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POST FIRE WATERSHED RECOVERY & RESTORATION

RESTORATION FOLLOWING THE HOLIDAY FARM FIRE IN THE MCKENZIE WATERSHED, OREGON

by Karl Morgenstern, Eugene Water & Electric Board (Eugene, OR)

Introduction

The Holiday Farm Fire (HFF) began on September 7, 2020, during a strong east wind event that passed through western Oregon. The fire encompassed over 173,000 acres, primarily in the McKenzie River Watershed, and destroyed over 430 homes and structures. Most of this damage occurred over a three-day period and threatened the long-term viability of City of Eugene's sole source of drinking water. The HFF was one of five simultaneous large fires that were ignited during this east wind event. Thousands of homes were destroyed and millions of acres burned across western Oregon.

In response to the HFF, the Eugene Water & Electric Board (EWEB) formed the Watershed Recovery Task Force (Task Force) to conduct watershed recovery and restoration activities on private property to protect native habitats, water quality, and support local economic recovery. The Task Force relied upon existing relationships and an operational framework established through the Pure Water Partners (PWP) program that leveraged resources and funding to mitigate fire impacts and conduct watershed restoration activities.

This article outlines the approach taken by the Task Force over the last year for post-fire watershed recovery and restoration to protect the drinking water source of nearly 200,000 people.

The Value of Drinking Water Source Protection

The McKenzie River supports exceptional water quality and high-quality habitat for native fish and wildlife and is a tributary to the Willamette River (*see* Figure 1, next page). The McKenzie accounts for a disproportionate amount of flow in the lower Willamette River during the dry season due to the large spring-fed system in the upper McKenzie Watershed. The river is one of the last remaining strongholds for spring Chinook salmon and bull trout listed as threatened under the federal Endangered Species Act. Its waters comprise some of the best water quality in Oregon. In 2001, EWEB began investing in developing a comprehensive drinking water source protection program to safeguard this critical resource.

The rationale for watershed protection is rooted in the concept of cost avoidance. In short, maintaining healthy natural systems reduces the need for water treatment, which reduces the capital and operations and maintenance costs associated with water filtration facilities. In 2018, EWEB's Board of Commissioners approved a ten-year strategic plan to protect the McKenzie Watershed as EWEB's sole source of drinking water. The programs and partnerships formed to implement this strategic plan are now fundamental to the timely response to the Holiday Farm Fire and the building blocks of watershed restoration efforts over the longer term.

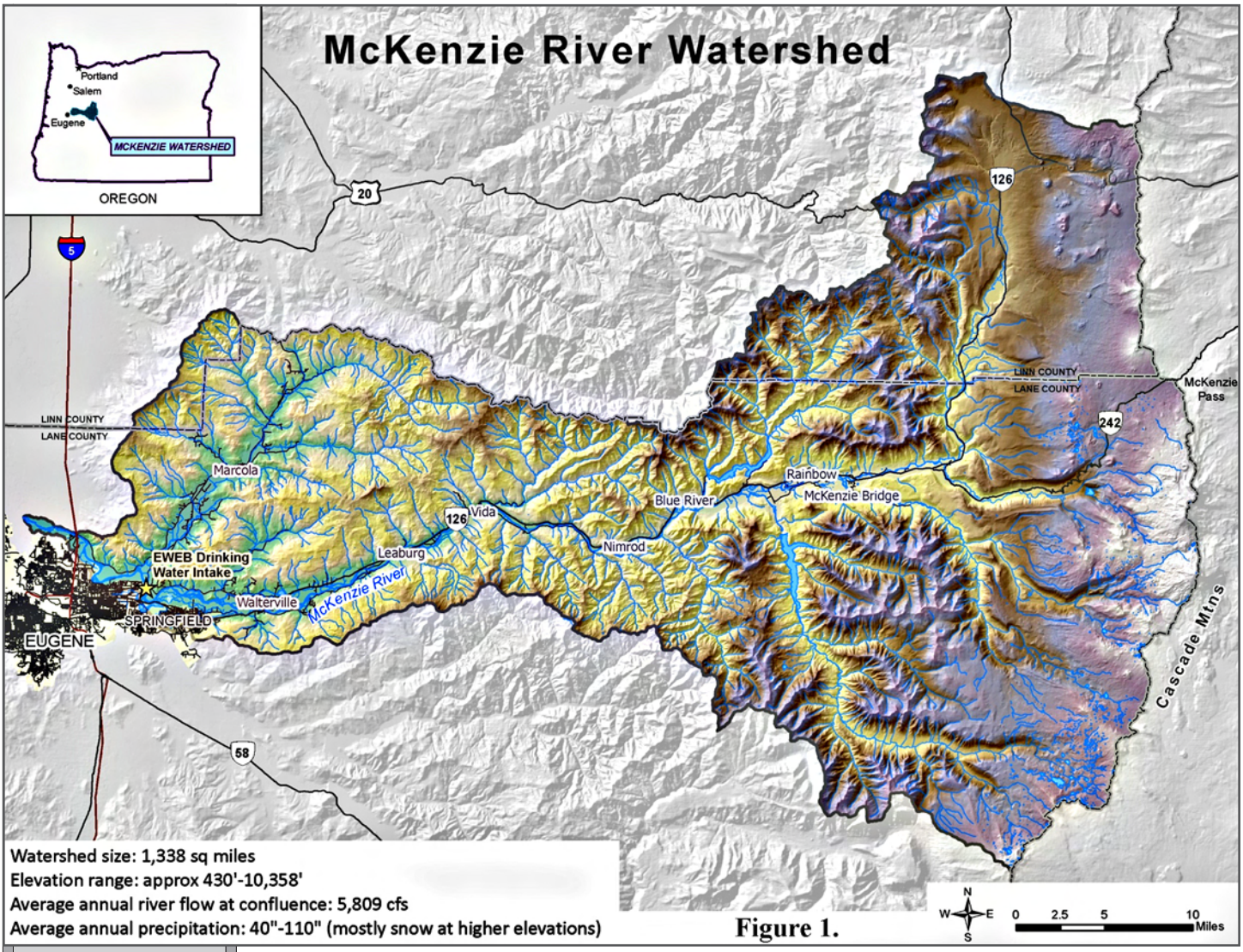

Figure 1.

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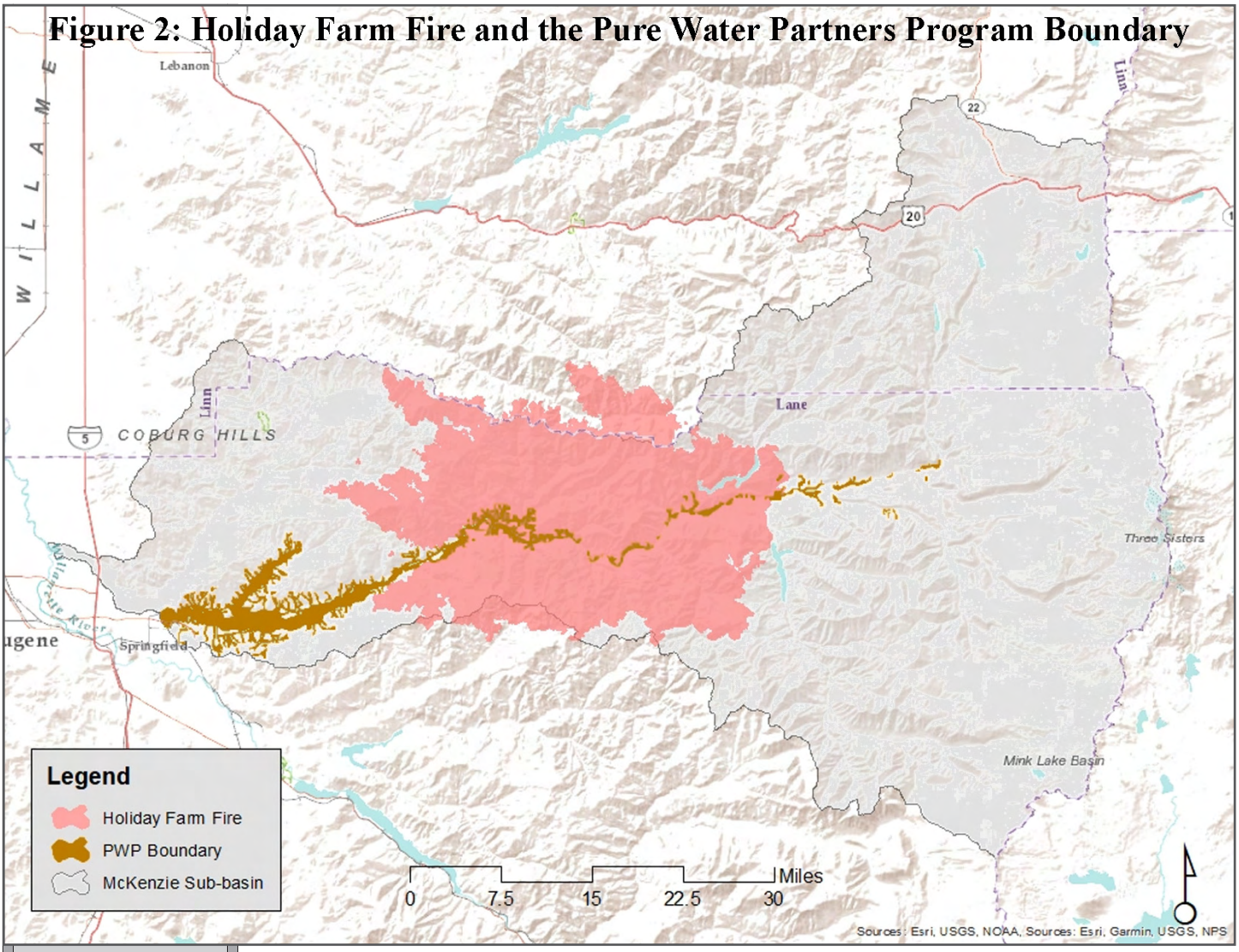
In response to increasing development pressures, EWEB led a collaborative effort to design, pilot, and implement the Pure Water Partners (PWP) program using various grant funds. The PWP was fully implemented in 2018 and is designed to work with McKenzie landowners under long-term agreements (15-20 years) to protect and restore riparian and floodplain forests that are key to maintaining high water quality and providing critical aquatic habitat. The PWP organizations signed a Memorandum of Agreement to memorialize the shared vision and goals, programmatic and governance structure, roles, responsibilities, and commitments of the partners. PWP organizations include: EWEB; the McKenzie Watershed Council (MWC); Upper Willamette Soil & Water Conservation District (UWSWCD); McKenzie River Trust (MRT); Cascade Pacific Resource Conservation & Development (CPRCD); Willamette National Forest (WNF); The Freshwater Trust (TFT); Metropolitan Wastewater Management Commission (MWMC); and University of Oregon (U of O).

The PWP team has been instrumental in the Holiday Farm Fire (HFF) response, quickly pivoting from doing riparian health assessments to conducting burn assessments and designing erosion control and revegetation plans. One of the early barriers to doing this work on private properties was getting traumatized landowners displaced by the fire to sign access agreements to allow the PWP team to conduct burn assessments, stabilize ash and debris, and install erosion control. Adding to the confusion, Lane County and the Federal Emergency Management Agency (FEMA) were also trying to get impacted landowners to sign Rights-of-Entry permits. Efforts to combine these two access agreements were not successful.

At the time of the HFF, the PWP had approximately 90 area landowners in the program pipeline. Those impacted by the fire and in need of emergency response actions were able to be seen to immediately since these landowners already had long-term agreements in place (*see* Figure 2).

Figure 2: Holiday Farm Fire and the Pure Water Partners Program Boundary



Hydro & Filtration Plants

Incident Command System

Impacted Lands

Immediate Aftermath and Water Quality Impacts

Fueled by powerful east winds the fast-moving fire incinerated homes, shops, vehicles, boats, RVs, power lines, poles, transformers, and other hazardous materials. Their remnants became part of the ash left behind and deposited on the downwind communities of Springfield and Eugene. EWEB's Leaburg hydroelectric plant was evacuated as the fire burned up to the dam and power canal infrastructure. EWEB's Hayden Bridge filtration plant was in the path of the fire and put under evacuation alert. The plant supervisor brought in contract fire crews and equipment while coordinating with the local fire department about the plant's defense.

The fire knocked-out a key communications tower and five United States Geologic Service (USGS) streamflow gages, with three having real-time water quality sondes in place as an early warning for harmful algal blooms. The loss of communications, streamflow, and water quality information impacted dam and filtration plant operations. By September 15th the fire was under control enough to allow utility and other responders into some of the impacted areas. Given the significant impacts to EWEB's Generation, Electric and Water Divisions, EWEB went into a unified Incident Command System (ICS) for the first time in its 110-year history. Historically, disasters, storms, or other emergencies would impact one Division (e.g., ice storm knocking out power) and that Division would go into ICS to manage the response. The HFF impacted all three Divisions at once so the unified ICS provided a structure that facilitated coordination across the three Incident Commanders under a single incident response action plan to make sure resources flowed to the most pressing problems.

Most of the fire-impacted area (70%) is a mix of private rural residential and industrial timberlands. Federal lands accounted for over 29% of the burn area and Lane County lands less than one percent. While the HFF primarily burned a mosaic pattern, stand-replacement fire conditions were prevalent on both private and public land.

Figure 3: Destroyed Home along the McKenzie River

EWEB's initial response focused on understanding water quality impacts from the toxic ash, debris, asbestos, and hazardous materials associated with the destroyed homes along the river and deposited as ash across the larger landscape (*see* Figure 3). As the fire continued to burn, EWEB water quality staff dismantled and redeployed a real-time water quality station with solar power and telemetry from a major stormwater channel in Springfield to a fire-impacted nonoperational USGS gage on the lower McKenzie River to act as an early warning for water treatment operators. This provided a four-to-six-hour advanced warning of significant dissolved organic carbon and turbidity events, allowing operators to be better prepared for episodic events and optimize treatment.

EWEB was fortunate to have an in-house water quality laboratory that could analyze for suspended solids, nutrients, bacteria and other parameters with quick turnaround times. This allowed for a more aggressive monitoring regime of raw and finished water. It was assumed deposited ash contained various organic compounds, which were targeted for analysis in initial sampling efforts. Once it was found that levels of organic compounds were not present or insignificant, monitoring shifted to capturing runoff from precipitation events. As it turned out, the annual storms that historically provided rainfall in September and October failed to materialize. Their post-fire absence provided water quality benefits as well as an opportunity to mobilize a response. Unfortunately, this lack of storms did add to the extreme drought conditions in 2021.

Water Quality Analysis

Storm Runoff

A series of major storms did occur mid-November through early January 2021. These storms initially mobilized nutrients, metals, bacteria, organic carbon and suspended sediment at fairly elevated levels, but these levels subsequently dropped down to pre-fire concentrations (*see* Figure 4, next page). The filtration plant was able to effectively treat these events using powder activated carbon and other adjustments to prevent impacts to the finished drinking water. Early in the fire there were some taste and odor problems that lasted a few weeks as the water moved through the distribution system.

Water Quality Network

Once able to fully access the fire impacted areas, EWEB worked with USGS to increase the network of real-time water quality stations to include major tributaries as an early warning system for Hayden Bridge filtration plant operators and water source protection staff. In addition, 29 monitoring events have been conducted thus far in 2021 to assess the impacts of the HFF on water quality.

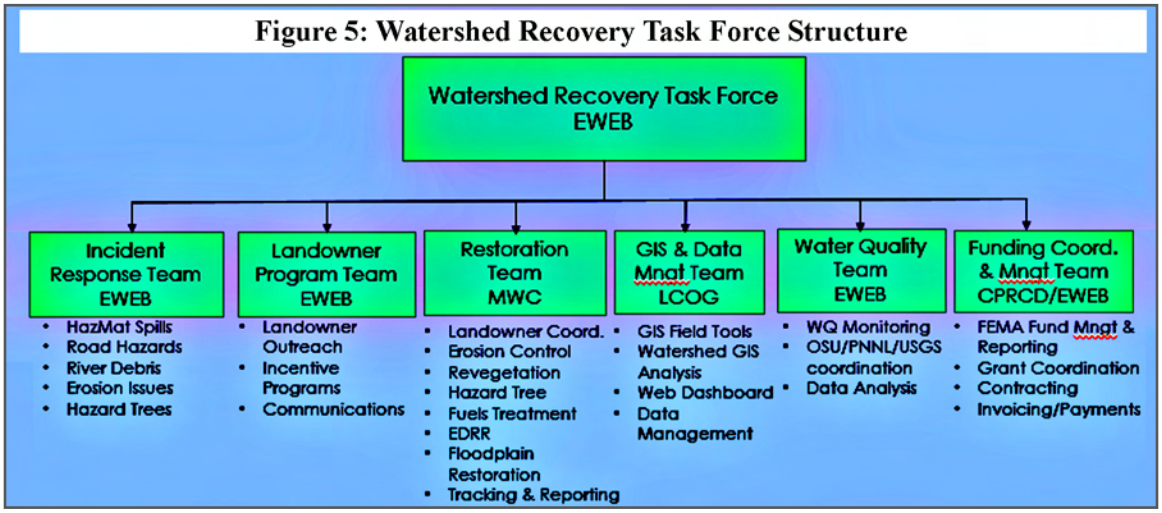
The Watershed Recovery Task Force

Task Force Focus

In early September 2020, as the impact of the Holiday Farm Fire became apparent, EWEB began mobilizing local partners to form the Watershed Recovery Task Force (Task Force). It became one of four task forces under the Lane County emergency operations incident command. The Task Force relied upon existing partnerships established through the PWP and other EWEB Drinking Water Source Protection Programs. The Task Force was organized with multiple project teams focused on watershed recovery, landowner programs, water quality monitoring, GIS analysis, funding, and incident response (*see* Figure 5). Teams were made up of representatives from PWP organizations as well as the City of Eugene, Lane County, and the Lane Council of Governments (and subcontractor Land Craft Design & Consultation LLC).

Task Force Organization

Figure 5: Watershed Recovery Task Force Structure



Post-Fire Recovery

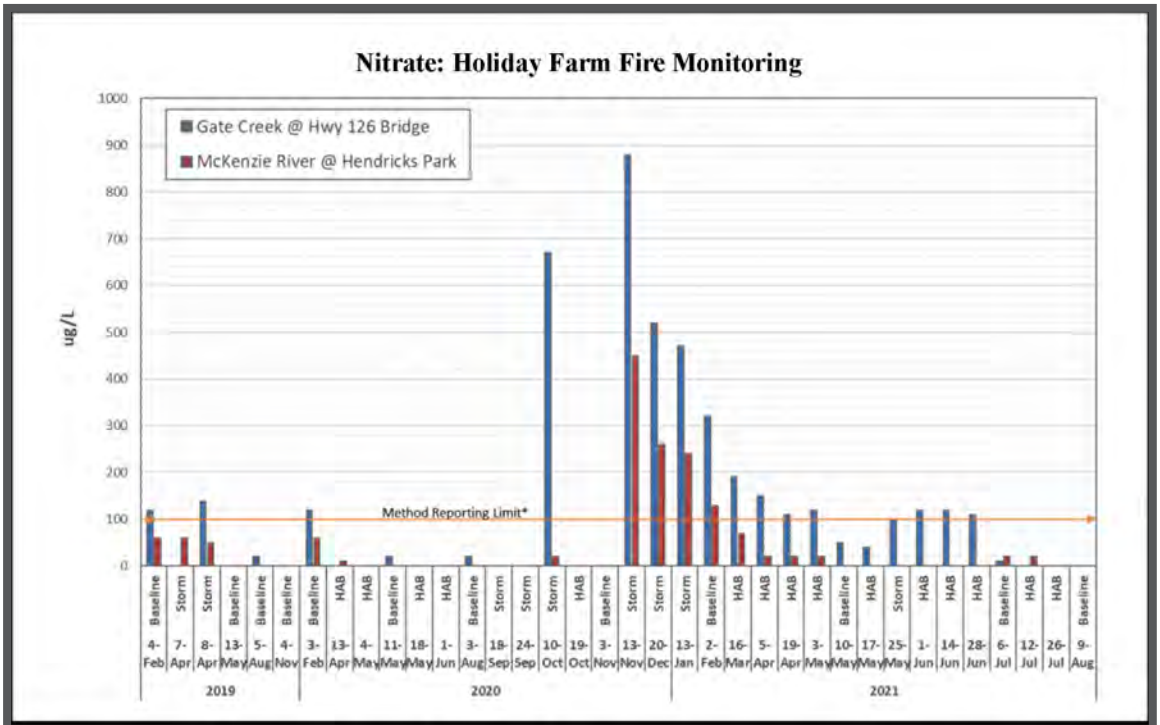
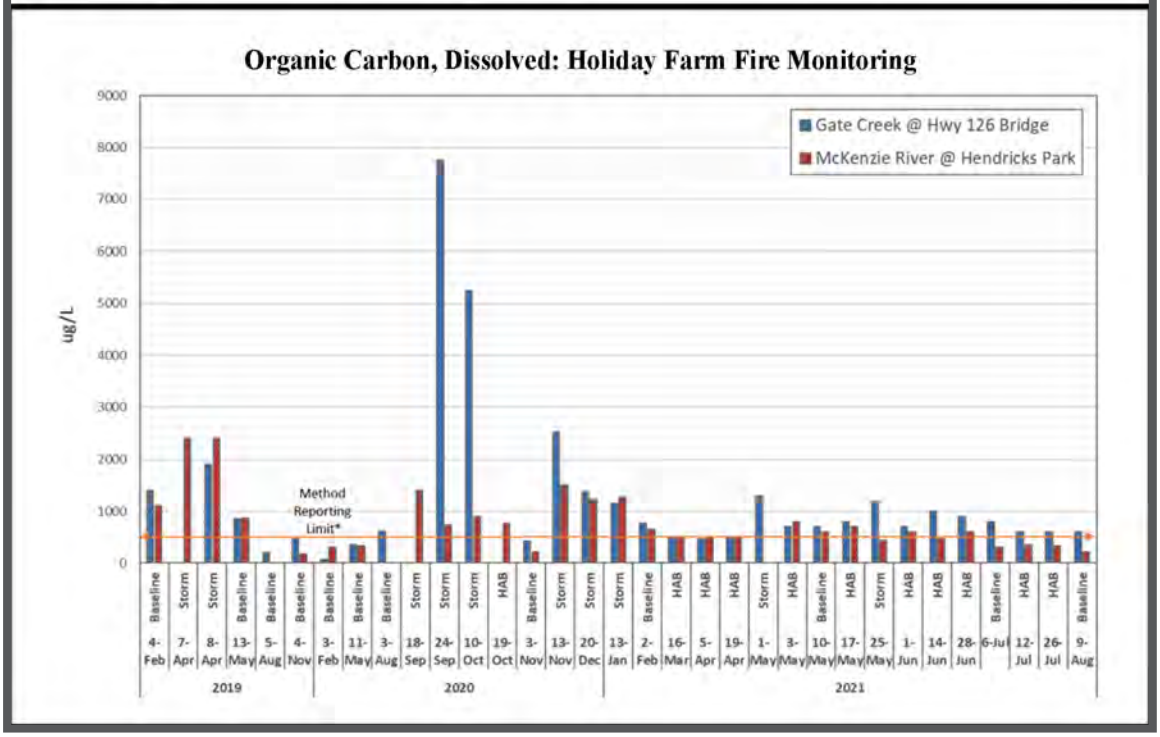


Figure 4: Nitrate and Organic Carbon Concentrations (2019-2021)



Task Force Objectives

The Task Force established the following objectives to guide its initial work through an integrated approach among all project teams:

- Protect natural resources, water quality, public health, and support the economic recovery of communities through watershed recovery and restoration activities on high priority properties
- Develop and use best management practices in all response and long-term recovery actions to reduce unintended consequences to natural resources and water quality
- Coordinate watershed recovery and restoration actions to align with community priorities and in partnership with watershed stakeholders

Post-Fire Recovery

Planning & Coordination

Knowing that State and Federal assistance was months away, on October 7, 2020, the EWEB Board authorized the use of $1 million for emergency response measures to: stabilize high priority destroyed homes left with ash and debris along the river; design and implement erosion control **b**est **m**anagement **p**ractices (BMPs); and develop revegetation plans for severely burned riparian and floodplain areas. The Lane County Health Division provided EWEB the authority to conduct this mission. The Task Force started as an incident command structure with specific short-term team objectives and evolved to a planning and coordination function. This structure supported: close coordination; sharing of information; prioritizing actions; collaborating on solutions; and getting the funding and resources to implement those solutions.

Response Work

Emergency Response Phase

The watershed recovery emergency response phase lasted from October 2020 to early May 2021when revegetation efforts were completed.

This response phase sequenced three main areas of work:

1) **Stabilization** of high priority ash and debris associated with destroyed home sites along the river;
2) **Conducting burn assessments** followed by designing and installing erosion control measures; and
3) **Developing planting plans** for revegetation of severely burned riparian areas that were planted in winter 2020/21.

Quality Threats

The initial stabilization efforts used **g**eographic **i**nformation **s**ystem GIS analysis to identify those destroyed homes that posed the highest threat to water quality should the toxic ash and debris get washed into the McKenzie River. This analysis was ground-truthed to identify 150 high priority destroyed homes for stabilization of the ash and debris. EWEB's customer service staff worked to try and find as many of the 150 displaced homeowners as possible and direct them to an EWEB web portal to electronically sign access agreements. The Task Force developed a scope of work to: remove hazardous materials and stage in secure area; pull back ash and debris from the riparian and floodway areas; stabilize the material within the structure's footprint; and install erosion control between the destroyed home and the river (*see* Figure 6).

Ash & Debris Stabilization

The Task Force approached the Oregon Department of Environmental Quality (ODEQ) to get assistance in using a state emergency response contractor to implement the scope of work. While unable to directly support that work at the time, ODEQ helped the Task Force get FEMA approval of the scope so that EWEB could contract directly with the State response contractor to begin the ash and debris stabilization efforts in early October. The US Environmental Protection Agency (EPA) eventually took over this work once their contractors were able to mobilize to the McKenzie after working on stabilizing destroyed homes in southern Oregon. Ultimately, 139 of the 150 high priority destroyed homes were stabilized, enabling the FEMA-supported ash and debris removal that launched months later.

Surveys & Assessments

In the McKenzie Watershed, a range of threats to drinking water quality, habitat for native species, and local communities was identified by a combination of locally developed and site-specific surveys conducted by the Task Force and basin-scale assessments conducted by the US Forest Service (USFS) and local partners through the Erosion Threat Assessment/Reduction Teams (ETART). Federal Burned Area Emergency Response (BAER) reports recommended a range of emergency treatments, including a focus on invasive plants **e**arly **d**etection **r**apid **r**esponse (EDRR) and the development of models to estimate changes in stream flows and debris flow potential. The GIS data layers provided by these two basin-scale assessments were invaluable in assisting the GIS team in conducting various analyses to establish response priorities. The ETART reports cited several threats to water quality and critical habitat, including invasive vegetation and stand replacement fire in riparian forests. The HFF burned so hot that most of the trees and other vegetation in the riparian areas were killed exposing these sensitive areas to erosion and potential slope failures. The Task Force burn assessments evaluated erosion concerns, hazard trees, and soil conditions, and recommended short and long-term erosion control measures and replanting on the site or property scale.

Figure 6: Example of Ash and Debris Stabilization Measures

Post-Fire Recovery

Access Agreements

Restoration Treatments

With the ash and debris stabilization work underway, the watershed recovery team continued with the coordination of: outreach to private landowners and the development of access agreements; erosion control BMPs designs; burn assessment protocol; and landowner information on how to assess burn severity on their property (*see* Figure 7). Access agreements were adapted from existing PWP templates and distributed as electronic DocuSign forms by EWEB customer service staff. These simple legal documents allowed Task Force partners to access enrolled properties for assessments and to implement treatments agreed to by the landowners. With assistance from local government specialists — including the City of Eugene (Eugene), EWEB, Lane County, USFS, and the Natural Resources Conservation Service (NRCS) — PWP partners developed BMPs for a range of restoration treatments and burn assessment protocols. The burn assessment protocol and field data collection map applications were developed in close coordination with a contractor, Land Craft Design & Consultation. The geospatial database relied on ESRI's ArcGIS Online environment using editable feature services and the ESRI online application suite (Collector and Survey 123).

Figure 7: PWP Burn Severity Matrix for Burn Assessment Surveys

PURE WATER PARTNERS

Burn Intensity & Severity Matrix

Wildfire burn intensity and severity can vary across an ecosystem. The matrix below was designed to assist landowners in determing the level of damage inflicted by the Holiday Farm Fire.
For more information or to sign-up for a recovery assessment vist: **www.purewaterpartners.org**

Parameters	Low	Medium	High
Surface Organic litter	Scorched, charred, blackened but with definable plant parts; 40 to 85 percent litter cover remains.	Partially consumed; less than 40 percent litter cover remaining, much covered with black char.	No surface litter remains.
Small woody debris (downed woody debris <3 inches in diameter)	Surfaces are burned with some unburned areas.	Surfaces are charred; some woody debris partially to wholly consumed.	Small woody debris is fully consumed
Large woody debris (downed woody debris >3" diameter)	Surfaces blackened with unburned areas.	Surfaces are all blackened; char goes into wood.	Only large, deeply charred logs are left.
Stumps	Stumps intact but blackened.	Burned deep enough to form charcoal.	Stumps gone; hole in ground where stumps and root systems were.
Mineral Soil/Ash	Exposed mineral soils may be unchanged or blackened, with isolated areas gray to orange where downed logs burned.	Black, gray, and/or orange mineral soil dominates area, with little to no unburned areas; gray ash present in patches covering <20 percent of area.	Black, gray and orange mineral soil dominates area; gray ash layers may be deep and extensive.
Trees	Nearly all of crown remains "green." Some scorching in understory trees.	High scorch height. Generally, > 50% of crown is scorched. Mostly "brown" crowns with intact needles.	No needles or leaves remaining. Some or many branches may be consumed. Mostly "black" remaining vegetation.
Shrubs	Scorching in canopy but leaves remain mostly green. Limited fire runs with higher scorch. 5 to 30% charred canopy.	30 to 100% charred canopy. Smaller branches < 0.5 inch remain. Shrub density was moderate or high.	90 to 100% charred canopy. Most branches consumed, including fuels < 1 inch. Skeletons or root crowns remain. Shrub density was moderate or high. Often old growth in character.
Fine Fuels	Scorched or partially consumed.	Mostly consumed. Appears black from the air. Small roots and seed bank remain intact and viable.	Not rated as high unless loss of seed bank is suspected or soil structure strongly altered.
Roots	Fine roots intact and unchanged.	Fine roots near surface may be charred or scorched; large roots intact	Many or most fine roots near surface consumed or charred. Some charring may occur on very large roots
Water Repellency	Soils will infiltrate water drops in less than 10 sec; greater than 8 mL min–1 with the MDI	The surface of the mineral soil below the ash layer may be moderately water repellent but water will infiltrate within 10 to 40 sec; 3 to 8 mL with the MDI.	Strongly water repellent soils (repels water drops for > 40 seconds; less than 3 mL min) may be present at surface or deeper.

Post-Fire Recovery

Public Outreach

Once legal access agreements and assessment protocols were in place, initial public outreach focused on landowners already enrolled in the PWP or with existing working relationships with PWP organizations. The Task Force also relied on a combination of printed material, coordination with community support and relief efforts, social media, tabling at informational/recovery events, and articles in the local River Reflections newsletter to raise awareness of available resources. The most effective strategy for engaging landowners was word-of-mouth outreach from enrolled landowners to their neighbors and the community.

Burn Assessments

Burn assessments began in late October 2020. Landowners were able to sign-up via an online portal on the EWEB website (www.purewaterpartners.org). Scheduling and field surveys were completed by Task Force partners, primarily the McKenzie Watershed Council (MWC), Upper Willamette Soil & Water Conservation District (UWSWCD), McKenzie River Trust (MRT) staff, with additional support provided by colleagues from the Coast Fork Willamette Watershed Council. Nearly all surveys were done with a certified arborist to identify and mark hazard trees (outside the Highway 126 right-of-way). Arborists or foresters from Eugene, Lane County, and EWEB accompanied field surveyors during early surveys. A local McKenzie-based arborist contracted by EWEB accompanied field surveyors during later surveys. The geospatial database allowed surveyors to download tax lot-based site information before field surveys. Once on-site, surveyors recorded field conditions (i.e., burn severity, hazard trees, erosion potential, etc.), potential treatment areas, general observations, and photos. Field surveyors then drafted a post-fire assessment report. The Task Force completed 273 burn assessments on private and non-federal public land from October 2020 – April 2021.

Implementation Team

Field surveyors submitted draft assessment reports to three project managers from the MRT, MWC, and UWSWCD, who made up the Implementation Team (IT). The IT was formed after Task Force members realized the need for central coordination of communication with landowners and implementation of treatment actions with contractors. The IT: reviewed the draft assessment reports; finalized recommendations for actions (i.e., erosion control BMP and riparian restoration planting); and reviewed the assessment and recommendations with landowners. IT project managers then developed an additional document — Exhibit A — which identified priority short-term erosion control and hazardous waste stabilization measures to be completed by the Task Force. The Exhibit A template was eventually revised into a more comprehensive agreement that included riparian restoration planting prescriptions. The Watershed Stewardship Agreement was reviewed and signed by participating landowners and covered a seven-year period to ensure investments in revegetation were successful.

Priority Measures

Erosion Control

IT project managers coordinated erosion control treatments at 123 private and non-federal public land sites out of the 273 that were assessed. The remaining 150 properties were placed in a monitoring mode due to less burn severity and higher potential for natural regeneration of vegetation. Private contractors and the Northwest Youth Corps (NYC), working under contracts held by EWEB, completed the work. All erosion control implementation was overseen by IT project managers in consultation with a Eugene Erosion Control Specialist. Erosion control treatments included placement of wattles (i.e., long mesh tubes filled with straw), seeding of a native grass and wildflower mix, mulching, silt fences, log erosion barriers, check dams, and hydroseeding. For the HFF, the NYC constructed wattles using jute and native materials, including hand-collected willow cuttings and wood chips/mulch from hazard tree clearing work along OR Highway 126. The jute wattles reduced the use of manufactured wattles with plastic netting and non-native straw in sensitive riparian areas and were left in place to facilitate revegetation growth. Over 300 erosion control BMPs were installed across the 123 properties.

Native Plants

Immediately after the extent and impact of the HFF became apparent, the McKenzie Watershed Council (MWC) reached out to the Bonneville Environmental Foundation (BEF) to secure native trees and shrubs for replanting impacted riparian areas. The Task Force eventually secured 210,000 native plants from a combination of the cooperative BEF Willamette Valley grow and a range of local nurseries. IT project managers identified over 140 potential planting sites based on the assessment reports and began outreach and coordination with the respective landowners. The Task Force eventually planted 90 acres of high priority riparian areas across 89 private and non-federal public sites. Private contractors completed all planting working under short-term emergency contracts with EWEB. The planting within the HFF perimeter began in February and was largely completed by April 2021. Additionally, the NYC and private contractors completed mulching treatments at 29 planting sites in April and May. As a comparison, before the HFF the MWC might plant five acres of riparian area across a few properties in a year. The scale and pace of the HFF planting efforts took its toll on the mental and physical health of MWC and UWSWCD staff that led the riparian revegetation work.

Priority Riparian Areas

Key Decisions

The following is a summary of some of the key decisions made as part of the emergency response efforts:

- Task Force partners relied exclusively on native seeds for all seeding and hydroseeding applications completed post-fire. We worked closely with Pacific Northwest Native Seed to develop a seed mix of native grasses and forbs. Seeding took place from October 2020 through early spring 2021 with excellent results. While costs were significantly higher for native seed stock, the PWP feels strongly that this was the correct choice and significantly decreased the introduction of non-native grasses to the McKenzie post-fire and will help save costs over time due to reduced future maintenance and restoration costs.

Native Seeds

Post-Fire Recovery

Jute Wattles

On-Site Cooler

- The Task Force also worked closely with an EWEB Environmental Specialist and the NYC to construct wattles using jute and native materials, including hand-collected willow cuttings and mulch from hazard tree clearing work along OR Highway 126. The jute wattles reduced the use of manufactured wattles with plastic netting and non-native straw in sensitive riparian areas. The jute wattles will largely be left in place and allowed to decompose over time. Like the use of the native seed, the PWP feels strongly that this was the correct choice and will save costs over time due to decreased future maintenance and restoration costs.
- The planting effort benefited greatly from the use of an on-site cooler. The cooler was rented through a regional supplier and placed at an EWEB-run park in the HFF burn perimeter. While the rental cost was significant, its presence on-site eventually saved thousands of dollars in project management and contracted labor that would have otherwise been devoted to coordinating pulls from coolers in Salem or Brooks.

FEMA Reimbursement

With the completion of the revegetation work the emergency response phase ended and work transitioned to a longer-term watershed restoration phase. The original $1 million authorized by the EWEB Board was adequate to cover the initial response costs and has been submitted to FEMA for Public Assistance reimbursement of up to 75% of those costs.

Restoration Focus

Longer-Term Watershed Restoration Phase

Following completion of the revegetation efforts, EWEB and the PWP team transitioned to a longer-term restoration focus that included all properties from "ridge top to ridge top" (i.e., not just focused on riparian and floodplain areas). This larger focus led to revising the property assessment process to include: collecting site information on fuels reduction needs; invasive vegetation issues; potential erosion problems; and revegetation needs. As part of this transition, EWEB moved from emergency response contracting to going through the formal bid process to establish five-year contracts for the various goods and services needed to support long-term restoration efforts.

Recovery Surcharge

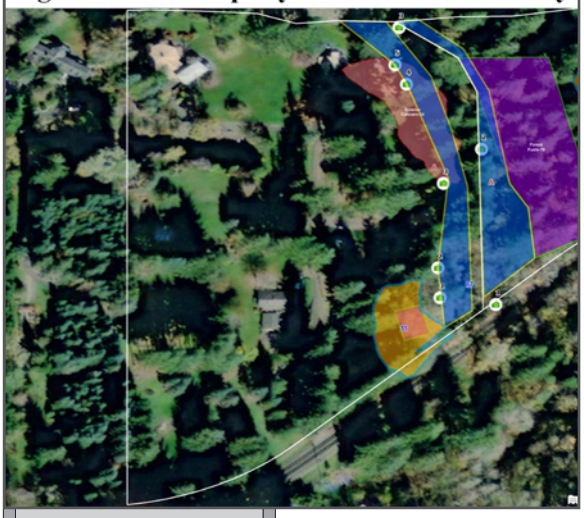
On March 2, 2021, the EWEB Board authorized $3.9 million for budget year 2021 to design and implement the next phase of watershed recovery and restoration work. This work will be funded through a newly established "watershed recovery surcharge" collected on monthly water bills starting in July 2021 and sunsetting in 60 months. EWEB recovery investments will be leveraged with FEMA, the Oregon Watershed Enhancement Board (OWEB), the Oregon Department of Forestry, and other funding to support implementation of the longer-term watershed restoration plan's three categories of investment:

Watershed Plan

1) **Risk-Based Early Actions**
2) **Resiliency Actions:** large scale floodplain restoration to mitigate ongoing impacts from burned landscapes and increase resilience to future disasters
3) **Strategic Actions:** focusing on carbon sequestration as an added benefit of watershed restoration (*see* Figure 8).

Figure 8: Watershed Restoration Project Categories

Figure 9: PWP Property Assessment GIS Survey



Risk-Based Actions: Water Quality

Activities in this category are intended to directly mitigate risks to water quality by focusing actions on properties in and around severely burned areas — i.e., building on and expanding the work done under the emergency response phase. Actions include: implementing erosion control measures; addressing invasive vegetation problems; mitigating fire fuels issues; establishing native vegetation; and incentivizing landowners to "rebuild smarter" along the river.

The PWP team conducts a streamlined property assessment for any landowner who requests this assistance and signs an access agreement. The assessment provides a scaled ranking for the level of risk associated with: erosion issues; fire fuel loads; invasive weed problems; and revegetation needs (*see* Figure 9). This helps prioritize the work conducted by the Northwest Youth Corps (NYC) and contractors as part of a seven-year PWP Watershed Stewardship agreement signed by the landowner. The PWP team is currently conducting assessments on hundreds of properties that will inform the fall workload and winter planting season. The PWP has so far secured over 500,000 native plants for the 2021/2022 planting season.

Riparian Move

Landowner incentive programs are designed to encourage moving homes and infrastructure away from the river's riparian area and out of the floodway and larger floodplain. The programs essentially make it cost neutral to the landowner by providing up to $7,000 in grants. In addition, EWEB provides grants and zero interest loans for septic system upgrades to protect water quality.

Septic System Upgrades

The State legislature approved $1.5 million for McKenzie Watershed septic system upgrades, repairs and replacement within the HFF impacted area — although the parameters for these funds are still under development.

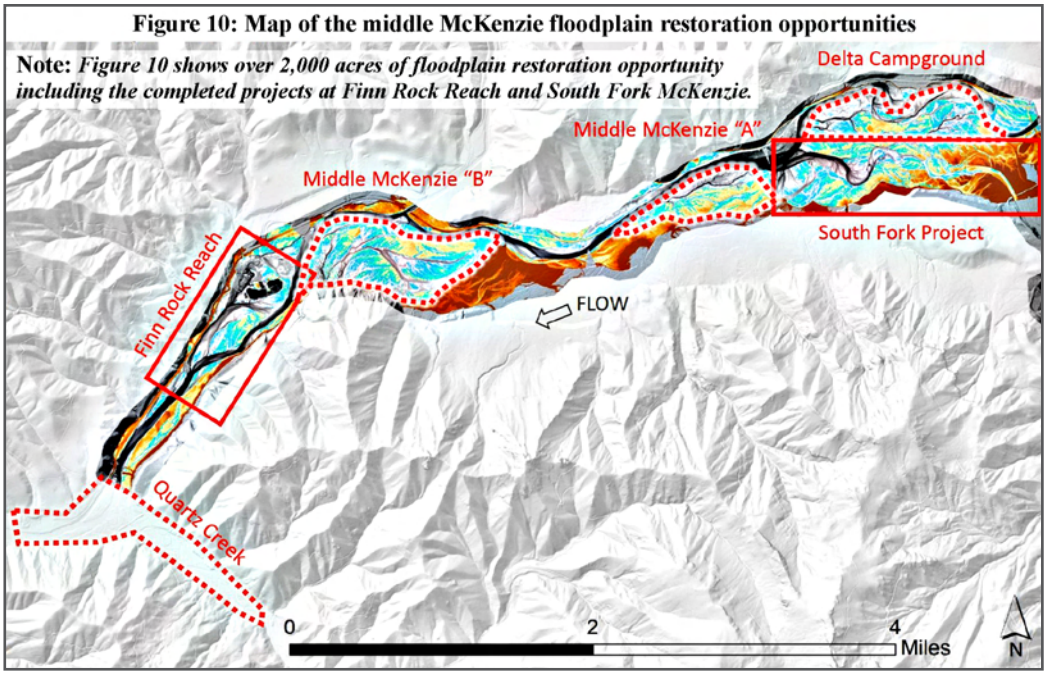
Resiliency Actions

In general, risk-based actions mitigate the more egregious situations while planning for longer-term resiliency investments to address larger scale issues of flooding, debris flows, and erosion from severely burned timberlands through landscape solutions like floodplain restoration downstream of burned areas. Resiliency actions include three types of projects:

1) **Large Scale Floodplain Restoration** to help mitigate burned landscapes upstream of those projects.
2) **Large Wood Projects on Tributaries** that are working in smaller floodplains. Large pieces of wood are placed instream to provide fish habitat and flow modification.
3) **Land Acquisitions** of properties with destroyed buildings in the riparian area and/or floodway. This prevents rebuilding of homes in the same footprint and removes this built infrastructure from these sensitive areas to allow for restoration.

Land Buy-Outs

Figure 10: Map of the middle McKenzie floodplain restoration opportunities



Post-Fire Recovery

Floodplain Restoration

EWEB is working with the MRT, USFS, MWC, and US Bureau of Land Management (BLM) to design and implement floodplain restoration projects in the middle McKenzie watersheds as part of longer term resiliency measures to mitigate fire impacts (*see* Figure 10). The goals of these projects are to restore ecological processes that create and maintain complex, diverse, and resilient habitat for native species to the middle McKenzie, while also providing drinking water benefits for downstream users. The desired future outcome is a return to a dynamic depositional reach with diverse aquatic, wetland, and riparian habitats historically found in valley bottoms by increasing the area that contains water at baseflow conditions. The floodplain restoration team completed two large-scale floodplain restoration projects in 2021: Upper Deer Creek (USFS) and Finn Rock Reach (FRR) Phase 1 (*see* Figures 11a and 11b).

Figure 11a: Aerial photo of Finn Rock Reach Phase 1 prior to floodplain restoration

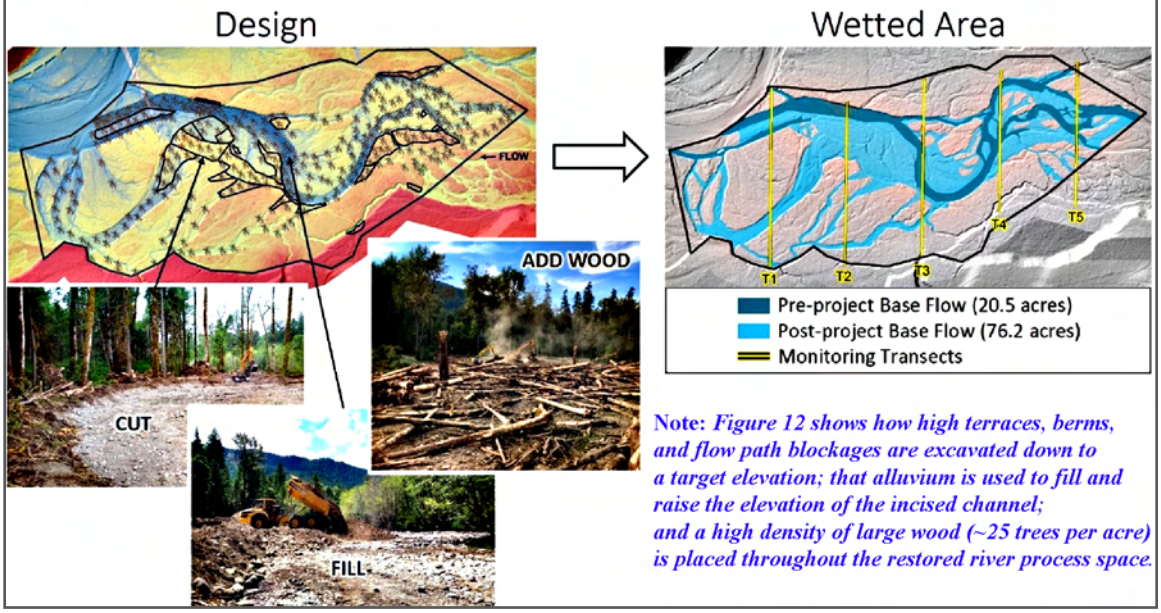
Figure 11b:
Aerial photo of Finn Rock Reach Phase 1 immediately following construction on August 31, 2021

Post-Fire Recovery

Floodplain Projects

These large-scale floodplain restoration projects are designed to shift restricted flow — confined to a single channel — to one that is hydrologically connected across several hundred acres of floodplain. These projects provide immediate benefits by: increasing the amount of slow-water habitat available to fish and wildlife; enhancing subsurface flow; dropping out sediment; filtering runoff to remove pollutants; and improving groundwater recharge — all of which have taken on greater significance in the post-Holiday Farm Fire landscape (*see* Figure 12). Post fire environments have "flashier" hydrology with higher rates of run-off and increased sediment inputs for several years after the event. The increased access to the floodplain and lowered velocities associated with these types of projects represent an opportunity to mitigate these and other future impacts associated with climate change, such as flooding, droughts, and wildfires.

Figure 12: Example of the floodplain restoration process on the South Fork McKenzie River



***Note:** Figure 12 shows how high terraces, berms, and flow path blockages are excavated down to a target elevation; that alluvium is used to fill and raise the elevation of the incised channel; and a high density of large wood (~25 trees per acre) is placed throughout the restored river process space.*

Current Work

The floodplain restoration team is currently working to complete: hydraulic modeling; restoration project designs; National Environmental Policy Act (NEPA) environmental assessments; cultural resource surveys; and various local, state, and federal permitting for three floodplain restoration projects within the HFF-impacted area of the middle McKenzie valley. These project areas include Finn Rock Reach of the McKenzie River (Phase 2), Quartz Creek, and the former Delta Campground area that was destroyed by the fire (*see* Figure 10). Funding for this work will be provided by EWEB, OWEB, and FEMA's Hazard Mitigation Grant Program with a total price tag of approximately $5 to 6 million to implement these three projects. In addition, there is an opportunity for similar floodplain restoration projects in South Fork McKenzie (continuing upstream), lower Gate Creek, and Ennis Creek. These projects are all located in heavily burned areas where the potential for landslides and erosion is high. Slowing flows and trapping sediment through natural processes provides significant water quality benefits.

Landslides & Erosion

Large Wood Placement

The second part of resiliency actions — given the large landscape impacts of the HFF — is to design and implement large wood projects in key tributaries. These tend to be higher gradient streams with minimal floodplain area, so the actions create features that reduce velocities, allow sediment to drop out, and enhance habitat for aquatic organisms. These projects use the well-developed practice of tipping whole stream-side trees into the channel as structural anchors and placing other large pieces of wood instream amongst these anchor trees to provide fish habitat and flow modifications. Tributary large wood projects may also include limited removal of sediment to reopen side channels that were likely dammed during historic timber harvest or road construction. One tributary large wood project was completed in 2021 by MWC in partnership with BLM on the lower Deer Creek area and two more projects are in planning and design for North Fork Gate Creek and Martin Creek. Approximately six to eight other opportunities are being pursued for tributaries that drain severely burned areas to mitigate for water quality impacts and provide additional fish habitat. These projects are simpler to design and implement and involve only minimal permitting. The main limiting factor

Flow Modification

Figure 13: Large wood placement in Lower Deer Creek (2021)

Post-Fire Recovery

Hazard Trees Use

is having a nearby source of large wood that can be used for the project to reduce costs and in this case, take advantage of nearby hazard trees. These projects cost approximately $100,000 to $300,000, depending on the size and scope of the site, proximity to wood source(s), and other factors.

Partners are planning for implementation of a large wood placement project on the North Fork Gate Creek in 2022. The project will follow design and BMPs developed over the past decade by local partners including the BLM, USFS, and MWC (*see* Figure 13). The North Fork Gate Creek project will use HFF hazard trees salvaged from BLM lands to add over 1,000 pieces of large wood along 3.25 miles of stream and 25 acres of floodplain. Project partners on the North Fork Gate Creek project include BLM, EWEB, MWC, Weyerhaeuser, and the Oregon Department of Fish & Wildlife. A similar project is also being planned for Marten Creek in 2023.

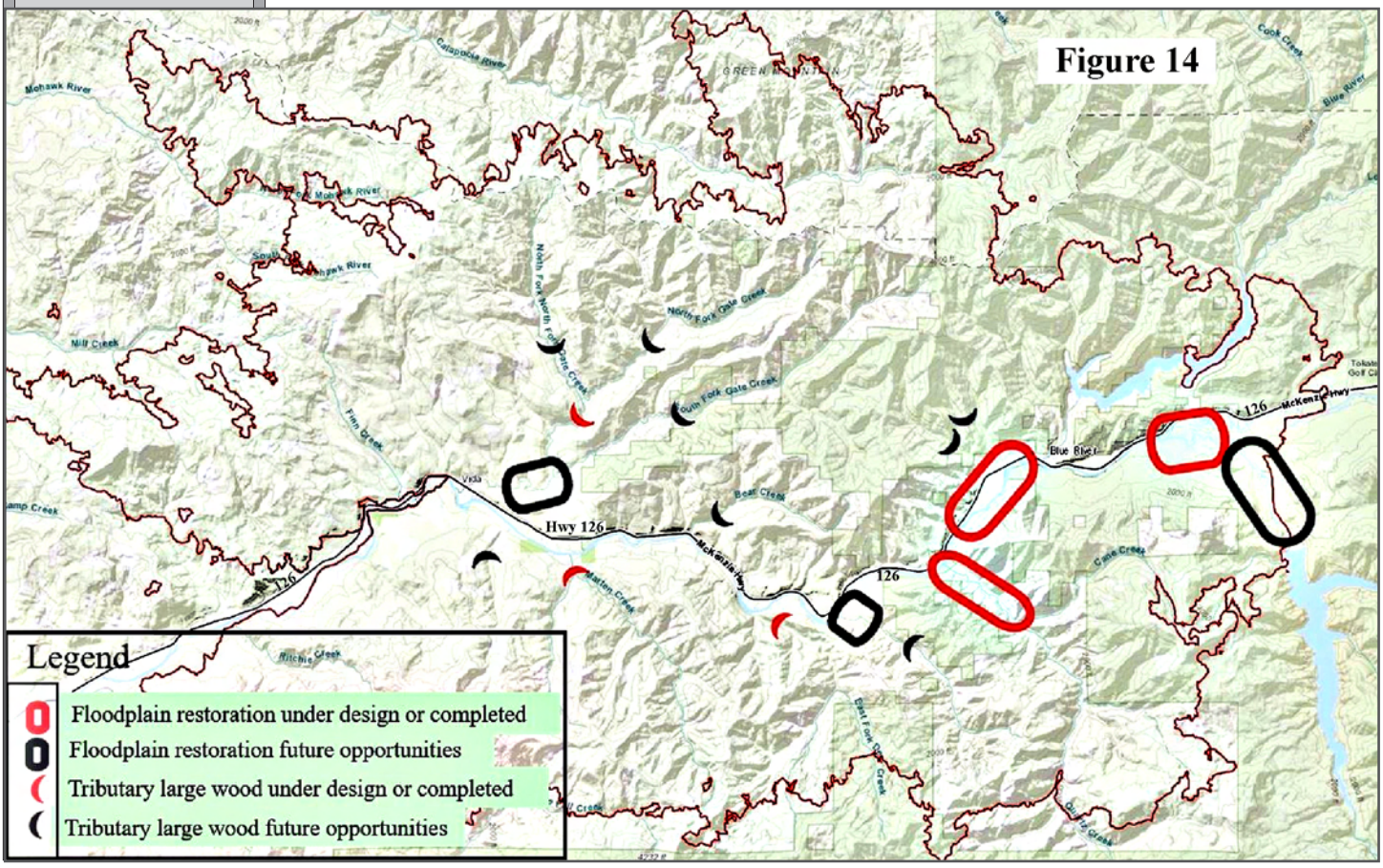
The large-scale floodplain restoration and tributary large wood projects that have been completed or are currently in design and permitting, and the potential locations of future projects are summarized in Figure 14.

Prioritized Projects

Table 1: Prioritization of these projects is based on the following criteria:

Tributary Large Wood Projects	Large Scale Floodplain Restoration Projects
Landowner opportunity that supports project	Ownership/Conservation Easement
Water quality improvements	Water quality improvements
Size of burned landscape drained	Size & gradient of floodplain
Nearby source of large wood	Size of burned landscape drained
Project accessibility	Project Costs and ability to permit project
No structures or infrastructure impacted	No structures in permit area
Habitat enhancement potential	Habitat enhancement potential
Project Costs	Nearby source of large wood

As indicated in Figure 14, if the floodplain restoration and tributary large wood projects across the burned landscape are successful, over 70% of the drainage area impacted by the HFF will be treated by these projects.



Post-Fire Recovery

Conservation Sales

Floodplain Properties

Carbon Sequestration

Local Funding Access

Climate Change

Local Infrastructure

Existing Partnerships

The third category of resiliency actions includes working with willing landowners who lost their homes in the HFF to consider selling at fair market value for conservation purposes. These actions are focused on properties with structures/infrastructure within the floodway. MRT shares the cost of these acquisitions with EWEB 50/50 and provides long-term stewardship of these properties. EWEB is funding the removal of infrastructure and site stabilization work. Longer-term restoration of these properties is incorporated in the Risk-Based work. The total annual budget for these types of acquisitions is $3 million and will occur over a two-year period.

To date five parcels have been acquired, removing homes and infrastructure from the floodway and putting 20 acres into conservation. These floodway properties will be held by MRT to ensure the land's water quality, fish and wildlife, and their habitat, and other conservation values will be protected in perpetuity. MRT can transfer title to a third party if circumstances dictate the need. The new title holder would similarly hold the parcels for long-term conservation purposes via use of conservation easements or other such assurances.

Strategic Actions

Strategic actions include assessing opportunities to combine large scale watershed restoration efforts and potential land acquisitions with maximizing carbon sequestration as a natural climate solution. EWEB is working closely with the University of Oregon's Soil-Plant-Atmosphere Research Lab and have started a 140-acre carbon research forest that is converting pasture land to riparian and floodplain forest using a variety of native trees and shrubs while experimenting with techniques to maximize soil carbon storage. The U of O research is focused on enhanced carbon sequestration and its application to large-scale floodplain restoration projects as they create depositional environments where carbon can become secured in the subsurface and is protected from release during future fires.

Conclusions

The Holiday Farm Fire and other 2020 Labor Day wildfires were extraordinary events that altered landscapes throughout western Oregon and have since shaped the lives and work of those impacted. For this reason, the watershed recovery work conducted by PWP member organizations is fundamentally different than the traditional projects with which utilities, watershed councils, SWCD's, and land trusts have engaged in the past.

What became apparent is the importance of having access to local funding sources to conduct this critical work in the initial stages of the response. EWEB provided an initial investment of $1 million, which turned out to be appropriate for the level of response carried out by the PWP. FEMA, EPA, and State resources were not available for months after the fire. Establishing local emergency funding sources ahead of disasters allows local organizations already working with landowners to engage in this work confidentially and quickly until other resources become available. FEMA will reimburse EWEB for 75% of its initial investment, so establishing other local sources of emergency funding ahead of disasters can be done knowing that later reimbursements will replenish these local funding sources for future needs.

Given that climate change driven disasters are more frequent and devastating, increasing local capabilities to effectively respond will increase community resiliency and allow outside resources to plug into local response infrastructure. A good example of this is when the Oregon Department of Forestry (ODF) had emergency funding in May 2021 to support fuels reduction work on non-industrial timber properties, but these funds had to be spent within the state budget year that ended June 30, 2021. The PWP was able to quickly assess landowner properties for high priority fuels work, design treatments, and use the NYC and contractors to address significant fire fuels issues on 35 properties ahead of the funding deadline. Having well-developed partnerships established and shared fiscal and programmatic infrastructure has allowed investments from a variety of sources that may not have happened otherwise. To date, over $20 million has been secured and an additional $7.5 million is pending from utility rate payers, with State legislature investments, FEMA, ODF, OWEB, USGS, congressional support, and other sources to support watershed recovery and restoration efforts also available.

As previously mentioned, a fundamental aspect of the PWP's wildfire recovery work is the value of solid collaboratives. Local partners could not have moved as quickly or efficiently as they did without the nearly ten years of intentional partnership organized through the PWP. This framework not only developed the templates for shared funding, fiscal administration, cooperative outreach, and coordinated fieldwork. Perhaps more importantly, it created an environment of trust and understanding among numerous partner agencies and organizations.

Post-Fire Recovery

The lesson learned is that the structured collaborative environment that the PWP built *before* the Holiday Farm Fire allowed for partner organizations to respond at a scale, scope, and speed that dwarfed any previous watershed restoration or outreach effort undertaken in the McKenzie Watershed. This work will continue for the next five years in hope these watershed restoration actions following the Holiday Farm Fire sets a trajectory for landscapes that are more fire resilient, attenuate floods, and increase water storage to mitigate droughts while providing exceptional water quality and aquatic habitat.

For Additional Information:
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Karl Morgenstern became the Watershed Restoration Program Manager for the Eugene Water & Electric Board (EWEB) in October 2020, leading the response to the devastation of the Holiday Farm Fire. Previously he was the Source Protection & Water Quality Supervisor for EWEB and managed EWEB's Watershed Protection, Water Quality Laboratory, and Water Quality Compliance groups. He has spent twenty years at EWEB developing and implementing a drinking water source protection program to safeguard Eugene's sole source of drinking water — the McKenzie River. This program focuses on assessing and understanding the various threats to drinking water and working with numerous partners and watershed stakeholders to implement actions that mitigate for these threats. He is currently leading the Watershed Recovery Task Force as part of Lane County Emergency Operations in response to the Holiday Farm Fire. Prior to EWEB, Karl spent ten years at the Oregon Department of Environmental Quality (DEQ) and seven years as an environmental consultant managing high priority cleanups at abandoned hazardous waste sites and responding to hazardous material spills. While at DEQ he helped develop the time-critical removal program and abandoned mines program. He received a bachelors degree in geography from the University of Kansas. Karl is on the Board of Directors of the East Lane Forest Protection Association, Carpe Diem West, and the McKenzie Watershed Council and represents EWEB on the EPA Columbia River Toxics Reduction Working Group.

Montana Water Decrees

FINAL WATER DECREES IN MONTANA

THE FIRST MILESTONE ON A LONG ROAD

by Eyvind Ostrem and Russ McElyea, Montana Water Court (Bozeman, MT)

Final Decree

Introduction

The Montana Water Court recently issued the first final decree in Montana's statewide adjudication of water rights. Although many more final decrees remain to be completed, the first final decree is an important milestone and the product of decades of work.

This article examines the history of Montana's general stream adjudication, how the process works today, and what final decrees mean for Montana's future.

Background: A History of Montana Adjudications

Use Rights

Decreed Rights

Filed Rights

Montana's territorial Supreme Court adopted the Prior Appropriation Doctrine twenty years before statehood. Water users initially had two options for appropriating water. The first required only diversion and beneficial use, resulting in a use right. This method was practical, but it made defining a water right and defending it from attack difficult because records were rarely kept. The second method of establishing a water right involved litigation in district courts, which was often caused by disputes over poorly documented use rights.

Recognizing that better record keeping might reduce litigation, Montana's Territorial Legislature adopted a statute allowing water users to claim water rights by filing Notices of Appropriation at the county clerk and recorder's office. Water rights appropriated under this system became known as "filed rights" and represented an important step toward clarifying claims to water.

Ongoing Confusion

Despite the ability to document water rights through Notices of Appropriation, litigation remained necessary when disputes arose. The result was ongoing confusion. Many rights remained poorly defined even after litigation concluded. Water users often used rights in ways that differed from their notices of appropriation, and district court decrees rarely encompassed all the rights on the source of water. An example was Dempsey Creek, where the local district court issued thirteen decrees, but never a unified decree that included all water rights and bound all water users.

To aggravate matters further, district courts did not have jurisdiction over federal or tribal interests, resulting in both federal and state court decrees. This piecemeal system continued until several events set the stage for a statewide general adjudication.

McCarran Amendment

The first event was passage of the McCarran Amendment by the United States Congress in 1952 (43 U.S.C. § 666). This legislation authorized state courts to hear water disputes involving federal entities.

The next event was Montana's adoption of a new constitution in 1972. The new constitution recognized and confirmed all existing water rights and directed the legislature to provide for establishment of a centralized system of records to document those rights.

Water Use Act

Adjudication System

In response to the McCarran Amendment, and mindful of its fresh constitutional mandate, the legislature passed the Water Use Act of 1973. The legislature intended the Water Use Act to accomplish two broad goals. The first was a statewide permitting system for new water rights and the second a statewide adjudication system for previously existing rights. The objective was to have all water rights — both existing and prospective — defined in a centralized system rather than the fragmented system that had been used for decades.

Benefits

The legislature also had other reasons for seeking a comprehensive statewide adjudication. Legislators perceived that documenting existing rights would benefit Montana if litigation with neighboring states arose and protect against demands for water by out-of-state interests. In addition, proponents of the new legislation argued water could be more easily administered, future disputes more easily resolved, and the availability of water for future use more easily determined. The legislature also wanted Montana courts rather than federal courts to adjudicate water disputes.

First Comprehensive Attempt

Montana began its first attempt at a comprehensive adjudication in the Powder River country, where resolution of disputes over water was a priority. The first attempt failed because it was cumbersome and impractical. The new process was initiated by the Montana Department of Natural Resources and Conservation (DNRC), which was required to gather the following information in each basin:

- All prior district court decrees adjudicating water rights prior to July 1, 1973
- All declarations of existing rights filed by each person claiming such a right
- All records of rights claimed under the groundwater code
- All Notices of Appropriation

Montana Water Decrees

- Any records filed under prior statutes
- All records of water rights filed in connection with the Yellowstone River Compact legislation [Editor's Note: The Yellowstone River Compact was ratified in 1950 and became effective in 1951. The interstate Compact was entered into by Montana, North Dakota, and Wyoming.]
- The findings of water resources surveys
- Any other information based on inspections, surveys, or investigations made by the department of the area involved

Once compiled, DNRC submitted this information to the local district court judge who was expected to issue a decree of all water rights in the basin and then hear any cases arising from that decree.

District Court Burden

There were several problems with this plan. First, it placed a massive burden on the district courts, which were already taxed and often lacked water rights expertise. During its early work in the Powder River country, DNRC learned that 70% of local water rights were completely undocumented, which required it to train experts who could investigate those rights in the field. As a result of these and other issues, not a single water right was adjudicated after five years of effort. The legislature determined changes were needed to meet the goal of a successful general adjudication.

Specialized Water Court

Prima Facie Claims

The new solution was establishment of a specialized Water Court and a mandatory statewide claim filing deadline. Rather than placing the initial burden on the claimant to prove their rights, the legislature decided to give claims prima facie status and place the burden of disproving inaccurate claims on other water users. The Montana Supreme Court established a claim filing deadline of April 30, 1982, and Montana's current version of a statewide adjudication was born.

Contemporary Water Right Adjudication in Montana

Water Court

Montana's Water Court (Court) is a special court created by the 1979 legislature to exercise limited and exclusive jurisdiction over water rights existing as of July 1, 1973 (Existing Rights). Today, the Court is made up of the Chief Water Judge and Associate Water Judge, each appointed by the Chief Justice of the Montana Supreme Court; eleven Water Masters appointed by the Chief Water Judge; and staff consisting of the court administrator and approximately eight judicial assistants. The Water Court tackles the statewide adjudication of all Existing Rights in the state from its office in Bozeman, Montana, though members of the court travel throughout the state as needed to conduct hearings and site visits.

Claims Filing

All water users in Montana were required to file statements of claim for their water rights by the 1982 deadline or forfeit their water rights. That deadline was extended, and DNRC accepted late claims until July 1, 1996. In response to the deadlines, water users filed over 219,000 claims for Existing Rights (water rights in existence as of July 1, 1973). That figure excludes the approximately 25,000 claims to livestock and individual domestic uses based on instream flow or groundwater sources that were exempt from the original claim filing deadlines.

Historic Use

Montana's water right adjudication process seeks to define and finally decree all claimed Existing Rights as they were used historically, prior to July 1, 1973. While the process has evolved over almost four decades, it has generally followed the same formula:

General Process

1) DNRC reviews claims to Existing Rights in one of Montana's 85 water basins
2) The Water Court publishes one or more interim decrees of claims to Existing Rights in a basin, allowing water users to review those claims and object to inaccurate claims
3) The Water Court resolves all issues identified by the DNRC and hears all objections to claims in the interim decree
4) The Water Court issues a final decree of all Existing Rights in a basin

Agency Review

The first step in the adjudication process — DNRC's review of Existing Right claims — serves to identify common filing errors. From an early stage, it was apparent that some form of claim review would be necessary. That review started out as a process called "verification" — which served primarily to ensure claims were properly entered into the water right database. Verification included some brief review of the claims' substance including aerial photo examination to verify the claimed number of acres irrigated.

Examination Rules

In 1991, the Montana Supreme Court adopted the Water Right Claim Examination Rules, which replaced the verification process with a more thorough review. The examination rules, later amended in 1996, require DNRC to take a closer look at claims by reviewing: aerial photographs; maps; Water Resources Survey information; and other information.

Closer Look

As part of this review, DNRC seeks to:

- identify and standardize sources, points of diversion, and ditch names;
- identify situations where more water was claimed than was decreed or declared on a notice of appropriation; and
- identify claims that reflect multiple uses of a single water right.

Montana Water Decrees

Flow Limit (Standards)

The Claim Examination Rules also prompt DNRC to contact claimants or allow DNRC to change certain claim elements when those elements fall outside certain guidelines. For example, the rules permit the DNRC to reduce flow rates of irrigation claims for use or filed water rights to a guideline of 17 gallons per minute per irrigated acre.

To correct for the different standards applied to claims under the previous "verification" process (versus the Claim Examination Rules), the Water Court issued a reexamination order in 2012. This order directed a limited-scope reexamination of those claims that were not previously subject to review under the claim examination rules.

"Issue Remarks"

When the DNRC makes changes to water right claims or identifies issues during its examination, it notes those issues and changes by placing "issue remarks" on the claims. Once DNRC has examined all claims in a potential decree, the Water Court issues a decree and resolves issue remarks and objections to the claims in that decree.

Interim Decrees

The Water Court initiates litigation with the issuance of interim decrees. These decrees provide water users an opportunity to review water right claims and object to those that do not accurately reflect historical pre-1973 water use. After DNRC identifies issues with claims, it submits a summary report of water right claims in the basin to the Water Court. The Water Master assigned to the basin reviews the summary report for errors and checks the Court's basin files and claim-specific notes for any additional issues with the claims. These issues are corrected when possible or added to the claims as issue remarks. When the Water Master is satisfied that the decree is ready for public scrutiny, the Water Master provides a memorandum to the Chief Water Judge to that effect, and the Water Court issues its decree.

Decree Components

Water Court decrees, whether interim or final, contain two components:

1) Findings of Fact and Conclusions of Law describing the nature and extent of the decree and incorporating the terms of any ratified compacts
2) Water right claim abstracts for each water right in the decree: claim abstracts are summaries of water rights – typically one to three pages in length – that include the following elements:
   (a) name and address of the owner;
   (b) amount of water usually quantified by flow rate, volume, or both;
   (c) priority date;
   (d) purpose;
   (e) the place of use;
   (f) source;
   (g) place and means of diversion;
   (h) period of use; and
   (i)any other information necessary to fully define the nature and extent of the right.

Notice of Decree

The Water Court publishes notice of the entry of a decree on its website, in newspapers in the basin, and by mailing it to water users in the basin. The notice provides water users 180 days to review the claims in the decree and file objections if they believe claims require correction to reflect historical use. To assist water users, the Water Court also issues indexes of decrees by: source; owner; point of diversion; priority date; and water right number. Generally, any person in the basin or in another hydrologically-connected basin that would receive notice of the decree may file an objection to a water right claim.

Objections

Often, claimants file objections to their *own* water rights to correct errors made during initial filing in the 1980s. Errors were common when everyone was new to the process of filing water right claims, including some water users filing duplicate claims for a single water right or attempting to claim multiple rights via a single statement of claim. Errors occurred when water users attempted to describe complicated marshaling processes and multi-step conveyance systems on simplified claim forms. Some people claimed what they planned to use in the future, rather than what they used historically, and they commonly made mistakes listing the legal land descriptions of their points of diversion and places of use. The objection process allows claimants to address these errors without the expense of providing personal notice to all water users that might be harmed by a correction.

User Corrections

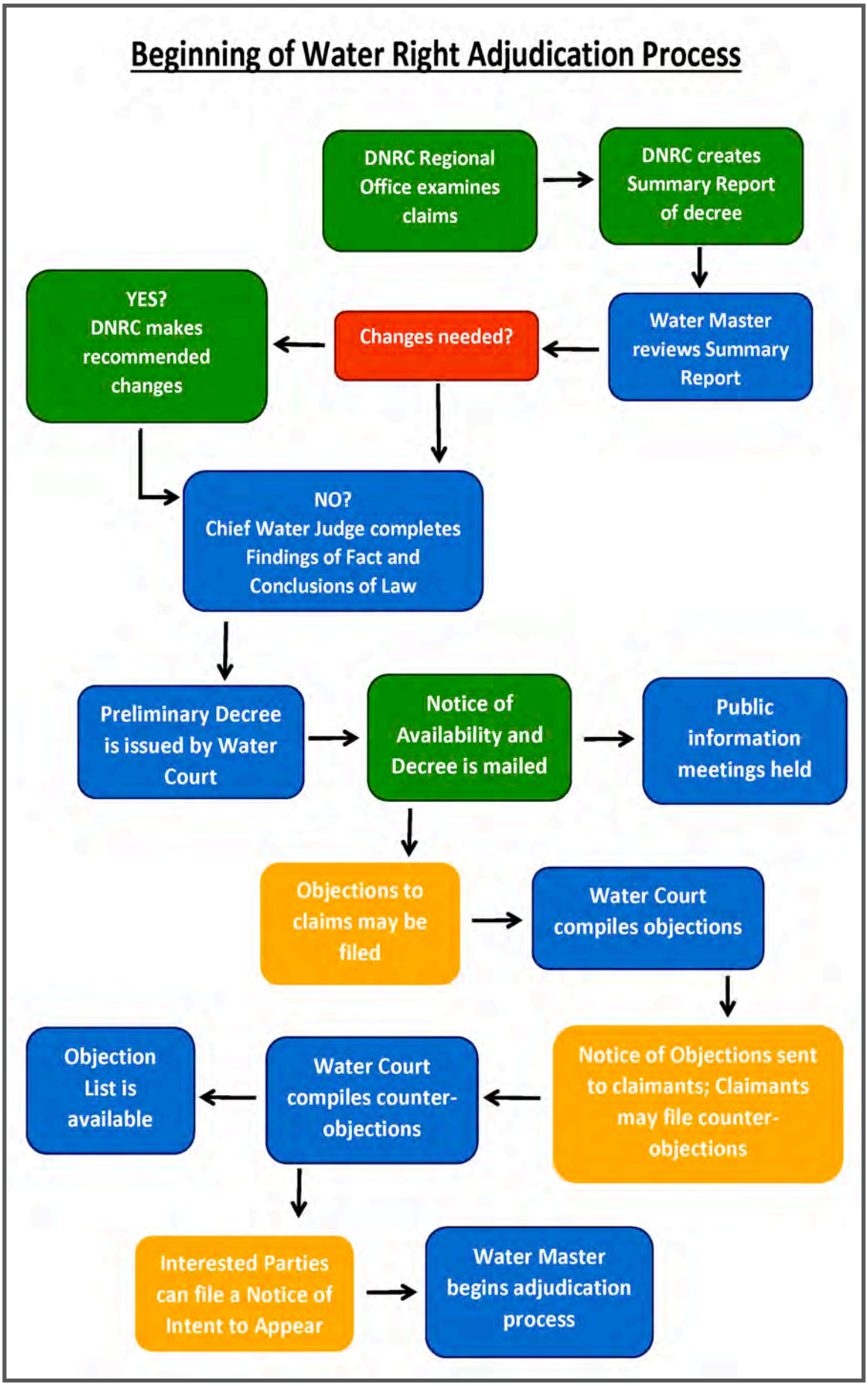
DNRC Changes

The objection process also provides an opportunity for claimants or other water users to weigh in on changes DNRC made during its examination. For example, claimants may disagree with: the application of a standardized source or ditch name; a reduction in flow rate to 17 gallons per minute per acre irrigated; or the modification of the legal land description for where they divert water.

Other Users' Objections

Claims also receive objections from other water users. Objections from individuals, ditch companies, United States agencies and the State of Montana are all common. The scope of objections to water right claims is too broad to address in this article, but common examples include: requests from the United States Forest Service to exclude federally-owned land from private claims; requests from the State of Montana to correct ownership of water appropriated by lessees on land owned by the State's school trust;

Montana Water Decrees



Montana Water Decrees

Objections List

Intent to Appeal

and objections from neighboring water users that claimants have over-claimed some element of their water rights. Once the objection period expires, the court provides notice of objections to any claimant that received an objection. Those claimants then have an opportunity to file "counterobjections" against the claims of the objecting water user.

The Water Court notifies the public of the issues it will hear via an objection list identifying all claims that received objections, counterobjections, or issue remarks, and briefly describes the claim elements at issue. Water users can review this objection list and file a Notice of Intent to Appear in proceedings that might affect their rights. This allows water users to monitor the changes other claimants are attempting to make to their claims and participate in proceedings to help ensure claims are not expanded or otherwise modified beyond historical use.

When an interim Water Court decree has been issued and all deadlines for participation have passed, the Water Master assigned to the basin begins proceedings on each claim in the basin that received issue remarks or objections. For small decrees, such as interlocutory decrees that include only a handful of exempt claims, the process may be brief. However, for Preliminary Decrees including all water right claims in a basin the adjudication process can take years.

Claims Consolidation

Water Masters or judges begin by consolidating water right claims into cases to efficiently resolve the issue remarks and objections to each claim. A Water Court case may include one or more water right claims and there is no formula for the order in which decreed claims are adjudicated. The Water Master or judge considers several factors when consolidating claims to facilitate efficient adjudication, including: ownership; objectors; other claims on a source or ditch; and other claims with similar objections or issue remarks.

Once claims are consolidated into cases, the Water Master or judge proceeds to address issue remarks and objections. These proceedings partially resemble those of a typical district court. The Montana Rules of Civil Procedure, the Montana Rules of Evidence, and the Uniform District Court Rules all apply to Water Court proceedings. Reports filed by Water Masters are adopted, amended, or rejected by a water judge. Decisions from the water judges can be appealed to the Montana Supreme Court. In practice, however, the process often takes a different shape than traditional civil litigation due to: the unique prima facie status given to water right claims; the fact that the Water Court has a file of evidence at the beginning of each case; the separate procedural rules and statutes that govern the adjudication; and the common lack of adversarial parties.

Prima Facie Status

The starting point for the Water Court's adjudication of issue remarks and objections is the prima facie status the Water Use Act confers on water right claims. In practice, this status means that the Water Court considers a water right claim an accurate representation of historical pre-1973 water use *unless* evidence is provided to the contrary. Objectors must support their objections with a preponderance of the evidence. This relatively modest standard prevents claims from being modified arbitrarily, while allowing for changes consistent with historical use.

Water Court Actions

Some issue remarks are unsupported and fail to overcome the prima facie status of the claims. Others serve only notice purposes, like informing claimants of a DNRC change under the reexamination order. When issue remarks suggest a claim is inaccurate, the Water Court attempts to resolve the remarks by reviewing information in the claim file, requesting information or evidence from the claimant, or ordering the claimant to work with DNRC. The court can also request DNRC's assistance in conducting field investigations or otherwise providing information to the court. Information provided by DNRC is excepted from typical hearsay limitations placed on other courts pursuant to the Water Right Adjudication Rules.

Modifying Claims

Claimants help resolve some issue remarks by explaining the circumstances leading to the remarks. Other issue remarks require modifications to claims. When modifications are necessary, the Water Court issues an order making the required changes to the claim in the state's centralized water right database. When issue remarks involve non-perfection or abandonment of a water right and the court is unable to resolve the remarks, the Water Court joins the Attorney General to the case as a party to protect the state of Montana's interest. In the event an issue remark cannot be resolved despite claimant participation, the Water Court conducts an evidentiary hearing on the remark. (Non-perfection means failure to take the steps needed to have a water right recognized under then existing law. Abandonment means loss of a water right caused by intent to discontinue use or non-use).

User Claims Litigation

Claimants are often the only parties to a water right case. When claimants file objections or otherwise seek to amend their own claims and no other parties are involved, the proceedings follow a similar track to issue remark resolution — i.e., the court looks for evidence supporting any proposed modifications to a claim. Claimants have the burden of overcoming the prima facie status of their claims, with the preponderance of the evidence, even if there are no other parties in the case.

When claims receive objections or notices of intent to appear from parties other than the claimants, the Water Court typically asks whether the parties want to proceed with a formal litigation path or pursue

Montana Water Decrees

Supporting Evidence

Compacts

Amended Claims

Exclusive Jurisdiction (Historical Use)

First Final Decree

800 Water Rights 12 Basins

settlement of their objections during an informal settlement period. Most objections are settled informally. However, because water right claims are entitled to prima facie status, the court must still review agreements to assure claims are not expanded beyond historical use. Except in situations where claimants agree to simply reduce elements of their water right claims, all modifications must be supported by a preponderance of the evidence. As a result, unlike typical civil litigation, a stipulation from an opposing party does not necessarily result in dismissal of a case. Parties must submit evidence to support changes requested in their stipulations. When objections cannot be resolved in informal settlement, the Court places parties on a formal hearing track. The parties follow a typical litigation schedule, conducting discovery, and exchanging witness lists, which culminates in an evidentiary hearing before a Water Master or judge.

Outside of the basin-by-basin adjudication of state-based claims to Existing Rights, the Water Court takes on several other duties on its path to final decree issuance. First, it issues preliminary decrees including water right compacts. Compacts are agreements between "sovereigns" — i.e., other states, tribes, and the United States — that resolve competing claims to water use. They are negotiated between the parties, codified by the respective governments, and issued in a Water Court decree. Water users can object to the compacts as they could to any other water right, but the Water Court applies higher standards to objections questioning the reasonableness of compacts.

Second, the Water Court hears motions to amend water right claims that claimants file outside the normal decree issuance process. Until the issuance of final decrees, water right claimants can move the Court to amend their water rights. If the amendment is filed outside the period for objections, notice of potential changes is not provided by the Water Court's objection list. Thus, to ensure other water users can participate in any proceedings that might adversely affect their water rights, a party moving to amend a claim is required to publish notice of their motion. If the motion to amend is accepted by the Court, it is treated like an objection to the water right, and modifications that are sufficiently supported are made in the water rights database and integrated into the final decree.

Finally, because the Water Court has exclusive jurisdiction over adjudicating Existing Rights, the district courts of the state of Montana must certify questions regarding such rights to the Water Court for determination. When a water distribution dispute arises in district court — but depends on a determination of historical use — the district court typically stays its case and requests a determination from the Water Court. The Water Court prioritizes these certification cases to minimize the burden of switching between courts.

After all state-based claims in a basin have been examined and decreed, all objections and issue remarks have been resolved, and any compacts have been ratified and objections heard, the Water Court issues a final decree establishing all Existing Rights in the basin.

On July 12, 2021, the Water Court issued the first final decree to make it through this water right adjudication process: the Final Decree of Water Rights for Turtle Mountain Band of Chippewa Indians.

Final Decree of Water Rights for Turtle Mountain Band of Chippewa Indians

The Turtle Mountain decree covers over 800 water rights in twelve basins. The United States filed these water rights on behalf of the Tribe and its members for use on allotment lands. In 2016, the Water Court consolidated all claims into a single Preliminary Decree and opened an objection period. Neighboring water users filed objections, but all issues were resolved without trial. The elapsed time between issuance of the Preliminary and Final decrees was about four years. According to the United States, over 7,000 tribal members have claims to allotment lands referenced in the final decree. Allotment lands are tribal lands granted to individual tribal members under the General Allotment Act of 1887, also known as the Dawes Act.

The Turtle Mountain decree is significant for several reasons. It marks the first time tribal water rights have been adjudicated by a Montana state court, and it's the first final decree issued by the Water Court in the modern era of Montana's general adjudication.

By the time this article is published, the Water Court will likely have issued another final decree, and many more will follow. These decrees signal the end of the adjudication process conceived by the legislature decades ago. They also signal changes in how water will be administered in the future.

Questions

Whether the legislature's goals in creating a statewide adjudication have been met is the subject of a more comprehensive article, but several topics merit discussion here as impacts from issuance of final decrees come into focus.

The first question is whether the legislature has taken adequate steps to prepare for the statewide administration of water now that final decrees are a reality.

Montana Water Decrees

McCarran Amendment

The McCarran Amendment addresses both the adjudication and administration of water rights. Congress authorized state court jurisdiction over the United States and the Tribes "for the adjudication of rights to the use of water of a river system… ." 43 U.S.C. §666(a). The McCarran Amendment also allows joinder "for the administration of such rights" where the United States owns water rights created under state law and is a necessary party to the action. *Id.* That grant of jurisdiction was limited to the context of general stream adjudications. A "general stream adjudication" is one in which the rights of all claimants on a stream system, as between themselves, are ascertained and officially determined. *California v. Rank*, 293 F.2d 340, 347 (1961). This raises questions about which courts have jurisdiction to join the United States and the Tribes in cases involving the administration of water rights.

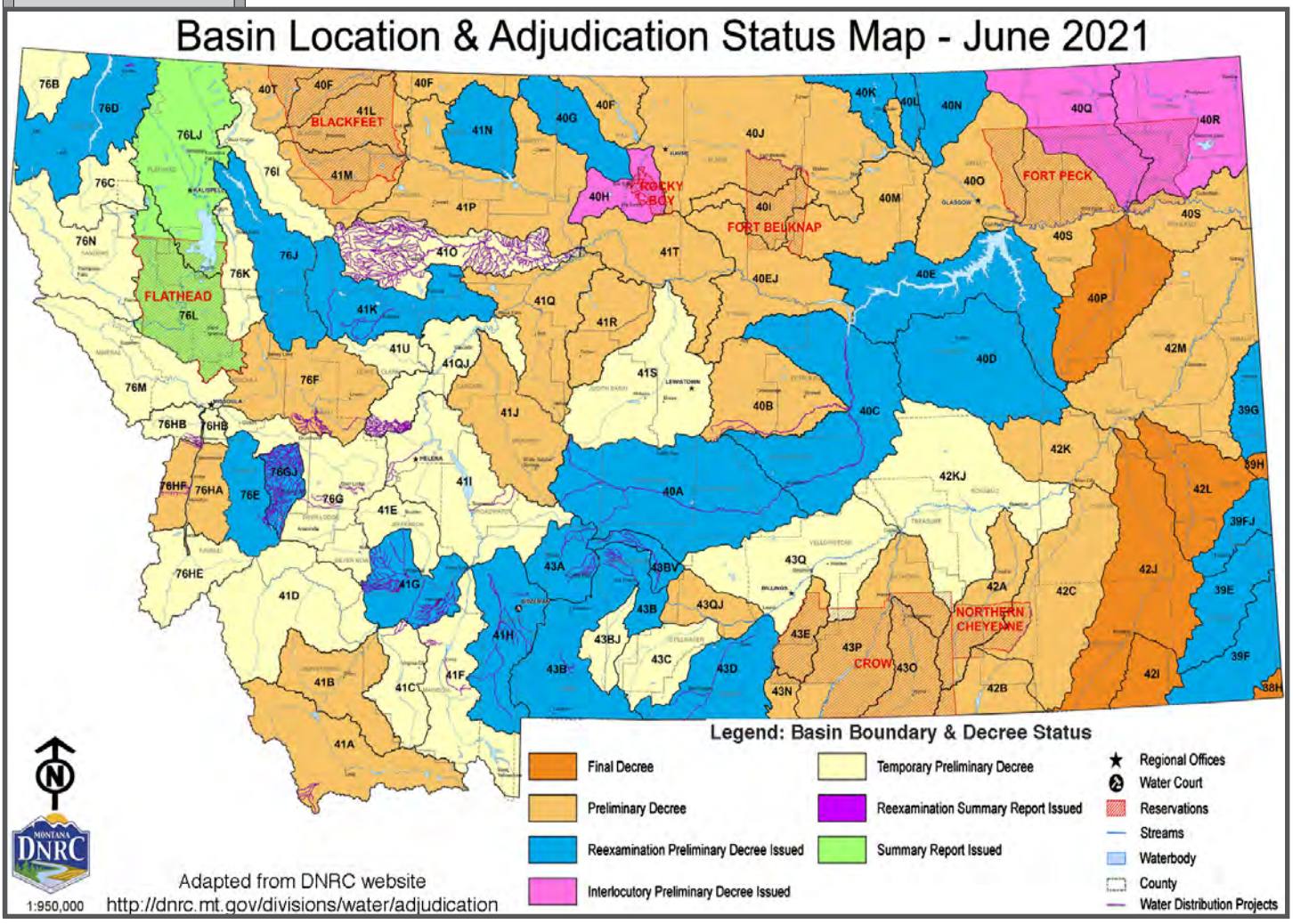
Water Distribution

Although the legislature created the Water Court to adjudicate water rights, it did not vest that court with jurisdiction to administer those rights. The power to administer water rights remained with state district courts, which do not typically have jurisdiction over federal or tribal entities.

So far, there hasn't been a test of a Montana state court's ability to add the United States or a Tribe to a lawsuit over distribution of water. Most tribal rights in Montana have been settled through negotiated agreements called Compacts, and some of those Compacts address conflicts over future administration of Tribal rights. While some Compacts referred to courts of "competent jurisdiction" as forums for resolution of future disputes, that term was left undefined. It is not clear whether a court of competent jurisdiction means a federal court, tribal court, a state district court, or the Montana Water Court.

State Court Jurisdiction

Potential questions over the future role of federal courts were addressed in *State Eng'r v. S. Fork Band of the Te-Moak Tribe of W. Shoshone Indians of Nev*., 339 F.3d 804 (2003). There, the Ninth Circuit invoked the doctrine of prior exclusive jurisdiction to preclude efforts to have a federal district court administer a decree of water rights issued by a state court. The doctrine holds that "where a court of competent jurisdiction has obtained possession, custody, or control of particular property, that possession may not be disturbed by any other court." *Id*. at 809. While invocation of this doctrine may prevent a federal court from administering water rights decreed by the Montana Water Court, many questions remain unaddressed.



Montana Water Decrees

Exclusive Jurisdiction

Water Use Act Goal

Future Change of Water Rights

Certainty & Enforcement

Value of Decrees

Under current Montana law, only state district courts have jurisdiction to enforce water right decrees, even though those decrees were issued by the Water Court. Does this arrangement satisfy the requirements of the McCarran Amendment regarding administration of water? Are state district courts considered courts of competent jurisdiction as that term is used in Compacts? Do state district courts have jurisdiction under the McCarran Amendment to add the United States or the Tribes as necessary parties to lawsuits overseeing water distribution?

The doctrine of prior exclusive jurisdiction could block removal of distribution cases from state court to federal court when the state court issued the underlying decree of water right. But what happens when the state court overseeing distribution didn't issue the underlying decree and never had jurisdiction over the water rights in the decree? Given that the Water Court doesn't have jurisdiction to enforce its own decrees, what barrier prevents a federal court from assuming jurisdiction over distribution of water in the future?

One of the original goals of the Water Use Act was to vest Montana courts with exclusive and comprehensive authority to resolve water problems. By doing so, the legislature sought to avoid the problems that arise when water litigation takes place simultaneously in two different court systems. The question is whether this goal remains important today, and if so, whether the legislature has taken the steps necessary to accomplish it.

These and many other questions remain unanswered. Allowing the Water Court to enforce its own decrees makes practical sense because it originated those decrees and has greater water law expertise than other courts. Such a shift in jurisdiction would also align with the doctrine of prior exclusive jurisdiction and potentially prevent removal of distribution controversies to federal court. The legislature could reduce uncertainty and prevent future conflict by allowing the Water Court to enforce its own decrees, but it has not done so. It remains unclear if there is recognition of a problem or the political will to solve it.

The issuance of final decrees also leaves unanswered several other practical concerns. Who has authority to amend final decrees to account for abandonment of water rights or changes to rights in those decrees? Because of Montana's unique statutory framework, final decrees generally define water rights as they existed prior to July 1, 1973. What happens when final decrees do not reflect what happened after 1973? Montana's change process is administered by DNRC, but many changes to water rights have been made without DNRC approval and future enforcement of those modified rights will be controversial. Can it be said that Montana has an accurate centralized system of water right records if those records don't reflect reality on the ground? Has the legislature's goal of an accurate water rights system been fully realized?

Conclusion

Despite ongoing questions, Montana's statewide adjudication has been an enormous undertaking and much has been accomplished. Water rights are better defined than ever and information regarding water rights is more accessible than it was when claims were filed with local counties or buried in district court decrees that no longer exist. Huge uncertainty about the extent of Federal and Tribal reserved rights has been eliminated. Future enforcement will be easier because water rights based on state law are much more accurate, and many questions about ownership and the extent of water rights have been addressed. These successes do not, however, signal the end to disputes over water. Changes in land use, weather, cropping patterns, increasing urban populations, and shifts toward more recreational use coupled with higher demand and variability in supply will drive fresh conflict.

While final decrees will not end conflict, they will make resolution of future problems easier by providing better defined water rights as a starting point for conversation or conflict. The value of these decrees will depend on whether the legislature takes action to protect them. Some parties profit from certainty while others prefer dysfunction, and there will be pressure to dilute rather than preserve the usefulness of final decrees.

Against this backdrop, it is too early to decide whether the objectives set in 1973 have been met. The answer depends in part on the legislature and what it does to capture the full benefits of Montana's massive effort to define claims for water.

For Additional Information:

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Eyvind Ostrem, Montana Water Court, eyvind.ostrem@mt.gov
Montana Water Court website at: https://courts.mt.gov/courts/water/
DNRC Water Adjudication Bureau website at: http://dnrc.mt.gov/divisions/water/adjudication

Russ McElyea is Chief Water Judge at the Montana Water Court.

Eyvind Ostrem is a Water Master at the Montana Water Court.

WATER BRIEFS

ECONOMIC IMPACT US

COMPLIANCE COST CONSIDERATION FOR VARIANCE FROM WATER QUALITY STANDARDS

The Ninth Circuit Court of Appeals (Ninth Circuit) has issued a decision finding in favor of EPA's approval of Montana's variance request from approved water quality standards that were adopted under the Clean Water Act (CWA). *Upper Missouri Waterkeeper v. USEPA, et al.*, Case No. 19-35898 (10/6/2021). The three-judge panel unanimously held that the EPA reasonably construed 33 U.S.C. § 1313(c)(2)(A) as permitting it to consider compliance costs when approving water quality standards and variance requests. Plaintiff, Upper Missouri Waterkeeper (Waterkeeper), asserted that such an exception is illegal because the CWA precludes EPA from taking compliance costs into account when approving variance requests from approved water quality standards that were adopted under the CWA.

The CWA requires States to adopt water quality standards regulating pollutants in their navigable waters. The standards consist of two components: (1) the designated uses for the water body, such as supporting aquatic life or recreational use; and (2) the "water quality criteria" necessary to protect those uses. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. §§ 131.3(b), 131.11(a). States submit proposed water quality standards to the EPA for review and approval.

EPA approved Montana's water quality standards in 2015. However, in 2017, Montana obtained EPA's approval of a variance in the water quality standard, which covered 36 municipal wastewater treatment facilities for a term of up to 17 years. The variance allowed those facilities to discharge more nitrogen and phosphorus into wadeable streams than would be permitted under the base water standards approved in 2015. Plaintiff Upper Missouri Waterkeeper contended that EPA's approval of the variance violated the Administrative Procedure Act.

The panel first considered Waterkeeper's cross-appeal, which contended that a provision of the Clean Water Act (33 U.S.C. § 1313(c)(2)(A)), precluded EPA from taking compliance costs into account when approving the variance requests. Applying *Chevron* analysis (agency deference), the panel held at step one that Congress had not directly spoken to the precise question at issue. Section 1313(c)(2)(A) does not speak at all to whether the EPA may consider compliance costs when approving a State's proposed water quality standards or, by extension, when approving a State's variance request. The Ninth Circuit panel explained its view of Congress' "silence" concerning costs of compliance:

> It is true, as Waterkeeper argues, that § 1313(c)(2)(A) includes a list of uses and values that States must "tak[e] into consideration" when establishing water quality standards, without expressly mentioning the costs of compliance. But the inference that Waterkeeper asks us to draw — that Congress's silence as to costs reflects an intention to forbid their consideration — is not supported by the text of the provision or the broader statutory context. Requiring States to formulate water quality standards by "taking into consideration" various uses and values does not tell us anything about whether Congress intended to mandate compliance with water quality standards regardless of how exorbitant the cost might prove to be.

Slip Op. at 17.

At step two, the panel held that the EPA reasonably construed § 1313(c)(2)(A) as permitting it to consider compliance costs when approving water quality standards and variance requests. The Ninth Circuit also discussed use of the standard "wherever attainable" by Congress.

> Congress declared in § 1251(a)(2) that water quality necessary to protect aquatic life and recreational use is to be achieved "wherever attainable." The statute does not define what factors may be taken into account when deciding whether a particular use is "attainable," so it fell to the EPA to flesh out the meaning of that term. The agency could perhaps have interpreted the term to focus solely on whether achieving water quality of a particular level is technologically feasible, even if the costs involved would prove financially ruinous to the communities benefitting from the improvements. But it seems far more plausible that Congress used the term in the sense reflected in the EPA's regulations — as including an assessment of whether achieving the necessary water quality is economically feasible, given the costs that would be imposed on the affected communities.

Slip Op. at 18-19.

The panel then turned to EPA's appeal, which challenged the district court's partial vacatur of the agency's decision approving Montana's variance request. The district court held that the variance's term of up to 17 years was invalid because it did not require compliance with the highest attainable condition at the outset of the term, and did not require compliance with Montana's base quality water standards by the end of the term. The Ninth Circuit disagreed, and held that EPA's variance regulation unambiguously provided that compliance with the highest attainable condition was not required at the outset. The district court did not identify any provision in EPA's variance regulation supporting its view that the variance must require compliance with the base water quality standards by the end of the variance's term. As reflected in the variance at issue here, EPA's regulations included numerous features to ensure that dischargers and waterbodies subject to variances continued to improve water quality. The Ninth Circuit concluded that the regulatory framework was consistent with the goals of the Clean Water Act, which as reasonably construed by EPA, included supporting aquatic life and recreational uses whenever attainable.

For info: Decision available at: cdn.ca9.uscourts.gov/datastore/opinions/2021/10/06/19-35898.pdf

WATER BRIEFS

WASTEWATER STANDARDS US

PFAS & CONTAMINANTS

On September 8th, EPA released Preliminary Effluent Guidelines Program Plan 15 (Preliminary Plan 15), which announced that EPA will undertake three new rulemakings to reduce contaminants including PFAS and nutrients — from key industries.

EPA will be initiating three new rulemakings after concluding several studies that were discussed in Effluent Guidelines Program Plan 14. The agency has determined that revised **e**ffluent **l**imitations **g**uidelines (ELGs) and pretreatment standards are warranted for:

- Organic Chemicals, Plastics and Synthetic Fibers category to address per- and polyfluoroalkyl substances (PFAS) discharges from facilities manufacturing PFAS.
- Metal Finishing category to address PFAS discharges from chromium electroplating facilities.
- Meat and Poultry Products category to address nutrient discharges.

Preliminary Plan 15 also discusses the Steam Electric Power Generating category rulemaking that the agency announced on July 26, 2021. EPA has initiated that rulemaking process to consider strengthening the effluent limits applicable to certain ELG waste streams from coal power plants that use steam to generate electricity.

To view Preliminary Plan 15 and learn how to submit comments, visit: www.epa.gov/eg/effluent-guidelines-plan. Preliminary plans provide a description of the agency's annual review of ELGs and pretreatment standards, consistent with the CWA. Based on these reviews, EPA develops preliminary plans to identify any new or existing industrial categories selected for ELG or pretreatment standards rulemakings and to provide a schedule for such rulemakings. In addition, preliminary plans present any new or existing categories of industry selected for further review and analysis.

For info: Phillip Flanders, EPA, 202/566-8323, flanders.phillip@epa.gov or www.epa.gov/eg/effluent-guidelines-plan

GROUNDWATER/NPDES US

***MAUI* GUIDANCE RESCINDED**

On September 16, EPA rescinded a guidance document entitled "Applying the Supreme Court's *County of Maui v. Hawaii Wildlife Fund* Decision in the Clean Water Act (CWA) Section 402 National Pollutant Discharge Elimination System Permit Program" that was issued by the Trump administration on January 14, 2021. *See* Robb, *TWR* #189 and #196, for additional details regarding the *Maui* decision and NPDES permits for indirect discharges of pollution.

The previous Administration's *Maui* guidance reduced clean water protections by creating a new factor for determining if a discharge of pollution from a point source through groundwater that reaches a water of the United States is the "functional equivalent" of a direct discharge to such water. EPA found that the addition of that factor skewed the "functional equivalent" analysis in a way that could reduce the number of discharges requiring a CWA National Pollutant Discharge Elimination System (NPDES) permit. EPA rescinded this guidance upon determining that this additional factor is inconsistent with the CWA and the Supreme Court decision in *County of Maui v. Hawaii Wildlife Fund,* 140 S.Ct. 1462 (2020). EPA will work with state permitting agencies and the regulated community to implement the Supreme Court's decision in *County of Maui*, consistent with law and science.

The Office of Water is evaluating appropriate next steps. In the interim, consistent with past practice and informed by the factors specified by the Supreme Court, EPA will continue to apply site-specific, science-based evaluations to determine whether a discharge from a point source through groundwater that reaches jurisdictional surface water requires a permit under the CWA.

For info: EPA website at: www.epa.gov/npdes/releases-point-source-groundwater

WATER RIGHTS COMPACT MT

TRIBAL LANDS RETURNED

On September 17, Secretary of the Interior Deb Haaland signed the Confederated Salish and Kootenai-Montana Compact (Compact), formally executing the Montana Water Rights Protection Act (Settlement Act) enacted by Congress on December 21, 2020. Together, these actions pave the way to improving the Confederated Salish & Kootenai Tribes' access to water within the Flathead Reservation and restoring and protecting vital Tribal resources.

The Settlement Act and the Compact quantify the Tribes' water rights and authorize funding of $1.9 billion for a variety of purposes, including improving the water efficiency of the Federal Flathead Indian Irrigation Project, restoring and protecting Tribal resources, and constructing and maintaining community water distribution and wastewater facilities. The Flathead Irrigation Project, originally constructed in the early 1900s and an important economic driver for the Reservation and the state of Montana, has long been overdue for rehabilitation, according to Interior.

In another important action involving the Tribes, on September 16 the Confederated Salish and Kootenai Tribes (CSKT) and The Nature Conservancy (TNC) announced the transfer of the 132-acre Safe Harbor Marsh Preserve to the CSKT people. The TNC preserve is within a larger block of CSKT-owned lands and it makes sense that it be owned entirely by the Tribes, according to TNC.

The Preserve, located in Lake County, Montana is part of a perennial wetland marsh, on Flathead Lake's west shore, north of Polson. The Preserve lies entirely within the boundaries of the Flathead Reservation and is bordered on three sides by CSKT Tribal Trust Land.

For info: Compact info: Interior_Press@ios.doi.gov; TNC Transfer : Bebe Crouse, TNC, 406/ 579-8559 or bcrouse@tnc.org; Rob McDonald, CSKT, 406/ 675-2700, x1222 or Robert.McDonald@CSKT.org

WATER BRIEFS

CWA PROTECTION AK
BRISTOL BAY § 404(c) DETERMINATION

On September 9th, EPA moved toward reinitiating the process of making a Clean Water Act (CWA) Section 404(c) determination to protect certain waters in Bristol Bay, Alaska. If such a determination is finalized, it would protect these waters — which are essential to commercial, subsistence, and recreational fisheries and other activities that support Alaska Natives and communities — over the long term.

"The Bristol Bay Watershed is an Alaskan treasure that underscores the critical value of clean water in America," said EPA Administrator Michael S. Regan. "What's at stake is preventing pollution that would disproportionately impact Alaska Natives, and protecting a sustainable future for the most productive salmon fishery in North America."

Under the previous administration, EPA issued a July 2019 notice withdrawing its 2014 Proposed Determination issued under CWA Section 404(c). This previous action terminated the then-ongoing review process for Bristol Bay.

A recent Ninth Circuit court decision found that EPA can withdraw a Proposed Determination "only if the discharge of materials would be unlikely to have an unacceptable adverse effect." EPA believes the 2019 withdrawal notice did not meet the Ninth Circuit's standard. On remand from the Ninth Circuit, the Alaska federal district court recently directed EPA to file a proposal for additional court proceedings by September 10th.

The US Department of Justice, in a September 9th filing in the district court, announced EPA's intent to request that the 2019 withdrawal notice be remanded and vacated. If the court grants the motion, remand and vacatur would automatically reinitiate EPA's 404(c) review process and EPA would announce a schedule for resuming a process to protect certain waters in the Bristol Bay watershed — including opportunities for public input.

Bristol Bay supports commercial, subsistence, and recreational fisheries that are worth hundreds of millions of dollars each year and create thousands of jobs. Bristol Bay's fishery resources have supported a way of life for Alaska Natives for over 4,000 years.

The Bristol Bay watershed is an area of exceptional ecological value with salmon fisheries unrivaled anywhere in North America. The region's streams, wetlands, lakes and ponds provide essential habitat that support all five species of Pacific salmon found in North America: coho, Chinook, sockeye, chum, and pink. The salmon populations are critical to the health of the entire ecosystem, which is home to more than 20 fish species, 190 bird species, and more than 40 terrestrial mammal species, including bears, moose, and caribou.

The Clean Water Act generally requires a Section 404 permit from the US Army Corps of Engineers to authorize a discharge of dredged or fill material into certain streams, wetlands, lakes and ponds. Section 404 directs EPA to develop the environmental criteria used to make permit decisions. The Army Corps authorizes thousands of Section 404 permits every year, and EPA works with the Corps and developers to resolve environmental concerns so projects can move forward.

However, the Clean Water Act, in Section 404(c), also authorizes EPA to prohibit or restrict fill activities if EPA determines a discharge would have an unacceptable adverse effect on certain resources. EPA has used its Section 404(c) authority sparingly, issuing final determinations only 13 times in the CWA's 50-year history. The agency's use of the authority has typically involved major projects with significant impacts on some of America's most ecologically valuable waters.

For info: EPA website: www.epa.gov/bristolbay

GROUNDWATER CLEANUP CA
SETTLEMENT AGREEMENTS

On September 30th, three settlement agreements were approved by the US District Court for the Central District of California. Under the agreements, Montrose Chemical Corporation of California, Bayer CropScience Inc., TFCF America Inc., and Stauffer Management Company LLC have agreed to pay $77.6 million for cleanup of contaminated groundwater at the Montrose Chemical Corp. Superfund and the Del Amo Superfund Sites in Los Angeles County, California. The companies will also investigate potential contamination of the historic stormwater pathway leading from the Montrose Superfund Site. Another company, JCI Jones Chemicals Inc. will participate in the groundwater cleanup.

The settlements not only provide for cleanup and investigation, but also collectively resolve active litigation in a case that has been pending for over 30 years under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly referred to as Superfund). From 1947 to 1982, Montrose operated the nation's largest manufacturing plant for the pesticide DDT (dichloro-diphenyl-trichloroethane).

The settlements require the companies to pay for and implement cleanup remedies and perform an investigation with federal and state oversight. The companies will also reimburse EPA more than $8 million and California DTSC more than $450,000 for costs already incurred.

Each settlement addresses specific activity to address cleanup of the sites:

- The first settlement requires pumping and treating the groundwater to federal and state cleanup standards and then reinjecting the treated water back into the ground.
- The second settlement will bring about treatment of the soil to address historical releases that are an ongoing source of groundwater contamination. Air monitoring will be performed to ensure there are no impacts to the surrounding community.
- The third settlement requires investigation of potential contaminant releases in the historic stormwater pathway leading from the Montrose Superfund Site, south of Torrance Boulevard. This settlement will be used to determine if there is contamination in the pathway that may require cleanup.

The settlements are memorialized in three consent decrees.

For info:
Del Amo Superfund site: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901293
Montrose Torrance Superfund site: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901293

CALENDAR

October 15 CA
Orange County Water Summit, Anaheim. Disney's Grand Californian Hotel. Business Professionals, Elected Officials, Water Industry Stakeholders & Community Leaders to Discuss Water Supply Challenges; OCWD/ MWDOC Event. For info: www.ocwatersummit.com

October 16-20 IL
WEFTEC 2021: 94th Annual Technical Exhibition & Conference, Chicago. McCormick Place. Water Environment Federation's Annual All Water Sectors Event. For info: www.weftec.org/attend/the-exhibition/

October 18-19 WEB
Association of State Drinking Water Administrators (ASDWA) Annual Conference: 2021, Virtual Event. For info: www.asdwa.org/event/asdwa-annual-conference-2021/

October 19 DC/WEB
2021 Environmental Achievement Award Annual Award Ceremony: Carol Browner, Washington, DC . Omni Shoreham Hotel. In-Person & Live Webcast. For info: www.eli.org/award-dinner

October 19 WEB
Streamflow Restoration Competitive Grants - Applicant Workshop, Online Webinar: 1:30pm Pacific Time. Presented by Department of Ecology. For info: https://ecology.wa.gov/Events/WR/SFR-Grants-2022/October-Webinar

October 19-21 WEB
EWG's CleanCon 2021, 2-5pm Eastern Time. On-Demand Video of EWG Scientists & Healthy Living Experts - Protection From Toxic Chemicals; Presented by Environmental Working Group. For info: www.ewgcleancon.org/

October 20-22 GA
Clean Currents 2021 Tradeshow & Conference, Atlanta. Georgia World Congress Center. National Hydropower Association Waterpower Event. For info: https://cleancurrents.org

October 20-22 WY
2021 Wyoming Water Association Annual Conference & Education Seminar, Lander. Lander Community & Conference Center. Presented by the Wyoming Water Association. For info: https://wyomingwater.org/

October 21 TX
7th Annual Water, Texas Film Festival, Austin. Austin Film Society Cinema. Event by the Texas Water Foundation. For info: brittany@texaswater.org or www.watertexasfilms.org/

October 26-27 WEB
Recovery & Resilience: Achieving Sustainable Stormwater Management - CASQA 2021 Virtual Conference, Presented by the California Stormwater Quality Association. For info: www.casqa.org/events/annual-conference

October 27 WEB
Streamflow Restoration Competitive Grants - Applicant Workshop, Presented by Department of Ecology: 10am Pacific Time. For info: https://ecology.wa.gov/Events/WR/SFR-Grants-2022/Grants-October-27

October 28 WEB
10th Annual Gulf Coast Water Conservation Symposium, Virtual Event: 9am-3pm Central Time. Presented by Houston Advanced Research Center (HARC). For info: https://harcresearch.org > Events

November 1-2 MI
Project Management for Water & Wastewater Utilities Course, Linden. Linden Water Treatment Plant. Presented by EUCI. For info: EUCI, 303/ 770-8800 or www.euci.com/

November 3-4 WEB
Imagine H2O Water Innovation Week 2021, Virtual Sessions. Presented by Imagine H2O. For info: www.imagineh2o.org/events

November 3-4 WA/WEB
Washington Water Code Seminar, Seattle. Washington Athletic Club, 1325 6th Avenue. In-Person & Live Webcast of Presentation. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

November 3-4 CA
The Annual US Water Treatment USA Conference, San Diego. San Diego Marriott Mission Valley. Presented by LMN Group. For info: Daniel Craig, LMN Group, 312/ 544-0063, daniel.craig@lmnassets.com or www.lmnpower.com

November 3-4 WEB
Membrane Filtration for Drinking Water Interactive Course, Covers Both Low-Pressure Membranes (Microfiltration and Ultrafiltration) & High-Pressure Membranes (Nanofiltration and Reverse Osmosis). For info: www.euci.com/events/

November 4 WEB
Streamflow Restoration Competitive Grants - Applicant Workshop, Presented by Department of Ecology: 10 am Pacific Time. For info: https://ecology.wa.gov/Events/WR/SFR-Grants-2022/November-Webinar

November 4-5 NM
Water Law Institute, Santa Fe. The Eldorado Hotel & Spa. Presented by Rocky Mountain Mineral Law Foundation. For info: www.rmmlf.org/programs

November 4-5 WEB
30th Annual Oregon Water Law Conference - Live Webcast, Portland. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

November 4-5 WEB
Groundwater Sustainability Implementation in California Conference, Interactive Broadcast Live. For info: Law Seminars International, 206/ 567-4490, registrar@lawseminars.com or www.lawseminars.com

November 4-6 UT
42nd Annual Agricultural Law Educational Symposium, Salt Lake City. Little America Hotel. Presented by the American Agricultural Law Association. For info: www.aglaw-assn.org/2021-annual-educational-symposium/

November 6 OR/WEB
19th Annual Celebration of Rivers, Portland. Left Bank Annex & Virtual Event. Fundraising Event for WaterWatch of Oregon: In-Person Cocktail Reception. For info: bit.ly/19thgathering

November 6-10 WA
American Water Resources Association National Conference, Renton. Hyatt Regency Lake Washington. Pre-Conference Workshops & Field Trips on Nov. 6th; Presented by the Washington Section of AWRA. For info: Rabia Ahmed (rahmed@greeneeconomics.com) or www.waawra.org

November 7-10 WA
Water Quality Technology Conference, Tacoma. Greater Tacoma Convention Center. A Practical Forum for Water Technology Professionals to Exchange Latest Research & Information. For info: www.awwa.org/Events-Education/Water-Quality-Technology

November 8-9 WEB
Fundamentals of Cost of Service and Rate Design for Water Utilities Webinar, Real World Examples Based on Accepted Ratemaking Principles. For info: www.euci.com/events/

November 8-10 WEB
American Water Resources Association (AWRA) 2021 Annual Water Resources Conference, Virtual Event. Innovative, Practical and Applied Water Resource Management Solutions, Management Techniques and Current Research. For info: www.awra.org

November 11 WEB
Water Capacity-Building Workshop, Virtual Event. Montana Watershed Coordination Council Event. "Building Organizational and Community Resiliency in the New West". For info: www.mtwatersheds.org

November 15-16 SC
Fall Strategic Leadership Meeting, Charleston. Francis Marion Hotel. Presented by National Assoc. of Clean Water Agencies. For info: www.nacwa.org/conferences-events/

The Water Report
Water Rights, Water Quality & Water Solutions in the West
260 N. Polk Street • Eugene, OR 97402

CALENDAR

(continued from previous page)

November 16 OR
Wild & Scenic Film Festival, Eugene. Benefit for the Upper Willamette Stewardship Network. For info: www.longtom.org/upperwillamette/

November 16-18 WEB
Performance Criteria for Source Water Protection Webinar, American Water Works Association (AWWA) Event. For info: www.awwa.org/Events-Education/Events-Calendar

November 16-18 WEB
EPA Water Laboratory Alliance (WLA) 3-Day Security Summit, Virtual Event. State of the Art Discussions of the Challenges Presented by Climate Change and Cybersecurity. For info: www.asdwa.org (Events)

November 17-18 KS
10th Annual Governor's Conference on the Future of Water in Kansas, Manhattan. Hilton Garden Inn. Latest Policy & Research Developments: Kansas Water Vision/Plan Implementation. For info: https://kwo.ks.gov/news-events/calendar

November 17-19 SC
National Clean Water Law & Enforcement Seminar, Charleston. Francis Marion Hotel. Presented by National Assoc. of Clean Water Agencies. For info: www.nacwa.org/conferences-events/event-at-a-glance/2021/11/17/nacwa-events/national-clean-water-law-enforcement-seminar

November 30-Dec. 2 CA
Association of California Water Agencies (ACWA) 2021 Fall Conference & Exhibition, Pasadena. Pasadena Convention Center. For info: www.acwa.com/events/2021-fall-conference-exhibition/

December 7-9 TX
North American Water Loss 2021 Conference & Exposition, Austin. The Renaissance Austin. American Water Works Assoc. Event. Approaches to Reduce Non-Revenue Water, Regulatory Developments, and a Platform to Share Processes, Methods and Techniques. For info: www.awwa.org/Events-Education/Events-Calendar/mid/11357/OccuranceId/541?ctl=ViewEvent

December 9 WA
Celebrate Water - In Person Reception & Pre-Reception Workshop: "How the Misuse of Municipal Water Law is Impairing Instream Flows", Seattle. Ivar's Salmon House. Presented by The Center for Environmental Law & Policy (CELP); CLE Workshop from 4:00 - 5:00 pm; Celebrate Waters from 5:30 - 7:30 pm Pacific Time. For info: Kayla Magers, development@celp.org or www.celp.org

December 9-10 CA
Western Governors' Association 2021 Winter Meeting, Coronado. For info: https://westgov.org/meetings

December 13-14 WEB
Water Desalination Plant Design and Management Webinar, RE: Reverse Osmosis (RO) Desalination Plants. For info: www.euci.com/events/

December 13-15 FL
Water Utility Resilience Forum, Miami. Hyatt Regency Miami. Presented by National Assoc. of Clean Water Agencies . For info: www.nacwa.org/conferences-events/event-at-a-glance/2021/12/13/nacwa-events/water-utility-resilience-forum

December 13-15 NV
Colorado River Water Users Association 2021 Conference, Las Vegas. For info: www.crwua.org/future-conferences.html