



# The Water Report™

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

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## KLAMATH HYDROELECTRIC SETTLEMENT

FINAL ROUND OF REGULATORY APPROVALS

by Richard Roos-Collins, Water and Power Law Group PC (Berkeley, CA)

### INTRODUCTION

The Klamath Hydroelectric Settlement Agreement (2016) proposes the removal of the four dams in the Lower Klamath Project. In June 2021, the Federal Energy Regulatory Commission (FERC) approved the transfer of the project license from PacifiCorp to the Klamath River Renewal Corporation (KRRC) and the states of California and Oregon. And in February 2022, FERC issued a Draft Environmental Impact Statement (EIS) proposing to approve license surrender, which would authorize dam removal. FERC intends to finalize the EIS in September 2022 and its license surrender order soon thereafter. If FERC approves license surrender, this will be the largest dam removal project in history.

### KLAMATH HYDROELECTRIC SETTLEMENT AGREEMENT (KHSA)

As previously reported (*TWRs* #187, #170, #143, and #49), the KHSA is a multi-party agreement to remove the Lower Klamath Project. The agreement was signed by: PacifiCorp, the United States, States of California and Oregon, tribes, agricultural interests, conservation groups, and commercial fishers. The purpose is to restore the anadromous and other native fisheries of the Klamath River, historically among the largest on the West Coast.

The agreement has several key terms. PacifiCorp, which is the current licensee under the Federal Power Act, will collect \$200 million via rate surcharges to its Oregon and California power customers. The State of California will contribute \$250 million in bond funds. PacifiCorp will transfer ownership of four dams to a new “dam removal entity” (DRE), which will be responsible to plan, permit, and perform removal of those dams. The DRE will use insurance and other commercial mechanisms to protect PacifiCorp and the states from any cost overrun or liability associated with dam removal.

By 2011, PacifiCorp secured approvals from its six public utilities commissions to collect the rate surcharges. These commissions found that dam removal under the KHSA would be less risky and costly than relicensing for continued power generation, given the prospect that a new license would require more than \$500 million in retrofits to modernize the project. Since 2011, PacifiCorp has collected the full \$200 million (including interest) in customer surcharges. Further, the California Natural Resources Agency encumbered \$250 million in funds from a bond measure, Proposition 1 (2014). In April 2016, the KHSA signatories formed the KRRC, a new non-profit corporation, as the dam removal entity. Funding agreements between California, Oregon, and the KRRC encumber the \$450 million for implementation of the KHSA.

## LICENSE TRANSFER

**Hydro  
Settlement****License Transfer****Dams Involved****Co-Licensees****Legal Capacity****Technical  
Obligations****The Water Report**

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In September 2016, PacifiCorp and the KRRC applied to FERC for transfer of the license for J.C. Boyle, Copco no. 1 and 2, and Iron Gate Dams within its Klamath Hydroelectric Project (FERC no. 2082). Under the Federal Power Act, a transferee must demonstrate that it has the legal, technical, and financial capacities to perform all the obligations of a licensee.

In March 2018, FERC issued an order creating the Lower Klamath Project (FERC no. 14803). This consists of the four dams subject to the KHSAs. Other dams in the Klamath Hydroelectric Project (East and West Side, Keno, and Link) — none blocking fish passage — were left in the original license.

FERC deferred a final decision on license transfer pending further due diligence. 162 FERC 62,236 (2018). In July 2020, FERC approved license transfer to KRRC but required that PacifiCorp remain as co-licensee to address any contingencies beyond the KRRC's capacities. 172 FERC 61,042 (2020). That requirement did not square with the KHSAs' term transferring such responsibility from PacifiCorp, thus limiting financial exposure of its power customers. In November 2020, the parties finalized a Memorandum of Agreement (MOA) committing the states to be co-licensees instead of PacifiCorp. The MOA further commits contingency funding if needed. In January 2021, an amended application was filed pursuant to the MOA. In June 2021, FERC approved license transfer to the KRRC and the States. Such transfer will be effective after FERC has decided the separate license surrender application. 175 FERC 61,236 (2021). This license transfer order is final and no longer subject to judicial review. Its basis is summarized below.

**Legal Capacity**

KRRC has the legal capacity to be licensee. It is a California non-profit corporation in good standing. Its board is representative of the KHSAs signatories, assuring their active involvement in implementation. Its bylaws authorize all actions necessary to implement the KHSAs. And in the June 2021 order, FERC also confirmed that the States each have legal capacity to hold a license under the Federal Power Act.

**Technical Capacity**

Technical capacity is the capacity to perform all obligations under a license. Here, the responsibilities will include deconstruction of four dams, disposal of associated debris in a manner that protects water quality, restoration of the previously submerged lands, and ancillary tasks.

FERC permits a licensee to rely on employees or consultants that collectively have the technical capacity to perform the obligations of licensee. KRRC chose to rely primarily on consultants. KRRC has secured a best-in-industry team. It engaged Kiewit Infrastructure West Co. (Kiewit) as its general contractor to perform dam removal. Kiewit has an exceptional track record completing large-scale and challenging civil projects of all types, including hydroelectric projects. Further, KRRC engaged Resource Environmental Solutions (RES) to perform habitat restoration. RES is one of the largest contractors in habitat restoration projects in the nation.

KRRC and PacifiCorp entered into an Operation and Maintenance Agreement that will go into effect upon license transfer. PacifiCorp will continue to operate and maintain the Lower Klamath Project, until KRRC is prepared to begin dam removal in compliance with a license surrender order. PacifiCorp will be responsible for disconnecting powerplants from the grid and salvaging any useful generation equipment.

FERC found that the KRRC has the technical capacity to be licensee. It also found that the States have experience overseeing large infrastructure projects. It noted that the California Department of Water Resources had repaired Oroville Dam after a catastrophic flood caused severe damage to spillways, on an expedited schedule and in strict compliance with dam safety orders.

**Fiscal Capacity**

Financial capacity was the gravamen (most relevant basis) of the license transfer proceeding for the Lower Klamath Project. In its March 2018 order, FERC stated that license transfer as proposed in the KHSAs, for the sole purpose of dam removal, "raises unique public interest concerns" not present in an ordinary license transfer proceeding:

If a project is transferred to an entity that lacks the financial and operational capacity to complete these measures, and if the Commission can no longer hold the former licensee liable, the responsibility to decommission a project or restore project lands may fall to federal or state authorities. To prevent this, the Commission applies more scrutiny to [such a license transfer application].

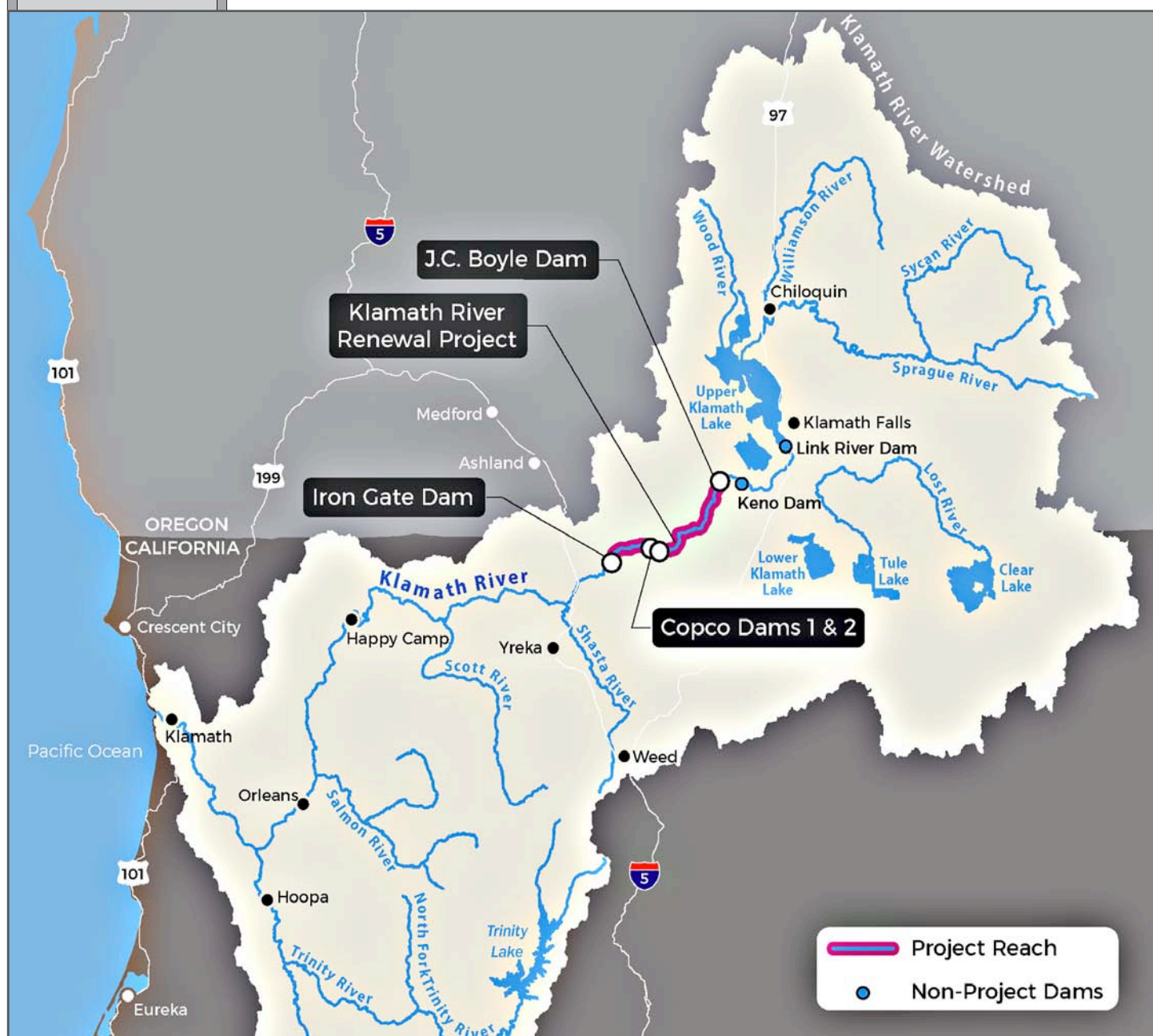
## Hydro Settlement

### State Cost Cap

As the order further stated:

[T]he Amended Settlement Agreement provides that the Renewal Corporation will have three sources of funding for decommissioning, removal, and restoration of the Lower Klamath Project, totaling \$450,000,000: (1) \$184,000,000 from the Oregon Customer Surcharge; (2) \$16,000,000 from the California Customer Surcharge; and (3) \$250,000,000 from the California Bond Measure. These funds, known as the state cost cap, are the maximum monetary contributions available from the states of Oregon and California. The applicants have not identified any additional sources of funding if the cost of the measures required exceeds the state cost cap.

The Federal Power Act requires a licensee to comply with a license, without regard to a cost cap in an agreement such as the KHSa.



## Hydro Settlement

### “Abandoned” Projects

FERC’s March 2018 order reflects its 1995 policy on decommissioning projects at the end of their useful lives. There, FERC addressed the risk that a project would be “abandoned” and become the unwanted financial or regulatory responsibility of a state:

Several commenters noted also that a licensee might seek to transfer an increasingly marginal project to a new licensee that lacked the financial resources to maintain it or close it down in an appropriate manner. Through that process, the former owner relieves itself of the responsibility, which then may fall to State authorities or, at least when Federal lands are involved, on other Federal agencies. While the Commission is aware of no widespread problems on this score, it agrees that transfer applications should be scrutinized to foreclose this sort of situation, and where warranted, other authorities should be consulted before transfers are approved... The Commission’s goal is that generally matters of this type can and will be resolved to the *satisfaction of the successor agency* as part of the Commission’s decommissioning process, obviating the need for any later other action. There could then be a *smooth transition to the new regime with a minimum of interruption*. (Emphasis added)

### FISCAL CAPACITY FINDING

### Fiscal Factors

In its July 2020 order, FERC found that the KRRC has the fiscal capacity to remove the Lower Klamath Project. This finding was based on the factors discussed below: Definite Plan; Guaranteed Maximum Price; and a Comprehensive Risk Management Program.

#### Definite Plan

In June 2018, KRRC filed a Definite Plan for dam removal, including methods for deconstruction, mitigation, and risk management. It subsequently submitted detailed engineering specifications developed by Kiewit. These specifications are at the 100% level of completion. Although a licensee typically develops such specifications after a license surrender order, KRRC chose to develop and submit them as a proof of its capacity to perform within its committed funds.

### Completion Piece

#### Guaranteed Maximum Price

The KRRC submitted a cost estimate for the 2018 Definite Plan. It updated that estimate in February 2020. The updated cost estimate included all expenditures to date; the future costs of planning, oversight, construction, and mitigation; the costs of insurance, bonds, and indemnification; and contingencies. The updated estimate was based on Monte Carlo modeling of tens of thousands of scenarios for risk occurrence during project implementation. The estimate reflected the P-80 standard, under which 80% of remaining risks break against the project. P-80 is a conservative industry standard used for complex construction projects. The cost estimate as of February 2020 was \$446 million. [Editors’ Note: *Monte Carlo simulations* are used to model the probability of different outcomes in a process that cannot easily be predicted due to the intervention of random variables. It is a technique used to understand the impact of risk and uncertainty in prediction and forecasting models.]

### Cost Estimate

The KRRC entered into “Progressive Design-Build” contracts with Kiewit and RES. Under this procurement method, a contractor is responsible for design and construction activities, and for correcting any errors or omissions. It secures an insurance package and indemnifies the owner for costs and damages arising from such errors or omissions. Overall, this procurement method establishes a single point of accountability, substantially reducing the risk of cost overrun relative to other procurement methods commonly used for civil works. Among other things, it minimizes the risk of litigation between owner, contractor, subcontractors, and their respective insurers.

### Procurement Method (Accountability)

Kiewit and RES completed 60% design specifications for the project in February 2020. These were the basis for Guaranteed Maximum Price (GMP) commitments. The GMP provided market proof of the sufficiency of the overall project budget. It is subject to adjustments only if final permit terms are materially more costly than draft permit terms, or costs otherwise increase due to circumstances outside of Kiewit’s control. In the past decade of experience with water resources projects, Kiewit has not exceeded a GMP in similar circumstances.

### Project Budget

Further, Kiewit and RES each provided a Parent Company Guaranty for performance. In sum, the parent company will perform or pay for its subsidiary’s default in performance. Further, the procurement contracts require Kiewit and RES to secure surety bonds prior to the commencement of any physical work, in an amount equal to the face value of the contracts.

### Performance Guarantee

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| <div data-bbox="138 178 324 262"><b>Hydro Settlement</b></div> <div data-bbox="138 304 316 367"><b>Consultants' Review</b></div> <div data-bbox="105 441 349 504"><b>Contingency Recommendation</b></div> <div data-bbox="146 651 308 714"><b>Third Party Liability</b></div> <div data-bbox="162 861 292 924"><b>Claims Exposure</b></div> <div data-bbox="113 1102 341 1144"><b>Mitigation Fund</b></div> <div data-bbox="121 1312 332 1354"><b>Litigation Fund</b></div> <div data-bbox="138 1564 316 1627"><b>Management Plans</b></div> <div data-bbox="162 1774 292 1806"><b>Draft EIS</b></div> <div data-bbox="138 1911 324 1953"><b>Staff Funding</b></div> | <p>In its March 2018 order, FERC required an independent Board of Consultants (BOC) to review “all aspects of the dam removal process” proposed by the KHSA. The BOC consists of independent experts in engineering and finance. It was charged to “determine the adequacy of cost estimates, insurance, bonding, and the overall financial resources available to implement the [dam removal] plan,” for the purpose of FERC’s action on the license transfer application. The BOC effectively functioned as a peer reviewer of fiscal capacity.</p> <p>The BOC undertook exhaustive due diligence in 2018 and 2019. It reviewed the Definite Plan and made recommendations with respect to “Plan B,” defined as how the KRRC would manage contingencies in excess of its committed funds. The KRRC accepted the recommendations and committed to value engineering to identify opportunities to reduce costs and risks; consideration of scope reduction, such as notching a dam versus complete removal; and joint efforts by the KHSA signatories to secure additional funds. The BOC then determined that the Definite Plan, including Plan B, was “appropriate” to complete the project and otherwise consistent with industry standards. In its July 2020 order, FERC relied upon the BOC’s determination to find that the KRRC has the fiscal capacity necessary to be licensee.</p> <p><b>Comprehensive Risk Management Program</b></p> <p>Under Federal Power Act section 10(c), a licensee is responsible for damages to third parties arising from the project and license compliance. Under the KHSA, KRRC is required to develop a comprehensive risk management program to respond to such damages and indemnify PacifiCorp and the States. The cost of this program is included within the budget.</p> <p>KRRC engaged Aon Risk Insurance Services West as its insurance advisor and broker. Aon is one of the world’s leading consultants in risk management, working across nations, industry sectors, and public and private clients. Aon applied underwriting methods to quantify the claims exposure associated with dam removal. An example is the risk that the discharge of sediment, once the dams have been removed, will raise the downstream river channel causing flooding of private properties. Aon modeled claims exposure in many thousands of simulated scenarios. It benchmarked its modeling against actualized claims in prior dam removals and other civil works projects. It then recommended an insurance program sufficient to cover third-party losses at a 99.5% confidence level. KRRC committed to secure that program.</p> <p>In addition, the KRRC committed to establish a Local Impacts Mitigation Fund (LIMF) to address risks of property damages arising without error in performance. Examples include: reduction in well production on private properties adjacent to reservoirs, following drawdown; or flooding of downstream properties because of sediment discharge. KRRC modeled the risks of such damages, including cost exposure, and set aside funds sufficient for the cost exposure that may exceed insurance coverage. It committed to stand-up the LIMF in advance of accepting license surrender. LIMF will use a claims process to enter settlements with property owners. KRRC also committed to establish a Litigation Defense Fund for claims that are not covered by insurance or otherwise settled by LIMF.</p> <p>The BOC determined that this risk management program was “appropriate” and “cost-effective.” FERC relied on this report in finding that the KRRC has the fiscal capacity to respond to damages to third parties, in addition to project implementation.</p> <p style="text-align: center;"><b>LICENSE SURRENDER PROCEEDING</b></p> <p>In September 2016, KRRC applied for license surrender. It subsequently updated the application to include the Definite Plan (2018, as revised 2020) as well as sixteen Management Plans that cover all aspects of implementation. An example is the Fire Management Plan. This plan commits to a network of real-time monitors, new firefighting facilities (such as hydrants drawing from the river channel), and other measures to assure that dam removal does not increase the regional risk of wildfires. While a licensee typically files such measures after a license surrender order, the KRRC chose to do so in advance to provide a definitive project description. It also undertook consultation as the designated non-federal representative under the federal Endangered Species Act and the National Historic Preservation Act.</p> <p>FERC deferred proceeding on the license surrender application until its license transfer order in July 2021. In February 2022, FERC’s Office of Energy Projects issued its draft EIS. Staff recommended approval of license surrender, subject to “minor” modifications of the project description:</p> <p>We recommend this because: (1) the environmental protection, mitigation, and enhancement measures proposed by KRRC, along with staff’s additional recommendations, would adequately protect environmental resources, restore project</p> |
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## Hydro Settlement

## Environmental Benefits

## Surrender Opponents

## Final EIS Expected

## Fish Passage

lands to a good condition, minimize adverse effects on environmental resources, maximize benefits to the Chinook salmon fishery that is of vital importance to the Tribes, and restore the landscape of the areas that are currently impounded within the project reach to a more natural state consistent with the Wild and Scenic designated sections between J.C. Boyle and Copco No. 1 Dams and downstream of the hydroelectric reach; (2) any short- and long-term, adverse environmental effects and the loss of power generation resulting from the proposed action would be outweighed by the substantial long-term environmental benefits gained from project decommissioning; (3) no entity has come forward willing to ensure the long-term maintenance or needed upgrades to facilities left in place under the no-action alternative; and (4) section 6 of the Federal Power Act and the Commission's regulations allow licensees to surrender existing project licenses and cease project operation.

Opponents of license surrender have raised issues related to wildfire risk, and loss of recreational opportunities, once reservoir drawdown has occurred. They dispute whether dam removal will be effective to restore the native fisheries. However, as the draft EIS states, no entity has offered to assume the cost of ownership of the project for the purpose of a new license. Under the Federal Power Act, a licensee may not be compelled to relicense a project, just because third parties would prefer to continue non-power benefits.

FERC is expected to issue the final EIS in September 2022 and the license surrender order several months afterwards. Such an order will include conditions to protect the public interest. Here, KRRC has proposed that the order require implementation of the Definite Plan and associated Management Plans. FERC's authority over these lands and waters will end, once the KRRC has fully implemented these plans.

Assuming FERC approves license surrender for the Lower Klamath Project, KHSa signatories — and specifically, PacifiCorp, the States, and KRRC — will immediately determine whether the order's conditions are consistent with the KHSa. If the answer is yes, KRRC and the States will accept the license transfer from PacifiCorp and will become responsible to implement dam removal. Preparatory work (such as construction of mobilization sites near the dams) will be done; reservoir drawdown will then occur in winter months, in order to take advantage of higher flows to move sediment downstream towards the Pacific Ocean; and dam removal and habitat restoration will follow in the drier months of the same year.

## CONCLUSION

The Klamath Basin has been the locus of a water war for decades. Soon, FERC will decide whether to approve the removal of the Lower Klamath Project. Once KRRC and the states accept license transfer, the project will proceed, and fish passage will be restored into the upper basin for the first time in a century. And that may well serve as a springboard for collaborative efforts to resolve disputes related to the upstream Klamath Irrigation Project and other agricultural users.

## FOR ADDITIONAL INFORMATION:

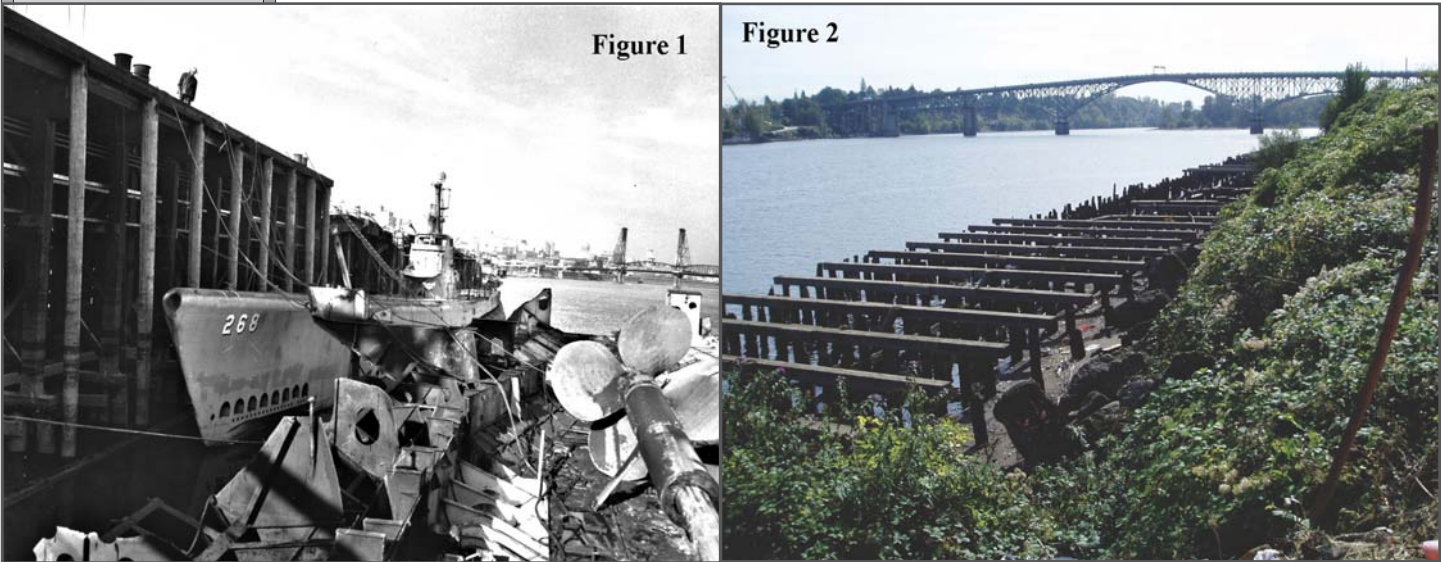
RICHARD ROOS-COLLINS, 510/ 296-5589 or [rrcollins@waterpowerlaw.com](mailto:rrcollins@waterpowerlaw.com)

## References

All documents referenced in this article are available at: [www.klamathrenewal.org/](http://www.klamathrenewal.org/) ("Resources")

**Richard Roos-Collins** is Principal of Water and Power Law Group PC. He is the general counsel for the Klamath River Renewal Corporation. All opinions in this article are personal.

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| <div><div></div><div></div></div>      |  |
| <div>Riverside<br/>Remediation</div>   | <div><div>WATERFRONT REMEDIATION</div><div>ADDRESSING WARTIME IMPACTS AND BUILDING RESILIENCE AT ZIDELL</div><div>by Erik I. Bakkom, PE, Maul Foster &amp; Alongi, Inc. (Portland, OR)</div></div>   |
| <div>Site History</div>                | <div><div>Introduction</div><p>The Zidell waterfront property is a 32-acre parcel in the South Waterfront neighborhood of Portland, Oregon that is located along one-half mile of the Willamette River. Workers at the site dismantled more than 300 ships following World War II to recover scrap materials. Additionally, Zidell Marine Corporation (Zidell) constructed more than 300 steel barges at the site. The dismantling yard was a place where people traveling over the Ross Island Bridge could glimpse the inside of carriers and submarines (Figure 1), and visit the salvage store where they could purchase rescued naval treasures.</p><p>Use of the site changed with Zidell’s operations, as the focus shifted from salvaging ships to constructing barges. While Zidell Marine Corporation labored on the construction of steel barges in the southern portion of the property, the area north of the bridge became quiet. The riverfront infrastructure in this area was generally abandoned when ship dismantling operations stopped in the late 1970s. The riverbank was over-steep as a result of the industrial debris that had been discarded. Blackberries and other aggressive invasive plant species had grown to hide all of the riverbank debris from view. The docks that had once provided access to tethered ships had been removed, leaving a field of more than 2,000 wooden piles as a whisper of the former shoreline activity (Figure 2). The more than 80 years of industrial maritime operations at the site resulted in the release of PCBs, asbestos, lead paint, and other harmful contaminants to the upland, riverbank, and river bottom.</p><p>The environmental investigation of the site began in the 1990s. Working with the Oregon Department of Environmental Quality (DEQ), Zidell and their environmental engineering consultant, Maul Foster &amp; Alongi, Inc. (MFA), developed an inventory of where contamination of soil and sediment was located, assessed the risk that the remaining contamination posed to human health and the environment, and then evaluated options for an effective and efficient cleanup. The Oregon DEQ carefully evaluated the environmental information and, in 2005, selected the remediation approach that Zidell would be obligated to carry out. The final plan for remediation of the site, as documented by the Record of Decision, was agreed upon by DEQ and Zidell in 2006.</p><p>Highlights of the remediation plan are as follows:</p><ul style="list-style-type: none"><li>• Remove upland hotspots of soil contamination that posed significant risk to human health</li><li>• Properly isolate ecological hotspot soil in an engineered containment cell onsite</li><li>• Cap upland soil at the time of development</li><li>• Stabilize the riverbank and cap the riverbank soil</li><li>• Dredge and cap sediment in the barge slipway, where barges were launched</li><li>• Cap contaminated sediment on the bed of the Willamette River</li><li>• Control sources of stormwater contamination associated with current barge construction activities, while allowing for continued operation</li><li>• Carry out the design of the work with the intent to begin remedial construction within five years</li></ul></div> |
| <div>Ship Dismantling</div>            |  |
| <div>Pollution</div>                   |  |
| <div>Contamination<br/>Inventory</div> |  |
| <div>Remediation<br/>Aspects</div>     |  |



## Riverside Remediation

### Unique Solutions

### Cleanup Challenges

### Goal

### Sediment Cap

### Cap Composition & Tasks

### Geotechnical Analysis

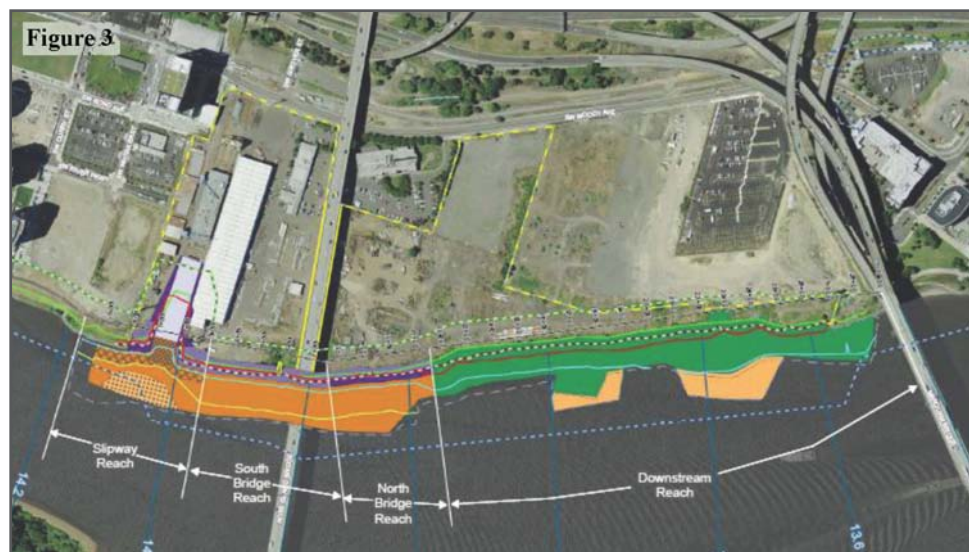
Zidell diligently moved forward with the engineering studies that were necessary to prepare the design, bringing together a team of environmental, engineering, and construction specialists. The Zidell design team worked closely with the Oregon DEQ in identifying and addressing the many challenges that were required to cleanup 32 acres of upland and 14 acres of submerged land. A unique set of environmental solutions was required to address: the varying amounts of contamination found around the site; the geotechnically unstable riverbank configuration; and changing fluvial environments along the site.

### Design & Analysis

The Zidell property required a complex environmental cleanup approach. The differing levels of contamination and the various nearshore aquatic conditions needed to be addressed. Habitat for fish and wildlife needed to be protected and enhanced. Zidell's environmental design team studied the complexities of river dynamics as they changed along the site's shoreline and separate design reaches were created to address these challenges. All this work had to align with current and potential future uses of the site.

The overarching goal for this project was to protect human and environmental health. Environmental scientists evaluated sediment toxicity tests and conducted bioaccumulation modeling to better understand human health and ecological risks. Environmental scientists prepared models to predict contaminant movement within the sediments using complex chemical transport models.

The final sediment cap was divided into three design reaches along the river to address variability in site conditions, topography, currents, and adjacent river uses (Figure 3). The full riverbank and sediment cap spans over 14 acres and returns the offshore sediment to a condition that reflects the ambient river conditions upstream of the site. The design models show the sediment cap to be chemically effective for more than a thousand years and to withstand a major earthquake and a 100-year flood.



The sediment cap is a system comprised of multiple layers of granular materials, each performing different tasks. The cap builds a redundant system to isolate the contaminated sediments that remain on the river bottom. The two-foot thick clean sand layer holds the contaminated sediments in place and acts as a sponge with the adsorptive capacity to trap any contaminants that might upwell in groundwater and prevent them from being discharged into the river. The clean sediment cap is protected from river scour by a 2.5-foot thick rock armor system that incorporates filter gravel into the riprap gradation. A layer of habitat gravel covers the rock armor and is designed to fill the large void spaces at the surface of the riprap and provide the rounded gravel habitat that local salmonid species prefer. Over time, the habitat gravel has been found to passively “recruit” sediment that is deposited during low flow periods and slowly fill the void spaces between gravels. The fine silts and sands that build up around the gravels and riprap act like a glue and make the armoring system stronger.

An extensive geotechnical analysis of the bank conditions was required to ensure that it was stable and would not fail and cause recontamination of the river. Using information gained from a series of geotechnical borings, stability conditions were modeled for static and seismic conditions in both the pre- and post-remediation conditions. Goals for in-water slopes were established to be 5H:1V (i.e., 5 horizontal run – to – 1 vertical rise) for new constructed sediment fill and upland slopes at between 3H:1V and 2H:1V. Riprap buttresses would be provided for in-water slopes that were required to remain steep to accommodate the industrial operations at the site.

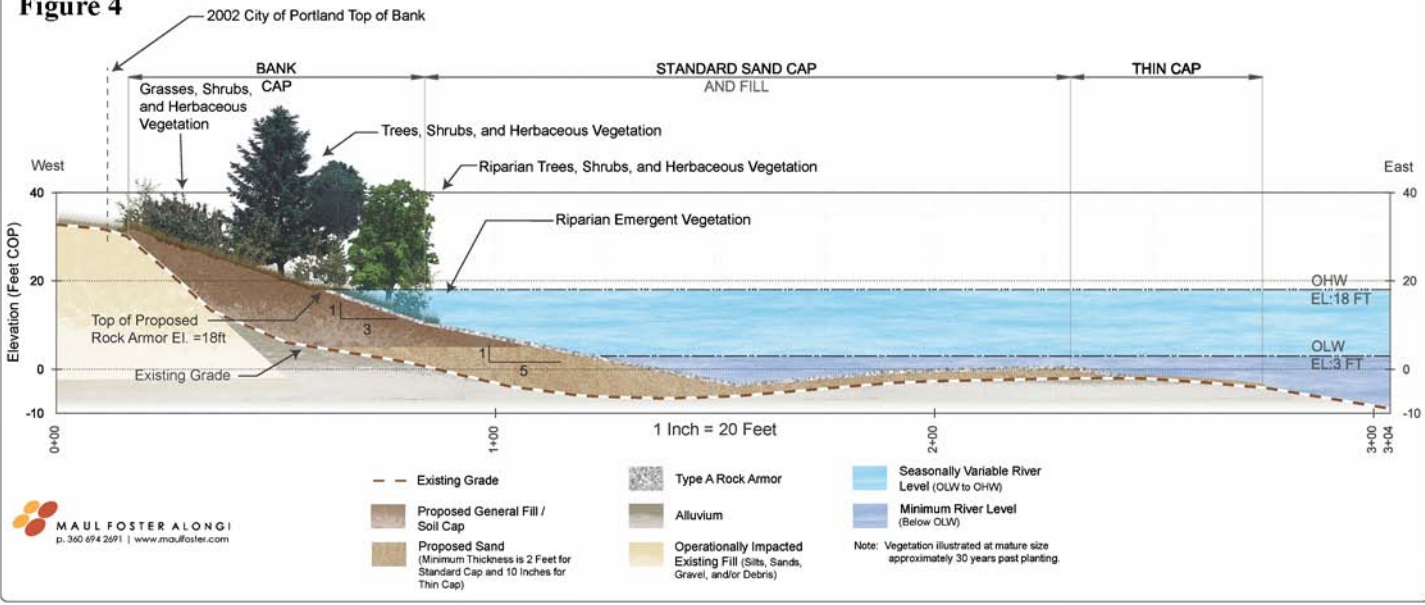
Riverside  
Remediation

Riverbank Cap

Resilient  
Features

The riverbank soil cap design called for a two-foot thick protective topsoil layer over soil with residual levels of contamination. The topsoil layer is itself protected from erosion by a complex vegetative canopy that slows the water velocity of the river and significant shallow root system that strengthens soil to resist erosion. In the upstream portion of the site where the river flows more aggressively, a specialized geotextile called turf reinforcement matting adds significantly to the robustness of the bank cover system. This matting becomes integrated into the root mass of the native grasses and shrubs (Figure 4). When the matting is anchored at the top and the bottom of the slope, the entire vegetated surface of the bank acts as a single element to resist the erosive river currents over the prolonged period of a flood event. The grass and willow vegetation is a resilient feature that naturally reseeds or spreads itself to quickly shore up any erosion that does begin to develop (if it is not repaired during routine bank maintenance). As an additional protective measure, beneath the top cover soil there is a layer of dense angular fill on top of a demarcation geotextile fabric that covers the bank soil. The angular fill material and the tightly woven demarcation fabric both act to resist the short-term effects of river erosion, should they become exposed.

Figure 4



River Scour

Rock Armor

The remediation design required a total of 150,000 cubic yards (CY) of fill in the river (more than 80,000 CY of clean sand, 50,000 CY of rock armoring, 10,000 CY of habitat gravel, and 45,000 square feet of specialized reactive matting). The engineering analysis necessarily involved detailed modeling to assess the hydraulic impacts of the river and its scour potential on the sediment and bank cap. The design engineer worked closely with a hydrogeomorphologist to optimize in-water fill slopes to eliminate impacts in the modeled flood rise potential (when evaluated in Hydrologic Engineering Center River Analysis System (HEC-RAS) software).

Zidell Marine Corporation launched their barges down a slipway ramp, which has 16-inch tall rails to guide the launching sled. The standard sediment cap design called for the installation of more than



Figure 5

four feet of sediment cap (two feet of sand and two and a half feet of rock armor) to encapsulate contaminated river sediment. Because this design was incompatible with the barge launch operations, MFA developed a specialized low-profile design for a 12-inch thick low-profile sediment cap using an innovative geocomposite material called Reactive Core Mat (RCM). The RCM that was designed for Zidell consists of two layers of geotextile that sandwich a two-centimeter thick layer of granular activated carbon and an apatite mineral, providing the same protective value as two feet of clean sand (Figure 5). The RCM isolates contaminated sediment both physically (as a fabric holding the fine grained sediment in place) and chemically (as a sponge for any contaminants that upwell with groundwater that is discharging to the river). The specialty fabric layer allowed the designers to also specify a thinner layer of riprap, which was to be inspected following each barge launch to ensure that the armor remained in place.

|                               |
|-------------------------------|
| <b>Riverside Remediation</b>  |
| <b>Hotspots Removal</b>       |
| <b>Dredging &amp; Capping</b> |

**River Remediation**

The first step of remediating the river was to remove riverbank hotspots of contamination. This work involved a significant effort to remove and recycle miscellaneous scrap cable, concrete, or other metals that formerly were of very low value to the scrap operations of years past. The bank excavation activities included the layback of the over-steepened bank to enhance the overall bank stability in preparation for the soil cap.

At the upstream end of the site, dredging of the slipway ramp was performed using a fixed arm excavator within a floating silt curtain containment system. Dredging and capping of the slipway was performed first so that contaminated residual sediments from the dredge area could not flow downstream and settle onto areas where other clean cap sand may have been placed. The specialty RCM was rolled out and then secured to the ramp and the river bottom by divers. The RCM was then covered by rock armor.

The ability of soft riverbed sediment to support a clean cap was studied during design. If too much sand material was placed at one time over very soft river sediment, the clean sand could slide down the



slope or sink into the mud, becoming contaminated. The design team worked with a retired US Army Corps of Engineers expert to develop a construction method for the sediment cap that would slowly build up layers of clean river sand and rock armoring. The contractor and engineer worked together to develop a careful spreading method to allow the use of a crane derrick fitted with a traditional clamshell dredge bucket (Figure 6). The sand was slowly spread at the water surface allowing the particles to separate and filter through the water column without cratering out or “bombing” the river bottom. The thickness of each lift of clean sand was assessed by diver-retrieved sediment cores, which showed a very consistent lift application thickness of 11- to 13-inches. The sediment cores were also sent to a laboratory to successfully demonstrate to the Oregon DEQ that the sediment cap had not been contaminated during installation.

|                        |
|------------------------|
| <b>Fill Thickness</b>  |
| <b>Rock Armor</b>      |
| <b>Fish Habitat</b>    |
| <b>Riparian Plants</b> |

After the first lift of sand cap had been placed, the contractor was allowed to place successively thicker lifts to achieve the design fill thicknesses ranging between two feet and 18 feet. The thicker fills were installed to increase the overall bank stability and limit the potential of a riverbank failure that could recontaminate the river bottom. In the downstream portion of the site, which was much shallower, the thick fill was placed to the top of the existing river bank, forming a 3H:1V riverbank slope in front of the previously unstable 1H:1V slope. In this area the new bank fill was covered with a layer of topsoil.

Rock armor was then placed in a 2.5-foot thickness over all of the clean sand cap material to ensure that it would not be eroded over time. The rock armor design called for a combined riprap and filter material to minimize the potential voids in the rock. The engineer and contractor again worked together to develop the technique used to deliver the rock armor and filter gravel in an undisturbed manner to prevent separation. The rock armor was then covered with a layer of two-inch rounded gravel, which would fill the gaps in the rock armoring and enhance the habitat quality of the river bottom for migrating fish species.

Following the construction of the riverbank and sediment caps, all of the topsoil areas were covered with specialized erosion control products at the end of the construction season. All reaches of the riverbank design were further protected using a bio-engineering approach that called for native riparian plants



(willow, dogwood, and spiraea) from local sources arranged in multiple rows of fascine (bound-up) bundles, or driven directly into the soil as live stakes. The newly constructed topsoil was then covered with a layer of native plant seed covered by an erosion resistant hydromulch (Figure 7).

During the following spring season and after allowing the newly placed riverbank fill to hydraulically consolidate, a native species planting strategy was implemented. The design called for the planting of more than 14,000 native plants in eight separate plant communities commonly found along undeveloped portions of the local rivers and streams. The plants were installed through the erosion control fabrics and watered by hand over a two-year period.

## Riverside Remediation

### Upland Design

### Bridge Construction Collaboration

#### Public/Private Partnerships

Upland design efforts focused on the safe handling techniques for managing soil contaminated by chemicals and asbestos. The upland soil design disposed soil with higher contamination levels at an approved landfill, but strived for a more sustainable approach for other soil with lower levels of contamination. Zidell's engineering team collaborated with the design team with local transit authority (TriMet) for the construction of its new light rail and pedestrian bridge span, that was to be built directly over the remediation project and would land on Zidell's property. Close coordination was required because the two projects were scheduled to start at the same time. Zidell and TriMet formed an effective and successful public/private partnership. The bridge's design required the landing to be elevated fifteen feet above the existing grade with retained earth fill. Zidell worked with DEQ and TriMet to design and construct a 12,000 cubic yard repository of contaminated soil within the new bridge landing and behind the clean retaining wall structures. This soil would otherwise have had to be taken to a landfill more than 100 miles away. Additionally, crushed rock that TriMet had imported to geotechnically consolidate the ground and prepare it for bridge construction, referred to as pre-load material, was purchased by Zidell and reused to construct a portion of a cleanup cap at a separate upland remediation site. The combined impact of constructing the soil repository for the bridge approach and Zidell's use of TriMet's pre-load material was to eliminate more than 1,000 dump truck trips through the South Waterfront neighborhood (Figure 8).



Figure 8

### Stormwater Outfall

An additional partnership success was the collaborative approach with the City of Portland to abandon a 100-year old six-foot diameter brick stormwater outfall pipe. The pipe had developed a sag that resulted in the accumulation of more than four feet of contaminated sediment on the pipe bottom. Through a cost-sharing agreement, Zidell utilized their general construction contractor to construct a pipe dam at each end and then filled the pipe with a concrete grout to entomb more than 300 CY of contaminated sediment which would have otherwise required landfill disposal. This collaboration resulted in a savings of more than \$300,000 when compared to the planned pipe abandonment using the City's design and procurement methods.

#### Monitoring

During construction, all remedial construction activities were observed by engineers to ensure that the remedy was completed per design. This included staff to verify the daily progress bathymetric records for sand, rock armor, and gravel placement. Divers were employed for construction quality assurance in obtaining cores of the sand cap to verify bathymetric measurements of cap thickness and to allow for sampling to determine that the sand cap had not become contaminated during installation. Geotechnical monitoring of pore-water pressures in the riverbed allowed the observation of the soft sediment bed so that the engineer could approve the placement of successive lifts of cap materials. Monitoring of water quality was performed to ensure that permit conditions were met and that aquatic wildlife was not adversely impacted by excessive turbidity in the water. At the end of construction a detailed multi-beam bathymetric survey was obtained to show the as-built condition of the underwater features. MFA also performed additional sampling of sediment adjacent to the sediment cap to ensure that contamination had not been increased as a result of cap construction. All monitoring activities were summarized in a construction completion report that was submitted to DEQ.

### Underwater Features

### Survey & Report

## Riverside Remediation

### Bank Erosion

### Fish Habitat

### Stormwater System

### Isolating Contaminants

### Fish Habitat Improvement

Routine post-construction engineering observation has been carried out following construction, and has shown the riverbank and upland remedies to be performing very well. In the early spring immediately following bank construction, an extended period (three months) of very high water conditions resulted in limited areas of bank erosion at the high water line as a result of vegetation not being established. However, the areas that had more robust vegetation establishment did exhibit more success in resisting erosion.

#### Additional Environmental Considerations

The site's project manager at Northwest Ecosystem Services continually pushed the project design team to develop an approach that would minimize the impact of the project on the surrounding environment. The remedial action addressed protection of threatened species of salmon and steelhead. It included a comprehensive evaluation of existing habitat and negotiation with federal agencies to ensure that critical fish habitat was preserved and enhanced by both removing exposure to contaminants and optimizing habitat functions. This required a series of changes to the armor design to reduce the amount and size of rock being placed as protection for the cap and an increase in riparian vegetation along the reach. A primary element was the placement of six inches of "fish-friendly" rounded gravel over an eight-acre area of the sediment cap armoring. The gravel was selected by the design team and regulators for the ability to stay in place under normal river flows and also provides a substrate that is preferred by endangered salmon species.

During construction, operational control measures were implemented at the site to minimize or eliminate the amount of contaminants picked up by stormwater crossing the active barge-building operation. These early steps included significant upgrades to the property's stormwater system and making operational changes to the barge construction process. A stormwater infiltration basin was constructed to divert more than half of the stormwater runoff generated at the site from several outfalls to the river. The new on-site stormwater treatment systems focused first on infiltrating stormwater instead of routing it directly to the river.

#### Environmental Enhancements & Project Benefits

The most significant contribution to the enhancement of the environment is the overall success of the remedy in isolating contaminants. The upland, bank, and sediment caps eliminate unnecessary human and ecological risk (terrestrial and aquatic) due to chronic exposure to harmful contaminants, including PCBs and asbestos. After construction, sediment PCB concentrations in the vicinity of the sediment cap were verified to have been reduced to ambient levels found in upstream (non-industrial) portions of the Willamette River — demonstrating significant design and construction success. In addition, the replacement of a significantly degraded/contaminated sandy river bottom substrate with a rounded river gravel substrate (the exposed layer of the sediment cap) has provided a dramatic improvement to fish habitat.



**Figure 9**

## Riverside Remediation

### Riverbank Planting

### Routine Monitoring & Maintenance

The improved riverbank habitat is one of the most visible elements of this cleanup project. The riverbank reconstruction work began in 2011 when workers removed over two acres of non-native riparian vegetation and noxious weed and constructed the bank cap. But the real transformation began in 2012 when the contractor installed more than 14,000 native shrubs and approximately 275 trees on the half-mile long riverbank. The new planting has transformed the blighted property into a verdant and vegetated shoreline with significant potential for redevelopment.

### Ten Years Later

The riverbank and sediment cap has now been in place for more than ten years and subjected to routine monitoring by engineers and native landscape contractors. The cap has demonstrated success at many turns of the road, though maintenance and repair has required diligence by Zidell.

The river's slow erosion of topsoil from the lowest elevations of riverbank cap has been a source of constant attention. Rock armor in the areas where the river flowed the slowest had been lowered in

response to permit negotiations with natural resource agencies. Due to erratic patterns in surface water level and long periods of high-water level, establishment of vegetation below the ordinary high water mark has been slow. After observing the loss of the topsoil covering multiple areas, jeopardizing the stability of larger shrub plantings, Zidell needed to shift to an approach that would stabilize the riverbank cap over the long-term. The design team proposed a repair that would carefully place rock armoring (riprap and habitat gravel) around the native shrubs that had been destabilized but were full grown and healthy. Three years following the repair, the riparian shrubs have returned as a dense cover that grows through the rock armoring systems (Figure 10). The dense canopy of riparian shrubs below the ordinary high water line further enhances fish habitat by increasing refugium during high velocity/high water conditions.

In compliance with the requirements of the agreement with DEQ, Zidell's chemical monitoring of the sediment

cap has shown that sediment PCB concentrations in the vicinity of the sediment cap have continued to diminish and remain consistent with the ambient levels found upstream. By completing the remediation activity in 2011 with DEQ oversight, Zidell improved this reach of the Willamette River well ahead of the federal Superfund cleanup process which is ongoing in Portland Harbor.

### Conclusion

The Zidell design team worked to meet and exceed regulatory requirements relating to ecological and human health. By evaluating fluvial dynamics of the river, bioengineering techniques were employed to minimize traditional riprap and improve the habitat of threatened species. Zidell's effort to remediate the riverfront provides substantial new habitat for fish and bird species, eradicated noxious and invasive plant species, and reestablished native vegetation along the shore.

Zidell successfully partnered with two public agencies, the City of Portland and TriMet, to coordinate and cooperatively complete work so that multiple projects could accomplish their goals in the same work period, at a reduced cost. These collaborations also reduced traffic impacts on local streets and highways by more than a thousand truck trips, with a significant reduction in overall air emissions for both projects.

Overall, Zidell has successfully improved the site conditions and readied it for future use.

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Figure 10



### Chemical Monitoring

### Fluvial Dynamics

### Successful Partnering

**Erik Bakkom**, Principal Engineer at Maul Foster & Alongi, is a civil engineer licensed in Oregon, Washington, and Idaho. Mr. Bakkom has 21 years of experience in environmental engineering, with expertise in the areas of sediment remediation, brownfield/industrial site cleanup, and solid and hazardous waste management and facility design. Mr. Bakkom works with technical teams that include the varied skills of engineers, scientists, planners, ecologists, and regulatory specialists. Mr. Bakkom has led the design and construction efforts for complex remediation projects (upland, groundwater, riverbank, and sediment) and landfill facilities in Oregon, Washington, and Idaho. His design philosophy is to creatively look at the comprehensive system and how pieces interact in order to simplify the design and determine the most efficient and constructible solution.

Water Quality  
StandardsTreaty-Reserved  
Fishing Rights

## New Standards

Hearings  
& CommentsHuman Health  
Criteria (HHC)Consumption  
Rates  
(WCR & FCR)Relative Source  
Contribution  
(RSC)Bioaccumulation  
Factors (BAFs)2015  
Recommendations

## WASHINGTON WATER QUALITY STANDARDS

EPA RULEMAKING: STANDARDS PROPOSED TO PROTECT HUMAN HEALTH

by Andrew S. Fuller and Drew T. Pollom  
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## Introduction

On April 1, 2022, the US Environmental Protection Agency (EPA) proposed a new rule (2022 Rule) that is of particular importance to treaty fishing Tribes located in the State of Washington (Washington). In effect, the 2022 Rule is intended to further protect Washington surface waters and treaty-reserved fishing rights by restricting the amount of pollutants released into Washington waters that could adversely impact human health due to the consumption of fish and shellfish. *See: Restoring Protective Human Health Criteria in Washington*, 87 Fed. Reg. 63, 19406 (proposed on April 1, 2022) (to be codified at 40 CFR § 131).

The new water quality standards (WQS) established by the 2022 Rule benefit Washington treaty fishing tribes, as well as other treaty fishing tribes outside of Washington who may wish to include these more restrictive standards in their own tribal water quality standards.

The deadline for submitting comments to EPA on the 2022 Rule is May 31, 2022. EPA is offering two online public hearings so that interested parties may provide oral comments on EPA's proposed rule: Tuesday, May 24, 2022 (9am - 11am Pacific Time) and Wednesday, May 25, 2022 (4pm - 6pm Pacific Time). *See* [www.epa.gov/wqs-tech/federal-human-health-criteria-washington-state-waters](http://www.epa.gov/wqs-tech/federal-human-health-criteria-washington-state-waters)

## National Human Health Criteria Standards

Certain pollutants found in surface waters and sediments can bioaccumulate in fish and shellfish. The federal Clean Water Act (CWA) includes provisions that can be used in the development of WQS to ensure fish and shellfish remain safe for human consumption. The CWA allows states (and tribes exercising CWA authority) to develop their own WQS. These standards may include Human Health Criteria (HHC) that restrict the discharge of designated pollutants to surface waters. Generally, the CWA requires that HHC be used to develop WQS to reduce the risk of negative health effects due to a lifetime of exposure to certain pollutants.

EPA uses several factors in their development of WQS:

First, EPA sets a national Water Consumption Rate (WCR) and a Fish Consumption Rate (FCR). The higher the fish consumption level, the more potential pollutants a person may be exposed to, which should result in a more restrictive WQS. The national default WCR is 2.4 liters/day and the national default FCR is 22 grams/day.

Second, HHCs need to take into account the fact that a person would likely be exposed to multiple pollutants from a variety of sources. This factor known as Relative Source Contribution (RSC), which accounts for sources of exposure to a pollutant other than drinking water or consuming fish or shellfish. This is expressed as a range of 0.1 to 1.0. EPA Guidance requires States to calculate an RSC value of less than 1 with a national range of 0.2-0.8 for a pollutant to ensure that drinking water and fish consumption are not the only sources of exposure to pollutants. In order to account for other sources, stricter WQS limits for the pollutants are needed.

Finally, the criteria must account for the bioaccumulation factors (BAFs) of each pollutant. BAFs measure the impacts of a lifetime of accumulated exposure to a pollutant. These factors work together to produce HHC to protect impacted individuals who would otherwise develop cancer or other illness as a result of long-term exposure to pollutants in fish or shellfish. For example, more stringent EPA guidelines currently limit cancer risk caused by pollutants to a limit of 1 in 1,000,000.

## Current HHCs in Washington

In 2015, the EPA recommended new HHCs for Washington which included a FCR of 175 grams/day. This FCR was a result of consultation with tribal governments that advised EPA of the need to consider the fact that tribal members eat more fish than the general public. However, before EPA finalized its proposed HHCs, Washington submitted an updated HHC to the EPA for review. The updated HHC was in compliance with EPA guidelines, including the FCR of 175 grams/day.

## Water Quality Standards

### HHC Deficiencies

In the course of this regulatory process EPA found that the proposed Washington HHC had three deficiencies:

First, the proposed HHC assumed that people would only be exposed to certain pollutants from water consumption or fish consumption (this was expressed as an RSC value of 1). By ignoring potential exposure from other sources, the proposed HHC would produce a less stringent WQS that would allow exposure to an increased amount of a pollutant over a person's lifetime.

Second, instead of using BAFs, Washington used bioconcentration factors (BCFs) in their pollutant calculations, leading to an underestimation of the exposure to pollutants. BCFs are less protective than BAFs because they do not account for lifetime accumulation in humans from exposure to pollutants from multiple sources such as water, food, and soil.

Finally, Washington adopted a specific HHC for Polychlorinated Biphenyls (PCBs) which resulted in a substantial increase in cancer risks associated with exposure to PCBs.

### Proposed 2022 Rule and Comment Period

To address the deficiencies in the Washington's HHC, EPA proposed the following revisions in the 2022 Rule:

First, the 2022 Rule maintains the FCR of 175 grams/day for Washington.

Second, the 2022 Rule requires Washington to consider other sources of a pollutant in addition to surface water impacts toward the goal of reducing adverse impacts over a lifetime of exposure.

Finally, the 2022 Rule requires Washington to use BAFs instead of BCFs to account for a person's lifetime exposure to pollutants from multiple sources. The use of BCFs instead of BAFs would result in lower limits for PCBs, that will reduce the risk of cancer caused by PCBs to within EPA approved levels.

EPA's adoption of these changes is intended to further protect the surface waters of Washington and the health of tribal members' exercising their treaty fishing rights.

Tribes and other interested parties can review the rule and the proposed HHC criteria at: [www.govinfo.gov/content/pkg/FR-2022-04-01/pdf/2022-06879.pdf](http://www.govinfo.gov/content/pkg/FR-2022-04-01/pdf/2022-06879.pdf).

### Recommendation and Conclusion

The 2022 Rule will help protect tribal communities against the threat of toxic exposure from surface water pollution. However, the 2022 Rule may not go far enough to serve the best interest of tribal communities exposed to pollutants through fish consumption. In 2012, the Washington Department of Ecology estimated that tribal members consume anywhere between 1.5x to 4x the exposure rate (FCR) that EPA uses in the 2022 Rule. *See generally, Fish Consumption Rates: Technical Support Document*, State of Washington Department of Ecology (Published in January 2013) available at: <https://apps.ecology.wa.gov/publications/documents/1209058.pdf>

Accordingly, we recommend that tribal environmental professionals discuss the proposed rule with their tribal attorney to determine whether the proposed rule is a step in the right direction that will serve to protect the tribal members. Tribes may choose to support this positive change while reminding EPA that further changes are needed to protect tribal members that are exercising their treaty fishing rights.

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## EP/ESA US

## PESTICIDES REGISTERING - SUSTAINABLE AGRICULTURE SUPPORT

The Environmental Protection Agency (EPA) released its first-ever comprehensive workplan to address the decades-old challenge of protecting endangered species from pesticides. The plan establishes four overall strategies and dozens of actions to adopt those protections while providing farmers, public health authorities, and others with access to pesticides.

EPA has an opportunity and an obligation to improve how it meets its duties under the federal Endangered Species Act (ESA) when it registers pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). For most of EPA's history, the agency has met these duties for less than five percent of its FIFRA decisions. This has resulted in over 20 ESA lawsuits against EPA, which have increased in frequency in recent years, creating uncertainty for farmers and other pesticide users, unnecessary expenses and inefficiencies for EPA, and delays in how EPA protects endangered species.

EPA currently has over 50 pesticide ingredients, covering over 1,000 pesticide products, with court-enforceable deadlines to comply with the ESA or in pending litigation alleging ESA violations. Completing this work will take EPA past 2040, yet the work represents less than five percent of all the FIFRA decisions in the next decade for which ESA obligations exist. This is an unsustainable and legally tenuous situation, in which EPA's schedule for meeting its ESA obligations has historically been determined through the courts. The workplan must provide a path for the Agency to meet those obligations on its own, thus protecting endangered species while supporting responsible pesticide use.

EPA's workplan also sets a new vision for a successful ESA-FIFRA program that focuses on protecting species under the ESA, while minimizing regulatory impacts to pesticide users, supporting the development of safer technologies to control pests, completing timely FIFRA decisions, and collaborating with other agencies and stakeholders on implementing the plan.

The workplan describes four strategies and multiple actions to further the vision:

- 1) A key strategy is for EPA to meet its ESA obligations for all FIFRA actions that invoke ESA. Because EPA does not have the capacity or scientific processes in place to meet all these obligations immediately, it has identified the FIFRA actions that are the highest priority for fulfilling its ESA obligations. These include actions with court-enforceable deadlines and new registrations of conventional pesticides.
- 2) A second strategy is to improve approaches to identifying and requiring ESA protections, especially for species facing the greatest risk from pesticides.
- 3) A third strategy is to improve the efficiency and timeliness of the ESA consultation process for pesticides, in coordination with other federal agencies.
- 4) A fourth strategy is to engage stakeholders more effectively, to better understand their pest control practices and implement species protection measures.

EPA needs the help of other federal agencies, state agencies, and stakeholders to implement these actions. Through the workplan, EPA is describing its future directions in the hope of collaborating with all these organizations on implementation. Over the coming months, EPA will engage with a wide range of stakeholders to identify opportunities for collaboration and will continue seeking input on more effective and efficient ways to meet its ESA obligations. The workplan is a living document that EPA will periodically revisit to incorporate lessons learned from implementation.

### Background

Under the Biden-Harris Administration, EPA has begun taking unprecedented steps to fully meet its ESA obligations when registering pesticides, including:

In November 2021, EPA worked with the US Department of Agriculture, Department of the Interior, Department of Commerce, and Council on Environmental Quality to reconvene the ESA-FIFRA Interagency Working Group established under the 2018 Farm Bill. In January 2021, the group held its first-ever stakeholder meeting in the form of a public listening session with over 500 participants. The group is evaluating feedback from the event and determining next steps.

In January 2022, EPA renewed the registrations of two herbicide products for the 2022 growing season while incorporating robust measures to protect non-target plants and animals under FIFRA and the ESA.

In January 2022, EPA announced that before it registers any new conventional pesticide active ingredient, the agency will meet its ESA obligations, including by evaluating potential effects on ESA-listed species and, where necessary, initiating ESA consultation with the federal wildlife agencies.

In March 2022, EPA announced that it will begin taking steps to protect endangered species in response to the US Fish and Wildlife Service's biological opinion for the insecticide malathion. The opinion represents a major milestone in EPA's collaboration with the Service on the first-ever completed nationwide consultation between the agencies.

In addition to these measures, EPA has held numerous internal strategy sessions and workshops to identify practical steps the Agency will pursue under the ESA-FIFRA workplan. In the coming months, EPA will offer more details on implementing the workplan, especially actions to adopt mitigation earlier in its FIFRA process and to meet its ESA obligations when reevaluating pesticides every 15 years.

**For info:** EPA-ESA website: [www.epa.gov/endangered-species](http://www.epa.gov/endangered-species)

## WATER BRIEFS

**STATUTE OF LIMITATIONS US**  
**CWA POINT SOURCE CONTROLS**

The Tenth Circuit Court of Appeals (Court) recently filed its opinion in *Allen v. Environmental Restoration, LLC*, Case No. 19-2197, --- F.4th --- 2022 WL 1310904 (May 3, 2022) determining that the applicable statute of limitations for a Clean Water Act (CWA) lawsuit is governed by the point source state's procedural law, as opposed to the forum state's or the federal statute of limitations.

The Court's succinct statement of applicable facts lays out why the time-sensitive statute of limitations — the time within which a lawsuit must be commenced — is crucial in this case. "During excavation of an inactive gold mine in southwestern Colorado, a blowout caused the release of at least three million gallons of contaminated water into Cement Creek. The water from Cement Creek flows into the Animas and San Juan Rivers, which continue into New Mexico. The United States Environmental Protection Agency ('EPA') has conceded its responsibility for the spill and its impacts. The State of New Mexico, the Navajo Nation, and the State of Utah separately filed civil actions, under the CWA, in New Mexico and Utah against the owners of the mine, the EPA, and the EPA's contractors. ... Later, the Allen Plaintiffs — individuals who farm land or raise livestock along the Animas River or San Juan River — filed a complaint in the District of New Mexico that included state law claims of negligence, negligence per se, and gross negligence. The district court consolidated the Allen Plaintiffs' suit, including the state law claims, into the Multidistrict Litigation." *Id.*

The defendants moved to dismiss just the Allen Plaintiffs, due to their later filing of their complaint. "Defendant Environmental Restoration, LLC moved to dismiss the Allen Plaintiffs' Complaint pursuant to Federal Rule of Civil Procedure 12(b)(6), arguing that the Allen Plaintiffs did not file their complaint within Colorado's two-year statute of limitations and therefore they failed to state a claim. The Allen Plaintiffs responded that they timely

filed under New Mexico's three-year statute of limitations. The district court denied the motion to dismiss, reasoning that New Mexico's three-year statute of limitations applied to the Allen Plaintiffs' state-law claims." *Id.* Colorado is the state where the point source of the blowup was located; New Mexico is the "forum state," where the Allen Plaintiffs' claimed damages occurred.

In the opening paragraph of the opinion the Court set forth the reasoning for its decision. "When Congress passed the Clean Water Act ('CWA'), 33 U.S.C. §§ 1251–1389, it established an all-encompassing program of water pollution regulation. The CWA preserved certain state law actions, but it set forth a detailed regulatory system — so carefully prescribed that a court must apply the point source state's substantive law to these state law claims, no matter the forum. The Supreme Court made that much clear over a quarter century ago. But today we confront what statute of limitations controls such state law claims — the forum state, the point source state, or federal. Just as the forum state must apply the point source state's substantive law, today we hold it also must apply the point source state's statute of limitations." *Id.* at 2022 WL 1310904.

Later in the opinion, the Court discussed its rationale based on the CWA: "Here, application of the forum state's statute of limitations is inconsistent with Congress's full purposes and objectives in passing the CWA — one being efficiency, predictability, and certainty in determining liability for discharging pollutants into an interstate body of water." Citing *Int'l Paper Co. v. Ouellette*, 479 U.S. 481, 496–97, 107 S.Ct. 805, 93 L.Ed.2d 883 (1987).

**For info:** Opinion available at: [www.narf.org/nill/bulletins/federal/documents/allen\\_v\\_environmentalrestoration.html](http://www.narf.org/nill/bulletins/federal/documents/allen_v_environmentalrestoration.html)

**TRIBAL JURISDICTION UT**  
**"MONTANA EXCEPTIONS"**

In the Tenth Circuit Court of Appeals (Court) decision of April 27, 2022, Judge Carson began with a

statement of the issue before the Court. "This appeal boils down to whether a tribal court has jurisdiction over a dispute between the tribe and a non-Indian about rights to water within reservation boundaries but not on Indian land." *Ute Indian Tribe of the Uintah and Ouray Reservation v. McKee*, --- F.4th ---, 2022 WL 1231677 (April 27, 2022) (*McKee*).

"This case arises from a long-running irrigation-water dispute between Plaintiff Ute Indian Tribe of the Uintah and Ouray Reservation and Defendant Gregory McKee, who is not a member of the Tribe. Defendant owns non-Indian fee land within the Ute reservation's exterior boundaries and uses water from two irrigation canals flowing through his property. Plaintiff claims the water belongs to the United States in trust for the Tribe." *Id.* (footnotes omitted).

A thorough reading of the opinion is recommended, particularly as it relates to the Court's discussion of the two "Montana exceptions." "The Supreme Court has recognized only two exceptions under which Indian tribes can regulate nonmembers. Tribes can regulate the activity of nonmembers who enter consensual relationships with them or their members, and [second] they can regulate the activity of nonmembers on reservation land — even non-Indian fee land — if that activity threatens their political integrity, economic security, or health and welfare. *Montana*, 450 U.S. at 565–66, 101 S.Ct. 1245 (citations omitted). But these exceptions are narrow, and a tribal court presumptively lacks jurisdiction over nonmembers' activities on non-Indian fee land. *See Plains Com.*, 554 U.S. at 330, 128 S.Ct. 2709. Thus, Plaintiff bears the burden of showing that one of the exceptions applies if it wishes to overcome the presumption that it cannot regulate Defendant's activities on non-Indian fee land." *Id.* (citation omitted).

In regard to the second exception, the Court highlighted the limited application of the exception: "The Supreme Court has stated that for this exception to apply, the challenged conduct cannot merely injure the tribe

## WATER BRIEFS

but must be ‘catastrophic for tribal self-government.’ *Plains Com.*, 554 U.S. at 341, 128 S.Ct. 2709 (citation and internal quotation marks omitted). The district court, finding no evidence that Defendant’s use of the disputed water had been catastrophic for the Tribe, determined that the tribal court lacked jurisdiction over the dispute.” *Id.* (McKee).

The jurisdiction issue ultimately persuaded the Court to affirm the district court’s dismissal of the case. “Plaintiff sued Defendant in the Ute tribal court, alleging that Defendant had been diverting the Tribe’s water for years, and won. Plaintiff then petitioned the district court to recognize and enforce the tribal-court judgment. But the district court dismissed the case after holding that the tribal court lacked jurisdiction to enter its judgment. Because we too conclude that the tribal court lacked jurisdiction over Plaintiff’s dispute with a nonmember of the Tribe arising on non-Indian fee lands, we exercise jurisdiction under 28 U.S.C. § 1291 and affirm.” *Id.*

The finding that the tribal court lacked jurisdiction resulted in the Court not examining the merits of Plaintiffs’ claim to trust water rights. “The district court, however, determined that the merits of Plaintiff’s claim to the water are inapplicable to the jurisdictional question because regardless of the extent of Plaintiff’s water rights, the tribal court lacked jurisdiction over a nonmember’s water use on nontribal land. We agree with the district court; we need not wade into the merits of Plaintiff’s claim to exclusive rights in the disputed water because the tribal court lacked jurisdiction.”

**For info:** Opinion available at: [www.narf.org/nill/bulletins/federal/documents/ute\\_v\\_mckee22.html](http://www.narf.org/nill/bulletins/federal/documents/ute_v_mckee22.html)

#### WATERSMART GRANT WA WATER QUANTITY ISSUES

On May 5, the Lincoln Conservation District (LCCD) announced that it has been awarded a federal Bureau of Reclamation WaterSMART grant for municipal water sources and other stakeholders to build on efforts to resolve water quantity

issues in the Mid-Columbia Basin. As grant sponsor, LCCD will represent a coalition of stakeholders in a new group called the Columbia Basin Sustainable Water Coalition (CBSWC) made up of municipalities, counties, economic development councils, agricultural groups, Washington Department of Commerce, Department of Health, Washington Department of Ecology, and others.

“Lincoln County cities, residential well users, and rural livestock producers have experienced declining water and well rehydration has shown little to no improvement on future supplies,” says Lincoln County Commissioner Mark Stedman. The \$100,000 WaterSMART grant will refine the CBSWC organizationally and develop project alternatives in the area including groundwater monitoring in those areas without monitoring. “I think Benjamin Franklin said it best ‘When the well is dry, we know the worth of water.’ We know the aquifer is declining through years of well monitoring. This grant is to find alternative projects before we experience dry wells,” said LCCD Manager, Elsa Bowen.

The CBSWC’s work builds on studies done by the Columbia Basin Groundwater Management Area (GWMA) and plans to collect data representing the experiences of municipal water systems in the Basin. The CBSWC is to add information from municipal water systems to the larger effort in the Basin seeking to preserve groundwater levels.

The CBSWC meets monthly and stakeholders are welcome.

**For info:** Elsa Bowen, 509/ 725-4181 ext 117 or [ebowen@lincolncd.com](mailto:ebowen@lincolncd.com)

#### FEDERAL WATER THEFT CA CANAL LEAK

On April 14, a federal grand jury returned a five-count indictment against Dennis Falaschi, 75, of Aptos, California, charging him with conspiracy, theft of government property, and filing false tax returns, US Attorney Phillip A. Talbert announced. According to court documents, Falaschi was the general manager for a public

water district in Fresno and Merced Counties near the communities of Dos Palos, Firebaugh, and Los Banos. He exploited a leak in the Delta-Mendota Canal and engineered a way to steal over \$25 million in federally owned water.

According to court documents, in 1992, Falaschi was informed that an old, abandoned drain turnout near milepost markers 94.57 and 94.58 on the Delta-Mendota Canal was leaking water from the Delta-Mendota Canal into a parallel canal that the water district controlled. The drain was connected to a standpipe on the bank of the Delta-Mendota Canal that used a gate and valve to redirect water from the Delta-Mendota Canal into the water district’s canal. The gate had been cemented closed years earlier. The cement had since cracked and water was coming through it.

Thereafter, Falaschi instructed an employee to install a new gate inside the standpipe so that the site could be opened and closed on demand. He later instructed the employee to install a lid with a lock on top of the standpipe and an approximate two-foot elbow pipe off the valve of the standpipe that angled down 90 degrees into the water district’s canal. The lid concealed the theft because it prevented people from seeing that the gate inside the standpipe was functional. The elbow pipe further concealed and expedited the theft because it enclosed the water flow from the Delta-Mendota Canal into the water district’s canal and was installed in such a way that it was generally submerged under the water.

Falaschi subsequently instructed employees to use the site to steal federal water from the Delta-Mendota Canal on multiple occasions until the site was discovered in April 2015. He used the proceeds of the theft to pay himself and others exorbitant salaries, fringe benefits, and personal expense reimbursements.

Additionally, Falaschi is charged with filing false tax returns in 2015 through 2017. According to court records, he failed to report over \$900,000 in income to the Internal Revenue Service that he received from private water sales.

## WATER BRIEFS

The case is the product of an investigation by the US Department of the Interior's Office of Inspector General, the IRS-Criminal Investigation, and the Federal Bureau of Investigation. Assistant U.S. Attorney Joseph Barton is prosecuting the case.

If convicted of theft of government property, Falaschi faces a maximum penalty of ten years in prison and a fine up to \$250,000. If convicted of conspiracy, he faces a maximum penalty of five years in prison and a fine up to \$250,000. If convicted of the tax charges, he faces a maximum penalty of three years in prison and a fine up to \$250,000. Any sentence, however, would be determined at the discretion of the court after consideration of any applicable statutory factors and the Federal Sentencing Guidelines, which take into account a number of variables. The charges are only allegations; the defendant is presumed innocent until and unless proven guilty beyond a reasonable doubt.

**For info:** Indictment available at: [www.justice.gov/usao-edca/press-release/file/1494726/download](http://www.justice.gov/usao-edca/press-release/file/1494726/download)

## NUTRIENT POLLUTION US PRINCIPLES - STRATEGIES

On April 11, EPA released the *Compendium of State and Regional NPDES Nutrient Permitting Approaches* (pdf). [103-pages at: [www.epa.gov/system/files/documents/2022-04/compendium-of-npdes-nutrient-permitting-approaches.pdf](http://www.epa.gov/system/files/documents/2022-04/compendium-of-npdes-nutrient-permitting-approaches.pdf)]. The compendium is a collection of state practices throughout the US for controlling the adverse effects of nutrient pollution through NPDES permits. It is divided into the following sections: Permitting Critical Conditions, Performance Based Approaches, Water Quality Trading, and Watershed-Based Permitting. The *Compendium* responds to states' requests that EPA compile different state approaches in order to facilitate state-to-state information sharing.

The *Compendium* is a component of EPA Assistant Administrator Radhika Fox's April 5, 2022, memo *Accelerating Nutrient Pollution Reduction in the Nation's Waters* (Memo), which

identifies several governing principles and strategies to continue reductions in nutrient pollution. Memo at: [www.epa.gov/system/files/documents/2022-04/accelerating-nutrient-reductions-4-2022.pdf](http://www.epa.gov/system/files/documents/2022-04/accelerating-nutrient-reductions-4-2022.pdf).

Fox's Memo starts by providing the context on the subject: "Nutrient pollution is a continuing and growing challenge with profound implications for public health, water quality, and the economy. In a changing climate, the complexity and severity of the problem is increasing. Nutrients are the most widespread stressor impacting rivers and streams. Fifty-eight percent of the nation's rivers and streams and 45 percent of our lakes have excess levels of phosphorus. About two-thirds of the nation's coastal areas and more than one-third of the nation's estuaries are impaired by nutrients. Excess nutrients contribute to harmful algal blooms, areas of low oxygen known as "dead zones," and high levels of nitrates that contaminate waters used for recreation, drinking water, wildlife, pets and livestock, and aquatic life — while also damaging the economy in many communities.

At the same time, promising innovations, creative partnerships, holistic One Water solutions, and unprecedented opportunities to invest in clean and safe water through the Bipartisan Infrastructure Law (the Law) have the potential to rapidly accelerate progress on nutrient pollution. More effective strategies are particularly important as we see acute impacts of nutrient pollution fall on communities lacking the capacity to address them." [footnotes omitted].

The Memo lays out the five governing principles that will guide the Office of Water's strategies to work with states, tribes, and local partners to drive reductions in nutrient pollution:

- Advance equity and environmental justice
- Build and foster partnerships
- Follow the science and invest in data-driven solutions
- Support innovation
- Scale successful initiatives

The Memo then sets forth three primary strategies to drive continued

reductions in nutrient pollution:

- Deepen collaborative partnerships with agriculture
- Redouble our efforts to support states, tribes, and territories to achieve nutrient pollution reductions from all sources
- Utilize EPA's Clean Water Act authorities to drive progress, innovation, and collaboration

See Memo for details on the principles and strategies.

**For info:** Danielle Stephan, EPA at [stephan.danielle@epa.gov](mailto:stephan.danielle@epa.gov)  
Memo at: [www.epa.gov/system/files/documents/2022-04/accelerating-nutrient-reductions-4-2022.pdf](http://www.epa.gov/system/files/documents/2022-04/accelerating-nutrient-reductions-4-2022.pdf)

## LAKE POWELL & DROUGHT RECLAMATION RESPONSE

The US Bureau of Reclamation (Reclamation) announced on May 3<sup>rd</sup> two separate urgent drought response actions that will help prop up Lake Powell by nearly 1 million acre-feet (maf) of water over the next 12 months (May 2022 through April 2023). As of May 3<sup>rd</sup>, Lake Powell's water surface elevation is at 3,522 feet, its lowest level since originally being filled in the 1960s. A critical elevation at Lake Powell is 3,490 feet, the lowest point at which Glen Canyon Dam can generate hydropower. This elevation introduces new uncertainties for reservoir operations and water deliveries because the facility has never operated under such conditions for an extended period. These two actions equate to approximately 16 feet of elevation increase.

Given the extraordinary circumstances in the Colorado River Basin, Reclamation is invoking its authority to change annual operations at Glen Canyon Dam for the first time. The measure protects hydropower generation, the facility's key infrastructure, and the water supply for the city of Page, Arizona, and the LeChee Chapter of the Navajo Nation.

To protect Lake Powell, more water will flow into the lake from upstream reservoirs and less water will be released downstream: under a Drought Contingency Plan adopted in 2019, approximately 500

## WATER BRIEFS

thousand acre-feet (kaf) of water will come from Flaming Gorge Reservoir, located approximately 455 river miles upstream of Lake Powell. Flaming Gorge Reservoir, located on the Green River in Utah and Wyoming, currently holds approximately 3 maf of water and is at 78% of its storage capacity. Flaming Gorge's contribution of 500 kaf of water is expected to drop the reservoir's water surface elevation by approximately nine feet and could impact some of the reservoir's recreational amenities. Additional water could also be released from Blue Mesa and Navajo reservoirs through a modified plan if those reservoirs meet their water contract obligations and have water available, which will be determined later this year.

Another 480 kaf will be left in Lake Powell by reducing Glen Canyon Dam's annual release volume from 7.48 maf to 7.0 maf, as outlined in the 2007 Interim Guidelines that control operations of Glen Canyon Dam and Hoover Dam. To reduce the amount of water released from Glen Canyon Dam to 7.0 maf, Reclamation will keep the 350 kaf of water that was held back earlier this year and will hold back an additional 130 kaf before the end of the water year (September 30, 2022). Reclamation will account for this temporary reduction so that it does not penalize either basin by triggering a new series of required releases or shortage determinations.

Reclamation has previously taken proactive steps based on the 2019 Drought Contingency Plan. In 2021, Reclamation released approximately 161 kaf of water from upstream initial units of the Colorado River Storage Project, and earlier this year, Reclamation modified Glen Canyon Dam releases to temporarily hold back 350 kaf of water to slow the reservoir's decline in the months before spring runoff.

Water users in the Lower Basin are implementing the shortage provisions in the 2007 Interim Guidelines and the 2019 Drought Contingency Plan and are also creating additional conservation programs, such as efforts designed to conserve an additional 500 kaf in Lake Mead in 2022 and 2023. Complementary actions are also under

active consideration with Mexico, pursuant to Minute No. 323 to the 1944 US Mexico Water Treaty.

**For info:** Patti Aaron, Reclamation, 702/ 726-1921 or paaron@usbr.gov

#### COLORADO CANAL CO/NE SOUTH PLATTE WATER PROJECT

On April 18, Nebraska Governor Pete Ricketts signed LB 1015, which authorizes construction of a canal and reservoir system to protect South Platte River water flowing into Nebraska from Colorado, according to the Governor's Office. Colorado undoubtedly sees the Nebraska law in a different light. The Governor also signed LB 1023e, approving water projects put forward by the Legislature's Statewide Tourism and Recreational Water Access and Resource Sustainability (STAR WARS) Committee.

"Today, we enacted two key laws to strengthen Nebraska's water resources," said Gov. Ricketts. "LB 1015 helps protect the South Platte River water we depend on for drinking water, agricultural irrigation, and to nourish our natural environment. LB 1023e makes strategic investments to develop our water resources. This will create recreational opportunities for Nebraska's families and grow tourism in our state. Thanks to Senators for protecting and developing our water resources this session."

The Unicameral passed LB 1015, the Governor's press release noted, to protect Nebraska's South Platte River water flows from aggressive developments in Colorado. The state of Colorado is planning nearly \$10 billion of water projects in the South Platte River Basin to prevent water from leaving the state. Nebraska has a compact with Colorado that guarantees the state of Nebraska minimum flows of South Platte River water throughout the year. Nebraska's entitlement is contingent on building a canal and reservoir system — known as the Perkins County Canal — along the South Platte River. LB 1015 authorizes the Perkins County Canal to be constructed.

The Nebraska Legislature's STAR WARS Committee has worked over the past year to identify opportunities to make the most of Nebraska's water resources. Water projects approved in LB 1023e include:

- Creation of a 3,600-acre reservoir between Lincoln and Omaha
- Construction of a new marina at Lake McConaughy
- Construction of an event center and lodge at Niobrara State Park
- A major marina expansion at Lewis and Clark Lake

**For info:** Governor's website at: <https://governor.nebraska.gov/>; Alex Reuss, Governor's Office, 402/ 471-1970

#### WETLANDS US MIGRATORY BIRD FUNDING

In late April, Secretary of the Interior Deb Haaland announced that \$95 million in funding has been approved by the Migratory Bird Conservation Commission, which will provide the US Fish and Wildlife Service (USFWS) and its partners the ability to help conserve or restore more than 300,000 acres of wetland and associated upland habitats for waterfowl, songbirds and other birds across North America — including Canada and Mexico.

\$78 million in grants, made through the North American Wetlands Conservation Act (NAWCA), will be matched by more than \$116 million in partner funds. In addition, the Commission approved \$17 million from the Migratory Bird Conservation Fund to conserve land in San Bernard National Wildlife Refuge in Texas for public use and hunt programs.

Since 1991, \$2 billion in funds, matched by \$4 billion in partner funds, have been approved by the Commission, totaling \$6 billion for wetland conservation.

Wetlands provide many economic, ecological and social benefits to species and the surrounding communities. They are also important protections from the effects of climate change such as flooding and rising seas. NAWCA grants conserve bird populations and wetland habitat while supporting local

## WATER BRIEFS

economies and outdoor recreational opportunities, such as hunting, fishing and birdwatching. Partners in NAWCA projects include private landowners, states, local governments, conservation organizations, sportsmen's groups, Tribes, land trusts and corporations.

These efforts also help support the America the Beautiful initiative, a locally led and voluntary campaign to protect, conserve, and restore America's lands and waters for the benefit of current and future generations.

In addition to grants approved by the Commission, funding to expand the San Bernard National Wildlife Refuge was derived primarily from the sale of Federal Migratory Bird Hunting and Conservation Stamps, commonly known as Duck Stamps, and import duties on imported arms and ammunition. Since 1934, the Federal Duck Stamp Program has provided more than \$1.1 billion for habitat conservation in the National Wildlife Refuge System.

The funds will be used to purchase waterfowl habitat at the San Bernard National Wildlife Refuge in Texas. This acquisition of 5,641 acres will connect to an existing 4,800 acres of refuge lands. The combined area of more than 10,000 acres will be the largest protected piece of Columbia Bottomlands in Brazoria and Matagorda counties.

NAWCA is the only federal grant program dedicated to the conservation of wetland habitats for migratory birds. Since 1989, funding has advanced the conservation of wetland habitats and their wildlife in all 50 US states, Canada and Mexico, while engaging more than 6,600 partners in over 3,200 projects. Through NAWCA, federal funds are typically leveraged at twice the legally required dollar-for-dollar non-federal match-to-grant ratio.

**For info:** USFWS Migratory Birds website: <https://fws.gov/program/migratory-birds>

## FISH PASSAGE US INFRASTRUCTURE LAW FUNDING

In April, the US Department of the Interior announced that 40 fish passage projects in 23 states and Puerto Rico

will receive a total of nearly \$38 million in fiscal year 2022 funding from the Bipartisan Infrastructure Law. With a total of \$200 million in investments in the National Fish Passage Program over the next five years, the Bipartisan Infrastructure Law will bolster efforts to address outdated, unsafe or obsolete dams, culverts, levees and other barriers fragmenting our nation's rivers and streams, which will help restore fish passages and aquatic connectivity.

The National Fish Passage Program, facilitated by the USFWS, supports aquatic ecosystem restoration projects and restores free-flowing waters, allowing for enhanced fish migration and protecting communities from flooding.

The National Fish Passage Program has decades of proven experience implementing infrastructure projects with partners to improve the health of the nation's waterways, reconnect rivers, improve climate resilience, and enhance local economies. The program provides financial, engineering and planning assistance to communities, Tribes, and landowners to help remove barriers and restore rivers for the benefit of fish and people.

Since 1999, the program has worked with over 2,000 local communities, states, Tribes and private landowners to remove or bypass 3,202 barriers to fish passage and reopen access to 57,736 miles of upstream habitat and 193,783 acres of wetland habitat for fish and other animals. The rivers, streams and coastal systems of the North America once supported vast annual runs of fish such as Atlantic salmon, American shad, alewife, blueback herring and American eel. These species and many others, including some at-risk and listed species, depend on connected streams and high-quality habitat to survive.

During the past 200 years, many of these populations have decreased drastically, in large part due to the proliferation of barriers like dams and undersized culverts and watershed development that blocks fish from their natural migrations.

Current National Fish Passage Program projects include:

- The Potomac Headwaters Fish Passage Restoration will implement up to 17 fish passage barrier removal projects, including dam removals and road-stream crossing replacements, to reconnect over 195 miles of habitat for brook trout and American eel in the headwaters of the Potomac Watershed across three states (West Virginia, Virginia, and Maryland). This project is part of the Potomac Headwaters River restoration effort where other partners have been collectively working for over 15 years to reconnect high quality, limestone underlain spring fed, brook trout patches.
- In Arizona the Apache Trout Recovery Fish Passage Infrastructure project will remove barriers on several creeks and replace culverts, most of which are on Tribal land. The project will help create larger populations of Apache trout in addition to re-opening access to 52.4 miles of habitat.
- Across coastal Florida, Dam Removal and Stream Restoration in Florida projects will remove two dams and restore streams on the Apalachicola, Myakka, and Econlockhatchee Rivers. The projects will benefit five federally listed mussel species as well as Gulf sturgeon and Florida manatee.
- The Tyonek Creek Culvert Replacement for the Benefit of Subsistence Resources project will restore access to 10.8 miles of coho salmon spawning and rearing habitat by replacing an undersized culvert on one of the largest and most important salmon streams near the village of Tyonek, Alaska.
- In the Pacific Northwest the West Fork Grays River Fish Passage project will work with the Cowlitz Indian Tribe to remove derelict water intake infrastructure. The intake removal will restore fish passage to over 15 miles of upstream spawning and rearing habitat, benefiting threatened populations of winter steelhead, coho, fall Chinook and chum salmon.

**For info:** USFWS Fish Passage Program website: [www.fws.gov/program/national-fish-passage](http://www.fws.gov/program/national-fish-passage)

## WATER BRIEFS

## IRRIGATION METERS

UT

## GRANTS AVAILABLE

Grant funds allocated during the past Utah legislative session for metering secondary water (untreated water for irrigation) are available. Utah's HB242 allocated \$250 million to help secondary water providers accelerate meter installation. Areas that have installed secondary meters have seen a reduction in water use by about 20-30%. The Utah Division of Water Resources (UDWR) is administering the program, with the initial application period running April 1-May 15.

"Installing secondary meters yields the biggest bang for the buck when you look at the amount of water saved compared to the cost of the meters," said Brian Steed, Executive Director of the Utah Department of Natural Resources. "This commitment from the legislature will fast-track Utah's water conservation efforts and sends a strong signal that using this precious resource wisely is critical."

There are approximately 260,000 secondary water connections in the state with only 15% of the connections metered.

"We can't expect people to conserve if they don't know how much they're using," said Candice Hasenyager, Director of the UDWR. "Installation of secondary meters can provide both the water provider and the water user with accurate water information so they can make informed waterwise decisions."

The current cost to install a retrofitted secondary meter is approximately \$2,000. Costs are more if the meter needs to be installed in the backyard. The cost range to install meters statewide is approximately \$450 million to \$675 million.

Secondary water is untreated water that does not meet EPA Safe Drinking Water requirements. Generally, cities, water districts, and irrigation companies deliver secondary water through separate (from drinking water) pressurized pipelines or open ditch systems for irrigation of lawns, gardens, landscapes, parks, cemeteries, golf courses, and other open areas. These systems provide an alternative to

using high-quality drinking water for irrigation.

Secondary meters have shown great potential to reduce waste and increase irrigation efficiency. They provide accurate use numbers so the water user and secondary water providers can better track water-use trends and plan accordingly. Unmetered secondary irrigation connections use about 50% more water than metered connections (estimated in 2018).

Grant applications are available to all secondary water providers. Up to 70% of the project cost is available in grants. Low-interest loan funds are available to help with the local cost-share.

**For info:** [water.utah.gov/secondarymetergrants](http://water.utah.gov/secondarymetergrants)

## RESERVOIR OPERATIONS

CA

## FORECAST-INFORMED RESERVOIR OPERATION (FIRO)

On May 5<sup>th</sup>, the Association of California Water Agencies (ACWA) presented the first annual Excellence in Innovation Award to Sonoma County Water Agency for its Forecast-Informed Reservoir Operations (FIRO).

FIRO is a new reservoir-operations strategy that better informs decisions to retain or release water behind dams. It integrates additional flexibility in policies and rules through enhanced monitoring and improved weather and water forecasts. Sonoma County Water Agency engaged with the concept of FIRO with the US Army Corps of Engineers (Army Corps) and the Center for Western Weather and Water Extremes at Scripps Institute of Oceanography after storms in 2012 resulted in the Army Corps releasing water from the reservoir as it encroached into Lake Mendocino's flood pool. The severe 2012-2015 drought immediately followed, which resulted in serious reductions of water storage and river flows.

After more than six years of extensive technical and modeling

analysis and annual testing, demonstrations of FIRO proved successful during the course of two very different water years: Water Year 2019 was relatively wet and Water Year 2020 was very dry. In both years, FIRO increased water supply benefits and managed flood risks. In Water Year 2020, FIRO enabled a 19 percent increase in water storage, totaling more than 11,000 acre-feet by the end of winter.

"Projects like these are so important in addressing climate change impacts, including more severe and prolonged droughts," said ACWA President Pamela Tobin. "The successful and collaborative work done on Lake Mendocino, utilizing science, technology and advances in forecasting, is groundbreaking and serves as a model that can be tested at reservoirs throughout California."

ACWA's Excellence in Innovation Award is a new annual award program that recognizes outstanding innovations by public water agencies. The award, sponsored by CDM Smith, was presented during ACWA's 2022 Spring Conference & Exhibition in Sacramento, where approximately 1,300 leaders from local water agencies in California gathered for programs and panel discussions on a variety of key water issues.

The other finalists for this year's award were:

Eastern Municipal Water District's Closed Circuit Reverse Osmosis System: Utilizing technology to remove salts while producing a high recovery rate in treatment of recycled water.

Rainbow Municipal Water District's Rapid Aerial Water Supply: To mitigate the response time for water drops and to provide a constant source of water for aerial firefighting.

San Bernardino Valley Water Conservation District's Plunge Creek Conservation Project: Restoring the natural 208-acre habitat of the endangered San Bernardino kangaroo rat while enhancing groundwater recharge.

**For info:** ACWA awards website: [www.acwa.com/about/awards](http://www.acwa.com/about/awards)

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| <b>May 16</b> <b>IL</b><br><b>SEER Superfund Master Class, Chicago.</b> Swissotel. Sponsored by the ABA Section on Environment, Energy, and Resources (SEER). For info: <a href="http://ambar.org/SEERevents">ambar.org/SEERevents</a>   | <b>May 19</b> <b>MT</b><br><b>Easements in Montana Conference, Helena.</b> Delta Hotels Helena Colonial. For info: The Seminar Group: 206/ 463-4400, <a href="mailto:info@theseminargroup.net">info@theseminargroup.net</a> or <a href="http://theseminargroup.net">theseminargroup.net</a>   | <b>May 25</b> <b>CO</b><br><b>History of Colorado Water - Talk by Amy Beatie (Deputy Attorney General for Natural Resources &amp; Environment), Denver,</b> Denver Art Museum. History Colorado's "Living West" Exhibit (exclusive access). Hosted by the Colorado Water Trust: 5pm-7:30 pm Mountain Time. For info: <a href="http://www.coloradowatertrust.org/">www.coloradowatertrust.org/</a> | <b>June 8</b> <b>CA</b><br><b>2022 Groundwater Law and Legislation Forum, Sacramento.</b> Sterling Hotel. RE: Pressing Issues in California Groundwater Law. For info: <a href="http://www.grac.org/events/413/">www.grac.org/events/413/</a>   |
| <b>May 17</b> <b>WEB</b><br><b>Water Reuse Action Plan &amp; REUSExplorer Demo: Brown Bag Webinar,</b> 12:00pm-1:15pm Arizona Time. Speaker: Sharon Nappier, National Program Leader for Water Reuse (US EPA). Presented by Arizona Water Resources Research Center. For info: <a href="https://wrrc.arizona.edu/events/brown-bag/water-reuse-action-plan-and-reuseexplorer">https://wrrc.arizona.edu/events/brown-bag/water-reuse-action-plan-and-reuseexplorer</a> | <b>May 19-20</b> <b>NM &amp; WEB</b><br><b>Next Generation Water Summit 2022: "Growth in a Time of Drought", Santa Fe.</b> Virtual Event: Some Speakers Presenting in Santa Fe Central Location. For info: <a href="https://ngws.vfairs.com/">https://ngws.vfairs.com/</a>  | <b>June 1-2</b> <b>TX</b><br><b>Texas Groundwater Conference, Austin.</b> Austin Southpark Hotel. An American Ground Water Trust Event. For info: <a href="https://agwt.org/civicrm/event/info?id=343&amp;reset=1">https://agwt.org/civicrm/event/info?id=343&amp;reset=1</a>   | <b>June 9</b> <b>CA</b><br><b>2022 Groundwater Sustainability Agencies Summit, Sacramento.</b> Sterling Hotel. Groundwater Resources Association Event. RE: "Reckoning With the Road Ahead". For info: <a href="http://www.grac.org/events/414/">www.grac.org/events/414/</a>   |
| <b>May 17-18</b> <b>NC</b><br><b>US Water Treatment Conference / Integrating Renewables &amp; US Water Treatment, Charlotte, Sheraton/Le Meridian Hotel.</b> For info: <a href="http://www.lmnpower.com">www.lmnpower.com</a>  | <b>May 19-20</b> <b>WEB</b><br><b>Water Law in Washington Annual Conference: Critical Developments in Water Right &amp; Resource Management,</b> Live Online via Interactive Broadcast. For info: Law Seminars Int'l: 206/ 467-4490; <a href="mailto:register@lawseminars.com">register@lawseminars.com</a> or <a href="http://www.lawseminars.com">www.lawseminars.com</a> | <b>June 1-3</b> <b>UT</b><br><b>Healthy Public Lands First Annual Conference, Salt Lake City.</b> Moot Courtroom: University of Utah Law School. Presented by the Public Lands Project. For info: <a href="https://www.healthypubliclands.org/conference">https://www.healthypubliclands.org/conference</a>   | <b>June 9-10</b> <b>WA</b><br><b>Shoreline Development &amp; Permitting Conference, Seattle,</b> Washington Athletic Club. For info: The Seminar Group: 206/ 463-4400, <a href="mailto:info@theseminargroup.net">info@theseminargroup.net</a> or <a href="http://theseminargroup.net">theseminargroup.net</a>   |
| <b>May 17-20</b> <b>TN</b><br><b>2022 National Pretreatment Workshop &amp; Training, Nashville.</b> Nashville Marriott at Vanderbilt University. National Association of Clean Water Agencies (NACWA) Event. For info: <a href="http://www.nacwa.org/conferences-events">www.nacwa.org/conferences-events</a>  | <b>May 19-20</b> <b>NM</b><br><b>Law of the Colorado River 23rd Annual Conference, Santa Fe.</b> La Fonda on the Plaza. For info: CLE International: 800/ 873-7130 or <a href="http://www.cle.com">www.cle.com</a>  | <b>June 5-9</b> <b>GA</b><br><b>2022 World Environmental and Water Resources Congress, Atlanta.</b> Hyatt Regency Atlanta Hotel. Adaptive Planning and Design in an Age of Risk and Uncertainty. American Society of Civil Engineers Event. For info: <a href="http://www.asce.org/education-and-events">www.asce.org/education-and-events</a>  | <b>June 12-15</b> <b>TX</b><br><b>ACE22: The World's Premier Water Conference, San Antonio.</b> Henry B. Gonzales Convention Center. Presented by American Water Works Association. For info: <a href="http://www.awwa.org/ace/">www.awwa.org/ace/</a>  |
| <b>May 18</b> <b>WEB</b><br><b>Water &amp; the Northern Colorado Real Estate Market Webinar,</b> 1pm-2pm Mountain Time. Presented by WestWater Research. For info: <a href="http://www.waterexchange.com">www.waterexchange.com</a>  | <b>May 23-24</b> <b>CA</b><br><b>Smart Water Utilities USA 2022: Reducing Water Leakage Across the Network Summit, Long Beach.</b> Hilton Long Beach. Exploring Efficient and Cost-Effective Solutions for the Water Utilities Industry. For info: <a href="http://www.usa.smart-water-utilities.com/?join=VR">www.usa.smart-water-utilities.com/?join=VR</a>               | <b>June 6-7</b> <b>ID</b><br><b>Idaho Water Users Association Water Law &amp; Resources Seminar, Sun Valley.</b> Sun Valley Resort. For info: <a href="http://www.iwua.org">www.iwua.org</a>  | <b>June 13-14</b> <b>WEB</b><br><b>Fundamentals of SCADA in Water Treatment Facilities Course,</b> For info: <a href="http://www.euci.com/events/">www.euci.com/events/</a>   |
| <b>May 18-20</b> <b>CA</b><br><b>Bay-Delta Water Tour, Sacramento.</b> Water Education Foundation Tour. For info: <a href="http://www.acwa.com/events/bay-delta-water-tour/">www.acwa.com/events/bay-delta-water-tour/</a>   | <b>May 24-26</b> <b>WEB</b><br><b>H2OSECCON - Virtual Event,</b> 4.5 Hours/Day. RE: Recommendations & Resources Utilities Need to Protect Customers, Assets & the Environmental; Presented by Association of California Water Agencies. For info: <a href="http://www.acwa.com/events/h2oseccon/">www.acwa.com/events/h2oseccon/</a>  | <b>June 6-7</b> <b>WS</b><br><b>2022 Strategic Communications: H2O Workshop, Milwaukee.</b> Saint Kate The Arts Hotel. National Association of Clean Water Agencies (NACWA) Event. For info: <a href="http://www.nacwa.org/conferences-events/">www.nacwa.org/conferences-events/</a>   | <b>June 22</b> <b>TX</b><br><b>Dam Safety Workshop - Hybrid Event (Personal &amp; Virtual), Austin.</b> U.T. Commons Conference Center: J.J. Pickle Research Campus. Presented by the Texas Commission on Environmental Quality. For info: <a href="http://www.tceq.texas.gov/p2/events/dam-safety.html">www.tceq.texas.gov/p2/events/dam-safety.html</a> |
| <b>May 19</b> <b>CA</b><br><b>2022 Kern County Water Summit, Bakersfield.</b> Mechanics Bank Theatre. Presented by the Water Assoc. of Kern County: 7am-3pm Pacific Time; Registration Deadline May 6. For info: <a href="http://www.wakc.com">www.wakc.com</a>  | <b>May 24-26</b> <b>DC</b><br><b>12th Annual SWAN Conference, Washington.</b> "Connecting Innovation to Impact" — 40+ Leading, Global Utility Speakers. For info: <a href="http://www.swan-2022.com">www.swan-2022.com</a>  |   |   |



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## CALENDAR

(continued from previous page)

### **June 23** **CO**

**Watershed (Shed) Summit '22, Denver.** Denver Botanic Gardens. Re: Water Availability & Balancing Competing Needs; Collaborative Partnership Between the Colorado Water Conservation Board, Denver Water, Aurora Water, the One World One Water (OWOW) Center, Resource Central & Denver Botanic Gardens. For info: [www.botanicgardens.org/programs/watershed-shed-summit-22](http://www.botanicgardens.org/programs/watershed-shed-summit-22)

### **June 28-30** **WY**

**2022 Wyoming Watershed Conference & Summer Tour, Riverton.** Riverton Holiday Inn. 6/28 Tours; 6/29-6/30 Conference; Presented by the Wyoming Water Assoc. & Wyoming Assoc. of Conservation Districts. For info: [conservewy.com](http://conservewy.com)

### **July 11-12** **WEB**

**Cybersecurity Fundamentals for Water and Wastewater Utilities Course.** For info: [www.euci.com/events/](http://www.euci.com/events/)

### **July 11-29** **CA**

**Forecast Informed Reservoir Operations (FIRO) Colloquium, La Jolla.** Scripps Institution of Oceanography. Presented by the Center for Western Weather & Water Extremes (CW3E). For info: [www.acwa.com/events/forecast-informed-reservoir-operations-firo-colloquium/](http://www.acwa.com/events/forecast-informed-reservoir-operations-firo-colloquium/)

### **July 12-13** **WEB**

**Environmental Compliance & Permitting for Utilities - Virtual Event,** For info: [www.euci.com/events/all-conferences/](http://www.euci.com/events/all-conferences/)

### **July 12-15** **AZ**

**Arizona's Agricultural Outlook: Water, Climate, and Sustainability - WRRC 2022 Annual Conference, Tucson.** TBA. 7/12: In-person Event w/ Livestreaming; 7/13-15: Additional Virtual Programming. Presented by Water Resources Research Center. For info: <https://wrrc.arizona.edu/events>

### **July 13-14** **WEB**

**Zebra and Quagga Mussel Mitigation Course.** For info: [www.euci.com/events/](http://www.euci.com/events/)

### **July 14-15** **OR & WEB**

**Agriculture Law in the Northwest Conference, Hood River.** Hood River Inn. For info: The Seminar Group: 206/ 463-4400, [info@theseminargroup.net](mailto:info@theseminargroup.net) or [theseminargroup.net](http://theseminargroup.net)

### **July 14-15** **NM & WEB**

**Natural Resource Damages Conference, Santa Fe.** La Fonda Hotel (also online). For info: Law Seminars Int'l: 206/ 467-4490; [register@lawseminars.com](mailto:register@lawseminars.com) or [www.lawseminars.com](http://www.lawseminars.com)

### **July 21-23** **CO**

**68th Annual Natural Resources and Energy Law Institute, Vail.** The Hythe. Presented by The Foundation for Natural Resources and Energy Law (formerly Rocky Mountain Mineral Law Foundation). For info: [fnrel.org/programs/ai68](http://fnrel.org/programs/ai68)

### **July 26-28** **ID**

**Western Governors Association 2022 Annual Meeting, Coeur d'Alene.** For info: [www.westgov.org](http://www.westgov.org)