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CANNABIS & WATER REGULATION

SORTING THROUGH THE WEEDS

LEGAL CANNABIS USHERS IN A NEW ERA OF WATER REGULATION IN CALIFORNIA

by Amy Steinfeld, Brownstein Hyatt Farber Schreck (Santa Barbara, CA)

Introduction

No other crop in California is as highly regulated as cannabis. Obtaining a cannabis cultivation license is a herculean task that requires compliance with a host of new regulations and sign off from a complicated web of state and local agencies. Approval from the State Water Resources Control Board (State Water Board) and compliance with their new cannabis water regime is no exception.

In 2019, the State Water Board adopted a "one -size-fits-all" approach to regulate cannabis cultivation and the water supplies used for irrigation. Its newly adopted water supply and water quality regulations, for the most part, are uniformly applied throughout California despite the geographic, hydrologic, and climate diversity across the State. While the water quality regulations that regulate discharges of waste associated with growing cannabis mostly mirror existing law and include numerous best practices that any responsible grower should follow, the restrictions on the use of water to irrigate cannabis are truly novel.

Under the *Cannabis Cultivation Policy — Principles and Guidelines for Cannabis Cultivation* (Final Draft Policy or Policy), a grower may not use one drop of water from an adjacent creek to irrigate cannabis during the dry season (the growing season) — even if she holds a valid water right. During the wet season, riparian right holders are prohibited from diverting more than 10 gallons per minute, regardless of the size of the farm. In addition, groundwater pumpers are subject to cutbacks if the State deems it necessary to maintain flows in nearby creeks. This broad-brush regulatory approach ignores the unique properties of each watershed, as well as established water rights and priorities. It should shock every farmer in the West as it upends over 170 years of established water law.

This is the first time that California has developed unique water rules for a specific crop. Surprisingly, this unprecedented Policy was largely ignored during the public comment period. Nonetheless, all farming interests should be monitoring this new Policy closely as it may foreshadow a new water supply and quality regime for all irrigated agriculture in California.

This article breaks down California's complex new Policy into bite-size pieces. The takeaway is that cannabis growers looking to reduce permitting time and consultant costs should site cannabis farms on relatively flat, historically cultivated land with existing agricultural facilities, wells, ample groundwater supplies, and access roads, or alternatively, grow cannabis indoors. Attempting to carve a cannabis farm into an undisturbed, hilly landscape, with insufficient or poor quality groundwater, would likely turn this herculean task into a hopeless one.

Cannabis & Water

Cannabis Laws

Illegal Growers' Impacts

Legal Growers Transition

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Background

It's important to understand the context of how and why this far-reaching policy was developed.

First, medical cannabis was legalized in 1996. Twenty years later, on November 8, 2016, Californians passed Proposition 64, the Adult Use of Marijuana Act (AUMA) to legalize recreational use of cannabis, during the worst drought in recorded history. However, as of January 1, 2016, the State had already begun implementing the Medical Cannabis Regulation and Safety Act (MCRSA), which regulated medical cultivation, testing, manufacturing, labeling, delivery, sale, and transport of medical cannabis. In 2017, the legislature therefore passed the Medicinal and Adult-Use Cannabis Regulation and Safety Act (MAUCRSA) to bring these two pieces of law into alignment.

Second, his Policy was drafted by the State to ensure that legal growers would not wreak havoc on local water systems, as occurred in the "Emerald Triangle" (Mendocino, Humboldt, and Trinity Counties). For the past several decades, some illegal growers have been responsible for significant environmental impacts: drying up Northern California streams, constructing illegal dams, eroding hillsides, and dumping pesticides into creeks.

However, cannabis for medical and recreational purposes is now legal. Compliant growers should not be treated differently than other farmers nor be punished for the sins of the black market. Cannabis uses less water and fewer pesticides than most other crops, and because it yields such a high value, cannabis has a much smaller footprint than what would otherwise be cultivated on the property. Legal cultivators are moving into well-established agricultural communities and long-time farmers are diversifying into cannabis — swapping out strawberries and tomatoes for cannabis (farmers that grow cannabis are referred to as "cultivators" hereafter). Cannabis is also transitioning from outdoor sites in Northern California to extremely efficient and low-water-use greenhouses because, to date, outdoor cannabis cultivation is only legal in 12 counties.

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Cannabis & Water
Onerous Regulations

The State's new rules, which were drafted with an eye towards illegal growing operations clustered in sensitive habitat areas, are therefore overprotective and ignore the reality of legal cannabis farming. The State's onerous new water regulations, which single out one crop, amount to an unprecedented water grab.

Cannabis Water and Pesticide Use

Water Duty

There is no published water duty for cannabis because it remains illegal at the federal level (classified as a Schedule 1 controlled substance) and therefore insufficient research has been done on the plant's water consumption at universities. Water use will be clarified in 2019 as growers start to track and measure their diversions and water use under the State's new regulations. However, the general rule of thumb from the industry is that cannabis plants grown outdoors consume one gallon of water per day per pound of dried cannabis buds (flower; *see* www.marijuanaventure.com/report-on-water-usage/). Plants grown outdoors can yield from 1-6 pounds of flower, depending upon various environmental factors. Annual outdoor water use has been reported to be as low as 1/2 **a**cre-**f**eet (AF) per acre up to 3 AF per acre (equivalent to growing an acre of lemon or avocado trees). A big factor in water consumption by the cannabis plant is light intensity — the more intense, the greater the plants need to transpire water. Hoop houses, which are often used in outdoor grows, reduce water consumption by limiting solar radiation and water evaporation. By growing in a greenhouse, cultivators can reclaim up to 80% of the irrigation water, and therefore can reduce water use substantially. Compared to the rest of California, cannabis plants make up only a small fraction of overall agricultural water use, but are subject to the most stringent water regulations.

Pesticides & Herbicides

Virtually no pesticides or herbicides may be applied to cannabis due to California's strict testing requirements. Cannabis products must be lab tested for residual pesticides, at levels so low that cultivators are concerned about pesticide infiltration and overspray from nearby farms not subject to the same requirements (e.g. grapes, avocados, etc.). Using pesticides that meet any of the following criteria could result in civil or criminal penalties: (1) pesticides not registered in California for a food use; (2) a California Restricted Material including Federal Restricted Use Pesticides; or (3) pesticides on the groundwater protection list. Pesticides that are exempt from registration requirements and therefore legal to use on cannabis are primarily food-grade essential oils (for example, peppermint oil or rosemary oil; *see* www.cdpr.ca.gov/docs/county/cacltrs/penfltrs/penf2015/2015atch/attach1502.pdf). Per the California Department of Pesticide Regulation, for a pesticide to be legally used on cannabis, it must be exempt from the US Environmental Protection Agency's (EPA's) residue tolerance requirements and either labeled for a use broad enough to include use on cannabis or be exempt from registration requirements (*see* www.cdpr.ca.gov/docs/cannabis/index.htm). For a list of cannabis pesticides that are legal to use, see www.cdpr.ca.gov/docs/cannabis/can_use_pesticide.pdf. In sum, cannabis is grown using far less water and fewer pesticides than any other crop in California.

Exemptions

Cannabis Cultivation Licenses

Commercial Cultivators

The California Department of Food and Agriculture (CDFA) is the state agency charged with overseeing the regulation and licensing of commercial cannabis cultivators in California. California Business and Professions Code, §§ 26012 and 26060. To perform that mission, the CDFA created a new division, CalCannabis. CalCannabis has three units: Licensing; Compliance/Enforcement ; and Administration. The Licensing unit issues four primary types of cultivation licenses: Mixed-Light; Outdoor; Indoor; and Nursery.

License Elements

Cultivation license applications have 26 elements and require the following:

- Evidence of surety bond;
- Evidence of the legal right to occupy the proposed premises;
- Proof of enrollment in the State Water Board Waste Discharge Program;
- Written verification of compliance from the California Department of Fish and Wildlife (CDFW);
- Evidence that a hazardous-materials record search of the EnviroStor database has been completed;
- Evidence of either compliance with, or exemption from, the California Environmental Quality Act (CEQA);
- Copies of all documents filed with the California Secretary of State; and
- Most importantly, information for each water source associated with cannabis cultivation activities.

Compliance with the State's new water Policy is also a condition for obtaining a cultivation license.

Hazardous Sites

If hazardous sites are encountered on an applicant's proposed premises, then documentation outlining employee health-and-safety protocols also must be provided. EnviroStor is the California Department of Toxic Substances Control's data-management system for tracking the cleanup, permitting, enforcement, and investigation efforts of hazardous-waste facilities and sites with known contamination, or sites where there may be a need for further investigation.

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Water Supply Options

Local Land Use Permits

Cultivation Bans

The State licensing structure is designed to function concurrently with any local regulatory program by requiring that all licenses issued by the State work well in concert with local rules. That means that cultivators must also obtain a land use permit from their local jurisdiction (county or city), which may impose additional water quality and water conservation requirements. Because Prop 64 preserved local control, counties and cities may either regulate or ban commercial cannabis within their jurisdictions. Accordingly, most counties have banned cultivation of cannabis altogether.

Updated Policy

The State Water Board's Cannabis Policy

On February 5, 2019, the State Water Board (State Water Resources Control Board) adopted an updated Cannabis Policy, which has been submitted to the Office of Administrative Law and is anticipated to go into effect by April 2, 2019. Policy dated 2/5/2019 available at: www.waterboards.ca.gov/water_issues/programs/cannabis/docs/cannabis_policy_clean.pdf.

Mandates

Authority, Purpose and Implementation

The State Water Board has two primary mandates: protection of water quality and allocation of surface water rights. Thus it's no coincidence that its cannabis policy addresses both areas. Compliance with this policy is "mandatory to ensure that the diversion of water and discharge of waste associated with cannabis cultivation does not have a negative impact on water quality, aquatic habitat, riparian habitat, wetlands, or springs." Final Draft Policy, p. 21.

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Instream Flow Protection

On June 27, 2016, Governor Edmund G. Brown, Jr. signed Senate Bill No. 837, which required the State Water Board, in consultation with the California Department of Fish and Wildlife (CDFW), to adopt requirements for the diversion and use of water for cannabis cultivation in areas where cannabis cultivation may have the potential to substantially affect instream flows. That legislation, legalizing recreational cannabis, enacted a new water code section (13149) that mandates the State Water Board, in consultation with CDFW, to:

> …adopt principles and guidelines for diversion and use of water for cannabis cultivation in areas where cannabis cultivation may have the potential to substantially affect instream flows. The principles and guidelines adopted under this section may include, but are not limited to, instream flow objectives, limits on diversions, and requirements for screening of diversions and elimination of barriers to fish passage. The principles and guidelines may include requirements that apply to groundwater extractions where the board determines those requirements are reasonably necessary for purposes of this section.

Implementation Programs

This legislation required the State Water Board to incorporate these guidelines into a state policy that applies to the cultivation of commercial recreational and medical cannabis. Ultimately, these requirements were incorporated into and are implemented through the following five programs: (1) CDFA's CalCannabis Cultivation Licensing Program; (2) the State Water Boards' Cannabis General Waste Discharge Requirements (Cannabis Cultivation General Order) or any Waste Discharge requirements addressing cannabis cultivation activities adopted by a Regional Water Quality Control Board (Regional Water Board); (3) the State Water Board's General Water Quality Certification for Cannabis Cultivation Activities (Cannabis General Water Quality Certification); (4) the State Water Board's Cannabis Small Irrigation Use Registration (Cannabis SIUR); and (5) the State Water Board's Water Rights Permitting and Licensing Program.

General Requirements and Prohibitions

38 Existing Laws

It's axiomatic that cannabis cultivators must comply with all federal, state, and local laws and permitting requirements. The State Water Board's Policy provides a summary of 38 existing laws that may apply to cannabis activities, including the Clean Water Act, the Endangered Species Act, CEQA, and the Regional Board's Waste Discharge Requirements (WDRs). *See* Final Draft Policy, Attachment A, Section 1.

Water Course Impacts

For example, if a cultivator's activities impact a river, stream, or lake, they must consult with CDFW prior to undertaking certain activities affecting a water course. *Id*. at Term 3. Fish & Game Code section 1602 requires notification to CDFW prior to commencing any activity that may: (1) substantially divert or obstruct the natural flow of any river, stream or lake; (2) substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or (3) deposit debris, waste, or other materials that could pass into any river, stream or lake, including perennial or intermittent/ephemeral waterbodies. If any of these factors are met, a cultivator must apply for a Lake and Streambed Alternation Agreement. *Id*. In general, cultivators should avoid work in or near a surface waterbody. *Id*. at Term 41.

Riparian Setbacks

Cultivators must also respect minimum riparian setbacks for all cannabis activities, including grading and facilities used to support the farm. Setbacks are measured from the high flow water levels of a waterbody or from the top edge of the channel. *Id*. at Term 37. No outdoor farming or facilities may occur within 150 feet of a flowing watercourse, 100 feet of an intermittent watercourse, or 50 feet from an ephemeral watercourse. *Id*. Likewise, before grading land for cultivation, a grower must hire a biologist to identify any sensitive flora or fauna, and if located, consult with CDFW, and provide a report to the Regional Board. *Id*. at Term 10. The Policy also clarifies that no irrigation runoff, tailwater, chemicals or plant waste can be discharged to a waterbody. *Id*. at Term 26.

No Discharges

Land Development for Cannabis Cultivation and Ongoing Erosion Control

Erosion Control

Along with general terms, the Policy provides specific rules for farmers planning to grow cannabis on undisturbed land. Historically, cannabis in California was planted on steep slopes deep within national forests, and adjacent to rivers or creeks. Unregulated grows resulted in heavy erosion, sediment filled creeks, and damage to riparian habitat. Yale Environmental 360, Toomey, Diane, "*The High Environmental Cost of Illicit Marijuana Cultivation*" (July 2015). To prevent erosion, the State Water Board has set forth numerous limitations on earthmoving and other activities conducted in sensitive areas to avoid sediment and pollutants entering waterbodies. For example, cannabis cultivators may not grade hillsides that exceed a 50 percent slope. Final Draft Policy, Attachment A, Section 2, Term 1. Farms that are sited on or near hillsides must inspect slopes to determine if they are stable. *Id*. at Term 12. New and expanded cultivation sites must be developed and designed by a qualified professional. *Id*. at Term 4. The Policy defines "Qualified Professional" as a California-Licensed Professional Geologist, including Certified Hydrogeologist and Certified Engineering Geologist, California-Licensed Geotechnical Engineer, and Professional Hydrologist (Final Draft Policy, Definition 72, p. 11).

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Control Requirements

When a farm is being developed, a cultivator must minimize grading, soil disturbance, and impacts on both terrestrial and aquatic habitat, especially during the winter season. Final Draft Policy, Attachment A, Section 2, Terms 4 and 10. In addition, cultivators must implement dust control measures to prevent sediment from entering local creeks. *Id*. at Term 5. No vehicles or heavy equipment may be used or driven within a riparian setback (*id*. at Term 3) or watercourse (*id*. at Term 40), and cultivators must avoid damaging native riparian vegetation and oak woodlands. *Id*. at Terms 33, 34. If riparian habitat is disturbed, a cultivator may have to develop a revegetation and monitoring plan. *Id*. at Term 35. Likewise, all farm equipment, fuel, and hazardous materials must be carefully stored away from creeks and sensitive habitat. *Id*. at Term 7. And cultivators must implement appropriate erosion control measures to protect local water supplies. Lastly, the Policy includes numerous requirements that govern construction of access roads for cannabis cultivation activities (*id*. at Terms 15 to 29), and special requirements that apply during winter months to prevent erosion. *Id*. at Terms 126 to 134.

Water Supplies for Irrigation of Cannabis

Federal Water Ban

Currently, the federal government bars cannabis growers from using federal project water (Central Valley Project and Colorado River water supplies) for irrigation (though this could change if the United States legalizes cannabis). For this reason, this section focuses on non-federal water supplies.

Surface Water - Restrictions

Pursuant to the California Water Code, the State Water Board has jurisdiction only over surface water. Wat. Code § 1201. Accordingly, its Policy is focused primarily on this supply. Surface water is defined as water flowing on the surface of the earth in stream channels, or "subterranean streams flowing through known and definite channels." *Id*. at § 1200.

Surface Water Right

The use of surface water supplies in California requires a valid water right and water for cannabis cultivation is no different. Final Draft Policy, Attachment A, Section 2, Term 69. Anyone seeking to appropriate "water flowing in a known and defined channel" or from a watercourse must apply to the State Water Board and obtain a permit or license to appropriate. Wat. Code §1225. *See also* Wat. Code §1201 which provides that the State shall have jurisdiction over, "[a]ll water flowing in any *natural channel*" except water that is appropriated or being used for "beneficial purposes upon lands riparian" to the channel. (emphasis added). Alternatively, a landowner whose property is adjacent to a watercourse has a riparian right to divert the water therein for use on his land. Riparian users do not need permission from the State Water Board to divert water, but they must file a Statement of Diversion and Use (Wat. Code §§ 5100–02). In short, the State imposes permitting or reporting requirements on the use of any surface water flowing in a known or defined channel.

Riparian Right

Dry Season Limitation

Off-Stream Storage

Additional requirements are placed on cannabis cultivators. For example, cannabis growers must maintain documentation of their water right at the cannabis farm because this documentation may be reviewed by the Water Boards and CDFW at any time. But the biggest obstacle that growers face is that they cannot divert *any* surface water during the dry season (April 1 through Oct. 31), even if they have an appropriative or riparian right that has been historically used to irrigate other crops. Instead, during the growing season, cultivators may only irrigate using water that has been stored off-stream. The State put these rules in place to keep sufficient water in streams to support fish during key periods, but these rules do not take into account the individual characteristics of each waterbody, and the fact that no fish may be present.

Wet Season Restrictions

There are also onerous restrictions on water use during the wet season. For example, while appropriative right holders may divert more than 10 gallons per minute for cannabis irrigation; riparian right holders are not allowed to exceed that diversion rate. Final Draft Policy, Section 2, Term 78. In addition, cultivators may only divert water when the applicable instream flow requirements are met at the assigned compliance gage (see below). *Id*. at Term 66. That means that from November 1 to March 31, cannabis cultivators must comply with instream flow requirements and check in with the State daily to ensure adequate water supplies are available. No other type of farmer is subject to such a burdensome requirement.

Daily Check

Measuring & Reporting

Cannabis cultivators are also required to install measuring devices to track surface water diversions daily, and maintain the records onsite for at least five years. *Id*. at Term 82. This arduous record keeping is required even for small diversions under 10 AF per year, even though this would be exempt under state law. On a monthly basis, cannabis cultivators must also inspect their water delivery system for leaks and repair any leaks (*id*. at Term 95), and inspect sprinklers and mainlines weekly to prevent irrigation runoff (*id*. at Term 99). And all cultivators must implement water saving irrigation methods such as drip irrigation. *Id*. at Term 97.

Irrigation Method

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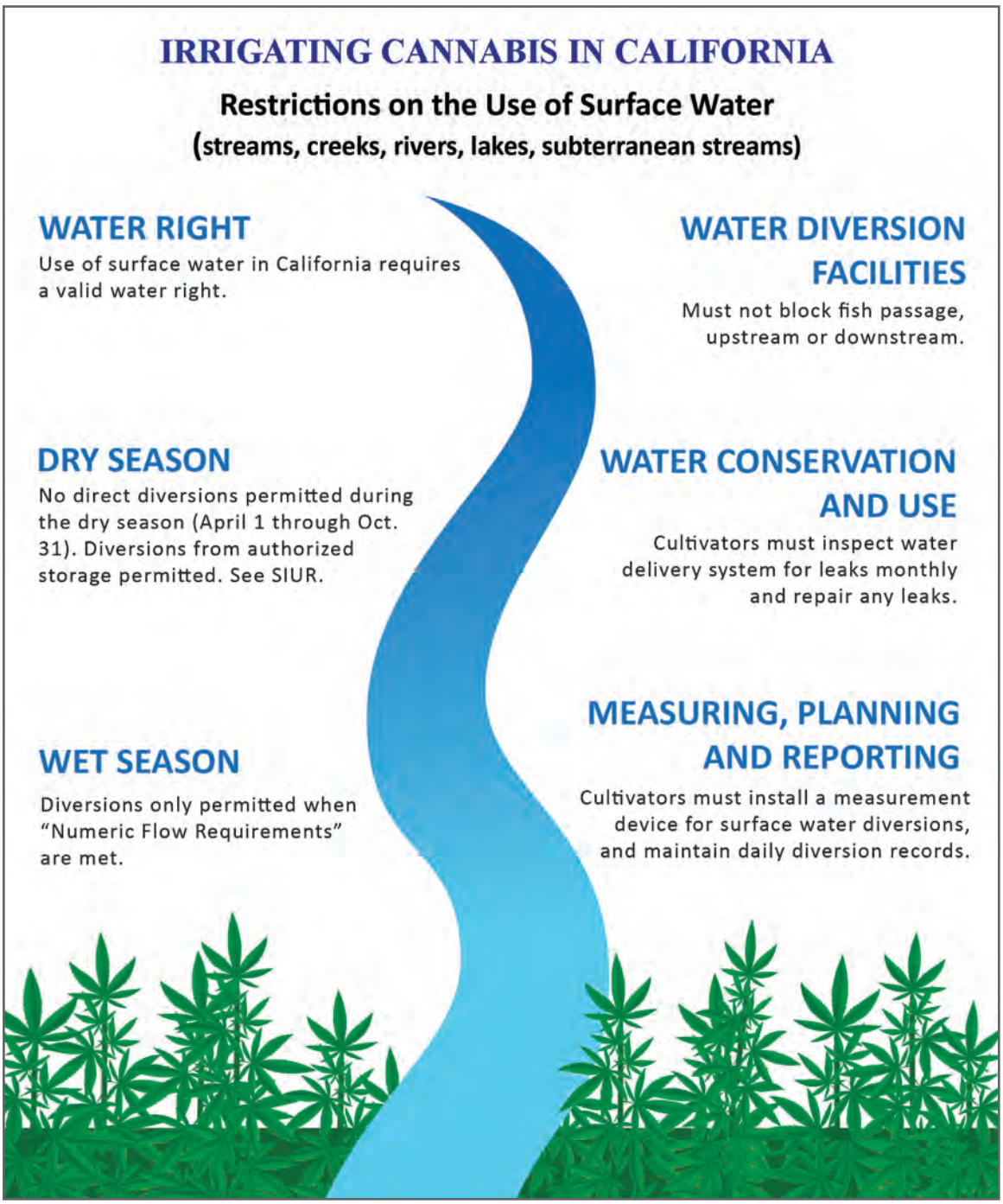
Surface Water Restrictions



Vested Water Rights

The Policy's restrictions on the use of water during the growing season to irrigate cannabis disregards the unique and vested nature of water rights to which property owners are entitled: to put water "to beneficial use to the fullest extent of which they are capable," as required by California Constitution, Article X, Section 2. The Policy is fundamentally flawed because all surface waterbodies are treated identically, irrespective of flow conditions, and the senior priority rights of landowners are not respected. By applying to all of California, rather than tailored to individual waterbodies, the Policy is overly broad. Whether intended or not, the Policy results in an unlawful adjudication of the relative rights of cultivators' access to surface water without appropriate due process. This amounts to a "taking" of vested property rights without just compensation. This imprudent approach to water management will likely harm this new, valuable crop, and could discourage some growers from complying with the State's new cannabis regulations, especially if they hold a valid water right for summer irrigation.

"Taking"

[**Editor's Note:** The US Constitution limits the power of state or federal governments to impinge upon any exclusive use of water by prohibiting the enactment of laws or regulations that would amount to a "taking" of private property, for which just compensation is owed to the water right owner.]

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Cannabis & Water

Compliance Gages

Minimum Bypass Flow

Wet Season Storage

Offstream Storage

Fish Impacts

Storage Requirements

Size Limit

Fish Passage

Springs Source

Instream Flow Requirements and Compliance Gages

All surface water diversions for cannabis are subject to "Numeric and Narrative Instream Flow Requirements," to protect flows needed for fish migration and spawning. These new requirements are applied at existing gages maintained by the United States Geological Survey (USGS) and the California Department of Water Resources (CDWR). Water courses that do not have gages are assigned a compliance gage that matches a nearby watershed with similar characteristics. Final Draft Policy, p. 12. Cannabis cultivators may also be required to install a gage if a nearby one does not serve to protect instream flows.

To ensure diversions of water for watering cannabis does not adversely impact fish flows, cultivators must "maintain a minimum bypass of at least 50% of the streamflow past the cannabis cultivator's point of diversions, in addition to the applicable numeric instream flow Requirements." *Id*. This requirement applies to all cultivators, including those with a riparian or pre-1914 water right. Final Draft Policy, Attachment A, p. 60. The State has an online Cannabis Compliance Gage Mapping Tool that cannabis cultivators must check daily to determine whether there is sufficient water for irrigation at their points of diversions. *Id*. at pp. 60, 63.

Storage of Surface Water

The State Water Board urges cultivators to store water offstream during the wet season, including rainwater, for use during the dry season. Cannabis growers may not rely on onstream storage reservoirs, unless they have an existing permitted reservoir in place prior to October 31, 2017. Final Draft Policy, Section 2, Term 79. If a cultivator has an unpermitted onstream reservoir which existed prior to October 1, 2016, they may file for a Cannabis Small Irrigation Use Registration (SIUR). *Id*. This will only be permitted if removing the reservoir would cause more damage to the environment than continuing to use the existing reservoir. *Id*. Further, existing reservoirs may have to be modified to protect streamflows.

Small growers may benefit from the State Water Board's new Cannabis SIUR Program, which is an expedited process for cannabis cultivators who divert from a surface water source to develop and install storage offstream. To qualify, diverters must have a valid water right, which must specifically include irrigation as a type of use, and must include a diversion to storage season between November 1 and March 31. Because riparian right holders do not have storage rights, they will have to obtain a water right through this new program. Cultivators that divert from Wild and Scenic Rivers or Fully Appropriated Streams are not eligible for a Cannabis SIUR. Conditions may be imposed on the reservoir to ensure that diversions to storage do not negatively impact fish. *Id*. All storage systems must be equipped with a measuring device that takes daily measurements. *Id*. at Term 82. The Board also encourages cannabis cultivators to install separate water storage systems for water diverted for cannabis versus other beneficial uses. *Id*. at Term 81. Finally, cannabis cultivators must "implement an invasive species management plan prepared by a Qualified Biologist for any existing or proposed storage facilities." *Id*. at Term 86.

Note that this expedited storage program will only benefit small farmers as the storage right is limited to storing up to 6.6 AF of water per year. Assuming a water duty of two AF per acre for outdoor cannabis, this is only enough stored water to irrigate approximately three acres of cannabis, assuming most of the irrigation occurs during summer months.

Water Diversion Facilities

Diversion facilities for the irrigation of cannabis may not block fish passage, upstream or downstream, as required by Fish and Game Code section 5901. This means that a cannabis farmer must allow sufficient water to flow past the point of diversion, and diversion facilities must be carefully designed to not impede fish passage. This includes maintaining flows at an "appropriate depth, temperatures, and velocity… ." Final Draft Policy, Section 2, Term 70. If a grower is proposing to construct a new diversion facility, the grower must not "obstruct, alter, dam, or divert any portion of a natural watercourse prior to obtaining all applicable permits and approvals." *Id*. at Term 76. All diversions must be fitted with a CDFW-approved fish screen to prevent fish and wildlife from being sucked into the intake. *Id*. at Term 74.

Fully Contained Springs

If a landowner has a spring on her property, she may use the spring source if it is considered by the State to be "Fully Contained." "Fully contained springs do not flow off a person's property in the absence of diversion, including wet years, or after periods of heavy rain." The "Fully Contained Springs" webpage is available at: www.waterboards.ca.gov/water_issues/programs/cannabis/fully_contained_springs.html. The Cultivation Policy allows cultivators to request an exemption from certain instream flow requirements if the spring being used for cannabis cultivation meets certain conditions. *Id*. These requests must be submitted online to the State Water Board, along with evidence from a water professional demonstrating the spring is not connected to any surface waterbody. *See* Final Draft Policy, Attachment A, pp. 58-59 regarding "Exempt Springs."

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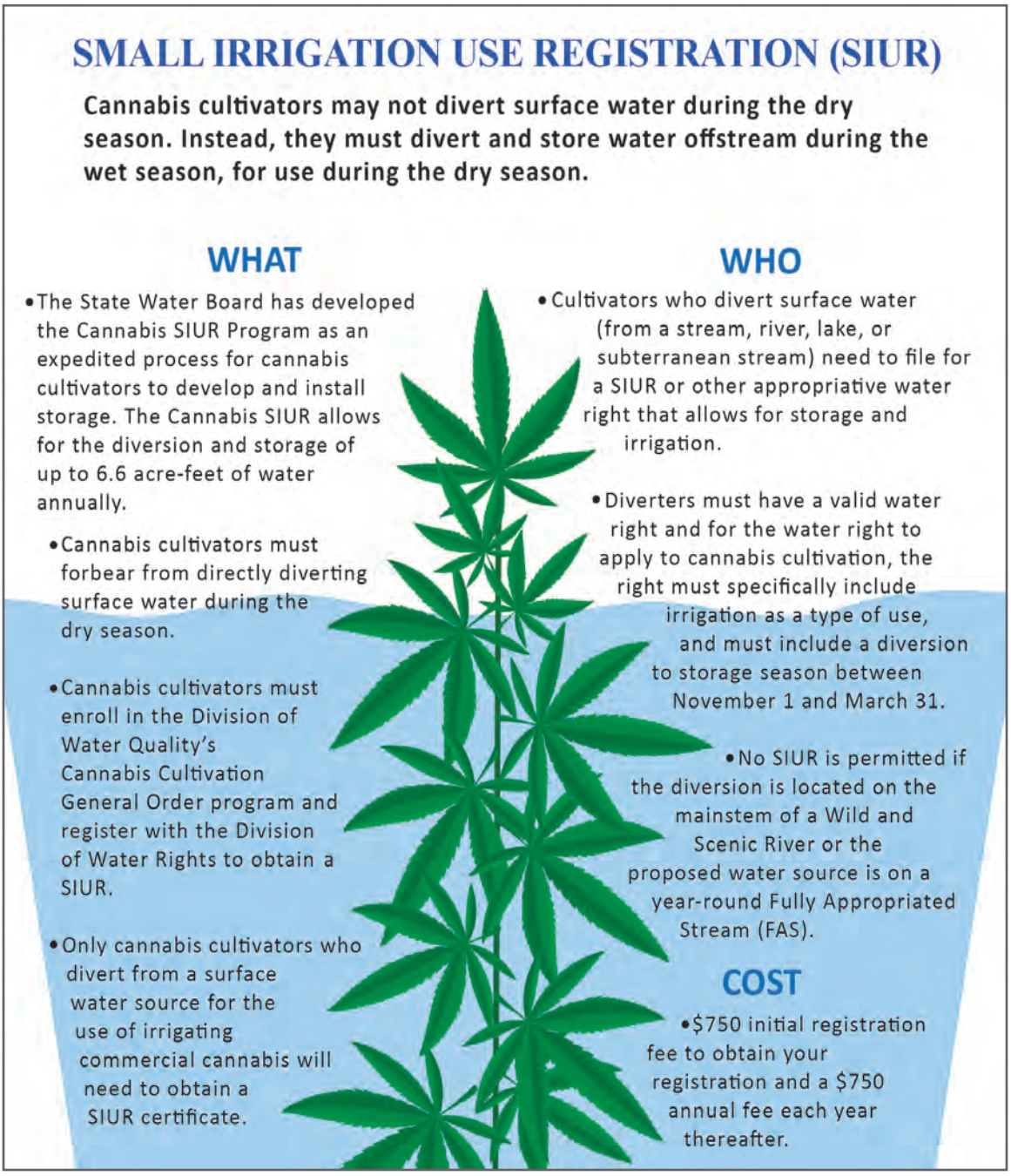
Cannabis & Water

Wet Season Storage



Groundwater Supply Source

Groundwater: Recommended Water Supply

Groundwater is generally not subject to the regulations listed above, such as the summer forbearance period and bypass requirements, but the era of unregulated groundwater pumping is over. Many groundwater basins in California are now governed by the Sustainable Groundwater Management Act (SGMA), which requires water agencies to halt overdraft and restore balanced levels of groundwater pumping from certain basins. As a result, SGMA may result in future pumping cutbacks or pumping assessments.

Growers/Cultivators are advised to identify the local groundwater basin via CDWR's Bulletin 118 to determine whether the groundwater basin is adjudicated or governed by a groundwater sustainability agency. Growers should also test the groundwater supply's pH and salt levels because cannabis plants are finicky and water treatment can be cost prohibitive. If a new well is needed, growers should consult with the local county before drilling a new well. In some areas, moratoriums and restrictions on drilling new wells are on the rise. Cultivators, like other farmers, must install, maintain, and destroy wells in compliance with local and State well standards. (*See* California Well Standards, available at: water.ca.gov/Programs/Groundwater-Management/Wells.)

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Dry Season Use

Minimum Base Flows

Groundwater is generally the recommended water supply for cannabis because in most instances it may be used during the dry season, unlike surface water. However, groundwater pumping may be restricted during the dry season if extractions impact local streams. This may occur in watersheds where there are large numbers of cannabis groundwater diversions, wells located close to streams, and areas of high surface water-groundwater connectivity. To address this, the State Water Board developed a dry season minimum base flow for aquatic life at each compliance gage. During the dry season, the State Water Board will monitor instream flows and "evaluate the number and location of cannabis groundwater diversions to determine whether imposition of a groundwater forbearance period or other measures are necessary." Final Draft Policy, p. 11. It's unclear whether non-cannabis farmers could be subject to cutbacks during the dry season. Regardless, this means that groundwater pumpers must remain mindful of the condition of nearby creeks and are advised to site their wells at least 75 feet from a creek.

Water Quality Requirements for the Cultivation of Cannabis

Water Quality Permit

General Order

The purpose of the Cannabis Cultivation General Order WQ 2017-0023-DWQ (General Order) is to protect water quality by preventing and minimizing discharges to waters of the State. The Order is a statewide water quality permit available to cannabis cultivators to regulate discharges related to cannabis cultivation. The General Order is available at: www.waterboards.ca.gov/water_issues/programs/cannabis/cannabis_water_quality.html.

Water Discharge Requirements

The General Order implements the Cultivation Policy's requirements that specifically address waste discharges associated with a broad variety of outdoor cannabis cultivation activities, such as site development, maintenance, and construction of access roads. Adverse impacts to water quality include discharges of fertilizer, sediment, irrigation runoff, pesticides, and human waste. If a Regional Water Board determines that due to site-specific conditions, coverage under the General Order will not be sufficiently protective of water quality, that Regional Board may issue site-specific **w**aste **d**ischarge **r**equirements (WDRs) for a particular cultivation site.

A tiered approach by "threat" level was created for permitting discharges and threatened discharges of waste from cannabis cultivation activities, and to outline conditional exemption criteria for low risk activities. Tiers are defined by the amount of disturbed area (size of the grow) because the level of threat is proportional to the area of land that has been disturbed and the amount of fertilizer and water used onsite. Final Draft Policy, p. 13.

Tiered Approach

Tier 1 dischargers (more than 2,000 square feet of outdoor cultivation, but less than 1 acre) and Tier 2 dischargers (more than 1 acre of outdoor cultivation) must enroll under the Order and must also submit technical and monitoring reports that include confirmation of winterization measures, certification of the tier status, and for higher risk tiers, nitrogen management status. Tier 2 Dischargers must also submit a Nitrogen Management Plan that calculates how much nitrogen is being applied to the site via fertilizers. Final Draft Policy, Attachment A, p. 66.

Nitrogen Use

Site-Specific Conditions

In addition to disturbed area, site-specific conditions are considered in the "risk designation" to water quality. The slope of the disturbed area is a factor as steep slopes (defined as greater than 30%) increase the risk of storm and irrigation water runoff and discharge off-site. Another factor is proximity to a surface water body and whether any portion of the disturbed area is within the setback of that waterbody. Final Draft Policy, p. 15.

Erosion Control

For sites with these high risk designations, additional requirement includes: a Site Erosion Sediment Control Plan (when any portion of the disturbed area is located on a slope greater than 30 percent), and a Disturbed Area Stabilization Plan (when any portion of the disturbed area are located within the Disturbed Area Setbacks). Final Drfat Policy, Attachment A, Section 1, Term 31-32.

Indoor Cultivation

Indoor cultivators that grow inside a structure with a permanent roof and an impermeable floor are exempt under this order if they: (1) comply with the State's new Policy; and (2) discharge wastewater to a permitted wastewater treatment system; or (3) collect the wastewater in a container for hauling offsite. Final Draft Policy, p. 17. Indoor growers that discharge wastewater to a septic tank, land, or to surface water, must obtain a separate permit. Indoor growers that are exempt from the General Order must still have a valid water right if they are using surface or groundwater supplies. *Id*. at p. 18.

Watershed Enforcement Team

Enforcement

The State Water Board has the authority to bring enforcement actions against cultivators who violate the Policy or conditions in the General Order under Water Code, §1847. The Policy's Requirements will be incorporated into each cultivation license issued by CDFA. To carry out these new rules, the State has expanded the scope of its Watershed Enforcement Team to focus on cannabis cultivation throughout the State. Final Draft Policy, p. 23. If the State Water Board or CDFW finds that cannabis cultivation is harming a particular watershed, CDFA has the right to ban new licenses in that area. *Id*.

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Cannabis & Water

Infraction Fines

Regulation Maze

Thus far, two Regional Boards have adopted orders related to cannabis cultivation. Recent news shows that the Regional Water Boards and CDFW are taking infractions very seriously. *See*, for example: https://krcrtv.com/news/shasta-county./shasta-co-property-owners-fined-for-water-violations-at-cannabis-grows. In February 2019, the Central Valley Regional Board issued fines to three landowners in Shasta County. One fine, for over $83,000, was for water quality violations related to grading and constructing stream crossings as well as for unpermitted surface water diversions. The landowner had ignored the Cleanup and Abatement Order. In another case, a $150,000 fine was levied for unpermitted grading and construction of an earthen dam that could result in waste discharge to surface water.

Conclusion

The State Water Board's cannabis policy presents one of the most complex regulatory regimes developed in California. Before investing in a property, cannabis cultivators must understand the water rights associated with the cultivation site and are advised to hire a qualified professional to aid them in complying with the maze of water supply and quality regulations. Noncompliance can spell lofty fines, revocation of a grower's cultivation license, or a referral to the County District attorney. It remains to be seen whether any "takings" actions will be brought against the State by water right owners for prohibiting the irrigation of cannabis with surface water during the key six month growing season. Farmers throughout California should be watching this new Policy closely.

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Final Draft Policy (Feb. 5, 2019) is available at:
www.waterboards.ca.gov/water_issues/programs/cannabis/docs/cannabis_policy_clean.pdf
Cannabis Cultivation Policy website at:
www.waterboards.ca.gov/water_issues/programs/cannabis/cannabis_policy.html

Amy Steinfeld serves as office managing partner of Brownstein Hyatt Farber Schreck's Santa Barbara office. Her unique practice focuses on the intersection of land use and water law. She regularly advises water districts, regulated utilities, cities, developers, and agricultural interests, including nut and cannabis growers, in all aspects of water law. Amy has more than a decade of experience in the permitting and development of controversial projects throughout the state. She represents numerous cannabis cultivators, and specializes in conducting due diligence to locate and identify appropriate properties for cannabis cultivation, with a unique emphasis on water rights.

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Stormwater Infrastructure

Changing Climate

Complicated Financing

Cost Estimates

Stormwater Impacts

Problematic Pollutants

Urban Growth

Endangered Species

STORMWATER INFRASTRUCTURE IN WASHINGTON

ASSESSING NEEDS – MEETING CHALLENGES

by Gretchen Greene, Kerensa Gimre, Jeri Sawyer, Rabia Ahmed, and Steven Roy
Greene Economics LLC (Various Washington State Locations)

OVERVIEW

Water managers throughout the United States and the world are struggling to better understand and control stormwater. As we learn more about stormwater and the adverse impacts it has on our environment and economy, the technological and financial challenges continue to mount with changing land use and climatic conditions. Planning for public investment in stormwater infrastructure is also complicated with uncertainty regarding performance and cost, lack of institutional capacity, and lack of funding (Roy et al., 2008).

Washington State has one of the most active, innovative, and effective stormwater management programs in the nation. Regulatory initiatives and technical support programs assist municipalities in addressing local stormwater issues. However, Washington faces obstacles with respect to funding, public education, and legal considerations. Conservative estimates suggest that over the next 20 years, nearly $18.7 billion in investment funding may be needed in the State to address stormwater management (Ramboll, 2017). Nonetheless, stakeholder-coordinated efforts and partnerships are raising awareness about stormwater. Funding challenges are being addressed through legacy stormwater utilities paired with innovative newer strategies.

This article summarizes the challenges to stormwater infrastructure planning and investment in Washington State, highlighting some of the interesting approaches under consideration for Washington and elsewhere.

BACKGROUND

Stormwater — the water runoff from roads, roofs, and grassy surfaces during precipitation events — is a leading contributor to water quality impairments in the urban areas of Washington State. Stormwater impacts water quality by collecting pollutants as it flows over surfaces in urban areas and into surface water bodies. Over the last several decades, the primary focus of stormwater management efforts has been on lessening impacts to receiving waters by concentrating on "end-of-pipe" point sources from municipal wastewater treatment plants and industrial discharges to water ways. There has been significant progress in improving treatment levels at these types of facilities.

Stormwater is problematic to control because it is ubiquitous. With every rainfall event, stormwater gathers, collects, and discharges contaminants to receiving waters. These contaminants include: sediment; nutrients; bacteria; metals; oil; and grease. Stormwater runoff can also result in temperature increases, which are of particular concern to certain aquatic species. Untreated stormwater can harm humans by making water unsafe to drink (through contamination of drinking water aquifers) or even contact. Stormwater pollution can cause salmon mortality through: stream channel erosion; increases in pre-spawn mortality in urban streams; and exposure to toxic pollutants. Economic activities — such as commercial and recreational fishing, shellfish industries, homebuilding and development, and water recreation — can all be adversely impacted. As urban areas grow, stormwater becomes ever more problematic.

According to the King County stormwater website, stormwater pollution contributes to 30 percent of the pollution in waters with some pollution problems and:

> Most of the four million people who live in the Sound region contribute to stormwater pollution every day. The Washington Department of Ecology estimates that one-third of all the polluted waters in the state are polluted by stormwater runoff. Stormwater pollution has contributed to closing thousands of acres of productive shellfish growing beaches. Stormwater runoff can also close swimming beaches and contaminate drinking water supplies.

See https://kingcounty.gov/services/environment/water-and-land/stormwater.aspx

Particularly concerning in terms of the environmental harm from stormwater in Washington State are the effects of untreated stormwater on endangered coastal aquatic species, including Coho salmon and orcas (MacIntyre et al., 2018, NOAA Fisheries Service, 2016, Spromberg et al., 2016 among others). Stormwater contaminants — including metals, petroleum-derived compounds, pesticides, and others — impair salmon and steelhead health and survival by: suppressing the immune system; depressing growth; interfering with feeding; and suppressed predator avoidance. Recent work suggests that there are even more organic

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Stormwater Infrastructure

High-Intensity Rain Events

contaminants from stormwater found in fish tissues than previously thought (Du et. al., 2016). These issues heighten awareness of stormwater and some have been calling for the State legislature to pass legislation to more strictly control stormwater.

In addition, climate change is causing both extended droughts and more frequent high-intensity rainfall events throughout the Pacific Northwest, resulting in overwhelmed stormwater drainage systems and extensive flood damage impacts (*see* The Fourth National Climate Assessment, https://nca2018.globalchange.gov/). These increasing risks and the uncertainty concerning their harm-potential underscore the urgency of addressing effective stormwater management in Washington.

REGULATORY ENVIRONMENT

Local Management

Stormwater is largely managed at the local county and municipal levels because localities own and control the drainage systems that collect, convey, and discharge stormwater. Thus, the burden for operating and managing the complex drainage and water quality requirements rests primarily with Washington State's 39 counties and most of the 281 incorporated municipalities. There are a few exceptions to the local/municipal focus on stormwater management, such as the Washington State Department of Transportation (WSDOT) which manages a stormwater drainage system separate from counties and municipalities.

NPDES Permits

Federal regulations adopted by the US Environmental Protection Agency (EPA) establish a permit requirement for stormwater discharges. EPA issues all National Pollutant Discharge Elimination System (NPDES) water quality permits in Idaho, Massachusetts, New Hampshire, New Mexico, the District of Columbia (Washington, DC), US territories, and on federal and tribal lands. Every other State has delegated authority to issue their own stormwater discharge permits. State operated programs and permits must be at least as stringent as the federal requirements. EPA has granted the authority to the Washington State Department of Ecology (Ecology) to administer the State's stormwater permit program.

Municipal Permits (MS4s)

Stormwater is permitted under general permits, such as the **m**unicipal **s**eparate **s**torm **s**ewer **s**ystems (MS4) permit program or as individual permits under the Industrial Stormwater Permit Program.

The first phase of the MS4 program (Phase I) focused on large-sized municipalities (incorporated cities with a population over 100,000 and unincorporated counties with populations of more than 250,000 according to the 1990 census). In 2000, Phase II of the Federal municipal stormwater regulations imposed new requirements for smaller municipalities. There are now over one hundred municipalities in Washington State that require stormwater permit coverage under Phase I or II of the municipal NPDES stormwater permit program. These municipalities vary in size, existing stormwater programs, and funding ability. This diversity makes the development and implementation of stormwater permits challenging.

The NPDES permit program works in concert with the State's Waste Discharge General Permits as coordinated by Ecology. In Washington, Phase I MS4 Permits regulate the discharges systems owned or operated by Clark, King, Pierce, and Snohomish counties, and the cities of Seattle and Tacoma. The permit also applies to MS4s owned by public entities located in a Phase I city or county, including the Ports of Seattle and Tacoma.

The Phase II MS4 permit for Western Washington covers at least 80 cities and portions of five counties with an effective date of September 1, 2012. The updated 2013-2018 permit became effective on August 1, 2013. The Phase II MS4 permit for Eastern Washington applies to all regulated small MS4s in Eastern Washington. It covers 18 cities and portions of 6 counties. Both Phase I and Phase II permits that were slated to expire in July of 2018 are now slated to be reissued in July of 2019.

STORMWATER INFRASTRUCTURE: INVESTMENT & INVESTMENT NEED

Investment Need

Investing in stormwater infrastructure and management is essential, but actual investment often lags behind need. According to the EPA:

> Much of the network of water treatment plants, distribution lines, sewer lines, and storage facilities were built after World War II. Some of that infrastructure is now over 100 years old. …Historically, investment has not been enough to meet the ongoing need to maintain and renew these systems. Over the coming decades, this pattern of underinvestment needs to change and practices put in place to sustain the water services provided by water infrastructure and utilities. Doing so is vital to public, economic, and environmental health.

(EPA, 2016a).

National Needs Survey

Every four years, the EPA conducts the Clean Watershed Needs Survey to assess water infrastructure needs for clean water. In the most recently completed survey (2012), it was determined that $271 billion was needed for capital wastewater and stormwater treatment and collection at the national level. This included $198 billion for wastewater pipes and treatment facilities, $48 billion for combined sewer overflow (CSO) correction, $19 billion for stormwater management, and $6 billion for recycled water treatment and distribution (EPA, 2016c).

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Stormwater Infrastructure

Infrastructure Investment Need

"Need"

Several federal agencies have recognized that it is very difficult to assess the "need" for stormwater infrastructure investment. According to the Congressional Research Service (CRS):

> In the infrastructure context, funding needs estimates try to identify the level of investment that is required to meet a defined level of quality of service, but this depiction of need is essentially an engineering concept. It differs from economists' conception that the appropriate level of new infrastructure investment, or the optimal stock of public capital (infrastructure) for society is determined by calculating the amount of infrastructure for which social marginal benefits just equal marginal costs.

(CRS, 2016).

Costs/Benefits

In another report, CRS argues that, "In many cases, funding goes to projects that are presumed to be the most important, without a rigorous study of the costs and the benefits." (CRS, 2011).

The US Government Accounting Office (GAO) (2000) states;

> Using tools like cost-benefit analysis or applying criteria that align with the agencies' missions can help agencies prioritize their spending on infrastructure and inform decision makers throughout the government of the value of these investments.

Problematic Prioritization

Prioritizing investment spending is problematic because quantifying long-term infrastructure benefits is notoriously difficult to isolate and measure. Also, it is often questioned whether costly action is worth the benefits, particularly given the high costs of water infrastructure (CRS, 2016).

Environmental Benefits

Environmental benefits are not always included when analyzing stormwater infrastructure investment — although the methodology for measuring environmental benefits are well-established. Formal economic quantification of benefits to commercial and recreational fisheries and habitats, improved water quality and quantity, and reduced erosion and flood damages are just some of the types of benefits that are can be measured. In addition, cultural benefits to tribal populations, educational benefits, and aesthetic and safety benefits are well known (if not as easily quantified).

EPA (2016b) makes the case that it is imperative that both citizens and decision makers understand the value of water infrastructure, stating "systems should have an on-going collaborative process with all stakeholders to determine where and how water infrastructure investments are made in their communities."

Infrastructure Value

Coupled with water infrastructure costs are the high costs of conforming to water quality standards. EPA contends that the benefits of water quality legislation exceed the costs of compliance. Investing in pollution control: creates economic activity and jobs; increases economic competitiveness; and supports existing communities. EPA urges the pursuit of water infrastructure investments that are cost-effective, resource efficient, and contribute to the community' sustainability (EPA, 2016b). EPA encourages investment decision makers to consider the impacts of climate change.

Community Benefits

Assessing Stormwater and Combined Wastewater Infrastructure Needs for Washington State

Washington State Needs

EPA's Clean Watershed Needs Survey for the State of Washington in 2012 (EPA, 2016c) estimates that: $1.3 billion is needed for **c**ombined **s**ewer **o**verflow (CSO) correction; $745 million for conveyance system repair; $738 million for secondary wastewater treatment; and $529 million for advanced wastewater treatment. Other needs include: new conveyance systems; improved stormwater management; and recycled water distribution. This results in estimated needs of $4.1 billion to improve water management in Washington State by the year 2032, or $4.55 billion in current year dollars.

Impermeable Surfaces

Other estimates have been much higher. The Puget Sound Partnership (PSP) is the state agency that leads the collective effort in the region to restore and protect Washington State's Puget Sound. Albeit a coarse approximation, PSP developed estimates of the costs for retrofitting the impermeable surface around the Sound. PSP estimated $14 billion in capital costs, with another $523 million annually to maintain the improved surfaces (Parametrix and Bissonette, 2010). In 2019 dollars, this estimate would total over $16 billion for the initial cost, and another $608 million annually. Summing over 20 years, with a three percent discount rate, the total 20-year investment estimate exceeds $25 billion for Puget Sound alone.

Capital Projects Estimates

Another estimate for the costs of Washington State stormwater infrastructure investment was developed for the Washington State Office of Financial Management in 2017 (Ramboll, 2017). That effort was based on a compilation of estimates from discussions with stormwater experts and also included projects that were already defined and funded or were actively in pursuit of funding. The results for the State totaled just over $18 billion over a 20-year period in 2016 dollars, with most of that consisting of capital projects. The largest cost identified in the Ramboll study was for stormwater facilities and conveyance systems for improved treatment in the Duwamish/Green Watershed (i.e. rain gardens, bioretention, cisterns, detention ponds, etc.). The cost for that project was estimated at $860 million annually (in 2016 dollars), resulting in a 20-year total of $17.2 billion. The next two largest projects were also found in the Puget Sound area and information was provided by the City of Tacoma (2016). The projects include a wastewater annual replacement cost of $458 million over the 20-year study period

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Stormwater Infrastructure

(undiscounted), with stormwater annual replacement costs totaling $244 million over the study period. The database of projects and costs for the Ramboll effort included 281 stormwater projects throughout the State, of which 139 projects were in the Puget Sound area.

Stormwater Utility Revenue Generation in Washington State

Stormwater Fees

One source of funding for some of the infrastructure needed in Washington will be stormwater utilities. Washington is fourth in the nation in terms of the number of communities with stormwater utilities. According to the latest annual survey conducted by Western Kentucky University (Campbell, 2018), Washington State had 117 stormwater utilities in 2016. This study evaluated all water utilities that have a stormwater fee paid by customers — be it a fee based on structure size, parcel size, water use, a fixed rate, or other payment mechanism.

Washington Fees

Compared to the rest of the nation, Washington State has some of the highest monthly residential stormwater utility fees. In 2018, the monthly fee ranged from $1 in Toppenish to $36 in Seattle with a weighted average of $7.80. Most of the utilities base the fee on parcels and the expected number of **e**quivalent **r**unoff **u**nits (ERUs) per parcel. Other utilities use a tiered rate structure, a fixed fee, or other method. The national average monthly residential fee was $5.34.

Revenue Estimate

According to the Western Kentucky Stormwater Utility Survey of 120 stormwater utility respondents, close to one-half billion dollars per year is generated (approximately $466 million). This revenue is primarily spent on maintaining and improving stormwater drainage systems maintenance and operation, and protecting stormwater water quality in the State (Campbell, 2018). These funds support the planning, design, and construction of improved stormwater treatment facilities, including retrofits of existing infrastructure and new low-impact development or green infrastructure control measures.

Funds are also used as matches for larger state and federal water quality grants, such as those coordinated by Ecology (further described below).

State and Federal Funding Coordinated through the Department of Ecology

Funding Programs

Several funding programs are administered through Ecology's Water Quality Program. These include:

- Washington State Water Pollution Control Revolving Fund (CWSRF) loans — is a low-interest loan program funded in part through a capitalization grant from the EPA. The program funds stormwater facilities and nonpoint pollution control activities, among others, and provides special funding for hardship communities.
- Stormwater Financial Assistance Program (SFAP) funding — a State-funded grant and loan program for stormwater projects, which has a special sub-program for hardship communities.
- Centennial Clean Water Program (Centennial) grants — a State program offering grants for wastewater facilities and other nonpoint source control activities in hardship communities.
- Section 319 nonpoint source pollution control funding — another federal program that provides a grant to Washington State for controlling nonpoint source pollution, given a 40 percent match at the State level.

Ecology awards the grants and loans throughout the State on a competitive basis. For 2019, total funding through the loans and grants was $155 million, with the CWSRF funding totaling $115 million. Draft annual funding totaling $183 million has been proposed for 2020, of which $120 million is through the CWSRF.

STRATEGIES GOING FORWARD

Two key themes have emerged in recent years for successfully addressing stormwater in Washington State and elsewhere.

"Nature-Based" Infrastructure

The first theme embraces green infrastructure or "nature-based" solutions where possible. Natural stormwater attenuation provides the multiple benefits of: habitat preservation or enhancement; recreation opportunities; ecosystem function support; flood damage reduction, and aesthetics — all in addition to improving the quality of stormwater and water supply. There are a host of strategies in this arena that have gained increasing popularity in recent years.

Creative Funding

The second theme is the evolution of creative funding strategies, such as: performance bonds; water quality trading; and a variety of economic incentives. Each of these is briefly touched upon below, with references to other sources where more information is available.

Low Impact Development, Green Infrastructure, and Nature-Based Solutions

"LID"

Low Impact Development (LID) or "green infrastructure" is an alternative to traditional or "grey infrastructure" stormwater management. LID incorporates consideration of a watershed's natural hydrological and ecological services into infrastructure decisions in order to reduce the impact of the built environment on an ecosystem (EPA, 2019).

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Stormwater Infrastructure

LID Principles

Incorporating LID can allow for the rate and volume of stormwater reaching received waters to be the same before and after stormwater infrastructure installation. LID can reduce the cost of stormwater management and the buildup of pollutants in stormwater runoff.

According to the EPA (2019):

> [LID] employs principles such as preserving and recreating natural landscape features, minimize effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than as a waste product.

Features incorporating the concept of LID include "bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements." The District of Columbia (DC) Water and Sewer Authority argues that incorporating LID technologies into stormwater management promotes job creation, improves air quality, and protects wildlife habitat (DC Water and Sewer Authority, 2019).

Local Codes

Ecology now requires that LID considerations be incorporated into local codes, ordinances, and standards (Ecology, 2019a) and several resources have been developed to assist local governments in integrating LID into stormwater management. These resources include free trainings funded by the Washington State Legislature. Incorporating green infrastructure as replacement of existing grey infrastructure has the potential to provide additional benefits at lower costs to local governments. (For an overview of western states administering NPDES and incorporating LID, *see* Alongi et al., *TWR* #122).

"GIS"

There are a number of **g**reen **s**tormwater **i**nfrastructure (GSI) programs up and running in the United States. One of the best of these is the City of Tacoma's program run in coordination with the PSP. Since 2014, the program has promoted: rain barrels; rain gardens; urban forestry; and permeable pavement solutions — making GSI the City's preferred path for development. The program website highlights more than ten projects that have been created through the program with collective funding through the city, Ecology, and other sources.

Grey & Green Blend

In the long run, however, it is not likely that GSI will be able to solve all the stormwater infrastructure needs in Washington. Typically, planners and hydrologic engineers recommend a blend of green and grey (or engineered) infrastructure, as both can work together to manage stormwater. While green infrastructure is used to delay stormwater, grey infrastructure is often needed to convey stormwater to treatment facilities or elsewhere, especially in urban areas.

Innovative Funding Mechanisms

New Funding Approaches

In light of the stormwater funding challenges faced by so many entities, a number of new approaches are being explored throughout the country and in Washington State. For example, the Natural Resources Defense Council (NRDC) began exploring options to fund stormwater retrofits in Philadelphia and focused on ways to incentivize private landowners to adopt green infrastructure by discounting their future stormwater utility fees (Valderamma and Levine, 2012). To meet the financing needs of property owners to retrofit their systems, the study then compared commercial financing and the proposed Off Balance Sheet "Project Developer" financing and Land-Secured Financing. The former approach allows private equity to loan property owners funding for retrofits, and the owners pay the loans back over time with the savings from their stormwater fees. The latter approach is a municipal bond that becomes part of the property tax assessments and, therefore, does not encumber the landowners with the repayment responsibilities if they were to move and no longer benefit from the retrofits.

Credit Trading

Another creative new approach that has been adopted by the District of Columbia through the Department of Energy and Environment (DOEE) is the stormwater detention credit trading program (*see* https://doee.dc.gov/src). Through this program, landowners may sell **s**tormwater **r**etention **c**redits (SRCs) in order to fund their stormwater reduction activities. Each credit represents one gallon of stormwater retained for one year. The SRCs have been selling for approximately $2 per SRC, providing incentive for those who can reduce their stormwater runoff for less than $2 per gallon to sell their credits. The DOEE also has an **i**n-**l**ieu **f**ee program (ILF), providing landowners the opportunity to either buy SRCs or to pay the ILF. Therefore, the ILF serves as a price ceiling, while the agency provides a separate price floor program. The District of Columbia is just one example of municipalities implementing or considering stormwater markets as a financing mechanism. (Additional information on stormwater trading and credit schemes are summarized in Brown & Sanneman, *TWR* #163).

In-Lieu Fee Program

Pubic-Private Partnerships

In Washington, the State Legislature recently funded an assessment of **c**ommunity-**b**ased **p**ublic **p**rivate **p**artnerships (CBP3s) to see where these might be successfully implemented in pilot programs for green infrastructure investment to achieve water quality throughout the State. The assessment was conducted with the hope that these partnerships might help: overcome budget limitations; reduce taxpayer risks of project failures; and provide cost savings. Although not yet final, a draft of the assessment is available for review (Washington State Department of Commerce, 2019). In the assessment, several case studies are provided as examples, including the Seattle Rainwise program, which is a rebate program covering the cost of cisterns and rain gardens in eligible CSO basins. The details of how these programs operate are described in the report, along with recommendations for moving forward.

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Stormwater Infrastructure

Direct Impacts

Flood Risk & Droughts

Stormwater Stress

Resilience & Retrofitting

Changing Conditions

Adaptation Opportunities

Multiple Benefits

Climate Change Impacts

Precipitation Patterns

For a good overview of the concepts behind these newer strategies for funding stormwater and the theory of why these are effective, the EPA Office of Research sponsored a book titled, "*Economic Incentives for Stormwater Control*" (Thurston, 2011).

UNCERTAINTY: CLIMATE CHANGE AND LAND USE IMPACTS

According to the Climate Impacts Group at the University of Washington, climate change and land use are expected to significantly impact infrastructure by damaging existing infrastructure and changing demand and needs for new infrastructure (Mauger et al., 2015). Trends in sea-level rise, precipitation patterns, storm intensity, drought, population, water use, and agricultural production will be exacerbated by climate change and land use. These impacts will directly affect stormwater infrastructure in Washington State.

Qualitatively, the State of Washington can expect more frequent heavy precipitation events (fivefold increase by the 2080s) and increasing flood risk — creating a demand for improved stormwater management. Changing precipitation patterns will alter river flows, which will affect dams, reservoirs, power generation, and water supply, cause more intense droughts and flooding, and also affect stormwater infrastructure. Increased sedimentation due to decreased snowfall will also impact stormwater management. These factors, combined, will stress stormwater and drainage systems — increasing the costs of managing and maintaining infrastructure and decreasing water quality. Failing to invest in stormwater infrastructure improvements to mitigate risk will result in damage to existing infrastructure and a failure to provide for future demand.

The July 2016 King County Hazard Mitigation Plan (King County Office of Emergency Management, 2015) identified priorities for mitigation, including increasing infrastructure resilience and better understanding of key vulnerabilities and the necessary implementations to mitigate hazards. Other priorities include retrofitting and relocating structures in high hazard areas.

The mitigation actions that result in improvements in infrastructure will be necessary considering that climate change and natural disasters are already impacting infrastructure, including water resources and management. To quote the King County Hazard Mitigation Plan (King County Office of Emergency Management, 2015), natural resource managers already observe that:

- Historical hydrologic patterns can no longer be solely relied upon to forecast the water future.
- Precipitation and runoff patterns are changing, increasing the uncertainty for water supply and quality, flood management, and ecosystem functions.
- Extreme climatic events will become more frequent, necessitating improvement in flood protection, drought preparedness, and emergency response.

The Mitigation Plan concludes that:

> The changing hydrograph caused by climate change could have a significant impact on the intensity, duration, and frequency of storm events. …The risk associated with the flood hazard overlaps the risk associated with other hazards, such as earthquake and landslide. This provides an opportunity to seek mitigation alternatives that can reduce risk for multiple hazards.

The vulnerability associated with increased risk of natural hazards can be reduced by improving infrastructure and reducing natural hazard exposure by creating and maintaining existing structures and infrastructure.

Stormwater infrastructure investment is necessary due to the multiple benefits it provides across water systems. Due to external stressors, stormwater systems face an increasing pressure to meet supply and demand changes.

A joint study released by the University of Washington Climate Impacts Group and The Nature Conservancy (2016) finds that climate change will result in: higher winter streamflows; increased flooding; higher high tides and storm surges; reduced flood capacity due to increased sedimentation in rivers; low summer river flows; and changes to water quality. Climate change will have significant impacts on: stormwater management; roads and infrastructure; human health; drinking water; fish habitat; power generation and dam management; housing; recreation; river and coastal flood management; forests; and agriculture and food systems.

While no modeling is available to quantitatively estimate these natural hazard risks from climate change (King County Office of Emergency Management, 2015), it is expected that climate change will cause drier summers (an average of 22 percent reduction in summer rainfall) and a fivefold increase in the frequency of the heaviest rain events by the 2080s, increasing flood risk (Mauger et al., 2015). Changes in precipitation patterns will be one of the largest impacts of climate change in the Puget Sound, altering river flows, affecting dams, reservoirs, power generation, and water supply, while intensifying droughts and flooding. Increased sedimentation due to decreasing snow and ice will further exacerbate flooding.

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Stormwater Infrastructure

Increased Flooding

Planning Issues

Stormwater Center

Recommendations

Many residential communities are built on flood plains, and will be forced to reconsider flood management. By the 2040s, models predict that the Skagit River's 100-year floods will become 22 year-floods, and 30-year floods will be seven-year floods. The Snohomish River will see 100-year floods turn into 30-year floods (Mauger et al., 2015). By 2080, a once in a century flooding event is expected to occur as frequently as once per decade (King County Office of Emergency Management Plan, 2015).

SUMMARY AND RECOMMENDATIONS

The question facing planners going forward is twofold: First, are the planned expenditures adequate to fund currently anticipated stormwater infrastructure investment needs? Second, are these plans and projections adequate in the face of uncertain demand and climate change?

Unfortunately, neither question may be answered with a resounding "yes" in Washington State. However, Washington State is still on the forefront of innovations in stormwater management. The status of stormwater utility payments is one of the highest in the nation, and recent funding innovations are proving to be effective in tackling the enormous funding challenge. Further, the development of green infrastructure support such as Tacoma's GSI and collaborative watershed partnerships such as the Duwamish/Green watershed partnership are consistent with the calls to action for stormwater management and appear to be on track for success. Also, the State Legislature has provided funding for coordination and leadership in stormwater with the 2010 creation of the Washington Stormwater Center (see Stark, *TWR* #99). The purpose of the center is to serve as the "central resource in Washington for integrated NPDES education, permit technical assistance, stormwater management and new technology research, development, and evaluation" (*see*: www.wastormwatercenter.org).

The recommendations for Washington State are, first, to continue to maintain and support the stormwater management efforts that have rapidly developed over the past decade. After that, the State needs to develop a better understanding of the overall benefits and costs of specific investment decisions and begin planning for long run management. This means that planners and local governments need to not only plan for green infrastructure in new development but also identify where and how legacy infrastructure can be improved to address the most critical areas. To this end, inventorying and mapping legacy infrastructure to target for retrofitting and building stormwater retrofitting into long range planning can be a valuable first step. The NPDES permit for WSDOT now requires a long-range plan for retrofitting transportation infrastructure, and the plan demonstrates a rigorous prioritization scheme that scores projects to identify those providing the highest environmental benefit to cost (WSDOT, 2018).

Though rough estimates of the infrastructure investment costs at the state-level have ranged from $4 billion to $18.7 billion over the next 20 years, perhaps more important will be to continue raising awareness and facing the most challenging concerns so that when funding becomes available it can be spent where it will be most effective.

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Water Quality Certification

State Waiver

State Authority

Hydropower Licensing

Resetting The Clock

Adjudication

Settlement Agreements

Congressional Approval

Dam Removal

Resubmittals

WATER QUALITY CERTIFICATION RULING

Hoopa Valley Tribe v. FERC

WHEN DOES ONE YEAR MEAN ONE YEAR?

by Richard M. Glick, Davis Wright Tremaine (Portland, OR)

Introduction

On January 25, 2019, the U.S. Court of Appeals for the D.C. Circuit (Court) rendered a highly significant opinion with respect to State water quality certification under section 401 of the Clean Water Act (CWA). *Hoopa Valley Tribe v. FERC*, 913 F. 3d 1099 (D. C. Circuit 2019). The Court rejected the commonly used workaround of the one-year statutory limit on State action by allowing — some would say demanding — multiple cycles of withdrawal-and-resubmittal of applications, holding that the States of Oregon and California had waived their authority by acceding to this practice. As discussed below, however, the case was decided under the specific facts presented to the Court.

Section 401 provides that before a federal agency can approve a project that may result in a "discharge to the navigable waters" the applicant must obtain water quality certifications from the affected State. The courts have construed this authority broadly, which means section 401 is a powerful tool to impose State policy on projects where the federal agency would otherwise have preemptive authority. *See*, for example, *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700 (1994) and *S.D. Warren v. Maine Bd. of Environmental Protection*, 547 U.S. 370 (2006), in which the U.S. Supreme Court is expansive in discussing State conditioning authority under section 401. Like the *Hoopa* case, these decisions involved hydroelectric power licensing under the Federal Power Act. However, the State is deemed to have waived its delegated authority under section 401 if it "fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request." Clean Water Act, 33 U.S.C. § 1341(a)(1).

Determining the water quality effects and appropriate mitigation for hydroelectric facilities that have been in place for over half a century is a complex undertaking. Additional study and data are often needed, which could take more than one year to complete. Moreover, since relicensing brings out a myriad of stakeholders seeking an opportunity to influence the next license term, 401 issues are frequently addressed through multi-party settlement negotiations, which can also take a long time to resolve. This has led State 401 agencies and applicants to enter into understandings under which the applicant would withdraw its application before the end of one year and then resubmit it to *reset* the clock. Such withdrawal and resubmittal cycles have often stretched over a period of many years.

The D.C. Circuit was plainly put off by this common practice, particularly on the facts of this case. The context in which this case arises is central to the Court's indignation and its holding, so an introduction would be helpful to the discussion.

The Klamath Settlements

PacifiCorp owns a series of hydroelectric projects on the Klamath River, in Oregon and California (FERC Project No. 2082). The 50-year federal license for Project No. 2082 expired in 2006, and the projects have operated under annual licenses since then. Federal Power Act, 16 U.S.C. §§ 791-828C. PacifiCorp timely filed an application at FERC for a new license, and filed section 401 applications to Oregon and California. Coincident with these applications, Oregon was conducting a decades-long water rights adjudication for the Klamath River Basin. Extensive negotiations ensued over a period of years between PacifiCorp, federal and State resource agencies, Indian tribes, farmers, ranchers, and conservation groups concerning water rights and the fate of the Klamath River hydroelectric projects.

The result was execution in 2010 of two related but separate settlement agreements. The Klamath Hydroelectric Settlement Agreement (KHSA) was to facilitate removal of the four PacifiCorp dams on the mainstem Klamath River, whereas the Klamath Basin Restoration Agreement (KBRA) promoted cooperative efforts to protect fisheries and water supplies. The original KHSA relied on congressional approval, and when that was not forthcoming, the parties returned to the bargaining table and produced the Amended Klamath Hydroelectric Settlement Agreement (AKHSA) in 2016. The AKHSA was designed to require only FERC approval and not that of Congress.

Under the AKHSA, Project No. 2082 would be split into two licenses. One would be for the four mainstem dams that PacifiCorp proposes to remove, while the other covered the facilities PacifiCorp wishes to retain. The first renewed license would be transferred to a new non-profit entity, the Klamath River Renewal Corporation (KRRC), which would implement the dam removal. If the dams could be successfully removed, KRRC would surrender the license. If the dams could not be removed, the facilities revert to PacifiCorp. Funding for the AKHSA is derived from special bond issues, legislation, and regulatory approvals in both Oregon and California. FERC has approved dividing the license into two, but has not yet acted on the transfer to KRRC.

As part of the settlement, the parties agreed that pending the necessary approvals and funding for removal of the mainstem dams, PacifiCorp would withdraw and resubmit its section 401 applications each

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Water Quality Certification

Tribe Position

year before the one-year statutory review period expired. This withdrawal and resubmittal has occurred each year by means of a letter from PacifiCorp that proposes the same project, unchanged from that described in the previous application.

The Hoopa Valley Tribe (Tribe), whose reservation straddles the Trinity River near the confluence with the Klamath River and downstream of the projects, participated in the Klamath settlement discussions. However, the Tribe chose not to sign the resulting agreements. Frustrated by the slow pace of efforts to remove the dams, the Tribe petitioned FERC for a declaratory order that Oregon and California waived their certification authority under section 401 by failing to timely conclude their processes. The Tribe argued that the States, by allowing the repeated withdrawal and resubmittal, impeded FERC from advancing its own process.

The D.C. Circuit Decision

Jurisdiction

Indispensable Parties?

FERC denied the petition and the Tribe appealed to the D.C. Circuit. Oregon and California declined to intervene in the litigation, asserting sovereign immunity under the 11th Amendment to the US Constitution. In an *amicus* brief, Oregon took this one step farther and argued that both States are indispensable parties to the Tribe's appeal because it could result in a waiver of State authority. Since the State could not be forced to join the litigation but is at the same time an indispensable party, Oregon averred that the Court lacks jurisdiction.

The Court rejected this argument, finding that the States are not indispensable parties:

> Hoopa's petition does not involve a state's certification decision or a state's application of state law, but rather *a federal agency's order*, a matter explicitly within the purview of this Court when petitioned by an aggrieved party.

Hoopa, infra at 1103. Citing Fed. R. App. P. 15, 16 U.S.C. § 825(b). (emphasis original).

Waiver under 401

One-Year Limit

As noted, section 401 provides a one-year limit on State action. If the State "fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request," the State's authority is deemed waived. 33 U.S.C. § 1341(a)(1). In its *amicus* brief, the State of Oregon argued that the State's obligation to act is only on the application before it:

New Deadline?

> By its plain terms, the statute provides that any potential waiver is triggered by a specific request from the applicant, and that potential waiver is measured based on the state's response to that specific request. The statutory text does not justify an interpretation that waiver is determined by looking at any previous or other request. ...As FERC correctly concluded here, therefore, when PacifiCorp withdraws and resubmits its application, it has given the state a new deadline. The certification authority is not waived unless the state fails to act in a timely manner in relation to the new deadline.

Brief of Amicus Curiae the State of Oregon in Support of Respondent Federal Energy Regulatory Commission and Supporting Affirmance, at 21-22.

Deadline Purpose

Moreover, citing legislative history, Oregon argued that the purpose of the one-year deadline is to protect the applicant — not a third party like the Tribe — from a State killing a project by sitting on an application. That purpose, however, does not apply when it is the applicant withdrawing its application and filing a replacement:

> While, to be sure, the legislative history indicates that Congress was concerned with "frustrating the Federal application" by state delay or inactivity, that history provides no indication that Congress was troubled by the prospect of an *applicant's voluntary choice* to withdraw its application from a state's review process and resubmit it at its discretion. In such an event the application is not "frustrated by any state delay or inaction; rather, it is the applicant who has chosen to withdraw and resubmit its application.

Id. at 25 (emphasis original).

The D.C. Court of Appeals was not persuaded. One could observe that withdrawal and resubmittal is not always the "applicant's voluntary choice," but that is not what interested the Court. Rather, the Court expressed amazement that such extended delays in the 401 certification process have become so prevalent:

Extended Delays

> The pendency of the requests for state certification in this case has far exceeded the one-year maximum. PacifiCorp first filed its requests with the California Water Resources Control Board and the Oregon Department of Environmental Quality in 2006. Now, *more than a decade later*, the states still have not rendered certification decisions. FERC "sympathizes" with Hoopa, noting that the lengthy delay is "regrettable." According to FERC, it is now commonplace for states to use Section 401 to hold federal licensing hostage. At the time of briefing, twenty-seven of the forty-three licensing applications before FERC were awaiting a state's water quality certification, and four of those had been pending for *more than a decade*.

Hoopa, infra at 1104 (emphasis original).

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Water Quality Certification

Circumventing Authority

Usurping FERC Control

Limited Precedent?

FERC's Options

License Transfer

Specific Facts

One-Year Limit

State Order

Under the facts of the instant case, the Court suggested that PacifiCorp, Oregon, California, and FERC were co-conspirators to subvert the statutory deadline. Using particularly strong language to reject the arrangement underlying the KHSA, the Court wrote:

> The record does not indicate that PacifiCorp withdrew its request and submitted a wholly new one in its place, and therefore, we decline to resolve the legitimacy of such an arrangement. We likewise need not determine how different a request must be to constitute a "new request" such that it restarts the one-year clock. This case presents the set of facts in which a licensee entered a written agreement with the reviewing states to delay water quality certification. PacifiCorp's withdrawals-and-resubmissions were not just similar requests, they were not new requests at all. The KHSA makes clear that PacifiCorp never intended to submit a "new request." Indeed, as agreed, before each calendar year had passed, PacifiCorp sent a letter indicating withdrawal of its water quality certification request and resubmission of the very same...*in the same one-page letter...for more than a decade*. Such an arrangement does not exploit a statutory loophole; it serves to circumvent a congressionally granted authority over the licensing, conditioning, and developing of a hydropower project. While the statute does not define "failure to act" or "refusal to act," the states' efforts, as dictated by the KHSA, constitute such failure and refusal within the plain meaning of these phrases. Section 401 requires state action within a reasonable period of time, not to exceed one year. California and Oregon's deliberate and contractual idleness defies this requirement. By shelving water quality certifications, the states usurp FERC's control over whether and when a federal license will issue. Thus, if allowed, the withdrawal -and-resubmission scheme could be used to indefinitely delay federal licensing proceedings and undermine FERC's jurisdiction to regulate such matters.

Id. at 1104 (italicized emphasis original, underscored emphasis added).

As discussed below, the case represents a flat out denunciation of withdrawal-and-resubmittal for the Klamath projects, however, the precedent for other cases is unclear. The Court was careful to limit its rulings to the facts of the specific case, but the language used indicates that this method of avoiding statutory deadlines will be viewed with a jaundiced eye.

Takeaways

The *Hoopa* case upsets the manner in which applicants, States, and FERC have long interrelated in the section 401 context. What are the implications going forward?

- The respondents in the case may seek rehearing by the three-judge panel or by the D.C. Circuit *en banc*. So, the case may not be over.
- If rehearing is denied or results in the same outcome, FERC will proceed with the applications before it without benefit of State 401 certifications. However, FERC may still choose to give meaning to the settlement agreements, which represent hard won, comprehensive resolutions of disputes among many stakeholders in the Klamath Basin. The settlement is before FERC, and Oregon and California can be expected to vigorously advocate for it. FERC has often incorporated such settlements in its licensing decisions.
- The case before the D.C. Circuit concerned water quality certification for FERC relicensing of Project No. 2082, but does not speak to PacifiCorp's proposal to transfer the license to the KRRC so that it could be surrendered following dam removal, pursuant to the settlement agreement. Moreover, the decision does not upset FERC's decision to address the license transfer before considering a new license.
- The *Hoopa* court was careful to limit its ruling on the specific facts before it. There will be instances, unlike in *Hoopa*, in which a section 401 application is withdrawn and a new one submitted with substantive changes to the project. Such resubmittals are not uncommon when the applicant and the State are negotiating mitigation measures that require more evaluation and study. How much change is needed to avoid the *Hoopa* outcome is a question for another court to decide.
- *Hoopa* is a significant case in the context of hydropower licensing, but it is not the first to find that the one-year deadline in section 401 means one year. In *Airport Communities Coalition v. Graves*, 280 F. Supp. 2d 1207 (W.D. Wash. 2003), the project under consideration was the addition of a third runway to Sea-Tac airport, which required approval by the US Army Corps of Engineers. The Department of Ecology's 401 certification was appealed to the Pollution Control Hearings Board (PCHB), which imposed additional conditions, but that review process exceeded the one-year 401 period. The court held that the Corps was not bound by the PCHB's new conditions and the State would have to find alternative means of imposing its will:

> Lastly, in its amicus brief, the State of Washington argues that requiring a state to complete its certification process, including judicial review, within one year violates due process and state sovereignty and puts the CWA in significant tension with the 10th and 11th Amendments. This argument is not persuasive. Under the Corps' interpretation, a state is still free to pursue its own independent avenues for certification and review of certification. Section 401 only impacts the way in which *federal* agencies must respond to a timely state certification. If a

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Water Quality Certification

Federal Power Act

Contractual Remedies

Timely Review

Hasty Decisions

Workaround Value?

state is concerned about losing its ability to inject its requirements into the federal process in a timely manner, the state can take other measures to ensure its involvement. For instance, the state can issue its certification in the form of an independently enforceable order such that at the end of the judicial review process, there are independent state requirements above and beyond the federal requirements.

Id. at 1217 (italicized emphasis original, underscored emphasis added).

In the hydropower licensing setting, it may not be so easy for States to issue "independently enforceable" orders. A wide swath of State regulation has been held to be preempted by the Federal Power Act, which is in large part why States rely on section 401 to assert authority in the FERC process. *See, First Iowa Hydro-Electric Cooperative v. FPC,* 328 U.S. 152 (1946); *California v. FERC*, 495 U.S. 490 (1990). Some States require agreements with applicants to give the States contractual remedies in the event FERC determines it lacks authority or declines to enforce section 401 conditions. These agreements may take on new urgency among State 401 agencies to implement State policy. Can the States insist on applicants entering such agreements?

- The result in *Hoopa* was to vacate FERC's rejection of the Tribe's petition to find waiver by the States, and to remand back to FERC for further proceedings. That suggests that FERC will be making the initial decision in future cases as to whether waiver has occurred, which will also lead to more litigation.

Conclusion

While the *Hoopa* case can be seen as a victory for the hydropower industry, or at least a victory for more timely regulatory review, it likely will result in more litigation and delay, and push the States to react in problematic ways. California has indicated it might start denying section 401 applications without prejudice as an alternative to prolonged withdrawal/resubmittal cycles. But that would likely invite more litigation to question whether such a practice is just a different species of subterfuge, resulting in a similar outcome.

Another possible response by States is to make hasty decisions to beat the 401 clock, which could include imposition of conditions that are onerous and expensive to implement, but not that well thought through. In other words, in exchange for speedy 401 decisions and the short-term carrying cost of the process, applicants could be stuck with more expensive open-ended, long-term mitigation requirements — or be forced to challenge such requirements.

As is often the case, natural resources litigation can produce surprising results and long-term implications. The withdrawal/resubmittal workaround has been a frustration for many applicants, resulting in long delays and expense in reaching an accommodation with the States. The irony in the *Hoopa* case is that the workaround was being employed in the service of a comprehensive settlement fully supported by the applicant and most stakeholders, and which promised lasting ecological benefits. It is also ironic that the challenge leading to this important decision came not from the applicant, but from a third party that shares the same goals as the applicant and other stakeholders supporting the settlement agreement, but wanted to accelerate the process. Time will tell if a faster process for state section 401 and FERC review of hydroelectric projects ultimately results.

For Additional Information:
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Post-Printing Update

Since this issue of ***The Water Report*** went to print, intervenors American Rivers, California Trout and Trout Unlimited have submitted a petition for rehearing by the three-judge D. C. Circuit panel or the panel en banc. They argue that other circuits and FERC have accepted the withdraw-and-resubmit practice for decades, and that the practice is a proper exercise of cooperative federalism as envisioned by Congress between the Federal Power Act and Clean Water Act. That is, the ability to extend review beyond year provides the opportunity for states to have meaningful impact in the relicensing process. They also argue that the delaying practice is similar to FERC tolling orders, and that if the if the Hoopa decisions remains in place, it be applied prospectively.

In addition, FERC issued a notice inviting supplemental briefing on the implications of the Hoopa case in the Constitution Pipeline proceeding (FERC Docket Nos. CP18-5-000 and CP18-5-001). Constitution had filed for review before the D. C. Circuit, but FERC filed an unopposed motion for voluntary remand to allow the litigants the opportunity to argue the significance of Hoopa.

Richard M. Glick is a partner in the Portland, Oregon, Office of Davis Wright Tremaine LLP, where he practices water, environmental, and energy law. Prior to entering private practice, Rick was staff counsel at the California State Water Resources Control Board, and then Deputy City Attorney for the City of Portland, where he advised the City's Bureaus of Water Works, Hydroelectric Power and Environmental Services. He was the first president of the American College of Environmental Lawyers, served as chair of the Oregon State Bar Section on Environmental and Natural Resources Law, and was a founder of the National Water Resources Law Forum and a member of the Water Resources Committee of the ABA Section on Environment, Energy, and Resources. He has written and presented on numerous occasions on water rights, environmental, and natural resources law issues.

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Adjudicated Rights

Enforceable Water Right

Decree Language

Spring's Use

Curtailment

Adjudication of Rights

Decree Interpretation

"Indicia of Enforceability"

ADJUDICATED WATER RIGHTS

COLORADO RULING: INDICIA OF ENFORCEABILITY

by David Moon, Editor

On February 25, the Colorado Supreme Court (Supreme Court) ruled that a 1909 district court decree did not create an enforceable water right because the decree failed to set forth required "indicia of enforceability." *Dill v. Yamasaki Ring, LLC*, Case Nos. 17SA231 & 17SA303, 2019 CO 14, 2019 Colo. LEXIS 165 (February 25, 2019). The Supreme Court affirmed the ruling of the water court, which "determined that the 1909 decree does not adjudicate a water right in the springs' water because it does not set forth 'the necessary information' for adjudication, including an appropriation date, a priority number, or quantification details. Therefore, concluded the water court, the Campbell Ditch's unquantifiable entitlement to 'receive and conduct water' from the springs cannot be enforced or administered against any adjudicated water rights." *Slip Opinion* at 5.

The 1909 decree, in addition to issuing a ruling on two surface water rights from Cherry Creek conveyed by the Campbell Ditch, provided that the Campbell Ditch was "entitled to receive and conduct water" from nine nearby springs. *Id*. at 4. The Dills and their neighbors the Pierces (Applicants and Appellees in the case), however, had been irrigating their parcels of land for decades with the water from the springs. The springs rose to the surface in the mountains above their property, water was conveyed in an open ditch, and then flumed across Cherry Creek. In fact, water from the springs had been put to beneficial use to irrigate their lands continually "as early as 1903" (*id*.).

"In 2011, the Division Engineer for Water Division 2 curtailed the water supply from the springs that the Dills/Pearces were using to irrigate their properties." *Id*. at 11. The Division Engineer's curtailment was based the 1909 decree's pronouncement that the Campbell Ditch was "entitled to receive and conduct water" from the springs, despite the lack of the normal elements of a water right.

The water court held a trial in 2017 on the Dills/Pierces application for a water right from the springs for irrigation uses on the Dill and Pearce properties. The water court entered a decree adjudicating the springs to the Dills/Pearces for irrigation uses on their property. "The water court determined that the springs' water is tributary to Stout Creek, not Cherry Creek. More importantly, the water court was persuaded by expert testimony that the predecessors in interest of the Dills/Pearces appropriated the water from the springs in 1903, six years before the 1909 decree entered, though no right to the springs' water had ever been adjudicated." *Id*. at 14-15. The Opposers/Appellant, Yamasaki Ring, LLC, which now owns some of the Campbell Ditch's water rights, appealed to the Colorado Supreme Court and asked the Supreme Court to rule that the 1909 decree adjudicated an enforceable water right for the Campbell Ditch from the springs.

The Supreme Court's opinion explores the underlying facts of the case in detail, concentrating on the specific language used in the 1905 decree and the later 1909 decree regarding the appropriation of water from the springs versus appropriations utilizing the Campbell Ditch from Cherry Creek.

> Notably, as to the two Cherry Creek water rights (the "Cherry Creek water Rights"), the 1905 decree specified that the water was "allowed to flow into" the Campbell Ditch, and then included appropriation dates, priority numbers (for both Cherry Creek and the Arkansas River), and quantification information. In stark contrast, with respect to the springs, the 1905 decree simply mentioned that the Campbell Ditch was entitled to "receive and conduct" water, and did not include an appropriation date, a priority number, or any quantification information. Even the format of the decree seemed to distinguish between the Cherry Creek water rights, on the one hand, and the entitlement to receive and conduct water from the springs, on the other.

Slip Op. at 8.

The Supreme Court summarized its holding and the necessity of the "indicia of enforceability" as essential to the establishment of a water right:

> We hold that the 1909 decree fails to set forth required indicia of enforceability — including an appropriation date, a priority number, and quantification information — with respect to the springs. Therefore, it does not adjudicate a water right in the springs. Without indicia of enforceability, especially a priority number, the 1909 decree does not adjudicate a water right in the springs that can be enforced or administered vis-à-vis adjudicated water rights. We are not persuaded by Yamasaki Ring's assertion that there was no need for indicia of enforceability because the springs' water was adjudicated as a supplemental/additional source

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Adjudicated Rights

Priority Date

Unenforceable Entitlement

Decreased Right Enforceability

> of water for the properly adjudicated water rights that the Campbell Ditch has in Cherry Creek. Without indicia of enforceability, and in particular a priority number, the Campbell Ditch's entitlement to receive and conduct water from the springs cannot be deemed an adjudicated water right that can be enforced or administered against other adjudicated water rights.

Slip Op. at 5.

The Supreme Court analysis of "Relevant Legal Principles" at pages 16-18 of the *Slip Opinion* provides a primer of the requisites for adjudication of a water right. The last Principle deals with the priority date: "A water right's priority 'is a function of appropriation and adjudication, and is the most important stick in the water rights bundle.' (citation omitted) The goal of adjudication 'is to fix the priority of a water right' so that it may be administered against other decreed water rights. *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 54 (Colo. 1999)."

The Supreme Court goes on in its "Application" section to apply the Principles to the facts of the case. *Id*. at 18-25. Ultimately, the Supreme Court concluded that "…Yamasaki Ring does not have an adjudicated water right in the springs; instead, it has 'an unenforceable entitlement to water from the springs when the two [Cherry Creek] water rights are not fully satisfied...up to a total of 4.68 c.f.s." *Id*. at 25.

The case emphasizes the absolute need in Colorado for a *decreed* water right, which contains all the required "indicia of enforceability. "Without this information, it is impossible to enforce or administer any water right in the springs vis-à-vis adjudicated water rights." *Id*. at 20. Without the required elements, the water right cannot be enforced against other water right holders — and without that protection, one's water right is of little or no value.

For info: *Slip Opinion* available at: www.cobar.org/ >> From the Courts >> Colorado Supreme Court Opinions >> February 25

WATER BRIEFS

WATER QUALITY PERMIT INNOVATION INCENTIVES WA

INNOVATION INCENTIVES INCLUDED IN PROPOSED STORMWATER & WASTEWATER PERMIT UPDATES

PROPOSED UPDATES TO STORMWATER, WASTEWATER FEES NOW AVAILABLE FOR COMMENT

PUBLIC HEARING APRIL 16TH

Nearly 6,000 local governments and businesses across Washington State have water quality permits. The Washington Department of Ecology (Ecology) is looking to encourage innovative approaches to pollution reduction through fee reductions. Ecology is proposing to offer facilities a three-year, 75 percent reduction in permit fees for engaging in market research and development of products or processes that reduce pollution.

"Our state is filled with innovators and we want to encourage a holistic environmental approach to operations," said Heather Bartlett, Ecology's Water Quality Program Manager. "This would allow us to financially incentivize our permittees to take action beyond water quality. The environmental benefits could be related to improving our land, air, or water."

Ecology's water quality permitting program protects state waters by managing when, where, and how stormwater and treated wastewater enters the environment. State law requires Ecology to use permit fees to cover the costs of implementing these important programs. The fees can range from a few hundred dollars to thousands, depending on the type of activity the permit covers. Permit holders receive technical assistance from the state when pollution problems occur.

To adjust for inflation, Ecology is proposing an increase in the annual stormwater and wastewater discharge permit fees. This update also includes the proposed fees for the winery general permit fee category, a new general permit that goes into effect on July 1, 2019.

Ecology is accepting public comments through April 30, 2019. The public is invited to participate in a public hearing at 10 am on April 16 at Ecology Headquarters. Attendees can participate in person or online.

For info: Ecology permit fee rulemaking website:
https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-224

General information on water quality permit fees is on the permit fees webpage.
https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-permits/Fees

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WATER BRIEFS

PFAS US

EPA ACTION PLAN RELEASED

On February 14th, the US Environmental Protection Agency (EPA) released its PFAS Action Plan. PFAS are persistent, toxic chemicals that are widespread in the environment and the subject of much public concern, debate, and litigation (*see* Article, TWR #177).

EPA's Action Plan does not set enforceable drinking water standards or list them as hazardous substances under the Comprehensive Environmental Response Compensation Liability Act (CERCLA) — but leaves open the possibility of such actions in the future.

The Water Report will feature an article covering EPA PFAS actions and PFAS-associated litigation next month.

For Info: EPA PFAS Action Plan website: www.epa.gov/pfas/epas-pfas-action-plan

CWA & GROUNDWATER US

SCOPE OF CLEAN WATER ACT

The US Supreme Court decided on February 19th to hear the case of *Hawai'i Wildlife Fund*, *et al. v. County of Maui,* __ Fed.3d __, Case No. 15-17447 (9th Cir. Feb. 1, 2018), 2018 WL 650973, a case involving whether the Clean Water Act governs pollution that is discharged to groundwater, through which it travels before reaching a "navigable water" of the United States.

Due to the far-reaching implications of the case, *The Water Report* has extensively covered *County of Maui* and other cases addressing the same issue. When the Supreme Court hands down its decision, *TWR* will cover that ruling in detail. The Supreme Court hasn't announced when it will hear oral argument, but the case is expected be on the calendar for the next term, which begins in October.

For info: *See* Robb, *TWR* #177 and #171; Moon, *TWR* #176; Robb & Leas, *TWR* #170

MEASURING SUCCESS CA

GROUNDWATER MANAGEMENT

On March 4, Water in the West at Stanford University released a new report — *Putting Adaptive Management into Practice: Incorporating Quantitative Metrics into Sustainable Groundwater Management* — that provides insight into the role of quantitative metrics in achieving groundwater management goals under California law. The passage of California's Sustainable Groundwater Management Act (SGMA) in 2014 was a watershed moment, establishing the first statewide framework for managing California's critical groundwater resources. Under this framework, one of the key challenges facing newly formed local government agencies responsible for groundwater management is to establish and implement quantitative metrics for sustainability. To help local agencies do this, the report examines how four special act districts in California have used quantitative thresholds to adaptively manage groundwater.

The report makes a number of recommendations. First, metrics should be simple while remaining technically robust. Special care must also be given when the metrics concern conditions over which the agency does not have full control, such as water quality. In order to be effective, metrics need to be linked with decision-making processes. Deadlines are also key; buffers should be included, but there need to be clear consequences for not achieving goals on time. Finally, metrics themselves should be revised over time and when new information is made available.

In the face of political resistance, institutional inertia and other constraints, GSAs will need to maintain flexibility to adapt their management approach over time. This will be crucial as California water managers cope with a changing climate that is expected to experience more frequent and severe droughts. To better understand what this looks like in practice, the report analyzes how the four special act districts responded to the 2012-2016 drought and provides important lessons to guide GSAs. Specifically, the report recommends that all GSAs consider including drought contingency plans as part of GSP development and implementation.

For info: Tara Moran, Water in the West, 650/ 721-2421 or tamoran@stanford.edu; Report available at: http://waterinthewest.stanford.edu/

WQ TRADING US

EPA PROMOTING WQ TRADING PROGRAMS

On February 6, 2019, David Ross, EPA Assistant Administrator for Water, sent a memorandum to the EPA Regional Administrators that restates EPA's strong support for water quality trading and other market-based programs and expands the scope of opportunities envisioned in EPA's 2003 Trading Policy. The memorandum aims to accelerate the adoption of these programs.

Water quality trading under the federal Clean Water Act is an option for compliance with a water quality based effluent limitation in an NPDES permit. Under trading programs facilities facing higher pollution control costs may be able to meet their regulatory obligations by purchasing environmentally equivalent (or superior) pollution reductions from another source at lower cost. Trading can provide greater flexibility on the timing and level of technology a facility might install, reduce compliance costs, and encourage voluntary participation of non-point sources. Trading can provide ancillary environmental benefits such as carbon sinks, flood retention, riparian improvement, and habitat.

EPA's new trading memo identifies the following six *Market Based Principles* designed to encourage creativity and innovation in the development and implementation of trading programs:

- States, tribes and stakeholders should consider implementing water quality trading and other market-based programs on a watershed scale.
- EPA encourages the use of adaptive strategies for implementing market-based programs.
- Water quality credits and offsets may be banked for future use.
- EPA encourages simplicity and flexibility in implementing baseline concepts.
- A single project may generate credits for multiple markets.
- Financing opportunities exist to assist with deployment of nonpoint land use practices.

For info: EPA website: www.epa.gov/nutrient-policy-data/water-quality-trading-memos

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CALENDAR

March 17-19 CA
2019 WateReuse Conference, Garden Grove. Hyatt Regency Orange County. RE: Design, Management, Operation & Use of Water Recycling Facilities. For info: https://watereuse.org

March 18 UT
Water Law & Policy Seminar, St. George. The Dixie Center. Presented by Barnett Intermountain Water Consulting Seminar. For info: Donna Keeler, 801/ 292-4664 or www.eventa.us/events/saint-george-ut/water-law-policy-seminars

March 18-19 PA
2019 PAEE Conference: Cityscapes & Greenscapes, Philadelphia. Renaissance Philadelphia Airport Hotel. Presented by the Pennsylvania Assoc. of Environmental Educators. For info: https://stroudcenter.org/event/paee-conference/

March 18-20 UT
Utah Water Users Assoc. Annual Conference, St. George. The Dixie Center. For info: www.utahwaterusers.com/2019-utah-water-users-workshop/

March 18-21 CA
Water Innovation Week 2019, San Francisco. Mezzanine, 444 Jessie Street. Presented by Imagine H2O. For info: www.imagineh2o.org/wiw19

March 20 WA
Climate Change & Environmental Contamination Conference, Seattle. Washington State Convention Center. For info: Environmental Law Education Center, www.elecenter.com

March 20-22 AZ
Western States Water Council Spring (189th) Council Meeting, Chandler. Wild Horse Pass - Gila River Hotel & Casino. For info: http://www.westernstateswater.org/upcoming-meetings/

March 20-22 MA
Climate Leadership Conference, Baltimore. Four Seasons Hotel. Presented by the Center for Climate & Energy Solutions. For info: www.climateleadershipconference.org

March 21 PA
World Water Day Celebration, Avondale. Stroud Water Research Center, 970 Spencer Road, 6:30 p.m. Gurest Lecturer Brian Richter, Water Conservationist. For info: https://stroudcenter.org/event/world-water-day-celebration/

March 21-22 AZ
Law of the Colorado River Conference, Tucson. Hilton El Conquistador. For info: CLE Int'l, 800/ 873-7130, live@cle.com or www.cle.com

March 22 PA
Future of Water in the Mid-Atlantic: Agriculture, Restoration, and Technology Symposium, Avondale. Stroud Water Research Center, 970 Spencer Road, 9:00 am - 4:30 p.m. For info: https://stroudcenter.org/event/future-of-water-symposium/

March 25-27 NE
2019 AWRA Spring Specialty Conference - Setting Conditions for Success of Integrated Water Resources Management, Omaha. Hilton Omaha - Downtown Old Market. Presented by American Water Resources Association. For info: www.awra.org

March 26-27 CO
ABA 37th Water Law Conference, Denver. Grand Hyatt Denver. Presented by the American Bar Assoc. For info: www.americanbar.org/events-cle/mtg/inperson/343158082/

March 27 CA
Extreme Precipitation in the Southwest Region of North America: Complexities of Flood & Water Resource Predictability in Southwest US, San Diego. Scripps Seaside Forum, Scripps Institution of Oceanography, UCSD. For info: https://swepsym.org/

March 27-29 CO
48th Annual Spring Conference of the ABA Section of Environment, Energy and Natural Resources, Denver. Grand Hyatt Denver. Presented by the American Bar Assoc. For info: www.americanbar.org/

March 28-29 TX
Texas Wetlands Conference, Houston. JW Marriott by the Galleria. For info: CLE Int'l, 800/ 873-7130, live@cle.com or www.cle.com

March 29 DC
Environmental Law and Policy Annual Review, Washington. Environmental Law Institute, 1730 M Street, NW, Ste. 700, 9:30 am - 2:30 pm. Event is Free - Registration Required; RSVP to Receive Complimentary Lunch. For info: www.eli.org

March 29-30 United Kingdom
Alternatives to Markets & Governments: The Research & Intellectual Legacy of Elinor Ostrom Conference, Buckinghamshire. The Vinson Centre, University of Buckingham. Presented by Institute of Economic Affairs. For info: https://iea.org.uk/events/

March 31-April 3 AZ
2019 AWWA Sustainable Water Management Conference, Tucson. Loews Ventana Canyon Resort. Presented by American Water Works Assoc. For info: www.awwa.org/conferences-education/conferences/sustainable-water-management.aspx

April 1-3 DC
Federal Water Issues Conference, Washington. Embassy Suites. Presented by National Water Resources Assoc. For info: www.nwra.org/upcoming-conferences-workshops.html

April 1-4 TX
Texas Water 2019, Houston. George R. Brown Convention Center. For info: www.txwater.org/

April 2-4 DC
Interstate Council on Water Policy - Washington DC Roundtable, Washington. DoubleTree Crystal City. Co-Sponsored by the National Water Supply Alliance. For info: Sue Lowry, 307/ 630-5804, avocetconsult@gmail.com or www.icwp.org

April 4-5 Canada
Grey to Green Conference: New Policy, Design Practices & Innovative Products in Green Infrastucture, Toronto. Holiday Inn Yorkdale. For info: https://greytogreenconference.org/about

April 5 OR
Boundaries & Easements Seminar, Portland. DoubleTree Hotel Portland. For info: www.halfmoonseminars.org

April 5 OR
Annual Environmental Law Symposium - Festschrift in Honor of Professor William Funk, Portland. Lewis & Clark Law School, 8:30 am. For info: Kelly Novahom, 503/ 768-6784 or https://festschrift-billfunk-lclaw.eventbrite.com

April 7-10 DC
Association of Metropolitan Water Agencies 2019 Water Policy Conference, Washington. Hyatt Regency on Capitol Hill. For info: www.amwa.net/event/2019-Water-Policy-Conference

April 9 WY
Wyoming Water Forum: 2019 Water Supply Outlook (Reclamation), Cheyenne. WWDO Conference Room, 6920 Yellowtail Road. For info: http://seo.wyo.gov/interstate-streams/water-forum

April 9 OR
Designing a Healthy River System - Open House, Portland. 700 SW Taylor Street, Ste. 200. Presented by The Freshwater Trust. For info: www.thefreshwatertrust.org

April 9-11 WA
12th Washington Hydrogeology Symposium (2019), Tacoma. Hotel Murano. For info: Mary Jane Shirakawa, WAHGS 2019, 206/ 221-3936 or www.wahgs.org

April 11-12 NM
Law of the Rio Grande: Hot Topics in Water Management & Conservation - 19th Annual Conference, Santa Fe. La Fonda. For info: CLE Int'l, 800/ 873-7130, live@cle.com or www.cle.com

April 16-17 OR
Basic NEPA: The Law, Logic, and Language of The National Environmental Policy Act, Portland. For info: https://nwetc.org

April 17 OR
EPA Portland Harbor Public Forum, Portland. Portland State University, 6-8:30 pm. With Support from ODEQ and the Community Advisory Group. For info: Laura Knudsen, EPA, 206/ 553-1838 or knudsen.laura@epa.gov

April 22-24 CA
California Water and Environmental Modeling Forum & Annual Meeting, Folsom. Lake Natoma Inn. For info: http://cwemf.org/wp/

April 23-24 CA
P3 Water Summit: Solving Water Challenges Through Partnerships, San Diego. Grand Hyatt. For info: www.p3watersummit.com/home

April 23-25 SD
WSWC/U.S. Geological Survey Water Information Management Systems Workshop, Garretson/Sioux Falls. Earth Resources Observation & Science Center. Presented by Western States Water Council. For info: http://www.westernstateswater.org/upcoming-meetings/

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Water Rights, Water Quality & Water Solutions in the West
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CALENDAR

(continued from previous page)

April 24-25 WA
Washington State Municipal Stormwater Conference, Seattle. Hilton Seattle Airport. WSU, Ecology & Washington Stormwater Center Event. For info: Laurie Larson, 253/ 445-4593 or Laurie.Larson-Pugh@ wsu.edu

April 29-May 1 CA
Ceres Sustainability Conference: Business Practices to Address Climate Change, Water Scarcity & Pollution, San Francisco. The Westin St. Francis. For info: www.ceres.org (Events)

May 1 OR
Risk Assessment Conference: Assessing Risk to Human Health & the Environment, Portland. World Trade Center Two. For info: Environmental Law Education Center, 503/ 282-5220 or www.elecenter.com

May 2-3 DC & WEB
Clean Water Act: Law & Regulation 2019 Conference, Washington. Hunton Andrews Kurth LLP, 2200 Pennsylvania Avenue, NW. Presented by the American Law Institute CLE and cosponsored by the Environmental Law Institute. For info: www.ali-cle.org/course/ca014

May 3 CA
CEQA in California Seminar, San Francisco. Foundry Square III. For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/

May 4 CA
Private Enforcement in California - Challenges in the Trump Era, Oakland. Elihu Harris State Building, 1515 Clay Street. Presented by the California Lawyers Assoc. For info: https://calawyers.org/

May 9-10 AZ
Environmental Law on the Border Conference, Scottsdale. Hilton Scottsdale. For info: CLE Int'l, 800/ 873-7130, live@cle.com or www.cle.com

May 14 WY
Wyoming Water Forum: Updates on WACD's Progress Reports & Suitewater Mapping Tool, Cheyenne. WWDO Conference Room, 6920 Yellowtail Road. Presented by Cathy Rosenthal, Wyoming Assoc. of Conservation Districts. For info: http://seo.wyo.gov/interstate-streams/water-forum

May 14-15 TX
Environmental Trade Fair & Conference, Austin. Austin Convention Ctr. Sponsored by Texas Commission on Environmental Quality. For info: www.tceq.texas.gov/p2/events/etfc/etf.html

May 14-15 NC
9th Annual US Gas Power Conference: Treatment Technologies, Management & Regulation, Charlotte. TBD. For info: https://lmnpower.com (Conferences)

May 14-15 NC
US Power Plant Water Treatment Conference, Charlotte. TBD. For info: https://lmnpower.com (Conferences)

May 21-23 ID
2019 Idaho Reuse & Operators Conference (IROC): Water Reuse, Wastewater, Pretreatment, Laboratory, Collections, Drinking Water & Land Application, Boise. The Riverside Hotel. Presented by Pacific Northwest Water Reuse Assoc., Idaho Operators Conference & Idaho Dept. of Environmental Quality. For info: http://www.deq.idaho.gov/2019-water-reuse-conference

May 29-31 MT
19th Institute for Natural Resources Law Teachers, Missoula. TBA. Presented by Rocky Mountain Mineral Law Foundation. For info: www.rmmlf.org/

June 6-7 CO
Charting a Better Course for the Colorado River: Identifying the Data & Concepts to Shape the Interim Guidelines Renegotiation - 2019 Getches-Wilkinson Center Summer Conference, Boulder. University of Colorado, Wolf Law Building. For info: www.getches-wilkinsoncenter.cu.law/events/2019-gwc-summer-conference/

June 11 CO
2019 Annual RiverBank Celebration - Colorado Water Trust Gathering, Denver. Denver Botanic Gardens. For info: www.ColoradoWaterTrust.org/

June 13-14 CA
Land Use Law Conference, San Francisco. BASF Conference Center. For info: CLE Int'l, 800/ 873-7130, live@cle.com or www.cle.com