DIALOGUE

Key Issues in Setting Water Quality Standards

- Summary -

When setting water quality standards (WQS) for surface water, every state in the nation is faced with the question of "how clean is clean enough?" The standard set by the state is important to citizens, who rely upon a high level of water quality, as well as municipal and industrial wastewater dischargers who must comply with permit limits that take WQS into account. An issue receiving increasing attention is the health risk to persons who eat relatively large amounts of fish and shellfish that may be contaminated with toxic substances. Three states in the Pacific Northwest—Idaho, Oregon, and Washington—are leading the way in considering whether to base their WQS on higher rates of fish consumption, resulting in more stringent standards. On September 16, 2014, the Environmental Law Institute convened an expert panel to answer questions such as: What are the key issues in setting WQS? How does a state calculate the amount of fish its citizens eat? What are the relative roles of EPA, states, the public, and industry in ensuring that state WQS are protective of all populations? What will happen to industry discharge permits as a result of new WQS? Below, we present a transcript of the event, which has been edited for style, clarity, and space considerations.

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Allyn Stern is Regional Counsel for Region 10 at the U.S. Environmental Protection Agency.

Dianne Barton is Water Quality Coordinator at the Columbia River Intertribal Fish Commission and Chair of the National Tribal Toxics Council.

Jennifer Wigal is Water Quality Program Manager at the Oregon Department of Environmental Quality.

Michael Campbell is Partner at Stoel Rives, LLP.

Fred Andes: Welcome, everyone. The water quality standards are giving rise to a number of important issues lately that regulated parties, environmental groups, federal agencies, and other stakeholders are all getting involved with, including matters such as how water quality standards are issued and implemented, and what the actual water quality standards are. There are a number of rules and criteria pending at the U.S. Environmental Protection Agency (EPA), and states are working on their own standards on a number of issues.¹

Key concerns that have received a lot of attention are pending issues regarding water quality standards for human health, particularly based on fish consumption. The Pacific Northwest is the center of activity on those issues. A number of the states, as well as EPA Region 10, have been working on new water quality standards, which raise a number of concerns including what the appropriate fish consumption rates are for use in setting standards, along with other assumptions that relate to the overall protectiveness of the standards and how they'll be implemented.

That's the subject for our Dialogue today. We're looking at the water quality standards currently pending for human health in the Pacific Northwest, and our speakers will be focusing on those issues. We have a great panel. Our first presentation fittingly is from EPA. Allyn Stern is Regional Counsel for EPA Region 10, which includes the Pacific Northwest states. She also teaches environmental law at Seattle University.

Allyn Stern: Thank you, ELI, for hosting this very distinguished panel of experts. I am pleased to be here. As Fred said, there seems to be a core of activity in the Pacific Northwest. That is going to be my focus because EPA Region 10 covers the states of Oregon, Idaho, Washington, and Alaska. We're going to focus on the three Pacific Northwest states.

Participants in this Dialogue are probably at different starting points, so I'll begin with some baseline information about water quality standards and the fish consumption rate. Then I'll talk about what's going on in the various Region 10 states. For those of you who are less well-versed in the subject matter, water quality standards basically have three parts. They are designed to protect a water body, so the standards define the goals for protection of the water body. The first part is the designated uses. For example, you'll see in the Clean Water Act (CWA)² a lot of references to fishable, swimmable. There's also recreation and

^{1.} For more information on water quality standards for surface waters, visit EPA's website at http://water.epa.gov/scitech/swguidance/standards/.

^{2. 33} U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

propagation of fish and shellfish. Those are some examples of common designated uses.

The second element to water quality standards are the water quality criteria; the criteria that protect the designated use. I will talk about human health criteria or aquatic life criteria. The antidegradation policies are the third part. We're not going to discuss that today. That would be a subject for another day.

I'm sure most people know that the CWA provides roles for the states and for EPA. States typically are the ones that develop the water quality standards. Tribes and territories can also do that. EPA's role is to approve or disapprove those water quality standards based on their compliance with the CWA. There are times when EPA will federally promulgate a rule or a standard. For example, if a state submits a standard that is disapproved by EPA, then the state has an opportunity to remedy that disapproval. If it doesn't, then EPA is required to promptly promulgate [a water quality standard for the state]. There is another instance that we refer to as the administrator determination. The CWA allows EPA also to promulgate water quality standards if the Administrator determines that a revised or new standard is necessary.

As Fred mentioned, there are several parameters that go into developing a water quality standard. Of the designated uses that I mentioned earlier, the one that's relevant to what we're discussing today is fishing, and we are talking about the human health criteria. In developing human health criteria that will protect the fishing use, many parameters go into that standard. For example, a cancer risk is considered. There's [human] body weight. There's drinking water intake, bioaccumulation, and several others. Fish consumption rate is one of the factors that is used to calculate the human health criteria. The fish consumption rate is exactly what it sounds like: It's the amount of fish that a person consumes. The reason why it is so important is that fish accumulate toxins such as PCB [polychlorinated biphenyls], DDT [dichlorodiphenyltrichloroethane], mercury, and lead—and probably other toxins too, but we see the ones I mentioned most commonly. Then, when people eat fish, they take in some of those toxics.

One concern is how to protect the consumers of higher amounts of fish. For example, typically Native Americans and Pacific Islanders are large consumers of fish in the Pacific Northwest. But there can be others. Here in the Northwest, salmon is a big industry and there is a lot of fish consumption, so we have said to the states that it's really important that water quality standard criteria be data-driven. A state may need to conduct a survey to determine how much fish the people in the state are consuming, because that will vary from state to state and area to area.

Another issue, which I'm sure Michael Campbell will discuss in greater detail, is industry's concern—well, all permittees' concern—with compliance with water quality criteria. If there is a higher fish consumption rate, then the standards that ultimately get included in permits will be more stringent. I know that permittees are very concerned about their compliance with permit limits.

Let's focus first on Oregon. Oregon is the only one of the three Pacific Northwest states that currently has EPAapproved standards. Oregon adopted a standards package in 2011. The 2011 criterion was based on a fish consumption rate of 17.5 grams per day. But there was information pulled together in the record that showed the rate should be higher, that a lot more fish was being consumed than is accounted for in the standard of 17.5 grams per day. So Oregon decided to revise its criteria based on the new data. It withdrew its standards and resubmitted them to include a 175 grams-per-day fish consumption rate. EPA approved that in 2011.³

Idaho also submitted a standards package to EPA, which was disapproved in 2012. Currently, the state is working to get additional information and is conducting a statewide fish consumption survey, again, focusing on the data-driven process of getting information specific to the state of Idaho that will help it determine an appropriate standard. Because the state standard is focused on the general population and less on tribes, EPA has been working with the Idaho tribes. We provided some grant funding for them to conduct a tribal fish consumption survey,⁴ focusing specifically on tribal intake. That information will also be used by the state to inform its new criteria.

Similarly, Washington State is in the process of developing its water quality standard and the supporting criteria. Washington is a bit unusual. The state is working with a very old national toxic rule that was federally promulgated in 1992 and uses a very low fish consumption rate of 6.5 grams per day. There are very few states, maybe three or four, that continue to use this very low fish consumption rate. Gov. Jay Inslee recently announced a proposal to increase the fish consumption rate.⁵ The governor announced that the state is taking public input. They have not submitted any kind of package to EPA. [According to the governor's announcement] the state plans to adopt the final rule in 2015.

Before I get to the national standard, I should mention that EPA is interested in seeing some consistency among the Northwest states because there are overlapping waters and certain overlapping populations that would be affected. So, EPA has notified Washington State that we plan to propose a federally promulgated standard by the end of May 2015 if the state hasn't adopted a final rule. Currently, the state is on track to meet that deadline. Washington's proposal used the 175 grams-per-day fish consumption rate, but it

U.S. EPA, EPA's Approval of New and Revised Human Health Water Quality Criteria for Toxics and Implementation Provisions in Oregon's Water Quality Standards Submitted on July 12 and 21, 2011 (Oct. 17, 2011), *at* http:// www.epa.gov/region10/pdf/water/or-tsd-hhwqs-transmittal-ltr-2011.pdf.

See U.S. EPA, Fish Contaminant Survey, at http://www2.epa.gov/columbiariver/fish-contaminant-survey (last visited Feb. 3, 2015).

Lynda V. Mapes, Inslee Proposes New Water-Quality Standards, SEATTLE TIMES (July 10, 2014), at http://seattletimes.com/html/localnews/2024026950_ fishstandardsxml.html. See also Press Release, Washington Department of Ecology, Fish Consumption Rule Proposed for Washington State (Jan. 12, 2015), at http://www.ecy.wa.gov/news/2015/003.html.

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modified its cancer risk level to a proposed 10⁻⁵ instead of the current risk level of 10⁻⁶. When you modify the various parameters, it can change the standard, so we have recommended that the state use available local and regional data on fish consumption, and that it retain its current state-wide cancer risk level of 10⁻⁶.

On the federal level, EPA is also taking steps to revise and update the national water quality criteria and human health criteria. National criteria provide guidance to the states, give the states some idea of a baseline to shoot for. EPA put out a draft for public comment. The proposed rule was published in the *Federal Register* in May 2014 and the comment period ended in August 2014.⁶ The draft proposes several more stringent parameters. EPA did not evaluate the default fish consumption rate for subsistence fishing, but instead evaluated the fish consumption rate for the general population. The reason subsistence fishing was omitted is that it tends to involve very localized data. So, again, it's important for the state to gather local and regional data to develop the standard.

The Washington State standards and the state's approach have resulted in some legal action. There is a lawsuit in the U.S. District Court for the Eastern District of Washington. The Puget Soundkeeper Alliance and several other environmental groups have filed a complaint against EPA alleging that EPA has a mandatory duty to promulgate the human health criteria.⁷ One of the issues with Washington is that its standards are very old. There's supposed to be a triennial review and update, so Washington is long overdue to update their standard. The Northwest Environmental Advocates has petitioned EPA requesting the same kind of thing: federal promulgation.⁸ We think that the state will probably take action, but I mention these as pending requests for us to act.

The fish consumption rate raises several issues. Environmentalists want to ensure that we're protecting the high consumers of fish, but many others say, wait a minute, why are you protecting high consumers? Why should the general population have a rate that protects the highest consumers? So, I'd like to highlight a couple of policies that inform our thinking when we review the water quality standards. EPA does have an environmental justice policy. There's an Executive Order⁹ that's been in place since the Clinton Administration and an environmental justice policy¹⁰ that requires us to consider whether or not there are going to be disproportionate impacts on the more sensitive communities. As I'm sure that Dr. Dianne Barton will discuss in detail, fish and fishing and subsistence fishing have a lot of cultural significance to tribes, as well as to certain low-income and minority communities.

The other issue that's raised frequently with tribes here in the Northwest and sometimes elsewhere throughout the country are treaty rights. Certain tribes have treaties that specifically reserve their rights to harvest and eat fish and shellfish. Not all tribes have treaties, and not all treaties say the same thing. But tribes here in the Northwest have these specific reservations of rights that are legally supported. They are federal treaties that we do consider and take very seriously in evaluating state-proposed standards.

Our approach is evolving because, as I mentioned, Oregon is the only state that has approved standards. We're still waiting for Idaho and Washington to submit packages to us for approval. But there are a few things that we have been thinking about to inform our approach. First is that the fish consumption rate should be data-driven. It shouldn't be based on outdated information, but instead on the best scientific currently available information. Also we think it's very important that standards be protective for all consumers, including the high consumers, because the whole population needs to be protected.

Additionally, we do recognize that permittees and industry have genuine concerns. We have said that industry can be provided time to comply through implementation tools that are often used in the CWA, such as compliance schedules and variances. We're definitely not interested in shutting down businesses. EPA really wants to see scientifically sound regional and local fish consumption data used to develop the water quality standards. It would be beneficial to have some consistency among the states in the region given the overlap issues that I mentioned.

Fred Andes: We've talked a bit about tribal issues and the impact that they have. We're seeing that not only in the Pacific Northwest, but in other areas of the country as well. So, it's great that we have Dr. Dianne Barton, who is the water quality coordinator at the Columbia River Intertribal Fish Commission, and also the chair of the National Tribal Toxics Council, an EPA tribal partnership group that advocates for tribal interest in toxics policy decisions.

Dianne Barton: Thank you for the opportunity to share some tribal perspectives. I appreciate it. My presentation includes some pictures. Hopefully, you'll be able to enjoy a few photographs of the Pacific Northwest.

The Columbia River Intertribal Fish Commission (CRITFC) is an organization that was started by four tribes in 1977. The expressed purpose is to protect reserved treaty rights through the sovereign powers of the tribe. The tribes that we represent all retained fishing rights to the Columbia River. This includes Warm Springs Tribe of Oregon, Confederated Bands of Yakama Nation in Wash-

U.S. EPA, Notice, Updated National Recommended Water Quality Criteria for the Protection of Human Health, 79 Fed. Reg. 27303 (May 13, 2014).

Puget Soundkeeper Alliance v. U.S. Envtl. Prot. Agency, No. C13-1839-JCC (W.D. Wash. Sept. 18, 2014) (dismissed without prejudice for lack of subject matter jurisdiction).

Petition for CWA \$303(c) Determinations and Rulemaking on Washington Water Quality Criteria (Oct. 28, 2013), *available at* http://northwestenvironmentaladvocates.org/blog/wp-content/uploads/2013/10/Petition-to-Update-Washington-WQS-FINAL.pdf.

Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order No. 12898, 3 C.F.R. 859 (2014).

U.S. EPA, Policy on Environmental Justice for Working With Federally Recognized Tribes and Indigenous Peoples (July 24, 2014), available at

http://www.epa.gov/environmentaljustice/resources/policy/indigenous/ejindigenous-policy.pdf.

ington State, Nez Perce Tribe in Idaho, and the Confederated Tribes Umatilla based in Pendleton, Oregon. So, those are the tribes that I work for. These four tribes' ceded lands combined are in the Columbia River Basin, shown here in dark tan [see Figure 1]. The ceded lands make up more than 25% of the entire Columbia River Basin; 55% of the rivers are still accessible to salmon in these reaches. The total land cessions were 34.5 million acres. As Allyn mentioned, the four tribes reserve their rights to usual and customary areas and also have the perspective that the fish harvested from these areas should be clean and suitable for consumption by tribal members.





The treaty rights have been challenged throughout the years and have been before the U.S. Supreme Court seven times.11 The Supreme Court rulings are in favor of the treaties and so they remain the supreme law of the land and govern much of the access that the tribes have to natural resources. I also want to mention that the tribes are not environmentalists or the environmental groups that Allyn mentioned that are suing EPA. Tribes are sovereign nations that have their own tribal enterprises, their own businesses. They manage wastewater treatment plants that have to meet the water quality standards that we're talking about here. Tribes are unique in that they have these treaty reserved rights, as well as not really being environmentalists, not having that perspective. Tribes are governments that face many of the same challenges that the states do in our region.

The Columbia River Basin is a culture of abundant salmon. For thousands of years, tribal people have been eating fish in the Pacific Northwest, and have subsistence, and also religious, connections to fish and fishing. Tribal members eat fish at a much higher rate than the average American. As Allyn mentioned, this is the basis of fish consumption rates that go into setting water quality standards. Allyn mentioned the tribal fish consumption survey. The results showed that tribal members had a 6-11 times higher fish consumption rate than the national average at the time. The survey, funded by EPA and conducted on the four member tribes that I represent, is the basis for the Oregon rate of 175 grams per day. That consumption rate protects 95% of the respondents. The highest consumption there, and the consumption rate used at Umatilla Indian Reservation, is really more like 390 grams per day, but a standard of 175 represents protection of 95% of the respondents in the survey.

Another issue for us is trying to protect water quality. EPA and CRITFC conducted an examination of the fish collected from tribal fishing sites from 1996 to 1998. The red dots on this map [see Figure 2] represent tribal fishing sites where the four tribes of the Columbia River found 92 pollutants in the harvested fish that we're consuming. The chemicals detected include PCBs, dioxins, DDT, and DDE [dichlorodiphenyldichloroethylene], which are controlled by the CWA. Those surveys were conducted in the late 1990s.

Figure 2





298 fish tissue samples from 26 sample locations on Mainstem Columbia River and 14 tributaries, including resident and anadromous species

Almost one year ago, the states of Washington and Oregon issued health advisories for the Columbia River for the fishing zone where the four tribes I represent fish. The advisories warned against consumption in one particular area near Bradford Island. This had an impact not only on our tribal fishers, but also on the general public that our tribal fishers sell fish to. There were impacts in terms of the perception that fish harvested by the tribes were no longer safe to eat.

What the tribes care about is water—*Choosh* is what it's called in Sahaptin, the common language of these four tribes. It's perceived by the tribes to be a shared resource not only with tribal members, but with all people who live in this area. But tribes consider it their responsibility as comanagers of this resource to ensure that the water is clean

For a review of current and past cases before the Supreme Court, see Native American Rights Fund, *Tribal Supreme Court Project*, at http://sct.narf.org/ documents.html.

enough for consumption by tribal members and all people who live near these waters. Any shared resources challenged by the perception of the tragedy of the commons, where it's perceived to be releasing pollutants into the resource that our people or the tribal people use as a source of their food, is at the heart of tribal responsibility here.

As Allyn shared with you, water quality is used in the calculation to determine water quality standards and fish quality as we see it. Here is a picture showing what the different fish consumption standards look like on a typical dinner plate. This slide [see Figure 3] shows 6.5 grams of fish, the consumption rate used in setting water quality standards today in Washington State. In Idaho, it's currently 17.5 grams, and now the Oregon standard is 175 grams. When the tribes were advocating for 175 grams in Oregon, people were astounded. The state legislature said nobody eats that much fish. It works out to 144 pounds of fish per year. But your average American probably is obtaining their protein primarily from beef and other meat products, eating an average of 341 grams per day of meat, according to a United Nations survey. A fish consumption rate of 175 grams might seem like a lot of fish, but to populations here, it is not a lot. In fact, it's actually suppressed from traditional rates of more like 800 grams per day.

Figure 3

Water Quality Determines Fish Quality

- States set allowable pollution levels
- · Based on fish consumption and risk level



The other issue I wanted to touch on besides the fish consumption rate is the cancer risk level. Allyn mentioned this. The tribes advocate for maintaining the current cancer risk level of 1:1,000,000, and in May 2014, the Affiliated Tribes in Northwest Indians (ATNI) adopted a resolution to that effect. ATNI represents tribes in Washington, Oregon, and Idaho. It meets annually and supports resolutions that are presented to EPA and others. The tribes would like to see the cancer risk level not be adjusted downward in any way. The risk level means one additional new case of cancer in a fixed population, so 1:1,000,000. This number gets challenged too. I've been in some presentations where people say, well, the chance of getting cancer for a man

in today's population is one in two. The chance of getting cancer in women I think is one in three or something like that, so what's an extra case in one million.

I found some statistics showing that from the 1920s until today, cancer rates have been rising. Some of these cancers are where we see toxins accumulate in our fish and cause thyroid and endocrine disruption. So the cancer risk level, and the need to keep it protective, is an important point to the tribe. More recent studies are showing that cancer risk rates are increasing in children, and children are not smokers. As well, the president's panel believes that this is a review by scientists—that environmentally caused cancers are grossly underestimated. So, we strongly support the use of the most-protective cancer risk levels in water quality standards.

Our approach going forward for the tribes is to encourage states throughout our watershed to adopt water quality standards. In Washington and Idaho, we're involved in the fish consumption survey. The Nez Perce Tribe is one of the tribes being surveyed there for setting standards in Idaho. We're also advocating for other programs. We realize that discharge permits are not the only source of these toxics in our waters. A great deal of it comes from nonpoint sources. So we're advocating programs that will address nonpoint source contributions to the load as well, and supporting voluntary programs like Salmon-Safe,12 an agricultural management plan that promotes the use of low-impact pesticides. We support state pesticide stewardship, green purchasing, and green chemistry to replace the use of bioaccumulative toxins and flame retardants that aren't even regulated by CWA rules.

One other point I wanted to make is that the tribes believe, and we can see, that regulations drive innovation. Doug Krapas from Inland Empire Paper Company writes strongly against tribal positions and the fish consumption rate that's going out in Washington. But on the other hand, he is a keen engineer. He's undertaken several efforts to remove PCBs from the discharge stream of his water treatment plant, though he's faced with weak EPA regulations on the import of PCBs into the country. So I mention this to point out that water quality standards drive this innovation.

Finally, something that many people unfamiliar with tribes believe is that tribal lifestyles are a thing of the past. That's simply not true. This picture is of some tribal youth collecting lamprey. These fish are very fatty. They accumulate toxins. They are no longer allowed to be fished by the general public, but tribal members every single year go out to Willamette Falls, where this picture was taken, and collect lamprey. They're consumed by, particularly, the elders. They're not a very tasty fish, but are considered by tribal members to be medicinal.

I want to end my presentation on the tribal perspective by noting that clean water is at the center of all the food traditionally consumed by tribal members in our region. We'll continue to work hard to protect it.

^{12.} For more information, visit http://salmonsafe.org/.

Fred Andes: Our next speaker is Jennifer Wigal, who is a water quality program manager at the Oregon Department of Environmental Quality (DEQ). She is responsible for oversight and direction of the DEQ's water quality programs. Prior to returning to the Pacific Northwest in 2008, she held various positions at EPA headquarters during her 10 years there.

Jennifer Wigal: As Allyn and Dianne mentioned, Oregon has gone through this process. I'll talk a bit about what we went through, why we did what we did, and how it's working out. Let me just highlight the time line to give you a quick overview of our evolution.

Where we started from was that we went on our merry way about 10 years ago and thought we were doing good stuff, more or less, in terms of updating our toxics criteria and using EPA's recommended fish consumption rate value and updating those criteria. We had some indications that that wasn't going to be satisfactory to a lot of folks at the time, but we went through that process. Soon thereafter, the Umatilla Tribe in particular raised concerns to EPA, particularly environmental justice concerns related to the criteria that we had adopted. There was also a Notice of Intent to sue filed within the same time frame from Northwest Environmental Advocates regarding our actions there as well.

We began to recognize that we needed to revisit the standards. What we had done wasn't really going to stand the test. Also, we recognized the interest of the tribe, some of the difficult issues that the standard was going to raise, and EPA's important role in moving along the path. We developed what we call the "three governments" approach. In 2006, the state along with EPA and the Umatilla Tribe agreed to a two-year collaborative process where we met regularly, had many discussions, shared information, shared perspectives. I'll talk more about what we did during that two-year period in a moment; right now I'm just highlighting the overall time line. In 2008, after that two-year process, that's when we decided on the 175 grams-per-day standard, then subsequently developed rules around that and EPA approved in the same year, in 2011.

In terms of the collaborative process we embarked upon, there were a few different components. The first thing we did, which I think established a very good foundation for the later work, was to conduct a series of public workshops. We had seven or eight workshops around the state. First and foremost, it was a public dialogue, an opportunity for people to talk to each other. Additionally, from the state perspective, there were some other things we wanted to bring into that process. That included a discussion of what water quality standards are, how they are used, information about risk, what goes into the whole risk assessment process, where that fits into water quality standards, and the opportunity for the public to raise issues they view as being critical. We also discussed potential implementation challenges. We covered the whole gamut in those workshops. We tried to raise the starting level in terms of understanding our water programs, but also to have an airing of concerns, issues, and understanding of risk.

Overlapping that process, we also enlisted a group of public health experts. Within our state agency, we do not employ risk assessors or public health experts. One of the tools we use when we have that kind of need is to pull together an advisory technical expert committee. That's what we did in this case. We brought together folks from academia and the consulting world, a panel of about six people who had expertise in looking at this kind of data and information.

We wanted to be as data-driven as possible. Ideally, we would have liked to conduct a study that answered some specific questions we had about fish consumption rates in Oregon. But those studies are extraordinarily expensive. They were not something the state could finance, and funds were not available from EPA or other sources. As a result, our approach was to bring in experts and look at alreadyexisting studies and try to determine which of those existing studies were most relevant to questions to give us some insight into fish consumption rates in Oregon.

The expert panel helped us work through the scientific information to understand what data was relevant to answering key questions and forming our recommendations about what the right fish consumption rate would be for use in our standards. As part of that, being in the Pacific Northwest where a large part of what's consumed is salmon, understanding how that fits into the picture was part of what we needed to consider in setting the fish consumption rate.

We then turned to the public in some of these workshops and discussed the issues and information we were receiving from the expert committee about some of these issues. Things that we asked ourselves and the tribes and EPA were, first and foremost, how much do Oregonians consume?—making sure that we include in that number the subpopulations. Next, how do we consider data from fish consumers versus nonconsumers? The national data from EPA at that time were merely averaged. It was a twoday study and it was a survey of people where, if they hadn't consumed fish in the last two days, that nonconsumption was averaged in with those that had consumed fish.

Should we take data only from the people who consume fish, or should we look at the whole spectrum of the population when we base our statistics on what percentiles to use? Again, depending on what the starting population is, is it 95%, 90%, 75%? Should we consider suppression of consumption? How to consider consumption of salmon and marine species was a key question, as I mentioned. In the criteria development process, there is a variable that is used called relative source contribution. If you don't consider certain exposures, in this case marine species, we could assume a certain amount of the total exposure to that pollutant is occurring elsewhere. It's possible, when considering the amount consumed of different species, that Oregon could have used the relative source contribution component to account for certain types of consumption as

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opposed to using one fish consumption rate that includes all of the consumption.

As a starting point, we decided that 17.5 grams per day absolutely does not reflect Oregonians' fish consumption. We determined that the fish consumption rate, when we're ready to calculate, should be based on fish consumers, and not a per capita average. We concluded that the 90-95th percentile is the range that we should be targeting. Some of the discussions acknowledged that there may be a suppression of consumption, but that's really hard to bring into the discussion because it's not quantifiable, so the most we were able to do is acknowledge that it's probably happening. We ended up deciding that salmon should be included. One, we didn't have a good way to exclude it. But also, especially in the Pacific Northwest, it is a primary fish consumed by people and it is a primary route of exposure to potential contaminants. For those familiar with toxicology and how pollutants are taken up by various species, salmon may accumulate at a different and lesser rate than other fish. However, we do know that a lot of it is eaten.

One thing we couldn't glean from the studies: There's not much in the way of definitive information about how much, for marine species and salmon species, of their body burden they pick up in freshwaters versus marine waters. For salmon, there are different species that spend different amounts of time in freshwaters before they go out to the ocean waters. Some salmon spend as much as one year in freshwaters before they go out to the ocean. Some take the "express lane" and head right out—there are many variables. The ability to use a relative source contribution approach is not sufficiently developed to be able to account for this. At the end of the day, we didn't explicitly attempt to exclude salmon from our approach to calculating a rate.

We arrived at using 175 grams per day for calculating Oregon's standard. As Dianne noted, tribes in many cases eat more than that. In many cases, your average Oregonian eats less than that. However, we felt this is the right value to choose. It represents around 90-95%. As Dianne noted, it's about 96% of the CRITFC study in particular. It does include the consumption of salmon. We did choose to use a 1:1,000,000 risk rate. We made that decision based on Oregon's environmental programs as a whole using a 1:1,000,000 risk rate. We chose to continue to use that risk rate to be consistent in how DEQ approaches environmental risk and manages environmental risk.

Our process was to first identify the fish consumption rate. We did not revisit other variables for the rest of the criteria pollutants. We didn't revisit people's body weights. We didn't look at drinking water intake. We didn't look at any of the other variables that could have been inputs into the criteria. Ultimately, we revised 113 criteria based on the 175 grams-per-day standard, recognizing that the criteria themselves are the starting point for our regulatory program.

In Oregon, we have a commission that is our rulemaking body. Part of the direction they gave us as an agency was to also ensure that we considered how we were going to implement the criteria in our program. One area we spent a considerable amount of time thinking about was how we were going to implement the criteria in national pollutant discharge elimination system (NPDES) permits. We ended up with three new and revised provisions including variances, intake credits, and a provision that addressed consideration of background concentration in surface waters at the time we developed permits.

Something you will hear from every state that is thinking about this or has done it as we have, and what Dianne mentioned as well, is that standards get used in a number of different ways. They establish the water quality goals for the water body. They do result in direct requirements for NPDES dischargers. In addition, we wanted to ensure that we kept front-and-center that merely looking at standards isn't going to address all of the fish consumption advisories or prevent all of the toxic pollution.

There are a number of limitations to water quality standards, so revising standards is only one strategy. We need to make sure as an agency, and as people who support others who are working on toxic reduction in the environment, that we not rely on standards as the thing that will address everyone's concerns about toxic pollution.

Another thing that we did during this process was to concurrently develop a toxics reduction strategy. That has resulted in a number of different endeavors where our agency is working and collaborating with others and with state and local governments to reduce toxic pollution in the environment. We have a governor's executive order to state agencies on green purchasing, green chemistry, and a number of different initiatives. We have an extraordinarily successful collaborative program with our Department of Agriculture, the Oregon State University extension service, grower groups, and local growers. It has dramatically reduced pesticide use and levels in surface waters in locations where we've implemented those programs in specific watersheds.

There are a number of different efforts going on that are important to highlight. Some may conclude that the revised water quality standards haven't significantly addressed toxic pollution. That's not how we see it. The water quality standards represent one tool in the toolkit. A number of other tools can have extraordinary and direct impact on toxic pollutants and their presence in the environment. We are focused on multiple approaches to address toxic pollutants, in addition to implementing water quality standards.

We frequently receive questions about where we are in our program. One of the questions we're getting a lot lately is: How is it going? As permits are renewed, as we do our biannual assessments of water quality, the integrated report, as we revisit total maximum daily loads (TMDLs), that's when we start seeing these things come into play. For many of these things, we haven't seen the full impact or effect of the revisions. We have issued a number of permits. We are working on wrapping up our water quality assessment where we will assess water quality monitoring data against these criteria. We haven't yet done TMDLs

targeted at these revised criteria. We expect we will develop TMDLs for these criteria in the future.

The bottom line is that only a few permits to date contain specific limits based on these criteria. One key issue affecting how the criteria are implemented in permits is the availability of monitoring data for these criteria to use in permit limit development. Secondly, in many cases, laboratory detection levels are not able to quantify at the criteria level. In terms of what the regulatory point of compliance is, it's going to be based on what can be measured in the laboratory. The practical effect of this is going to be tracking changes in laboratory detection levels over time. That's going to be a key variable determining what the impact will ultimately be on permittees.

We've issued a few general permits. Our industrial stormwater permit—if they're discharging to an impaired water, they get additional requirements. Again, over time, as these criteria affect listings of impaired waters, additional requirements [will be] placed on permittees.

To sum up, a lot of where the rubber hits the road is about data. One of the things that was defunded in Oregon during the economic downturn was some of our ability to collect toxics ambient data. Our dataset is not robust. We've got some data, but not tons of data, on toxic pollutants. That has a direct effect both on listings and its availability to develop effluent limits for permits.

Over time, we are expecting that we will see more and more instances where we're writing more-stringent limits, or have to use some of our implementation tools for permittees such as variances and the other available tools in our rules. That's something we continue to be prepared for. It's part of the reason that when we did our rulemaking, we tried not only to address the standards, but also to be prepared for what we knew we'd need to write permits that have achievable requirements.

Fred Andes: Michael Campbell is our next speaker. Michael is a partner at Stoel Rives, LLP, in Portland, Oregon. He has represented industrial point sources in the Oregon DEQ stakeholder workgroup on the issues we're talking about here. So, he has dealt a lot with the impacts of this on the regulatory community and will talk about that as well as impacts on water quality.

Michael Campbell: I want to emphasize a few of the things that Jennifer touched on, and that's the effects of standards. We've all focused here in the Northwest for the last few years on adopting standards, but we haven't focused much on what's going to happen after the standards are adopted. In particular, we've had a vacuum of information on both the effects on water quality and on dischargers. I think we've all assumed that water quality will improve, but that it will be a train wreck for dischargers. For Oregon, which three years ago adopted much more stringent standards, we haven't seen much of anything, either improvements in water quality or, for that matter, effects on dischargers. I want to focus my presentation on a discussion of that.

It gets back to the role that water quality standards play under the CWA. The Act does not require EPA or the states to achieve standards. It doesn't require EPA or the states to regulate all sources that are contributing to violations of those standards. What it does regulate are primarily industrial and municipal dischargers. There is also the §404 program.¹³ There are CAFOs [concentrated animal feeding operations]. There are §401 certifications, which mostly affect hydroelectric facilities that are federally licensed.¹⁴ But the CWA does not regulate every source. The sources that are essentially exempt are nonpoint sources and, more importantly for a lot of these human health criteria, the sources that can't practicably be regulated, such as natural sources, legacy sources (particularly PCBs), and air deposition sources (a big source of mercury).

So, if you have standards for pollutants where the sources that are regulated under the CWA are the principal sources of the pollutants, then the CWA does a very good job of improving water quality. But if you have sources that are natural or legacy sources or sources that are [unregulated or] difficult to regulate, [such as] unregulated stormwater, the effect of standards on water quality could be negligible.

Another issue that Jennifer touched on was the fact that we can't see a lot of these things at the level at which the standards are being set. A good example is Oregon's PCB standard. It would have been 64 picograms per liter-a very small number—at a rate of 17.5 grams per day of fish consumption. At 175 grams per day, the fish consumption rate that Oregon selected, the PCB standard becomes 6.4 picograms per liter. But the analytical quantification limit that dischargers need to meet in their permitting applications and permits is 500,000 picograms per liter. So, there's a great disparity between where the standard is and what we can actually see. The practical effect on water quality is nonexistent. Now, there are analytical methods by which you can get a lot closer to 64 picograms per liter, but 500,000 picograms per liter is what most dischargers are looking at.

On the other hand, for sources that are regulated by the CWA, their permits have to include limits that prevent them from causing or contributing to violations of water quality standards. If the water body does not meet standards because the standard is so very low, those sources will need to meet the limits at the point of discharge. They will not get any benefit from dilution in the receiving water.

The other thing about the CWA is that, unlike some other federal environmental regulations, there really is no

See 33 U.S.C. 1344, ELR STAT. FWPCA \$404. CWA \$404 establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands.

^{14.} See 33 U.S.C. 1341, ELR STAT. FWPCA §401. CWA §401 requires that any person applying for a federal permit or license, which may result in a discharge of pollutants into waters of the United States, must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions.

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exemption for infeasibility. A source must meet the standards. There are some provisions for kicking the can down the road if you can't immediately meet the standard. But for the most part a source doesn't get an exemption if it's impossible or infeasible to meet the standards.

For the standards that we have here, which are based on a very high fish consumption rate, the concern is that these unregulated sources—[including] the natural and legacy sources and the diffuse sources that are just too difficult for the states to regulate-alone will cause the standard to be violated. Moreover, at these low levels, it's difficult or sometimes impossible to achieve the standards at the point of discharge. That puts the sources that are regulated in a real bind because they must meet the standards at the point of discharge [if the receiving water already does not meet the standards]. In addition, they don't (with a few exceptions) get any credit for the fact that they didn't add the pollutants if the pollutants are in their intake water or in their raw materials. The fact that the regulated sources are not adding those things, but instead those things are simply coming into the facility from the outside world, is usually not an excuse.

Another concern of regulated sources is that they may be faced with limits that are very expensive or impossible to achieve, yet the benefits to water quality may be negligible because they're not a significant source of the problem. On the other hand, I think it's fair to note that the expected train wreck [for dischargers] has not yet happened in Oregon. In some instances, I think we will see facilities, both municipal and industrial, that are faced with discharge limits that they really don't have a good solution for meeting. In that case, we'll be engaged in the exercise that sources in other states are engaged in, which is pushing compliance with the limits down the road. But what has happened here so far is that we have limits that the sources can achieve-because the more-stringent limit can be met with the same technology-or the limits are below the analytical detection limits, so they can't see them and no change in control requirements is needed. Or, frankly, I think what we'll see in the future is a lot of sources that won't be able to meet limits based on the new standards, but they wouldn't have been able to meet limits based on the old standards either.

I've been practicing law for 26 years and it's really only in the last few years that we have seen permit decisions focusing on human health criteria. Previously, they've been primarily driven by aquatic life criteria, and a lot of the human health criteria have been ignored. PCBs are one example. In part, there's the problem of not being able to see it. But a source would be no better able to meet a limit based on a fish consumption rate of 17.5 grams per day or 6.5 grams per day than they would on a rate of 175 grams per day.

Oregon took an approach of protecting [human health] at a very high level [by using a fish consumption rate] of 175 grams per day and a one in 1,000,000 risk level for carcinogens. What that results in for the population that

doesn't consume that level of fish is extremely protective standards, with risk levels of one in one hundred million, one in one billion. Some of these standards are very low. For example, for PCBs, it's 6.4 parts per quadrillion. For dioxin, it's 0.51 parts per quintillion. At some point, it's a bit like calculating pi to one million digits; it just doesn't have a practical effect.

As Jennifer mentioned, Oregon has done a few things to address toxics outside the standards. Most of those have been nonregulatory efforts. Oregon did try to adopt provisions to reduce the burden on sources that are insignificant contributors. I will say that the tribal members on the advisory committee for the Oregon standards were actually very supportive of these efforts. As Dr. Barton said, the tribes have no interest in shutting down sources, particularly those sources that are not significant contributors.

But for the most part, the intake credit provisions—and a novel background site-specific pollutant criteria provision (which is actually a de minimis provision for toxics that I'm not aware of any other states adopting)—have very limited applicability. We don't have time to go into exactly why, but EPA was understandably very leery of some of the novel ideas that we had here. I think the future of this may be working on similar de minimis provisions and getting everyone comfortable that those are not going to create a problem. Oregon started down that path but, frankly, we don't have provisions that are very effective.

Then, there's also a streamlined variance process that Oregon adopted. We've never had a variance in Oregon. No one has yet applied for one. I think this is going to be a very expensive and time-consuming process, but it may be our only solution in the short term for a standard that can't be met.

Part of Oregon's approach is a little different from Washington's approach. Rather than trying to reduce the stringency of standards based on higher fish consumptions rates by increasing risk levels, Oregon focused on one particular standard—arsenic—that it knew was going to cause a problem immediately. That's because the natural concentrations are very high in relation to the standard that we would have had. We could also analytically detect those concentrations, so it wasn't going to be the same situation as with PCBs of "we can't see it so we don't have to do anything about it." What Oregon did was adopt an arsenic criterion that was approximately three orders of magnitude higher while still using the same higher fish consumption rate of 175 grams per day. Oregon was able to increase the criterion quite a bit by examining some of the other factors that go into it. For example, Oregon used a higher risk level only for the arsenic criterion, not across the board as Washington has proposed. The tribal representatives on the advisory committee supported that. We still have a few sources that have problems with arsenic, but the many sources that would have found it impossible to comply with the criterion that we did have—and that at the same time were not significant contributors to the problem-can comply with the new criterion.

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To sum it up for Oregon: So far, we haven't seen much effect either way for the new standards. That's in part because the sources of the pollutants that have very low standards are primarily not regulated sources. In addition, the analytic detection limits for many pollutants are far higher than the standards. Also, we've had permitting delays for other reasons, so the standards haven't been worked through the permitting process yet.

Fred Andes: We have a few questions from participants and also a few that I've thought of myself. One of them (that I think that Michael's presentation raises) is: Are we getting improvements in water quality? Are we getting impacts on dischargers as the result of these standards? I'm interested in comments on that. We've seen elsewhere, including in the Great Lakes, that stricter standards have slowed down the permitting process because they've made the permitting process difficult if the states don't move ahead and get the new permits out. Eventually, I would assume, the permits will need to be issued. That would pose problems in terms of having standards that can't be complied with, at least not readily. We've heard from others about variances and other tools that can be used to deal with that issue. Michael, what's your sense of when the permits start coming out, will these regulatory tools be helpful, and if not, how do we move ahead?

Michael Campbell: I think we have that problem already in Oregon with our temperature standard, not with our toxic standards, but we've seen the same problem.¹⁵ We don't have a good compliance path for meeting the temperature standard even for sources that are fairly insignificant sources of heat. As I think Jennifer can probably confirm, that's really thrown a wrench in the permitting process here. In part, that's why we're not seeing the issues with the toxic standards, because we're hung up on the temperature standard. At least in Oregon, a very large number of water bodies are listed as water quality-limited for temperature, so it's really a statewide problem. I don't think we have the implementation tools to allow most of the insignificant sources to continue, so we probably will see sources faced with these limit request variances. That could be a very long process. But Jennifer might be a good source of comment on that as well.

Fred Andes: Jennifer, what is Oregon's plan on those issues and expectations?

Jennifer Wigal: Michael accurately characterized the current status. For us, the variance process is probably going to be tested first with our temperature standards as opposed to the toxic standards. The one pollutant that we're aware of, which may be one of the things that we'll need to address in the future, is phthalates. But right now with phthalates, there's a real critical data quality issue because laboratory results can become contaminated due to all the plastics in the laboratory. That's one of the things we understand enough that we think there might be an issue, but it's going to take more high-quality data before we can sort some of that out. In the short term, I think we're going to be cutting our teeth on some other issues rather than the toxics. Currently, what our facilities are seeing more of is the monitoring requirements to get the data that we'll need for a more robust decisionmaking around what their limit is, whether they need limits, and if so, what their limits would end up being.

Fred Andes: Let me ask a separate question regarding Washington State. We've had several questions from participants concerning how EPA expects to be reviewing and making a decision as to what Washington is moving forward with. So, Allyn, what is EPA's thought process right now as to review of the Washington standards?

Allyn Stern: The state has not submitted any standards to us yet. They just started their public process, so we have to wait and see what they are going to submit and then make a decision on it.

Fred Andes: So, no public decisions from EPA yet in terms of the Washington proposal announced by the governor?

Allyn Stern: That's correct. We have told them, from the data that we've seen, that we're recommending to them that they can support standards of 175 grams per day *and* 1:1,000,000, 10 to the minus 6 cancer risk. That's what we have told them is our recommendation. We think the state's data shows that, but we need them to work through their process and then determine what they're going to submit to us before we could take any kind of public position on it.

Fred Andes: Let me ask about that cancer risk issue for a moment because different states are making different decisions on it. Whereas the fish consumption rate is something that will depend on data in terms of what people in a particular watershed or state are consuming, it would seem that the decision about the acceptable cancer risk level, whether it's 10 to the minus 5 or minus 6 or whatever, would seem to be a policy choice for the state. What is EPA's position? Is that something that the state can make its own choice or is there a constraint on that from the federal perspective?

Allyn Stern: There's not a specific constraint, but 10 to the minus 6 is currently the cancer risk rate that they use. I think what we would like to see from them is an explanation as to why they chose a different cancer risk rate and what their support is for that.

See, e.g., Northwest Environmental Advocates v. EPA, 855 F. Supp. 2d 1199 (D. Or. 2012) (remanding EPA's approval of Oregon's natural conditions temperature criterion); Northwest Environmental Advocates v. EPA, No. 12-cv-1751 (D. Or. filed Sept. 27, 2012) (pending challenge to EPA's approval of Oregon temperature TMDLs).

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Fred Andes: To permit a change, they would have to support that.

Allyn Stern: That's right.

Fred Andes: The next question relates to the issue of using various regulatory tools, variances, site-specific standards, sustainability analysis, compliance schedules, which are put forward often as "well, we have very high standards but we have these tools available." Are there examples you've seen where this has worked and provided some relief at least on a temporary basis, so that people can look at the examples as models for how to do these things and pull them into the regulatory process?

Allyn Stern: We have used compliance schedules or we have seen compliance schedules used in various instances to comply with standards, not particularly human health. It seems to make sense. These are the tools that are available and can be used. I think we're waiting to see from the states—and Oregon will be a good example, particularly as people try and comply with the temperature criteria—to see whether or not these are really helpful or whether modifications need to be made there. But it seems like that would be the right approach. I don't disagree with what Michael said about nonpoint sources being contributing sources and the CWA being unable to get to them. That's true for so many things. But all we have are the tools that are available, and we think that they could work.

Michael Campbell: Well, yes. I would just add that we looked very hard at these tools in Oregon. EPA was a participant in the advisory committee. It was helpful having EPA there because we weren't put in the position of doing something and then having it rejected by EPA. But I don't think we came up with a magic bullet. We do have an intake provision, but that doesn't allow you to increase the concentration or the mass loading of pollutants at all. We also have a de minimis provision that's in effect, which allows for automatically approved site-specific criteria. I'm not sure how that's actually going to work, but it's similarly limited. It allows some increase in concentration, but no increase in mass load. It's not effective if your water intake source isn't the same body of water, and it also only applies to carcinogens. It also has a threshold of not creating or not having a risk of more than one in 10,000. There are maybe a few sources that can take advantage of that, but most sources will need a compliance schedule or variance.

Again, those are the sort of exercises that just kick the can down the road. They're very—at least in Oregon and I think will be in Washington State as well—very cumbersome, time-consuming processes that require EPA approval. They may require ESA [Endangered Species Act] consultation.¹⁶ It's not a very user-friendly process. I know

that in your area, Fred, EPA has approved quite a few variances on essentially a statewide basis. That's probably what we would have to do here rather than go source-by-source.

Fred Andes: I was going to ask about that idea. There are some states where statewide variances have been adopted with EPA approval. In others, including Montana, it would have been proposed to deal with, in that case, new trends. Jennifer, from a state perspective, what's your sense of how statewide variances might be a usable tool?

Jennifer Wigal: I think it's something that we would definitely consider, a process, depending on what the facts told us. Does the fact set support that as the right tool? For example, as I said earlier, with regard to phthalates, are we seeing that commonly enough among municipal facilities that it's going to lead us to doing that? [The statewide variance] definitely must be in our toolkit because if it is, and the facts show that one-half or more of our municipal wastewater treatment plants are having issues with phthalates, then I think we'd be silly to try to address them on an individual basis. But we don't have that information yet, so it's hard to say. The most I can say at this point is that it's something we will definitely consider if that's where the information starts leading us.

Fred Andes: Let me finish with a question to Dianne because we haven't heard the tribal input on the issues that we've raised in the past few minutes. As the states work through these issues and try to figure out how to adopt and implement water quality standards while considering the issues of sensitive subpopulations, how do you see the tribes playing a role in that? You've mentioned that the tribes have several different roles. How do those play out as these issues get dealt with by the states?

Dianne Barton: As for the involvement of the tribes in the Washington process, Governor Inslee and [former Gov. Christine] Gregoire convened groups of experts on toxic reduction strategies that might be implemented in the new rulemaking. The tribes participated in that. Some of the recommendations are currently part of Governor Inslee's proposal to the state legislature. I think there is a general feeling of frustration among the tribes. What I think Allyn said is that all of the tools we have are in the CWA. I think what the tribes are looking forward to is new thinking and a change, because what they are really interested in is the reduction of toxics in our food sources. How we come to that result perhaps could use some more innovation.

Fred Andes: Have specific new ways of thinking about that been raised, or are we not at that stage yet?

Dianne Barton: We heard some interesting proposals in Governor Inslee's toxics working group. For example, I think Weyerhaeuser proposed a credit, a trading program. I know that they had a lot of problems with temperature in

^{16. 16} U.S.C. §1536, ELR STAT. ESA §7. ESA §7 is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species.

Oregon and probably still do, but we're trading nonpoint source pollutants for something that a discharger would have to reduce. Things like that have been thought about, but of course are not part of the toolkit. I think that part of the frustration is the inability to use what the CWA has. Also, I mentioned technological innovation. I think there are things that need to be supported by research through the university and national lab systems. **Fred Andes:** As we complete this Dialogue, I want to thank our speakers for participating and ELI for putting everything together. I believe it's been a very productive Dialogue. I hope it has been useful for everybody.