Illegal Water Use, Marijuana, and California's Environment

by Asha Wiegand-Shahani

Asha Wiegand-Shahani is a rising 3L at UC Hastings College of the Law and a law clerk at the Miller Law Firm.

Summary

The illicit and illegal use of water to grow marijuana is an environmental problem that has plagued the recently legalized crop for decades. Because growing marijuana has consistently been a more visible crime than theft and diversion of the water used, the industry's environmental crimes have largely been ignored until recently. The recent legalization of marijuana in California included new environmental regulations aimed at curbing the environmental damage done by marijuana farmers; however, these reforms may have the converse effect of encouraging marijuana farmers' continued illicit water use. This Article explores the history of marijuana legislation, why water use rights are such a central issue, and the environmental damage that has been done to California watersheds. It analyzes how the trend toward legalization could potentially encourage marijuana farmers to continue illegal water use practices, considers the means by which California regulators are encouraging marijuana farmers to comply with water regulations, and recommends additional methods to encourage compliance, such as shorter application times, a tiered system that incentivizes complying with current legislation, and educational programs aimed at both educating farmers on the advantages of compliance and changing their mindset around water use.

While environmental criminal law has developed into its own specialized area of thought and practice, the environmental crimes that underlie or are the consequence of more notorious crimes are rarely discussed and often ignored by law enforcement agencies. They are no less harmful than other crimes: people who are actively committing serious crimes often do not have a stake in preserving the environment in which they operate. Yet when environmental harms are part of larger criminal enterprises, enforcement agencies tend to place most of their emphasis on stopping the traditionally criminal aspects while ignoring the underlying or accompanying environmental harms.

The cultivation of marijuana is one such area of crime. First regulated at the federal level in 1937 with the Marihuana Tax Act and federally illegal since 1970, by many estimates marijuana is the largest illegal crop grown in the United States.[1] By some approximations, marijuana supports a black market economy of $35.8 billion annually, with $10.5 billion per year coming from Mendocino County, California, alone.[2] While more conservative estimates place the value of the illegal marijuana trade far lower, it is clear that there is a huge market for this illicit crop.[3] As of 2010, 80% of this market is sourced from California alone.[4] Since California is at the center of marijuana cultivation, it is unsurprising that the state is at the forefront of regulating marijuana use and its environmental impacts.[5]

One of the most egregious environmental crimes associated with marijuana is the illicit and illegal use of water to grow the plants that form the basis of the industry. The recent trend toward legalization of marijuana has done little to curb the unauthorized water use that is a hallmark of the field.[6] California was the first state to legalize mari-

Author's Note: The author would like to thank Profs. David Takacs, Hadar Aviram, and Dave Owen, as well as her partner Evan McCarty for their help in editing this Article.

1. Marihuana Tax Act, 26 U.S.C. §§4751-4753; Gina S. Warren, *Regulating Pot to Save the Polar Bear: Energy and Climate Impacts of the Marijuana Industry*, 40 Colum. J. Envtl. L. 385, 409 (2015).
2. Katherine Curl Reitz, *An Environmental Argument for a Consistent Federal Policy on Marijuana*, 57 Ariz. L. Rev. 1085, 1110 (2015); Ryan B. Stoa, *Weed and Water Law: Regulating Legal Marijuana*, 67 Hastings L.J. 565, 575 (2016).
3. Reitz, *supra* note 2, at 1110.
4. Stoa, *supra* note 2, at 608.
5. Reitz, *supra* note 2, at 1110.
6. Scott Bauer et al., *Impacts of Surface Water Diversions for Marijuana Cultivation on Aquatic Habitat in Four Northwestern California Watersheds*, PLOS ONE, Mar. 18, 2015, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0120016; Jennifer K. Carah et al., *High Time for Conservation: Adding the Environment to the Debate on Marijuana Liberalization*, 65 BioScience 822-29 (2015), https://academic.oup.com/bioscience/article/65/8/822/240374; Alastair Bland, *How Changing Marijuana Laws May Affect California's Water and Wildlife*, Water Deeply, Mar. 22, 2017,

juana, allowing its citizens to use the plant for medicinal purposes beginning in 1996.[7] In 2015, the Medical Cannabis Regulation and Safety Act introduced new environmental regulations for marijuana growers in an effort to curb the environmental harms caused by illegal water use.[8] In November 2016, Proposition 64 fully legalized marijuana in the state of California, and with it came a new set of environmental regulations that went into effect in October 2017 in preparation for recreational sales in January 2018.[9] It is still unclear, however, how much increasing regulation is doing to stem the tide of unlawful water use.

This Article examines the cluster of issues surrounding marijuana cultivation and illegal water use in California. Part I explains why water rights are so important in the battle to preserve California's imperiled watersheds. Part II examines how the prohibition of marijuana inadvertently led to illegal water use to grow the crop, and to the environmental damage that currently plagues marijuana cultivation; it also discusses how making marijuana illegal has created an industry that is difficult to track and regulate, leading to uncertainty about how much environmental damage is being caused by marijuana cultivation and how much water is needed to support the marijuana industry. Part III analyzes how the increasing trend toward marijuana legalization may increase rather than reduce illegal water use practices.

Parts IV and V discuss the corresponding environmental harms associated with illegal water use, and policies aimed at curtailing the damage. Part VI presents new information about the difficulties implicit in encouraging marijuana cultivators to comply with new environmental regulations, and Part VII suggests new strategies to persuade farmers to comply with new regulations in order to protect delicate ecosystems and watersheds, including shortening application processes for farmers applying for new permits in 2018, a tiered system of penalties that rewards farmers who comply with new legislation and penalizes those who try to circumvent the new laws, and educational programs aimed at changing farmers' mindsets around water use practices. Finally, Part VIII concludes.

I. What Do Water Rights Mean and Why Are They Important?

Water has always been necessary for human civilization to thrive, so as populations grew, they developed rules about who could access water and how much. Early American water laws were predated by the British common-law system, a natural flow doctrine that dictated that those upstream could not use the water they had access to in any way that would impair the flow of water for those downstream, with domestic water uses favored above commercial and other large-scale uses.[10] Under this system, growing crops for personal consumption was considered a protected domestic use of water.[11]

This British system eventually evolved into riparianism in the years following U.S. independence, and this water rights system is still prevalent among states east of the Mississippi River and less so in western states.[12] Under a riparian system, those who have land adjacent to a water source are allowed reasonable use of that water.[13] The majority of states west of the Mississippi River cycled through several water management systems before most adopted the capture rule or "first in time" doctrine.[14] Under the rule of capture, those who put the water to beneficial use first have a claim of right to use said water that is superior to the claim of those who wish to use the water after them.[15]

California uses a combination of these two systems, which have co-existed in the state since the capture rule was first invented by gold miners.[16] The co-existence of these differing systems of water use regulation led to an integrated system, under which managed riparianism is balanced against appropriative water rights in an effort to maximize limited water sources to benefit society as much as possible.[17] The California Constitution defines reasonable use of water as "such water as shall be reasonably required for the beneficial use to be served," and limits even riparian water rights to that use alone.[18] The section clearly states "such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water."[19]

In order to understand why obtaining water use rights from the state of California is a central issue in preventing environmental crime, one must understand how water use rights interact with the economics of water use. Under California law, water cannot be owned.[20] Instead, people can own the right to use a certain amount of water.[21] If someone wishes to take water directly from a lake, river, or stream, that person is required to obtain a water right and a water right permit from the state of California, but if he or she chooses to get water from a utility company, municipal district, or city, the person does not need to obtain a water right to use water.[22] The typical consumer of water does not

https://www.newsdeeply.com/water/articles/2017/03/22/how-changing-marijuana-laws-may-affect-californias-water-and-wildlife.

7. Reitz, *supra* note 2, at 1110.
8. Stoa, *supra* note 2, at 611.
9. Adult Use of Marijuana Act 2016, S.B. 94, 2017/2018 Reg. Sess. (Cal. 2017); California Water Resources Control Board, Cannabis Cultivation Policy: Principles and Guidelines for Cannabis Cultivation (2017), https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2017/final_cannabis_policy_with_att_a.pdf.
10. Stoa, *supra* note 2, at 571.
11. *Id.*
12. *Id.*
13. *Id.*
14. *Id.* at 572.
15. *Id.*
16. *Id.*
17. *Id.* at 604.
18. Cal. Const. art. X, §2.
19. *Id.*
20. California State Water Resources Control Board, *Water Rights: Frequently Asked Questions*, https://www.waterboards.ca.gov/waterrights/board_info/faqs.html (last updated May 2, 2018).
21. *Id.*
22. East Bay Municipal Utility District, *Water Rate Schedule—Effective July 12, 2017*, http://www.ebmud.com/water-and-drought/water-rates/ (last visited May 9, 2018).

have any water rights in the state of California.[23] Instead, municipal districts and cities hold water rights, or buy the use of water from a party that does, and then sell small portions of the amount of water they are allowed to use to each consumer.[24]

These cities and municipal districts also rent to consumers the infrastructure required to move the water used, based on the amount of water the consumer uses—the larger the amount of water consumed each day, the larger the infrastructure required to move the water at a useable pressure, and the more expensive renting that infrastructure is.[25] Additionally, in many municipal districts, for example the East Bay Municipal Utility District, the price of the water a consumer uses is broken down into tiers, with the lowest amount of water usage costing the least amount of money per gallon used, meaning that the more water a person uses, the more expensive each gallon of water used becomes.[26] To these costs, additional charges, such as elevation fees, can be added, and these mount quickly.[27] At typical consumer rates, water is prohibitively expensive for any farmer, let alone a farmer who grows a crop that requires as much water as marijuana.[28]

In contrast, if a person has water rights and the accompanying permit from the state, they can take water directly from a lake, river, or stream, eliminating the middleman, and use up to the amount of water delineated in the permit per day, season, or year.[29] This means that the person holding the water right can access the amount of water they need to use for only the cost of obtaining the water right and using the necessary infrastructure. As such, holding a water right eliminates the possibility that the rate a person is being charged for the water they are using may change more than once per permit cycle, making it easy for farmers to budget for their water needs.[30] This helps to keep farmers' water costs low and profits high.

II. How Changing Marijuana Legislation Interacted With Water Rights Systems

Water rights in California do not extend to unreasonable uses, but growing marijuana was not always considered an unreasonable use of water because marijuana was not always illegal in the United States. States began banning marijuana in 1914, mostly through economic regulation of its dispensation.[31] By 1931, 29 states banned the use of marijuana within their jurisdiction and in 1937, the U.S. Congress passed the Marihuana Tax Act.[32] While the 1937 Act did not classify marijuana as federally illegal, it did regulate and tax all uses of the plant.[33]

It was not until 1969, when the U.S. Supreme Court overturned the Marihuana Tax Act through their decision in *Leary v. United States*, that the federal government felt the need to completely ban marijuana.[34] Under any system that regulates water use in the United States, water rights and the ability to use water legally would not extend to a person that is growing an illegal crop.[35] This is due to the fact that growing an illegal crop is not considered a reasonable use of water.[36]

In response to the Supreme Court's ruling in *Leary*, that compliance with the Marihuana Tax Act violated farmers' Fifth Amendment rights, Congress passed the Comprehensive Drug Abuse Prevention and Control Act in 1970.[37] The Act classified marijuana as a Schedule 1 drug, defined as a substance "with no currently accepted medical use and a high potential for abuse," and instituted a federal prohibition on growing, possessing, selling, or using marijuana for any purpose.[38] Contrary to legislators' expectations, prohibition did very little to eradicate the market for marijuana.[39] Prohibition of marijuana had a similar effect to alcohol prohibition in the early 20th century: open and public use went underground while a black market grew to supply the desire of many Americans to continue consuming the plant.[40]

In fact, prohibition of marijuana appears to have increased Americans' use of the suddenly illegal plant.[41] Gallup Polls show that in 1969, 4% of Americans self-reported as having tried marijuana, a number that tripled to 12% by 1974, and doubled again to 24% percent by 1977.[42] Forcing marijuana farmers into the shadows of illegality also had a number of unintended environmental consequences, many of which were caused by the fact that in classifying every aspect of marijuana illegal in the Comprehensive Drug Abuse Prevention and Control Act, Congress unintentionally severed marijuana farmers' legal access to water.[43]

Whereas before 1970 marijuana farmers who complied with the 1937 Marihuana Tax Act were growing a legal crop that allowed them to exercise their existing water rights to legally use water to support their endeavors, after 1970, when the crop was classified as a Schedule 1 drug,

23. California State Water Resources Control Board, *supra* note 20.
24. *Id.*
25. East Bay Municipal Utility District, *supra* note 22.
26. *Id.*
27. *Id.*
28. *Id.*
29. California State Water Resources Control Board, *supra* note 20; State Water Resources Control Board, California Environmental Protection Agency, Application to Appropriate Water (2009), https://www.waterboards.ca.gov/waterrights/publications_forms/forms/docs/app_form.pdf.
30. State Water Resources Control Board, *supra* note 29.
31. Stoa, *supra* note 2, at 574.
32. *Id.*
33. *Id.*
34. 395 U.S. 6, 26 (1969).
35. Stoa, *supra* note 2, at 616.
36. *Id.*; Cal. Const. art. X, §2.
37. *Leary*, 395 U.S. at 26; Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236.
38. Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236; U.S. Drug Enforcement Agency, *Drug Scheduling*, https://www.dea.gov/druginfo/ds.shtml (last visited May 9, 2018).
39. Reitz, *supra* note 2, at 1091-92.
40. *Id.*
41. Lydia Saad, *In U.S., 38% Have Tried Marijuana, Little Changed Since '80s*, Gallup, Aug. 2, 2013, http://news.gallup.com/poll/163835/tried-marijuana-little-changes-80s.aspx.
42. *Id.*
43. Stoa, *supra* note 2, at 616; Cal. Const. art. X, §2.

citizens who had been farmers were suddenly classified as drug criminals.[44] Farmers were affected by the Comprehensive Drug Abuse Prevention and Control Act at both the state and federal levels due to federal preemption.[45] Based in Article VI of the U.S. Constitution, federal preemption is the doctrine that dictates that if there is conflict between federal and state law, federal law overrules state law on the matter.[46] Due to the fact that the Constitution's Commerce Clause and decades of case law from *Wickard v. Filburn* to *Gonzalez v. Raich* empower Congress to regulate all markets, legal and otherwise, Congress has the final say as to whether a crop may be cultivated and sold in the United States.[47] As such, federal statutes that classify a substance as illegal countermand any state statutes that conflict with federal mandates.[48]

By classifying marijuana as a dangerous and illegal substance, Congress effectively placed marijuana farmers outside all regulatory schemes for managing water use, and caused marijuana farmers to lose any water rights they had previous to the 1970 law because cultivation of their crop was now prohibited.[49] The Comprehensive Drug Abuse Prevention and Control Act also prevented marijuana farmers from applying for new water rights and from legally using any water that was administered by federal or state governments.[50] Though the goal of marijuana prohibition was to prevent people from using marijuana by making all aspects and uses of the crop illegal, by extension, it dictated that all the water used to grow the prohibited plants could no longer come from legitimate sources.[51] Federal preemption is an issue that has, and will continue to have, profound effects on water rights as the increasing trend toward relegalization continues.

III. What Does the Trend Toward Legalization Mean for Water Rights?

In spite of the 1970 Comprehensive Drug Abuse Prevention and Control Act's total prohibition of marijuana, since 1996 there has been an increasing trend toward states legalizing first the medical use and then the recreational use of marijuana within their jurisdictions.[52] As of August 2017, 29 states and the District of Columbia had legalized marijuana for medical use, and eight states and the District of Columbia had legalized limited amounts of marijuana for recreational use.[53] California was the first state to legalize marijuana in 1996 with the Compassionate Use Act, codified in California's Health and Safety Code.[54] The Act allowed all Californians to use marijuana if it was prescribed to them by a physician for an appropriate medical use.[55] In November 2016, California legalized recreational use of marijuana for adults over the age of 21 with the passage of the Adult Use of Marijuana Act, commonly known as Proposition 64.[56]

As part of the Adult Use of Marijuana Act, adults over the age of 21 are allowed to grow up to six marijuana plants for nonmedical personal uses or "500 square feet of cannabis plant canopy" for medicinal personal uses.[57] Additionally, subject to the water use and other environmental restrictions the California State Water Resources Control Board and the Department of Fish and Wildlife were directed to adopt by the Act and that are formalized in the Cannabis Control Policy, farmers can grow larger marijuana crops for commercial sale.[58] This means that the Adult Use of Marijuana Act effectively redefined marijuana as a beneficial use of water under California law.[59] Since the passage of the Act, farmers are eligible for water use rights within the state.[60]

In spite of the fact that California has legalized marijuana for adult use, federal preemption dictates that marijuana farmers are still drug criminals. This distinction is especially important for the 17 states, of which California is one, in which water is partly managed by the Bureau of Reclamation (the Bureau).[61] Founded by the Reclamation Act of 1902, the Bureau is a federal water management agency that "manages, develops, and protects water and related resources in an environmentally and economically sound manner in the interest of the American public."[62] The Bureau is also "the nation's largest wholesale water supplier" and "the second largest producer of hydropower in the United States," supplying the water used by approximately 140,000 farmers and 31 million people each year.[63]

As such, the Bureau holds and manages a significant percentage of water rights and water use in the states in which it operates, managing in total more than 140 million acre-feet of water per year.[64] To place that number in

44. Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236; U.S. Drug Enforcement Agency, *supra* note 38.
45. Reitz, *supra* note 2, at 1092; Constitutional Law Prof. Matthew Coles, Lecture to Constitutional Law Class (Apr. 3, 2017).
46. Coles, *supra* note 45.
47. Constitutional Law Prof. Matthew Coles, Lecture to Constitutional Law Class (Jan. 12, 2017, Jan. 23, 2017, and Apr. 3, 2017); Wickard v. Filburn, 317 U.S. 111 (1942); Gonzales v. Raich, 545 U.S. 1 (2005).
48. Coles, *supra* note 45.
49. Stoa, *supra* note 2, at 574.
50. *Id.*
51. *Id.*
52. Peter Hecht, *California Takes New Approach on Water Regulation for Pot Farms*, Sacramento Bee, Aug. 29, 2015, http://www.sacbee.com/news/state/california/water-and-drought/article32762289.html.
53. *29 Legal Medical Marijuana States and DC: Laws, Fees, and Possession Limits*, ProCon.org, Apr. 24, 2018, https://medicalmarijuana.procon.org/view.resource.php?resourceID=000881; *Marijuana Overview*, Nat'l Conf. St. Legislators, Aug. 30, 2017, http://www.ncsl.org/research/civil-and-criminal-justice/marijuana-overview.aspx.
54. Cal. Health & Safety Code §§11357-11362.9 (1996); Reitz, *supra* note 2, at 1110.
55. Cal. Health & Safety Code §§11357-11362.9 (1996).
56. A.B. 64, 2016/2017 Sess. (Cal. 2016).
57. California Water Resources Control Board, *supra* note 9.
58. *Id.*
59. *Id.* at 21.
60. A.B. 64, 2016/2017 Sess. (Cal. 2016); California Water Resources Control Board, *supra* note 9.
61. Bureau of Reclamation, *About Us—Fact Sheet*, https://www.usbr.gov/main/about/fact.html (last updated Nov. 22, 2017).
62. Bureau of Reclamation, Brief History Bureau of Reclamation (2011), https://www.usbr.gov/history/2011NEWBRIEFHISTORY.pdf; Bureau of Reclamation, *supra* note 61.
63. Bureau of Reclamation, *supra* note 61.
64. *Id.*

perspective, the Bureau says that one acre-foot of water is the equivalent of 325,851 gallons, or approximately enough water to sustain a family of four for an entire year.[65] In short, the Bureau manages the use of a staggering amount of water each year, a significant portion of which is used by individuals who live in states where marijuana has recently been legalized.[66]

Guided by federal laws that designate marijuana a dangerous drug, the Bureau considers the cultivation of marijuana to be a drug crime.[67] This policy is directly in conflict with recent legislation legalizing marijuana in California and other states, meaning that the cultivation of marijuana is considered a reasonable use of water by the governments and agencies of the states in which those farmers reside, but not by the federal government and the Bureau.[68] This creates a legal grey area in which farmers can be subject to litigation even if that farmer is in full compliance with state laws and regulations governing marijuana.

If a farmer lives in an area of the state where water is managed by the Bureau and not a state agency, that farmer may be subject to the loss of water rights, fines and fees, and even criminal charges from the federal government for violating the reasonable use standard.[69] In California, the State Water Resources Control Board administers water rights.[70] However, the Bureau manages water throughout California, opening up a potential legal minefield for farmers who wish to grow marijuana legally in California.[71]

IV. How This Environmental Crime Causes Environmental Damage

The expense of paying the consumer rate for water, the difficulty and expense of obtaining water rights in the state of California, the criminal penalties for stealing from utility companies, and the legal conflicts between state and federal laws are all powerful incentives for marijuana farmers to illegally divert sources of surface water, such as lakes, rivers, and streams. This is especially the case in northern California, where the landscape is heavily forested, the population is less dense, and most of California's fresh surface water is located, making it easier for marijuana farmers to directly access surface water and diminishing the chances they will get caught.[72]

Illegal surface water diversions at the hands of marijuana farmers have done enormous amounts of environmental damage in the years since the 1970 Comprehensive Drug Abuse Prevention and Control Act.[73] Marijuana is a high water use crop that was first cultivated in China.[74] Marijuana and its close cousin hemp were both grown in the American South, and due to its propensity to thrive in moist, nutrient-rich soil, to this day marijuana's greatest area of naturalization in the country, defined as self-sustaining growth in the wild, is still centered in the Mississippi and Missouri Valleys of the southern United States.[75]

Marijuana came to California by the 1960s and has been cultivated throughout the state ever since.[76] Though growing marijuana outdoors is the least water- and other resource-intensive way of cultivating the crop, marijuana does not thrive in the wild in California due to the fact that its water needs are diametrically opposed to the wet-dry cycles of California's Mediterranean climate.[77] California gets more than 90% of its rainfall between October and April every year, meaning that the summers are the dry season.[78] Marijuana, especially when cultivated outdoors, requires the most water between the months of May and October, when California's climate is at its driest.[79] This is highly problematic when a crop as water-reliant as marijuana becomes widely cultivated.

Though scientific data agree that marijuana is a crop that requires a great deal of water, due to the fact that until recently marijuana was almost exclusively a black-market industry, there is little data about how much water marijuana actually requires.[80] Low estimates, such as those from the U.S. Department of Justice's 2007 Domestic Cannabis Cultivation Assessment, place the amount of water needed by a single marijuana plant at approximately 19 liters, or roughly five gallons per plant per day, with higher estimates placing it around 22 to 23 liters, or approximately six gallons of water per plant per day.[81] Wine grapevines, the other high water-use crop cultivated in the areas of northern California where marijuana is cultivated, require approximately 13 liters, or three and one-third gallons of water per plant per day.[82] At those rates, one vine of wine grapes requires approximately one-half to two-thirds of the water that a marijuana plant requires to thrive, which at high rates of cultivation can make a huge difference in the amount of water it takes to grow a successful crop.

65. *Id.*
66. *Id.*; *29 Legal Medical Marijuana States and DC: Laws, Fees, and Possession Limits*, *supra* note 53; *Marijuana Overview*, *supra* note 53.
67. Stoa, *supra* note 2, at 589-90; Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236.
68. Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236; Stoa, *supra* note 2, at 589-90.
69. Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236; Stoa, *supra* note 2, at 589-90.
70. California State Water Resources Control Board, *supra* note 20.
71. Reclamation Water Information System, *Site Location Map*, Bureau of Reclamation (Dec. 5, 2017) https://water.usbr.gov/RWISmap.php.
72. Bauer et al., *supra* note 6.
73. *Id.*; Carah et al., *supra* note 6, at 822-29.
74. Drug Enforcement Administration Museum, *Cannabis, Coca, and Poppy: Nature's Addictive Plants*, https://www.deamuseum.org/ccp/cannabis/history.html (last visited May 9, 2018).
75. HISTORY, *Marijuana*, http://www.history.com/topics/history-of-marijuana (last visited May 9, 2018); Bauer et al., *supra* note 6; U.S. Department of Agriculture, Natural Resources Conservation Service Connecticut, *Native, Invasive, and Other Plant-Related Definitions*, https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ct/technical/ecoscience/invasive/?cid=nrcs142p2_011124 (last visited May 9, 2018).
76. Bauer et al., *supra* note 6.
77. *Id.*
78. *Id.*
79. *Id.*; Carah et al., *supra* note 6, at 822-29.
80. Bauer et al., *supra* note 6; Carah et al., *supra* note 6, at 822-29.
81. National Drug Intelligence Center, U.S. Department of Justice Domestic Cannabis Cultivation Assessment 2007, at 12 (2007), https://www.justice.gov/archive/ndic/pubs22/22486/22486p.pdf; Bauer et al., *supra* note 6; Carah et al., *supra* note 6, at 822-29.
82. Bauer et al., *supra* note 6.

Due to the fact that marijuana necessitates access to a high volume of water, and until recently marijuana farmers have needed to remain as mobile in their operations as possible to avoid detection by authorities, marijuana farmers typically obtain the water they need to support their crop by directly diverting surface water from the source.[83] Since marijuana is cultivated in large amounts in northern California, the aggregate effects of these direct diversions are staggering. One study of four watersheds in Humboldt and Mendocino Counties recorded that in all the watersheds studied, the number of illegal surface water diversions being used to support marijuana growth was more than double the number of legal surface water diversions ostensibly used to cultivate other crops in those watersheds.[84]

Legal surface water diversions are registered with the California State Water Resources Control Board, protected by water rights, and subject to environmental regulations by the same regulatory agency in an effort to protect the delicate and biodiverse northern California watersheds.[85] If a farmer using water rights to legally divert surface water from a river or stream uses more water than allowed, the farmer is subject to fines of up to $500 per day and may lose his or her water rights.[86] A farmer illegally using water is subject to the same sanctions; however, farmers who operate entirely outside of the California State Water Resources Control Board's regulations are much harder to apprehend than farmers who are already participating in California's water regulatory system and subject to regular inspection.[87]

Since the majority of these diversions take place in the summer when rainfall and water flow are at their lowest, these diversions by marijuana farmers cause more damage than they would if they were taking place during the winter months when rainfall is much more plentiful.[88] Multiple studies have noted that illegal water diversions used to cultivate marijuana in several watersheds in Humboldt and Mendocino Counties use between 33% and 100% of the natural water flow in those areas.[89] This means that marijuana cultivation alone in those watersheds is sometimes enough to use all of the surface water available in that area and completely dewater the lakes, rivers, and streams on which entire ecosystems depend.[90] The result of these illegal diversions is environmental damage on a massive scale. Plants and trees, including old growth redwood forests such as Redwood National Park, are threatened by a lack of water and may die out if these diversions are not controlled.[91]

The coho salmon, listed as a threatened species by the Endangered Species Acts authored by both California and the federal government, has lost 70% of its population since the 1960s.[92] These salmon, and all other fish species native to northern California watersheds, are being affected by these diversions not only by the lowering of surface water runoff, but also by an increase in the sediment content and temperature of the runoff that remains in the watershed.[93] The lack of cool, clear water linked to illegal water diversions has especially harmed the coho and other salmonoid fish, of which 32 species are native to California, because they require a regular flow of clean, cool water to thrive.[94] The warmer, murkier water left in streams and rivers has reduced fish habitat, decreased the food supply, and increased competition and disease among salmonoid fishes.[95] If current water use trends continue, as a result of the lowered water quality, 78% of California's native salmonoid fish species are expected to die off or move to more favorable watersheds by 2115.[96] Illegal water diversions also harm amphibians such as the coastal tailed frog, but it is unclear exactly how these extreme reductions in essential water flow are affecting the amphibians native to northern California.[97]

V. Past and Present California Policies to Curb the Resulting Damage

As has been clearly documented, the illegal diversions being perpetrated by marijuana farmers are drastically affecting the plants, animals, and fish that rely on the surface waters of California. The number of marijuana farms in California has increased sharply since the passage of the Compassionate Use Act in 1996, partly due to the fact that legislators neglected to include language limiting the amount of marijuana a medical patient could possess or the number of plants a patient could cultivate, which made it easier for farmers to circumvent the law by claiming their crop was grown legally.[98] With an increase in the number of marijuana farms within the state has come an exponentially higher amount of water use to support these farms every year.[99] As the number of farms and the amount of water required to support them has increased, so has awareness of the environmental impact that marijuana is having on California's ecosystem. Attention to this issue has been increasing as the trend toward full legalization of marijuana has gained momentum and as a result, the government of California has taken steps to regulate water use for marijuana within the state.[100]

83. *Id.*; Carah et al., *supra* note 6, at 822-29; National Drug Intelligence Center, *supra* note 81, at 7.
84. Bauer et al., *supra* note 6.
85. *Id.*; California State Water Resources Control Board, *supra* note 20.
86. California State Water Resources Control Board, *supra* note 20.
87. California Water Resources Control Board, *supra* note 9; Bauer et al., *supra* note 6.
88. California Water Resources Control Board, *supra* note 9, at 10; Bauer et al., *supra* note 6; Carah et al., *supra* note 6, at 822-29.
89. Bauer et al., *supra* note 6; Carah et al., *supra* note 6, at 822-29.
90. Carah et al., *supra* note 6, at 822-29; Bauer et al., *supra* note 6.
91. Carah et al., *supra* note 6, at 822-29; Bauer et al., *supra* note 6.
92. Bauer et al., *supra* note 6; 16 U.S.C. §§1531-1544; ELR Stat. ESA §§2-18; Cal. Code Regs. tit. 14, §§783.0-787.9.
93. *Id.*
94. *Id.*
95. *Id.*
96. *Id.*
97. *Id.*
98. Cal. Health & Safety Code §§11357-11362.9 (1996); Bauer et al., *supra* note 6.
99. Bauer et al., *supra* note 6.
100. *Id.*; S.B. 420, 2003/2004 Sess. (Cal. 2003).

The first attempt to limit the number of marijuana farms taxing California watersheds occurred in 2003 with the passage of S.B. 420, otherwise known as the Medical Marijuana Program Act.[101] The Medical Marijuana Program Act established the medical identification card program to help law enforcement identify medical patients and exempted qualified individuals from criminal liability on the basis of possession of a valid identification card alone.[102] It also established quantities of marijuana that were considered presumptively legal for patient possession in California Health and Safety Code §11362.77.[103]

In 2010, however, *People v. Kelly* prompted the California Supreme Court to find that the state legislature was in violation of article II, section 10, subdivision (c) of the California Constitution when they amended the Compassionate Use Act without a vote by the California electorate.[104] As a result, the court barred the use of California Health and Safety Code §11362.77 as a means of limiting the amount of marijuana a patient could cultivate for personal use, citing that the Compassionate Use Act only stated that people "may possess an amount of medical marijuana reasonably necessary for their, or their charges', personal medical needs."[105]

In 2015, the next attempt to limit the amount of environmental damage marijuana is causing in California established an entirely new framework for regulating the environmental impacts of the medical marijuana industry, the only portion of the industry that was legal at the time.[106] The Medical Cannabis Regulation and Safety Act, a combination of A.B. 243, A.B. 266, and S.B. 643, established a comprehensive regulatory scheme for the "licensing and enforcement of cultivation, manufacturing, retail sale, transportation, storage, delivery and testing of medicinal cannabis in California."[107] It also established the Bureau of Medical Marijuana Regulation, currently the California Bureau of Cannabis Control, the state entity responsible for licensing and regulating marijuana sales within California, including ensuring that farmers are in compliance with environmental regulations.[108]

In June 2016, the California State Legislature added to the Medical Cannabis Regulation and Safety Act with the passage of S.B. 837.[109] S.B. 837 added environmental protections to the Medical Cannabis Regulation and Safety Act and added §13149 to the California Water Code.[110] Section 13149 required the State Water Resources Control Board to work with the California Department of Fish and Wildlife to "adopt interim and long-term principles and guidelines for the diversion and use of water for cannabis cultivation in areas where cannabis cultivation may have the potential to substantially affect instream flows."[111] To comply, the State Water Resources Control Board adopted the Cannabis Cultivation Policy that is presently in effect.[112] The Cannabis Cultivation Policy, passed in November 2016, does not apply to cannabis cultivation for recreational personal use as allowed under the Adult Use of Marijuana Act.[113] As of November 2016, California citizens who are 21 or older may cultivate up to six marijuana plants for personal use without being subject to any water use restrictions and without being required to register for water rights with the California State Water Resources Control Board.[114]

The Cannabis Cultivation Policy established water use regulations for growing marijuana in the state of California, including clear requirements for water use by marijuana farmers, directives for policy implementation and compliance with the new regulations, and mandates dictating how this policy was to be enforced.[115] Farmers who wish to legally grow marijuana in California other than for personal use must apply for water use rights from the State Water Resources Control Board.[116] As part of this process, they must pay the state a minimum of $1,000 and go through an invasive and prolonged process that lasts a minimum of one year.[117] In order to receive water rights, farms must comply with strict water use restrictions, in an effort to protect "springs, wetlands, and aquatic habitats from negative impacts of cannabis cultivation."[118] Under current regulations, marijuana farmers are now subject to a surface water diversion forbearance period throughout the dry summer months, which means they are not allowed to divert surface water during the months when their crop requires the most water.[119]

In order to comply with these regulations, marijuana farmers are encouraged, or required depending on the type of water right they eventually obtain, to divert surface water for storage during the wet season and to rely on those diversions to water their crop during the dry season.[120] If the marijuana farmer in question holds a riparian water right, these storage requirements dictate that the farmer must also obtain an appropriative storage water right from the State Water Resources Control Board in order to be fully compliant with California law.[121] This requirement

101. S.B. 420, 2003/2004 Sess. (Cal. 2003).
102. *Id.*
103. *Id.*
104. 47 Cal. 4th 1008, 1042-43 (Cal. 2010); Cal. Const. art. II, §10, subdivision (c).
105. *Kelly*, 47 Cal. 4th at 1043.
106. Bureau of Cannabis Control California, *About Us*, http://bcc.ca.gov/about_us/ (last visited May 9, 2018).
107. *Id.*
108. *Id.*; Comprehensive Medical Cannabis Regulation and Safety Act, S.B. 643, A.B. 266, A.B. 243 (2015), https://static.cdfa.ca.gov/MCCP/document/Comprehensive%20Medical%20Cannabis%20Regulation%20and%20Safety%20Act.pdf.
109. S.B. 837, 2016/2017 Sess. (Cal. 2016); Bureau of Cannabis Control California, *supra* note 106.
110. S.B. 837, 2016/2017 Sess. (Cal. 2016); Cal. Water Code §13149 (2016).
111. Cal. Water Code §13149 (2016); California Water Resources Control Board, *supra* note 9, at 5.
112. California Water Resources Control Board, *supra* note 9, at 5.
113. *Id.* at 3.
114. *Id.* at 15; Adult Use of Marijuana Act 2016, S.B. 94, 2017/2018 Reg. Sess. (Cal. 2017); California State Water Resources Control Board, *supra* note 20.
115. California Water Resources Control Board, *supra* note 9.
116. California State Water Resources Control Board, *supra* note 20.
117. *Id.*
118. California Water Resources Control Board, *supra* note 9, at 5.
119. *Id.* at 10.
120. *Id.* at 18.
121. *Id.*

subjects marijuana farmers to additional fees and an additional waiting period before they can legally cultivate a marijuana crop.

The Cannabis Control Policy also requires marijuana farmers to allow any representative from any of the California Water Boards, the California Department of Fish and Wildlife, or the California Department of Forestry and Fire Prevention with the appropriate credentials to inspect any aspect of their operation during reasonable hours.[122] The State Water Resources Control Board's Cannabis Cultivation Policy is not set to change in 2018, meaning that farmers who wish to grow for commercial recreational use, which is legal as of January 2018, are required to comply with these requirements.

As has become clearly evident, there are a number of very real barriers to encouraging marijuana farmers to comply with new regulations and environmental policies that go hand-in-hand with the full legalization of marijuana in California. However, it is essential that California encourage marijuana farmers to comply with these new regulations in order to protect the lush forests of northern California, as well as other ecosystems statewide.

VI. Barriers to Marijuana Farmers' Compliance With Water Use Regulations

Receiving water rights to use surface water in California can be a long and difficult process, as discussed above. Surface water is defined as "water that is naturally open to the atmosphere, lakes estuaries, reservoirs, seas etc."[123] Groundwater is defined as "water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels," and is typically much harder to access than surface water.[124] Groundwater use in California is subject to very few use restrictions other than the reasonable use standard, but to get to it, one needs specialized equipment and enough groundwater available to extract.[125]

While it is a prolonged process, receiving a water use permit is preferable to the limited number of alternatives because a water use permit allows a farmer to use up to a certain amount of water for the set price of the permit.[126] Without a water use permit, a marijuana farmer has three options: pay full consumer price for the water used, which as demonstrated above can be prohibitively expensive; steal the needed water from the municipal district or utility company that oversees the water infrastructure in the area, which has criminal penalties attached to it; or illegally divert water from a nearby body of water such as a stream, river, or lake and hope that he or she does not get caught.

Choosing either of the latter two options places a person outside the law, but it does greatly increase the profit margin of growing marijuana. Prior to 2016, when growing marijuana other than for medical use was illegal, the increased profit margin was a huge incentive to farmers to illegally divert water, and these illegal diversions cumulatively have done a very large amount of damage to the environment in California.[127] Because growing marijuana was not considered a reasonable use of water prior to the passage of the Adult Use of Marijuana Act in 2016, even if a person was able to get water rights, they were still subject to fines and sanctions if the state found out that the water was being used for an illegal purpose.[128] This effectively meant that even if a marijuana farmer found a way to pay for the water being used, since the water was not being used for a purpose that the state considered beneficial to society, they were still in violation of the reasonable use standard and subject to penalties and fines from state and federal agencies.[129]

The penalties for using water without a water right are steep.[130] According to the California State Water Resources Control Board, "the use of water without a water right is a trespass against the State of California and can lead to fines of up to $500 per day of use," and if a person is using water illegally they "can be required to stop taking and using water" for their purposes.[131] In order to accomplish this, the California State Water Resources Control Board is authorized to issue cease-and-desist orders against any person violating water use requirements, and if a farmer violates such a cease and desist, they are subject to fines of $1,000 to $10,000 per day, depending on the time of year during which the cease-and-desist is violated and whether or not that violation takes place during a drought year.[132] These fines are separate from any fines, fees, and restitution marijuana farmers may have had ordered as part of their criminal convictions for growing an illegal drug, depending on the crimes of which they were ultimately convicted.[133]

In addition to the barriers mentioned above, the sheer number of state agencies involved in regulating marijuana is very intimidating, especially for farmers who until very recently were growing an illegal crop. The State Water Resources Control Board, the California Department of Fish and Wildlife, the Bureau of Cannabis Control, the California Department of Forestry and Fire Protection,

122. *Id.* attachment A.
123. The Law Dictionary, *What Is Surface Water?*, https://thelawdictionary.org/surface-water/ (last visited May 9, 2017).
124. Cal. Water Code §10721 (2014).
125. California State Water Resources Control Board, *supra* note 20.
126. *Id.*
127. Hecht, *supra* note 52; Bauer et al., *supra* note 6; Melena Ryzik, *Dry California Fights Illegal Use of Water for Cannabis*, N.Y. Times, Aug. 6, 2014, https://www.nytimes.com/2014/08/07/us/dry-california-fights-illegal-use-of-water-for-cannabis.html?mcubz=0.
128. California State Water Resources Control Board, *supra* note 20.
129. *Id.*; Stoa, *supra* note 2, at 589-90; Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236.
130. California State Water Resources Control Board, *supra* note 20.
131. *Id.*
132. S.B. 837, §§3-5, 97, 2016/2017 Sess. (Cal. 2016); Cal. Water Code §1831 (1980).
133. Cal. Penal Code §498 (1985); *id.* §490 (1872).

and various law enforcement agencies all have a hand in regulating the cultivation, processing, sale, and use of marijuana in the state of California, and all of those agencies have different policies with which farmers must comply or risk sanctions.[134] Add to that the risks faced by farmers who do manage to comply with state regulations and grow marijuana completely legally according to their state governments, only to find that they have opened themselves up to federal liability by identifying the source of their water as a federally managed source. Stir in some barriers, beyond the focus of this Article, that influence whether marijuana farmers receive water rights once they apply for them, and it is not surprising that many marijuana farmers have developed a mindset that completely disregards the environment in which they cultivate their crops in favor of prioritizing maximum profit.[135]

Because of the seemingly overwhelming barriers and the mindset that many marijuana farmers have developed, it is becoming increasingly likely that legalization will only further exacerbate the illegal water use and environmental degradation currently associated with growing marijuana in the state of California.[136] This is partly due to how difficult it is to catch marijuana farmers stealing water, especially in remote, heavily forested areas of northern California, which lowers the deterrence factor of potential legal and monetary penalties and greatly increases the incentives for farmers to continue using water illegally.[137] In order to prevent this issue, there are some steps that the state of California is already taking to encourage marijuana farmers to legally grow their crop and do their part to prevent further environmental damage caused by this industry.

VII. How California Is Encouraging Marijuana Farmers to Comply and Ideas for Future Compliance

To encourage compliance with new regulations, California has created several water use right exemptions for certain marijuana farmers, as well as a program that allows marijuana farmers to obtain expedited water rights.[138] In addition to partially exempting the cultivation of small amounts of marijuana for personal consumption under the Adult Use of Marijuana Act, the state of California has created conditional exemptions for small outdoor crops of marijuana, exemptions for indoor crops of marijuana that comply with strict drainage and wastewater runoff standards, and the Cannabis Small Irrigation Use Registration Program.[139]

To qualify for a personal use exemption, a farmer must only grow six plants, and comply with all general rules and regulations for growing marijuana, and the few specific regulations for growing for personal use.[140] If a farmer qualifies, that farmer does not have to pay an application fee or annual fees to the state of California to legally water their crop.[141] To qualify for a conditional exemption, a farmer must comply with all other water use regulations for growing cannabis and grow a crop that is less than 2,000 square feet in size.[142] If a farmer can comply with those requirements, they can apply for a waiver from the State Water Resources Control Board and pay an application fee to be exempt from the requirement to apply for water rights before they can legally water their crop.[143] The same is true of the indoor exemption, which applies to crops that are grown entirely within a structure with a permanent roof and a permanent, relatively impermeable floor that discharges all wastewater into a community sewer system in compliance with the requirements of that system or that has an on-site wastewater management system.[144]

The other incentive that California is providing for marijuana farmers who wish to grow legal marijuana but are intimidated by the length of the water rights process is through creation of the Cannabis Small Irrigation Use Program.[145] This program is an extension of the Water Rights Registration Program that was put in place in 1989 to expedite appropriative water rights, in accordance with California Water Code §1228, for small water use projects.[146] When a farmer complies with the general restrictions that apply to cultivating marijuana, small irrigation use registration is available to that farmer.[147] Once that farmer applies and pays the associated fees, they will gain appropriative water rights on an expedited schedule, unless the water source from which they wish to appropriate is already considered fully appropriated by the State Water Resources Control Board.[148] If a farmer does receive Cannabis Small Irrigation Use Registration, they are then subject to all the policies and regulations that accompany that particular water right.[149]

However, as noted above, any farmers who choose to pursue compliance open themselves up to federal liability by registering their crop with the state. This liability is an ongoing deterrent to compliance with state water regulations, and is directly responsible for much of the environmental damage that is still being done by marijuana

134. California Water Resources Control Board, *supra* note 9, at 18; Bureau of Cannabis Control California, *supra* note 106.
135. Bland, *supra* note 6.
136. Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-513, 84 Stat. 1236; Stoa, *supra* note 2, at 589-90.
137. Angela Johnston, *Legal or Not, Cannabis Takes a Toll on Northern California Watersheds*, KALW, Dec. 18, 2017, http://kalw.org/post/legal-or-not-cannabis-takes-toll-northern-california-watersheds#stream/0; Bauer et al., *supra* note 6.
138. California Water Resources Control Board, *supra* note 9, at 15-19.
139. *Id.* at 15-18; Adult Use of Marijuana Act 2016, S.B. 94, 2017/2018 Reg. Sess. (Cal. 2017); California State Water Resources Control Board, *supra* note 20.
140. California Water Resources Control Board, *supra* note 9, at 15-18.
141. *Id.*
142. *Id.* at 16-18.
143. *Id.*
144. *Id.* at 17-18.
145. *Id.* at 18-19.
146. *Id.* at 18.
147. *Id.* at 18-19.
148. *Id.*
149. *Id.*

farmers. Until California establishes a protocol for shielding farmer information from the federal government, either via legislation or through internal rules of the regulatory agencies that oversee farmer compliance with state regulations, it will not be able to completely stop the degradation of its most important environmental resources.

In addition to exempting certain marijuana farmers from the expensive and lengthy water rights application process, and allowing certain other marijuana farmers to expedite their water rights process, the state of California can take more pointed steps to encourage marijuana farmers to grow their crops using legally obtained water. Recreational sales of marijuana began in January 2018, and with those sales come taxes, some of which will be appropriated to repairing environmental damage and protecting California's remaining natural resources.[150] It is important that those taxes generate as much revenue as possible to start making headway in the struggle to protect California's watersheds.

To that end, the state could encourage compliance with new regulations by lowering or eliminating the associated fees and shortening the application process for first-time applicants for water rights to cultivate marijuana for farmers who applied by December 31, 2018, which would provide a huge incentive for compliance. If the state coupled those incentives with lowered penalties for marijuana farmers found to be out of compliance with water use regulations before December 31, 2018, and then raised those penalties to current levels for 2019 and created much higher penalties for 2020 onward, that would also create incentives for farmers to comply with new regulations.

If the state also paired those penalties with sanctions that raised fees and lengthened the water rights application process for farmers who are found to be out of compliance with state regulations for legally growing marijuana on or after January 1, 2019, that may help deter farmers who are trying to manipulate the system to their advantage or delay the process of becoming a legal marijuana farmer for economic gain. To compound these measures, empowering law enforcement and state regulatory agencies to form targeted task forces aimed specifically at catching farmers' illegal water use would increase the deterrent effects of fines and fees by increasing the likelihood that farmers will be caught and punished for their environmental crimes, and by extension reducing the damage being done by those crimes.

Perhaps, the most effective measure for encouraging marijuana farmers to comply with water use and other environmental regulations is education. In order to completely change the water use practices of the marijuana industry, we have to change the mindset of a growing and diverse group of people. Educating farmers about the advantages of legally growing their crop and the environmental damage their water theft is causing could initiate large-scale changes in marijuana farming practices, and this education could take any number of forms. These programs could be funded by the educational tax already levied on sales of the crop and included as part of the permitting and regulatory process.

By requiring farmers to complete a few hours of education per year in order to keep or obtain water rights, it is possible to bridge the seemingly impossible gap between the rampant theft of California's water and a fully integrated and legal marijuana industry. Paired with compliance incentives and additional deterrence methods, education about the consequences of illegal water diversions and the long-term effects of dewatering delicate California ecosystems might shock farmers enough to begin large-scale change. Ultimately, education will empower marijuana farmers to make informed decisions about water use, and to thrive in their new regulatory scheme.

VIII. Conclusion

The solution to the legal quandary that currently surrounds water use for growing marijuana in California lies in comprehensible regulations with clear penalties, unambiguous policies, and direct communication between the marijuana farming community and the various government agencies that will oversee water regulation reform. It will require the combined efforts of environmental activists on both sides of the law to change the mindset surrounding how water is used to grow marijuana. The egregious and illegal water use practices currently employed by much of the marijuana farming community are largely dictated by a history of persecution, the number of different agencies and regulations involved in trying to legally use water to grow marijuana, and simple economics. These factors have led marijuana farmers to view their crops as temporary sources of quick cash that should be watered as profusely and easily as possible, regardless of the legality of their actions.

Because farmers were denied legal access to water, and even if they found a way to legally obtain water were subject to fines and fees because their crop did not conform to the reasonable use standard, many members of the marijuana farming community were driven to directly divert the water their crop requires from watersheds throughout California. These illegal diversions have done staggering amounts of environmental damage, especially in northern California. Marijuana farmers may continue to illegally divert water to support their endeavors due to a desire to maximize their profit margins and the very real challenges they face when trying to comply with water use and other environmental regulations, unless they are sufficiently encouraged to comply with those regulations.

While the best, most permanent solution may lie in federal legalization, there is much that California and other states can do to streamline the regulation process and protect those citizens who are simply trying to comply with state and local laws. As more states legalize marijuana and

150. Legislative Analyst's Office, Proposition 64 Revenues (2017), http://www.lao.ca.gov/handouts/crimjust/2017/Proposition-64-Revenues-021617.pdf.

begin to comprehensively regulate water use for growing what may be the largest cash crop in America, the opportunity for unprecedented environmental reform cannot be ignored. Ongoing water theft for the cultivation of a crop that has been relegalized can be prevented, but to halt widespread environmental damage, it will take clear and comprehensive reforms that shield from federal prosecution the farmers who grow this controversial crop.