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Water Rights, Water Quality & Water Solutions in the West

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# STORMWATER RETROFIT PARKS

**MULTI-BENEFIT REGIONAL STORMWATER STRATEGY**

by Paul Fendt, PE, Parametrix (Seattle, WA)

### Introduction

Stormwater contamination is one of the most significant on-going threats to the health of Washington State's Puget Sound water resources. While permits, programs, and practices to address stormwater quality have been in place since the late 1980s, ongoing impacts continue to occur, often due to the legacy development and systems that were in place before our current programs. The Washington State Department of Ecology's (Ecology's) Municipal National Pollutant Discharge Elimination System (NPDES) permits, first issued in the 1990s, have made great strides toward addressing new development and sources, but have not until quite recently in the permit cycle begun to address legacy development and stormwater system retrofitting on a comprehensive scale. Complicating matters, stormwater redevelopment requirements in the NPDES program sometimes conflict with preferred growth management planning approaches. For example, redevelopment and infill in dense urban cores require stormwater facilities where space is limited, thereby reducing the land available to meet growth management goals and pushing development into currently undeveloped areas. New approaches are needed.

Several Puget Sound municipalities have taken on stormwater retrofit planning and projects on their own and, often with financial support from Ecology grants, implemented a variety of types and scales of stormwater retrofitting projects. In some instances, weary of the poor public perception of stormwater facilities in general (fenced facilities being referred to as "stormwater prisons") local stormwater practitioners began planning and implementing new "regional" facilities for large scale basin retrofitting. Two important strategies are behind these facilities: 1) find existing publicly owned and (potentially) underused sites or 2) create new public spaces with multiple uses, referred to as "Stormwater Parks."

### Defining the Problem

Unmanaged stormwater runoff into Puget Sound is a significant contributor of pollutants in the region's receiving waters. While stormwater control requirements for new development have been in place since the 1980's and stormwater retrofitting during redevelopment since the 1990s, a vast amount of development that occurred before that time is not controlled. This prior historical development includes the central cores of our largest communities and transportation routes in the Puget Sound basin. While stormwater retrofitting of legacy development is happening through redevelopment, road upgrades, or directed projects by forward-thinking communities with resources or grants, much development is still uncontrolled. Recent NPDES Municipal Stormwater Permits have started to require planning to retrofit basins and funding for these facilities has become available from Ecology grants. Unfortunately, the problem is extensive and discussion amongst stormwater practitioners indicates the cost is in the billions of dollars to retrofit and address legacy stormwater issues in the Puget Sound basin.

## Stormwater Parks

### Regional Facilities

### Retrofit Projects

### Multi-Use Areas

### Stormwater Management

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Regional stormwater facilities, defined herein as serving multiple properties under both public and private ownership and serving tens or hundreds of acres, are one approach to starting the long path to suitable stormwater management coverage for the basin.

**Regulatory Requirements**

The State of Washington's most recent NPDES Municipal Permits (*see* sidebar) do not include specific proactive requirements to retrofit specific areas or amounts of legacy stormwater but have required the Phase 1 and Phase 2 communities to plan basin-oriented activities under the Stormwater Management Action Plans (SMAP). These plans emphasize specific changes through capital projects, stormwater program improvements, or land use and code modifications. In addition, Phase 1 communities must generate a number of points for selected actions under the Structural Source Control program, which includes capital retrofit projects. Regional facilities and stormwater parks are a good choice to address large areas of legacy stormwater with a single capital project action. The standards for these projects are intended to meet Ecology's existing stormwater manual requirements, but Ecology has given latitude to provide retrofitting to the "maximum extent practicable or feasible" or allow communities to provide partial treatment when there are space or hydraulic limitations. *See*: https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits

**Stormwater Parks**

Stormwater parks address some of our greatest needs to create resilient, efficient, and thoughtful community plans. Multi-use areas optimize the use of public lands for multiple essential public benefits, including: stormwater management for retrofitting, permit compliance, accommodating infill growth; open spaces with multiple compatible uses; flood control and safety; livable communities; and efficient use of public funds. By identifying the rationale, objectives, planning process, search for candidates, and design considerations, stormwater practitioners can be a catalyst for making these approaches the "best practices" and provide the answer to: "How do I get one in my community?"

The stormwater park project concept goes beyond the straightforward application of solid technical and engineering concepts to manage stormwater in the region. This approach can address numerous considerations and needs in a community that go beyond flood control and clean stormwater. This is a place-making opportunity to support underserved communities and neighborhoods and a chance to show communities how to address a key new NPDES permit requirement for social equity in municipal stormwater management. Also, a stormwater parks retrofitting program will achieve success by promoting the important concept in stormwater management of optimizing the use of public lands and resources.

### Municipal Stormwater Permits

Polluted stormwater runoff is commonly transported through **m**unicipal **s**eparate **s**torm **s**ewer **s**ystems (MS4s), and then discharged into local water bodies. Most MS4s are regulated by state water quality agencies that have received federal Clean Water Act enforcement authorization from the US Environmental Protection Agency (EPA).

An MS4 is a conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the US;
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches);
- not a combined sewer; and
- not part of a sewage treatment plant, or **p**ublicly **o**wned **t**reatment **w**orks (POTW).

To prevent harmful pollutants from being washed or dumped into MS4s, certain operators are required to obtain NPDES permits and develop **s**torm**w**ater **m**anagement **p**rograms (SWMPs). The SWMP describes the stormwater control practices that will be implemented consistent with permit requirements to minimize the discharge of pollutants from the sewer system.

**Phase I MS4s**

The 1990 Phase I regulation requires medium and large cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges.

**Phase II MS4s**

The 1999 Phase II regulation requires small MS4s in US Census Bureau defined urbanized areas, as well as MS4s designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. Phase II also includes non-traditional MS4s such as public universities, departments of transportation, hospitals, and prisons.

*See* EPA website: www.epa.gov/npdes/stormwater-discharges-municipal-sources

 

## Stormwater Parks

### Regional Facility Benefits

**Why Regional Facilities?**

Regional stormwater facilities owned and operated by a municipality or other responsible entity can provide many benefits over several facilities that serve the same area in multiple sites or that serve single parcels.

Regional Stormwater Facilities can:

- Provide stormwater service and retrofit large areas (provide stormwater treatment where none exists) in one action or capital project;
- Provide improved and more efficient operation and maintenance in a facility owned and operated by trained professionals and stable, funded organizations such as a city department, in contrast to a homeowner's association or private business;
- If built proactively, can attract concentrated development to targeted growth hubs or transit-centered areas;
- Reduce individual project site footprint dedicated to stormwater facilities, thereby increasing infill development area; and
- Focus resources and funding to better or preferred locations.

### Public Benefit

Additionally — because of the size, open space, potential public access and use, and educational opportunities — regional facilities can also be designed to achieve added public benefit as a stormwater park. This "place-making" opportunity can: draw more public support for stormwater funding; bring needed open space to underserved communities and dense urban environments; and change the perception of these sites from a burden to an enjoyable amenity.

Regional stormwater facilities can either create new public spaces or optimize existing spaces by expanding to allow multiple uses and taking advantage of the largest stormwater investment we make — land ownership — for a range of the public good.

**Establishing Program Goals and Objectives**

### Key Project Driver

The success of a stormwater park, and most any public infrastructure project, is to define project goals and objectives. This involves understanding the factors that will initiate the project, define success, and present project risks. The first step is to understand the key project driver. In many cases, stormwater retrofitting demand is an outcome of anticipated or specific regulatory requirements or community values aimed at protecting and managing community water resources. For example, understanding this need would guide the project planning to specific performance targets, such as treatment coverage, in contrast with opportunistic planning, which will look for synergy with other needs or easier projects to implement.

### Engagement Scope

Stormwater planning and capital projects are normally initiated in municipal public works or engineering departments and responsibility is given to the person that manages permit compliance and develops or delivers capital drainage projects. For stormwater park planning, additional internal engagement is needed from: operations and maintenance; parks; planning, natural resources, transportation/roads, and finance departments; affected regional and local administrations; and others.

### Goals & Objectives

Typical Goals and Objectives Include Consideration of:

- What are the preferred drivers and needed outcomes?
- How is stormwater park siting merged with public space needs and planning?
- Can this project encourage funding support?
- How can this be merged with NPDES permitting and growth management infrastructure planning?
- What are the community's land acquisition approaches and policies?
- Who will operate and maintain the facility?

**Stormwater Park Planning**

Stormwater park planning begins with an approach for defining what a stormwater park is (in public perception) and addresses several questions.

### Planning Considerations

Stormwater Park Planning Questions include:

- Where does the need come from (regulation, growth, community values regarding water resource health, etc.)? The answer can define the performance expectation.
- How are sites conceived and found?
- How are alternatives selected and prioritized?
- Who is on the team (discussed below)?
- What is the potential funding source(s)?
- What land and other entitlements are needed to permit and construct the site?
- What are the aesthetic and design considerations for the look and feel of the park? Who are the users?

## Stormwater Parks

### "Treatment Coverage"

Stormwater retrofit planning is generally moving toward a "treatment coverage" standard, which is consistent with municipal stormwater permit approaches of programs and presumptive compliance with stormwater manuals by applying best treatment or source control practices. Performance-based stormwater facility siting can be applied if there are specific targeted needs, such as a flood flow reduction or a specific problematic water pollutant of particular concern.

### Site Screening

Site finding and site screening can be applied using an available model that defines where the greatest need could occur due to lack of treatment or development intensity. Other criteria can include: stream or waterbody condition; control type needed (water quality or flow control or both); minimum preferred basin size; land or site availability and ownership; and position or location in watershed. In addition, other planning documents may be applicable, such as those concerned with growth centers; open space; natural area or parks planning; preservation and acquisitions targets; or other planning or opportunities to address and satisfy the "park" element of the plan.

### Planning Team

The Site Planning and Selection Team should include:

- Project Manager
- Administrative lead or department head
- Planning and parks representation
- Civil design engineers
- Hydrologic and hydraulic modeler
- Operations and maintenance lead
- Park planner
- Landscape architect
- Permitting specialist
- Urban and land planner
- Cultural resources specialist
- Public involvement lead

### Criteria Determination

Alternative development and selection can include numeric or objective criteria, such as where is the biggest area with the greatest need and the best value? Subjective criteria could include opportunity where a preferred site comes available for use or purchase, or another capital project or park site is considered and there are savings from joining the projects together. Additionally, the site could have strong public advocacy as a favorite stream or a needed open space. Public support can help overcome institutional barriers and promote funding. Finally, looking to serve overburdened communities and create multi-benefit projects can tip an alternative to favorite status. It is important that the alternative selection process consider all possible valuable projects that meet the goals and intent of the project. The process should be wary of choosing the cheapest or least difficult project, which could be a lost opportunity.

### Goals & Intent

**Design Considerations**

### Technical Feasibility

Finding the preferred site is addressed in the factors described above. Once screened and found, the technical feasibility of designing and building the site includes some basic site considerations. A facility that can operate with gravity flow instead of pumps is preferred from a cost and operational standpoint. This may be difficult to find, as most stormwater conveyance systems built before stormwater regulations were meant to drain sites as quickly and efficiently as possible. This means the hydraulic level of the water at the bottom of the pipe is at the same level as the receiving water. To provide stormwater storage or treatment, several feet of hydraulic separation are needed and pumping is often the only approach to gaining that separation when gravity flow is not available.

### Throughput Improvement

For treating stormwater runoff, there is continuing research and new products are being approved for use. Recently, treatment throughput rates have increased by as much as tenfold, which means that the footprint of a stormwater treatment site can be reduced dramatically. Continued improvements of these rates without more costly media or design complexity will be limited, but improvements in the overall performance can be anticipated as monitoring of new installations establishes what works and what doesn't. Also, the replacement and degradation of these new systems have had limited in-field operation time, so over time operation costs will be better known and approaches to extending the life of these systems will be found.

### "Maximum Extent Practicable"

While the stormwater manuals have defined minimum design requirements for new facilities, stormwater retrofitting in regional facilities could be constructed to the "**m**aximum **e**xtent **p**racticable (MEP) or feasible," using cost-benefit consideration for sizing. This approach has been accepted by Ecology and provides for value-based improvements where they are needed.

## Stormwater Parks

### Defining Success

### Standards Change

### Funding Stream

### Success Examples

### Stormwater Park & Water Treatment

**Considerations for Standards and Activation**

Regional facilities and stormwater parks can have many objectives to define success. In some circumstances, constructing a facility that retrofits existing untreated area, provides for stormwater of redeveloped areas, and accounts for new and future development, would generally have the most public support and available benefits. However, there are often issues over providing public benefits to private development, systems to allow for buying into facilities need to be established, and MEP approaches may not provide the benefits sought for infill development. Ecology will fund retrofitting for existing basin conditions only, which makes accounting for future retrofitting either not allowed or difficult to manage.

Regional facilities are often designed and constructed to the stormwater standard at the time of activation. This often means that future development that had intended to rely upon that facility may need to account for the change in standard at the site or not be able to use the site. With limited ability to know or address future standards, this could put a chill into the interest in new regional facilities. These issues should be addressed at the Ecology or project-approval level. One approach is to apply basin-specific standards when developing a regional facility, which can keep those standards in place because they are basin-specific and not subject to the uncertainty of future changes in standards.

Proposed facilities will also require an implementation and operation funding stream, which can include: grants; stormwater utility funds; buy-in or connection fees; use of in-lieu fees; special area assessments; and general funds. This approach should be included in the objectives and feasibility processes early on, as it can influence locations selected and standards to be applied.

**Examples and Case Studies**

A number of stormwater parks and regional facilities have come online, are under construction, or are in early design and planning phase in the Puget Sound basin. The following are brief descriptions of the projects and some key features of their design, construction, or implementation. With the exception of Whispering Firs, all of these facilities provide stormwater quality treatment only, with no flow control component.

**Manchester Stormwater Park**

Location: Manchester, WA / Year constructed: 2016 / Site footprint, including amenities: 2 acres
Area treated: 100 acres

**Description:** Manchester is an urban waterfront community that has been designated as a high-priority area for water quality and flood control. The goal was to enhance water quality by constructing a new community stormwater park. The stormwater park is located on an old gas station property that was remediated as part of the project and includes an art water feature and a public plaza. The project was funded by a combination of local funds and state grants and included extensive work with Ecology for approval of the innovative media filter-based treatment system.

**Manchester Stormwater Park**

## Stormwater Parks

**Educational Demonstration**

**Point Defiance Park**

Location: Tacoma, WA / Year constructed: 2015 / Site footprint, including amenities: about 0.5 acres
Area treated: 720 acres (partial treatment (≈ 150 acres equivalency) — not to full standard for 720 acres)
**Description**: The City of Tacoma and Metro Parks Tacoma jointly redeveloped part of Point Defiance Park to provide regional water quality treatment for stormwater from a 720-acre residential watershed. In addition to providing water quality treatment, the stormwater management facility was configured to serve as a park amenity and educational demonstration. The project was funded in part by an Ecology grant.

**Point Defiance Park**

**Multi-Benefit**

**Enhanced Treatment**

**Whispering Firs**

Location: Silverdale, WA / Year constructed: 2017 / Site footprint, including amenities: about 3.5 acres
Area treated: 113 acres
**Description:** Whispering Firs is a multi-benefit regional stormwater retrofit facility that uses green stormwater treatment techniques to treat runoff from existing infrastructure and development in a 113-acre subbasin to meet current Ecology water quality standards. The facility provides enhanced treatment and reduces stormflows to Clear Creek, the main salmon-bearing stream in north Dyes Inlet. Whispering Firs provides public recreational opportunities — walking paths and picnic areas, bird and wildlife habitat, and views of the Olympic Mountains.

**Whispering Firs**

**Recreation Options**

## Stormwater Parks

### Historic Downtown

### Future Runoff Component

**Marysville Downtown Stormwater Treatment System**
Location: Marysville, WA / Under Construction / Site footprint, including amenities: about 0.5 acres
Area treated: 460 acres
**Description**: Marysville's Downtown Stormwater Treatment Project will retrofit most of the historic downtown area and provide for stormwater treatment of all existing and potential future runoff. The facility uses the recently approved media treatment rates, which has led to a significant reduction in the footprint required. This will be the first phase of a new waterfront park. The project was funded in part by an Ecology grant.

**Marysville Downtown Stormwater Treatment System**

### Retrofit & Regional Facilities

**Conclusion**

Stormwater contamination is one of the most significant and costly threats to the health of Puget Sound water resources. Retrofitting legacy stormwater in regional facilities and providing stormwater parks can provide multi-use areas that optimize public lands for multiple essential public benefits. Recent NPDES Municipal Stormwater Permits have started to require planning to retrofit basins and funding for these facilities has become available from Ecology grants and other sources. The problem is extensive and movement to solve it is essential.

Regional stormwater facilities in stormwater parks can provide many benefits, including: providing a single facility instead of many; improved maintenance; reduced overall footprint of stormwater facilities that serve the same area; and the selection of preferred sites in the basin able to serve more existing and future projects. Continuing research and new treatment products are reducing site footprints and making more projects viable with existing public land or reduced land costs.

The stormwater park project concept goes beyond engineering concepts to manage stormwater in the region. This place-making opportunity can: gain community support for stormwater management; provide social equity in municipal stormwater management; and optimize the use of public lands and resources. A number of case studies and successes are now available to promote the concept to decision-makers and elected officials.

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**Paul Fendt**, PE, has over 35 years of stormwater engineering and planning experience managing large-scale watershed, stormwater, flood control, and surface water management projects. His project experience includes storm and surface water management planning and policy development, stormwater compliance and permitting, water quality studies, **l**ow **i**mpact **d**evelopment (LID) design, stormwater treatment design and implementation, and subject matter expert review. Paul leads a stormwater management practice for Parametrix, Inc. in Seattle, WA, and has completed projects throughout the Puget Sound basin and Washington and across the western US.

Climate & Water Law

Water Law Adaptation

Prior Appropriation v. Riparian Law

Mining Customs

Priority System

Transition to Agriculture

Full Allotment

# CLIMATE CHANGE & WATER LAW

## HOW WILL WATER LAW RESPOND TO CLIMATE CHANGE IN THE INTERMOUNTAIN WEST?

by Abigail R. Brown and Nicole Hardesty, Parsons Behle & Latimer (Helena, MT)

### Introduction

Climate change continues to have detrimental effects on the environment, especially water resources. The Intermountain West faces record-breaking droughts and increased water scarcity. Water law in the Intermountain West was not developed to confront the unstable environment that climate change creates. This article addresses the ways in which western water law in the Intermountain West may inevitably adapt to climate change.

### Development of Western Water Law and the Law of Prior Appropriation

The legal doctrine governing water law varies in the United States of America, depending broadly on whether a state is located to the east or to the west of the 100th meridian (Craig, 2020 at 3-4, *see* References). The western United States, inclusive of the Intermountain West, is predominantly governed by the law of prior appropriation, whereas the Eastern states are generally governed by the riparian doctrine. *Id*. at 3. Under the riparian doctrine, water rights are allocated between real property owners adjacent to a body of water and water is allocated under the theory of reasonable use wherein each riparian water user has an equal right to make a reasonable use of the water source, subject to the equal right of the other riparian water users' reasonable use of the same source. *U.S. v. Willow River Power Co*., 324 U.S. 499, 505 (1945). In other words, "[r]iparian law gives equal and correlative rights to those owning land along the stream, while the law of appropriation recognizes that the person who has found available water and put it to beneficial uses has a right to continue his use." (Trelease at 24). Although the eastern riparian system of water law also faces challenges with climate change, such as flooding, this article addresses only the challenges to western water law, and specifically how the prior appropriation systems adapt to climate change impacts.

The prior appropriation doctrine that dominates western water law was developed during the 19th Century California Gold Rush to meet the intensive water needs of mining operations. (Wilkinson, 1985 at 317). The riparian water system of the eastern United States was unfit for mining operations because miners used excessive water to flush out gold and silver deposits, which ran afoul of the riparian doctrine's recognition that water users collectively shared a water source, and "a landowner could not substantially diminish the flow of a river because of the duty to respect possible future water development." *Id*. at 318. In the West, water was scarce, and miners viewed water as a means to further their business endeavors, not as a valuable resource in need of future preservation. *Id*. at 319. Thus, "[m]ining...could not proceed unless water could be assured in sufficient and certain quantities." *Id*. at 19. So, miners created their own customs, and a priority system for water use emerged in the West. *Id*. at 19. Under this priority system for water use, the first miner to claim an area for mining became the first water user of that area and had "an absolute right of priority." *Id*. at 19. In 1885, the mining priority system was affirmed by the Supreme Court of California in *Irwin v. Phillips* and the law of prior appropriation became the core of western water law. *Id*. at 319.

The law of prior appropriation transitioned from mining uses to agricultural uses as ranchers and farmers migrated towards the West and treated water as a means to further their own agricultural operations. *Id*. at 320. Congress wanted to "reclaim the west," and passed the Reclamation Act of 1902, which sought to support settlement in the West through encouraging settlers to become irrigation farmers. *Id*. at 320. Today, senior appropriative rights still remain largely in the hands of agricultural and ranching owners, while junior users tend to be cities and individuals. Craig, 2020 at 5. However, many scholars believe that western water law is undertaking its next transition to meet public needs and address water scarcity. (*See generally*, Wilkinson).

### Overview of the Law of Prior Appropriation

Prior appropriation follows the rule of "first in time, first in right." Under the law of prior appropriations, water users do not share water. Wilkinson at 319. The first person to use water from a water source has senior priority and is guaranteed their full allotment of water. *Id*. In other words, the first person to "divert water from a particular source and use it for a beneficial use (mining, farming, cattle, domestic use, and so forth) acquires a right to that quantity of water superior to anyone who later withdraws water from the same source — i.e., the senior water right." Craig, 2020 at 4. If water is scarce, senior users are

**Climate & Water Law**

**Over-Appropriation**

**Untouchable Rights**

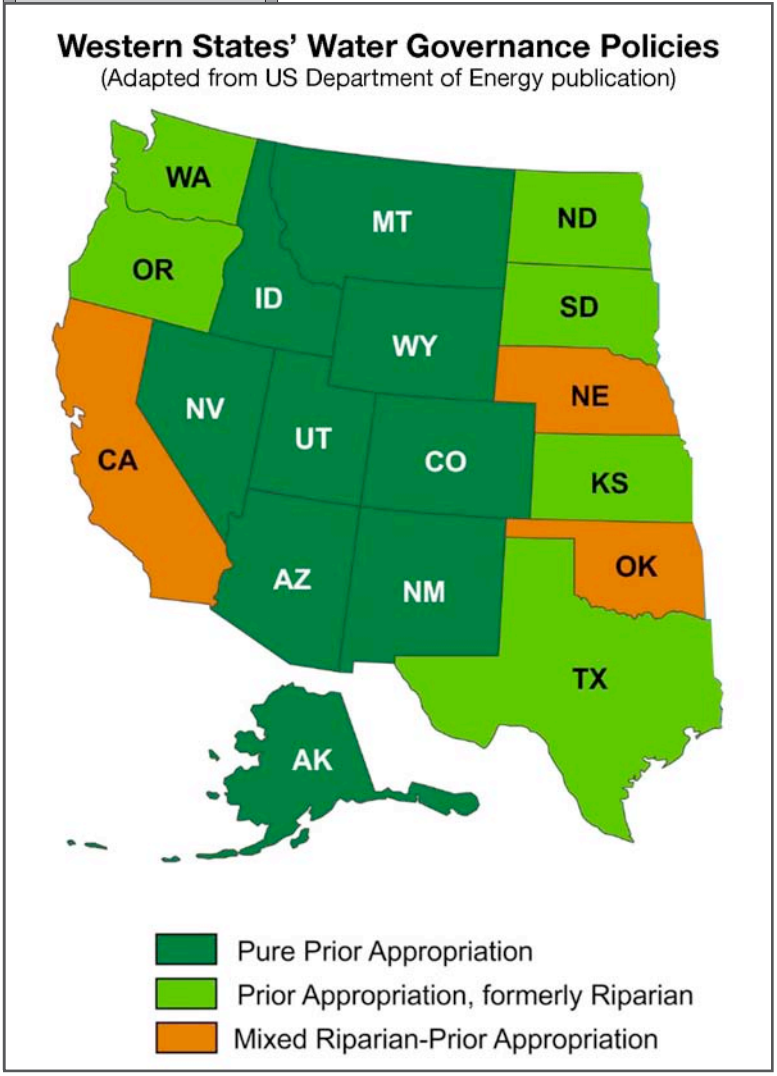
**Climate Change Impacts**

**Harsh Reality**

allocated their full supply, while "junior users are cut off according to their order of priority." Wilkinson at 319. The law of prior appropriation does not consider the preservation of water — "[a] stream or lake can be drained low or dried up entirely, as has occurred with hundreds of western rivers and streams, even the lower Colorado." *Id*. at 319–320. The priority system does not incentivize leaving water in the stream and most surface water in the intermountain West is now "fully or over-appropriated." *Id*. at 5. In many parts of the Intermountain West, there is a belief that water rights under the law of appropriation "are considered untouchable, and any effort to curtail them spawns numerous lawsuits." (Sommer). However, the uphill climb to adjust the law of prior appropriation is inevitable as the survival of our society rests upon our adaptation to climate change.

**Effects of Climate Change on Water**

Western water systems were created with the assumption that the climate and water resources would remain constant. *Id*. However, climate change has obliterated the idea that water is a static resource as record-breaking droughts and extreme weather patterns dominate news cycles. (Craig, 2020 at 5). Water resources in the western US have especially suffered from the impacts of climate change. (Sommer, 2021). Lake Mead is the lowest it's been since the 1930s. Hotter climates create parched soils, leaving less water runoff for rivers and streams because the soils are absorbing more water to reach normal moisture levels. Higher temperatures increase the evaporation of rain and snow, making it "less likely for a raindrop or snowflake to reach a reservoir." *Id*. Further, mountain snowpacks are melting earlier and producing less water, which increases evaporation because soils heat up faster without the reflective surface of snowpacks. *Id*. The unpredictability of climate change creates a harsh reality that "the people who manage the West's complex water systems...can no longer rely on the past to predict the future." *Id*. Dams and reservoirs are no longer enough to maintain communities during a drought. (Craig, 2020). Accordingly, western water law will need to adapt to the harmful effects of climate change on water. *Id*.




**Main Issues with Water Law and Climate Change in the Intermountain West**

Climate change raises complications for the law of prior appropriation, which as noted above, was established in the 19th Century by California miners for an environment that was perceived to have constant and predictable water resources. With climate change, access to constant and predictable water resources is no longer the case across most of the Intermountain West. Although the West has historically experienced drought, "the new, drier normal of climate change is making drought both a more regular and a worse reality for prior appropriation states." (Craig, 2018 at 84). One issue with the law of prior appropriation is that during a drought "the junior users — the users who acquired their water rights later in time — must entirely cease to use water before senior users have to curtail their water use at all." *Id*. So, junior users, who tend to be cities and individuals, suffer most significantly in a drought because they are left with no or little water after agricultural users (senior users) take their full allotment. (Craig, 2020 at 5).

With the strict adherence to priority built into the legal framework, prior appropriation law is not flexible enough to adapt to our changing environment. *Id*. To address the realities of climate change, the law "needs flexibility to deal with these changing hydrological realities." (Craig, 2018 at 85). For example, rather than following the priority system, state water agencies need the flexibility to reallocate water priorities in times of drought and water shortages to ensure that modern demands and public needs are met. *Id*. However, the law of appropriation "is tied up in private and governmental property and contractual rights," making necessary reallocation of water "economically expensive and legally and politically challenging." *Id*.

**Climate & Water Law**

**Anti-Speculation**

**"Reasonable Projected"**

**Unpredictable Availability**

The law of prior appropriation also remains an obstacle for cities to effectively plan for severe droughts. *Id*. at 86. The prior appropriation's anti-speculation doctrine imposes a maximum on how much appropriators —including cities — can claim in preparation for droughts and water shortages. *Id*. The law of prior appropriation only allows cities to claim future water rights "to the extent of their reasonably projected future needs." *Id*. However, with climate change, the intensity and unpredictability of droughts in the West can almost never be "reasonably projected." *Id*. Thus, an unexpected drought "could legitimately catch even the most diligently prepared city off guard." *Id*. For example, the record-breaking drought that California experienced in 2012-2016 was so severe and historically unprecedented that no amount of planning could have realistically prepared for it. *Id*. The priority system needs more flexibility for water allocation so cities can claim additional future water rights than what is "reasonably projected" in preparation for droughts. Climate change has altered the projections. *Id*.

As discussed above, the law of prior appropriation developed on the idea that water is constant and stationary. (Craig, 2020 at 5). By contrast, climate change has created a new normal of fluctuating and unpredictable water availability. *Id*. There is no clear answer for how water law will change. However, "[t]ransformational legal change is inevitable, either because society will choose a sustainable path, or because the present legal institutions will collapse from economic and social disintegration following ecological chaos." (Wood, 2009 at 88). Thus, as water practitioners continue to face climate-related challenges in each project they undertake, these practitioners must begin to integrate potential responses to climate change's impact on water resources and water law itself. To aid the water practitioner in crafting a response to these climate challenges, the following are brief summaries of some of the proposals scholars have made for how water law will respond to climate change.

**Proposals For How Water Law Will Adapt to Climate Change**

**Drought Planning**

**Adaptation Need**

**Water Banks (Voluntary)**

**Sellers' Incentives**

**Market Forces**

It seems beyond dispute that western water law will need to adapt to the increasing severity of droughts as temperatures rise. One proposal for drought planning is to create a voluntary program of water banks to re-allocate water, a system that California and Texas already have in place. (Craig, 2018 at 88). Water banks are "state-operated mechanisms that allow water rights holders to voluntarily transfer water rights, temporarily or permanently, to other uses." *Id*. The California Department of Water Resources (CDWR) implemented water banks to adapt to the reoccurring and intense droughts in the 1990s. *Id*. The CDWR created buy and sell agreements for water. *Id*. The incentive for buyers and sellers to use the drought water bank was to "take advantage of economies of scale and avoid the high transaction costs and third-party effects of individually negotiated transactions." *Id*. The 1991-1993 California Drought Water Bank proved to be a success and California was able to provide more than one million acre-feet of water through its water bank. *Id*. However, California created another drought water bank in 2009, which failed because the CDWR was not able to economically incentivize appropriators to relinquish their water rights. *Id*. at 90. The CDWR's water bank depended on voluntarily sellers, but water appropriators were not willing to sell to the state because the state was only paying $275 per acre-foot of water, whereas profits from rice were the highest they had been in 30 years due to a drought in Australia. *Id*. Naturally, water appropriators would rather use their full water rights to grow rice, and make more money, than sell their water to the state. *Id*. Thus, although drought water banks are a potential solution for water law to adapt to climate change, California's 2009 Drought Water Bank "illustrates one of the potential weaknesses of voluntary programs to reallocate water during western droughts — market forces that tempt senior water rights holders away from drought mitigation and into business as usual. Few governments can afford to compete with a world rice shortage that drives food prices to high levels." *Id*.

**Involuntary Allocation & Public Necessity Doctrine**

Another proposal for drought planning is to implement an involuntary program of water allocation through the Doctrine of Public Necessity. *Id*. at 92. The Public Necessity Doctrine derives from common law and is "inherent in all private property rights." *Id*. at 93. This doctrine "recognizes that in times of true emergency, private rights yield to public needs, with no need for the acting government to pay." *Id*. In other words, during times of emergency, the government may reallocate property rights *without* compensation. However, for the government to utilize this doctrine, a "public emergency or necessity" must exist, and the destruction of private property must be "reasonably necessary." *Id*. at 94. The first hurdle in the context of drought planning is, therefore, the existence of political will to declare climate change a public emergency. For example, the California Second District Court of Appeals recently rejected City of San Luis Obispo's use of the Public Necessity Doctrine when the city instituted emergency groundwater pumping during a drought. *Id*. at 98. The court reasoned that the city did not meet the emergency requirement because the

**Climate & Water Law**

**"Emergency" Definition**

**"Best Efforts"**

**Limited Right**

**"Beneficial Uses"**

**Nonconsumptive Uses**

**Waste Prohibition**

**Institutional Shortfall**

**Waste Adaptations**

city had known for years that it needed to conserve water but chose to implement "damaging groundwater pumping" instead. *Id*. The court held that "[this] choice of action over the years does not constitute an emergency." *Id*. This case illustrates that "[c]ities and counties must actively engage in water supply planning — including drought planning — and impose water conservation measures before the public necessity defense becomes available during drought." *Id*. The Public Necessity Doctrine is not a litigation tool for cities that did not engage in drought planning or water conservation. *Id*. at 99. Rather, the Public Necessity Doctrine is for municipalities that used their best efforts to plan and conserve water. *Id*. Of course, until addressing climate change and its impacts on water resources becomes widely accepted as an emergent effort, what constitutes "best efforts" to plan and conserve water will always be subject to interpretation and, therefore, litigation.

**"Beneficial Use" and Stricter Enforcement of the Rule Against Waste**

As stated earlier, water law in western states are predominately governed by the law of prior appropriation. The first person to divert water has a superior right to continue using that same amount of water. However, that superior right is not unlimited. The appropriator's water right is limited by the concepts of beneficial use. (Koehl at 1142). Beneficial use refers to the purpose or type of use of water. Each state defines "beneficial" in different ways, either by constitution or statute. (Toll at 602). Prior to the 1970s, beneficial purposes were "limited to consumptive uses, such as mining, agricultural, industrial, municipal, domestic, stock-raising, and hydropower." (Koehl at 1142). However, the environmental movement of the 1960s led both state and federal legislatures to enact environmental and natural resource laws throughout the 1970s and 1980s. (Craig, 2010 at 81). Since then, courts and legislatures began to "redefine [ ] beneficial use to include nonconsumptive uses, or instream uses, such as recreational and environmental preservation." (Koehl at 1142). Further, "case law and precedent supports the changing nature of the beneficial use element of prior appropriation." (Hall at 31). Oregon has taken the lead in redefining "beneficial" to include "nonconsumptive uses, or instream uses, such as recreational and environmental preservation." (Koehl at 1142). In Oregon, beneficial use is defined by the amount of water diverted, the amount of water used, and the amount of water needed. *Id*. at 1155. The lowest amount of all of these factors is what is considered to be beneficial. *Id*. The Oregon Supreme Court has stated that water rights extend "only to what is needed for the use for which water has been appropriated." *Id*.

A corollary to beneficial use is the rule against waste. Many western states adopted "beneficial use, without waste [as the] basis, measure, and limit of water right." (Toll at 602). These states "directly prohibit waste of water, and permits generally have authority to deny a proposal of water use on that basis alone." (Wood, 2014 at 176). However, in practice, western states have roundly ignored the law against waste and have not enforced it. (Russell). Often, this is because "waste" has not been clearly defined by western states, and the politics surrounding and influencing water laws. *Id*. The politics of environmental law cause state water agencies to "lack political support for enforcing against waste." *Id*. at 157. Law professor and scholar, Mary Christina Wood, described the political reality of environmental law in her book, *Nature's Trust: Environmental Law for a New Ecological Age*, as the following:

> As we have seen, environmental law is not what it appears. Agencies at the local, state, and federal levels have turned the statutes into a broad scale permitting system that allows colossal damage. Politicized agencies repeatedly serve industrial and development interest at the expense of the public. Time and time again, science provides an impenetrable coverup for decisions that sabotage statutory purposes. Despite its original goals, environmental law now institutionalizes a marriage of power and wealth behind the veil of bureaucratic formality.

(Wood, 2014 at 103).

As climate change progresses, however, the rule against waste must adapt to changing circumstances. *Id*. at 170. The law against waste has adapted before to "countenance the clearing of timber to make land fit for civilization." *Id*. at 171. As water availability decreases, "the doctrine again must transform in response to extreme natural scarcity." *Id*. The concept of adapting a rule against waste has been confirmed by courts. One court stated that the rule against waste will require "reasonable modifications as may be demanded by the growth of civilization and varying conditions." *Id*. The Idaho Supreme Court stated that beneficial use "might so change that [previously acceptable uses] would be an unjustifiable use of water needed for other purposes." (Hall at 31). California courts have already started the process by guiding "the state's water use by stressing reasonable and beneficial purposes," and establishing that "there is no vested property right to waste water unreasonably." *Id*. at 28. Moreover, "California's courts also recognize that the State may validly limit the property interest of a water right to reasonable use, going so far as allowing the full deprivation of water rights." *Id*.

## Climate & Water Law

### Use Regulation

### Forfeiture Due to Waste

### Prioritizing Uses

Advanced technology that increases the efficiency of water uses has "led to changing perceptions as to what constitutes acceptable water use." (Hedden-Nicely at 156). Accordingly, "a practice that was reasonable at one point could be considered wasteful now, obligating the user to update his irrigation practices or risk forfeiture of the water that is not being reasonably used." *Id*. In response to pressures of climate change, tighter regulations on, and enforcement of, the laws against waste allow state agencies to more closely monitor historically unregulated water uses and, for example, determine that agricultural and industrial water uses, may no longer be treated as "de facto beneficial." (Hall at 31).

For example, newer technology deems the practice of flood irrigation wasteful and unreasonable as drip irrigation becomes more common. (Hedden-Nicely at 156). States may allow state engineers and agencies to "consider future water needs before deeming a use beneficial and entitled to a water right." (Hall at 31). Similarly, state courts may deem "proposed and current water usages wasteful, just as the courts recognized that once non-beneficial uses could become beneficial." *Id*. Water appropriators' rights may be forfeited if their water use is deemed to be no longer beneficial. *Id*. at 31-32.

Another possibility is that States may begin to contemplate prioritizing types of water users and enact statutes that rank crops based on wastefulness, and provide "deference to more water efficient crops, and designating other crops as wasteful." *Id*. at 31. For example, "corn in western Kansas may be unreasonable in a drought, while wheat production may be beneficial." *Id*. In California, "some crop productions may never again be considered beneficial as the effects of climate change worsen" — such as almonds and alfalfa crops — which take up ten to fifteen percent of California's water usage. *Id*. at 31, 26. Although there are multiple ways in which the law of waste and beneficial sue may adapt to climate change, these proposals illustrate possibilities as to how state statutes and courts may necessarily change as the pressures of climate change continue to increase water scarcity across the intermountain west.

### Public Welfare & Survival

### Public Trust Duty

**Public Trust Doctrine**

As water scarcity becomes the status quo instead of the exception, States may increasingly use the Public Trust Doctrine beyond its traditional role as a way to protect the public's right to water resources. The Public Trust Doctrine, derived from common law, provides that "some natural resources remain so vital to public welfare and human survival that they should not fall exclusively to private property ownership and control," but instead should continue to belong to the public. (Wood, 2014 at 14). It is a legal principle that ensures the government's duty to protect resources, such as waters, wildlife, or land, for the public's use. *Id*. Prior appropriation states have incorporated the public trust doctrine through the state's constitution or state statutes. The US Supreme Court first established the Public Trust Doctrine in *Illinois Central Railroad Co. v. Illinois*, 146 U.S. 387 (1892) by declaring the government's trust duty to preserve waters for the use of the public. In that case, the Supreme Court (Court) held that "the shoreline of Lake Michigan was held in public trust by the State of Michigan and could not be transferred to a private railroad corporation." (Wood, 2014 at 15). The Court ruled that "the attorney general could take back the land on behalf of the people." *Id*. at 21. Subsequently, the Court established "an apparent federal law basis for many later state pronouncements of their own public trust doctrines." (Craig, 2010 at 62). In addition, the Court provided that "private title must comply with the public trust duty… ." (Wood, 2014 at 32).

### Evolving Doctrine

The role of the Public Trust Doctrine is evolving as natural resources become scarce. Courts are already recognizing the Public Trust Doctrine as an adaptation to climate change. The California Supreme Court stated that, "[t]he objective of the public trust has evolved in tandem with the changing public perception of the values and uses of waterways." (Craig, 2010 at 73). In addition, Texas courts have noted that, "the State, as trustee, is entitled to regulate those waters and submerged lands to protect its citizens' health and safety and to conserve natural resources." *Id*. Since the Supreme Court's decision in 1892, western states have shaped and added to the role of Public Trust Doctrine by using "a variety of legal techniques to protect and expand public rights in the waters of each state." *Id*. at 71. Some states have "redefin[ed] navigable waters...; expand[ed] the list of protected public uses beyond navigation, fishing, and commerce; and extend[ed] public rights and public trust principles to all state waters, regardless of who owns the beds and banks." *Id*. More recently, states such as Hawaii, Oregon, and California, have "extended the concept of a public trust in waters to environmental protection." *Id*.

### *Mono Lake* Case

For example, in *National Audubon Society v. Superior Court of Alpine County* (also known as the *Mono Lake* Case), the California Supreme Court stated that, "[t]he human and environmental uses of Mono Lake — uses protected by the public trust doctrine — deserve to be taken into account. Such uses should not be destroyed because the state mistakenly thought itself powerless to protect them." *Nat'l Audubon Soc'y v. Superior Ct*., 33 Cal. 3d 419, 452, 658 P.2d 709, 732 (1983). The *Mono Lake* decision "squarely defined water as a public trust asset." (Wood, 2014 at 324). Subsequently, the public trust doctrine was

**Climate & Water Law**

**Groundwater & Public Trust**

**Water Right Revocation**

**"Minimalist" View (Private v. Public)**

**Commodity v. Sacred Life Force**

**Cultural Views v. Hydraulic Society**

**State Water Rules**

**Antiquated Law Adaptation**

modified to "protect navigable waters from harm caused by diversion of non-navigable tributaries." (Craig, 2010 at 86). In addition, the Public Trust Doctrine altered the prior appropriation system — "when the public trust doctrine clashes with the rule of priority, the rule of priority must yield." *Id*. at 85-86.

Hawaii has also utilized the Public Trust Doctrine to "place a public trust status on groundwater, recognizing the integral connectivity of the hydrological cycle." (Wood, 2014 at 324). Hawaii courts "subordinated private water rights to the public interest" due to water scarcity. (Craig, 2010 at 72). In applying the public trust doctrine, the Oregon courts have noted that "lands underlying navigable waters have been recognized as unique and limited resources and have been accorded special protection to insure their preservation for public water-related uses such as navigation, fishery and recreation." *Id*. at 74. These decisions emphasize that courts have the power, through the Public Trust Doctrine, to not only reject current privatization of water resources, but also to revoke private water rights previously in place where "such privatization impairs necessary public access and use." (Wood, 2014 at 325).

Unlike the states just discussed, some states in the Intermountain West such as Idaho, Montana, Colorado, and Arizona, "have largely adhered to this 'minimalist' public trust doctrine." (Craig, 2010 at 71). The Colorado Supreme Court does not "allow public rights in non-navigable rivers based on state ownership of the water itself, concluding that the Colorado Constitution does not preserve public recreation rights in such waters." *Id*. at 76. Instead, "[w]ithout permission, the public cannot use such waters for recreation." *Id*. Montana statutes make it clear that appropriated water rights trump any other public interest in the waters, including environmental protections and public use rights. *Id*. at 78. Nevertheless, scholars continue to assert the need for expanded public trust doctrines. *Id*. at 81. Scholars contend that the public trust doctrine should expand to adapt to resource scarcity and the harmful effects of climate change. *Id*. at 82. Western states that have not yet expanded their Public Trust Doctrine are "more cautiously using public trust principles to expand the legally cognizable public values in the environment." *Id*. at 83. However, the impacts of climate change may incline more western states to expand their Public Trust Doctrine to address water scarcity.

**Incorporating Cultural Views of Water into the Anglo-American West's Laws of Prior Appropriation**

In contrast to western water law — which commoditizes water sources and prioritizes excessive, consumptive water use — many cultures, such as Muslim, Chinese, Buddhist, and American Indian cultures believe that water is sacred and a life-source to be valued and honored rather than a resources to be consumed. (Bryan at 140). While it is impossible to capture the complexities and nuances of tribal views on the sacredness of water, for many American Indian tribes, water is viewed "as sacred in a variety of ways, including through ceremonial uses, beliefs in water as a spirit, and in creation stories and other significant cultural narratives." *Id*. at 145. Accordingly, in some tribes unwritten tribal law "requires their caretaking of the ecosystem, including the waters that are tied to their salmon, berries, and roots" because water resources are central to the culture of the tribes and have been such "since time immemorial." *Id*. at 145.

These cultural views of water are more adaptive to climate change than the law of prior appropriation, which views water as an "extractive and beneficial resource to help communities and economies thrive." *Id*. at 150. The Anglo-American West does not view water as a scarce resource that must be protected, rather, the predominant view of the Anglo-American West is of a modern *hydraulic* society that excessively manipulates and extracts water for economic purposes. *Id*. at 150. However, this Anglo-American view of water is not in compliance with the effects of climate change, as droughts become more severe, and water becomes more and more scarce. Non-Anglo cultural views of water as sacred and central to humans' existence, are more fit to adapt to climate change. For the Anglo-American West to adapt to climate change, water law must "embrace both realities — the utilitarian and the sacred. In doing so, our laws will push us to innovate, collaborate, and better protect the multiple values we place on water today. In particular, we should focus on those controlling state rules that run most counter to sacred water: beneficial use, diversion, seniority, abandonment for non-use, and an economically driven 'public interest' requirement." *Id*. at 151.

**Conclusion**

While there is no clear answer as to how water law will respond to climate change, it is clear that water law will change. The law of appropriation, when strictly followed, is antiquated and unfit to address the harmful impacts of climate change on water because of its stringent rules on water rights that are premised on the idea that water is simply a resource to be manipulated for economic gain rather than a living, sacred part of our ecosystem. The climate is changing, and water resources are becoming scarcer; the old

## Climate & Water Law

### Change Needed

approach to allocating water uses in Intermountain states will need to adjust state water law to be more flexible and adaptable to climate change impacts. Whether Intermountain states will utilize water banks, the public necessity doctrine, the beneficial use principle, the law of waste, the Public Trust Doctrine, or some other tactic is unknown. The only definite answer is that Intermountain states' water law will necessarily change in response to climate change or in response to the social and political pressures that climate change will impose on governing bodies to adequately address water scarcity.

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Hydro to Instream

# WATER RIGHTS: HYDRO TO INSTREAM

CONVERSION OF HYDROELECTRIC WATER RIGHTS TO INSTREAM WATER RIGHTS

OREGON'S NEWLY ADOPTED HYDROELECTRIC WATER RIGHT CONVERSION RULES & RECENT CASE LAW

by Lindsay Thane, Schwabe, Williamson and Wyatt (Portland, OR)
& David Stearns, Schwabe, Williamson and Wyatt (Seattle, WA)

## Introduction

Automatic Conversion

In 1999, the Oregon Legislature passed H.B. 2162 (Conversion Statute), a law providing that hydroelectric water rights automatically convert to instream water rights five years after use of the right ceases contingent upon a finding by the Director of the Oregon Water Resources Department (Department) that the conversion will not injure existing water rights. *See* 1999 Oregon Laws Ch. 873, codified at ORS 543A.305.

Oregon Supreme Court Decision

According to estimates from the Department, there are approximately 120 entities that presently hold hydroelectric water rights or licenses that could be subject to the Conversion Statute, including individuals, small businesses, irrigation districts, and municipalities. The recent Oregon Supreme Court decision in *WaterWatch v. Oregon Water Resources Department and Warm Springs Hydro LLC*, 369 Or. 71 (2021) ("*Warm Springs Hydro*" after intervenor respondent Warm Springs Hydro LLC), provided the first judicial interpretation of what it means for the use of a hydroelectric water right to cease within the meaning of the Conversion Statute. Then, in July 2022, after a lengthy rulemaking process, state administrative rules implementing the Conversion Statute became effective. The *Warm Springs Hydro* decision and the Department's new administrative rules will impact how the holders of hydroelectric water rights in Oregon must manage their water rights to prevent losing them and could cause water rights with priority dates later than October 23, 1999, that are upstream of a converted hydroelectric water right, to see an increase in regulation.

New Rules

## Oregon's Conversion Statute

Hydro Relicensing

The Oregon Legislature passed the Conversion Statute as part of a series of statutes enacted between 1995 and 1999 to better spell out Oregon's policy regarding the relicensing of hydroelectric projects that came to the end of their initial license terms.

Conversion to Instream Right

Generally, when a water right goes unused for a period of five years, it is presumptively forfeited for nonuse under ORS 540.610. Under the Conversion Statute, however, the Legislature enacted a process under which water rights for hydroelectric projects are transformed into instream water rights when no longer used:

> Five years after the use of water under a hydroelectric water right ceases, or upon expiration of a hydroelectric water right not otherwise extended or reauthorized, or at any time earlier with the written consent of the holder of the hydroelectric water right, up to the full amount of the water right associated with the hydroelectric project shall be converted to an instream water right... .

ORS 543A.305(3).

No-Injury Rule

The Department's Director, in converting a hydroelectric right to an instream water right, must find that the conversion will not result in injury to other existing water rights. *Id*. The Director's injury evaluation must "consider the actual use of the hydroelectric project and the resulting impacts on actual use by other existing water rights as of October 23, 1999." *Id*. The Director may include mitigation measures as conditions of the instream water right to avoid injury to, and ensure the continuation of, authorized water uses by other existing water rights. *Id*.

Mitigation Option

## Powerdale Prompts Adoption of Division 54 Rules

Settlement Agreement

In 2003, state and federal regulators, PacifiCorp, the Confederated Tribes of the Warm Springs Reservation, and environmental groups entered into a settlement agreement that spelled out a process and timeline for the interim operation and ultimate decommissioning of PacifiCorp's Powerdale Hydroelectric Project. Under that settlement, PacifiCorp agreed to assign its hydroelectric water right to the Department upon cessation of power generating activities at the project. In December 2010, PacifiCorp submitted the assignment to the Department, triggering the first attempt to convert a hydroelectric water right to an instream right under the Conversion Statute. The Department issued a proposed final order to convert the hydroelectric water right to an instream right in the fall of 2011. However, four parties protested the

 

## Hydro to Instream

**Unresolved Protests**

**Rulemaking Process**

**Court Decision**

**Temporary Leasing**

**Conversion Issue**

**Hydroelectric Purposes**

**Agency Position**

**Forfeiture Analogy**

**Statutory Language: Use**

**Lease Effect**

**Subject to Conversion**

proposed final order. The Department and the protesting parties engaged a facilitator but, even after an extended dispute resolution process, were unable to resolve their conflicts over the proposed conversion of the hydroelectric water right to an instream water right. As a result of the uncertainty about how to implement the Conversion Statute, the conversion of the Powerdale hydroelectric water right to an instream water right has still not been finalized.

The difficulty in finalizing the conversion of the Powerdale water right spurred the Department in 2017 to initiate a rulemaking process to clarify how the Conversion Statute would be implemented. The Department convened meetings of a rules advisory committee composed of stakeholders who were invited to submit comments on rules proposed by the Department. That process culminated in Oregon Administrative Rules Chapter 690, Division 54 (the "Division 54 rules"), which went into effect on July 14, 2022. The Division 54 rules implement the provisions of the Conversion Statute and establish standards and procedures for the conversion of a hydroelectric water right to an instream water right. The substance of the Division 54 rules will be discussed below, following an overview of the *Warm Springs Hydro* decision.

### Oregon Supreme Court *Warm Springs Hydro* Decision

While the Department was moving forward with rulemaking to set out implementation details for the Conversion Statute, the Oregon Supreme Court issued its decision in *Warm Springs Hydro*, a case involving a hydroelectric water right on Rock Creek, a tributary to the Powder River. The water right was used to generate hydroelectric power at the Rock Creek project near Baker City until 1995, when the project was shut down. Beginning in 1995, the water right was temporarily leased instream under a series of instream water right leases and was not used for hydroelectric power generation. In 2015, WaterWatch petitioned the Department to challenge the Department's approval of another instream lease renewal for the water right. WaterWatch argued the water right had converted to a permanent instream water right pursuant to ORS 543A.305(3).

The Oregon Supreme Court (Supreme Court) considered whether the hydroelectric water right had converted to a permanent instream water right under ORS 543A.305(3), which states that "five years after the use of water under a hydroelectric water right ceases" the water right "shall be converted to an in-stream water right."

The Supreme Court determined that "use of water under a hydroelectric water right" refers only to beneficial uses of water for hydroelectric purposes and does not refer to *any* other beneficial uses of water that might occur. *Warm Springs Hydro*, 369 Or. at 86. For example, Oregon law allows water rights to be temporarily or permanently transferred to authorize a different beneficial use than what is stated in the water right certificate. Oregon law also authorizes a water right holder to lease all or a portion of their water right for use as an instream water right for a specified period of time and recognizes the instream lease as a beneficial use. ORS 537.348(2).

The Department argued that because the Conversion Statute does not say "five years after the *hydroelectric* use of water under a hydroelectric water right" or "five years after the use of water *for hydroelectric purposes* under a hydroelectric water right," the legislature did not intend the only beneficial use for a hydroelectric right to be hydroelectric uses. The Department argued by analogy that under Oregon's forfeiture statute (ORS 540.610), water rights that are unused for five successive years are subject to forfeiture but *any* kind of authorized beneficial use tolls the five-year forfeiture clock, whether or not the use falls within the use listed on the certificate. Accordingly, the Department argued the use of a hydroelectric water right for a beneficial purpose — like an instream lease — should similarly avoid converting the hydroelectric water right to a permanent instream right. The Supreme Court disagreed.

The Supreme Court's analysis focused on language in the instream leasing statute and rules that permit the lease of a water right "for conversion to an in-stream water right." ORS 537.348(1); OAR 690-077-0010(14). The Court determined that any water right leased under ORS 537.348 is temporarily converted to an instream water right during the lease period. Accordingly, the Court concluded that when a hydroelectric water right is leased instream for five successive years, it is converted to an instream water right and cannot be a "use of water under a hydroelectric water right." Therefore, because the Rock Creek project's water right was leased for instream purposes for successive five-year periods without ever being used for hydroelectric generation during that time, the Court determined that it was subject to being converted to a permanent instream right under ORS 543A.305.

The Supreme Court held that the lease of a vested hydroelectric water right to the state for instream uses did not qualify as the "use of water under a hydroelectric water right" under the Conversion Statute. As a result of the decision, the hydroelectric water right will be subject to conversion to a permanent instream water right.

**Hydro to Instream**

**Decision Implication**

**Implementation Rules**

**Time Cutoff**

**Amount Eligible for Conversion**

**"Injury" Determination**

**Hydro's "Actual Use"**

**Bypass Flows**

**"Ready, Willing, & Able"**

The implication of the *Warm Springs Hydro* decision for water users with water rights for hydroelectric purposes is that the water right should be used for a hydroelectric purpose at least once every five years or it may be subject to conversion to a permanent instream water right. Even though instream flow leasing is a sound strategy for protecting other kinds of water rights during periods of nonuse, that strategy is no longer available to holders of hydroelectric water rights.

**New Hydroelectric Conversion Rules: Division 54**

The Oregon Water Resources Commission is the citizen body overseeing Department policy and operations. The Commission adopted the Division 54 rules effective July 14, 2022. The Division 54 rules establish standards and procedures for implementing the Conversion Statute, including:

1) Provisions for providing notice of hydroelectric projects eligible for conversion to an instream water right;
2) Evaluation of actual use under the hydroelectric water right;
3) Evaluation of the impacts on actual use by other existing water rights as of October 23, 1999;
4) Evaluation of whether the conversion results in injury to other existing water rights as of October 23, 1999; and
5) Establishing ways to provide mitigation measures to avoid injury and ensure the continuation of authorized water uses by other existing water rights as of October 23, 1999.

The purpose of the Division 54 rules is to establish that "[t]he conversion process is for Hydroelectric Water Rights beneficially used and which ceased beneficial use within 5 years of October 23, 1999, or later." OAR 690-054-0000. In accordance with the Conversion Statute, the Department Director will determine when a hydroelectric water right is eligible for conversion to an instream water right if, among other instances, "[u]se of water under the Hydroelectric Water Right has ceased for a period of five years." OAR 690-054-0020(1).

The Director must then determine the amount of the hydroelectric water right that is eligible for conversion to an instream water right. The Department, consistent with the logic of *Warm Springs Hydro*, only views the portion of the right that is solely for hydroelectric production as eligible for conversion to an instream water right. Any portion of the right that is authorized for other purposes or is part of a larger distribution system for municipal or irrigation purposes is not eligible for conversion. OAR 690-054-0020(2).

Under the Conversion Statute, the Department cannot convert a hydroelectric water right to an instream water right without first determining whether there will be injury to existing water rights. OAR 690-054-0020(3). In establishing the Division 54 rules, the Department was particularly concerned with defining how this requirement would be implemented. The Division 54 rules define "injury" as occurring if the conversion of a hydroelectric water right to an instream water right would result in water rights existing "as of October 23, 1999 not receiving previously available water, based on the Actual Use of both the Project and the Other Existing Water Right(s) as of October 23, 1999, to which the Other Existing Water Right(s) as of October 23, 1999 are legally entitled." OAR 690-054-0010(7).

In order to evaluate whether the conversion of a hydroelectric water right will cause injury to existing water rights, the Director must evaluate the "actual use" of water under the hydroelectric right. The Division 54 rules direct the Department to determine actual use of a hydroelectric project by considering flow meter records, stream gage records, and other evidence. "Actual use" for a hydroelectric project is defined as the maximum amount of water legally diverted through the hydroelectric turbine to produce electricity for each month of the year under the hydroelectric water right. OAR 690-054-0010(1)(a). The Director must also evaluate the impacts of conversion of the hydroelectric water right on actual use by other existing water rights as of October 23, 1999, to assist in making an injury finding. OAR 690-054-0020(3).

The definition of "actual use" was the subject of many comments during the drafting of the Division 54 rules. Some commentors advocated that the "actual use" to be converted to an instream water right must not be limited only to the water legally diverted through the hydroelectric turbine, but should include bypass flows required by Federal Energy Regulatory Commission (FERC) licenses. The Department rejected this consideration because under ORS 540.045, the Department's watermaster's duties to distribute water among users in accordance with "existing water rights of record" do not include ensuring the distribution of water pursuant to FERC licenses and any bypass flows that such licenses require. Other commentors were concerned with the definition of "actual use" as applied to other existing water rights. Those commentors suggested that actual use by other existing water rights as of October 23, 1999, must be calculated as what the water user was "ready, willing, and able" to use in order to ensure an existing water right could fully exercise its right in the future, as is consistent with ORS 540.310(3). The Department's response to these comments confirmed that water-right holders who are "ready, willing, and able" to use

 

## Hydro to Instream

**Mitigation Conditions**

**Injury Example**

**Mitigation to "Avoid Injury"**

**Junior Right Protection**

**"Subordinated" Hydro Right**

**Right Expansion**

**Expedited Notice/Comment**

**Additive Flows Prohibited**

their full rate and duty are not subject to forfeiture proceedings and, similarly under the Conversion Statute, the full amount of their water right would be evaluated to ensure it would not be injured.

Where there would otherwise be injury caused by converting a hydroelectric water right — i.e., an existing water right issued on or before October 23, 1999, being unable to receive previously available water — the Department must avoid injury and ensure the authorized water-right holder may continue to access their previously available water by including mitigation measures as a condition of the instream water right. OAR 690-054-0040(7). The Conversion Statute prohibits the conversion of a hydroelectric water right from injuring water rights that existed as of October 23, 1999. For example, injury could occur if there are junior water users upstream of a hydroelectric project, a hydroelectric water right is converted to an instream water right, and then there are calls for water distribution to satisfy the instream water right even though the project had never made a call for water to satisfy its hydroelectric water right. In this scenario, the Director would be required to include appropriate mitigation measures in the instream water right (created from the converted hydroelectric water right) so that the Director could make a finding that the conversion would not result in injury.

In fact, to ensure the continuation of authorized water uses for other existing water right(s) as of October 23, 1999, the Director must include mitigation measures as a condition of the converted instream water right to prevent injury. OAR 690-054-0040(7). The Division 54 rules define mitigation broadly as any conditions "that avoid, abate, minimize, rectify, reduce, or compensate for impacts of the conversion in order to avoid Injury" to water rights that existed as of October 23, 1999. OAR 690-054-0010(9). The Department has concluded that mitigation measures could be necessary for water rights in several river basins as there are a large number of water users that are upstream and junior to a senior hydroelectric water right in multiple basins. *See* Notice of Proposed Rulemaking, OAR Chapter 690, *Conversion of a Hydroelectric Water Right to an Instream Water Right* (July 27, 2021). For example, where there is a pre-October 23, 1999 water right that is junior to the hydroelectric right that will be converted to an instream right, the converted instream water right will contain mitigation measures that ensure the existing water right will not be required to curtail its Actual Use as a result of the conversion. Therefore, if the Director determines mitigation measures are necessary to avoid injury, the instream water right will include this condition: "Authorized water uses by Other Existing Water Rights as of October 23, 1999, shall not be subject to regulation under Chapter 690, Division 250 to satisfy this Instream Water Right." OAR 690-054-0040(8). Any other mitigation measure included as a condition of the instream water right requires an affidavit from each holder of a water right who is potentially subject to new regulation under Chapter 690, Division 250, consenting to the relevant mitigation measure. OAR 690-054-0040(9).

While there are numerous hydroelectric projects with junior upstream water users, more than one hundred of Oregon's hydroelectric projects have water rights that were "subordinated" when first issued. Subordination means that the Department conditioned the hydroelectric water right when it was issued so that the right would be junior to *any* future appropriation of water upstream for beneficial use. The Department's position is that this type of clause cannot be removed from a water right because that would expand the hydroelectric water right and injure other water rights, neither of which are allowed under Oregon law. Therefore, where a hydroelectric right is already subordinated to other water rights existing as of October 23, 1999, if converted to an instream water right, it would not injure other water rights due to the subordination clause. Accordingly, a subordinated hydroelectric water right could be converted to an instream water right without the need for further mitigation — and the Division 54 rules have an expedited notice and comment period for conversion of a hydroelectric water right that is subordinated to other existing water rights. *See* OAR 690-054-0030.

While most surface water in Oregon is already appropriated, particularly during irrigation season, multiple commentors advocated that the converted instream water rights should be additive to existing instream water rights, meaning that the Department should consider the totality of instream flow rates in a given reach when considering water availability or regulation. However, the Division 54 rules explicitly state the flows under any instream water right converted from a hydroelectric water right will not be additive. OAR 690-054-0080. According to the Department, as a matter of Department precedent, it will distribute water according to priority dates and will recognize the largest instream flow for regulation and water availability purposes. On a stream reach with multiple instream water rights, the Department will not add all instream water right flow targets together.

**Conclusion**

*Warm Springs Hydro* created uncertainty for holders of hydroelectric rights. Before that decision, holders of water rights for hydroelectric generation may have reasonably believed they could lease the hydroelectric water right instream to avoid the risk of forfeiture. However, in *Warm Springs Hydro*, the

 

## Hydro to Instream

**Clarity**

**Future Impacts (Seniority)**

**Stream Effects**

**Senior Instream Rights**

hydroelectric water right was subject to conversion under the Conversion Statute despite Warm Springs Hydro's efforts to preserve the right by putting it toward a recognized beneficial use via an instream lease.

The Department's Division 54 rules now provide clarity regarding the implementation of the Conversion Statute. Oregon's Conversion Statute and the Division 54 rules allow the Department to establish new instream water rights that will have real consequences for post-October 23, 1999 water right users in basins with hydroelectric water rights, as well as for people seeking to secure new surface water rights in those basins. The conversion of hydroelectric water rights to instream water rights will have a significant impact if the conversion creates an instream water right on a stream reach where there is not an existing instream water right. The newly converted instream water right will have the priority date of the hydroelectric water right, even if the hydroelectric water right is converted to an instream water right in 2022. As such, a hydroelectric water right that is converted to an instream water right under the Conversion Statute will be more senior than a new instream water right secured by the Department or other state agency.

However, the Division 54 rules make clear that converted instream water rights are not additive, meaning that the Conversion Statute will not have much effect in systems where there are already instream water rights, except where the converted instream water right has a greater rate than existing instream water rights. Additionally, any instream rights established under the Conversion Statute will not interfere with the exercise of any pre-October 23, 1999 water right, regardless of its priority in comparison to the underlying hydroelectric water right. The Conversion Statute and the Division 54 rules are clear that the conversion of a hydroelectric water right to an instream water right cannot cause water rights existing as of October 23, 1999, to curtail their actual use of water. However, the converted instream water right will have seniority for regulation purposes over all water rights issued *after* October 23, 1999. Accordingly, the Conversion Statute and Division 54 rules protect the continued use of water under water rights existing as of October 23, 1999, yet also provide an opportunity to establish senior instream water rights.

*This article summarizes aspects of the law and does not constitute legal advice. For legal advice for your situation, you should contact an attorney.*

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# KLAMATH DAM REMOVAL

FERC FINAL EIS

by David Moon, Editor

**Dam Removal**

**Approval Recommended**

**Removal Benefits**

**Fisheries Restoration**

**Four Dams**

**Application to Transfer**

**Tribal Consultations**

**PaciiCorp Relicensing 2004**

**Fish Passage**

**EIS Issues**

On August 26th, the Federal Energy Regulatory Commission (FERC) released its final Environmental Impact Statement (EIS) as part of the National Environmental Policy Act (NEPA) review of the Klamath River Renewal project. FERC staff recommended approval of the proposed license surrender, decommissioning, and removal of the Lower Klamath Project on the Klamath River in Oregon and California with staff modifications and mandatory conditions.

The final EIS notes the basis for project removal: "Project removal and implementation of mitigation measures proposed in management plans would protect environmental resources, restore project lands, minimize adverse effects, maximize benefits to protected fish, and restore the landscape of the areas that are currently impounded within the project reach to a more natural state." Final EIS, FERCC/EIS-0313F (August 26, 2022), Abstract. The EIS also stated that, "[I]f authorized by the Commission, license surrender would only become effective after all measures required by the surrender order are adequately completed." *Id*. FERC also stated in the Cover Sheet Abstract, that "[A]fter taking mitigation into account, the project would have some significant adverse effects, but would provide many significant benefits including the protection and restoration of anadromous fisheries that are of vital importance to the Tribes." *Id.* at iii.

The project occupies approximately 400 acres of federal land administered by the US Department of Interior, Bureau of Land Management and consists of four reservoir developments that the licensees propose to surrender and decommission: J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate. These developments have a combined generation capacity of 163 megawatts, and currently generate approximately 686,000 megawatt-hours annually.

A new application to transfer the Lower Klamath Project from PacifiCorp to the Klamath River Renewal Corporation (KRRC), the State of Oregon, and the State of California as co-licensees was filed with FERC on January 13, 2021, and was approved by FERC on June 17, 2021. This final EIS documents the views of governmental agencies, non-governmental organizations, affected Native American Tribes, the public, the licensees, and Federal Energy Regulatory Commission (FERC) staff. It contains FERC's staff evaluations of the licensees' proposal and alternatives for surrendering/decommissioning the Lower Klamath Project.

Consulted Tribes included the Hoopa Valley Tribe, Karuk Tribe, Yurok Tribe, Klamath Tribes, Modoc Tribe, Quartz Valley Indian Community of the Quartz Valley Reservation of California, Resighini Rancheria, Confederated Tribes of Siletz Indians of Oregon, Trinidad Rancheria, Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Grand Ronde Community of Oregon, Cow Creek Tribes of the Warm Springs Reservation of Oregon, Elk Valley Rancheria (California), Pit River Tribe (California), and the Tolowa Dee-Ni Nation.

FERC issued a license for the original Klamath Hydroelectric Project No. 2082, in January 1954. The license expired in 2006, and in 2004, PacifiCorp filed an application to relicense the project. Filing of the surrender application follows PacifiCorp's decision not to relicense the Klamath Project, as recommended in Commission staff's 2007 EIS in which staff analyzed various alternatives to licensing the project, but ultimately recommended issuing a new license with mandatory conditions, including provisions for fish passage. PacifiCorp determined that implementing those conditions would require operating the project at a loss. Since 2007, negotiations among the parties have led to the development of two transfer applications, an amendment application to create the Lower Klamath Project, and the amended surrender application.

As noted by FERC in the press release of August 26th, which accompanied the Final EIS, the "primary issues associated with license surrender and removal of project works are: potential effects on aquatic biota, including Chinook salmon, Endangered Species Act-listed coho salmon and suckers, and other fish and wildlife species; adequacy of measures proposed to restore vegetation on formerly inundated lands; effects on riverine and reservoir-based recreation; effects on local property owners due to effects on waterfront access, wells, firefighting/prevention, slope stability, reservoir aesthetics, and property values, as well as effects on traffic, emergency response times, air quality, and noise during construction; effects of dewatering on culturally important sites and removal of historic project features; and socioeconomic effects on disadvantaged communities."

## Dam Removal

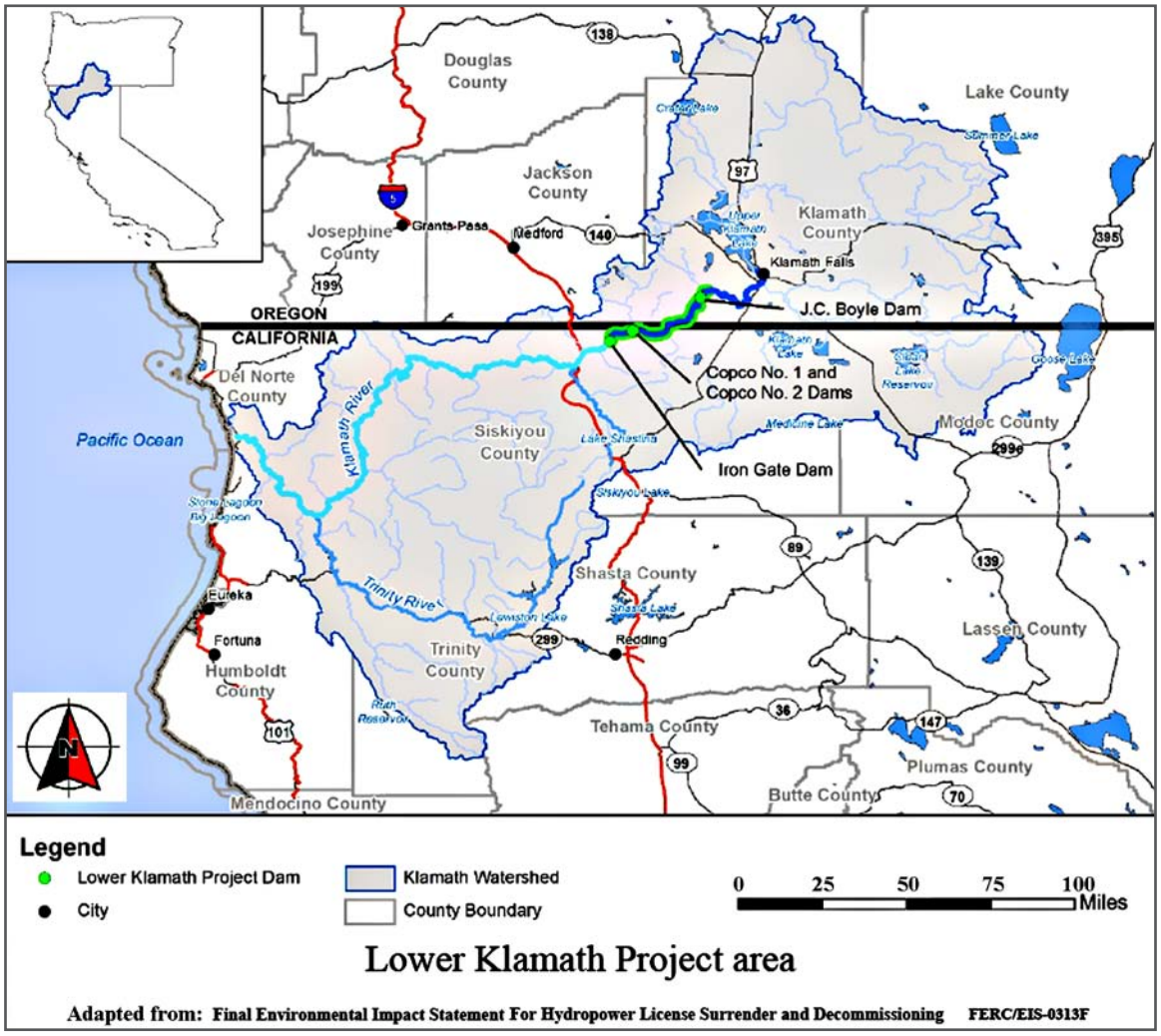
**Largest Removal Project**

**Free-Flowing 400 Miles**

Mark Bransom, CEO of KRRC, said that KRRC and its partners are reviewing the 800+ page final EIS that describes the impacts and benefits of the project and adds further recommendations and conditions. He added that the final EIS largely mirrors the very positive draft EIS issued back in February 2022. "KRRC is heartened by FERC's thorough and timely environmental review of the project," said Bransom. "Once all the necessary approvals are obtained, including a License Surrender Order, it will be full speed ahead to commence the largest dam removal and river restoration effort in U.S. history." Pending final regulatory approvals, KRRC expects dam removal activity to begin in 2023 and be completed in 2024, with the return of the river to a free-flowing condition. KRRC will commence restoration activities immediately following dam removal and restoration of the project footprint will continue for several years.

California Department of Fish and Wildlife Director Charlton H. Bonham issued a statement August 26th regarding the proposed decommissioning of the four dams on the Klamath River: "We applaud the Federal Energy Regulatory Commission staff for issuing the final EIS ahead of schedule and for validating license surrender and dam removal as the right thing to do. While we continue to review the document, we welcome this critical milestone and look forward to advancing what will be the largest dam removal project in U.S. history and restoration of 400 miles of the Klamath River for the benefit of salmon, Tribes and communities in the basin."

**For Additional Information:**
Final EIS available on the Klamath River Renewal Corporation's website:
https://klamathrenewal.org/final-environmental-impact-statement-for-lower-klamath-project/



## WATER BRIEFS

### TIER 2 SHORTAGE WEST COLORADO RIVER SYSTEM

As the worsening drought crisis continues to impact communities across the West, the US Department of the Interior (Interior) on August 16th announced urgent action to improve and protect the long-term sustainability of the Colorado River System, including commitments for continued engagement with impacted states and Tribes. The Bureau of Reclamation (Reclamation) also released the Colorado River Basin August 2022 24-Month Study (August 24-Month Study), which sets the annual operations for Lake Powell and Lake Mead in 2023 in light of critically low reservoir conditions.

Prolonged drought and low runoff conditions accelerated by climate change have led to historically low water levels in Lakes Powell and Mead. Over the last two decades, Colorado River Basin partners have adopted various drought response operations. However, given that water levels continue to decline, additional action is needed to protect the System. "Every sector in every state has a responsibility to ensure that water is used with maximum efficiency. In order to avoid a catastrophic collapse of the Colorado River System and a future of uncertainty and conflict, water use in the Basin must be reduced," said Assistant Secretary for Water and Science Tanya Trujillo. "The Interior Department is employing prompt and responsive actions."

Given the 23-year ongoing historic drought and low runoff conditions in the Colorado River Basin, downstream releases from Glen Canyon and Hoover Dams — which created Lakes Powell and Mead —— will be reduced again in 2023 due to declining reservoir levels. In the Lower Basin, the reductions represent the second year of additional shortage declarations, demonstrating the severity of the drought and critically low reservoir conditions. The August 24-Month Study projects that Lake Powell will likely release 7 million acre-feet in water year 2023 with the potential for Powell releases to range between 7 to 9.5 maf during water year 2023, depending on hydrologic conditions, as Lake Powell and Lake Mead balance storage contents. The August 24-Month Study projects Lake Mead's January 1, 2023, operating determination elevation to be 1,047.61 feet. The projected elevation of 1,047.61 feet reflects a Level 2a Shortage Condition, with required shortage reductions and water savings contribution for the Lower Basin States and Mexico, pursuant to Minute 323, as follows:

- Arizona: 592,000 acre-feet, which is approximately 21% of the state's annual apportionment
- Nevada: 25,000 acre-feet, which is 8% of the state's annual apportionment
- Mexico: 104,000 acre-feet, which is approximately 7% of the country's annual allotment
- No required water savings contribution for California in 2023 under this operating condition.

In recent months, Reclamation has shared updated information documenting the increasing risks that will continue to impact Lake Powell and Lake Mead. Reclamation's "Protection Volume Analysis" details that, depending on future snowpack and runoff, a range of actions will be needed to stabilize elevations at Lake Powell and Lake Mead over the next four years (2023-2026). The analysis shows, depending on Lake Powell's inflow, that the additional water or conservation needed ranges from 600,000 acre-feet to 4.2 **m**illion **a**cre-**f**eet (maf) annually.

In June 2022, Reclamation Commissioner Camille Calimlim Touton called on water users across the Basin to take actions to prevent the reservoirs from falling to critically low elevations that would threaten water deliveries and power production. Reclamation is using the best available science and actively collaborating with water users across the Basin to determine the best ways to meet this increased conservation need. Accordingly, in addition to undertaking preliminary work to develop the post-2026 strategies and operations, as several reservoir and water management decision documents expire at the end of 2026, Reclamation will immediately initiate a number of administrative actions in the Basin (*see* 8/16/22 Press Release 4294 for more details at: www.usbr.gov/newsroom/news-release/4294).

**For info:** Interior Lower Colorado Basin website at: www.usbr.gov/lc/

### GROUNDWATER RIGHTS OR STATE TO UPDATE POLICY

The Oregon Water Resources Department (OWRD) will be holding five facilitated outreach meetings across the state in late September and early October to share information and ideas about updating Oregon's groundwater allocation policy.

The Groundwater Allocation Policy Meetings (*see TWR* Calendar, this issue) will provide a review of Oregon's framework for groundwater allocation, and initial ideas of revisions to the process. Participants may provide public input. This policy updating will only affect those applying for new groundwater rights.

More meeting details, agenda topics, and meeting format will be shared in the coming weeks by OWRD. Agendas, background materials, and meeting summaries will also be posted online at the website listed below.

OWRD is undertaking this process because groundwater development results in impacts, either in the short-term or long-term, to groundwater and surface water resources. According to OWRD, the current groundwater allocation process is designed to prevent those groundwater uses that would have a relatively immediate impact (a year or less), and yet allow those uses whose impacts accumulate over time (years). Over the long-term, this has resulted in declining groundwater levels and reduced surface water flows in Oregon. The Oregon Water Resources Commission has directed OWRD to develop recommendations for a plan of action that will lead to a modernized groundwater allocation policy that is more sustainable and protective of senior water right holders, both surface and groundwater. Information obtained during these workshops will be utilized to prepare an initial draft of rules, which will then be discussed with a rules advisory committee to further refine the draft rules in preparation for public comment and hearings to develop a final draft of rules for Commission consideration.

**For info:** OWRD website at: www.oregon.gov/owrd/programs/GWWL/GW/GWAP; Ivan Gall at: Ivan.K.Gall@water.oregon.gov

## WATER BRIEFS

**GRAZING AGREEMENT AZ**

**FERAL COW REMOVAL**

The Center for Biological Diversity (Center) and Maricopa Audubon Society (Maricopa Audubon) have reached a legal agreement with the US Bureau of Land Management (BLM) guaranteeing that the agency will remove all trespass cows from the entire San Pedro Riparian National Conservation Area. The BLM has also agreed to inspect, repair and maintain the conservation area's boundary fencing to keep the trespass cows out. The agreement is in response to the Center's and Maricopa Audubon's October 6, 2021, lawsuit against the BLM for ignoring needed fence repairs and trespassing cows that put the Huachuca water umbel and its San Pedro wetlands habitat at risk. The legal agreement is also in response to the nearly 50 complaints Center and Maricopa Audubon members have filed in the past two years against the BLM's failure to remove the trespass cows, who have already destroyed the largest population of Huachuca water umbel, an endangered plant.

According to the Center, Scott Feldhausen, the BLM manager of the conservation area, admitted in public on September 22, 2021, that he has not been rounding up the trespass cows owing to fear of violence by local ranchers. Robin Silver, a co-founder of the Center, stated: "The agreement requires the agency to fix and maintain the conservation area's fencing to keep the cows out and stand up to local ranchers who have been intimidating BLM employees from doing their jobs. Cows don't belong along the San Pedro River, much less anywhere else along any desert streams."

The Huachuca water umbel is an herbaceous, perennial plant with slender, erect leaves. The plants once flourished in extensive riparian habitats in southeastern Arizona and northern Sonora, Mexico, but the species has been reduced to several disconnected clumps in a handful of Southwest wetlands. In 1996, the Center petitioned the US Fish and Wildlife Service to list the plant under the Endangered Species Act and it was listed the following year.

The San Pedro Riparian National Conservation Area was the nation's first and includes more than 46 miles of the San Pedro and Babocomari rivers, and nearly 55,000 acres of riparian areas and uplands, including four of the rarest habitat types in the Southwest — cottonwood/willow forests, marshlands, grasslands, and mesquite bosques.

**For info:** Agreement at: www.biologicaldiversity.org/species/plants/Huachuca_water_umbel/pdfs/lawsuit-20220809-SETTLEMENT-AGREEMENT-SPRNCA-ESA-7a1-case--settlement-agreement-signed.pdf ; Dr. Robin Silver, Center, 602/ 799-3275 or rsilver@biologicaldiversity.org

**PFAS HAZARDOUS US**

**EPA DESIGNATION PROPOSED**

The US Environmental Protection Agency (EPA) is proposing to designate two of the most widely used per- and **p**oly**f**luoro**a**lkyl **s**ubstances (PFAS) as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as "Superfund."

The proposal applies to **p**er**f**luoro**o**ctanoic **a**cid (PFOA) and **p**er**f**luoro**o**ctane**s**ulfonic acid (PFOS), including their salts and structural isomers, and is based on significant evidence that PFOA and PFOS may present a substantial danger to human health. PFOA and PFOS can accumulate and persist in the human body for long periods of time and evidence from laboratory animal and human epidemiology studies indicates that exposure to PFOA and/or PFOS may lead to cancer, reproductive, developmental, cardiovascular, liver, and immunological effects. Many known and potential sources of PFAS contamination are near communities already overburdened with pollution.

If finalized, the rulemaking would trigger reporting of PFOA and PFOS releases, providing EPA with improved data and the option to require cleanups and recover cleanup costs to protect public health and encourage better waste management. It would also improve EPA, state, Tribal nation, and local community understanding of the extent and locations of PFOA and PFOS contamination and help all communities avoid or reduce contact.

EPA is focused on holding responsible those who have manufactured and released significant amounts of PFOA and PFOS into the environment. EPA will use discretion to ensure fairness for minor parties who may have been inadvertently impacted by the contamination. EPA is also committed to doing further outreach and engagement to hear from impacted communities, wastewater utilities, businesses, farmers, and other parties.

If this designation is finalized, releases of PFOA and PFOS that meet or exceed the reportable quantity would have to be reported to the National Response Center, state or Tribal emergency response commissions, and the local or Tribal emergency planning committees. A release of these or any other hazardous substance will not always lead to the need to clean up or add a site to the National Priorities List (NPL), liability, or an enforcement action. EPA anticipates that a final rule would encourage better waste management and treatment practices by facilities handling PFOA or PFOS.

The proposed rule would also, in certain circumstances, facilitate making the polluter pay by allowing EPA to seek to recover cleanup costs from a potentially responsible party or to require such a party to conduct the cleanup. In addition, federal entities that transfer or sell their property will be required to provide a notice about the storage, release, or disposal of PFOA or PFOS on the property and a covenant (commitment in the deed) warranting that it has cleaned up any resulting contamination or will do so in the future, if necessary, as required under CERCLA 120(h).

EPA will publish the Notice of Proposed Rulemaking in the Federal Register in the next several weeks. Upon publication, EPA welcomes comment for a 60-day comment period. As a subsequent step, EPA anticipates issuing an Advance Notice of Proposed Rulemaking after the close of the comment period on this proposal to seek public comment on designating *other* PFAS chemicals as CERCLA hazardous substances.

**For info:** EPA's PFAS website at: www.epa.gov/pfas

## WATER BRIEFS

### HANFORD TANKS WA

**LEAKING TANKS AGREEMENT**

On August 25th, the Washington State Department of Ecology (Ecology) and the U.S. Department of Energy (Energy) announced they have agreed on a plan for how to respond to two underground tanks that are leaking radioactive waste, as well as any future tank leaks at the Hanford Site. Following a year-long leak assessment, Energy announced in April 2021 that Tank B-109 was leaking waste into the surrounding soil. Tank T-111 was discovered to be leaking in 2013. To address these environmental concerns, Ecology and Energy worked collaboratively and developed a legally binding Agreed Order.

From World War II through the Cold War, the Hanford Site produced more than 70 tons of plutonium. When plutonium production ceased in 1989, the site's mission shifted to cleaning up the chemical and radioactive waste left behind. Energy is the federal agency responsible for Hanford and its cleanup. Ecology and the US EPA are the regulators overseeing Energy's cleanup under the Tri-Party Agreement, a judicial Consent Decree, and various permits.

Tank B-109 holds about 123,000 gallons of waste; it's mostly saltcake and sludge, with about 13,000 gallons of residual liquid. T-111 holds an estimated 397,000 gallons of waste; about 37,000 gallons is liquid waste within sludge. Energy estimates Tank B-109 is leaking about 560 gallons of waste per year, and Tank T-111 is leaking about 300 gallons per year, and it could take 25 or more years for waste from Tank B-109 to reach groundwater, and 70 or more years for Tank T-111 waste.

Under the agreed order, Energy will:

- Cover the T and B tank farms with surface barriers to prevent rain or snowmelt from seeping into the tanks, and to slow the migration of leaked waste toward the groundwater.
- Develop a response plan for future leaks from single-shell tanks.
- Evaluate the viability of installing a ventilation system to evaporate liquid waste in Tank B-109.
- Evaluate conditions in and around tanks B-109 and T-111 to determine if additional work is needed to prevent liquids from getting in to the tanks.
- Explore ways to accelerate the schedule to retrieve waste from tanks T-111 and B-109.

Public input opportunities include:

- The Single-Shell Tank System Leak Response Plan
- The leak response actions selected for implementation
- The Intrusion Response Work Plan for tanks T-111 and B-109 if deemed necessary
- The design of the interim surface barriers for T-Farm and B-Farm

The full Agreed Order can be read on Ecology's Nuclear Waste Program website (see below).

**For info:** Ecology website at: https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Hanford-cleanup/; Ryan Miller, Ecology, 509/ 537-2228 or Ryan.Miller@ecy.wa.gov

### ILLEGAL CESSPOOLS HI

**AGENCY FINES & AUDIT**

The US Environmental Protection Agency (EPA) has taken an enforcement action on Kauai to close an illegal large capacity cesspool (LCC) and collect $105,543 in fines from the Hawai'i Department of Land and Natural Resources (DLNR). As part of the settlement, DLNR has agreed to perform an audit to evaluate whether there are LCCs present on any of its 1.3 million acres of property.

EPA banned LCCs in 2005 under the Safe Drinking Water Act because they have the potential to pollute water resources. "The audit by DLNR, the largest land manager in Hawai'i, represents a significant step toward EPA's goal of closing all unlawful, pollution-causing large capacity cesspools in Hawai'i," said EPA Pacific Southwest Regional Administrator Martha Guzman. "This audit will safeguard public health and protect groundwater by helping DLNR address remaining illegal cesspools." On Kauai, EPA's inspectors found that the cesspool serving restrooms at the Kamokila Hawaiian Village met the criteria of an unlawful LCC. As a result of this enforcement action, DLNR has now properly closed this cesspool.

As required by the settlement agreement, DLNR will also confirm that all its managed or controlled properties are connected to sanitary sewer systems or otherwise operate compliant wastewater systems. This effort furthers EPA's goal of protecting groundwater and public health by closing LCCs in Hawai'i while incentivizing disclosure of additional potentially polluting large cesspools.

Since the 2005 LCC ban, more than 3,600 large cesspools in Hawai'i have been closed; however, approximately 1,400 remain in operation. Cesspools are used more widely in Hawai'i than in any other state. They collect and release untreated raw sewage into the ground, where disease-causing pathogens and harmful chemicals can contaminate groundwater. Groundwater provides 95% of all local water supply in Hawai'i.

**For info:** EPA's Proposed Settlement webpage at: www.epa.gov/uic/uic-09-2022-0062-proposed-consent-agreement-and-final-order-state-hawaii-department-land-and; Alejandro Diaz, 808/ 541-2711 or diaz.alejandro@epa.gov

### CLIMATE IMPACTS CA

**AMERICAN RIVER BASIN STUDY**

**ADAPTATION STRATEGIES UNDERWAY**

The American River Basin in central California expects to see increasing temperatures and a declining snowpack through the end of the 21st century. The Bureau of Reclamation (Reclamation) has released an American River Basin Study which also found an increased variability of fall and winter precipitation that will amplify the severity of droughts and flooding in the basin. The report is available on Reclamation's Basin Study website.

"Water management in the basin is expected to be more challenging in the future due to climate pressures that include warming temperatures, shrinking snowpack, shorter and more intense wet seasons and rising sea levels," said California-Great Basin Regional Director Ernest Conant.

The American River Basin Study found that maximum temperatures are projected to increase throughout the year, with the most significant

## WATER BRIEFS

increase of 7.3°F during the summer months by the end of the 21st century. While projections of average annual precipitation are uncertain, climate projections indicate a change in precipitation timing and variability. Precipitation is projected to be increasingly variable into the future with the timing of the moisture shifting with fall and spring precipitation declining and winter and summer precipitation increasing. In addition, the snowpack will decrease due to warming, moving the peak runoff by more than a month by the mid to late century.

Adaptation strategies are already underway in the basin to increase agricultural and urban water use efficiency, water transfers and exchanges within the basin and improving headwaters and forest health. New adaptation strategy portfolios were also developed for further evaluation by Reclamation and the collaborators aimed at maintaining a balance between supply and demand. For example, one adaptation portfolio highlights the importance of long-term Central Valley Project contracts for regional reliability. Other adaptation evaluations include:

- The use of high elevation, off-stream storage to replace lost storage from reduced snowpack and earlier snowmelt.
- The use of existing diversion facilities on the Sacramento River and exchange water supply to reduce reliance on Folsom Reservoir and the American River.
- The raise of Folsom Dam other upstream flood control space through facility modifications to increase flood control space.
- Releasing flood water earlier to recharge groundwater creates additional regional water supply and ecosystem benefits.
- The effectiveness of the flow management standard for the Lower American River in the 2015 update of the Sacramento Water Forum Agreement to reduce the effects on the river's ecosystem and fisheries from climate change.

The basin study was selected in 2017 and built upon the Sacramento and San Joaquin Rivers Basin Study completed in 2016. The American River Basin and the area covered by this study consists of 3,600 square miles in central California from the valley through the foothills to the top of the Sierra Nevada. It includes the City of Sacramento and the surrounding area, including Auburn, Citrus Heights, Elk Grove, Folsom, Placerville, Rancho Cordova, Roseville and Shingle Springs.

Reclamation developed the basin study in collaboration with the Placer County Water Agency, City of Roseville, City of Sacramento, El Dorado County Water Agency, City of Folsom, and Regional Water Authority. The non-federal partners also coordinated with the Sacramento Area Flood Control Agency to address the flood risks. Key contributors to the report included the California Department of Water Resources, University of California-Davis, The Water Forum, Sacramento Municipal Utility District and El Dorado Irrigation District.

Funding for this study is part of the Department of the Interior's WaterSMART Program, which focuses on collaborative efforts to plan and implement actions to increase water supply sustainability, including investments to modernize infrastructure.
**For info:** Reclamation's Basin Study website: www.usbr.gov/watersmart/bsp/index.html

### TAHOE CLARITY CA/NV

**LAKE TAHOE TMDL REPORT**

Efforts to reduce pollution and restore Lake Tahoe's water clarity remain on track, despite impacts from climate change and other factors, according to a bi-state report released today by the Nevada Division of Environmental Protection (NDEP) and the Lahontan Regional Water Quality Control Board, part of the California Environmental Protection Agency.

Notably, the bi-state Lake Tahoe Total Maximum Daily Load (TMDL) Program's 10-year Performance Report shows that pollution from fine sediment, which significantly impairs lake clarity, was reduced by nearly 600,000 pounds in 2021, or the mass equivalent of about 206 cars. This is an increase over the previous year's reduction of 523,000 pounds. Nitrogen and phosphorus, both of which contribute to algae growth, have also been reduced by thousands of pounds per year through the program, thanks to efforts of federal, state, and local agencies, as well as private landowners in the basin. Thanks to these collaborate efforts, the latest lake clarity level was measured at 61 feet.

"Our program's efforts have become even more critical as Lake Tahoe faces other water clarity challenges from wildfire, smoke, and climate change," said Mike Plaziak, Lahontan Water Board's Executive Officer. "Going forward, restoring lake clarity will require us to continue our close coordination and implementation of best practices at every level, from how we maintain roads to how we gather data and adapt our strategies to manage climate impacts."

Results from the bi-state report found that the partnership between local governments as well as California and Nevada transportation agencies successfully achieved 10-year goals established to reduce urban stormwater pollution and improve lake clarity.

"I'm proud of the progress made over the past decade to restore and enhance Lake Tahoe's iconic water clarity," said NDEP Administrator, Greg Lovato. "Looking ahead, we will continue to collaborate with the Lahontan Water Board, Tahoe Regional Planning Agency, and Lake Tahoe science and implementation partners to advance science-driven strategies and solutions that create a more vibrant, sustainable, climate-resilient Lake Tahoe."

The Lake Tahoe TMDL Program is a bi-state effort between Nevada and California that was launched in 2011 to restore and enhance Lake Tahoe's water clarity to historic levels by requiring local governments and highway departments on both sides of the lake to implement measures that help prevent clarity-harming pollutants from reaching the lake. These implementation measures aim to help Lake Tahoe meet the Clarity Challenge goal of water clarity down to at least 78 feet by the end of 2031. In time, the goal is for people to once again be able to see to depths of 100 feet.

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The 2022 Performance Report highlights key accomplishments through 2021, the 10-year anniversary of the TMDL program, and showcases important projects and actions taken by Lake Tahoe partners to significantly reduce clarity-harming pollutants.

Key Findings from the 2022 Performance Report include:

- In 2021, annual clarity measured 61 feet. However, because clarity can vary considerably from year to year based on climate, in-lake processes, and other conditions, the long-term trend is considered a more valuable indictor. Over the last 20 years, lake clarity has remained relatively stable, and is no longer declining.
- Researchers found that fine particles and algal chlorophyll are the primary variables affecting Lake Tahoe's clarity. Recent years have presented evolving and new threats to Lake Tahoe as climate change, increasing temperatures, floods, drought, and wildfires impact the lake in ways that are not fully understood.
- Wildfire continues to be a primary threat to restoring water clarity. The report takes looks at restoration work completed for the Angora Fire, similar to what is anticipated to be accomplished for the Caldor Fire, to minimize water quality impacts, as well as studies launched to determine water quality impacts from smoke, ash and wildfire and the effectiveness of forest health and fuels reduction projects to minimize such impacts.
- Analyses show that efforts to reduce pollutants entering the lake through forestland runoff, erosion of stream beds and banks, and air deposition are on track to achieve 10-year goals.

**For info:** Lake Tahoe Water Clarity website: https://clarity.laketahoeinfo.org

### WATER SYSTEM SAMPLING AZ

#### STATE PFAS TESTING PROGRAM

The Arizona Department of Environmental Quality (ADEQ) has announced an agreement with the Water Infrastructure Finance Authority of Arizona (WIFA) to dedicate $3 Million of federal Safe Drinking Water Act funds to ensure that every public water system in Arizona is tested for PFAS.

While consumer products and food are the largest source of exposure to these chemicals for most people, drinking water can be an additional source of exposure in communities where these chemicals are in water supplies. Exposure to certain PFAS levels in drinking water is associated with negative health effects.

ADEQ's proactive sampling plan goes above and beyond the PFAS sampling the US Environmental Protection Agency (EPA) will require for Arizona public water systems as part of its fifth Unregulated Contaminant Monitoring Rule (UCMR5). EPA's UCMR5 will only require public water systems that serve more than 3,300 customers to test for PFAS. In Arizona, small water systems serving less than 3,300 people account for 90 percent or about 1,200 of the approximate 1,500 public water systems. ADEQ will sample these small drinking water systems, which serve nearly half a million people, for PFAS and the results will complement EPA's data.

"ADEQ is committed to ensuring that all public water systems in Arizona are tested for PFAS — regardless of the number of people they serve," said ADEQ Water Quality Division Director Trevor Baggiore. "Sampling all public water systems is critical to understanding where PFAS is so that steps can be taken to reduce people's exposure to PFAS in drinking water and to connect affected public water systems to funding sources to achieve solutions."

ADEQ's statewide PFAS sampling plan will include all Arizona public water systems that have not yet been tested by ADEQ, the public water system or for EPA's UCMR. ADEQ will begin contacting public water systems to coordinate the free sampling in October, which will be conducted over the next year. If a public water system already is sampling for PFAS, ADEQ will request their data.

To date, 287 of the more than 1,500 public water systems in Arizona already have been tested for some combination of PFAS compounds with ADEQ conducting the sampling and testing for 207 of these systems. When ADEQ's sampling results show a public water system has a PFAS detection higher than an EPA health advisory level, ADEQ contacts the public water system to discuss addressing the issue.

Steps include:

- Informing customers
- Undertaking additional sampling to assess the level, scope, and source of contamination
- Examining ways to limit exposure.

In Arizona, PFAS compounds have been detected in 56 public water systems and ADEQ already has worked with 13 of these systems to resolve the PFAS issue. PFAS resolution options must be carefully determined and consider the number of people served, system design, and the level of PFAS reduction needed.

Resolution options include:

- Installing a PFAS treatment unit
- Turning off an impacted well (if other wells are in production)
- Installing in-home point-of-use water treatment systems

For the remaining systems with known PFAS detections, ADEQ is providing a PFAS toolkit that contains information regarding the effectiveness of treatment technologies and where to find funding.

"Right now, EPA's PFAS health advisories are non-regulatory and non-enforceable," Baggiore added. "But we expect the EPA to set national PFAS drinking water standards that public water systems must meet as early as the end of next year. The PFAS data we've collected since 2018, along with our statewide sampling effort over the next year, have well-positioned Arizona to identify and work with public water systems to address PFAS drinking water challenges early and head on. Our proactive efforts also will ensure that Arizona's public water systems — including small systems — are able to leverage existing funding sources as well as new sources we expect to become available this fall."

WIFA anticipates receiving initial allocations of $13,587,000 to the Drinking Water State Revolving Fund and $632,000 to the Clean Water State Revolving Fund from the Bipartisan Infrastructure Law in October 2022, specifically to address emerging contaminants. WIFA has also submitted a letter of intent for approximately $17.6 million in additional funding under the federal Emerging Contaminants in Small or Disadvantaged Communities Grant. Once available, the funds would be used to assist public water systems in small or disadvantaged communities with addressing PFAS and other emerging contaminants in drinking water.

**For info:** ADEQ's PFAS website: https://azdeq.gov/pfas-resources

# CALENDAR

**September 18-21 CO**
**Rocky Mountain Water Conference - "Welcome Back!", Keystone.** Keystone Conference Center. Presented by the Rocky MountainWater Environment Association & Rocky Mt. Section - American Water Works Association. For info: rmwea/org

**September 19-20 AZ**
**Tribal Water Law 10th Annual Conference: Water Security on the Path to Resiliency, Scottsdale.** We-Ko-Pa Casino Resort. For info: CLE International: 800/ 873-7130 or www.cle.com

**September 19-21 MT**
**Western Collaborative Conservation Network's Confluence 2022 Conference, Pray.** Chico Hot Springs Resort. RE: Collaboration and Regional Governance, Watersheds, and Cross-Cultural Collaboration. For info: https://collaborativeconservation.org/

**September 20 TX**
**Texas Rainmaker Award Dinner, Austin.** Bullock Texas State History Museum. Hosted by the Texas Water Foundation. For info: www.texaswater.org

**September 20-21 WEB**
**Fundamentals of Water Recycling for Municipal Recycled and Reclaimed Water: Distribution/Use - Course,** Log In at 8:45am Mountain Time. Presented by EUCI: 303-770-8800 or events@euci.com. For info: https://www.euci.com/in-house-training/?x=74860x1017483Bv

**September 20-23 IL**
**2022 Water Modeling Workshop, Chicago.** Palmer House Hilton. Hosted by EPA in Collaboration with ACWA (Assoc. of Clean Water Administrators). For info: ACWA Modeling Website: https://www.acwa-us.org/event/2022-water-quality-modeling-workshop/; Jasper Hobbes, ACWA, jhobbs@acwa-us.org or EPA Water Modeling Workgroup, water_modeling_workgroup@epa.gov

**September 21 WEB**
**Galveston Bay Research: How Data Informs Action - Zoom Event,** 11:00am Central Time. Presented by Houston Advanced Research Center (HARC). For info: www.harcresearch.org

**September 21-24 TN**
**SEER 30th Fall Conference, Nashville.** Renaissance Nashville Hotel. Sponsored by the ABA Section on Environment, Energy, and Resources (SEER). For info: ambar.org/SEERevents

**September 22 WEB**
**Portland Harbor Workshop 3: Investigating Dioxins Upstream of the Portland Harbor Superfund Site,** Via Zoom: 12:00pm-1:30pm Pacific Time. Workshop Series Presented by Maul Foster & Alongi at: www.maulfoster.com/ or 971/ 544-2139. For info: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1002155

**September 22 OR & WEB**
**Groundwater Allocation Policy Outreach Meeting, Salem.** In-Person & Virtual Option: 5:30-8:00pm PDT; OWRD, 725 Summer St. NE, Ste. A. Review of Framework for Groundwater Allocation & Ideas of Revisions to Groundwater Allocation Process. For info: www.oregon.gov/owrd/programs/GWWL/GW/GWAP

**September 22 WEB**
**Pollution Prevention Waste Management Virtual Workshop,** Hosted by Expert Staff from TCEQ, U.T. Arlington & US EPA. For info: www.tceq.texas.gov/p2/events/pollution-prevention-waste-management-workshop

**September 24 OR**
**20th Annual Celebration of Rivers, Portland.** Crystal Springs Rhododendron Garden, 5801 SE 28th Avenue, Presented by WaterWatch of Oregon. For info: htpps://bit.ly/20thgathering

**September 26-28 MD**
**StormCon - National Harbor, National Harbor.** Gaylord National Resort & Convention Center. Comprehensive Criteria Workshop to Select Best Management Practices. For info: stormcon.com

**September 26-29 MD**
**WaterPro Conference, National Harbor.** Gaylord National Resort & Convention Center. Hosted by National Rural Water Association. For info: waterproconference.org

**September 28 WEB**
**Utility Cyber Defense: How to Engineer a Better Approach - Webinar,** 11:00am-12:30pm Mountain Zone. Presented by American Water Works Association. For info: www.awwa.org/Events-Education/Events-Calendar/mid/11357/OccuranceId/620?ctl=ViewEvent

**September 28 OR & WEB**
**Groundwater Allocation Policy Outreach Meeting, Bend.** In-Person & Virtual Option: 5:30-8:00p PDT., OSU-Cascades (Room TBA), 1500 SW Chandler Avenue. Review of Framework for Groundwater Allocation & Ideas of Revisions to Groundwater Allocation Process. For info: www.oregon.gov/owrd/programs/GWWL/GW/GWAP

**September 28-29 CA**
**World Water-Tech North America Innovation Summit, Los Angeles.** For info: worldwatertechnorthamerica.com

**September 29 OR & WEB**
**Groundwater Allocation Policy Outreach Meeting, La Grande.** In-Person & Virtual Option: 5:30-8:00pm PDT, Eastern Oregon University (Room TBA), 1 University Blvd.. Review of Framework for Groundwater Allocation & Ideas of Revisions to Groundwater Allocation Process. For info: www.oregon.gov/owrd/programs/GWWL/GW/GWAP

**September 29-30 MT**
**Buying & Selling Ranches and Farmland Conference, Billings.** Northern Hotel. For info: The Seminar Group: 206/ 463-4400, info@theseminargroup.net or theseminargroup.net

**September 29-30 NM**
**New Mexico Water Law 29th Annual Conference - Drought Conditions, 50 Years of the Clean Water Act & More, Santa Fe.** La Fonda on the Plaza. For info: CLE International: 800/ 873-7130 or www.cle.com

**October 3 UT**
**Utah Water Law Conference - The Colorado River, The Great Salt Lake & Utah Lake, Salt Lake City.** Marriott University Park. For info: CLE International: 800/ 873-7130 or www.cle.com

**October 3-4 WEB**
**Fundamentals of Cost of Service and Rate Design for Water Utilities - Course,** Presented by EUCI: 303-770-8800 or events@euci.com. For info: www.euci.com/

**October 5 OR & WEB**
**Groundwater Allocation Policy Outreach Meeting, Central Point.** In-Person & Virtual Option: 5:30-8:00pm PDT, Jackson County Auditorium, 7520 Table Rock Road. Review of Framework for Groundwater Allocation & Ideas of Revisions to Groundwater Allocation Process. For info: www.oregon.gov/owrd/programs/GWWL/GW/GWAP

**October 5-6 MT**
**22nd Annual Montana Water Law Conference, Helena.** Great Northern Hotel. For info: The Seminar Group: 206/ 463-4400, info@theseminargroup.net or theseminargroup.net

**October 5-6 CO**
**Western Colorado Water & Wastewater Conference, Grand Junction.** Grand Junction Convention Center. Presented by the Rocky Mountain Section - American Water Works Association. For info: rmsawwa.org

**October 6 OR**
**2022 Environmental & Natural Resources Law: Year in Review Conference, Troutdale.** McMenamin's Edgefield; Sponsored Happy Hour at End of Day: 8:30am-4:30pm Pacific Time. ENR Section's Annual CLE; Hybrid In-Person and Remote. For info: Ryan Shannon, rshannon@biologicaldiversity.org

**October 6 WEB**
**Groundwater Allocation Policy Outreach Meeting,** Time to be Determined. Review of Framework for Groundwater Allocation & Ideas of Revisions to Groundwater Allocation Process. For info: www.oregon.gov/owrd/programs/GWWL/GW/GWAP

**October 8-12 LA**
**WEFTEC 2022: The Water Quality Event, New Orleans.** New Orleans Morial Convention Center. For info: www.weftec.org/exhibit/Exhibit2022/

**October 11-13 CO**
**2022 Sustaining Colorado Watersheds Conference - Bridging Connections: Learning From the Past, Investing in the Future, Avon.** Westin. Hosted by Colorado Watershed Assembly, Water Education Colorado & Colorado Riparian Association. For info: coloradowater.org

**October 18-19 WEB**
**Digital Twins for Water & Wastewater - Course,** Presented by EUCI: 303-770-8800 or events@euci.com. For info: www.euci.com/event_post/1022-water-digital-twins/?src=Overview&x=75080x1017483Bv

**October 23-26 CA**
**Connecting the Drops - From Supply to Delivery: Annual Fall Conference of the California-Nevada Section, American Water Works Association, Sacramento.** SAFE Credit Union Convention Center. For info: https://www.ca-nv-awwa.org/ >> Fall Conference

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## CALENDAR

(continued from previous page)

**October 24-26 CA**
**CASQA 2022 AnnualConference: "Celebrating Milestones: Taking the Next Steps for Stormwater", Palm Springs.** Palm Springs Convention Center. For info: California Stormwater Quality Association, www.casqa.org

**October 24-27 NE**
**Platte River Basin Conference & 3rd Playa Research Symposium - Braided Paths: Science, Policy, and Culture, Kearney.** Hosted by the Nebraska Water Center. For info: https://watercenter.unl.edu/2022-nebraska-water-conference

**October 25 NE**
**Nebraska Floodplain Management Workshop, Syracuse.** Syracuse Public Library. Presented by Nebraska Dept. of Natural Resources. For info: https://dnr.nebraska.gov/floodplain/training-and-workshops

**October 25-27 IA**
**Interstate Council on Water Policy 2022 Annual Meeting, Davenport.** Hotel Blackhawk. RE: Planning & National Policy; Ecosystem Restoration; Data Research Updates; Water Use Data; Tribal & Interstate Water Management; Federal Agency Updates; Networking, & More. For info: Beth Callaway, ICWP, 307/ 772-1999 or www.icwp.org

**November 2-3 WEB**
**Data Collection Techniques and Analytics for Water Resource Systems and Natural Water Systems - Course,** Presented by EUCI: 303-770-8800 or events@euci.com. For info: https://www.euci.com/event_post/1122-water-resource-data-collection/?src=Overview&x=75080x1017483Bv

**November 4-5 CA**
**Water Law Institute, San Diego.** TBA. Presented by The Foundation for Natural Resources and Energy Law (formerly Rocky Mountain Mineral Law Foundation). For info: www.fnrel.org/programs

**November 7-9 WA**
**AWRA Annual Water Resources Conference, Renton.** Hyatt Regency Lake Washington. Presented by the American Water Resources Association. For info: Felix Kristanovich, felixk@windwardenv.com or https://www.waawra.org/2022AnnualConference

**November 9-10 OR**
**Oregon Water Law Conference - 31st Annual, Portland.** TBD. For info: The Seminar Group: 206/ 463-4400, info@theseminargroup.net or theseminargroup.net