (petrochemical subcategory), 419.45 & 419.47 (2021) (lube subcategory), 419.55 & 419.57 (2021) (integrated subcategory).

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¹FWPCA § 402(p), 33 U.S.C. § 1342(p).

discharges from oil and gas exploration, production, processing, treatment operations, and transmission facilities.² EPA has interpreted this exemption not to apply to conventional petroleum and petrochemical refineries, oil shale refineries, cracking plants, or refined products pipelines that connect refineries with local and distant product storage facilities.³

§ 29:188 Regulation of Water Discharges: Spill Prevention, Control and Countermeasures Plans and Facility Response Plans

Petroleum refineries are subject to the spill prevention, control and countermeasures (SPCC) requirements of the CWA and its oil pollution prevention regulations.¹ Covered facilities are those non-transportation-related facilities that store greater than 1,320 gallons of “oil” in aggregate above-ground storage or that have 42,000 gallons of completely buried “oil” storage capacity, and that has a “reasonable expectation of an oil discharge to navigable waters of the United States and adjoining shorelines.”² “Oil” is defined to include petroleum and nonpetroleum-based oils, crude oil, and—importantly for this sector of the industry—refined products.³ Oil storage that is permanently closed is exempt from the SPCC requirements.⁴ Additionally, because refinery tank farms can contain large volumes of “oil,” refineries may also have to prepare facility response plans (FRPs) under the 1990 Oil Pollution Act amendments to the CWA.⁵ A facility is subject to the FRP requirement if it could reasonably be expected to cause “substantial harm” to the environment by discharging oil into or on waters of the United States.⁶ Refining and downstream facilities that could pose a “significant and substantial harm” must have their FRPs approved by the appropriate EPA regional administrator.⁷ EPA considers the following factors in determining whether a facility poses a “significant and substantial harm”: age of tanks, type of transfer operations, oil storage capacity, lack of secondary containment, proximity to wildlife and sensitive environments or drinking-water intakes, spill history and frequency of past discharges, or other information, including local impacts on public health.⁸

§ 29:189 Regulation of Water Discharges: Discharge Reporting

The CWA requires any person in charge of a petroleum refinery to report to the federal government any discharge of “harmful quantities” of oil or hazardous

²40 C.F.R. § 122.26(a)(2)(ii) (2021).

³71 Fed. Reg. 894, 895 (Jan. 6, 2006) (stating the exemption applies only to operations within the NAICS codes for oil and gas extraction, drilling, support activities, and pipeline transportation); *see also* U.S. EPA, *Oil and Gas Stormwater Permitting*, <https://www.epa.gov/npdes/oil-and-gas-stormwater-permitting>; U.S. EPA, 2006 OIL AND GAS STORMWATER FINAL RULE Q&A 3 (2006).

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¹FWPCA § 311(j), 33 U.S.C. § 1321(a)(1); 40 C.F.R. § 112 (2021). For discussion of the SPCC program, *see* § 13:143 of this treatise.

²40 C.F.R. § 112.1 (2021).

³FWPCA § 311(a)(1), 33 U.S.C. § 1321(a)(1).

⁴40 C.F.R. § 112.1(b)(4) (2021).

⁵For discussion of the FRP requirements, *see* §§ 29:103 to 29:112.

⁶FWPCA § 311(j)(5), 33 U.S.C. § 1321(j)(5).

⁷FWPCA § 311(j)(5)(E), 33 U.S.C. § 1321(j)(5)(E).

⁸40 C.F.R. § 112.20(f)(3) (2021).

substance from the facility “as soon as he has knowledge of” the discharge.¹ EPA has defined “harmful quantities” by the “sheen rule,” which requires reporting of discharges that “[c]ause a film or sheen upon or discoloration of the surface of the water”²

§ 29:190 Regulation of Hazardous Substances: Resource Conservation and Recovery Act

The petroleum refining process can also generate large amounts of hazardous and non-hazardous solid wastes regulated under the Resource Conservation and Recovery Act (RCRA).¹ The 1984 Hazardous Solid Waste Amendments (HSWA) to RCRA prohibit the land disposal of untreated hazardous wastes and require EPA to set maximum concentration levels or prescribe treatment standards for hazardous waste before land disposal is permissible.² EPA maintains four separate lists of hazardous wastes that are subject to land disposal restrictions. Of primary importance to the refining industry are the K list³ and F list.⁴

The K list identifies source-specific wastes. EPA initially listed several petroleum refinery wastes in 1980.⁵ In 1998, as a result of a consent decree resolving a lawsuit filed by the Environmental Defense Fund, EPA listed several additional refinery wastes on schedule K.⁶ This was accomplished pursuant to section 3001(e)(2) of RCRA, which required EPA to determine whether to list as hazardous a number of waste residuals—including several generated by petroleum refining.⁷

F listings target more general types of waste than K listings. These listings were intended to complement the more specific listings for K-listed wastes, K051 and K048, by covering all types of petroleum refinery wastewater treatment sludges and floats, rather than only the specific ones listed in K.⁸

Petroleum Refining “K” Wastes

K048	Dissolved air flotation (DAF) float from the petroleum refining industry	(T)
K049	Slop oil emulsion solids from the petroleum refining Industry	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	(T)
K051	API separator sludge from the petroleum refining Industry	(T)
K052	Tank bottoms (leaded) from the petroleum refining Industry	(T)
K169	Crude oil storage tank sediment from petroleum refining operations	(T)
K170	Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations	(T)
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)	(I, T)

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¹FWPCA § 311(b)(3)–(5), 33 U.S.C. § 1321(b)(3) to (5).

²40 C.F.R. § 110.3 (2021). For discussion of discharge reporting requirements and the sheen rule, see §§ 29:103 to 29:112.

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¹For discussion of RCRA’s requirements and restrictions, see Chapter 14 of this treatise.

²RCRA § 3004(d)(1), 42 U.S.C. § 6924(d)(1). The Universal Treatment Standards are maintained at 40 C.F.R. § 268.40 (2021).

³40 C.F.R. § 261.32 (2021).

⁴40 C.F.R. § 261.31 (2021).

⁵45 Fed. Reg. 33064, 33123 (May 19, 1980).

⁶EDF v. Whitman, No. 89–0598 (D. D.C. 1994).

⁷63 Fed. Reg. 42110 (Aug. 6, 1998) (citing (RCRA § 3001(e)(2), 42 U.S.C. § 6921(e)(2)).

⁸50 Fed. Reg. 5637 (Feb. 11, 1985).

K172	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media).	(I, T)
K176	Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony, metal or crude antimony oxide).	(E)
K177	Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide).	(T)
K178	Residues from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-ilmenite process.	(T)

Petroleum Refining “F” Wastes

F037	Petroleum refinery primary oil/water/solids separation sludge—Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in § 261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing. This listing does include residuals generated from processing or recycling oil-bearing hazardous secondary materials excluded under § 261.4(a)(12)(i), if those residuals are to be disposed of	(T)
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge—Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in § 261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing	(T)

§ 29:191 Regulation of hazardous substances: underground injection wells

Petroleum refineries are among the most significant users of Class I underground injection wells for hazardous and non-hazardous fluid wastes. Class I wells, authorized by the underground injection control (UIC) program of the federal Safe Drinking Water Act (SDWA),¹ are used to inject hazardous and non-hazardous wastes (as defined by RCRA)² into deep, confined rock formations thousands of feet below underground sources of drinking water. Most Class I wells are found in the Gulf Coast and Great Lakes areas, where much of the country’s refining capacity is located and where the geology is well suited to this type of well. Class I wells are subject to extensive requirements relating to siting, construction, operation, monitoring, testing, recordkeeping, reporting, and closure.³

§ 29:192 Regulation of Hazardous Substances: Comprehensive Environmental Response, Compensation, and Liability Act

Refinery facilities that fall short of complying with RCRA could also run afoul of the Comprehensive Environmental Response, Compensation, and Liability Act’s (CERCLA’s) regime of strict liability for the cleanup of sites where there has been a

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¹42 U.S.C. § 300f.

²RCRA § 3004(f), 42 U.S.C. § 6924(f).

³40 C.F.R. §§ 146.1 to 146.10 (2021) (general UIC requirements), 146.11 to 146.16 (standards applicable to Class I wells). For discussion of Class I permitting requirements, see § 14:68 of this treatise.

release or threatened release of hazardous substances.¹ Critically, to define “hazardous substances,” CERCLA incorporates anything classified as a hazardous or toxic waste, chemical, substance, emission, or effluent under RCRA, as well as the CAA, CWA, and the Toxic Substances Control Act²—all of which apply to petroleum refining operations. The wide scope of liability, broad definition of hazardous substances, and the potentially incredible costs of cleanup, combine to make CERCLA one of the most financially consequential environmental regulations of the downstream oil and gas industry. There are a number of exclusions from CERCLA’s definition of hazardous wastes relevant to the petroleum refining sector. Oil-bearing hazardous secondary materials, such as sludges, byproducts, or spent materials, that are generated at a petroleum refinery are excluded if they are reused in the petroleum refining process, such as in distillation, catalytic cracking, fractionation, or thermal cracking (coking) processes. This exclusion is lost, however, if the material is placed on the land or “speculatively accumulated before being so recycled.” The exclusion does not cover materials inserted into certain thermal cracking units.³ Oil that is reclaimed from secondary materials (including wastewater) generated from normal refining, bulk storage, and transportation practices and recycled in the same manner is also excluded.⁴ Petrochemical recovered from oil from an associated organic chemical manufacturing facility is also excluded if reused in the petroleum refining process.⁵ Groundwater that is hazardous only because it exhibits the toxicity characteristic of 40 C.F.R. § 261.24 and that is reinjected through an underground injection well pursuant to free phase hydrocarbon recovery operations at petroleum refineries, petroleum marketing terminals, petroleum bulk plants, petroleum pipelines, and petroleum transportation spill sites is excluded if conducted before January 25, 1993, or subsequently under certain conditions.⁶

Additionally, CERCLA excludes from the definition of “hazardous substances” “petroleum, including crude oil or any fraction thereof” and “natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel”⁷ Courts have interpreted this “petroleum exclusion” to encompass gasoline leaking from underground storage tanks, even where certain additives in the gasoline themselves had been designated as hazardous substances.⁸ EPA, however, interprets the exclusion narrowly, such that it encompasses only crude oil and fractions of crude oil, including the hazardous substances, such as benzene, that are indigenous in those petroleum substances. Further, EPA’s interpretation encompasses within the exclusion hazardous substances that are normally mixed with or added to crude oil or crude oil fractions during the refining process, including hazardous substances the levels of which are increased during refining. The exclusion does not cover, under EPA’s interpretation, hazardous substances that are added to petroleum or that

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¹CERCLA § 107(a)(4), 42 U.S.C. § 9607(a)(4). For discussion of CERCLA, *see* Chapter 14 of this treatise.

²CERCLA § 101(14), 42 U.S.C. § 9601(14). EPA lists the designated hazardous substances at 40 C.F.R. § 302.4 (2021).

³40 C.F.R. § 261.4(a)(12)(i) (2021).

⁴40 C.F.R. § 261.4(a)(12)(ii) (2021).

⁵40 C.F.R. § 261.4(a)(18) (2021).

⁶40 C.F.R. § 261.4(b)(11) (2021).

⁷CERCLA § 101(14), 42 U.S.C. § 9601(14).

⁸*Wilshire Westwood Associates v. Atlantic Richfield Corp.*, 881 F.2d 801, 805, 30 Env’t. Rep. Cas. (BNA) 1065, 19 Env’tl. L. Rep. 21313 (9th Cir. 1989).

increase in concentration as a result of contamination of the petroleum during use.⁹

§ 29:193 Regulation of Hazardous Substances: The Toxic Substances Control Act

As manufacturers and users of chemical substances, petroleum refineries are subject to the provisions of Subtitle I of the Toxic Substances Control Act (TSCA). The law regulates the manufacture, sale, and use in commerce of all existing and newly manufactured or imported chemicals in the United States that pose “an unreasonable risk to health or to the environment.” TSCA applies to any person, including refineries, that manufactures, processes, distributes in commerce, uses, or disposes of a regulated chemical substance.¹ “Chemical substance” is defined broadly to include “any organic or inorganic substance of a particular molecular identity,” but excludes substances controlled under other federal statutes, such as pesticides, tobacco products, nuclear materials, and food, cosmetics, and drugs.²

EPA must maintain the TSCA Chemical Substance Inventory, which includes more than 86,000 chemical substances manufactured and used in the United States.³ Under the chemical data reporting (CDR) rule (formerly the inventory update rule (IUR)), every four years, manufacturers that meet or exceed production volume thresholds (generally 25,000 pounds or more of a chemical substance) must report information to EPA about their production and use of chemicals in commerce.⁴ The manufacture of new chemical substances, or the new use of existing substances, is prohibited unless the manufacturer gives EPA at least 90 days’ notice (premanufacture notice) and the EPA Administrator, after a review, determines it does not present an unreasonable risk of injury to health or the environment.⁵ New chemical substances are subsequently added to the inventory.

Under Section 6(a), EPA may promulgate rules restricting or prohibiting the manufacturing, processing, or distribution commerce of certain chemical substances.⁶ Section 21 permits parties to petition EPA to undertake 6(a) rulemakings. On November 4, 2019, EPA denied such a petition from the Public Employees for Environmental Responsibility to promulgate a Section 6(a) rule prohibiting petroleum refineries from using hydrofluoric acid in manufacturing processes and require a phase-out within two years.⁷

§ 29:194 Regulation of Hazardous Substances: Emergency Planning and Community Right-to-Know Act

By virtue of the presence of a number of hazardous substances in significant quantities at petroleum refining facilities, refineries are subject to the Emergency

⁹Memorandum from EPA General Counsel Francis S. Blake to Assistant Administrator for Solid Waste and Emergency Response J. Winston Porter Regarding Scope of the CERCLA Petroleum Exclusion Under Sections 101(14) and 104(a)(2), at 5 (Jul. 31, 1987); U.S. EPA, *Specific Substances Excluded Under CERCLA Petroleum Exclusion*, <https://www.epa.gov/epcra/specific-substances-excluded-under-cercla-petroleum-exclusion>.

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¹See TSCA § 4(a)(1)(A), 15 U.S.C. § 2603(a)(1)(A).

²TSCA § 1(2), 15 U.S.C. § 2602(2).

³TSCA § 8(b), 15 U.S.C. § 2608(b).

⁴TSCA § 8(a), 15 U.S.C. § 2607(a); 40 C.F.R. pt. 711 (2021).

⁵TSCA § 5(a), 15 U.S.C. § 2604(a); 40 C.F.R. §§ 720 to 23 (2021).

⁶TSCA § 6(a), 15 U.S.C. § 2605(a); 40 C.F.R. §§ 750 to 51 (2021).

⁷84 Fed. Reg. 60986 (Nov. 12, 2019).

Planning and Community Right-to-Know Act (EPCRA).¹ EPCRA creates a framework to require facilities, including petroleum refineries, where extremely hazardous substances (EHSs) are present to disclose these substances to local and state authorities to report their accidental release. EHS are listed in Appendix A to 40 C.F.R. Part 355. Refineries are covered facilities if they employ 10 or more full-time-equivalent employees (as they invariably do) and manufacture or process the listed chemicals in excess of applicable thresholds.² Covered facilities must annually submit a material safety data sheet (MSDS), as well as an emergency and hazardous chemical inventory form, to the local and state planning authorities and local fire departments for each hazardous chemical (as defined under the Occupational Safety and Health Act).³ Additionally, refineries are subject to EPA's Toxics Release Inventory (TRI) program, which requires reporting of the quantities of listed toxic chemicals that the refinery uses, manufactures, or processes above applicable thresholds during the previous year.⁴ Refineries must also submit either a Tier I or Tier II hazardous chemical inventory form, which identifies the amount, location, and potential hazards of each EHS on site at any point during the year.⁵

§ 29:195 Regulation of Underground Storage Tanks

The marketing sector of the downstream industry makes great use of underground storage tanks (USTs) to store refined products; in particular, for gasoline at filling stations. Leaking USTs can contaminate underground sources of drinking water. These issues led EPA to promulgate regulations addressing USTs under the authority of amendments to Subtitle I of the Solid Waste Disposal Act of 1984 (amending RCRA),¹ which in turn was amended by the Energy Policy Act of 2005.² EPA revised its UST regulations in July 2015 to increase requirements on operation and maintenance and leak prevention and detection.³ Generally, the UST regulations impose performance standards for new USTs, upgrading standards for existing systems,⁴ and general operating requirements for all USTs. These operating requirements cover spill and overfill controls, operation and corrosion protection, reporting and recordkeeping, periodic testing of spill prevention and containment mechanisms, and periodic inspections.⁵ Additionally, the regulations mandate release detection, reporting and investigation, and response and corrective action procedures.⁶ The regulations also address closure procedures and recordkeeping and financial responsibility requirements.⁷

The statutes permit states to develop their own UST programs with the approval

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¹EPCRA is discussed in §§ 14:147 to 14:171 of this treatise.

²EPCRA § 313(b), 42 U.S.C. § 11023(b); 40 C.F.R. § 372.5 (2021).

³EPCRA § 311(a), 42 U.S.C. § 11021(a).

⁴EPCRA § 313(a), 42 U.S.C. § 11023(a). The thresholds are set under subsection (f).

⁵EPCRA § 312(a) & (d), 42 U.S.C. § 11022(a) & (d).

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¹40 C.F.R. § 280 (2021).

²RCRA §§ 9001 to 9010, 42 U.S.C.A. § 6991 to 6991m.

³80 Fed. Reg. 41566 (Jul. 15, 2015).

⁴40 C.F.R. § 280.20 (new USTs), 280.21 (existing USTs) (2021).

⁵40 C.F.R. §§ 280.30 to 280.36 (2021).

⁶40 C.F.R. §§ 280.40 to 280.45, 280.50 to 280.53, 280.60 to 280.67 (2021).

⁷40 C.F.R. §§ 280.70 to 280.74, 280.90 to 280.116 (2021).

of EPA to operate in lieu of federal standards.⁸ State-imposed standards may be more stringent than federal requirements.⁹ EPA maintains a list of approved state programs at 40 C.F.R. Part 282 Subpart B.

In 1986, Congress created the Leaking Underground Storage Tank (LUST) Trust Fund to address petroleum releases from federally regulated USTs.¹⁰ The Energy Policy Act of 2005 expanded the permissible uses of funds from the Trust Fund, such that they may be used to oversee cleanups of petroleum releases, enforce cleanups, pay for cleanups at sites where the owner or operator is unknown, unwilling, or unable to respond or which require emergency action, and conduct inspections and other release prevention activities.¹¹ States and tribes may use Trust Fund money to support these purposes if they enter an assistance agreement with the federal government.

§ 29:196 Federal Statutes Implicated by Permits Issued under the CAA, CWA, and RCRA

Certain federal environmental statutes that do not directly regulate petroleum refining and marketing are implicated nonetheless when a federal agency issues a permit under the CAA, CWA, or RCRA. These include, notably, the National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act (ESA), and Coastal Zone Management Act (CZMA). NEPA is triggered by any “major federal action,” which is defined to include “approval of specific projects . . . by permit or other regulatory decision under the CAA, CWA, and RCRA.”¹ Similarly, NHPA requires any federal agency with the authority to license a project to account for the effects of the project on historic properties.² Section 7 of ESA requires federal agencies to consult with the U.S. Fish and Wildlife Service or National Marine Fisheries Services to ensure that “any action authorized . . . by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in destruction or adverse modification of habitat for such purposes.”³ CZMA mandates that private activities requiring a federal permit affecting a coastal use or resource be “fully consistent” with enforceable of the relevant state coastal zone management plan.⁴

Consequently, any time a petroleum refinery or other downstream operation requires a permit from a federal agency, such as a Section 404 dredge and fill permit under the Clean Water Act or a New Source Review permit under the Clean Air Act, the permittee must demonstrate compliance not only with the requirements of the statute under which it seeks a permit, but also the requirements of NEPA, NHPA, ESA, and CZMA. For example, if an existing refinery were to undertake a major modification to increase capacity, it would need to consider whether the modification triggers any Clean Air Act permitting programs, such as NSR, NSPS, and NESHAPS. If so, EPA would be obligated to conduct analyses under NEPA, NHPA, the ESA, and the CZMA before issuing the requested permit. These ad-

⁸RCRA § 9004(a), 42 U.S.C. § 6991c(a). State UST programs may be approved under 40 C.F.R. § 281 (2021).

⁹RCRA § 9008, 42 U.S.C. § 6991g.

¹⁰RCRA § 9010(2), 42 U.S.C. § 6991m(2).

¹¹RCRA § 9010(2), 42 U.S.C. § 6991m(2).

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¹42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1508.18(b)(4) (2021).

²16 U.S.C. § 470f.

³16 U.S.C. § 1536(a)(2).

⁴15 C.F.R. §§ 930.50 to 930.53 (2021).

ditional requirements can substantially increase the time and expense of obtaining a permit.

X. REGULATION OF TRANSPORTATION

§ 29:197 Overview and Background

Almost all natural gas and most liquid petroleum transported in the United States moves by pipeline. This section therefore focuses on environmental regulation of pipeline transportation. The section also briefly describes the regulation of rail transportation of oil, an alternative mode of shipment that increased sharply during the domestic energy revolution because of constraints in pipeline capacity.¹

Several different legal frameworks regulate the environmental, health, and safety risks of the pipeline networks carrying oil and gas. Federal and state public utility laws, state energy facility siting laws, and federal executive orders govern whether and where pipeline facilities should be built. The cooperative federalist framework of the Pipeline Safety Act governs leaks or spills of products from pipeline facilities.² Finally, certain pipeline activities are regulated under media-specific environmental laws such as the Clean Water Act and Clean Air Act.³

Environmental regulation of pipeline facilities depends on the type of system, the substance transported, and whether the facilities are part of a system that crosses state or national borders. There are three types of pipeline systems: (1) gathering pipeline systems, which collect raw natural gas or crude oil extracted from production wells and transport it to processing facilities or to transmission networks; (2) transmission pipeline systems, which transport gas, oil, or other petroleum products over long distances; and (3) gas distribution pipeline systems, which deliver gas to local customers. Of these systems, the risks of transmission pipeline systems are subject to the most oversight. The federal government directly considers the environmental effects of interstate gas transmission pipeline projects and pipeline projects involving cross-border facilities in determining whether to approve the projects. In contrast, the effects of other types of systems are primarily regulated through safety standards that are designed to prevent accidents. Unlike the disparate legal frameworks governing pipelines, the risks of rail transportation of oil are governed by one framework comprised of two related laws: federal hazardous materials safety regulations promulgated in 2015 and a federal statute enacted six months later.

§ 29:198 Approval and siting of interstate natural gas transmission pipelines

Under Section 7 of the Natural Gas Act, a natural gas company that intends to construct or extend facilities used for transportation of natural gas in interstate commerce is required to obtain a certificate of public convenience and necessity from

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¹Oil is also transported by barge, vessel, and tanker truck. Environmental regulation of oil-carrying vessels is governed by the Oil Pollution Act, a statute covered in other sections. The U.S. Department of Transportation (DOT) regulates the shipment of oil on roadways under the Hazardous Materials Transportation Act. The DOT's regulations focus on containment of hazardous materials and hazard communication.

²49 U.S.C. §§ 60101 to 60143.

³For example, as explained in another section of this chapter, construction of a pipeline that results in a discharge of dredged or fill material must obtain a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

the Federal Energy Regulatory Commission (FERC).¹ These facilities include transmission pipelines and the equipment needed to operate a pipeline system, such as compressor stations.

To issue a certificate, FERC must find “that the applicant is able and willing properly to do the acts and to perform the service proposed” and the project “is or will be required by the present or future public convenience and necessity.”² When considering an application, FERC follows the decision-making procedure in its Certificate Policy Statement.³ An applicant who proposes to expand an existing pipeline system must first establish that the project is not dependent on subsidies from existing customers.⁴ If this threshold test is met or the pipeline is new, FERC considers whether the applicant has addressed adverse effects of the project on other pipelines and their existing customers, on owners of land where the facilities will be sited, and on communities affected by the facilities. FERC then weighs the residual adverse effects against the public benefits of the project, namely, the need for the project. This balancing test is primarily focused on economic effects but includes some environmental issues, such as land disturbance.

FERC’s decision to certificate is considered a “major federal action” under the National Environmental Policy Act (NEPA), which means FERC must prepare an Environmental Impact Statement (EIS) for a project if there are significant environmental effects.⁵ FERC normally prepares an EIS when there is a major construction project involving a new right-of-way.⁶ When the project meets the initial balancing test, FERC proceeds to evaluate the environmental impacts and alternatives. The scope of the environmental analysis has been controversial, particularly the extent to which FERC is required to assess the indirect impacts of the project on climate change.⁷ FERC generally defers to the U.S. Department of Transportation’s pipeline safety requirements in evaluating the potential for natural gas releases.

If FERC finds that the environmental impacts of the project are acceptable given the public benefits, it issues a certificate and approves the pipeline route and location of other facilities. FERC may impose environmental conditions on the certificate to mitigate adverse impacts.⁸ The certificate provides a natural gas company with the authority to use eminent domain to obtain easements for the pipeline project.⁹ The certificate is generally the final siting approval, as the Natural Gas Act

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¹15 U.S.C. §§ 717(b), 717f(c). Such interstate facilities include pipelines that extend across state borders and pipelines within a state that are part of a system that transports gas among states.

²15 U.S.C. § 717f(e).

³Certification of New Interstate Natural Gas Pipeline Facilities, 88 FERC ¶ 61227 (1999), *clarified*, 90 FERC ¶ 61128, *further clarified*, 92 FERC ¶ 61094 (2000) (Certificate Policy Statement). FERC also issues blanket certificates for routine activities that do not require case-specific review. 18 C.F.R. §§ 157.201 to 157.218 (2021).

⁴FERC uses this criterion as a threshold test because it ensures that there is a market need for the pipeline and protects existing customers as well as landowners from the adverse effects of an unnecessary pipeline. 88 FERC ¶ 61227 at 21-22.

⁵See 42 U.S.C. § 4332(2)(C).

⁶18 C.F.R. § 380.6(a)(3) (2021).

⁷In 2017, the D.C. Circuit Court of Appeals held that FERC must quantify the effects of a pipeline project on climate change in an EIS or explain why the agency is unable to do so. *Sierra Club v. Federal Energy Regulatory Commission*, 867 F.3d 1357, 1375, 85 Env’t. Rep. Cas. (BNA) 1035 (D.C. Cir. 2017).

⁸15 U.S.C. § 717f(e).

⁹15 U.S.C. § 717f(h).

preempts state and local zoning law.¹⁰

§ 29:199 Approval and Siting of Other Transmission Pipelines

Interstate natural gas transmission pipeline projects are the only pipeline projects that must be approved by FERC. While FERC regulates the rates and service of interstate oil transmission pipelines under the Interstate Commerce Act,¹ it does not have authority to approve oil pipeline projects or to consider the environmental impacts of these projects.

Thus, state law governs the siting of interstate and intrastate oil transmission pipeline projects and gas transmission pipeline projects. Half of the states require review and approval of at least some types of transmission pipeline projects.² In the remaining states, public utility commissions may generally oversee transmission pipeline projects by companies that deliver gas to customers, but there is no specific review of impacts mandated by law.

Some states that require review of transmission pipeline projects employ a process similar to the one used by FERC: a company must seek a certificate of public convenience and necessity or other approval from the state public utility commission. For example, a company that intends to construct a pipeline that will operate as a common carrier in Illinois is required to obtain a certificate in good standing from the state Commerce Commission.³ In determining whether the public convenience and necessity require issuance of a certificate for an oil pipeline, the commission must consider environmental impacts and impacts to natural resources.⁴ Other states review transmission pipeline projects as part of a centralized process for siting energy facilities. These states generally require the decision-maker to determine the acceptability of impacts to the environment. For example, in Connecticut, a company that intends to construct an energy facility—which includes an intrastate gas transmission pipeline—and utilize eminent domain authority must apply to a siting council for a certificate of environmental compatibility and public need.⁵ To issue the certificate, the council must conclude that the significant adverse environmental effects of the project “are not sufficient reason to deny the application.”⁶

§ 29:200 Trans-Border Oil and Gas Pipeline Projects

Oil and gas transmission pipeline projects that cross the U.S.-Canada or U.S.-Mexico border must obtain a Presidential Permit for the facilities at the border. Courts have upheld this permit requirement as an exercise of the president’s constitutional power over foreign affairs. In practice, this means that there is federal review of the environmental impacts of transborder pipeline projects that would not otherwise be subject to federal approval and NEPA, such as intrastate gas transmission pipelines and interstate and intrastate oil transmission pipelines.

By executive order, FERC is vested with the authority to issue a Presidential

¹⁰See, e.g., *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238, 245, 77 Env’t. Rep. Cas. (BNA) 1040, 181 O.G.R. 979 (D.C. Cir. 2013), judgment entered, 529 Fed. Appx. 3 (D.C. Cir. 2013).

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¹See Interstate Commerce Act, 49 U.S.C. app. § 6 (1988).

²For a list of the states and the governing laws, see Gosman, *Planning for Failure: Pipelines, Risk, and the Energy Revolution*, 81 OHIO ST. L.J. 349 (2020).

³220 Ill. Comp. Stat. 5/15-401(a).

⁴220 Ill. Comp. Stat. 5/15-401(b)(1), (3).

⁵Conn. Gen. Stat. § 16-50k.

⁶Conn. Gen. Stat. § 16-50p(3)(B), (C).

Permit for construction of natural gas facilities at the border if it is “consistent with the public interest.”¹ FERC has not defined this term by rule or in a policy statement. Before FERC may grant the permit, the Secretaries of State and Defense must also recommend approval. If the agencies do not agree, the application is submitted to the president for a final decision.

In addition to a permit, the facilities are required to obtain a separate approval from FERC under Section 3 of the Natural Gas Act.² Pursuant to this section, FERC must approve the construction and siting of facilities for import or export of natural gas unless it is not consistent with the public interest. The statute provides that importing gas from or exporting gas to a nation with which the United States has a free trade agreement that grants national treatment to trade in natural gas is “deemed to be consistent with the public interest.”³ FERC is required to grant such Section 3 applications “without modification or delay.”⁴ Since the U.S.-Mexico-Canada Agreement grants national treatment to natural gas, gas transmission pipelines that cross the borders of Canada and Mexico must be approved under the statute. No similar expedited approval is mandated for the Presidential Permit, however. FERC’s practice is to consider applications for a Presidential Permit and Section 3 approval in one proceeding and to balance environmental impacts with the importance of free trade and economic effects. An Environmental Assessment is normally prepared under NEPA to determine if there are significant environmental impacts.⁵ To comply with NEPA, FERC’s environmental review encompasses indirect environmental impacts caused by the whole pipeline even if it only transports gas within a state and is therefore not otherwise subject to FERC jurisdiction. If the pipeline transports gas in interstate commerce and requires approval under Section 7, FERC generally incorporates all of the authorizations into one proceeding and prepares an EIS. FERC may—and usually does—impose environmental conditions on its approvals.⁶

By separate executive order, the U.S. State Department is authorized to issue a Presidential Permit for construction of oil and petroleum product facilities at the border if it “would serve the national interest.”⁷ A detailed administrative procedure governs the process for making the decision. The State Department must request the views of certain heads of other departments and agencies, including the Administrator of the Environmental Protection Agency and the Secretaries of Interior and Energy. For applications involving the border with Mexico, the U.S. Commissioner of the International Boundary and Water Commission must also be consulted. An official who disagrees with the State Department’s proposed determi-

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¹Exec. Order No. 10485, 18 Fed. Reg. 5397 (Sept. 3, 1953). The executive order gave the permitting authority to the Federal Power Commission, the predecessor to FERC, but it is now vested in FERC.

²15 U.S.C. § 717b(a). The authority to approve imports or exports of natural gas under the Natural Gas Act is divided between FERC and the Department of Energy. FERC has the responsibility to “[a]pprove or disapprove the construction and operation of particular facilities, the site at which such facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports.” DOE Delegation Order No. 00-004.00A (effective May 16, 2006). The Department of Energy’s Office of Fossil Energy authorizes the import or export of the natural gas.

³15 U.S.C. § 717b(b), (c).

⁴15 U.S.C. § 717(c).

⁵18 C.F.R. § 380.5(b)(1) (2021).

⁶15 U.S.C. § 717b(a); Exec. Order No. 10485, *supra* note 20.

⁷Exec. Order No. 11423, 33 Fed. Reg. 11741 (Aug. 16, 1968), *as amended by* Exec. Order No. 13337, 69 Fed. Reg. 25299 (Apr. 30, 2004).

nation must object within 15 days of being notified. The application is referred to the president for a final decision when the officials cannot agree.

The State Department has not defined the standard for a permit in its regulations; however, in making individual national interest determinations, the department has considered environmental impacts together with other factors such as energy security, economic impacts, and foreign policy objectives. The department's NEPA regulations do not specify how a Presidential Permit for a cross-border facility should be treated under NEPA.⁸ In the past, the department has prepared an EA for smaller, intrastate pipeline projects and an EIS for larger, interstate pipeline projects. As with cross-border natural gas facilities, environmental review of the project includes indirect environmental impacts caused by the entire pipeline. In its most recent determinations, the department has also considered other indirect environmental impacts, such as the effects on climate change of the method of production of the oil transported through the pipeline and of the ultimate use of the oil. In issuing permits, the department has relied on the authority to set terms and conditions granted by executive order to impose environmental requirements on the project.

§ 29:201 Oil and Gas Pipeline Safety

The federal Pipeline Safety Act grants the Pipeline and Hazardous Materials Safety Administration (PHMSA) in the U.S. Department of Transportation the authority to establish minimum safety standards for pipeline facilities that are “practicable” and “designed to meet the need for . . . pipeline safety . . . and protecting the environment.”¹ PHMSA's broad regulatory authority over pipeline systems does not, however, extend to siting; the statute prohibits the agency from specifying the location or route of a pipeline.²

If certified by PHMSA, a state may create its own program to regulate intrastate pipelines and may adopt more stringent standards if they are compatible with the federal minimum standards.³ PHMSA has exclusive jurisdiction over interstate pipelines.

There are separate safety standards for pipelines that transport natural gas and pipelines that transport hazardous liquids such as oil and petroleum products.⁴ While the details of the two programs differ, the general approach to regulation is the same. The safety standards regulate the life cycle of a pipeline system once it has been sited: from the design, installation, and construction; to day-to-day operation; to maintenance and repair of the system; to planning for an emergency; and, finally, to abandonment of the pipeline when it is no longer needed.

When a transmission pipeline system or a gas distribution pipeline system is being newly constructed or part of the system is being replaced, prescriptive requirements and performance standards regulate the design specifications, installation and construction methods, and initial inspections and tests. After the infrastructure is in place, PHMSA cannot require a company to comply with updates to these

⁸Prior to 2020, the State Department identified issuance of a Presidential Permit as an action that would normally require an EA. 22 C.F.R. § 161.7(c)(1) (2021).

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¹49 U.S.C. § 60102.

²49 U.S.C. § 60104(e).

³49 U.S.C. §§ 60104(c), 60105.

⁴49 C.F.R. § 192 (natural gas), pt. 195 (hazardous liquids) (2021).

safety standards.⁵ The risks associated with an existing pipeline system are managed through operation, maintenance, and emergency procedures. Each pipeline company must create a written plan for inspection and maintenance of its system to ensure that it is safely operated and does not exceed the maximum allowable operating pressure.⁶

Transmission pipeline companies must develop special integrity management programs to prevent accidents in protected areas, known as “high-consequence areas.”⁷ For gas transmission pipelines, a “high-consequence area” is a densely populated area. For hazardous liquid pipelines such as oil and petroleum product pipelines, the term is defined more broadly to include populated areas, commercially navigable waterways, and “unusually sensitive areas.”⁸ As part of the management program, a company must inspect its pipelines regularly, assess the risks of the system, and remediate conditions that reduce a pipeline’s integrity within a set schedule.⁹

To prepare for an accident and mitigate its impacts, each pipeline company must develop “an emergency response plan describing the operator’s procedures for responding to and containing releases.”¹⁰ These include procedures for establishing liaisons and communicating with state and local officials. Under the Oil Pollution Act, companies that own oil pipelines must also create a facility response plan containing procedures and a list of resources to respond to a worst-case discharge of oil into navigable waters or adjoining shorelines.¹¹ These plans must be kept on file by PHMSA and redacted versions provided to the public on request.¹²

Only some gathering pipeline systems are subject to safety regulation.¹³ Safety standards apply to crude oil gathering pipeline systems in urban areas and certain systems in rural areas that are located in or within one-quarter mile of an unusually sensitive area. Most safety standards also apply to natural gas gathering pipeline systems in more densely populated areas.

§ 29:202 Rail Transportation of Crude Oil

The safety of rail transportation is generally governed by two statutes: the Hazardous Materials Transportation Act (HTMA)¹ and the Federal Railroad Safety Act (FRSA).² Under the HTMA, PHMSA is authorized to “prescribe regulations for the safe transportation, including security, of hazardous material in intrastate, inter-

⁵49 U.S.C. § 60104(b).

⁶49 U.S.C. § 60108(a).

⁷49 U.S.C. § 60109. A gas distribution pipeline company must also create an integrity management plan for its entire system that analyzes the risks to its system and effectively manages leaks. 49 U.S.C. § 60109.

⁸PHMSA has defined an “unusually sensitive area” in its regulations to include sources of drinking water and certain habitats of imperiled, threatened, or endangered species. 49 C.F.R. § 195.6 (2021).

⁹Companies that own gas transmission pipelines in less densely settled areas, known as “moderate-consequence areas,” must conduct inspections of these pipelines at least once every 10 years. 49 C.F.R. § 192.710 (2021).

¹⁰49 U.S.C. § 60102(d)(5).

¹¹33 U.S.C. § 1321(j)(5). Facility response plans are discussed in more detail in the section on the Oil Pollution Act.

¹²49 U.S.C. § 60138.

¹³49 U.S.C. § 60101(b).

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¹49 U.S.C. § 5101.

²Federal Railroad Safety Act of 1970, Pub. L. No. 91-458, 84 Stat. 971 (codified as amended at 49

state, and foreign commerce”;³ under the FRSA, the Federal Railroad Administration is authorized to “prescribe, as necessary, appropriate rules, regulations, orders, and standards for all areas of railroad safety.”⁴

In 2015, PHMSA and the Federal Railroad Administration promulgated hazardous materials regulations for trains carrying flammable liquids, such as crude oil.⁵ Pursuant to these regulations, “high-hazard flammable trains” must meet operational requirements such as routing limitations and speed restrictions. A “high-hazard flammable train” is defined as “a single train transporting 20 or more loaded tank cars of a Class 3 flammable liquid in a continuous block or a single train carrying 35 or more loaded tank cars of a Class 3 flammable liquid throughout the train consist.”⁶ Six months later, Congress supplemented these standards by requiring all tank cars carrying Class 3 flammable liquids to use safer tank car designs, with a timeline for phasing out trains with an older design.⁷ Railroads must also provide “real-time” information on trains carrying hazardous materials to first responders and emergency response officials.⁸

XI. ENERGY POLICY

A. ENERGY POLICY ACT OF 2005

§ 29:203 Background and Purpose

The Energy Policy Act of 2005 (EPAcT 2005)¹ was an omnibus law that impacted many forms of energy production, technologies, and incentives in the United States, including: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Tribal energy; (6) nuclear energy and related security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax provisions and incentives; (11) hydropower and geothermal energy; and (12) technology to address climate change. The purpose of the EPAcT 2005 was to “promote[] dependable, affordable, and environmentally sound production and distribution of energy for America’s future.”² The scope of the EPAcT 2005 was broad but this section will focus on the oil and gas provisions found in Title III.³

The oil and gas provisions of the EPAcT 2005, as stated in the Congressional Testimony, served to “encourage[] more domestic production of oil with incentives such as a streamlined permit process, promote a greater refining capacity to bring more oil to market, and increase the gasoline supply by stopping the proliferation of expensive regional boutique fuels.”⁴ Congress focused on domestic oil and gas production because gas prices were on the rise—partly as a result of “a worldwide

U.S.C. § 20101).

³49 U.S.C. § 5103(b).

⁴Federal Railroad Safety Act of 1970, § 202(a).

⁵Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains, 80 Fed. Reg. 26644 (May 8, 2015) (to be codified at 49 C.F.R. §§ 171 to 74, 179).

⁶49 C.F.R. § 171.8 (2021).

⁷Fixing America’s Surface Transportation Act, Pub. L. No. 114-94, § 7304, 129 Stat. 1312 (Dec. 4, 2015).

⁸Pub. L. No. 114-94, § 7302, 129 Stat. 1312 (Dec. 4, 2015).

[Section 29:203]

¹Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594.

²STATEMENT BY THE PRESIDENT ON ENERGY POLICY ACT OF 2005, 2005 WL 1864962, at *1.

³Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 [hereinafter EPAcT 2005].

⁴151 Cong. Rec. H2108-01, H2108, 2005 WL 900321.

explosion in demand”⁵—and the U.S. Department of Energy (DOE) predicted that U.S. oil and natural gas demand would increase 46% by 2025.⁶

One of the overarching goals of the EPAct 2005 was to make the Strategic Petroleum Reserve (SPR) and the Northeast Home Heating Oil Reserve (NEHHOR) permanent. The Energy Policy and Conservation Act of 1975 (EPCA) was passed in response to the 1973–74 Arab oil embargo and established the SPR, an emergency supply of crude oil, to prevent another such situation from disrupting energy supply and markets in the United States.⁷ The SPR, currently the world’s largest emergency supply of crude oil, is held in four major storage facilities within underground salt caverns in the Gulf Coast region of the United States (Louisiana and Texas) that have a combined authorized storage capacity of 714 million barrels.⁸ In 2000, President Clinton issued a directive that required the Energy Secretary to create a two million barrel home heating oil component of the SPR in the Northeast; as a result, the NEHHOR was created.⁹ The NEHHOR was intended to provide “a buffer large enough to allow commercial companies to compensate for interruptions in supply during severe winter weather,”¹⁰ but not so large that companies are disincentivized to keep sufficient heating oil stock to respond to routine weather events or recognize that a price increase is an indicator of a rise in demand.¹¹

There was a period of several months in 2000 when the authority for the SPR had expired, motivating Congress to make the SPR permanent and establish the NEHHOR by statute. The EPAct 2005 also expanded the SPR authorized volume to one billion barrels and permitted that volume to increase when the oil supply is tight and/or prices are elevated. Additionally, the EPAct 2005 established provisions to acquire oil for the SPR in a way that would minimize impacts to oil prices and markets.¹²

§ 29:204 Natural Gas Act Revisions

Title III Subtitle B of the EPAct 2005 amended the Natural Gas Act of 1938 (NGA)¹ in part to address the introduction and rapid expansion of hydraulic fracturing (fracking), the process wherein high-pressure fluids are injected into coal beds to enhance recovery of oil and natural gas from underground formations. With the rapid expansion of fracking came an increase in the country’s proven natural gas reserves and the potential to export gas to other countries in significant volumes, mainly as liquified natural gas (LNG). For the first time, the U.S. had the opportunity to become a net LNG exporter whereas, in years prior, the U.S. faced rising costs of natural gas imports. However, LNG production faced disparate local and state regulation as well as a lack of necessary infrastructure. The EPAct 2005

⁵151 Cong. Rec. H2108-01, H2108, 2005 WL 900321.

⁶151 Cong. Rec. H2108-01, H2108, 2005 WL 900321.

⁷Energy Policy and Conservation Act of 1975, Pub. L. No. 94-163, 89 Stat. 871.

⁸U.S. DOE, *Strategic Petroleum Reserve*, <https://www.energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve>.

⁹*President Clinton Directs Department of Energy to Establish a Home Heating Oil Reserve in the Northeast to Protect Against Shortages*, NAT’L ECON. COUNCIL, July 10, 2000, <https://clintonwhitehouse4.archives.gov/WH/EOP/nec/html/MinskNortheastOil000710.html> (last visited June 28, 2021).

¹⁰U.S. DOE, *Northeast Home Heating Oil Reserve: History*, <https://www.energy.gov/fe/northeast-home-heating-oil-reserve>.

¹¹For a detailed discussion of the NEHHOR, see report by Anthony Andrews, CONG. RSCH. SERV., R43235, *The Northeast Home Heating Oil Reserve and the National Oilheat Research Alliance*.

¹²EPAct 2005 § 301.

[Section 29:204]

¹Natural Gas Act, 15 U.S.C. §§ 717 to 717w (2000).

aimed to remedy these weaknesses in domestic natural gas production, transportation, and exportation through a centralized and streamlined process to approve natural gas projects. A more detailed discussion of the EAct 2005's specific fracking provisions is set forth below in Section § 29:210.

§ 29:205 FERC's Role

Through the streamlined process, FERC was given broad regulatory tasks and responsibilities, including “exclusive authority” “to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal”¹ for the export and import of natural gas, to coordinate with the Secretary of Defense in authorizing an LNG facility that will impact a military installation,² and to serve as the lead agency in the federal authorization process for interstate natural gas facilities, including LNG terminals.³ This “lead agency” responsibility entails FERC working with other state and federal agencies to expeditiously complete proceedings and schedules in the natural gas permitting process. Section 313 of the EAct 2005 defines a “federal authorization” as “any authorization required under Federal law with respect to an application for authorization. . . or a certificate of public convenience and necessity,” including “any permits, special use authorizations, certifications, opinions, or other approvals as may be required under Federal law. . . .”⁴ FERC's expanded authority over LNG facilities was a result of industry concerns that the existing process was taking too long, too chaotic, and too uncertain in a market where demand was ever increasing. While FERC's authority was expanded to push other federal agencies to stick to a FERC-set schedule in issuing permits for new interstate gas pipeline and LNG terminal development, the EAct 2005 also included limitations on FERC's authority; these limitations were intended to streamline and minimize rate regulation over LNG terminal services. FERC was not permitted to deny approval of a natural gas project before January 1, 2015, solely because the applicant would use the gas, either in whole or in part, themselves.⁵ Further, FERC could not condition approval on: (i) a requirement to offer service to others; (ii) a directive to file rates or tariffs with FERC; or (iii) any other regulation of rates and service.⁶ These changes to the NGA codified FERC's policies announced in *Hackberry LNG Terminal LLC*.⁷ These rate-related provisions will cease to have effect on January 1, 2030.⁸

§ 29:206 Penalties and Market Manipulation

The EAct 2005 significantly increased penalties for violations of the NGA, the National Gas Policy Act of 1978 (NGPA),¹ and FERC regulations and orders thereunder. With respect to criminal penalties, the maximum prison term increased from two to five years, and the maximum fine increased from \$500 per violation to \$50,000 for each day the violation took place. Additionally, violations of emergency

[Section 29:205]

¹15 U.S.C.A. § 717b(e)(1) (West 2005).

²FERC's LNG responsibilities are detailed in EAct 2005 § 311.

³FERC's role as the lead agency is detailed in EAct 2005 § 313.

⁴EAct 2005 § 313.

⁵EAct 2005 § 311(c).

⁶EAct 2005 § 311(c).

⁷101 FERC ¶ 61294 (2002), *order on reh'g*, 104 FERC ¶ 61269 (2003).

⁸EAct 2005 § 311(c).

[Section 29:206]

¹15 U.S.C. § 3414(c).

orders are subject to fines of up to \$1 million per day.²

The EAct 2005 also increased civil penalties under the NGA, the NGPA,³ and the Federal Power Act⁴ to a maximum of \$1 million per day (inflation adjusted).⁵ This was in response to increased concerns about energy market manipulation after the fallout from the Enron Corporation accounting scandal. Some examples of behavior that have been subject to civil penalties under these statutes include pipeline tariff violations and violations of FERC's capacity release program rules.

Section 315 of the EAct 2005, which amends the NGA to prohibit market manipulation, is largely patterned off of section 10(b) of the Securities Exchange Act of 1934.⁶ This section made it unlawful to use or employ, in connection with the purchase or sale of natural gas or transportation services subject to the jurisdiction of FERC, "any manipulative or deceptive device or contrivance" in contravention of FERC's prescribed rules and regulations.⁷ Some examples of behavior that violates this provision of EAct 2005 are creating artificial conditions that would cause energy market prices to be raised to premiums, uneconomic trading in physical gas markets to benefit related financial positions, and "gaming" energy systems to capture revenues without providing any corresponding benefit to the market.⁸

§ 29:207 Other Natural Gas Provisions

In addition to expanding FERC's responsibilities and role in developing natural gas projects, the EAct 2005 implemented natural gas market transparency rules,¹ reporting requirements,² and the process and jurisdiction of judicial review, designated as the U.S. Court of Appeals for the circuit in which the project would be constructed.³

§ 29:208 Gasoline Content Changes and Renewable Fuels

The EAct 2005 took the first steps towards formulating law that requires renewable fuels to be part of the everyday domestic energy supply. The Clean Air Act (CAA)¹ previously had required that reformulated gasoline contain at least 2% oxygen, which effectively forced refiners and importers to use methyl tertiary butyl ether (MTBE), ethanol, or other oxygenates in their reformulated gasoline to meet this requirement. The goal of the 2% oxygen requirement was to combat poor air quality and reduce emissions of ozone and carbon monoxide. However, MTBE became controversial when it was shown to lead to contamination of water across the country, with petroleum released from leaking underground storage tanks being the leading cause of MTBE contamination of drinking and groundwater.

²EAct 2005 § 314.

³15 U.S.C. § 3414(c).

⁴16 U.S.C. § 803(e)(1).

⁵EAct 2005 § 314.

⁶EAct 2005 § 315; Securities Exchange Act of 1934, 15 U.S.C. § 78j(b).

⁷EAct 2005 § 315.

⁸*Staff White Paper on Anti-Market Manipulation Enforcement Efforts Ten Years After EAct 2005*, FED. ENERGY REGULATORY COMM'N (Nov. 2016).

[Section 29:207]

¹EAct 2005 §§ 315–16.

²EAct 2005 § 316.

³EAct 2005 § 313.

[Section 29:208]

¹42 U.S.C. § 7545.

The EPO 2005 amended § 211(k) of the CAA to eliminate the 2% oxygen requirement and require that each refinery or importer of gasoline maintain the average annual reductions in emissions of toxic air pollutants that were achieved in their production or distribution from calendar years 2001 and 2002.² Refiners and importers, therefore, had to determine how to keep their toxic air emissions low. The purpose of this provision was to prevent backsliding in reductions of emissions of toxic air pollutants and alleviate some of the initial burden on gasoline refiners and importers by establishing a credit trading program for such emissions.

Additionally, in lieu of the 2% oxygen requirement, the EPO 2005 established the initial renewable fuels standard program, known as the “RFS1” program, under § 211 of the CAA. As discussed further below in Section X, the program required that gasoline produced or imported to the United States contain a certain of volume of renewable fuel—a category that includes not only conventional ethanol, but also natural gas (methane) from landfills and sewage treatment plants, as well as biodiesel.³ The EPO 2005 also incentivized the use and development of cellulosic ethanol to “accelerate deployment and commercialization of biofuels” by establishing a formulation that 1 gallon of cellulosic ethanol counts as 2.5 gallons of renewable fuel.⁴

§ 29:209 Hydraulic Fracturing

The EPO 2005, in seeking to address the rapid expansion of fracking discussed above in Section § 29:205, removed oil and gas fracking from EPA’s jurisdiction. Prior to 1997, EPA had not regulated fracking for oil and gas development, because it was not considered an activity subject to regulation under the Safe Drinking Water Act’s (SDWA)¹ underground injection control (UIC) program.² However, in *Legal Environmental Assistance Foundation, Inc. v. United States Environmental Protection Agency*,³ the Eleventh Circuit Court of Appeals determined that (i) the injection of fluids for the purpose of fracking constituted underground injection, (ii) all underground injection must be regulated, and, therefore, (iii) it was EPA’s responsibility to regulate under the SDWA’s UIC program. The EPO 2005 clarified the SDWA to specify that the definition of “underground injection” *excludes* the injection of fluids or propping agents (other than diesel fuel) that are used in hydraulic fracturing related to oil, gas, or geothermal production activities.⁴ The effect of this was to remove EPA’s prior authority to regulate the underground injection of fluids, other than diesel fuel, used in hydraulic fracturing in order to protect ground and drinking water.

§ 29:210 Other Provisions

The EPO 2005 is an expansive omnibus piece of legislation that addressed many other areas of energy utilization and growth outside the scope of this chapter,

²EPO 2005 § 1504.

³EPO 2005 § 1504, tit. XV, subtitle A.

⁴EPO §§ 942, 1501(a).

[Section 29:209]

¹Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq. (1974).

²40 C.F.R. § 144 (2021).

³*Legal Environmental Assistance Foundation, Inc. v. U.S. E.P.A.*, 118 F.3d 1467, 1473, 45 Env’t. Rep. Cas. (BNA) 1033, 27 Env’t. L. Rep. 21385, 139 O.G.R. 175 (11th Cir. 1997).

⁴EPO 2005 § 322.

including the following: nuclear energy development and security,¹ including amendments to the Price-Anderson Act;² electricity;³ energy policy tax incentives;⁴ and climate change matters focusing on technology development and deployment.⁵

B. ENERGY INDEPENDENCE AND SECURITY ACT OF 2007

§ 29:211 Background and Purpose

The Energy Independence and Security Act (EISA) of 2007¹ came quickly on the heels of passage of the EPAct 2005. EISA is another omnibus energy policy law promulgated to increase energy efficiency and the availability of renewable energy.² Where the EPAct 2005 was sweeping legislation that included a heavy focus on the oil and gas industry, EISA took a forward-looking approach to address renewable fuels and innovations.

The key provisions of the EISA achieve the following: (i) changes to the Corporate Average Fuel Economy (CAFE) Standards;³ discussed in Section § 29:213 below; (ii) creation of appliance and lighting efficiency standards,⁴ discussed in Section § 29:214; and (iii) expansion of the Renewable Fuel Standard program that was created under the EPAct 2005,⁵ discussed in Section § 29:216 below.

Two proposed provisions were never enacted into law due to their controversy in the legislature.⁶ First was the Renewable Energy Portfolio Standard (RPS), which would have required electric utilities selling electricity in retail markets to provide a minimum amount of their electricity from renewable fuel sources or meet that requirement by purchasing an equal amount of tradeable credits. The minimum requirement was set to be a percentage share of the electric supplier's total retail electricity sales.

The second provision that was never enacted focused on energy tax subsidies. As proposed, the tax provisions were set to repeal about \$22 billion of federal oil and gas subsidies in order to offset the cost of renewable energy and energy efficiency tax incentives included in the EISA. The final version of the EISA that was passed included tax revenue offsets large enough to cover the estimated cost of the CAFE standards, discussed in Section § 29:213 below, but the proposed repeal of the \$22 billion in federal oil and gas subsidies was not in the final legislation.

[Section 29:210]

¹EPAct 2005 § 322, tit. VI.

²42 U.S.C. § 2210. The Price-Anderson Act was enacted in 1957 to address public liability claims for personal injury and property damage in the event of a commercial nuclear power plant disaster.

³EPAct 2005 § 322, tit. XII.

⁴EPAct 2005 § 322, tit. XIII.

⁵EPAct 2005 § 322, tit. XVI.

[Section 29:211]

¹Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat 1492.

²Pub. L. No. 110-140, 121 Stat 1492.

³Pub. L. No. 110-140, 121 Stat 1492, tit. I, subtitle A.

⁴Pub. L. No. 110-140, 121 Stat 1492, tit. III.

⁵Pub. L. No. 110-140, 121 Stat 1492, tit. II, subtitle A.

⁶For a detailed discussion of these two provisions not enacted into the EISA and the legislative history leading to those exclusions, see Fred Sissine, CONG. RSCH. SERV., RL34294, *Energy Independence and Security Act of 2007: A Summary of Major Provisions* (2008); Fred Sissine, CONG. RSCH. SERV., RL34116, *Renewable Energy Portfolio Standard (RPS): Background and Debate Over a National Requirement* (2007); Salvatore Lazzari, CONG. RSCH. SERV., RL33578, *Energy Tax Policy: History and Current Issues* (2008); Fred Sissine, CONG. RSCH. SERV., RL34162, *Renewable Energy: Background and Issues for the 110th Congress* (2008).

§ 29:212 Improved Vehicle Fuel Economy; Title I

The EISA fundamentally restructured the country's automotive fuel economy program and made significant changes to the CAFE Standards. The CAFE Standards set fuel economy averages that must be met for each model year of a vehicle. The purpose of the CAFE Standards, as set up by Congress at the time of enactment in 1975, was to reduce energy consumption by increasing the fuel economy of both cars and light trucks. In order to do this, Congress created a program to establish industry wide averages that each manufacturer must meet for each vehicle in its fleet, beginning in 1978. The CAFE standards were originally crafted under the EPCA,¹ with the National Highway Traffic and Safety Administration (NHTSA) setting and enforcing the standards and EPA calculating the average fuel economy levels.

The EISA changes to the CAFE Standards included a few parts. First, the EISA set a single CAFE standard of 35 miles per gallon by 2020, with interim standards beginning in 2011.² Additionally, manufacturers were required to be within 92% of the standard for each given model year.³ However, the EISA established a credit system to allow manufacturers to purchase credits in order to reach compliance. These credits did not have a set expiration date, but the use of credits for compliance was required to be phased out by model year 2020 automobiles.⁴ Manufacturers can buy and sell these credits amongst themselves, or alternatively, an individual manufacturer can exceed the CAFE Standard for one vehicle class and apply the exceedance (with limitations) to another of that manufacturer's vehicle class that may be short of compliance.⁵

§ 29:213 Other Energy Efficiency Measures; Titles III and IV

The EISA set new standards to reduce energy use and increase energy efficiency for a variety of appliances and lighting, including dishwashers, refrigerators, freezers, residential boilers, heating and air conditioning, incandescent lamps, and lamp fixtures.¹ The EISA also provides for energy savings in industry buildings.²

§ 29:214 Carbon Capture & Sequestration; Title VII

The EISA amended the EPCA 2005 to expand research and development into carbon capture and sequestration (CCS).¹ The section dedicated to CCS increased DOE's funding for research and development. DOE was also required to coordinate with the National Academy of Sciences to jointly update and review DOE's research and development programs around CCS.² There were also various provisions directing the Department of the Interior to focus their research into the ability to sequester carbon geologically and ways to utilize ecosystems to reduce emissions of

[Section 29:212]

¹Energy Policy and Conservation Act of 1975, Pub. L. No. 94-163, 89 Stat. 871.

²EISA §§ 102(b)(2)(A), 104.

³EISA § 102(b)(4)(B).

⁴EISA § 104(a)(2).

⁵EISA § 104(a)(2).

[Section 29:213]

¹EISA § 104(a)(2), tit. III.

²EISA tit. IV.

[Section 29:214]

¹EISA § 702.

²EISA § 702, tit. VII, subtitle B.

various pollutants, including carbon dioxide, methane and nitrous oxides.³ Thus far, CCS has not been adopted widely due to comparatively high costs (making generation from facilities using CCS uneconomic) and a lack of federal and state government incentives comparable to renewable resources like wind and solar.

C. RENEWABLE FUEL STANDARD, TITLE II, SUBTITLE A

§ 29:215 Historical Setting

In 2005, Congress established the Renewable Fuel Program under § 1501 of the EPCA 2005 to increase the use of renewable fuels in gasoline consumed in the United States. Congress charged EPA with implementing and enforcing the program.¹ Accordingly, EPA promulgated regulations implementing the first rendition of the Renewable Fuel Standard (commonly referred to as the “RFS1”) in April 2007 to ensure that the pool of gasoline sold in the contiguous 48 states contained specific volumes of renewable fuel for each calendar year. This started with 4 billion gallons of renewable fuel in 2006, ramping up to 7.5 billion gallons by 2012.²

The RFS1 established compliance standards for refiners and importers of gasoline, a credit system based on renewable identification numbers (RINs) that could be verified and traded for compliance, an exemption from the RFS for small refineries, and general waiver provisions. EPA anticipated the RFS1 would reduce dependence on foreign sources of oil, increase domestic energy security, and reduce carbon dioxide emissions that contribute to climate change and air toxics emissions such as benzene.³

On December 19, 2007, two years after Congress enacted the EPCA 2005 and less than one year after EPA promulgated the RFS1 regulations, the EISA superseded the RFS1 and greatly expanded the RFS program.⁴ EPA issued its final rule to implement and administer the expanded program (referred to as the “RFS2”) on February 3, 2010. The RFS2 sets a target of 9 billion gallons of biofuels blended into transportation fuel in 2008, increasing to 36 billion gallons in 2022. After 2022, EPA must conduct annual rulemakings to determine the volumes of biofuels to be used in transportation fuel.

In addition to the expanded volumes and extended date, the RFS2 modifies the RFS1 in other significant ways. Unlike the RFS1, which limited renewable fuel blending requirements to gasoline, the RFS2 expands the scope of the program to apply to additional types of transportation fuel, most notably diesel.⁵ The RFS2 also redefines renewable fuel to include subcategories, assigns a separate volume requirement to each category of fuel, and requires that renewable fuels qualifying under each category must achieve certain minimum thresholds of lifecycle greenhouse gas (GHG) emission reductions.⁶ Further, the RFS2 provides EPA with an expanded

³EISA § 702, tit. VII, subtitle B.

[Section 29:215]

¹Pub. L. No. 109-58. Section 1501 of the EPCA 2005 amended the Clean Air Act and provides the statutory basis for the RFS in Section 211(o); U.S. EPA, Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program, 72 Fed. Reg. 23900, 23900 (May 1, 2007) (RFS1 final rule).

²40 C.F.R. § 80 Subpart K (2021).

³U.S. EPA, Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program, 72 Fed. Reg. 23900, 23900 (May 1, 2007) (RFS1 final rule).

⁴Pub. L. No. 110-140. The RFS1 regulations applied through June of 2010, and then the RFS2 regulations became effective on July 1, 2010.

⁵42 U.S.C. § 7545(o)(1)(L).

⁶42 U.S.C. § 7545(o)(2)(B).

waiver authority to lower RFS volumes.⁷

D. THE CURRENT FRAMEWORK OF THE RENEWABLE FUEL STANDARD

§ 29:216 Renewable Fuel Categories and RINs

The RFS2 is the current regulatory framework under which obligated parties must comply.¹ The EISA provides a schedule of increasing volume mandates for four fuel categories—total renewable fuel, advanced biofuel, cellulosic biofuel, and biomass-based diesel (BBD)—through 2022.² The four fuels categories are nested; total renewable fuel encompasses advanced biofuel (volume mandate specified in the statute) and conventional biofuel (no volume mandate specified in the statute); in turn, advanced biofuel encompasses cellulosic biofuel and BBD (both of which are specified in the statute), as well as “other advanced biofuels” (not specified in the statute). The volume of conventional biofuel is measured by taking the difference between the total renewable fuel volume and the advanced biofuel volume. The “other advanced biofuel” category is similarly measured by subtracting the cellulosic biofuel and BBD volumes from the total advanced biofuel volume.

To regulate compliance with the RFS, EPA uses a tradable credit system in which each gallon of renewable fuel produced for RFS compliance generates a certain number of credits, or RINs.³ Each year, obligated parties—generally, refiners and importers of transportation fuel—incur a renewable volume obligation (RVO) for each fuel category, which is the obligated party’s total gasoline and diesel sales multiplied by the annual renewable fuel percentage standard announced by EPA for that fuel category.⁴ An obligated party’s RVOs indicate the number of RINs the party must submit, or retire, in order to be in compliance with the RFS for a certain year.

Because the fuel categories are nested, cellulosic biofuel and BBD, or their RIN-equivalents, can be used to satisfy the advanced biofuel volume mandate and all three subcategories of fuels and RINs can be used to satisfy the total renewable fuel mandate. However, some biofuels generate more RINs per volume than others because of the difference in the fuel’s energy content. For example, 1,000 physical gallons of ethanol (which qualifies as conventional biofuel) would equal 1,000 RIN gallons of biofuel, whereas 1,000 physical gallons of biodiesel would equal 1,500 RIN gallons of advanced biofuels.⁵

§ 29:217 Compliance with the RFS

EPA has identified refiners and importers of transportation fuels as the obligated parties under the RFS.¹ Thus refiners and importers must comply with the annual percentage standards adopted under the RFS. As discussed briefly in Section 29:216 above, obligated parties must retire RINs to EPA to meet their compliance

⁷42 U.S.C. § 7545(o)(7).

[Section 29:216]

¹The RFS2 is located at 40 C.F.R. pt. 80 Subpart M.

²See 42 U.S.C. § 7545(o)(1) for the statutory definitions of the fuel categories. Each fuel category must achieve certain GHG reductions relative to gasoline and diesel fuel.

³See 40 C.F.R. § 80.1426 (2021) for detail on how RINs are generated and assigned to batches of renewable fuel; see 40 C.F.R. § 80.1426 (2021) for detail on how RINs are used for compliance.

⁴EPA issues the percentage standards in its annual renewable volume rulemakings.

⁵See 40 C.F.R. § 80.1415 (2021) for more on equivalence values (EVs).

[Section 29:217]

¹40 C.F.R. § 80.1406 (2021).

obligation.² RINs have a two-year lifespan, meaning that they are only valid for use to demonstrate compliance in the year they are generated and the following year.³

If an obligated party cannot retire sufficient RINs to meet its RVOs for a given compliance year, the party can carry a deficit into the next year.⁴ In the year following the deficit, the obligated party must meet compliance for that year's renewable fuel volume requirement and purchase or generate enough credits to satisfy the deficit from the previous year.⁵ When an obligated party fails to either meet its RIN retirement obligations or carry a deficit, the party is in violation of the Clean Air Act and EPA has authority to bring an enforcement action.

§ 29:218 EPA's authority to waive or reset volume obligations

Although the EPCA 2005 and EISA set out mandatory minimum renewable volumes, Congress provided EPA with statutory authority to lower the annual volumes under certain circumstances. First, EPA has a general waiver authority, under which it can waive the scheduled total renewable fuel volume if implementation of the volume requirement would severely harm the economy or the environment or there is an inadequate domestic supply.¹ Second, EPA can waive the cellulosic biofuel mandate if the projected cellulosic biofuel production in a given year is less than the statutory volume.² Finally, EPA can waive the BBD mandate if a significant renewable feedstock disruption or other market circumstance would significantly increase the price of BBD.³

Under its cellulosic biofuel and BBD waiver authorities, EPA can reduce the total renewable fuel and advanced biofuel requirements by the same amount as it reduced either the cellulosic biofuel volume or BBD volume due to the way those fuel categories are nested. For example, in its final renewable volume rule for 2020, EPA announced that it was using its cellulosic biofuel waiver authority to reduce not only the cellulosic biofuel, but also the advanced biofuel and total renewable fuel volume requirements.⁴ EPA must announce each year's renewable fuel volumes by November 30 of the previous year, with the exception of the BBD volume, which EPA must announce at least 14 months before the year in which it will apply.⁵

After 2015, if EPA waives the statutory volumes for any of the four fuel categories (total renewable, advanced biofuel, cellulosic biofuel, or BBD) by at least 20% for two consecutive years or by at least 50% for a single year, then EPA must modify, or reset, the statutory volumes for all subsequent years for that fuel type.⁶ The reset provision has been triggered by EPA's use of its cellulosic waiver authority every year from 2016 to 2020. However, EPA has yet to reset statutory volumes for any

²See 40 C.F.R. § 80.1427 (2021).

³40 C.F.R. § 80.1427(a)(6)(i) (2021). The EPA Moderated Transaction System (EMTS) is used to register RIN transactions.

⁴40 C.F.R. § 80.1427(b) (2021).

⁵40 C.F.R. § 80.1427(b) (2021).

[Section 29:218]

¹42 U.S.C. § 7545(o)(7)(A).

²42 U.S.C. § 7545(o)(7)(D).

³42 U.S.C. § 7545(o)(7)(E). Note that the RFS program only provides statutory BBD volumes up to 2012, not 2022. This means that EPA no longer needs to use its BBD waiver authority, because there are no more statutory volumes to waive. Thus, EPA determines BBD volumes each year independent of its various waiver authorities.

⁴U.S. EPA, Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016 (Feb. 6, 2020).

⁵42 U.S.C. § 7545(o)(3)(B)(i) to (ii).

⁶42 U.S.C. § 7545(o)(7)(F).

fuel type.⁷

§ 29:219 Small refinery relief from the RFS

The EPCRA 2005 exempted small refineries from compliance with the RFS from 2007 through 2010.¹ EPA extended the initial blanket exemption for certain small refineries for an additional two years, through 2012, based on a study commissioned by Congress and conducted by the Department of Energy (DOE).² In its study, DOE determined that certain small refineries would suffer a “disproportionate economic hardship” if required to participate in the program. Small refineries can also petition EPA “at any time” for an exemption from the RFS mandate due to disproportionate economic hardship.³ When deciding whether to grant an exemption, EPA must consult with the Secretary of Energy, which takes the form of a recommendation from DOE to EPA.⁴ By statute, the EPA Administrator has 90 days to act on a petition.⁵

§ 29:220 Current Trends

In recent years, a variety of factors contributed to changes in the landscape of oil and gas in the United States. For LNG export terminals, growth has slowed due to changes in economics and a downward trend in global demand. This trend continued through 2020 and the beginning of 2021, particularly due to low global gas prices, stiff competition from Australia for Asia-based LNG markets, and the COVID-19 pandemic.¹ Many of the recent planned and FERC-approved LNG terminals in the past few years are expansions of existing terminals, rather than new terminals.²

With respect to the more traditional oil and gas companies, there has been a push to diversify to establish a more sustainable footprint, even among oil majors. A fac-

⁷EPA submitted a draft proposal to reset the statutory volumes for the 2020–2022 compliance years to the Office of Management and Budget in May 2019. In December of the same year, EPA withdrew its draft proposal. OFF. OF INFO. & REGUL. AFFS., *OIRA Conclusion of EO 12866 Regulatory Review*, <https://www.reginfo.gov/public/do/eoDetails?rriid=129140> (last visited June 30, 2021). EPA has not indicated how it will address the reset requirement moving forward.

[Section 29:219]

¹42 U.S.C. § 7545(o)(9)(A)(i). A small refinery is defined as “a refinery for which the average aggregate daily crude oil throughput for a calendar year (as determined by dividing the aggregate throughput for the calendar year by the number of days in the calendar year) does not exceed 75,000 barrels.” 42 U.S.C. § 7545(o)(1)(K).

²U.S. DOE, SMALL REFINERY EXEMPTION STUDY: AN INVESTIGATION INTO DISPROPORTIONATE ECONOMIC HARDSHIP (2011), available at <https://www.epa.gov/sites/production/files/2016-12/documents/small-refinery-exempt-study.pdf>.

³42 U.S.C. § 7545(o)(9)(A)(ii)(II), (B)(i); 40 C.F.R. § 80.1441(e)(2) (2021).

⁴42 U.S.C. § 7545(o)(9)(B)(ii).

⁵42 U.S.C. § 7545(o)(9)(B)(iii); 40 C.F.R. § 80.1441(e)(2)(ii) (2021); EPA “will issue a decision within 90 days of receiving complete supporting information for the request from the small refinery.” U.S. EPA, *Renewable Fuel Standard Exemptions for Small Refineries*, <https://www.epa.gov/renewable-fuel-standard-program/renewable-fuel-standard-exemptions-small-refineries> (last visited June 30, 2021).

[Section 29:220]

¹For detailed data on natural gas and other fuels, see post from Victoria Zaretskaya, *U.S. liquefied natural gas exports have declined by more than half so far in 2020*, U.S. ENERGY INFO. ADMIN., (June 23, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=44196> (last visited June 30, 2021).

²FED. ENERGY REGUL. COMM’N, LNG MAPS EXPORTS (Nov. 2, 2020), <https://www.ferc.gov/media/lng-maps-exports>; see also *U.S. LNG exports will return to pre-Covid levels by November 2020 as series of monthly increases begins*, LNG JOURNAL, (Sept. 10, 2020) available at <https://lngjournal.com/index.php/latest-news-mainmenu-47/item/101055-us-lng-exports-will-return-to-pre-covid-levels-by-november-2020-as-series-of-monthly-increases-begins>.

tor of this drive has been pressure from abroad—namely, among European-based oil and gas companies that are working to incorporate more green energies into their business model.³ Another factor is the emphasis on clean energy and renewables as a driving point of the Biden administration.⁴ The Biden administration has emphasized addressing methane and other chemical leaks from abandoned oil and gas wells, working with American growers instead of just oil lobbyists, and moving towards a carbon-pollution free power sector by 2035.⁵

The RFS, which in recent years has been the subject of intense political debate and scrutiny, stands to undergo significant change, affecting obligated parties (e.g., refineries and fuel importers) and others (e.g., renewable fuel producers and downstream blenders) alike. Stakeholders and politicians have placed a spotlight on small refinery exemptions and, in January 2020, a decision from the United States Court of Appeals for the Tenth Circuit further escalated the debate when the court ordered EPA to revoke extensions of the small refinery exemption it granted to three small refineries for the 2016 and 2017 compliance years because the small refineries had not received extensions every year since the beginning of the program.⁶ On June 25, 2021, the United States Supreme Court reversed the lower court's decision, holding that the Clean Air Act does not require a refinery to receive an exemption for all prior years to remain eligible for future exemptions.⁷

Another hot button issue under the RFS is EPA's promulgation of annual renewable fuel volume targets. Stakeholders have challenged EPA's annual rulemakings as setting the renewable volumes both too high and too low. Currently, the 2020 renewable volumes rule is under judicial review in the United States Court of Appeals for the District of Columbia Circuit.⁸ EPA has not yet issued the 2021 and 2022 renewable fuel volumes rules, which EPA was required by statute to promulgate by November 30, 2020 and November 30, 2021, respectively. It is anticipated that EPA will promulgate the 2021 and 2022 renewable fuel volumes rules and adjust the 2020 rule in a single rulemaking that has yet to be released. However, how the Biden administration will approach these annual rulemakings is unknown as of the time of publication.

Growth in the hydrogen sector may be poised to take off in the coming years. The EPCA 2005 included language directing the Secretary of Energy to coordinate research and development into hydrogen energy with the goal of further hydrogen production and hydrogen pipelines.⁹ This has not yet taken off, but research into hydrogen fuel has been ongoing and will likely grow given the various pressures on companies, discussed above, to invest in more clean energy. With a potential growth in hydrogen fuel production, it is likely that issues will arise concerning the scope of FERC's regulatory authority. The extent of FERC's regulatory authority, if any, over pure-hydrogen interstate pipelines and gas quality standards in already FERC-regulated pipelines where producers may try blending hydrogen into the natural gas stream for transport remains to be seen.

³Nick Butler, *How oil majors bought into green energy*, FIN. TIMES, July 15, 2020, available at <https://www.ft.com/content/a7901eae-411e-43d0-8103-1f3c8d3a990c>.

⁴Exec. Order No. 14008, 86 Fed. Reg. 7619 (Jan. 27, 2021), available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>.

⁵JoeBiden.com, *The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*, <https://joebiden.com/clean-energy/> (last visited June 30, 2021).

⁶Renewable Fuels Ass'n v. U.S. EPA, 948 F.3d 1206, 1217 (10th Cir. 2020), rev'd sub nom. HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass'n, 141 S. Ct. 2172 (2021).

⁷HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass'n, 141 S. Ct. 2172 (2021).

⁸RFS Power Coalition v. EPA, et al., No. 20-1046 (D.C. Cir. 2020).

⁹EPCA tit. VIII.

Chapter 30

Nuclear Energy

by Daniel F. Stenger and Stephanie Fishman¹

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Appendix 30A. Table of Abbreviations and Acronyms

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I. INTRODUCTION TO NUCLEAR ENERGY AND THE ENVIRONMENT

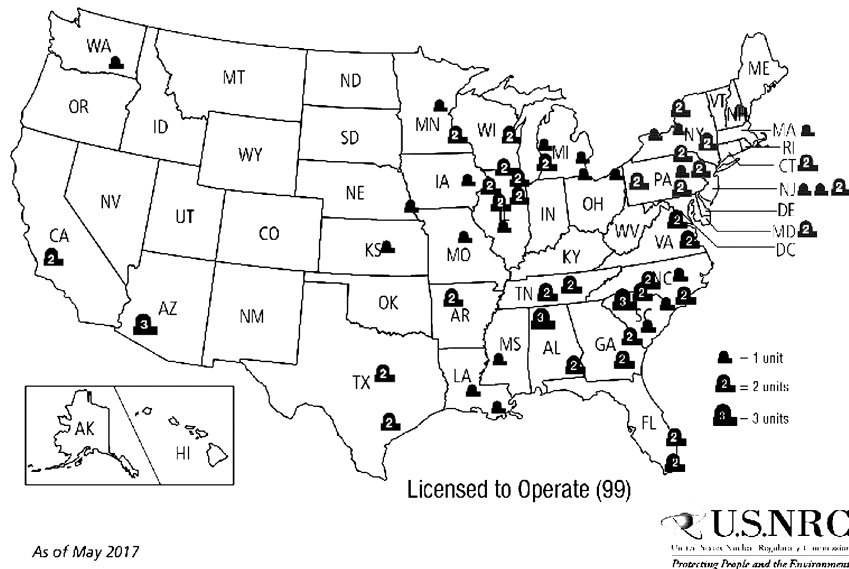
§ 30:1 In general

Nuclear energy is once again at the forefront of the energy debate. Renewed interest in nuclear energy is driven by many factors, including disruptions in energy supplies due to geopolitical tensions, concerns with the reliability of the electric grid, and the desire to reduce greenhouse gas emissions. Many countries around the globe, including the United States, have prioritized a transition to clean energy and are looking to nuclear as part of the answer.

The relationship between nuclear energy and the environment is complex. Although nuclear energy offers many climate benefits, there is also negative public perception about the risk of exposure to radioactivity and the long-term disposal of radioactive wastes. Yet no other baseload source has the potential to contribute as much to meeting U.S. energy demand without a rise in carbon dioxide emissions. In the United States, nuclear energy accounts for over 60 percent of the emissions-free energy.¹ Every year nuclear-generated electricity saves our atmosphere from more than 470 million metric tons of carbon dioxide emissions—equal to the emissions of 100 million passenger vehicles.² Nuclear is also the most reliable source of power, with the nation's reactors consistently operating at full capacity more than 90 percent of the time and in many adverse weather conditions.

Figure 30-1³

U.S. Operating Commercial Nuclear Power Reactors



[Section 30:1]

¹U.S. Department of Energy (DOE), *5 Fast Facts about Nuclear Energy* (Mar. 23, 2021) (noting nuclear provided 50% of the America's clean energy in 2021), available at <https://www.energy.gov/ne/articles/5-fast-facts-about-nuclear-energy#:~:text=2..greenhouse%20gases%20while%20generating%20electricity>.

²Nuclear Energy Institute (NEI), *Overview on Climate*, available at <https://www.nei.org/advantages/climate>.

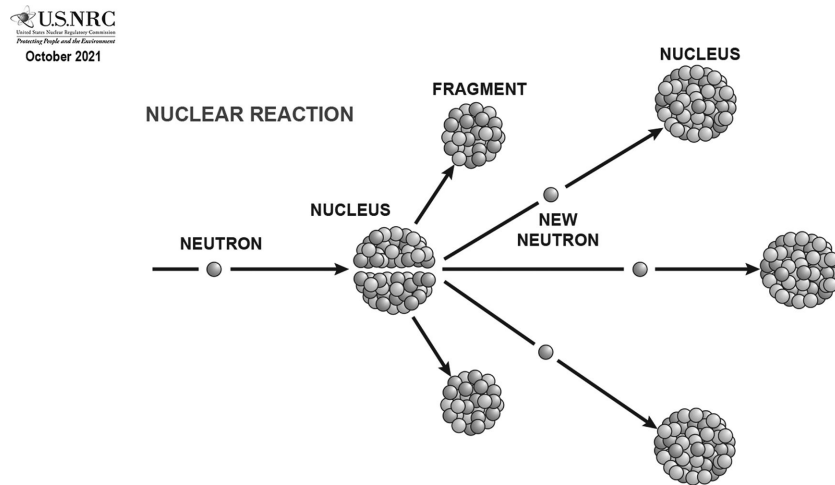
³Nuclear Regulatory Commission, U.S. Operating Commercial Nuclear Power Reactors, available at <https://www.nrc.gov/info-finder/reactors/printable-power-reactor-map.pdf>.

To understand nuclear energy's key role in decarbonization and how the U.S. regulates nuclear activity, this chapter describes the basics of nuclear energy, the governing laws and regulations for the licensing of nuclear reactors and environmental protection, and other environmental considerations essential to understanding the benefits nuclear energy can bring to the clean energy transition.

§ 30:2 Nuclear energy today

Nuclear power is simply an advanced way of heating water to produce steam that then spins a turbine to generate electricity. Nuclear energy can be produced in two ways: (1) fission—when the nuclei of the atom split into several parts; or (2) fusion—when nuclei fuse together. The nuclear energy harnessed around the world today to produce electricity is produced through nuclear fission, while technology to generate electricity from fusion remains in the research and development phase.

Figure 30-2 Nuclear Reaction¹



Today, 93 nuclear reactors in 28 U.S. states generate nearly 20 percent of the nation's electricity.² Nuclear plants are nearly always on, even during extreme weather events, supporting the grid for 24 hours, 7 days a week, except for occasional outages for refueling and maintenance.³ This reliability is because nuclear has the highest capacity factor of any energy sources, which means that nuclear power plants are producing maximum power more than 92% of the time during the year. That capacity factor is nearly twice that of coal (49.3%) or natural gas (54.4%) and almost three times more than wind (34.6%) and solar (24.6%).⁴ Nuclear power plants are designed to operate for long stretches before refueling (typically every 1.5 or 2 years). Renewable plants are considered intermittent or variable sources and are mostly limited by a lack of “fuel” (i.e. wind, sun, or water), which results in the

[Section 30:2]

¹Nuclear Regulatory Commission, Infographics (Oct. 2021), available at <https://www.nrc.gov/reading-rm/doc-collections/infographics/nuclear-reaction.png> (May 2017).

²Nuclear Energy Institute (NEI), *Fundamentals in the Energy Mix and Nuclear 101* (2019), available at <https://www.nei.org/news/2019/nuclear-101-an-introduction-to-nuclear-energy>.

³NEI, *Nuclear History Factsheet and History of U.S. Nuclear Plants' Response to Unusual Events* (2018), available at <https://www.nei.org/resources/fact-sheets/history-us-nuclear-plants-response-events>.

⁴Energy Information Agency, *Capacity Factors for Utility Scale Generator*, available at https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_07_b.

need for a backup power source such as large-scale storage (not currently available at grid-scale)—or being paired with a reliable baseload power like gas or nuclear energy.⁵

Over the last few years, nuclear energy has garnered renewed attention. Climate change concerns and the global need to keep the lights on have sparked interest in supporting the existing fleet of nuclear power plants, as well as promoting new reactors, including small modular and advanced reactor designs.

In the United States, the federal government—with strong bipartisan support—has enacted significant legislation aimed at reducing greenhouse gas emissions (GHG), including in the Infrastructure Investment and Jobs Act (IIJA), passed in November 2021, and the Inflation Reduction Act (IRA), passed in August 2022. Under the IIJA, Congress invested more than \$8 billion in supporting existing nuclear plants and bankrolling advanced nuclear demonstration projects. The IRA provides financial incentives and tax credits for clean energy produced by nuclear and funding for new fuel types needed for advanced reactors. The CHIPS and Science Act, also passed in August 2022, takes the incentives for advanced nuclear in the IRA a step further by promoting university nuclear science and engineering programs, creating diverse streams of funding for advanced nuclear activities. Many states have also been hard at work reducing their GHG emissions through passing bills that enable electric vehicle charging infrastructure and providing sites for advanced nuclear demonstration projects (discussed later in this Chapter).⁶

While these initiatives are critical, the complex and interdependent changes required to meet net-zero requires coordinated transition plans. All sources of power have environmental impacts. Nuclear power comes with its own set of potential concerns, particularly how to handle and dispose of radioactive waste that can remain dangerous for thousands of years. Yet radioactive waste and spent nuclear fuel have been safely managed and stored for decades now, and these risks are reduced with new technologies, including advanced reactor designs being developed today.

◆ **NUCLEAR AS A RESPONSE TO THE CLIMATE CRISIS?** The primary driver for nuclear’s rebounding support, according to proponents, is simple: It is not possible for the world to meet its emissions-reduction targets without a substantial global expansion of nuclear energy.

The U.N. Intergovernmental Panel on Climate Change (IPCC) has identified four model pathways for avoiding more than 1.5-degree warming. Three of those pathways involve increasing nuclear’s share of primary energy by between 150 and 500 percent; none allow for nuclear’s share to decline. Supporting the IPCC Report, the International Energy Agency (IEA) mapped out a path to net-zero global emissions by 2050, and found that hitting that target would likely require doubling worldwide nuclear-power production.

Nuclear’s potential for playing a key role in the clean and secure energy transition was also examined in an official June 2022 report by the IEA titled “Nuclear Power and Secure Energy Transitions: From Today’s Challenges to Tomorrow’s Clean Energy Systems.” The IEA report examined how nuclear can address two major crises the world is facing today—energy and climate—explaining that “[a]mid today’s global energy security crisis, reducing reliance on imported fossil fuels has become the top energy security priority. No less important is the climate crisis: reaching net zero emissions of greenhouse gases by mid-century requires a rapid

⁵See DOE Office of Energy Efficiency and Renewable Energy, *Changing the Game by Linking Nuclear and Renewable Energy Systems* (Dec. 8, 2022), available at <https://www.energy.gov/eere/articles/changing-game-linking-nuclear-and-renewable-energy-systems>.

⁶National Conference of State Legislators, *Greenhouse Gas Emissions Reduction Targets and Market-based Policies* (2021).

and complete decarbonization of electricity generation and heat production. Nuclear energy . . . contributes to both goals.”

§ 30:3 Overview of nuclear energy in the United States

Following President Eisenhower’s “Atoms for Peace” speech to the United Nations in 1953, the U.S. Congress enacted the Atomic Energy Act the next year. The Atomic Energy Act of 1954 established the Atomic Energy Commission (AEC) and provided for private sector involvement in the nuclear power industry under a comprehensive licensing and regulatory scheme.¹ As the U.S. Supreme Court noted in its 1983 *Pacific Gas and Electric Co. v. State Energy Resources Conservation & Development Comm’n* decision,² Congress determined that the “national interest would be best served if the Government encouraged the private sector to become involved in the development of atomic energy.”

◆ **Atomic Energy Act** Key Atomic Energy Act provisions to note include sections 189 “Hearing and judicial review” and 274 “Cooperation with states.”

Under sec. 189, the Nuclear Regulatory Commission is obligated to afford the public an opportunity to challenge proposed licensing actions, and to conduct a public hearing regarding the construction of certain types of facilities, even if there is not a challenge by any affected party. These hearings are conducted in accordance with the Administrative Procedure Act and the NRC regulations set forth at 10 C.F.R. Part 2.

Under sec. 274, the NRC may enter into an agreement with a State for discontinuance of the NRC’s regulatory authority over some materials licenses within that State. The State must first show that its regulatory program is compatible with the NRC’s and adequate to protect public health and safety. The NRC retains authority over, among other things, nuclear power plants within the State and certain exports.

Electricity generation from commercial nuclear power plants in the U.S. began in 1958. At that time, the AEC developed a licensing process for the construction and operation of power reactors based on the statutory standards and provisions of Sections 185 and 189 of the Atomic Energy Act.³ The Act imposes the basic safety standard that the licensing of a power reactor must provide “adequate protection of the public health and safety” and be consistent with the “common defense and security.” In a 1961 decision, *Power Reactor Development Co. v. Electricians*,⁴ the Supreme Court affirmed the principle that the Act does not mandate absolute safety or zero risk, but rather “reasonable assurance” of adequate protection of the public health and safety. This remains the standard today for granting a license to construct and operate a nuclear power plant.

Eventually some 130 nuclear power reactors were constructed in the U.S. during the first four decades of the industry. All were licensed by the AEC or its successor the NRC. A number of the plants have been retired and either decommissioned or are shutdown awaiting decommissioning.⁵ As of the end of 2021, the United States had 93 operating commercial nuclear reactors at 55 nuclear power plants in 28

[Section 30:3]

¹42 U.S.C.A. §§ 2011 to 2281.

²*Pacific Gas and Elec. Co. v. State Energy Resources Conservation & Development Com’n*, 461 U.S. 190, 207, 103 S. Ct. 1713, 75 L. Ed. 2d 752 (1983).

³42 U.S.C.A. §§ 2235, 2239.

⁴*Power Reactor Development Co. v. International Union of Elec., Radio and Mach. Workers*, AFL-CIO, 367 U.S. 396, 81 S. Ct. 1529, 6 L. Ed. 2d 924 (1961).

⁵This is when the facility is placed in a safe, stable condition and maintained in that state, and the facility is decontaminated and dismantled at the end of the storage period to levels that permit license termination (often referred to as “SAFSTOR”). Therefore, the SAFSTOR determination includes

states. The average age of these nuclear reactors is about 40 years—with the oldest operating reactor, Nine Mile Point Unit 1 in New York, beginning commercial operation in December 1969. The newest reactor to enter service, Watts Bar Unit 2, came online in 2016—the first new reactor since 1996 when the Watts Bar Unit 1 came online.

Nuclear electricity generation capacity in the U.S. peaked in 2012 at about 102,000 MW, when there were 104 operating nuclear reactors. At the end of 2021, the 93 operating reactors had a combined generating capacity of about 95,492 MW. In 2013 through 2019, annual nuclear generation capacity and electricity generation increased each year (except in 2017) even as the number of operating reactors declined, either through increases in capacity factor or power uprates (increases in the licensed capacity of the reactor). Today, nuclear energy provides about one-fifth of U.S. electricity.⁶

§ 30:4 Overview of nuclear energy in the United States—Status of currently operating plants

While new nuclear construction has changed course, in 2016 the Tennessee Valley Authority's Watts Bar Unit 2 in Tennessee became the first new U.S. reactor to come online since 1996. In February 2012, the Nuclear Regulatory Commission (NRC) voted to approve Southern Company's application to build and operate two new reactors, Units 3 and 4, at its Vogtle plant in Georgia, each with a planned capacity of about 1,100 MW. The new Vogtle reactors are the first new reactors to receive construction approval in more than 30 years and are expected to come online by 2023. Notably, Unit 3 loaded fuel in October 2022. Despite this new construction and the renewed interest in keeping operating reactors online, as of November 2021, there were 23 shut down commercial nuclear power reactors at 19 sites in various stages of decommissioning.¹

Nuclear development in the U.S. suffered a major setback after the 1979 Three Mile Island Unit 2 accident. While official reports concluded that no person was injured or exposed to harmful radiation, many orders and projects were cancelled or suspended at that time (mostly for economic reasons, such as the effects of recession and inflation with high interest rates in the late 1970s and early 1980s), and the nuclear construction industry contracted over the next two decades.

§ 30:5 Overview of nuclear energy in the United States—U.S. Nuclear Regulatory Commission

Nuclear reactors are licensed and regulated, with strict safety, technical, and environmental oversight, by the Power Reactor Development Co. v. International Union of Elec., Radio and Mach. Workers, AFL-CIO, 367 U.S. 396, 81 S. Ct. 1529, 6 L. Ed. 2d 924 (1961). The Energy Reorganization Act of 1974 created the NRC, an independent federal regulatory agency that began operations on January 19, 1975. The NRC was a successor to the licensing and regulatory functions of the Atomic Energy Commission (AEC); other promotional functions of the AEC were transferred to the Department of Energy.

consideration of those activities necessary for final decontamination and dismantlement of the facility. Regulatory Guide 1.202, *Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors*, available at <https://www.nrc.gov/docs/ML0502/ML050230008.pdf>.

⁶Energy Information Agency (EIA), *Electricity in the U.S. for 2021*, available at <https://www.eia.gov/energyexplained/electricity/electricity-in-the-us.php>.

[Section 30:4]

¹NRC, *Location of Power Reactor Sites Undergoing Decommissioning*, available at <https://www.nrc.gov/info-finder/decommissioning/power-reactor>.

At that time, the NRC focused its attention on the licensing process for the many power reactors that were in the application stage, along with several broad issues essential to protecting public health and safety, such as radiation protection, reactor safety, and the regulation of nuclear materials. The courts have repeatedly held that the NRC, in making its safety judgments, is the expert administrative agency for matters of nuclear safety and thus its decisions are entitled to great deference. As the Supreme Court noted, in its 1983 *Baltimore Gas & Electric Co. v. NRDC* decision:¹

[A] reviewing court must remember that the Commission is making predictions, within its area of special expertise, at the frontiers of science. When examining this kind of scientific determination, as opposed to simple findings of facts, a reviewing court must generally be at its most deferential.

Despite attempts by certain courts to impose special procedures on the NRC in view of the importance of its safety mission, the Supreme Court has also made clear that the Administrative Procedure Act, 5 U.S.C.A. §§ 551 *et seq.*, establishes the “maximum procedural requirements” that Congress was willing to impose on the agency.² This important principle shows that the regulation of nuclear energy matters is essentially the same as that for other regulated industries.

Today, the NRC’s regulatory activities are focused on reactor safety oversight and license renewal for existing plants, as well as waste management of both high-level and low-level radioactive waste. The NRC coordinates its regulatory efforts with other federal agencies, and continually updates its approaches based on technical innovation, such as improvements in probabilistic risk assessment that can support risk-informed, performance-based regulation—where the focus is on technical matters having the most significance from a safety perspective. This practice must strike a delicate balance between accommodating new technologies and protecting the health and safety of the public, which is the NRC’s primary responsibility. The NRC does this by regulating the entire lifecycle of a nuclear power plant from the design phase through construction, operation, and decommissioning (commonly referred to as “cradle to grave” regulation).

Part II of this Chapter walks through the various NRC regulatory frameworks for nuclear licensing and the stringent environmental considerations associated with nuclear licensing.

II. NUCLEAR LAW AND REGULATIONS

§ 30:6 NRC licensing and regulation of commercial nuclear facilities

The Nuclear Regulatory Commission (NRC) is responsible for licensing new nuclear power plants, as well as test and research reactors, and maintains a stringent process for the planning, siting, construction, and operation of all commercial nuclear reactors. Through the licensing process, the NRC generally licenses an applicant for any or all of the following activities: (1) constructing, operating, and decommissioning commercial reactors and fuel cycle facilities; (2) possessing, using, processing, exporting, and importing nuclear materials and waste; and (3) handling

[Section 30:5]

¹*Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 103, 103 S. Ct. 2246, 76 L. Ed. 2d 437 (1983).

²*Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 98 S. Ct. 1197, 55 L. Ed. 2d 460 (1978).

certain aspects of their transportation.¹ The requirements contained in the regulatory frameworks for these activities are robust and require potential applicants to make significant investments in environmental and safety reviews, and ensure that they are financially and technically qualified to see a nuclear license through from inception to decommissioning.

NRC regulations provide a combination of regulatory requirements for environmental and public safety oversight, including inspections, performance evaluations, enforcement, and operating experience evaluations. The NRC issues licenses for nuclear power plants under 10 C.F.R. Part 50, “Domestic Licensing of Production and Utilization Facilities,” and this framework includes measures to protect the public, occupational workers, and the environment. Under the reforms of 10 C.F.R. Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” the NRC licenses new reactors through a “combined license” approach, authorizing both construction and operation. Part 52 also involves the issuance of early site permits, standard design certifications, standard design approvals, and manufacturing licenses for nuclear power facilities. These processes are intended to bring about standardization of designs and early resolution of siting and design issues to help streamline the licensing process for new reactors. The NRC also licenses fuel cycle facilities in accordance with 10 C.F.R. Part 70, “Domestic Licensing of Special Nuclear Material,” which establishes requirements, procedures, and criteria for the issuance of licenses to possess special nuclear material (enriched uranium), spent fuel, radioactive waste, and other radioactive materials.

To supplement the requirements in these regulations, the NRC publishes and endorses official guidance. These guidance documents describe methods for implementing the NRC’s regulations, techniques for evaluating specific problems or postulated accidents, and the type of data that the NRC needs in reviewing applications for permits and licenses. Guidance is not a substitute for regulations and compliance is not mandated, but it establishes acceptable practices to meet the NRC’s licensing standards and other regulatory requirements.

§ 30:7 NRC environmental review for reactor licensing

The Nuclear Regulatory Commission’s (NRC) licensing process for reactors includes a comprehensive review of environmental impacts. The NRC’s review is designed to comply with the National Environmental Policy Act (NEPA) and other environmental laws. In particular, the NRC has followed the 1971 decision of the D.C. Circuit in *Calvert Cliffs’ Coordinating Committee, Inc. v. Atomic Energy Commission*,¹ holding that NEPA requires full consideration of environmental impacts through preparation of an Environmental Impact Statement for the licensing of a new nuclear power plant. This decision led the NRC to revise its regulations on environmental reviews for new plants.

§ 30:8 NRC environmental review for reactor licensing—Compliance with NEPA, environmental assessments and impact statements

The National Environmental Policy Act (NEPA) is a central pillar of environmental law and requires federal agencies to evaluate the impacts of proposed major federal

[Section 30:6]

¹The regulations on the different licensing processes are contained in 10 C.F.R. Parts 50, 52, 30, 70, 71, and 72.

[Section 30:7]

¹*Calvert Cliffs’ Coordinating Committee, Inc. v. U. S. Atomic Energy Commission*, 449 F.2d 1109, 17 A.L.R. Fed. 1 (D.C. Cir. 1971).

actions on the human environment.¹ The Nuclear Regulatory Commission (NRC) implements NEPA and other environmental laws through its regulations in 10 C.F.R. Part 51, which contain criteria for conducting environmental reviews. When an applicant seeks a nuclear reactor license, NEPA regulations, as enforced by the NRC, serve as safeguards for the interests of affected communities and the environment.

In compliance with NEPA, the NRC is obligated to assess the environmental effects of proposed actions prior to making licensing decisions and to conduct an evaluation that balances the environmental costs and benefits of the proposed action. Where environmental effects are remote and speculative, the NRC can approve plant construction and operation even though uncertainties exist. The environmental review of a proposed action is subject to a “rule of reason” and as a result is limited to the review of environmental effects which are reasonably foreseeable and not theoretical or speculative. The NRC’s environmental review can involve three different levels of analysis—spanning from a categorical exclusion based on generic analysis to conducting a full Environmental Impact Statement (EIS)—depending on the potential effects of a proposed action on the environment. The levels of analysis correspond with the following:

1. Highest level. The NRC determines whether a proposed project requires the preparation of an EIS for “major federal actions significantly affecting the quality of the human environment” or for proposed actions that the NRC determines should be covered by an EIS.² An EIS is required for licensing the construction and operation of a nuclear power facility, and the licensing of a uranium enrichment facility. Typical environmental impact areas that are reviewed in an EIS include, but are not limited to, water resources, air quality, land use, waste management, public and occupational health, geology and soil, historical and cultural sources, and environmental justice.
2. Most common. The NRC determines whether an action has a significant impact on the environment based on an Environmental Assessment (EA). An EA is a concise document that provides sufficient evidence and analysis for determining whether to prepare an EIS or make a finding of no significant impact (FONSI). The NRC typically makes a FONSI in the context of proposed license amendments for licensed facilities. If an EA supports a FONSI, the environmental review process is complete. If the EA reveals that the proposed action may have a significant effect on the human environment, the NRC may then prepare an EIS.
3. Lowest level. The NRC has determined that certain licensing, regulatory, and administrative actions may be “categorically excluded” from a detailed environmental review if the action does not “individually or cumulatively have a significant effect on the human environment.”³ Once it has established a categorical exclusion, the agency is not required to prepare an EA or EIS for

[Section 30:8]

¹See Chapter 10 of this treatise for a discussion of NEPA.

²While the NRC is responsible for complying with NEPA, the process of creating an EIS begins with the license renewal applicant. Under 10 C.F.R. §§ 51.45(a) and 51.53(c)(1), license renewal applicants must submit an environmental report to the NRC “to aid the Commission in complying with section 102(2) of NEPA.” See 10 C.F.R. § 51.14(a) (definition of “environmental report”). The NRC staff reviews the environmental report submitted by the applicant and uses it to draft the plant-specific SEIS. Under 10 C.F.R. § 51.53(c)(3), “[f]or those applicants seeking an initial renewed license . . . the environmental report . . . for the operating license renewal stage is not required to contain analyses of the environmental impacts of the license renewal issues identified as Category 1 issues.”

³10 C.F.R. § 51.22 “Criterion For Categorical Exclusion; Identification Of Licensing And Regulatory Actions Eligible For Categorical Exclusion Or Otherwise Not Requiring Environmental Review.”

any action that falls within the scope of the categorical exclusion, unless the agency finds, for any particular action, that there are special (e.g., unique, unusual, or controversial) circumstances that would preclude use of the categorical exclusion. The NRC has identified categorical exclusions in 10 C.F.R. 51.22(c), which include, but are not limited to, the procurement of general equipment and supplies, license amendments that involve no significant hazards considerations, license amendments that change surety bonds, insurance, recordkeeping, reporting, or other administrative requirements, and license amendments without significant construction impacts.

§ 30:9 NRC environmental review for reactor licensing—Public involvement in licensing actions through the hearing process

The Nuclear Regulatory Commission (NRC) considers the licensing of a new reactor to be a major federal action requiring preparation of an Environmental Impact Statement (EIS) in accordance with National Environmental Policy Act (NEPA). During the licensing and environmental review processes for new reactors, the NRC will conduct public scoping meetings to receive comments on the scope of its planned environmental review and EIS. Individuals or entities affected by NRC licensing actions may also participate by requesting a hearing and submitting a petition to intervene, requesting an opportunity to present oral testimony, or submitting a written statement.¹ Hearings are mandatory for certain actions such as issuance of a construction permit for a power reactor or a commercial uranium enrichment facility. The NRC's environmental review process for a new facility, from its internal analysis and consideration of public comments and potential hearings, takes approximately 24 to 36 months.

§ 30:10 NRC environmental review for reactor licensing—License amendments and extensions

At initial licensing, the Nuclear Regulatory Commission (NRC) typically issues a license for commercial reactors to operate for up to 40 years. NRC regulations permit these licenses to be renewed beyond the initial 40-year term for an additional period of time, limited to 20-year increments per renewal. There are no specific limitations in the Atomic Energy Act or the NRC's regulations restricting the number of times a license may be renewed. Initial license renewals generally extend a plant's license from 40 to 60 years, while a so-called "subsequent license renewal"—or SLR—extends a plant license from 60 to 80 years. The first SLR application, for Turkey Point Units 3 and 4, was submitted to the NRC in January 2018, and the NRC issued the Turkey Point SLRs in December 2019.¹ As of January 2022, the NRC had issued SLRs for six reactors, and SLR applications are currently under review for an additional nine reactors.²

In deciding to grant a renewed license, the NRC evaluates whether the nuclear

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¹10 C.F.R. § 2.309 "Hearing requests, petitions to intervene, requirements for standing, and contentions."

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¹Two years after the NRC granted the renewed license, the NRC staff determined that it needed to "examine the environmental issues that the Commission determined were not properly evaluated for the subsequent license renewal term, as well as any new information for Turkey Point." The NRC issued revised views on SLR reviews in a February 24, 2022, order. The order (CLI-22-02) reversed a 2020 ruling (CLI-20-03) that backed the NRC staff's reliance on the GEIS for evaluating the Turkey Point SLR application.

²For information on the NRC issued SLRs and pending applications, see U.S. NRC, Nuclear

facility can continue to operate safely during the period of extended operation. The review is conducted in accordance with both safety (10 C.F.R. Part 54) and environmental (10 C.F.R. Part 51) requirements.

1. Environmental Reviews During License Renewal. In addition to a safety review, the renewal of a nuclear power plant operating license requires the preparation of an EIS to comply with National Environmental Policy Act (NEPA). The Environmental Impact Statement (EIS) includes the NRC staff's analysis that considers and weighs the environmental effects of the proposed renewal. To support the preparation of an EIS for license renewals, the NRC published the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS) in 1996, and updated the GEIS in 2013.³ The intent of the GEIS was to improve the efficiency of license renewals by determining which environmental impacts would result in essentially the same impact at all nuclear power plants (i.e., generic or "Category 1" issues) and which ones could result in different levels of impacts at different plants and would require a plant-specific analysis to determine the impacts ("Category 2" issues). The NRC also promulgated a rule that codified the findings of the GEIS into its regulations in 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1.⁴ For issues not generically addressed—the Category 2 issues—the NRC staff prepares plant-specific supplements to the GEIS, i.e., a plant-specific supplemental EIS (SEIS).
2. Updated GEIS for SLRs. In February 2022, the NRC issued a major decision on its SLR process. The decision ordered that reviews of SLR applications must rely on a new, more extensive environmental analysis rather than the license renewal GEIS that applicants previously relied on to streamline the renewal process. Specifically, the Commission stated that the initial license renewal GEIS did not explicitly cover a subsequent licensing period and can apply only to *initial* license renewal applications—not SLRs. The Commission ordered the NRC staff to hit the "reset" button on its NEPA analyses in several SLR proceedings to account for this change in policy. The NRC staff submitted a proposed rule to the Commission at the end of 2022, which included a mixture of small, organizational changes and larger, substantive changes, including the addition of GHG and climate change impacts as factors to be considered when the NRC is reviewing license renewal applications. Following Commission approval, the final rule would be published to incorporate the updated GEIS and SLR applicants could, once again, rely on the GEIS. Notably, SLR applicants are not *required* to wait for the Commission's approval of the new GEIS; applicants can elect to proceed with their applications by performing their own site-specific analyses of the Category 1 issues analyzed in the original GEIS.

§ 30:11 How the NRC will approach environmental reviews for licensing advanced reactors

New reactor technologies have emerged over the past two decades, such as small modular reactors (SMR) (usually reactors less than 300 MWs) and advanced reactors (reactors of different sizes that use coolants such as liquid metal or sodium

Reactors, available at <https://www.nrc.gov/reactors/operating/licensing/renewal/subsequent-license-renewal.html>.

³NRC NUREG-1437, Rev. 1 "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," all documents, available at <https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/r1/index.html#abstract>.

⁴See NRC NUREG-1437, Rev. 1 "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (last updated 2021), available at <https://www.nrc.gov/reading-rm/doc-collections/cfr/part051/part051-appb.html>.

rather than water). These technologies hold the promise of enhanced safety through use of passive safety systems that reduce accident risks. As discussed later in this chapter, they are also being developed to work in tandem with renewable energy sources (e.g., through onsite energy storage systems) and to provide process heat to support hydrogen production or other industrial uses.

The environmental review process for licensing these new advanced and small modular reactors is anticipated to be substantially similar to the environmental review process for traditional light-water reactors (LWR) as described above. A key difference, however, is that the NRC will consider the advanced safety features and performance unique to the design of advanced reactor. For example, similar to the way the NRC streamlined the environmental review process through the GEIS, the NRC is developing a GEIS for advanced nuclear reactors (AR GEIS). In developing the AR GEIS, the NRC is using a technology-neutral, performance-based approach, which includes general analyses evaluating the potential environmental impacts of a reactor taking into account the limits of the specific reactor design features, and the site-specific conditions of the affected environment.

A future license application referencing the AR GEIS must demonstrate that the project is limited to the analysis in the AR GEIS and that there is no significant new information that affects the evaluation. The NRC will incorporate the AR GEIS by reference, and no further analysis would be required. If appropriate, site-specific information and analysis could be provided in an SEIS. This will spare license applications for new reactor types from additional review and accelerate the licensing process.

§ 30:12 NRC regulation of uranium recovery activities

As part of its responsibility to protect public health and safety and the environment, the Nuclear Regulatory Commission (NRC) also regulates certain uranium recovery activities. The production of fuel for nuclear power plants starts with taking uranium ore from the ground and then purifying and processing it through a series of steps. This process, known as “uranium recovery,” focuses on extracting natural uranium ore from the earth and concentrating (or *milling*) that ore. These operations produce a uranium concentrate product, which is then transported to a succession of fuel cycle facilities where it is converted into fuel for nuclear power reactors. In addition to this uranium concentrate, the uranium recovery operations also generate waste products, called “byproduct materials,” that contain low levels of radioactivity. Although mining operations are primarily regulated by the Bureau of Land Management, the U.S. Department of the Interior, and the individual States where the mines are located, the NRC regulates conventional milling operations under 10 C.F.R. Part 40, “Domestic Licensing of Source Material.” As defined in that regulation, uranium milling is any activity that produces byproduct material within the meaning of Section 11e(2) of the Atomic Energy Act—i.e., “. . . the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.” However, 10 C.F.R. Part 40 expands upon this definition by adding, “. . . including discrete surface wastes resulting from uranium solution extraction processes.” In situ recovery facilities perform uranium milling under this expanded definition. Therefore, the NRC has authority over milling of mined materials and in situ processes used to recover uranium. The NRC regulates these facilities in close coordination with other Federal agencies and State and Tribal governments and provides technical support and guidance to those *Agreement States* that have authority pursuant to Atomic Energy Act § 274 over uranium recovery activities.

- ◆ An **Agreement State** is a State that has signed an agreement with the NRC authorizing the State to regulate certain uses of radioactive materials within the

State. Pursuant to AEA § 274, the NRC delegates to the States portions of its regulatory authority to license and regulate byproduct materials (including radioisotopes); source materials (uranium and thorium); and certain quantities of special nuclear material. The NRC closely coordinates with the Agreement States on training, technical licensing and inspection issues, rulemaking, and other regulatory efforts. There are currently 39 NRC Agreement States.

§ 30:13 NRC and DOE coordination on managing nuclear waste

The Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE) share responsibilities for the management of nuclear waste, including low-level radioactive waste and spent nuclear fuel and high-level waste. High-level radioactive wastes are the highly radioactive materials produced as a byproduct of the reactions that occur inside nuclear reactors and includes spent (*used*) reactor fuel. Low-level waste includes items that have become contaminated with radioactive material or have become radioactive through exposure to neutron radiation, which typically consists of contaminated protective shoe covers and clothing, wiping rags, mops, reactor water treatment residues, equipment and tools, luminous dials, medical tubes injection needles, syringes, and laboratory animal carcasses and tissues. In carrying out these responsibilities, the NRC coordinates with the DOE and other agencies.

◆ The **Nuclear Waste Policy Act of 1982 (NWPA)** establishes a national program for the safe, permanent disposal of spent nuclear fuel from reactor operations and other highly radioactive wastes.

The **Low-Level Radioactive Waste Policy Act (as amended in 1985)** provides that states are responsible for providing disposal capacity for commercial low-level waste generated within their borders and encourages regional compacts to develop new disposal facilities.

Following are key examples of federal laws designed to ensure safe storage and disposal of nuclear waste.

§ 30:14 NRC and DOE coordination on managing nuclear waste—Low-Level Radioactive Waste Policy Act

The Low-Level Radioactive Waste Policy Act, as amended in 1985, provides that each state, including the District of Columbia and the Commonwealth of Puerto Rico, is responsible for providing disposal capacity for commercial low-level waste generated within its borders and encourages regional compacts to develop new disposal facilities. This Act is based on the following principles: (1) state responsibility for providing low-level waste (LLW) disposal capacity; (2) encouragement of inter-state compacts for the exercise of this responsibility; and (3) the right of regional compacts to prohibit disposal, at the parties' regional facilities, of LLW generated in non-compact states. Congress' goal was to ensure the safe and efficient management of LLW on a regional basis. The U.S. Supreme Court restricted the reach of the Low-Level Radioactive Waste Policy Act in its 1992 *New York v. United States* decision,¹ holding that Congress could not require states to "take title" to, or maintain ownership responsibilities for, low-level waste under the Act, as such a mandate exceeded the power of Congress under the Commerce Clause. This decision slowed some state-level action to meet the responsibilities and goals established by the Act.

In the U.S. today there are only four disposal sites, in Utah, South Carolina, Washington State, and Texas. States without sites for disposal facilities may enter

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¹New York v. U.S., 505 U.S. 144, 112 S. Ct. 2408, 120 L. Ed. 2d 120 (1992).

into compacts with other states under Congressional authorization to maintain access to disposal facilities. It is DOE's responsibility to keep track of these arrangements and to provide technical assistance and information to the States and regional compacts on alternative low-level radioactive waste disposal technology designs, volume reduction options, transportation practices for shipment, and health and safety considerations for LLW management.²

The Act confers authority on DOE to assign additional emergency disposal capacity to reactors while the NRC can authorize emergency access to existing sites. The Act sets forth conditions under which the NRC may grant emergency disposal facility access to a non-complying state if an imminent threat exists to the public safety or common defense.

§ 30:15 NRC and DOE coordination on managing nuclear waste—Nuclear Waste Policy Act

The Nuclear Waste Policy Act of 1982 (NWPA) establishes a national program for the safe, permanent disposal of spent nuclear fuel from reactor operations and other highly radioactive wastes. It also provided a timetable of key milestones the federal agencies must meet in carrying out the program. The NWPA establishes procedures to select deep geologic repositories for the safe storage and/or disposal of spent nuclear fuel and high-level radioactive waste and directs the U.S. Environmental Protection Agency (EPA) to develop environmental standards for protection of the general environment from offsite releases of radioactive material in repositories. Additionally, the NWPA provides for temporary federal storage of waste and authorized the Department of Energy (DOE) to provide up to 1,900 metric tons of temporary storage capacity for spent fuel from civilian nuclear reactors.

Congress assigned responsibility to the DOE to site, construct, operate, and close a repository for the disposal of spent nuclear fuel and high-level radioactive waste. The Act directs the Nuclear Regulatory Commission (NRC) to license DOE to operate a repository only if it meets EPA's environmental standards and other relevant requirements. Later amendments explicitly named Yucca Mountain, in Nevada, as the only site that DOE could use for a permanent repository for the nation's high-level radioactive waste and spent nuclear fuel.

At this time, DOE has canceled the Yucca Mountain repository program in the face of opposition from the State of Nevada, in order to focus on potential solutions to achieve a broader consensus. DOE is focusing on the potential development of consolidated interim storage facilities for safe storage of spent fuel until a permanent disposal solution can be developed. Most nuclear power plants in the United States store spent fuel onsite in independent spent fuel storage installations (ISFSI) pursuant to licenses granted by the NRC. The spent fuel and high-level waste will be stored onsite at the ISFSI until DOE is ready to take delivery of the spent fuel for storage or disposal. If the spent fuel is stored onsite in casks certified by the NRC under 10 C.F.R. Part 72, the licensee may use an ISFSI in accordance with a Part 72 general license; otherwise, the licensee must obtain a site-specific Part 72 license from the NRC.

III. LEGAL DEVELOPMENTS AND NEW FRAMEWORKS

§ 30:16 Recent U.S. legislation demonstrating support for nuclear as a clean energy solution

²The federal government's responsibilities for disposal are contained in the Low-Level Radioactive Waste Policy Amendments Act of 1985 (1985 Act), Pub. L. 99-240 § 102, 99 Stat. 1842, 1844 (1986) (codified at 42 U.S.C.A. § 2021c(b)(1)(D)). DOE's Office of Environmental Management carries out its responsibility.

Recent support for nuclear energy in the U.S. is driven by the difficulty in meeting clean energy goals coupled with surging electricity demand. There is strong bipartisan backing for increased nuclear energy in the U.S., which is expressed in recent legislation.

The Inflation Reduction Act of 2022 (IRA) provides \$369 billion for climate and energy projects generally, including: specific financial incentives and tax credits for clean energy produced by the existing nuclear fleet, clean electricity produced by advanced nuclear reactors (including small modular reactors (SMRs)), and fuel needed to operate advanced reactors. The CHIPS and Science Act of 2022, as mentioned earlier, promotes university nuclear science and engineering programs. The Infrastructure Investment and Jobs Act of 2021 (IIJA) contains a number of provisions that support the existing nuclear fleet, including a \$6 billion Civil Nuclear Credit program through DOE to help operators at financially troubled nuclear plants keep reactors running. A qualifying nuclear facility must demonstrate that: (1) it is at risk of ceasing operations due to economic factors; and (2) closure will lead to increases in carbon and air pollutant emissions.

State-level examples recognizing this demand for nuclear include actions taken by California to keep the Diablo Canyon Nuclear Power Plant operating, and by the Governor of Virginia to establish Virginia as a nuclear hub and a place to develop SMRs.¹ In addition, some industrial users are starting to expand portfolios for nuclear to support decarbonization agendas, such as X-energy's collaboration with Dow Chemical, which is intended to serve as a blueprint for decarbonizing the chemical manufacturing industry.²

§ 30:17 Changes in the NRC's environmental justice policy

In 2021, the Nuclear Regulatory Commission (NRC) initiated an update of its environmental justice policy. This is a move that may have significant implications for environmental reviews of new nuclear projects.

In 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," which directed federal agencies to identify and address the "disproportionately high and adverse human health or environmental" impact on minority and low-income communities of government "programs, policies, and activities."¹ Independent regulatory agencies were only encouraged and not bound to comply with E.O. 12898, but the NRC agreed to implement the measures and released its first environmental justice (EJ) Strategy document in 1995 and reactor and materials-specific guidance documents in 1997.² The Biden administration more recently took a whole-of-government approach to EJ. While this strategy seeks to use EJ and climate change considerations to drive decision-making across all U.S. agencies and sectors,³ it does not drastically impact the NRC's consideration of EJ in its already-established environmental review.

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¹Virginia's 2022 Energy Plan (Oct. 2022), available at https://energy.virginia.gov/energy-efficiency/documents/2022_Virginia_Energy_Plan.pdf.

²X-energy Press Release: "Doe, X-energy to drive carbon emissions reductions" (Aug. 2022), available at <https://x-energy.com/media/news-releases/dow-and-x-energy-to-drive-carbon-emissions-reductions-through-deployment-of-advanced-small-modular-nuclear-power>.

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¹59 Fed. Reg. 7629 (Feb. 16, 1994).

²NEI's Comments Regarding the NRC's Systematic Assessment of Its Environmental Justice Programs, Policies, and Activities (Docket ID NRC-2021-0137), p. 1.

³White House Fact Sheet: A Year Advancing Environmental Justice (Jan. 26, 2022).

For the nuclear energy industry, EJ considerations may be relevant to every stage of the fuel cycle, from uranium mining to spent fuel storage. For instance, in a 2020 case involving a proposed consolidated interim storage facility for spent fuel, the NRC held that it was permissible for the Atomic Safety and Licensing Board Panel, the licensing adjudicatory body inside the NRC, to mandate that environmental reports required under NEPA contain EJ information related to the transportation of waste.⁴ The applicants in that case considered the EJ impacts only of the location of the proposed spent fuel storage facility and not those associated with the transportation routes.

§ 30:18 Changes in the NRC’s environmental justice policy—Impacts faced by low-income and otherwise marginalized communities

According to the Nuclear Regulatory Commission (NRC) environmental justice considerations are potentially relevant to nearly every stage of the life cycle of nuclear energy. Potential environmental justice issues can arise for uranium mining, the siting and permitting of new nuclear reactors and other nuclear fuel cycle facilities, and the management of nuclear waste. Due to its nature as a low-carbon energy source with the need for stringent safety requirements, nuclear energy projects are likely to receive more scrutiny than many renewable energy technologies.

§ 30:19 Changes in the NRC’s environmental justice policy—A fresh look at environmental justice

The U.S. Environmental Protection Agency (EPA) defines “environmental justice” (or “EJ”) as: “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.”¹

In April 2021, the Nuclear Regulatory Commission (NRC) directed the staff to “systematically review how the agency’s programs, policies, and activities address environmental justice,” and include an opportunity for public comment.² As part of the review, the Commission directed the NRC staff to evaluate relevant Executive Orders and assess whether EJ is appropriately addressed in the agency’s programs, policies, and activities, given the agency’s mission. The NRC staff performed a comprehensive self-assessment that included benchmarking EJ activities of other federal and state agencies. Central to its review, the staff assessed the adequacy of the NRC’s existing 2004 Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (“2004 Policy Statement”), and considered whether establishing formal methods to gather stakeholder input would benefit future EJ efforts.³

The NRC staff conducted extensive outreach to a diverse groups and interested persons, including EJ communities and sovereign Tribal nations, other federal agencies, industry groups, nuclear safety organizations, and the public at large. Over the course of the assessment, the NRC held a series of public meetings and

⁴Interim Storage Partners LLC (Wcs Consol. Interim Storage Facility), 92 N.R.C. 463, 482 (Dec. 17, 2020).

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¹U.S. EPA, Learn About Environmental Justice, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice>.

²NRC Commission Environmental Justice Directive, available at <https://www.nrc.gov/docs/ML2111/ML21113A070.pdf>.

³NRC, “Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions” (August 24, 2004), available at <https://www.govinfo.gov/content/pkg/FR-2004-08-24/pdf/04-19305.pdf>.

received approximately 2,500 written comments. The general takeaway was that the NRC's approach to EJ in its programs, policies and activities has mostly served the agency well, yet there are opportunities for programmatic and policy enhancements moving forward. On April 12, 2022, the NRC staff completed its systematic assessment of how the NRC approaches environmental justice and made a variety of revised EJ policy recommendations to the Commission.⁴

The NRC staff put forth six high-level recommendations to the Commission, six commitments that the staff will undertake, and 13 enclosures explaining the review findings in detail. The NRC staff's plans to update the agency's consideration of EJ include the following, some of which do not require Commission approval:

1. **Enhance communication.** The NRC staff will boost engagement with EJ communities and Tribal nations on issues associated with dose and radiation protection and related interagency research. The NRC staff will increase communication related to emergency preparedness, response and recovery activities, and use existing outreach and media processes to enhance communication and information related to impacts on EJ communities stemming from shutting down nuclear facilities. The NRC staff will also improve communications with EJ communities and Tribal nations about the NRC's hearing process.
2. **Implement lessons learned.** The NRC staff continues to assess the most comprehensive enhancement to the consideration of environmental justice in regulatory cost-benefit analysis guidance and consider best practices and knowledge gained through this review in future updates to environmental review guidance.

If the NRC ultimately adopts a more proactive approach to addressing EJ issues, nuclear developers can expect to see direct changes to the licensing process and other NRC activities, such as having to communicate more proactively with the surrounding site community, coordinate with a federal or state-level EJ advisory board, and demonstrate an integration of EJ considerations into a licensee's business and operational practices.

IV. NUCLEAR ENERGY AS CLEAN ENERGY AND LOOKING AHEAD

§ 30:20 Overview on advanced nuclear and small modular reactors

Today's nuclear industry is being reinvigorated by dozens of new entrants with new reactor designs with potential to make nuclear power safer, cheaper, and cleaner. Prominent examples include **advanced nuclear reactors** and **small modular reactors** ("SMRs").

An "advanced nuclear reactor" is defined in legislation enacted in 2018 as either "a nuclear fission reactor with significant improvements over the most recent generation of nuclear fission reactors" or a reactor using nuclear fusion.¹ Such reactors include light-water reactor designs that are much smaller than existing reactors, as well as concepts that would use different moderators, coolants, and types of fuel. Many of these advanced designs are considered to be SMRs, which DOE defines as reactors with electric generating capacity of 300 megawatts and below, in contrast to an average of about 1,000 megawatts for existing commercial reactors. Major categories of advanced reactors include advanced water-cooled reactors, which would

⁴SECY-22-0025 (March 2022), providing the NRC staff's findings and recommendations to the Commission.

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¹Nuclear Energy Innovation Capabilities Act of 2017, Pub. L. 115-248, Sept. 28, 2018, 132 Stat. 3154.

have safety, efficiency, and other improvements over existing commercial reactors;² gas-cooled reactors, which could use graphite as a neutron moderator or have no moderator;³ liquid-metal-cooled reactors, which would be cooled by liquid sodium or other metals and have no moderator; molten salt reactors, which would use liquid fuel; and fusion reactors, which would release energy through the combination of light atomic nuclei (such as a mixture of hydrogen atoms) rather than the splitting (fission) of heavy nuclei such as uranium.

The Nuclear Energy Innovation and Modernization Act (“NEIMA,” P.L. 115-439), enacted in January 2019, tasked the NRC to develop a regulatory framework suitable for advanced nuclear technologies by the end of 2027.

Some advantages of these advanced reactors include:

- **Safety Benefits.** Advanced reactors can operate with enhanced safety compared with traditional light-water nuclear reactors. Advanced reactors often run at lower pressures because of the special coolants they use. In many cases, they can also take advantage of passive safety measures, such as pressure relief valves, rather than relying on active safety features that require a backup power supply or human intervention. These passive safety measures allow reactors to withstand a broader set of accident conditions without resulting damage.
- **Versatility and Flexibility.** Reactors will come in a wide range of sizes, from a few megawatts to more than 1,000 (like traditional reactors), which means advanced reactors can be more flexible and versatile than traditional large-scale reactors. They can be installed at sites where traditional reactors cannot, such as underground where radiation and security risks are better mitigated. This also allows owners to tailor their electricity generation to the demand, which is important for smaller companies, such as rural electric cooperatives or municipal agencies, and for isolated sites. Some advanced nuclear reactors can vary the amount of power they produce more easily than traditional reactors, enabling them to play a greater role in balancing electricity loads. Many advanced reactors can also go much longer without refueling, requiring less infrastructure, and having the ability to remain online for long periods of time with no interruption in their power output.
- **Industrial Decarbonization.** Advanced reactors operate at high temperatures that can be used for industrial processes. Many industrial processes currently rely on fossil fuels to produce necessary heat levels; advanced reactors could substitute for fossil fuels in processes that would be difficult to electrify. In this way, advanced reactors have the potential to help decarbonize industries and power hybrid energy systems that not only produce electricity for the grid, but can also produce clean drinking water, and hydrogen or heat to decarbonize industrial and transportation activities.
- **Increased Efficiency.** Some advanced reactors use fuel more efficiently than traditional reactors, converting up to 95 percent of the energy in the fuel to usable electricity (traditional reactors convert much less, in some cases below 10 percent).⁴
- **Less Risk from Waste.** The increased energy efficiency of many advanced

²World Nuclear Association, “Advanced Nuclear Power Reactors” (updated Apr. 2021), available at <https://world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-power-reactors/advanced-nuclear-power-reactors.aspx>; International Atomic Energy Agency, “Passive Safety Systems in Advanced Water Cooled Reactors—Case Studies” (2013).

³A “moderator” is a material used on a nuclear reactor **to slow down the neutrons produced from fission**. By slowing down neutrons, the probability of a neutron interacting with Uranium-235 nuclei is greatly increased, thereby maintaining the chain reaction.

⁴Resources for the Future, “Advanced Nuclear Reactors 101” (Mar. 26, 2021), available at <https://>

reactors also results in a smaller amount of nuclear waste. The waste that is created can be less toxic and may remain toxic for a shorter period.

◆ **Fusion energy**, the process that powers the sun and stars, has long been viewed as the **“holy grail” of energy production**, with the promise to produce immense amounts of clean energy, but has long proved elusive for researchers and developers, especially getting at least as much, if not more, energy out of the reaction than went into making it—what is known as “breakeven” fusion.

Today’s fusion industry is being reinvigorated with business entrants and start-ups quickly moving from the drawing board to the field. Fusion companies are looking to develop more advanced testing and demonstration facilities, laying the groundwork for **eventual commercial deployment**.

In December 2022, DOE achieved a **major scientific breakthrough** in fusion when the National Ignition Facility at the Lawrence Livermore National Laboratory successfully produced a nuclear fusion reaction resulting in a net energy gain.

§ 30:21 Coal-to-nuclear transition

Another innovative approach to decarbonization is advanced nuclear’s role in the coal-to-nuclear transition (C2N). A 2022 Department of Energy (DOE) report titled “Investigating Benefits and Challenges of Converting Retiring Coal Plants into Nuclear Plants” demonstrated that hundreds of coal plant sites could host new nuclear reactors because the infrastructure can be repurposed and personnel retrained.¹ Sitting new nuclear at retiring coal sites can offer positive economic and environmental impacts. Many of these coal plants are already retired or slated for retirement, and a new nuclear plant on these sites would maintain the availability of well-paying jobs, and generate continued economic activity in the local communities.² The use of existing sites, infrastructure, and personnel can help lower the economic costs of building new reactors, which has been a major challenge for the nuclear power industry. The C2N transition is already underway. For example, nuclear innovation startup TerraPower and Berkshire Hathaway Energy subsidiary PacifiCorp entered into a partnership to advance the Natrium nuclear demonstration project at the site of a coal plant scheduled for retirement in Wyoming.³

Considerable overlap exists between job functions at a coal power plant and a nuclear power plant, offering an opportunity to redirect skilled workers from the coal power industry to new nuclear plants. This could result in local economic benefits as nuclear plants historically offer the highest median wage across the entire energy sector.⁴ Retaining these jobs could support local communities that may otherwise be hurt by the shutdown of coal power stations.

§ 30:22 Pairing nuclear with renewables and hydrogen

Many advanced reactor developers are designing their technologies to pair with

www.rff.org/publications/explainers/advanced-nuclear-reactors-101.

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¹DOE Report, “Investigating Benefits and Challenges of Converting Retiring Coal Plants into Nuclear Plants” (Sept. 2022) available at <https://fuelcycleoptions.inl.gov/SiteAssets/SitePages/Home/C2N2022Report.pdf>.

²DOE Report, “Investigating Benefits and Challenges of Converting Retiring Coal Plants into Nuclear Plants” (Sept. 2022), at 6, 69.

³TerraPower, Natrium Reactor and Integrated Energy Storage, available at <https://www.terrapower.com/our-work/natriumpower/>; Utility Dive, “Oklo submits first advanced reactor license application in US as NRC moves to streamline reviews” (Mar. 18, 2020), available at <https://www.utilitydive.com/news/oklo-sumits-first-advanced-reactor-license-application-in-us-as-nrc-moves-t/574329/>.

⁴DOE Report, “Investigating Benefits and Challenges of Converting Retiring Coal Plants into Nuclear Plants” (Sept. 2022), at 57, 62, 67-69.

renewables. A recent report from the North American Electric Reliability Corporation (NERC), the entity responsible for overseeing America's bulk power system, underscores the benefits that can be achieved through an advanced nuclear-renewable energy partnership to compensate for the intermittent nature of solar and wind power.¹ For power grids relying on renewable energy, supply and demand hang in a balance based on the time of day and weather forecast. To maintain equilibrium in grid systems powered by renewable energy, flexible backup sources must remain online at all times. This provides an opportunity for advanced reactors to support renewables. Advanced nuclear power technologies are intended to operate flexibly, either at full capacity or load following (producing added power when needed to meet demand), promoting reliability of the grid at any time of day.

Hydrogen production is another promising tool of advanced nuclear reactors. Nuclear power plants can supply the required heat and electricity to produce hydrogen without generating carbon emissions.² Using nuclear in place of current energy alternatives in process heat applications can also result in price stability and increased energy security because nuclear power has the highest capacity factors to remain consistent and reliable, which reduces ramp-up or ramp-down costs. Nuclear-produced hydrogen can either be used as fuel for generators based on combustion or sold for industrial purposes. As markets incorporate renewable sources of energy and the demand continues to vary—falling during the day and peaking in the early evening as people return home from work—it is becoming more difficult to sustain the supply-demand balance. The operational flexibility and reliability of advanced reactors can help respond to demand shifts, hourly market pricing changes, and make a nuclear hydrogen combination appealing.

Hydrogen has taken center stage in the discussion of decarbonization of the energy, transportation, and industrial sectors—which combined account for nearly 77 percent of all greenhouse gas emissions in the U.S.³ The Infrastructure Investment and Jobs Act of 2021 set a large amount of money aside for the development of hydrogen-based power systems, allocating \$8 billion for a regional hydrogen hub that will produce, transport, and store lower-carbon forms of hydrogen over a five-year period.⁴

§ 30:23 Conclusion

Nuclear energy will play a key role in the global efforts to address climate change concerns, reduce carbon dioxide emissions, and stabilize energy security. Like any energy source, nuclear energy has its strengths and challenges. With many decades of experience, the NRC and other federal agencies maintain stringent regulatory controls to ensure that nuclear energy will provide adequate protection of the public health and safety and the environment.

[Section 30:22]

¹North American Electric Reliability Corp., “2021 Summer Reliability Assessment” (May 2021), available at [https://www.nerc.com/pa/RAPA/ra/Reliability Assessments DL/NERC SRA 2021.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC%20SRA%202021.pdf).

²To produce hydrogen, it must be separated from the other elements in the molecules where it occurs. There are many different sources of hydrogen and ways for producing it for use as a fuel. The two most common methods for producing hydrogen are steam-methane reforming and electrolysis (splitting water with electricity). Researchers are exploring other hydrogen production methods.

³U.S. EPA, “Sources of Greenhouse Gas Emissions,” available at <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

⁴E&E News, “What the Infrastructure Deal Means for Energy” (July 2021), available at <https://www.eenews.net/articles/what-the-infrastructure-deal-means-for-energy/>.

APPENDIX 30A

Table of Abbreviations and Acronyms

Acronym/Abbreviation	Meaning
AEC	Atomic Energy Commission
AR GEIS	GEIS for Advanced Nuclear Reactors
C2N	Coal-to-Nuclear
DOE	Department of Energy
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
FONSI	Finding of No Significant Impact
GEIS	Generic Environmental Impact Statement for License Renewal of Nuclear Plants
GHG	Greenhouse Gas
IEA	International Energy Agency
IIJA	Infrastructure Investment and Jobs Act
IPCC	Intergovernmental Panel on Climate Change
IRA	Inflation Reduction Act
ISFSI	Independent Spent Fuel Storage Installation
LLW	Low-Level (Radioactive) Waste
MWE	Megawatt Electric
NEI	Nuclear Energy Institute
NEIMA	Nuclear Energy Innovation and Modernization Act
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NRC	U.S. Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act
SEIS	Supplemental Environmental Impact Statement
SLR	Subsequent License Renewal
SMR	Small Modular Reactor
TVA	Tennessee Valley Authority

Chapter 31

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I. INTRODUCTION

§ 31:1 In General

Ocean and coastal governance is a substantial topic for an environmental treatise. This chapter is designed to introduce readers to the seascape of U.S. ocean law, beginning with a discussion of the United States' effort to bring a "whole of government" approach to decisionmaking impacting ocean and coastal users and resources. The chapter proceeds in Part II to describe the extent of federal and state jurisdiction in the context of the ocean jurisdictional zones defined in the United Nations Convention on the Law of the Sea (e.g., territorial sea, exclusive economic zone, high seas) that the United States has considered to reflect contemporary customary law. Part III describes the federal Coastal Zone Management Act, as implemented by state coastal management programs, as the primary mechanism for federal and state cooperation on sustainable coastal management. Part IV and Part VII focus on biodiversity protection, with an overview, respectively, of the Marine Mammal Protection Act and the Magnuson-Stevens Fishery Conservation and Management Act. Part V, Part VIII, and Part IX describe the federal responses to preventing

ocean pollution caused by intentional dumping activities, shipping operations, and oil spills. Part VI focuses on designation and implementation of federally managed marine sanctuaries. Finally, Part X offers some brief reflections on topics of significant importance for long-term ocean health, including ocean acidification where there has been limited policymaking in part because the challenges involve regulating many actors who have not been the subject of ocean policymaking (e.g., plastic production industry) and actions that may take place far from coasts and ocean jurisdictional spaces (e.g., electricity production and transport). The intent of this chapter is to offer readers a glimpse into the complex, interacting legal challenges of designing ocean and coastal governance strategies across numerous agencies, legitimate ocean-based priorities (e.g., biodiversity conservation, energy production, and fisheries), and changing conditions (e.g., larger coastal populations and warming trends across global oceans).

§ 31:2 Ocean Policy

The United States does not have a single comprehensive ocean law statute. It does have an Ocean Policy Committee to coordinate federal actions related to the ocean. The purpose of this committee is to coordinate “management, science, and technology matters” related to the waters and seabeds of the ocean, coasts, and Great Lakes waters of the United States and its territories.¹ To achieve interagency coordination, the committee is co-chaired by the Chairperson of the Council on Environmental Quality and the Director of the White House Office of Science and Technology Policy, with additional representation from multiple agencies and the assistants to the president for National Security Affairs, Homeland Security and Counterterrorism, Domestic Policy, and Economic Policy.² Reports from the committee are expected to be delivered to appropriate congressional committees.³

Previously in 2010, the United States created a National Ocean Council under the now revoked Executive Order No. 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes*. The council had the same participation except for a Director of Energy and Climate Change.⁴

The Ocean Policy Committee is responsible for oversight over numerous subcom-

[Section 31:2]

¹10 U.S.C. § 8932. The committee as it existed at the time of the Thornberry National Defense Authorization Act for Fiscal Year 2021 is described in Executive Order No. 13840, *Ocean Policy to Advance the Economy, Security, and Environmental Interests of the United States*, 83 Fed. Reg. 29431 (June 19, 2018).

²10 U.S.C. § 8932; Exec. Order No. 13840, *Ocean Policy to Advance the Economy, Security, and Environmental Interests of the United States*, 83 Fed. Reg. 29431 (June 19, 2018). Additional agency representation includes participation from the Secretary of State, Secretary of Defense, Attorney General, Secretary of the Interior, Secretary of Agriculture, Secretary of Commerce, Secretary of Transportation, Secretary of Energy, Secretary of Homeland Security, Administrator of the Environmental Protection Agency, Director of the Office of Management and Budget, Administrator of the National Aeronautics and Space Administration, Director of the National Science Foundation, Director of National Intelligence, Chairman of the Joint Chiefs of Staff, Under Secretary of Commerce for Oceans and Atmosphere, Assistant Secretary of the Army (Civil Works), and Commandant of the Coast Guard.

³10 U.S.C. § 8932(i). Congressional committees include the Committee on Commerce, Science, and Transportation of the Senate; the Committee on Armed Services of the Senate; the Committee on Appropriations of the Senate; the Committee on Natural Resources of the House of Representatives; the Committee on Science, Space, and Technology of the House of Representatives; the Committee on Armed Services of the House of Representatives; and the Committee on Appropriations of the House of Representatives.

⁴Exec. Order No. 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes*, 75 Fed. Reg. 43021 (July 19, 2010) (revoking Executive Order No. 13366, *Committee on Ocean Policy*, 69 Fed. Reg. 76589 (Dec. 17, 2004)).

mittees, programs, councils, interagency working groups, and teams. From an environmental protection perspective, two notable interagency groups include the U.S. Ocean Action Climate Plan Interagency Team and the National Strategy for a Sustainable Ocean Economy Interagency Team.

In 2023, the Ocean Policy Committee released the first U.S. Ocean Climate Action Plan.⁵ This plan has three major goals: (1) to achieve a carbon-neutral future through mitigation and carbon sequestration; (2) to accelerate nature-based solutions to reduce greenhouse gas emissions and store carbon; and (3) to enhance community resilience to ocean change with investments in coastal adaptation.⁶ The eight priority actions for the plan include:⁷

- *Expanding offshore wind and marine energy while monitoring for potential environmental and social impacts to inform design and deployment
- *Advancing “green” maritime shipping and ports to achieve the U.S. commitment of a goal of zero emissions from international shipping by 2050
- *Sequestering carbon in sub-seabed geological formations along the U.S. outer continental shelf (OCS)
- *Creating policy and standards for marine carbon dioxide removal, including evaluating environmental and social impacts of these technologies
- *Retaining coastal blue carbon and carbon sequestration as part of the effort to conserve at least 30% of U.S. lands and waters by 2030
- *Creating, connecting, strengthening, and expanding marine protected areas (MPAs) and their networks through engagement with the public, especially Indigenous communities, to advance climate-resilient MPAs
- *Planning for climate-ready fisheries, aquaculture, and fishing communities, including protecting and restoring ocean and coastal habitats and using offshore infrastructure for artificial reefs
- *Preparing coastal communities for the impacts of climate change through coastal resilience projects

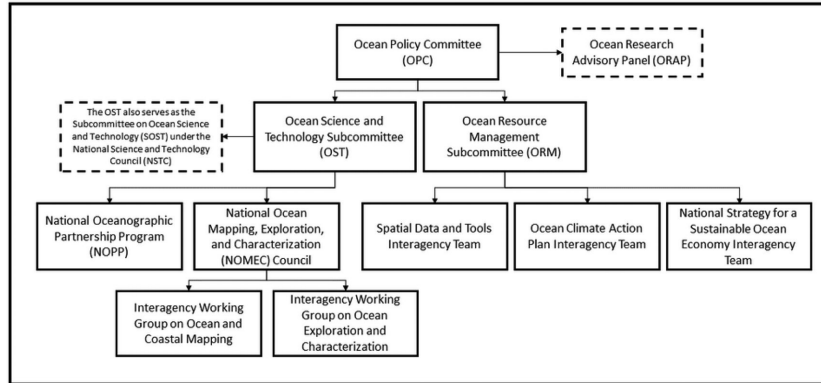
In pursuing these priority areas, several cross-cutting principles and actions will apply, including developing an Ocean Justice Strategy to identify barriers to and opportunity for integrating environmental justice into ocean protection efforts; engaging tribal nations and Indigenous persons through both formal and informal consultations; strengthening outreach and engagement with a broad range of stakeholders (private sector, academia, nongovernmental organizations (NGOs)); and prioritizing federal ocean research to support the priority area from the Ocean Climate Plan.⁸

⁵WHITE HOUSE, OCEAN CLIMATE ACTION PLAN: A REPORT BY THE OCEAN POLICY COMMITTEE (2023), https://www.noaa.gov/sites/default/files/2023-03/Ocean-Climate-Action-Plan_Final.pdf [hereinafter OCEAN CLIMATE ACTION PLAN].

⁶OCEAN CLIMATE ACTION PLAN, at 16.

⁷OCEAN CLIMATE ACTION PLAN, at 19-23.

⁸OCEAN CLIMATE ACTION PLAN, at 18-19. The Ocean Justice Strategy was released by the Ocean Policy Committee in December 2023. OCEAN POLICY COMMITTEE, OCEAN JUSTICE STRATEGY (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/12/Ocean-Justice-Strategy.pdf?cb=1701982354>.



In addition to the Ocean Policy Committee, there is an Ocean Research Advisory Panel reauthorized under the most recent version of the National Oceanographic Partnership Program.⁹ The panel includes between 10 and 18 members, including three individuals from the National Academies of Sciences, Engineering, and Medicine; individuals from ocean industries, state governments, tribal governments, territorial governments, and local governments; and individuals “eminent in the fields of marine science, marine technology, and marine policy.”¹⁰

II. OCEAN JURISDICTION—FEDERAL AND STATE

§ 31:3 General

Before 1945, all coastal countries asserted jurisdictional claims over ocean the realm. Because these claims varied from country to country, leading to the potential for conflicts between States claiming territorial interests and other States claiming high seas rights, the International Law Commission took steps in 1958 to codify a shared law of the sea. The first law of the sea conference efforts resulted in four Geneva Conventions: the Convention on the Territorial Sea and Contiguous Zone, the Convention on the Continental Shelf, the Convention on the High Seas, and the Convention on Fishing and Conservation of the Living Resources of the High Seas.¹ Issues over jurisdiction were not resolved by these conventions, and two subsequent conferences were held to create a more comprehensive treaty. At the third conference, the United Nations Convention on the Law of the Sea (UNCLOS) was negotiated for nearly a decade (1973-1982) and resulted in the current practices associated with ocean jurisdiction.² The United States is not a party to UNCLOS, but has accepted the jurisdictional limits established by this international treaty with the exception of the Area (the “Area” refers to the seabed floor and subsoil beyond limits of national jurisdiction).³ Figure 1 illustrates the UNCLOS jurisdictional zones.

§ 31:4 Internal waters

Internal waters are the waters on the landward side of the baseline from which the breadth of the territorial sea is measured. The waters are entirely under the sovereign control of a nation. States can exercise jurisdiction over foreign flagged merchant vessels within its internal waters and ports on the basis of a principle of territoriality.¹ Internal waters encompass rivers, bays, ports, and tidal waters above mean low water. Foreign vessels cannot exercise innocent passage in internal waters and must have U.S. permission to operate. Examples of inland waters include:

- A) Bays—The Chesapeake Bay and San Francisco Bay are examples of inland waters. They qualify as bays under the 1982 UNCLOS.² Generally, a bay is formed by curvature of the mainland, though sizable islands can be used to

⁹10 U.S.C. § 8931.

¹⁰10 U.S.C. § 8933.

[Section 31:3]

¹The four 1958 Geneva Conventions can be found respectively at 516 U.N.T.S. 205; 499 U.N.T.S. 311; 450 U.N.T.S. 82; 559 U.N.T.S. 285.

²UNCLOS, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].

³See, e.g., Congressional Research Service, United Nations Convention on the Law of the Sea (UNCLOS): Living Resources Provisions 1-2 (Oct. 4, 2023); UNCLOS art. 1(1).

[Section 31:4]

¹RESTATEMENT (THIRD) OF FOREIGN RELATIONS § 512 cmt. h (Am. L. Inst. 1977).

²UNCLOS Article 10(2) defines a “bay” as “a well-marked indentation whose penetration is in such proportion to the width of its mouth as to contain landlocked waters and constitute more than a mere curvature of the coast.”

form a bay for purposes of determining internal waters.³ If a bay's mouth is 24 nautical miles or less, the mouth of the bay is the limit of the inland waters. However, if a bay's mouth is more than 24 miles in length, as is the case for Cook Inlet, Alaska, the United States is expected to construct a 24-mile line and enclose the maximum possible water area for its inland waters.

- B) Rivers—There is no limit on the width of a river. For purposes of measuring inland waters, jetties extending from natural riverbanks may be used for measuring the mouth of the river.⁴
- C) Ports—Ports are inland waters with the “outermost permanent harbour works which form an integral part of the harbour system” being regarded as “part of the coast.”⁵

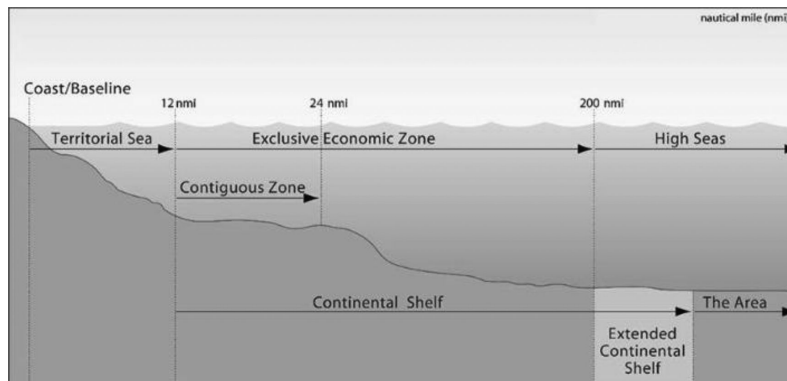
§ 31:5 Baseline

The baseline for purposes of measuring other jurisdictional zones starts at zero miles, and is the boundary between the outer edge of internal waters and the territorial sea. It is not always straightforward how to draw baselines. “Naturally formed” features can be used for measuring baselines.¹ In the United States, a baseline is measured from the mean lower low water line along a coast as shown by an official U.S. nautical chart. The U.S. Supreme Court generally defers to the National Oceanic and Atmospheric Administration (NOAA) on defining baselines.²

Baselines can be ambulatory. Accretion and erosion can cause a change to a coastline. While a court may start with a nautical chart, evidence can be introduced to indicate that a baseline may have moved.³

FIGURE 1:

Jurisdictional Zones Defined Under UNCLOS



³U.S. v. Maine, 469 U.S. 504, 105 S. Ct. 992, 83 L. Ed. 2d 998 (1985) (Long Island used a geographic marker to help form a bay).

⁴Tex. v. La., 426 U.S. 465, 96 S. Ct. 2155, 48 L. Ed. 2d 775, 1976 A.M.C. 753 (1976).

⁵UNCLOS art. 11.

[Section 31:5]

¹U.S. v. California, 447 U.S. 1, 100 S. Ct. 1994, 64 L. Ed. 2d 681, 14 Env't. Rep. Cas. (BNA) 1559 (1980) (privately owned artificial island used for servicing offshore oil facilities and attached to the mainland may not be used as basepoint).

²U.S. v. State of Cal., 381 U.S. 139, 85 S. Ct. 1401, 14 L. Ed. 2d 296, 1965 A.M.C. 1091 (1965), supplemented, 382 U.S. 448, 86 S. Ct. 607, 15 L. Ed. 2d 517 (1966), supplemented, 432 U.S. 40, 97 S. Ct. 2915, 53 L. Ed. 2d 94 (1977), supplemented, 439 U.S. 30, 99 S. Ct. 556, 58 L. Ed. 2d 267 (1978), supplemented, 449 U.S. 408, 101 S. Ct. 912, 66 L. Ed. 2d 619 (1981), supplemented, 574 U.S. 105, 135 S. Ct. 563, 190 L. Ed. 2d 514 (2014).

³U.S. v. Alaska, 521 U.S. 1, 22-32, 117 S. Ct. 1888, 138 L. Ed. 2d 231 (1997).

§ 31:6 Territorial Sea

The territorial sea is the ocean waters immediately adjacent to the coast of a nation measured out to 12 nautical miles.¹ Within this range,² the United States exercises its sovereign rights over air space, water columns, and seabed subject to certain rights associated with freedom of navigation, including innocent passage of vessels.³ The right of innocent passage is even extended to warships as long as they do not interfere with the peace and security of the coastal state.⁴ In the United States, the right of innocent passage is extended to submarines as long as they navigate on the surface showing a flag.⁵ Civil and criminal jurisdiction is limited over a vessel exercising “innocent passage” unless the activities impact the United States.

§ 31:7 State Interests

Lands under tidewaters have historically been under the control of coastal states. In the 1930s, the Supreme Court diverged from this perspective, holding that the United States had a superior interest to coastal states to ownership of the seabed in a region from mean low water line to three miles seaward.¹ Congress passed the Submerged Lands Act in 1953 to recognize that states have authority over “state waters,” extending three nautical miles from baselines, to use and manage resources in the water column, on the seabed, and under the seabed floor.² For historical reasons, Florida and Texas have been recognized as having authority over nine nautical miles (three marine leagues).³ Based on a historic statute, Puerto Rico also

[Section 31:6]

¹A nautical mile is approximately 1.1508 land-measured miles. A nautical mile equals one minute of latitude along the earth’s longitude and latitude grid. Because the curvature of the earth matters for marine navigation, and mariners already have to rely on longitude and latitude to locate themselves, a nautical mile is conveniently used for purposes of measuring ocean jurisdiction zones.

²President Ronald Reagan declared a 12-nautical-mile territorial sea for the United States in 1988. Proclamation No. 5928, Territorial Sea of the United States of America, 54 Fed. Reg. 777 (Jan. 9, 1988).

³All of the maritime zones described in this chapter also apply to the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, and other territories and possession over which the United States exercises sovereignty.

⁴Activities under Article 19(2) of UNCLOS that are considered to be prejudicial include “(a) any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State, or in any manner in violation of the principles of international law embodied in the Charter of the United Nations; (b) any exercise or practice with weapons of any kind; (c) any act aimed at collecting information to the prejudice of the defence or security of the coastal State; (d) any act of propaganda aimed at affecting the defence or security of the coastal State; (e) the launching, landing or taking on board of any aircraft; (f) the launching, landing or taking on board of any military device; (g) the loading or unloading of any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary [health] laws and regulations of the coastal State; (h) any act of wilful and serious pollution contrary to [UNCLOS]; (i) any fishing activities; (j) the carrying out of research or survey activities; (k) any act aimed at interfering with any systems of communication or any other facilities or installations of the coastal State; [or] (l) any other activity not having a direct bearing on passage.”

⁵Convention on the Territorial Sea and the Contiguous Zone art. 14(6), Apr. 29, 1958, 516 U.N.T.S. 205.

[Section 31:7]

¹*U.S. v. State of Cal.*, 332 U.S. 19, 67 S. Ct. 1658, 91 L. Ed. 1889, 1947 A.M.C. 1579 (1947), opinion supplemented, 332 U.S. 804, 68 S. Ct. 20, 92 L. Ed. 382 (1947); *U.S. v. State of Tex.*, 339 U.S. 707, 70 S. Ct. 918, 94 L. Ed. 1221 (1950).

²43 U.S.C. § 1301.

³*U.S. v. States of La., Tex., Miss., Ala. and Fla.*, 363 U.S. 1, 363 U.S. 121, 80 S. Ct. 961, 4 L. Ed.

has a recognized nine-mile boundary.⁴

The Coastal Zone Management Act (CZMA), discussed below, provides for the development of a state coastal program appropriate for the given state that conforms with federal standards.

§ 31:8 Contiguous Zone

The contiguous zone is the zone adjacent to the territorial sea where a nation can assert some authority by implementing its customs, fiscal, immigration, and sanitary laws. The United States declared a 24-nautical-mile contiguous zone in 1999,¹ which provides the U.S. Coast Guard with authority to enforce U.S. coastal laws, including pollution laws against foreign flagged vessels operating in this area. Since 1999, the United States has interpreted the right to enforce U.S. domestic environmental and historic preservation (marine archaeology protection) laws within the contiguous zone in part on the basis of the protective principle of international law.² A foreign vessel does not need to assert a right of innocent passage during transit of the contiguous zone.

§ 31:9 Exclusive Economic Zone

The United States, after the conclusion of UNCLOS, declared that “the sovereign rights and jurisdiction of the United States” would be extended to reach 200 nautical miles from the coastal baseline.¹ The presidential power allowing for this proclamation is the constitutional authority for the president to represent U.S. interests in international affairs. Within this region, which is typically measured from 12 nautical miles to 200 nautical miles, the United States has sovereign rights to explore, exploit, conserve, and manage natural resources, including fish, wind, minerals, and oil. It can assert its natural resource protection laws within this zone in order to protect and preserve the marine environment.² Beyond the 24-nautical-mile contiguous zone, the United States does not assert control over vessel traffic, aircraft overflight, or the laying of cables and pipelines within this region.

Marine research in the exclusive economic zone (EEZ) requires advance consent and must be in conformity with existing U.S. law, including the Marine Mammal Protection Act (MMPA).³ Jurisdictional rights can reach temporarily beyond the

2d 1025, 4 L. Ed. 2d 1096 (1960), opinion supplemented, 382 U.S. 288, 86 S. Ct. 419, 15 L. Ed. 2d 331 (1965); U.S. v. States of La., Tex., Miss., Ala. and Fla., 363 U.S. 1, 363 U.S. 121, 80 S. Ct. 961, 4 L. Ed. 2d 1025, 4 L. Ed. 2d 1096 (1960), opinion supplemented, 382 U.S. 288, 86 S. Ct. 419, 15 L. Ed. 2d 331 (1965).

⁴48 U.S.C. § 1705.

[Section 31:8]

¹Proclamation No. 7219, Contiguous Zone of the United States, 64 Fed. Reg. 48701 (Sept. 8, 1999).

²Press Release, Office of Vice President Al Gore, Extension of Federal Enforcement Zone in U.S. Coastal Waters Will Help Prevent Violations of Environmental, Customs, or Immigration Laws (Sept. 2, 1999).

[Section 31:9]

¹Proclamation No. 5030, The Exclusive Economic Zone of the United States of America, 48 Fed. Reg. 10605 (Mar. 14, 1983).

²Under the Magnuson-Stevens Fishery Conservation and Management Act, the exclusive economic zone is measured from the outer seaward boundary of each of the coastal states to the 200-nautical-mile mark.

³Proclamation No. 5928, Territorial Sea of the United States of America, 54 Fed. Reg. 777 (Jan. 9, 1988) (“[n]othing in this Proclamation: (a) extends or otherwise alters existing Federal or State law or any jurisdiction rights, legal interests, or obligations derived therefrom.”).

EEZ if the United States is in “hot pursuit” of a vessel into the high seas or the EEZ of a neighboring State that has violated U.S. law within a zone under the U.S. immediate jurisdiction.⁴

In the U.S. EEZ, the Coast Guard is the lead agency for at-sea enforcement activities within the EEZ.

§ 31:10 High Seas

The high seas refer to all waters beyond the EEZ and not under the jurisdiction of another State.¹ Countries are expected to exercise governmental jurisdiction over their nationals (including both citizens and legal residents) and any vessels that have been authorized to fly their flag (“flagged vessels”) operating on the high seas.² Most of the world’s oceans are high seas. There are a number of freedoms associated with the high seas, including freedom of surface/submerged navigation, freedom of flight, freedom to fish, freedom to conduct scientific research, freedom to lay cable and pipe, and freedom to construct installations. Some of these freedoms have been restricted over time in light of the need for better management of the commons and to give “due regard” to the interests of other nations.³ For example, today regional fisheries management organizations assert conservation measures over stocks that transit the high seas, including highly migratory species such as tuna.⁴

In 2023, after negotiations that started almost 20 years previously, States adopted the United Nations (U.N.) High Seas Treaty to protect and sustainably use marine biodiversity in areas beyond national jurisdiction.⁵ The treaty is divided into several subparts and draws upon several general principles, including the precautionary principle/approach and the promotion of ecosystem resilience to maintain and restore ecosystem integrity.⁶ Part II of the treaty provides for equitable access and benefit sharing associated with genetic data of marine resources. States are prohibited from claiming sovereign rights over marine genetic resources beyond national jurisdiction.⁷ All States, regardless of their geographical location, have the right to undertake activities related to marine genetic resources in compliance with

⁴“Hot pursuit” is not permitted with the consent of a State into the territorial sea of another State. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 513 cmt. g.

[Section 31:10]

¹About 61% of the ocean is not under national jurisdiction.

²*U.S. v. Arra*, 630 F.2d 836, 1982 A.M.C. 1216 (1st Cir. 1980) (vessels have nationality of country where they are registered and whose flag they have a right to fly); *U.S. v. Keller*, 451 F. Supp. 631 (D.P.R. 1978) (the United States will assert federal maritime jurisdiction over a vessel even if a vessel is only partially owned by a U.S. citizen). *See also* *U.S. v. Holmes*, 18 U.S. 412, 5 L. Ed. 122, 1820 WL 2141 (1820) (As a general rule, the United States will not assert federal criminal jurisdiction over offenses committed by foreigners or against foreigners on a foreign vessel.).

³UNCLOS art. 87(2).

⁴The United States is a Party to many regional fisheries management organization agreements, including the International Commission for the Conservation of Atlantic Tuna, the North Atlantic Salmon Conservation Organization, the Northwest Atlantic Fisheries Organization, the Western Central Atlantic Fisheries Commission, the Inter-American Tropical Tuna Commission, the North Pacific Anadromous Fish Commission, the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, the Pacific Salmon Commission, the Western and Central Pacific Fisheries Commission, the International Pacific Halibut Commission, the South Pacific Regional Fisheries Management Organization, the North Pacific Fisheries Commission, and the Commission for the Conservation of Antarctic Marine Living Resources.

⁵Agreement Under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction, UN Doc. A/CONF.232/2023/4 (June 19, 2023) [hereinafter High Seas Treaty].

⁶High Seas Treaty art. 7.

⁷Under the High Seas Treaty, “marine genetic resources” refer to “any material of marine plant,

the treaty. States involved in collecting marine genetic material from the high seas are expected to notify a “clearing-house mechanism” before collection efforts and to, no later than one year from the collection, provide a report with any findings from the collection efforts. Parties are expected to provide additional information about utilization. Benefits from the genetic material are expected to be shared and can include both non-monetary and monetary benefits.⁸

The U.N. High Seas Treaty also creates, in Part III, a process for designating MPAs and other area-based management tools for globally protecting biodiverse regions. Under the treaty, decisions should be taken by consensus, but may be taken by a three-fourths majority if at least two-thirds of the Parties present and voting decide that “all efforts to reach consensus have been exhausted.”⁹ Parties may also take emergency measures to protect marine biological diversity from “serious or irreversible harm” due to “a natural phenomenon or a human-caused disaster.”¹⁰ Part IV of the treaty establishes processes for conducting environmental impact assessments for areas beyond national jurisdiction. These reports are expected to be available through the clearing-house mechanism.¹¹ These assessments should use best available science and scientific information to evaluate environmental impacts and associated economic, social, cultural, and human health impacts, not just for areas beyond national jurisdiction, but also for areas within national jurisdiction that may be impacted by high seas activities.¹² Parties are expected to prevent, mitigate, and manage potential adverse effects of a project.¹³ Under Part V of the treaty, nations with capacity will share knowledge and technologies with other nations. Finally, the treaty creates a new international authority for the high seas, a scientific and technical body, a Conference of Parties, and a clearing-house mechanism.¹⁴ Dispute settlement and enforcement mechanisms rely on both existing UNCLOS dispute mechanisms and a newly formed Implementation and Compliance Committee.¹⁵ It may be some time before the 2023 treaty goes into force.¹⁶

§ 31:11 Continental Shelf

In addition to the zones described above, the United States also asserts control over its continental shelf as an extension of its territorial jurisdiction. In 1945, President Harry S. Truman opined that the “Government of the United States regards the natural resources of the subsoil and seabed of the continental shelf. . . subject to its jurisdiction and control.”¹ Today, the United States asserts a continental shelf interest out to 200 nautical miles or the outer edge of the continental margin where

animal, microbial, or other origin containing functional units of heredity of actual or potential value.”

⁸High Seas Treaty arts. 14 and 51.

⁹High Seas Treaty art. 23.

¹⁰High Seas Treaty art. 24.

¹¹High Seas Treaty arts. 29 and 51.

¹²High Seas Treaty art. 31(b).

¹³High Seas Treaty art. 31(d).

¹⁴High Seas Treaty arts. 47, 49, 50, and 51.

¹⁵Under Part VIII, the treaty creates an Implementation and Compliance Committee, but the success of this committee depends on good faith reporting. Under Part IX of the treaty, Parties are advised to settle their disputes peacefully with reference back to the mechanisms provided in UNCLOS.

¹⁶High Seas Treaty art. 68. Sixty states must submit ratification, approval, acceptance, or accession instruments. As of 2024, 87 countries have signed the treaty, but only two countries—Chile and Palau—are Parties to the treaty.

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¹Proclamation No. 2667, Policy of the United States With Respect to the Natural Resources of the

there is a geological extension of the continental shelf beyond 200 nautical miles (e.g., extended continental shelf).² There is overlap between the U.S. EEZ interests and its continental shelf, as under both regimes the United States asserts interests over 200 nautical miles of seafloor and subsoil. In contrast to the EEZ, where UNCLOS encourages a coastal State to allow foreign vessels to catch excess fish that are not being caught by the coastal State,³ the continental shelf does not require the State asserting rights to allow for exploration or exploitation. Other States may navigate water above a continental shelf and lay submarine pipelines and cables on another State's continental shelf.⁴ As illustrated in Figure 2, the United States also asserts interests over extended continental shelves along portions of the Atlantic Coast, Gulf of Mexico, Bering Sea, the Arctic Ocean, the Northern Mariana Islands, and the Pacific Ocean. In December 2023, it announced geographic coordinates defining its asserted extended continental shelf covering 288,000 square nautical miles.⁵

FIGURE 2:

Map of the U.S. Claim for an Extended Continental Shelf



Subsoil and Sea Bed of the Continental Shelf, 10 Fed. Reg. 12303 (Oct. 2, 1945).

²See Part VI of UNCLOS. The continental shelf is usually measured out to 200 nautical miles unless there is an extended prolongation of the land mass. No extended continental shelf shall exceed 350 nautical miles from baselines or “100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.” UNCLOS art. 76(5).

³UNCLOS art. 62(2).

⁴UNCLOS arts. 78-79. For laying of pipelines, the continental shelf State can put measures on to avoid pollution and can choose the route of the pipeline.

⁵See U.S. Department of State, *The U.S. ECS*, <https://www.state.gov/the-us-ecs/> (last visited Apr. 29, 2024).

§ 31:12 Federal Environmental Law Referencing Different Jurisdictional Limits Than Those Adopted by Presidential Proclamations

Laws that were adopted before the presidential proclamations went into effect are not necessarily consistent with these jurisdictional zones. Some ocean-related statutes have been updated.¹ Others have not. Both the Clean Water Act (CWA) and the Oil Pollution Act (OPA) define the seaward limit of the “territorial seas” at three miles.² The Ocean Dumping Act also does not have a clear extension.³ There has been no effort to update these laws. Other laws use the term “territorial sea,” but rather than relying on U.S. presidential proclamations, they seem to be relying on the 1958 Convention on Territorial Sea, which was understood to have a contiguous zone of 12 miles from the baseline but only a three-mile territorial sea.⁴ Formal amendments would enhance clarity.

A practitioner looking at language in a statute can presume that terms such as “navigable waters of the United States,” “seaward boundary of a state,” “territorial limits of the United States,” “territorial sea,” “territorial waters,” or “waters subject to the jurisdiction of the United States” will be applied to the three miles of marine water from basepoints.

III. COASTAL ZONE MANAGEMENT ACT

§ 31:13 History and Purpose

After the Santa Barbara oil spill on January 28, 1969, impacted miles of coastline, the public pressured Congress to act and create the CZMA, which was designed to protect America’s coastlines while still allowing for prudent development.¹ States assert control over coastal waters and seabeds in conformity with the Submerged Lands Act.² The 1969 Stratton Commission was already in the process of reviewing policies related to oceans and coasts, and expressed concern that the coasts had increasingly unmanaged commercial, recreational, and residential development that was significantly impacting the ecological integrity of the coast.³

Most of the nation’s marine and Great Lakes coasts are governed by state coastal management programs. Participation under the Act is voluntary, and federal standards are not imposed if a state does not develop a plan that conforms with the federal guidelines. Almost every coastal state and territory participates and once their coastal zone management plan is approved, these entities can apply for federal

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¹See, e.g., 46 U.S.C. § 2101(23) (“‘navigable waters of the United States’ includes all waters of the territorial sea of the United States as described in Presidential Proclamation No. 5928 of December 27, 1988”); 16 U.S.C. § 1437(k) (“The area of application and enforceability of this chapter includes the territorial sea of the United States, as described in Presidential Proclamation 5928 of December 27, 1988, which is subject to the sovereignty of the United States, and the United States exclusive economic zone, consistent with international law.”).

²CWA, 33 U.S.C. § 1362(8); OPA, 33 U.S.C. § 2701(35).

³Ocean Dumping Act, 33 U.S.C. §§ 1401(b), 1902(a)(2).

⁴Ocean Dumping Act, 33 U.S.C. § 1402(b) (defining “ocean waters” to include waters “lying seaward of the base line from which the territorial sea is measured,” but never defining the territorial sea).

[Section 31:13]

¹CZMA, 16 U.S.C. §§ 1451-1466.

²43 U.S.C. §§ 1301-1315 (quitclaiming all federal property rights, but not reserved rights related to commerce/navigation, in the three-mile territorial sea to coastal states and confirming federal government rights for other waters and seabed floor).

³STRATTON COMMISSION, OUR NATION AND THE SEA (1969).

grants. Alaska does not participate in the federal program. Coastal states can legally challenge federal agency actions that are inconsistent with adopted plans (see Section 16 below on federal consistency).

The Act was amended in the 1970s in response to the energy crisis from the oil embargo to allow for more domestic energy development. It was amended again in 1990 to incorporate additional coastal management efforts, including the Coastal Nonpoint Pollution Control Program.⁴ The 1990 reauthorization amendments also created the Coastal Zone Enhancement Program, which focuses on eight areas of particular coastal concern, including coastal wetlands, development in high hazard areas, public access, marine debris control, impacts of cumulative and indirect impacts of coastal development, special area management planning, ocean resources planning, and coastal energy siting.⁵

§ 31:14 Coastal Zone Boundaries

The coastal zone for purposes of the CZMA is defined by an inland boundary, a seaward boundary, interstate boundaries, and areas that are excluded from the coastal zone. The inland boundary is defined by those lands that are necessary to be controlled in order to avoid any direct and significant impact on the state's coastal waters or that are likely to be impacted by or vulnerable to sea-level rise.¹ The inland boundary must include "waters under saline influence," salt marshes and wetlands, beaches, transitional and intertidal areas, and islands.² The inland boundary may include watersheds, "areas of tidal influence that extend further inland than waters under saline influence" (e.g., estuaries, deltas, and rivers), and Indian lands not held in trust by the federal government.³ In most places in the United States, the coastal management program will extend beyond just the immediate coastal zone. In some Pacific island regions, the entire state or territory is considered to be within the coastal zone boundary. Other factors that may determine the inland boundary, particularly in urbanized areas, are the "dependency of uses on water access" and "visual relationships."⁴ The lakeward or seaward boundary will be to the outer limit of state title and ownership under the Submerged Lands Act or other acts in the case of territories.⁵

Certain federal lands are excluded from the coastal zone, including lands controlled by the federal government through a lease or other instrument or that are held in trust by the federal government.⁶ A coastal zone permit may still be required for a nonfederal party who intends to conduct activities on excluded federal lands. Federal consistency review will be required for federal actions taken on federal lands excluded from the coastal zone boundary.⁷

§ 31:15 Coastal Management Program

⁴16 U.S.C. § 1455b.

⁵16 U.S.C. § 1456b(a).

[Section 31:14]

¹15 C.F.R. § 923.31.

²15 C.F.R. § 923.31(a).

³15 C.F.R. § 923.31(b).

⁴16 C.F.R. § 923.31(c).

⁵48 U.S.C. § 749 (Harbors and Navigable Waters); 48 U.S.C. § 1705(a) (Tidelands, Submerged Lands, or Filled Lands: Conveyance to Guam, The Commonwealth of the Northern Mariana Islands, Virgin Islands, and American Samoa).

⁶16 C.F.R. § 923.33(a).

⁷16 C.F.R. § 923.33(b). See also *California Coastal Com'n v. Granite Rock Co.*, 480 U.S. 572, 593, 107 S. Ct. 1419, 94 L. Ed. 2d 577, 25 Env't. Rep. Cas. (BNA) 1713, 17 Env'tl. L. Rep. 20563 (1987) ("even if all federal lands are excluded from the CZMA definition of 'coastal zone,' the CZMA does not

States are responsible for designing and implementing a coastal management program,¹ but are not required by the CZMA to create these programs.² See Table 1 for a list of approved coastal management programs. If a state opts to create a program,³ then the program must identify coastal resources that need to be managed or protected; have “specific, comprehensive, and enforceable” policies in place;⁴ determine “specific use and special geographic areas” subject to management;⁵ identify inland and seaward areas subject to the program;⁶ and provide for “consideration of the national interest in the planning for and siting of facilities that meet more than local requirements,” including energy facilities.⁷ The program must also include “legal authorities” and organizational arrangements for implementation, provide for public participation in permitting and consistency determinations, and contain enforceable policies to implement the Coastal Nonpoint Pollution Control Program.

Programs are expected to identify “special management areas,” which must include “areas of particular concern” and areas for preservation or restoration. “Areas of special concern” may include (1) “areas of unique, scarce, fragile or vulnerable habitat”; (2) areas of “unique or fragile, physical figuration” (Niagara Falls); (3) areas of “historical significance, cultural value, or scenic importance”; (4) areas of high natural productivity or essential habitat for fish and wildlife; (5) areas of substantial recreational value; (6) coastal-dependent facilities; (7) industrial or commercial development relying on unique “hydrologic, geologic or topographic significance” (oil industry); (8) competition between shoreline utilization and water uses; (9) areas subject to hazards; and (10) areas needed to replenish coastal lands and resources such as flood plains, aquifers, estuaries, coral reefs, beaches, and mangroves.⁸

The program must also include a planning process for shorefront access and “protection of, and access to public beaches and other public coastal areas,”⁹ plus a planning process for “assessing the effects of, and studying and evaluating ways to control, or lessen the impact of, shoreline erosion, including potential impacts of sea-level rise, and to restore areas adversely affected by such erosion.”¹⁰ The CZMA has been an important tool in ensuring that the public has access to state coastlines. For example, the California Coastal Act, which implements California’s responsibilities under the CZMA, includes § 30211, preventing development that interferes with the public’s right of access to the sea, including “the use of dry sand and rocky

automatically preempt all state regulation of activities on federal lands.”); *Secretary of the Interior v. California*, 464 U.S. 312, 323, 104 S. Ct. 656, 78 L. Ed. 2d 496, 20 Env’t. Rep. Cas. (BNA) 1201, 14 Env’tl. L. Rep. 20129 (1984) (CZMA is expected “to reach at least some activities conducted in those federal enclaves excluded”).

[Section 31:15]

¹16 U.S.C. §§ 1451 et seq.

²States typically participate in the development of coastal management programs because there is federal support for statewide management efforts, there are opportunities for learning from other states, and states have the ability to review federal actions that impact state coastal uses and resources for consistency with the state program.

³All coastal states except Alaska have a coastal management plan.

⁴15 C.F.R. § 923.1(c)(2).

⁵15 C.F.R. § 923.1(c)(3).

⁶See Table 1 for state code sections defining coastal zones and boundaries.

⁷15 C.F.R. § 923.1(c)(5).

⁸15 C.F.R. § 923.21(b).

⁹15 C.F.R. § 923.24.

¹⁰15 C.F.R. § 23.25.

coastal beaches to the first line of terrestrial vegetation.”¹¹

State programs can vary greatly in terms of who participates in the decisionmaking as a lead agency and authority. Under a given coastal management plan, a permit may be required for a land use or a water use, including residential development, commercial development, industrial development, transportation, agriculture, recreation/tourism, marine-related facilities, and dredging. States can also use their management powers to regulate actions outside of the defined coastal zone boundary that impact coastal resources. Under the most common coastal management plan approach, state-level agencies, in compliance with state law, handle the planning and permitting, manage financial awards, and monitor the management of state coastal resources.¹² Where local governments have permitting authority, a state coastal management agency must ensure that local governments meet standards and criteria developed by a state. In this situation, a state coastal management agency must be prepared to take over from the local government.¹³ Under the management program, state or local staff members will review state or local permit applications to ensure that a permit will be issued consistent with the program.

Once a coastal zone management program has been developed, the U.S. Department of Commerce, through NOAA’s Office of Coastal Management, must determine whether the program meets the standards of the CZMA. The program must also be evaluated through environmental impact statements (EISs) produced under the National Environmental Policy Act.

The federal government then reviews the program on a regular basis to determine whether a state is implementing the approved program. Every review results in a written evaluation with an assessment of whether a state is properly implementing and enforcing an approved program. If a state is found to be out of compliance with its coastal zone management plan, then NOAA will work with the state on a schedule for compliance. Approval is not withdrawn unless a state fails to take actions to comply.¹⁴

Table 1: List of Approved Coastal Management Programs (CMPs) With Administrative Agencies and Jurisdiction

Coastal Management Program (date introduced)	Administration (lead agencies)	Jurisdictional Reach of CMP
Alabama Coastal Area Management Program (1979)	Alabama Department of Conservation and Natural Resources and Alabama Department of Environmental Management	Inland to the continuous 10-foot contour for two counties ¹⁵

¹¹California Coastal Act § 30211.

¹²An example of this approach is the Rhode Island Coastal Management Program, which operates through the Coastal Resources Management Council.

¹³An example of this approach is the Louisiana Coastal Management Program.

¹⁴16 U.S.C. § 1456; *State of Cal. By and Through California Coastal Com’n v. Mack*, 693 F. Supp. 821 (N.D. Cal. 1988). States have successfully appealed NOAA findings in reviews of coastal management programs. NOAA required California to prepare guidelines that would provide more precision for a party seeking a consistency determination on an activity on the outer continental shelf (OCS). The California Coastal Commission refused to create these guidelines and NOAA withheld funding. California prevailed in court against NOAA on the argument that its plan had been properly approved and that the proposed modification was a program change.

¹⁵ALA. CODE §§ 9-7-10, 9-7-15.

American Samoa Coastal Management Program (1980)	Department of Commerce	Seven islands ¹⁶
California Coastal Management Program (1978)	California Coastal Commission, San Francisco Bay Conservation and Development Commission, and the California Coastal Conservancy	1,000 yards inland from the mean high tide line, plus open water, marshes, mudflats, and areas 100 feet inland from line of highest high tide in San Francisco Bay ¹⁷
Connecticut Coastal Management Program (1980)	Department of Energy and Environmental Protection	First tier extends inland 1,000 feet, and second tier includes state's 36 coastal municipalities ¹⁸
Delaware Coastal management Program (1979)	Division of Climate, Coastal, and Energy in the Department of Natural Resources and Environmental Control	Entire state ¹⁹
Florida Coastal Management Program (1981)	Department of Environmental Protection	Entire state divided into two tiers (only coastal or state water contiguous cities/counties receive funding) ²⁰
Georgia Coastal Management Program (1998)	Coastal Resources Division in the Department of Natural Resources	State's six coastal counties and five "inland tier" counties ²¹
Guam Coastal Management Program (1979)	Bureau of Statistics and Plans	Entire territory, including offshore islands
Hawai'i Coastal Management Program (1978)	Office of Planning	Entire state ²²
Illinois Coastal Management Program (2012)	Office of Coastal Management in the Department of Natural Resources	63-mile stretch along Lake Michigan ²³
Indiana Coastal Management Program (2002)	Department of Natural Resources	Between around 2 and 17 miles from the shore on watershed boundaries ²⁴
Louisiana Coastal Management Program (1980)	Office of Coastal Management in the Department of Natural Resources	Between 16 and 32 miles inland from the Gulf Coast ²⁵
Maine Coastal Management Program (1978)	Department of Agriculture, Conservation, and Forestry	Inland boundary of all towns bordering tidal waters, and all coastal islands ²⁶
Maryland Coastal Management Program (1978)	Department of Natural Resources	Counties contiguous to Chesapeake Bay and major tributaries. ²⁷

¹⁶AM. SAMOA CODE ANN. § 24.0503.

¹⁷CAL. PUB. RES. CODE §§ 30150-30174.

¹⁸CONN. GEN. STAT. § 22a-94.

¹⁹7-5000 DEL. ADMIN. CODE § 5104.

²⁰FLA. STAT. § 380-205.

²¹GA. CODE ANN. § 12-5-322(4).

²²HAW. REV. STAT. § 13-205A.

²³Appendix B: Coastal Management Program Boundaries, Illinois Coastal Management Program (2011), <https://dnr.illinois.gov/content/dam/soi/en/web/dnr/cmp/documents/appendix-b.pdf>.

²⁴Indiana Department of Natural Resources, Lake Michigan Coastal Program Area, *available at* https://www.in.gov/dnr/lake-michigan-coastal-program/files/lm-boundary_and_watershed.pdf.

²⁵LA. STAT. ANN. § 49:214.24.

²⁶MAINE REV. STAT. ANN. tit. 38, § 1802(1).

²⁷Maryland Department of the Environment, *Maryland Coastal Consistency Review: Maryland Coastal Zone Management Program*, <https://mde.maryland.gov/programs/Water/WetlandsandWaterway>

Massachusetts Coastal Management Program (1978)	Office of Coastal Zone Management in the Executive Office of Energy and Environmental Affairs	All land within a 1/2 mile of coastal waters and salt marshes, and all islands ²⁸
Michigan Coastal Management Program (1978)	Department of Environmental Quality	Designations specific to 43 counties ²⁹
Minnesota Coastal Management Program (1999)	Department of Natural Resources	Six miles inland from Lake Superior ³⁰
Mississippi Coastal Management Program (1999)	Department of Natural Resources	Three coastal counties and all adjacent coastal waters and barrier islands ³¹
New Hampshire Coastal Management Program (1982)	Department of Environmental Services	Areas adjacent to Atlantic Ocean and lower Piscataqua River, areas bordering Great Bay and tidal rivers, and all 17 municipalities on tidal waters ³²
New Jersey Coastal Management Program (1978)	Department of Environmental Protection and New Jersey Meadowlands Commission	100 feet to 24 miles inland along 1,800 miles of tidal coastline ³³
New York Coastal Management Program (1982)	Department of State	1,000 feet from shoreline in non-urbanized areas, 500 feet or less from shoreline in urbanized areas, with exceptions for coastal resources ³⁴
North Carolina Coastal Management Program (1978)	Division of Coastal Management in the Department of Environment and Natural Resources	20 coastal counties adjacent to, adjoining, intersected, or bounded by the Atlantic Ocean or any coastal sound ³⁵
Northern Mariana Islands Coastal Management Program (1980)	Division of Coastal Resources Management	Entire commonwealth ³⁶
Ohio Coastal Management Program (1997)	Department of Natural Resources	1/8 of a mile to 15 miles inland in nine counties bordering Lake Erie and its tributaries ³⁷
Oregon Coastal Management Program (1977)	Department of Land Conservation and Development	State's coastal watersheds inland to the coast range (reaching inland to crest of coastal mountains with some exceptions) ³⁸

[s/Pages/CZM.aspx](#) (last visited June 4, 2024).

²⁸301 MASS. CODE. REG. 20.02.

²⁹EGLE Environmental Assistance Center, Coastal Zone Boundary Maps (2020), <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Programs/WRD/Coastal-Management/coastal-zone-maps.pdf?rev=5f849175a60742c8ab9106fa415970a5>.

³⁰MINNESOTA DEPARTMENT OF NATURAL RESOURCES, PART V: MINNESOTA'S LAKE SUPERIOR COASTAL PROGRAM (1999), https://files.dnr.state.mn.us/waters/lakesuperior/feis/mlscp_feis5.pdf.

³¹MISS. CODE ANN. § 22-3-104.

³²NOAA Office for Coastal Management, State Coastal Zone Boundaries (2012), <https://coast.noaa.gov/data/czm/media/StateCZBoundaries.pdf>.

³³N.J. STAT. § 13:19-4.

³⁴N.Y. EXEC. LAW §§ 911 and 914. Maps of coastal area boundaries are available at New York State Department of State, *Coastal Atlas*, <https://new-york-opd-geographic-information-gateway-nysdos.hub.arcgis.com/apps/coastal-atlas/explore> (last visited June 4, 2024).

³⁵N.C. GEN. STAT. § 113A-103(2).

³⁶NOAA Office for Coastal Management, State Coastal Zone Boundaries (2012), <https://coast.noaa.gov/data/czm/media/StateCZBoundaries.pdf>.

³⁷OHIO REV. CODE ANN. § 15.1506(A).

³⁸OR. ADMIN. R. 141-085-0510 (14).

Pennsylvania Coastal Management Program (1980)	Department of Environmental Protection	63-mile Lake Erie shore (from 900 feet in urban areas and up to three miles in rural areas) and Delaware River Estuary (from 660 feet in urban areas to 3.5 miles in rural areas) ³⁹
Puerto Rico Coastal Management Program (1978)	Department of Natural and Environmental Resources	1,000 meters inland and seaward up to 9 nautical miles, including islands and cays ⁴⁰
Rhode Island Coastal Management Program (1979)	Coastal Resources Management Council	Entire state (generally 200 feet inland from coastal feature) ⁴¹
South Carolina Coastal Management Program (1979)	Department of Health and Environmental Control	All lands within critical areas: coastal waters, tidelands, beaches, and dune system ⁴²
Texas Coastal Management Program (1996)	Coastal Coordination Advisory Committee in the General Land Office	Area seaward of Texas coastal facility designation line and up to three marine leagues into Gulf of Mexico ⁴³
U.S. Virgin Islands Coastal Management Program (1979)	Department of Planning and Natural Resources	Entire territory ⁴⁴
Virginia Coastal Management Program (1986)	Department of Environmental Quality	Includes 29 coastal counties, 17 cities, and 42 incorporated towns ⁴⁵
Washington Coastal Management Program (1976)	Department of Ecology	15 coastal counties ⁴⁶
Wisconsin Coastal Management Program (1978)	Bureau of Intergovernmental Relations and Wisconsin Coastal Management Council in the Department of Administration	15 counties facing Lake Superior, Lake Michigan, and Green Bay ⁴⁷

States can amend their approved coastal management program by requesting a review by NOAA, who must approve or reject an amendment within 120 days.⁴⁸ Until either 120 days has passed with no rejection or the amendment is approved, the amendment cannot be put into effect.⁴⁹

Under each plan, the public has the right to participate in coastal decisionmaking

³⁹PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, PENNSYLVANIA COASTAL RESOURCES MANAGEMENT PROGRAM: COASTAL ZONE GRANT APPLICATION INSTRUCTION GUIDE app. D (2022), <http://www.depgreenport.state.pa.us/elibrary/PDFProvider.ashx?action=PDFStream&docID=4672422&chksum=&revision=0&docName=COASTAL+ZONE+GRANT+APPLICATION+INSTRUCTION+GUIDE&nativeExt=pdf&PromptToSave=False&Size=1414380&ViewerMode=2&overlay=0>.

⁴⁰PUERTO RICO DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT, APPENDIX B. THE PUERTO RICO PROGRAM AND THE COASTAL ZONE MANAGEMENT ACT, <https://www.drna.pr.gov/wp-content/uploads/2022/06/PR-CZMP2009-Appendix-B.-The-Puerto-Rico-Program-and-The-Coastal-Zone-Management-Act.pdf>.

⁴¹NOAA Office for Coastal Management, State Coastal Zone Boundaries (2012), <https://coast.noaa.gov/data/czm/media/StateCZBoundaries.pdf>.

⁴²S.C. CODE ANN. § 48-39-10(B).

⁴³TEXAS NAT. RES. CODE ANN. § 33.004(5).

⁴⁴V.I. CODE ANN. tit. 12, § 902(g).

⁴⁵VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, VIRGINIA COASTAL ZONE MANAGEMENT PROGRAM: ENFORCEABLE POLICIES (2021), <https://www.deq.virginia.gov/home/showpublisheddocument/8605/638186363140970000>.

⁴⁶WASHINGTON STATE DEPARTMENT OF ECOLOGY, MANAGING WASHINGTON'S COAST: WASHINGTON'S COASTAL ZONE MANAGEMENT PROGRAM (2001), https://tethys.pnnl.gov/sites/default/files/publications/WA_Coastal_Zone_Management_Program.pdf.

⁴⁷NOAA Office for Coastal Management, State Coastal Zone Boundaries (2012), <https://coast.noaa.gov/data/czm/media/StateCZBoundaries.pdf>.

⁴⁸16 U.S.C. § 1455(e)(1), (e)(2).

⁴⁹16 U.S.C. § 1455(e)(3)(B).

as part of a plan's permit decision processes and consistency decisions.

§ 31:16 Federal Consistency

For every state with a federally approved coastal zone management plan, any applicant for a federal permit who wishes to conduct activities that will impact the land or water resources of the coastal zone directly or indirectly must certify to the federal permitting agency that the activity is consistent with the state's plan and submit to the state a copy of the certification.¹ No federal agency activities are "categorically exempt" from the federal consistency requirement.² Once a state has reviewed the submitted consistency certification, then it will inform the federal agency whether the certification is sufficient under the plan. If a state fails to provide feedback to a federal agency within six months of receiving the certification, then the proposed activity being permitted is presumed to be consistent with the state's plan.³

If the activity is exploration, development, or production on a lease under the Outer Continental Shelf Lands Act (OCSLA), a state is presumed to concur with the certification of an activity as consistent if it fails to respond within three months after receipt of a copy of certification.⁴ The Secretary of Commerce has the authority to override a state's objection if the activities in question are consistent with the CZMA or are necessary for national security.⁵ Federal consistency also applies for federal actions with reasonably foreseeable coastal effects that are not covered by an outer continental shelf (OCS) plan or do not require a permit or license.⁶ The term "effect on any coastal use or resource" is defined in the regulations as:

[A]ny reasonably foreseeable effect on any coastal use or resource . . . Effects are not just environmental effects, but include effects on coastal uses. Effects include both direct effects which result from the activity and occur at the same time and place as the activity, and indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.⁷

Disputes over consistency determinations can be addressed either through a Department of Commerce mediation process or through an appeal process.⁸ Parties cannot proceed to litigation on a consistency decision without at least appealing the decision to NOAA. There is no citizen suit provision available under the CZMA.

§ 31:17 Coastal Nonpoint Pollution Control Program

States with federally approved coastal programs must submit a coastal nonpoint source pollution control program to the Secretary of Commerce and the U.S.

[Section 31:16]

¹16 U.S.C. § 1456(c)(3)(A).

²The CZMA was amended in 1990 to overturn the decision in *Secretary of the Interior v. California*, 464 U.S. 312, 104 S. Ct. 656, 78 L. Ed. 2d 496, 20 Env't. Rep. Cas. (BNA) 1201, 14 Env'tl. L. Rep. 20129 (1984), and make it clear that states could seek consistency reviews for activities taking place on the OCS, including oil and gas exploration and production. H.R. Rep. No. 101-964, at 970 (1990) (Conf. Rep.).

³16 U.S.C. § 1456(c)(3)(A).

⁴16 U.S.C. § 1456(c)(3)(B).

⁵16 U.S.C. § 1456(c)(3)(A), (B) (federal agencies and states are given a "reasonable opportunity for detailed comments").

⁶15 C.F.R. pt. 930, subpt. C.

⁷15 C.F.R. § 930.11(g).

⁸16 U.S.C. § 1456(c)(3)(A), (B) (Department of Commerce mediation is only available for states and federal agencies).

Environmental Protection Agency (EPA) for all measures intended to restore and protect coastal waters, including the use of best available economically achievable technology to address runoff from agriculture, silviculture, and cities, and the implementation of pollution controls associated with shoreline erosion, marinas, and recreational boating.¹ EPA, in consultation with NOAA and the Director of the U.S. Fish and Wildlife Service (FWS), publishes guidance for management measures associated with sources of nonpoint pollution in coastal waters.²

§ 31:18 Related CZMA Statute—Coastal Barrier Resources Act

In 1982, the Coastal Barrier Resources Act was passed to reduce development along coastal barriers (e.g., bay barriers, barrier spits, barrier islands) in order to protect aquatic habitats from waves and tides.¹ Under the Act, the Secretary of the Interior reviews maps with coastal barriers and updates them to reflect changes in size and location. No new federal expenditures should take place to provide human-support infrastructure (e.g., roads, boat landings, bridges, sewage plants), and no new federal flood insurance can be issued.² Federal funds may be used for exploration, extraction, or transportation of energy resources, and for maintenance of existing public roads and facilities.³

IV. MARINE MAMMAL PROTECTION ACT

§ 31:19 History and Purpose

Alarmed by the number of dolphins being killed as bycatch by the tuna purse seine fishery, Congress began hosting hearings about the conditions of marine mammals in 1971.¹ Congress agreed to take action with the adoption of the MMPA,² premised on the need to act to avoid extinction and to take action so that species will not “diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part.”³ The primary objective of management of marine mammals “should be to maintain the health and stability of the marine ecosystem. . . [and] it should be the goal to obtain an optimum sustainable population keeping in mind the carrying capacity of the habitat.”⁴

§ 31:20 General

The MMPA covers mammals that are either “morphologically adapted to the marine environment,” including whales, dolphins, porpoises, seals, sea otters, and manatees, or primarily inhabit the marine environment, like polar bears and

[Section 31:17]

¹16 U.S.C. § 1455b(a).

²16 U.S.C. § 1455b(g).

[Section 31:18]

¹16 U.S.C. §§ 3501-3510.

²16 U.S.C. §§ 3504(A), 3505(d)(2) (existing flood insurance policies can be retained).

³16 U.S.C. § 3505(a)(3).

[Section 31:19]

¹Marine Mammals: Hearings Before the Subcommittee on Fisheries and Wildlife Conservation of the House Committee on Merchant Marine and Fisheries, 92nd Cong. 2, at 13 (Sept. 9, 1971) (noting 400,000 dolphin deaths annually).

²16 U.S.C. §§ 1361-1421h.

³16 U.S.C. § 1361(2).

⁴16 U.S.C. § 1361(6).

walruses.¹ The Act also covers any part of any such animal, including its fur or skin.

The MMPA is administered by the National Marine Fisheries Service (NMFS) (also known as NOAA Fisheries), who is responsible for cetaceans and all other pinnipeds excepts walruses. FWS is responsible for sea otters, manatees, walruses, polar bears, and other similar animals. The Marine Mammal Commission provides oversight, with three members appointed by the president.

The MMPA preempts state laws, including importation of any marine mammals that are less restrictive than the MMPA.² States can pass laws and regulations more restrictive than federal laws and regulations. States may be able to manage marine mammals, but must have a program recognized by the federal government in place that is capable of determining the population status of an affected species and articulating whether a taking will be permitted and under what conditions.³ Even if management authority is transferred, no taking is permitted until after a state conducts a hearing to determine if a species is within its “optimal sustainable population” range and how that level can be maintained if animals are taken.⁴

V. OCEAN DUMPING ACT (TITLES I AND II OF MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT)¹

§ 31:21 History and Purpose

The purpose of the Ocean Dumping Act is to regulate ocean disposal of materials in U.S. waters, including territories.¹ It specifically prevents or limits dumping of “any material which would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.”² The Act also regulates transportation plus “dumping” if the dumping occurs in “the territorial sea or the contiguous zone of the United States.”³ The Act was amended in 1988 to prohibit dumping of municipal sewage, industrial waste, and medical waste.

§ 31:22 Definitions

The Ocean Dumping Act is inclusive, covering “dredged material, solid waste, incinerator residue, garbage, sewage, sewage sludge, munitions, radiological, chemical, and biological warfare agents, radioactive materials, chemicals, biological and laboratory waste, wreck or discarded equipment, rock, sand, excavation, debris, and industrial, municipal, agricultural, and other waste.”¹ The Act does not cover “sewage from vessels” as regulated under the CWA. Oil is only regulated when it has been taken on board for the purpose of being dumped; a party cannot receive a

[Section 31:20]

¹16 U.S.C. § 1362(6).

²16 U.S.C. § 1379(a).

³16 U.S.C. § 1379(b)(1).

⁴16 U.S.C. § 1379(c).

¹For additional discussion, please see Law of Environmental Protection, Chapter 13, Part IX Ocean Discharges and Ocean Dumping.

[Section 31:21]

¹33 U.S.C. § 1402(d).

²33 U.S.C. § 1401(b).

³33 U.S.C. § 1401(c).

[Section 31:22]

¹33 U.S.C. § 1402(c).

permit for dumping oil.²

“Dumping” is defined as a “disposition of material” unless the disposition is already regulated under the CWA, the Rivers and Harbors Act, or the Atomic Energy Act. “Dumping” does not cover “routine discharge of effluent incidental to the propulsion of, or operation of motor-driven equipment on, vessels.”³ “Dumping” likewise does not cover construction of fixed structures or other placement of devices for purposes other than disposal. Oyster shells may be deposited as long as they are done so for the purpose of “developing, maintaining, or harvesting fisheries resources” and are regulated under federal or state law.⁴

§ 31:23 Permits

Four federal agencies govern the Ocean Dumping Act, including EPA, the U.S. Army Corps of Engineers, NOAA, and the Coast Guard.

The Ocean Dumping Act requires the EPA Administrator to ensure compliance with the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters, which covers numerous materials, including mercury, DDT, polychlorinated biphenyls, and persistent plastics. EPA has primary authority and may issue permits for anyone transporting non-dredge material from the United States for purposes of dumping in ocean waters under U.S. jurisdiction. EPA also exercises authority over any non-dredge dumping activities by U.S. agencies or U.S.-flagged vessels, or any vessel sailing from a U.S. port transporting non-dredge materials. Permits are not available for radiological, chemical, and biological warfare agents; high-level radioactive waste; persistent inert synthetic materials that may float in the water and impact other ocean users; sewage sludges; industrial wastes; dangerous materials (e.g., mercury, cadmium, oil, carcinogenic material); or medical waste.¹ EPA designates specific ocean dumping sites.² All designated sites must have a site management and monitoring plan. Further requirements for permits are discussed further in Chapter 13, Sections 138-140. The Coast Guard is the agency generally engaged in enforcement. Citizen suits may be brought.

The Corps of Engineers takes primary authority for regulating ocean disposal of dredged spoils.³ Most ocean dumping today is dredged material associated with maintaining navigation. Sediments must be tested before dumping to ensure that the dumping activity will not cause significant harmful impacts to human health or the environment. The Corps’ review for health “impacts” is based on EPA developed criteria.

VI. NATIONAL MARINE SANCTUARIES ACT (TITLE III OF MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT)

§ 31:24 History and Purpose

The purpose of the National Marine Sanctuaries Act (Sanctuaries Act) is “to identify and designate” marine sanctuaries, which are of “special national significance,” and “to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner

²33 U.S.C. § 1402(c).

³33 U.S.C. § 1402(f).

⁴33 U.S.C. § 1402(f).

[Section 31:23]

¹33 U.S.C. § 1412(a); 33 U.S.C. § 1414b.

²33 U.S.C. § 1412(c).

³33 U.S.C. § 1413.

which complements existing regulatory authorities.”¹ Original conceptions of marine sanctuaries proposed by the president’s Science Advisory Committee suggested that the sanctuaries might operate like designated wildernesses.² Early proposals for sanctuaries included bans on oil and gas drilling. The final version of the statute, which was signed into law on October 23, 1972, did not prohibit industrial developments within a designated sanctuary. The Sanctuaries Act has been controversial with environmental conservation groups, who are concerned that multiple uses in sanctuaries is incompatible with conservation needs. Oil and gas developers and commercial fishing industries have been concerned with sanctuary management plans inhibiting multiple uses within designated sanctuaries.

Congress has amended the Act numerous times over the years. Notable substantive amendments took place in 1980, 1992, and 2000. In 1980, governors from territories were given the same right as state governors in the designation process and requiring that all activities that would be subject to regulation within a geographic area to protect a marine sanctuary would be included within the terms of a designation. The Coast Guard was given the authority for enforcement actions within marine sanctuaries to ensure adequate compliance with sanctuary management plans. In 1988, Congress added a section providing that any person or vessel that causes damage to a sanctuary resource is liable for response costs, cleanup costs, and damages. Any civil penalties or damage costs were expected to be used for sanctuary restoration or reimbursements of costs associated with restoration.

In 1992, Congress passed the Oceans Act, which amended the Marine Protection, Research, and Sanctuaries Act by shortening the name of the Act to the National Marine Sanctuaries Act and by mandating cooperation with foreign countries and international organizations. The amendments also extended the jurisdiction of the Act to cover waters within the EEZ,³ recognized long-term monitoring and research as part of the purpose of sanctuaries, authorized advisory councils to be established to help assist the Secretary of Commerce in designating and managing sanctuaries,⁴ and allowed for an additional factor—whether existing regulatory authorities in the area are adequate—to be considered in determining whether to create a sanctuary.⁵

The amendments also hold an individual who destroys or injures any protected sanctuary resource liable (including *in rem* liability) to the United States for the response costs, damages, and interest on those costs.⁶ Other prohibited activities include violating any provision of any permit issued for activities within a national marine sanctuary, possessing a sanctuary resource illegally, or interfering with enforcement of the Act.⁷ The amendments also assigned to the Secretary of Commerce the authority to undertake response actions and issue civil penalties, and clarified that forfeited property can be used “to provide temporary storage, care, maintenance, and disposal of any sanctuary resource or other property seized in connection with a violation” of the Act.⁸ Remaining funds can be used to manage and improve the impacted marine sanctuary, pay a reward for an informant, or

[Section 31:24]

¹16 U.S.C. § 1431.

²H.R. 11584, 90th Cong. (1987); S. 2415, 90th Cong. (1967).

³16 U.S.C. § 1432(3)7.

⁴16 U.S.C. § 1445a.

⁵16 U.S.C. § 1433(a)(3).

⁶16 U.S.C. §§ 1436, 1437(c)(3).

⁷16 U.S.C. § 1436.

⁸16 U.S.C. § 1437(f).

manage any marine sanctuary.⁹

Minor amendments were made to the Act in 1996, including allowing for public-private partnerships between sanctuary programs and private companies. In 2000, Congress adopted more extensive amendments, including requiring the Secretary of Commerce, before designating a new sanctuary, to publish a finding that the new sanctuary will not have a negative impact on the sanctuary system as a whole because there are sufficient resources to implement existing sanctuary management plans.¹⁰ The section on prohibited activities further clarified that it was illegal to offer for sale, purchase, import, or export any sanctuary resource.¹¹ In addition to pre-existing civil penalties, criminal offenses were added for resisting or interfering with enforcement of the Act or submitting false information as part of an enforcement action.¹²

§ 31:25 Designation Process

Sanctuaries may be proposed by the Secretary of Commerce.¹ Congress may also designate marine sanctuaries.²

The Sanctuaries Act requires that any proposed sanctuary be listed in the *Federal Register*, including any proposed regulations to implement the sanctuary and a draft management plan.³ For a proposed sanctuary, a draft EIS must be prepared along with a resource assessment that will include the present and potential uses of the area.⁴ The draft management plan must include the terms of the proposed designation;⁵ proposed mechanisms to coordinate regulatory and management authorities; goals and objectives for managing sanctuary resources; responsibilities for management; resource studies; an evaluation of joint state/federal management if any part of the sanctuary is in the territorial limits of a state or within maritime limits of a state; and estimated costs associated with the designation.⁶ For each newly proposed sanctuary, the Secretary must publish a finding that the proposed new sanctuary will not have a negative impact on the overall sanctuary system because there are sufficient resources to implement all of the sanctuary management plans, including site characterizations.

In conjunction with the sanctuary designation, regional fishery management councils created under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) are given the opportunity to prepare draft regulations for fishing within any waters that might overlap between a designated sanctuary and the EEZ. The fisheries regulations must rely on the national standards in the MSA as long as they are “consistent and compatible with the goals and objectives of the proposed

⁹16 U.S.C. § 1437(e).

¹⁰16 U.S.C. § 1434(f)(1).

¹¹16 U.S.C. § 1436.

¹²16 U.S.C. § 1437(c).

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¹16 U.S.C. § 1433(a).

²Florida Keys National Marine Sanctuary and Protection Act, Pub. L. No. 101-605 (1990).

³16 U.S.C. § 1434(a).

⁴16 U.S.C. § 1434(a)(2).

⁵16 U.S.C. § 1434(a)(4) (“Terms of designation” refers to “the geographic area proposed to be included within the sanctuary, the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or esthetic values, and the types of activities that will be subject to regulation.”).

⁶16 U.S.C. § 1434(a)(2)(C).

designation.”⁷ The Secretary will make draft regulations if a council declines to make a decision on the need for regulations or “fails to prepare the draft regulations in a timely manner.”⁸

The public has the opportunity to be involved with at least one public hearing in the coastal area or areas most affected by the proposed designation of the area.⁹

Today, there are 15 existing sanctuaries, and several more have been proposed.¹⁰ Table 2 provides a list of existing sanctuaries as of May 2024 and their governing regulations.

Table 2: List of Existing National Marine Sanctuaries as of May 2024 With Governing Regulations

Name	Coastal Location	Year	Size (square miles)	Program Regulations and Management Plan
Monitor	North Carolina	1976	.78	15 C.F.R. 922 Subpart F
Channel Islands	California	1980	1,470	15 C.F.R. 922 Subpart G
Gray’s Reef	Georgia	1981	22	15 C.F.R. 922 Subpart I
Greater Farallones (formerly Gulf of the Farallones)	California	1981 (expanded in 2015)	3,295	15 C.F.R. 922 Subpart H
American Samoa (formerly Fagatele Bay)	American Samoa	1986 (expanded in 2012)	13,581	15 C.F.R. 922 Subpart J
Cordell Bank	California	1989 (expanded in 2015)	1,286	15 C.F.R. 922 Subpart K
Florida Keys	Florida	1990	2,900	15 C.F.R. 922 Subpart P
Flower Garden Banks ¹¹	Texas	1991 (expanded in 1996 and 2021)	160	15 C.F.R. 922 Subpart L
Hawaiian Islands Humpback Whale	Hawai’i	1992	1,400	15 C.F.R. 922 Subpart Q
Monterey Bay ¹²	California	1992	6,094	15 C.F.R. 922 Subpart M
Stellwagen Bank ¹³	Massachusetts	1992	842	15 C.F.R. 922 Subpart N
Olympic Coast ¹⁴	Washington	1994	3,189	15 C.F.R. 922 Subpart O

⁷16 U.S.C. § 1434(a)(5).

⁸16 U.S.C. § 1434(a)(5).

⁹16 U.S.C. § 1434(a)(3).

¹⁰As of 2024, new sanctuaries have been proposed for Lake Ontario (New York), Chumash Heritage (California), Hudson Canyon (New York and New Jersey), and the Pacific Remote Islands. An additional sanctuary has been proposed within the existing Papahānaumokuākea Marine National Monument (Hawai’i).

¹¹56 Fed. Reg. 63634 (Dec. 5, 1991).

¹²57 Fed. Reg. 43310 (Sept. 18, 1992).

¹³58 Fed. Reg. 53865 (Oct. 19, 1993).

¹⁴59 Fed. Reg. 24586 (May 11, 1994).

Thunder Bay ¹⁵	Michigan	2000 (expanded in 2014)	4,300	15 C.F.R. 922 Subpart R
Mallows Bay	Maryland/Virginia	2015	n/a	15 C.F.R. 922 Subpart S
Wisconsin Shipwreck Coast ¹⁶	Wisconsin	2021	962	15 C.F.R. 922 Subpart T

Designations take effect usually no later than 30 months after the date of notice declaring the site to be an active candidate for sanctuary designation is published in the *Federal Register*.¹⁷ If the notice has not been published, then NOAA is expected to publish why findings have not yet been published. When a sanctuary has been designated, the Secretary does not have the right to terminate “any valid lease, permit, license, or right of subsistence use or of access” that legally exists on the date of designation.¹⁸ The exercise of a lease, permit, license, or right may be regulated by the Secretary “consistent with the purposes for which the sanctuary is designated.”¹⁹

§ 31:26 Federal Agency Consultations

For actions governed under a federal agency, including private activities that “are likely to destroy, cause the loss of, or injure any sanctuary resource,” the Sanctuaries Act requires federal agencies to provide a written statement describing activities and potential effects at least 45 days before an approval of an action.¹ NOAA requires that project proponents recommend “reasonable and prudent alternatives,” which may include moving the activity outside of the sanctuary boundaries.² These alternatives will be provided to an agency head who is expected to either follow the alternative or explain in writing why it will not be following the proposed alternatives.³

§ 31:27 Management Plans and Permits

Site-specific sanctuary management plans are created for each area with site-specific regulations, such as prohibiting the alteration of the seabed or the taking of marine mammals or birds. Specific rules can include being within 100 yards of a humpback whale.¹ Activities are permitted through the use of special use permits that provide “conditions of access to and use of any sanctuary resource.”² All permits must only allow for those activities that are “compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources” and that are conducted in a such a way “that does not destroy, cause the loss of, or injure

¹⁵65 Fed. Reg. 39042 (June 22, 2000).

¹⁶86 Fed. Reg. 32737 (June 23, 2021).

¹⁷16 U.S.C. § 1434(b)(1). This final designation publication is not to be published until the House and Senate committees have had the opportunity to hold meetings that can take place within 45 days of a proposed designation.

¹⁸16 U.S.C. § 1434(c)(1).

¹⁹16 U.S.C. § 1434(c)(2).

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¹16 U.S.C. § 1435(d)(2).

²16 U.S.C. § 1435(d)(1)(B).

³16 U.S.C. § 1435(d)(3).

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¹15 C.F.R. § 922.184(a)(1).

²16 U.S.C. § 1441(a)(1)-(2).

sanctuary resources.”³ Permits are renewed on a five-year basis.⁴

VII. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

§ 31:28 History and Purpose

After World War II, foreign fishing vessels harvested fish in the waters off the coast of the United States, impacting fishing communities. While the United States participated in negotiating a variety of treaties to address overfishing, these treaties were not fully implemented, and the United States became increasingly concerned about the sustainability of its coastal fisheries. In 1976, Congress adopted the MSA to extend U.S. fishery jurisdiction to 200 miles offshore, in keeping with developments under UNCLOS to create a maritime EEZ.¹ The original Act offered a large amount of discretion on how fisheries councils created under the Act might incorporate social, economic, or ecological factors into existing fishing levels.

The Act was revised in 1996 with the passage of the Sustainable Fisheries Act to ensure that councils make conservation of fish stocks their first priority in any fisheries management plan, develop plans to prevent overfishing, and restore stocks that are overfished. As part of the Act, every council was also required to identify essential fish habitat. In 2002, regulations related to essential fish habitat were adopted so that management councils could identify “habitat areas of particular concern” where ecological functions are vulnerable to degradation.² In 2006, the Act was amended again to ensure that councils take immediate actions to end overfishing.³

§ 31:29 Definitions

Under the MSA, “fish” refers to “finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds.”¹ “Fishing” refers to the action of catching, taking, or harvesting of fish in addition to “any operations at sea in support of, or in preparation for” the standard definition of fishing, and covers transshipment.² “Overfishing” refers to “a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum sustainable yield on a continuing basis.”³ The Secretary of Commerce determines if a fishery has been overfished or is approaching a condition of being overfished based on trends in fishing effort, fishery resource size, and other factors.⁴

“Maximum sustainable yield” is not defined in the Act, though it is understood in fisheries management practice to refer to the largest catch that can be harvested

³16 U.S.C. § 1441(c)(1), (c)(3).

⁴16 U.S.C. § 1441(c)(2).

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¹See *supra* Section 9 of this chapter. The 1983 presidential proclamation created a 200-mile EEZ that replaced the “fishery conservation zone” created by the original MSA. Proclamation No. 5030, The Exclusive Economic Zone of the United States of America, 48 Fed. Reg. 10605 (Mar. 14, 1983).

²50 C.F.R. § 600.805.

³16 U.S.C. § 1854(e)(3)(A).

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¹16 U.S.C. § 1802(12).

²16 U.S.C. § 1802(16)(D).

³16 U.S.C. § 1802(34).

⁴16 U.S.C. § 1854(e)(3).

continuously from a stock under prevailing environmental and fishery conditions.⁵ The term “optimum,” as in “optimum yield,” which appears in the National Fishing Standard One and is a requirement of every fisheries management plan, refers to the amount of fish providing “greatest overall benefit to the Nation” for food production and recreation while “taking into account the protection of marine ecosystems.”⁶ The maximum sustainable yield is expected to be readjusted based on any “relevant social, economic, or ecological factor.”⁷ If a fishery needs to be rebuilt, then “optimum” refers to the number of fish necessary “for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.”⁸

“Essential fish habitat” refers to all “waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.”⁹ Fisheries management plans must include the habitat or habitat types for each life stage of a managed species. Notably, “[i]f a species is overfished and habitat loss or degradation may be contributing to the species being identified as overfished, all habitats currently used by the species may be considered essential in addition to certain historic habitats that are necessary to support rebuilding the fishery and for which restoration is technologically and economically feasible.”¹⁰

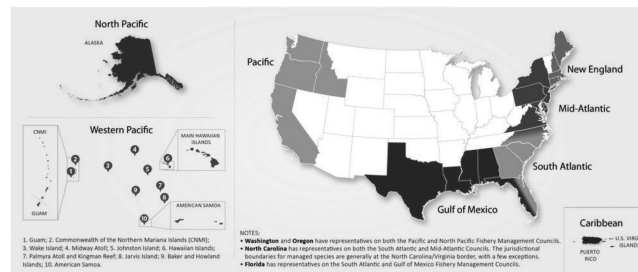
Notably, the MSA covers bycatch but defines it as “fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards.”¹¹ This definition does not include incidental catch such as birds and turtles.

§ 31:30 Regional Fishery Management Councils

The MSA created eight regional fishery management councils that are responsible for developing management plans.¹ Figure 3 provides a map of all of the councils.

FIGURE 3:

Map of U.S. Regional Fishery Management Councils



⁵NOAA Fisheries, *Status of Stocks 2019*, <https://www.fisheries.noaa.gov/national/sustainable-fisheries/status-stocks-2019> (last updated Feb. 28, 2022).

⁶16 U.S.C. § 1802(33)(A).

⁷16 U.S.C. § 1802(33)(B).

⁸16 U.S.C. § 1802(33)(C).

⁹16 U.S.C. § 1802(10).

¹⁰50 C.F.R. § 600.815(a)(1)(iv)(C).

¹¹16 U.S.C. § 1802(2).

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¹North Pacific Fishery Management Council (<https://www.npfmc.org/>); Pacific Fishery Management Council (<https://www.pcouncil.org/>); Western Pacific Management Council (<http://wpcouncil.org/>); Gulf of Mexico Management Council (<https://gulfcouncil.org/>); Caribbean Fishery Management Council (<https://caribbeanfmc.com/>); South Atlantic Fishery Management Council (<https://safmc.net/>); Mid-Atlantic Fishery Management Council (<https://www.mafmc.org/>); New England Fishery Management Council (<https://www.nefmc.org/>).

Each council is organized individually. There is a Council Coordination Committee that meets twice a year to discuss issues relevant to the implementation of the MSA. Every council is expected to adhere to 10 “national standards” (listed in Section 31 below) when designing its fishery management plans. Table 3 provides a list of the existing councils and the fishery management plans that they are responsible for reviewing and implementing.

Table 3: Organization and Fishery Management Plans Under the Review of U.S. Regional Fishery Management Councils

Fishery Management Council (headquarter)	Jurisdiction	Organization*	Fishery Management Plans
New England (Newburyport, Massachusetts)	Federal waters (3 to 200 nautical miles) off Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut	18 voting members: Regional Administrator of Greater Atlantic region; 5 state officials; 12 members nominated by governors and appointed by Secretary of Commerce	Northeast Multispecies Atlantic Sea Scallop Monkfish (joint) Atlantic herring Skates Small Mesh Multispecies Deep-Sea Red Crab Spiny Dogfish (joint) Atlantic Salmon
Mid-Atlantic (Dover, Delaware)	Federal waters off New York, New Jersey, Pennsylvania, Delaware, Maryland, and Virginia	21 voting members: 7 from states' fish and wildlife agencies; 13 private citizens knowledgeable in “recreational fishing, commercial fishing, or marine conservation”	Summer Flounder/Scup/Black Sea Bass Mackerel (Atlantic and chub)/Squid (longfin and Illex)/Butterfish Surfclam/Ocean Quahog Bluefish Golden and Blueline Tilefish Spiny Dogfish (joint) Monkfish (joint)
South Atlantic (Charleston, South Carolina)	Federal waters off North Carolina, South Carolina, Georgia, and east Florida to Key West	17 members: Southeast Regional Administrator of NMFS; designees of South Atlantic state marine resource agencies; 8 citizens (2 per state)	Coastal Migratory Pelagics (Mackerels) Coral and Live Bottom Habitat Dolphin Wahoo Golden Crab Sargassum Shrimp Snapper Grouper Spiny Lobster
Gulf of Mexico (Tampa, Florida)	Federal waters off the coasts of Louisiana, Mississippi, Alabama, Texas, and west coast of Florida	17 voting members: Southeast Regional Administrator of NMFS; designees of Gulf state marine resource management agencies; 11 members nominated by state governors and appointed by Secretary of Commerce	Coastal Migratory-Pelagics Coral Essential Fish Habitat Red Drum Reef Fish Shrimp Spiny Lobster Stone Crab
Caribbean (San Juan, Puerto Rico)	EEZ off Puerto Rico and U.S. Virgin Islands	7 voting members: Southeast Regional Administrator of NMFS; 4 members appointed by Secretary of Commerce on recommendations of governors; 2 principal officials from Puerto Rico and U.S. Virgin Islands responsible for marine fisheries	Puerto Rico St. Croix St. Thomas/St. John

Pacific (Portland, Oregon)	Federal waters off Washington, Oregon, and California	14 voting members: chosen by governors of the four states (including Idaho) and always includes state and tribal representatives	Fishery Ecosystem Plan Salmon Groundfish Coastal pelagic species Highly migratory Species
Western Pacific (Honolulu, Hawai'i)	Federal waters off Hawai'i, America Samoa, Guam, Commonwealth of Northern Mariana Islands, and 8 additional islands (Howland Island, Kingman Reef, Jarvis Island, Baker Island, Wake Island, Johnston Atoll, and Palmyra Atoll)	13 voting members: 8 members appointed by governors and approved by Secretary of Commerce; 4 state officials; representative from NMFS	America Samoa Hawai'i Mariana Pacific Remote Islands Area Pelagic
North Pacific (Anchorage, Alaska)	Federal waters in the Gulf of Alaska, Bering Sea, and Aleutian Islands	11 voting members: 7 members appointed by Secretary of Commerce on recommendation of governors of Alaska and Washington; 3 officials from Alaska and Washington and Oregon; Alaska Regional Director of NMFS	Bering Sea/Aleutian Islands Groundfish Gulf of Alaska Groundfish Bering Sea/Aleutian Islands Crab Scallop Salmon Arctic Fishery Management Area

*Many of the councils have four non-voting members comprised of representatives of other commissions with jurisdiction over the stocks being managed (e.g., Atlantic States Marine Fisheries Commission, Gulf States Marine Fisheries Commission, or Pacific States Marine Fisheries Commission²), the U.S. Fish and Wildlife Service, the U.S. Department of State, and the U.S. Coast Guard.

§ 31:31 Fishery Management Plans

Unless the fishery is overfished, every fishery management council has the discretion to decide whether a particular fishery needs to have conservation and management measures.¹ If the fishery is overfished, a council must submit a plan, plan amendment, or proposed regulations to end or prevent overfishing and to rebuild the overfished stock.² When the council either decides to act or is required to act, it must develop a fishery management plan that includes some basic economic and scientific information,³ management objectives,⁴ and management measures.⁵ The public is invited to comment on these plans during a 60-day notice-and-comment period,

²These commissions were set up as interstate compact agencies by acts of U.S. Congress in the 1940s. The Atlantic States Marine Fisheries Commission includes members from Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. The Gulf States Marine Fisheries Commission includes members from Texas, Louisiana, Mississippi, Alabama, and Florida. The Pacific States Marine Fisheries Commission includes participation from California, Oregon, Washington, Idaho, and Alaska. These commissions do not have regulatory or management authority.

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¹16 U.S.C. § 1852(h).

²16 U.S.C. § 1854(e)(3).

³16 U.S.C. § 1853(a)(2) (information that must be covered includes number of vessels, fishing gear types, actual/potential revenues of the fishery, nature and extent of foreign fishing rights, exis-

after which NOAA has 30 days to approve, disapprove, or partially approve the plan.⁶ If NOAA fails to act in this period, the plan is presumed to be approved.

Every plan must have “objective and measurable criteria” to determine whether or not a particular fishery is deemed to be overfished and needs to be rebuilt.⁷ Catch limits are established annually to reflect fishing level recommendations by scientific committees or other equivalent process with or without peer review.⁸ Plans must also include a standardized reporting methodology for bycatch.⁹ Further, plans must be consistent with the following 10 “national standards” of fishery management:

- (1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.
- (2) Conservation and management measures shall be based upon the best scientific information available.
- (3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.
- (4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.
- (5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.
- (6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.
- (7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.
- (8) Conservation and management measures shall, consistent with the conservation requirements of this chapter (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of paragraph (2), in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.
- (9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

tence of Indian treaty fishing rights); 16 U.S.C. § 1853(a)(7) (information that must be covered includes description of essential fish habitat for a fishery, including spawning, breeding, and feeding regions, and steps to preserve habitat).

⁴16 U.S.C. § 1853(a)(3) (“maximum sustainable yield and optimum yield from, the fishery”).

⁵16 U.S.C. § 1853(a)(11) (reducing bycatch); 16 U.S.C. § 1853(a)(10) (plan for preventing overfishing and rebuilding a fishery); 16 U.S.C. § 1853(a)(15) (establishing annual catch limits, implementing regulations or annual specifications to prevent overfishing).

⁶16 U.S.C. § 1854(a)(3).

⁷16 U.S.C. § 1853(a)(10).

⁸16 U.S.C. § 1852(h)(6), (g)(1)(E).

⁹16 U.S.C. § 1853(a)(11).

- (10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.¹⁰

The national standards may appear to create conflicts. In such an instance, National Standard One will prevail because it aligns most closely with the purpose and objective of the MSA to prevent overfishing and rebuild stocks.¹¹ Effective actions to end overfishing must have a more than 50% chance of succeeding to meet MSA standards.¹² Councils have some flexibility in how they interpret the standards given the language “to the extent practicable.”

In an essential fish habitat, councils have a number of options for managing adverse effects due to fishing, including fishing equipment restrictions, time closures, area closures, and harvest limits.¹³ A fishery management plan should also address non-fishing activities that may adversely impact the essential fish impacts, cumulative impacts, conservation and enhancement actions, prey species, habitat areas of particular concern, and research and information needs.¹⁴

If a fishery needs to be rebuilt, then the council must announce a time period by which the trend of overfishing will be reversed and stocks will be rebuilt. This period should be “as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of fishing communities, recommendations by international organizations. . . , and the interaction of the overfished stock of fish within the marine ecosystem.”¹⁵

In addition to the mandated portions of a fishery management plan, councils can decide to include other mechanisms, including setting a cap on the number of vessels that participate in a fishery¹⁶ or creating a limited access privilege program with individual quotas for fishermen that can be revoked by the government.¹⁷ In order to create a “limited access” program, a council must demonstrate that the program will contribute to rebuilding or reducing capacity.¹⁸ The time period should be within 10 years, unless the “biology of the stock of fish, other environmental conditions, or management measures under an international agreement” suggest that 10 years is not feasible.¹⁹

Changes to a fishery management plan can be made by amendment as long as the amendments are consistent with meeting the national standards.²⁰ If a council fails to provide a plan and NOAA Fisheries determines that conservation measures are needed for a fishery, then NOAA Fisheries has the power to take over management

¹⁰16 U.S.C. § 1851.

¹¹Natural Resources Defense Council, Inc. v. Daley, 209 F.3d 747, 30 Env'tl. L. Rep. 20532 (D.C. Cir. 2000).

¹²Natural Resources Defense Council, Inc. v. Daley, 209 F.3d 747, 30 Env'tl. L. Rep. 20532 (D.C. Cir. 2000) (finding that 18% chance of success for rebuilding a stock violated the MSA).

¹³50 C.F.R. § 600.815(a)(2)(iv).

¹⁴50 C.F.R. § 600.815(a)(4)-(9) (non-fishing related activities include dredging, filling, excavation, mining, impoundment, discharge, water diversions, thermal additions, actions that contribute to nonpoint source pollution and sedimentation, introduction of potentially hazardous materials, introduction of exotic species, and the conversion of aquatic habitat).

¹⁵16 U.S.C. § 1854(e)(4)(A)(i).

¹⁶16 U.S.C. § 1853(b)(4).

¹⁷16 U.S.C. § 1853A (programs are currently called “limited access privilege programs,” but are understood to operate like an “individual fishing quota”).

¹⁸16 U.S.C. § 1853A(c)(1).

¹⁹16 U.S.C. § 1854(e)(4)(A)(ii).

²⁰50 C.F.R. § 600.305.

of a fishery.²¹ Likewise, if NOAA Fisheries decides that a fishery is overfished, it may implement a fishery management plan, if a council after notification fails to submit its rebuilding plan within one year.²²

§ 31:32 Citizen Challenges

Citizens can challenge fishery management plans and regulations to implement such plans in federal court under the Administrative Procedure Act.¹ It has been difficult to bring these challenges, and agencies are given deference if they provide scientific rationales for their conservation and allocation decisions.² Fishing communities have brought challenges querying whether the councils have taken adequate regard of fishing communities and minimizing adverse economic impacts. The courts have emphasized that conservation of stocks to address or avoid overfishing is a primary goal of the MSA with all of the national standards supporting this goal.³ NMFS must address economic impact, but it does not have to make individualized assessments for each geographic location; it can conduct an analysis of the impact of a plan as a whole.⁴

The Court of Appeals for the Federal Circuit did not find a takings claim for a fishing operation when a vessel permitted to harvest and process fish under a permit issued under an MSA limited access privilege program was constrained by harvesting restrictions under a waiver to the Jones Act.⁵ Marine permits are revocable privileges and not compensable property interests.

§ 31:33 Foreign Fishing

While the MSA primarily functions as domestic fishing legislation, it also governs the actions of foreign fishing in the U.S. EEZ. If there is additional capacity after domestic harvesting as determined in a fishery management plan, a foreign fishing vessel based on a fishing treaty may be able to participate in a U.S. fishery subject to a variety of conditions (e.g., deploying vessel monitoring systems or using fisheries observers).¹ Foreign fishing is not authorized from a vessel whose nation does

²¹16 U.S.C. § 1854(c)(1).

²²16 U.S.C. § 1854(e)(5).

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¹16 U.S.C. § 1855(f).

²*See, e.g.,* Conservation Law Foundation v. Evans, 360 F.3d 21, 14 A.L.R.6th 853 (1st Cir. 2004); Natural Resources Defense Council, Inc. v. National Marine Fisheries Service, 421 F.3d 872, 35 Env'tl. L. Rep. 20174 (9th Cir. 2005) (leaving open the possibility of a more-than-10-year plan for rebuilding a stock); Natural Resources Defense Council v. National Marine Fisheries Service, 71 F. Supp. 3d 35 (D.D.C. 2014) (government's decision to remove ban on targeting of deepwater species was found consistent with MSA).

³Natural Resources Defense Council, Inc. v. Daley, 209 F.3d 747, 30 Env'tl. L. Rep. 20532 (D.C. Cir. 2000); Oceana, Inc. v. Raimondo, 35 F.4th 904, 911 (D.C. Cir. 2022).

⁴*See, e.g.,* Ace Lobster Co., Inc. v. Evans, 165 F. Supp. 2d 148, 2002 A.M.C. 1518 (D.R.I. 2001); Little Bay Lobster Co. v. Evans, 2002 DNH 96, 2002 WL 1005105 (D.N.H. 2002), *aff'd*, 352 F.3d 462, 197 A.L.R. Fed. 751 (1st Cir. 2003). *But see* Loper Bright Enters. Inc. v. Raimondo, No. 22-451, and Relentless, Inc. v. Department of Com., No. 22-129 (two 2024 Supreme Court challenges to the *Chevron* doctrine challenging rule issued by NMFS requiring commercial fishing vessels to bear the costs of fishing observers).

⁵Fishermen's Finest, Inc. v. United States, 59 F.4th 1269 (Fed. Cir. 2023).

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¹16 U.S.C. § 1821(c).

not extend “substantially the same fishing privileges” to U.S. fishing vessels.²

§ 31:34 Port State Measures Implementation Act

As the second largest exporter of fish in the world, the United States may be contributing to global illegal, unreported, and unregulated fishing as traceability is problematic in many fisheries. The United States is a Party to the Food and Agriculture Organization’s Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing.¹ This treaty created minimum standards for port states to control foreign fishing vessels and foreign transport ships supporting fishing vessels. The agreement was implemented into U.S. law by the Port State Measures Implementation Act.² Under the Act, NOAA and the Coast Guard were empowered to designate ports where fishing vessels and fishing-support vessels may enter and request confirmation that fishing cargo is taken in compliance with conservation and management measures.³ The Secretary of the Department of Homeland Security may deny entry to a vessel to a U.S. port for landing, transshipment, processing of fish, refueling, resupplying, maintenance or drydocking if it is a listed illegal, unreported, or unregulated (IUU) fishing vessel, or if the Secretary of Commerce believes that a given vessel may have engaged in IUU fishing.⁴ Vessels may be allowed entry if it is essential for the safety or health of the crew, safety of the vessel, scrapping of the vessel, or in conjunction with an inspection or enforcement action.⁵ The Secretary of Commerce has both civil and criminal enforcement authority under the Act. For enforcement purposes, there is a rebuttable presumption that “all fish, or components thereof, found on board a vessel that is used or seized . . . were taken, obtained, or retained as a result of IUU fishing or fishing-related activities in support of IUU fishing.”⁶

§ 31:35 Other Fishery Related Laws

Congress has adopted a number of other specific fisheries related laws that are part of U.S. fisheries management. U.S. obligations under the International Convention for the Conservation of Atlantic Tunas (ICCAT) have been domesticated into U.S. laws through the Atlantic Tunas Convention Act. Under this Act, the United States authorizes implementing ICCAT recommendations to be implemented under the MSA.¹

The Northern Pacific Halibut Act domesticates U.S. responsibilities under the Convention for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea.²

Congress passed the Billfish Conservation Act in 2012 and amended it in 2018 to prohibit individuals from generally offering billfish (with an exemption for swordfish)

²16 U.S.C. § 1821(f).

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¹Food and Agriculture Organization of the United Nations, Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing, Nov. 22, 2009, *available at* <https://www.fao.org/port-state-measures/en/>.

²16 U.S.C. §§ 7401-7409.

³16 U.S.C. § 7403(b).

⁴16 U.S.C. § 7404(b)(3).

⁵16 U.S.C. § 7404(d) (referencing 16 U.S.C. § 7405).

⁶16 U.S.C. § 7407(c)(3).

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¹16 U.S.C. §§ 971 et seq.

²16 U.S.C. §§ 773 et seq.

or billfish products for sale or having custody, control, or possession of these fish and related products.³ Exceptions are made for billfish caught by U.S. fishing vessels and landed and retained in Hawaii or the Pacific Insular Areas, as well as billfish landed by foreign vessels in the Pacific Insular Areas that are exported to markets outside the United States or retained within Hawaii and the Pacific Insular areas for local consumption.⁴

In 1987, Congress passed the Driftnet Impacting Monitoring, Assessment, and Control Act.⁵ Beginning in 2022, NOAA began a five-year transition period to phase out the use of large-scale driftnet fishing.⁶ The United States has been committed for decades to a moratorium on large-scale driftnet fishing on the high seas.⁷ Since 1993, it has denied port privileges to vessels deploying large-scale driftnets on the high seas as part of the High Seas Driftnet Fisheries Enforcement Act.⁸

In 2010, the United States adopted the Shark Conservation Act requiring better implementation of shark conservation efforts, including prohibitions on the removal of shark fins and discarding of shark carcasses at sea.⁹ The United States enforces shark conservation mechanisms under provisions already adopted as part of the High Seas Driftnet Fishing Moratorium.

The Whaling Convention Act implements U.S. obligations under the International Convention for the Regulation of Whaling, including the current moratorium on commercial hunting.¹⁰ Subsistence hunting is permitted and licensed under this Act.¹¹

In addition to the efforts under the Port State Measures Implementation Act, the United States has adopted the Seafood Import Monitoring Program, which requires importers to provide traceability data for 13 species groups, to combat IUU fishing.¹² Different entities provide different information for the record.¹³

VIII. ACT TO PREVENT POLLUTION FROM SHIPS

§ 31:36 History and Purpose

Ships are responsible for a significant portion of water and air pollution at sea, including up to 18-30% of global nitrogen oxides and 9% of sulfur oxides. The Act to Prevent Pollution From Ships was passed in 1980 to implement the International Convention for the Prevention of Pollution From Ships (MARPOL 73/78), a treaty developed through the International Maritime Organization. This Act focuses on both operational discharges from oceangoing ships flagged to the United States and

³16 U.S.C. § 1827a.

⁴16 U.S.C. § 1827a.

⁵16 U.S.C. §§ 1822 et seq. (Pub. L. No. 100-220).

⁶16 U.S.C. § 1826(i).

⁷16 U.S.C. § 1826(d) (enacted as part of the High Seas Driftnet Fishing Moratorium Act).

⁸16 U.S.C. § 1826a (Pub. L. No. 102-582).

⁹16 U.S.C. § 1857(1)(P) (Pub. L. No. 111-348).

¹⁰16 U.S.C. §§ 916-916l.

¹¹16 U.S.C. § 916d; 50 C.F.R. § 230.5.

¹²500 C.F.R. § 300.324. Species subject to the program include Atlantic cod, Atlantic blue crab, mahi mahi, grouper, red king crab, Pacific cod, red snapper, sea cucumbers, sharks, shrimp, swordfish, and tunas (albacore, bigeye, skipjack, yellowfin, and bluefin).

¹³Producing entities must provide name and flag state of harvesting vessels, evidence of authorization to fish or farm, vessel identifier, name of aquaculture facility, and type of fishing gear used. For each shipment, the shipper must provide species of fish, landing dates, point of landing, quantity of product, areas of wild-capture or harvest, and names of groups that received fish. Importers must include names and affiliations, international fisheries trade permit numbers, information on transshipment, and records on processing, re-processing, and commingling of products.

foreign-flagged vessels while they are located in designated U.S. waters. The Act was most recently updated in 2008 to include restrictions on vessel air pollution.

§ 31:37 Implementation of MARPOL Annexes

MARPOL has six annexes covering different sources of operational pollution. The United States implements five of the six annexes (oil, noxious substances, hazardous substances in packaged form, garbage, and air pollution). It enforces Annex I on oil and Annex II on noxious liquid substances. These annexes require ships to limit discharges, monitor for discharges, and keep reports on discharges and transfers (e.g., oil record books).¹ A vessel that is more than 12 nautical miles from land may discharge oil as long as it meets certain criteria, such as the oil does not originate from cargo pump room bilges, the oil is not mixed with oil cargo residues, the vessel is not within a special area, the vessel is proceeding, the effluent without dilution contains less than 15 parts per million, and the ship has appropriate oil separation equipment.² Within three nautical miles of the shore, the CWA applies and a discharger must notify U.S. agencies in the case of a discharge. The U.S. agencies will notify state agencies.³ A vessel that is less than 12 nautical miles from land may also discharge oil subject to additional equipment requirements.⁴ Annexes I and II apply to all ships operating within the internal waters and the territorial sea of the United States.⁵

Annex V of MARPOL regulates garbage disposal and prohibits any dumping of plastic or garbage mixed with plastic in U.S. jurisdictional waters.⁶ It applies to all ships operating within the internal waters, territorial sea, and EEZ of the United States.⁷ Limited exceptions are made for U.S. Armed Forces ships, including Coast Guard and Navy vessels.⁸ Depending on a vessel's location, what is legal to dump varies. For example, food waste, cargo residues, and cleaning agents that are not dangerous to the marine environment may be discharged beyond 12 nautical miles.⁹

Annex VI of MARPOL applies to air emissions from ships. Based on this annex, the United States requires limits on nitrogen oxides from marine diesel engines and limits on sulfur content within marine fuels. Non-U.S. ships may be inspected under the U.S. port state control jurisdiction. EPA and the Coast Guard enforce penalties against U.S. and foreign flagged ships that violate emission standards within the U.S. EEZ or the North American and U.S. Caribbean Sea Emissions Control Area.¹⁰ To be subject to U.S. law, foreign flagged ships must be either operating under the authority of a Party to Annex VI or be in or en route to a U.S. port, shipyard, offshore terminal, or internal waters.

The United States is not a party to Annex IV of MARPOL and relies instead on

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¹33 C.F.R. pt. 151.

²33 C.F.R. § 151.10(a).

³33 U.S.C. § 1321(b)(3).

⁴33 C.F.R. § 151.10(b).

⁵33 U.S.C. § 1902(a)(2).

⁶33 C.F.R. § 151.67.

⁷33 U.S.C. § 1902(a)(3).

⁸33 U.S.C. § 1902(b)(3)(B) (military vessels may not discharge plastic garbage bags, incinerator ashes from plastic products, synthetic ropes, and synthetic fishing nets, but may discharge non-floating slurry of seawater, paper, cardboard, or food waste that can be passed through a screen with openings no larger than 12 millimeters in diameter).

⁹33 C.F.R. § 151.69.

¹⁰33 U.S.C. § 1902(a)(5).

§ 312 of the CWA to regulate sewage discharges from vessels within U.S. navigable waters. The Shore Protection Act of 1988 also governs certain sewage discharges related to municipal and commercial waste.¹¹

§ 31:38 Enforcement

EPA and the Coast Guard enforce the Act to Prevent Pollution From Ships through a combination of civil penalties and criminal enforcement mechanisms. Because it is notoriously difficult to detect certain pollution evasion tactics on vessels, the Act provides for payments of up to half of the assessed penalties to whistleblowers who provide information about falsified recordkeeping, manipulation of monitoring systems, garbage dumping, and other violations that may lead to penalties.¹ Citizen suits are possible under the Act.²

IX. OIL POLLUTION ACT

§ 31:39 History and Purpose

Adopted in the wake of the catastrophic Exxon Valdez spill that significantly impacted ecosystems within the Prince William Sound in Alaska after spilling 11 million gallons of crude oil, OPA addresses prevention, response, and compensation for oil pollution from both vessels and facilities that are located in U.S. waters, including the U.S. EEZ.¹ In terms of prevention, every operator of an oil handling, storage, or transportation facility must have an “oil-spill response plan,” which will address the availability of spill containment and cleanup equipment.²

§ 31:40 Definitions

OPA applies to oil of any kind or in any form as long as it does not contain hazardous substances that are subject to the Comprehensive Environmental Response, Compensation, and Liability Act.¹ Under OPA, there are a variety of potentially responsible parties. In relation to a vessel, a responsible party includes any person who owns, operates, or demise charters the vessel as well as any owner of oil being transported in a tank vessel with a single hull.² In the case of offshore facilities, such as an oil rig, the lessee or permittee of an area where the facility is located or the holder of an easement in state waters or on the OCS is a responsible party.³ Foreign facility owners and leaseholders, deepwater port licensees, and pipeline owners may also be responsibility parties.

§ 31:41 Liability

Responsible parties who discharge or have a substantial threat of discharging oil from a vessel or facility are held liable for removal costs and damages, including

¹¹33 C.F.R. §§ 151.1000-151.1024.

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¹33 U.S.C. § 1908(b).

²33 U.S.C. § 1910(a).

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¹33 U.S.C. §§ 2701 et seq.

²30 C.F.R. pt. 254.

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¹33 U.S.C. § 2701(23).

²33 U.S.C. § 2701(32)(A).

³33 U.S.C. § 2701(32)(C).

costs incurred by any person that are consistent with the National Contingency Plan.¹ There is no liability under OPA for discharges that have been permitted by federal, state, or local law, or are from a public vessel.² Damages that are covered include destruction of natural resources, economic losses from destroyed real or personal property, loss of subsistence use of a natural resource, lost revenues, lost profits and impaired earning capacity, and increased public services during or after removal activities.³

Liability for natural resource damages is limited to the U.S. government, states, Indian tribes, and foreign governments.⁴ For these types of damages, payments may include “the cost of restoring, rehabilitating, replacing or acquiring the equivalent of the damaged natural resource,” the decrease in value of natural resources during the restoration phase, and the cost of assessing the damages.⁵

Different liability for removal costs is assigned for different classes of vessels.⁶ For example, a double-hulled tank vessel is limited in liability to \$16 million if it is larger than 3,000 gross tons or \$4 million if it less than 3,000 gross tons.⁷ Other non-tanker vessels are limited to a cap of \$800,000 in damages. Mobile offshore drilling units are initially treated as tank vessels, but are subsequently treated as facilities for liability if removal costs and damages from an incident exceed the cap for vessels.⁸ The president establishes through regulation the liability limits for onshore facilities.⁹

Where a responsible party is incapable or unwilling to respond to a significant oil discharge, the government may intervene and use trust funds to respond. These trust funds come from a tax on oil. The lead response agency for spills in coastal waters and deepwater ports is the Coast Guard; EPA has jurisdiction over oil spills occurring within inland waters.¹⁰

X. OTHER CONTINUING PRIORITY ISSUES FOR U.S. OCEAN GOVERNANCE AND THE ENVIRONMENT

§ 31:42 Coastal and Marine Spatial Planning

Coastal and marine spatial planning (CSMP) is a topic of increasing interest among ocean users. The concept of CSMP is to identify existing and future uses of ocean, coastal, and Great Lakes regions and identify mechanisms for reducing conflict, reducing environmental impacts, and protecting ecosystem services. In 2010, the president’s Interagency Ocean Policy Task Force recommended a framework for effective CSMP to address user conflicts and sustainable use of

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¹33 U.S.C. § 2702.

²33 U.S.C. § 2702(c).

³33 U.S.C. § 2702(b)(2).

⁴33 U.S.C. § 2706.

⁵33 U.S.C. § 2706(d).

⁶33 U.S.C. § 2704(a).

⁷Not all tank vessels are included. Vessels containing animal fat or vegetable oil are not subject to OPA.

⁸33 U.S.C. § 2704(b).

⁹33 U.S.C. § 2704(d).

¹⁰40 C.F.R. pt. 112.

ocean, coastal, and Great Lakes resources.¹ The 2010 Task Force hoped that CSMP would provide for a more comprehensive and ecosystem-based approach to planning for a variety of uses and users.² The framework would cover the territorial sea, the EEZ, and the continental shelf, and be based on certain shared principles, including ecosystem-based management, inclusive and transparent engagement with public and other interested groups (particularly underserved communities), integration with existing CSMP efforts, use of best science, adaptive management, and the precautionary approach.³ The proposal was to conduct CSMP regionally at a large-marine ecosystem scale through a CSMP Development Agreement.⁴ The National Ocean Council would certify coastal and marine spatial plans.⁵ The plans would work to coordinate efforts across different levels of governance and different interest groups, and would not be regulatory.⁶ The intent was to accomplish this planning work in five years.⁷ Nothing came of the plan with the arrival of the Trump Administration, who rescinded the National Ocean Policy.⁸

Several coastal states have marine spatial planning laws. Massachusetts, under its Ocean Act, required the Executive Office of Energy and Environmental Affairs to develop a plan as part of its coastal zone management plan.⁹ Rhode Island has a federally recognized Special Area Management Plan.¹⁰ Oregon has done some marine spatial planning around the siting of wave energy.¹¹ Washington has a Marine Water Planning and Management Act, and has produced an evolving Marine Spatial Plan.¹²

The increase in renewable energy siting in offshore locations is likely to create more opportunities for the application of marine spatial planning. Some conflicts will be priority conflicts that may need rapid resolution, such as ongoing vessel strikes of endangered North Atlantic right whales.¹³

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¹WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY, FINAL RECOMMENDATIONS OF THE INTERAGENCY OCEAN POLICY TASK FORCE (2010) [hereinafter 2010 TASK FORCE RECOMMENDATIONS].

²Potential uses identified by the report that might be in conflict within an ocean or coastal space include aquaculture, commerce and transportation, commercial fishing, environmental and conservation purposes, maritime heritage, mining, oil and gas exploration, ports and harbors, recreational fishing, renewable energy, recreation besides fishing (e.g., beach access, surfing), scientific research and exploration, security and military readiness, emergency response, subsistence uses, tourism, cultural uses, and working waterfronts. 2010 TASK FORCE RECOMMENDATIONS, at 42.

³2010 TASK FORCE RECOMMENDATIONS, at 48-49.

⁴2010 TASK FORCE RECOMMENDATIONS, at 51, 54.

⁵2010 TASK FORCE RECOMMENDATIONS, at 59.

⁶2010 TASK FORCE RECOMMENDATIONS, at 62.

⁷2010 TASK FORCE RECOMMENDATIONS, at 69.

⁸Exec. Order No. 13840, 83 Fed. Reg. 29431 (June 22, 2018).

⁹301 CODE MASS. REGS. 28.00; Commonwealth of Massachusetts, *2021 Massachusetts Ocean Management Plan*, <https://www.mass.gov/info-details/2021-massachusetts-ocean-management-plan> (last visited Apr. 29, 2024).

¹⁰R.I. Admin. Code §§ 650-RICR-20-05-2.1 to 650-RICR-20-05-11.11. See JENNIFER McCANN, UNIVERSITY OF RHODE ISLAND COASTAL RESOURCES CENTER/RHODE ISLAND SEA GRANT COLLEGE PROGRAM, RHODE ISLAND OCEAN SPECIAL AREA MANAGEMENT PLAN (2010), https://seagrant.gso.uri.edu/oceansamp/pdf/samp_cr_mc_revised/RI_Ocean_SAMP.pdf.

¹¹Oregon Coastal Management Program, *Territorial Sea Plan*, <https://www.oregon.gov/lcd/OCMP/Pages/Territorial-Sea-Plan.aspx> (last visited Apr. 29, 2024).

¹²WASH. REV. CODE § 43.472; WASHINGTON DEPARTMENT OF ECOLOGY, WASHINGTON DEPARTMENT OF FISH AND WILDLIFE & WASHINGTON DEPARTMENT OF NATURAL RESOURCES, MARINE SPATIAL PLAN FOR WASHINGTON'S PACIFIC COAST (rev. 2018), <https://apps.ecology.wa.gov/publications/documents/1706027.pdf>.

¹³Speed restrictions of 10 knots or less exist in seasonal management areas. As of 2024, additional

§ 31:43 Plastics

While many U.S. cities and some states have rules reducing the amount of single-use plastic production and distribution, there is no federal policy on plastic management. The United States is currently participating in the Intergovernmental Negotiating Committee on Plastic Pollution. Treaty negotiations have commenced. In addition to existing anti-dumping rules under the Marine Protection, Research, and Sanctuaries Act¹ and the Act to Prevent Pollution From Ships² designed to reduce marine pollution, the United States passed in 2006 the Marine Debris Research, Prevention, and Reduction Act.³ The Act focuses on identifying sources of marine debris and means to prevent adverse impacts from debris on the marine environment and navigational safety. To achieve this, Congress created a Marine Debris Prevention and Removal Program located within NOAA to map marine debris, assess impacts, prevent debris sources, and remove marine debris.⁴ One of the focus areas of the Act is lost and discarded fishing gear, which can create harms for navigation and ecosystems.⁵ Under the Act, Congress charged the Coast Guard with taking additional enforcement actions to reduce violations of and improve compliance with MARPOL Annex V to prevent harmful discharges of plastic and other vessel garbage.⁶ To manage the Act, Congress created an Interagency Marine Debris Coordinating Committee, with participation from federal agencies as well as states, tribes, NGOs, industries, and universities.⁷

§ 31:44 Acidification

A major threat for global oceans is acidification. With oceans absorbing 560 billion tons of carbon dioxide, the acidity of surface waters has increased by 30%.¹ This has major implications due to the impact on carbonate ions for the health of calcifying animals, including corals and shellfish. Ocean acidification can exacerbate existing ocean warming, oxygen deficient zones, and harmful algal blooms. Areas with particular susceptibility include the northeastern Pacific Ocean; the Arctic seas, especially the Bering Sea and western Arctic Ocean; and the U.S. west coast.

The United States has laws mandating coastal and ocean acidification research, including the NOAA Ocean Acidification Program,² but does not yet have any specific plan to combat acidification at the federal level beyond existing efforts to reduce greenhouse gas emissions.

The U.S. executive, through the interagency Ocean Policy Committee, has adopted an Ocean Climate Action Plan (OCAP) with an emphasis on creating a carbon neutral future that may include offshore wind and marine energy, green maritime shipping, sequestration of carbon dioxide in sub-seabed geological formations, and

restrictions have been proposed.

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¹See *supra* Sections 21-23 of this chapter.

²See *supra* Sections 36-38 of this chapter.

³33 U.S.C. §§ 1951-1958.

⁴33 U.S.C. § 1952(b)(1).

⁵33 U.S.C. § 1952(b)(2).

⁶33 U.S.C. § 1953.

⁷33 U.S.C. § 1954.

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¹U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 48 (2014), <https://nca2014.globalchange.gov/report>.

²Federal Ocean Acidification Research and Monitoring Act, 33 U.S.C. §§ 3701-3708.

marine carbon dioxide removal (CDR).³ The OCAP recommended that a U.S. Ocean Acidification Action Plan be implemented. This plan was published in December 2023, and calls upon agencies to mitigate ocean acidification by reducing emissions and excess nutrients, increase monitoring and research, prioritize resilience and adaptation strategies, and increase collaboration.⁴ The plan encourages further land-based nutrient reduction, including from wastewater treatment plants. The plan also calls for more research on the development potential of “blue carbon” habitats as a nature-based solution to absorb excess carbon dioxide emissions and on marine CDR approaches, including direct capture, ocean alkalinity enhancement, and algae-based capture. Several states and at least one tribe have ocean acidification plans.⁵

§ 31:45 Deep Seabed Mining

With the recent emphasis on developing technologies to help the economy transition to a low-carbon economy that may depend on metals, there has been an increased interest in deep seabed mining. The regime that covers deep seabed mining in areas beyond national jurisdiction (the Area) is UNCLOS, which requires exploration permits to be sponsored by a State and submitted to the International Seabed Authority.¹ Under the Deep Seabed Hard Mineral Resources Act of 1980, NOAA has the power to issue licenses for exploration and permits for exploitation in the Area to U.S. citizens and corporations for four types of nodules: manganese, nickel, cobalt, and copper.² NOAA is required to conduct an EIS prior to providing any license or permit for sea mining activities under the Act.³ The text of the Act does not require the payment of royalties.

The United States also permits seabed mining in U.S. waters, which also include the territorial sea after a 2022 amendment to OCSLA.⁴ The Bureau of Ocean Energy Management has the authority to issue leases for marine minerals and leases for sand and gravel. OCSLA regulations describe payments of royalties on mineral production.⁵ Some states have passed rules prohibiting mining in certain waters.⁶

§ 31:46 Aquaculture

Aquaculture accounts for about half of the seafood produced today, and is considered to be a major part of food security strategies for high quality protein. The National Aquaculture Act of 1980 was adopted to improve aquaculture opportunities in the United States.¹ Aquaculture is defined as “the propagation and rearing of aquatic species in controlled or selected environments, including, but not

³See OCEAN CLIMATE ACTION PLAN.

⁴NOAA & DEPARTMENT OF STATE, THE UNITED STATES OCEAN ACIDIFICATION ACTION PLAN (2023), <https://www.state.gov/wp-content/uploads/2023/12/Ocean-Acidification-Action-Plan.pdf>.

⁵Washington, Oregon, California, Hawaii, Maine, and Maryland have plans that are linked to the Ocean Acidification Action Plan. The Gullah Geechee Nation’s plan is also linked to the plan.

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¹UNCLOS arts. 133-191.

²30 U.S.C. § 1403 (two exploration permits have been issued to Lockheed Martin); 15 C.F.R. pts. 970-971.

³30 U.S.C. § 1419(d).

⁴43 U.S.C. § 1331(a); 30 C.F.R. pts. 580-582.

⁵30 C.F.R. § 581.28.

⁶See, e.g., California, Oregon, and Washington.

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¹16 U.S.C. §§ 2801 et seq.

limited to, ocean ranching (except private ocean ranching of Pacific salmon for profit in those States where such ranching is prohibited by law).² Aquaculture species include finfish, shellfish, and plants.³ Under this Act, the United States agreed to begin developing national aquaculture development plans to make recommendations on locations for development, water quality management, aquaculture feed, and processing.⁴ The Act created a subcommittee to coordinate national activities around aquaculture.⁵ As of 2024, the federal government plays a limited role in aquaculture, with most aquaculture activities taking place in waters under state jurisdiction and subject to state laws. If aquaculture was to be scaled up, particularly in federal waters, several federal agencies would have jurisdiction over offshore aquaculture, including EPA (implementing the CWA)⁶ and the Corps of Engineers (implementing OCSLA).⁷ NMFS may give advice on aquaculture, but it does not have the authority to regulate aquaculture under the MSA.⁸

XI. CONCLUSION

§ 31:47 Generally

Ocean governance in the United States is complex. There are many interests that at times conflict. In particular, there are concerns about ongoing economic development versus conservation needs. Dozens of agencies, both federal and state, currently try to coordinate across a complex seascape of ports, marine sanctuaries, fishing areas, and energy production sites. The existing U.S. laws and regulations address various components of ocean governance with varying degrees of success. Some areas, such as illegal, unreported, and unregulated fishing, prove particularly challenging as the United States grapples with trying to regulate activities that originated far from U.S. shores. The recent effort to try a “whole of government” approach to ocean management may offer some needed mechanisms for coordination across users, with sometimes very different priorities for ocean access and sustainable use.

²16 U.S.C. § 2802(1).

³16 U.S.C. § 2802(3).

⁴16 U.S.C. § 2803.

⁵16 U.S.C. § 2805.

⁶33 U.S.C. § 1342 (National Pollutant Discharge Elimination System permits for point sources; aquaculture facilities are point sources if they operate as Concentrated Aquatic Animal Production sites).

⁷43 U.S.C. § 1333(a)(1).

⁸*Gulf Fishermens Association v. National Marine Fisheries Service*, 968 F.3d 454 (5th Cir. 2020), as revised, (Aug. 4, 2020).

