

The Water Report

Water Rights, Water Quality & Water Solutions in the West

In This Issue

Public Water System Consolidations _____	1
Pathways for Localized Water Infrastructure _____	8
National Fish Habitat Partnership - Part 2 _____	22
Water Briefs _____	28
Calendar _____	31

Upcoming Stories

Municipal Water Use
Water Markets
Edwards Aquifer Conjunctive Management
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~~~~~ PUBLIC WATER SYSTEM CONSOLIDATIONS ~~~~~

A GOOD IDEA? OR A STRATEGY FOR UNMITIGATED INSTREAM FLOW IMPACTS AND EXCEEDING WATER RIGHTS?

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Introduction

The Washington State Departments of Health (DOH) and Ecology (Ecology) encourage utilities and developers to use their “inchoate” municipal water rights — also referred to as “surplus” or “unperfected” rights — through a process of consolidating and interconnecting smaller public water systems and expanding into new and larger service areas. DOH offers municipal suppliers grants to encourage these “consolidations,” which are occurring state-wide. There is no statute or regulation that defines “consolidation.” Yet, despite their potential impact on senior water rights — including minimum instream flows set by rule — the public receives virtually no public notice of them.

There are certainly benefits from merging smaller systems into larger systems.

Benefits may include:

- Reducing the number of unregulated permit-exempt wells and smaller water systems
- Metering requirement
- Improved cost-sharing for infrastructure investment
- Conservation requirements and other efficiencies
- Supporting responsible land use planning objectives

On the other hand, consolidations pose harms when they are used to evade state laws that prohibit two outcomes: (1) unmitigated interference with instream flows; and (2) interruptible municipal water supplies.

This article examines the water system consolidation and expansion strategy, and whether DOH and Ecology are properly implementing their governing statutes in their approach to consolidations. It is a legally complex topic that intertwines Washington’s Water Code, which is implemented by Ecology, along with DOH statutes and local land use laws.

Importance of Instream Flows

The 1854 Treaty of Medicine Creek reserved to the Squaxin Island Tribe (Tribe) fishing rights throughout a usual and accustomed fishing area (“U&A”) that includes the saltwaters extending south and west of the Tacoma Narrows and the freshwaters that flow into them. Today these fishing rights afford the Tribe one-half of the harvestable fish running through its U&A. The Tribe actively co-manages the fisheries along with the state and federal governments, and also possesses federally-reserved water rights to streamflows in amounts that support healthy salmon populations. Salmon are at the heart of the Tribe’s culture and economy.

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Sky Island Insights LLC**Paper Water****Lack of Scrutiny****Tentative
Determination****System Priority**

The Washington Department of Ecology (Ecology) has established, through rules, minimum instream flows in many streams and rivers within the Tribe's U&A. By law, these flows are protected water rights that in many circumstances cannot be impaired. In 2015, the Washington Supreme Court in *Foster v. Washington State Dep't of Ecology*, (184 Wash. 2d 465, 472, 362 P.3d 959, 961 (2015)) reaffirmed the rule that "[a] minimum flow is an appropriation subject to the same protection from subsequent appropriators as other water rights." Many instream flows in Squaxin's U&A are increasingly unmet during the drier months of August and September, which is a critical time period for spawning in the salmon life cycle. Less water means less fish.

Municipal Water Rights

Historically, Ecology often granted water rights based on system capacity (i.e. "pumps and pipes") rather than actual beneficial use of the water. In 1998, the Washington State Supreme Court in *Ecology v. Theodoratus* (135 Wash. 2d 582, 957 P.2d 1241 (1998)) questioned the validity of these rights because they were not based on actual beneficial use like most other water rights. After the decision, the Legislature passed the 2003 Municipal Water Law that more clearly defined municipal water suppliers and the status of their rights. The municipal water law, however, did not change existing law to grant municipal water rights holders larger quantities of water than the original water rights afforded.

On the other hand, the municipal law did change existing law by allowing municipal suppliers to retain water rights that they are not currently using. While the "use it or lose it" principle applies to most private water rights under state law — meaning that a water right holder can lose a water right by not beneficially using it for an extended period — municipal water rights are different. The rationale is that this approach provides a municipal supplier certainty about maintaining water rights while allowing flexibility to plan for future growth.

In recent years — with the encouragement of DOH, Ecology, and water utility associations — municipal suppliers began a strategy of purchasing and consolidating smaller water systems that hold older pumps and pipes certificates with often substantial quantities of inchoate water (on paper). The consolidated systems are then interconnected and expanded into larger service areas.

Actual Amount of the Water Right

The amount of water that appears on the face of the pumps and pipes rights, however, may be less than the actual right. Ecology frequently issued these older pumps and pipes certificates for specific and defined projects. In many cases, Ecology allocated the certificates significantly more water than the defined project actually needed — i.e., to fill the system's capacity rather than define the actual amount of water that the completed project would use. Importantly, Ecology's later changing of the original water right's purpose of use to municipal use did not grant the municipal water right holder more water than was needed to serve the original defined project. Accordingly, there is a ceiling on the amount of the pumps and pipes water right that may be substantially lower than the amount appearing on the face of the right.

Typically, Ecology does not carefully scrutinize the water rights claimed by the municipal supplier during the water system consolidation approval process. This lack of scrutiny is problematic because if Ecology did "look under the hood" of the water right, it could conclude that the right to some portion of the inchoate water does not exist. Ecology staff, however, have voiced concern that these suppliers seek to take water that was never perfected under the original pumps and pipes right and use it outside the scope of the project specified in the original application. Ecology has explained this process through correspondence and public presentations (for more information contact the authors).

When Ecology looks under the hood of the water right, it is performing a "tentative determination of extent and validity," referred to in this article as a "tentative determination." A tentative determination will provide accurate information about the water right's scope and limitations that are not evident from the face of the right.

Ecology staff has voiced concern that the inchoate water being put into use through these water system consolidations could be junior to instream flow rules in basins closed by regulation to further appropriation. This violates Washington's Water Code, which prohibits junior users from impairing senior users. Senior users include instream flows with older priority dates relative to the junior users. It should be noted that Tribal water reserved rights are senior to all state issued water rights though the Tribal Rights may be yet-unquantified. The proper way for a municipal supplier to use water in excess of the amount actually needed for the original project is to either apply for a new water right or change its existing water right.

Municipal suppliers, though, are incentivized to avoid applying for a new water right or a water right change application for three main reasons:

Consolidations

- 1) New rights are difficult to obtain as many basins are now over-appropriated, particularly those with instream flows that are not being met
- 2) For water right change applications, Ecology will conduct a tentative determination of the water rights at issue and may determine that the rights are less than appears on the paper right
- 3) The Washington Water Code prohibits any water right change that will harm existing water rights. Existing rights include established instream flows, even if junior in priority to the municipal water right, and may also include unadjudicated tribal reserved water rights.

Incentives

Instead of converting to a new right or changing existing rights, the municipal suppliers are using the DOH's water system "consolidation" process. They are taking advantage of a municipal water law provision (quoted below) whereby DOH's approval of a water system plan automatically expands the water right's service area. The supplier need not ask Ecology to change its water right's geographic area, and therefore Ecology does not conduct a tentative determination.

Additional Benefit of a Tentative Determination

Besides providing accurate information about a water right's scope and limitations, a tentative determination will lead to greater certainty for water rights holders. When Ecology does not perform a tentative determination, the supplier's water right exceedance will likely not be discovered until years after residences have been connected and the harm to instream flows has increased. While "consolidation" allows municipal users in the short term to expand their water rights to meet increased demand, and to avoid bad news from a tentative determination, municipal users run the risk that they will someday need to change an aspect of their water right that would require a tentative determination. At that point, the suppliers could run into trouble if the consolidated system is using more water than the underlying water rights allow and water use must be curtailed. Like senior water users, municipalities benefit from certainty in their water rights because the customers they serve depend on uninterrupted water service. Despite some risk and expense, going through the tentative determination process is good policy in the long run because it provides all water right holders in the relevant watershed some certainty around key aspects of their water rights (priority date, extent, points of diversion, etc.). Tentative determinations are also good policy from a practical perspective because, if it is later determined that the municipal purveyor is not entitled to all the water that it provided to newly developed areas, those customers will be cut off and economic gains for the municipality lost.

Long-Term Risk**Consolidation Grant****The Union Consolidation Plan**

An illustrative example of the "consolidation" process is Public Utility District No. 1 of Mason County's ("PUD") proposed consolidation of six water systems that the PUD owned and operated near Washington's Hood Canal. Around 2015, DOH invited the PUD to apply for a grant to evaluate the feasibility of consolidation. DOH awarded the grant, and the PUD proposed consolidating the six systems, greatly expanding their service areas into a larger geographic area, and including more connections.

To effectuate the consolidation, DOH had to approve the water system plan for the proposed expanded Union system ("Union"). Ecology would also play an important role during plan review to, among other things, evaluate water rights. Several interagency MOUs define the agencies' respective roles. (*See:* <https://apps.wa.gov/ecology/docs/WaterRights/wrwebpdf/SignedDOHMOU5107.pdf> and https://doh.wa.gov/sites/default/files/legacy/Documents/4200/mou_proc.pdf)

Negative Impacts

The problem with the proposed Union consolidated water system plan was that, when implemented, it would further deplete Schumacher Creek's instream flows. Schumacher Creek is a salmon-bearing creek within the Squaxin Island Tribe's usual and accustomed fishing area. The creek has both numerical instream flows and a seasonal closure, both set by Ecology rule (Chapter 173-514 WAC). Schumacher Creek's instream flows are unmet during the drier summer and early fall months that are critical for salmon spawning.

The Union consolidation would cause further harm to the Creek's instream flows because all six water systems use groundwater, and at least one of the water system's wells (the Alderbrook system), and likely others, is hydraulically connected to Schumacher Creek. The consolidation proposed connecting the Alderbrook water system to the other five systems, and all six systems to each other. The Alderbrook wells would then pump more water to help serve the other five systems, as well as residents in the newly expanded service area. This would further decrease Schumacher Creek's instream flows.

Consolidations**Municipal Water Law Provision Regarding DOH Water System Plan Approval**

The PUD, like many municipal suppliers, sought to take advantage of a provision in Washington’s 2003 municipal water law. This provision allows municipal suppliers to expand their water rights’ places of use without having to apply to Ecology to change their water rights. The municipal water law provision states:

The effect of [DOH’s]...approval of a planning or engineering document that describes a municipal water supplier’s service area under chapter 43.20 RCW...is that the place of use of [the supplier’s] surface or groundwater right includes any portion of the approved service area that was not previously within the place of use for the water right if [1] the supplier is in compliance with the terms of the water system plan or small water system management program, including those regarding water conservation, and [2] the alteration of the place of use is not inconsistent, regarding an area added to the place of use, with: Any comprehensive plans or development regulations adopted under chapter 36.70A RCW; any other applicable comprehensive plan, land use plan, or development regulation adopted by a city, town, or county; or any watershed plan approved under chapter 90.82 RCW, or a comprehensive watershed plan adopted under RCW 90.54.040(1) after September 9, 2003, if such a watershed plan has been approved for the area. (RCW 90.03.386(2))

Place of Use Provision

To summarize, DOH’s approval of a water system plan that includes service area *beyond* the current places of use described in one or more water rights automatically expands the geographic area of the water right(s). The supplier need not apply to Ecology to change its water rights. There are several caveats, however, to the automatic water right expansion provision.

Caveats

Caveats to the automatic water right expansion include:

- The supplier must be in compliance with its water system plan
- The larger place of use must be consistent with local comprehensive plans and development regulations
- The larger place of use must be consistent with certain approved watershed plans

If the situation does not meet any one of these requirements, then the municipal supplier cannot take advantage of the auto-expansion provision and must apply to Ecology for a water right change to expand the place of use. DOH and Ecology interpret this law to apply to the consolidation and expansion of multiple water systems and their service areas.

Requirements That Accompany Water Right Change Applications**Evaluating Rights**

As mentioned earlier, municipal suppliers prefer to avoid submitting water right change applications to Ecology. The first step Ecology takes for a change application review is performing a tentative determination. It asks whether the inchoate (unused) portion of the water right is in “good standing” and thus eligible for the change. The supplier risks the possibility that Ecology might find that the water right affords less water than appears on the face of the paper right and/or has other constraints. Ecology may also decide to go further and revoke or diminish the water right accordingly.

Second, Ecology cannot approve a water right change that will harm existing water rights (RCW 90.03.380). Existing rights include instream flows established under state law — even if the instream flow has a priority date that is subsequent to the date of the municipal water right (i.e., is junior to the pumps and pipes water right). Existing rights may also include a tribe’s adjudicated federally reserved water rights. Thus, if the proposed water right change would harm existing water rights, Ecology must either require mitigation or deny the change application.

Automatic Expansion

In contrast, DOH’s water system plan approval process described in RCW 90.03.386 requires no water right change application in order to expand the supplier’s geographic area. DOH’s approval of the consolidated water system plan automatically expands the geographic area of the water right. Ecology does not conduct a tentative determination to examine the water right in this situation. Neither Ecology nor DOH carefully scrutinize the consolidation’s impacts on instream flows, or require sideboards to ensure that the municipal supply is not later found to be interruptible and unreliable because it is exceeding its water rights. Curtailing water use only *after* homes are built and residents connected is bad policy and is contrary to state law.

Union Consolidation Plan’s Inchoate Water Rights

Every water system plan must contain a “water rights self-assessment.” For the Union plan, the water rights self-assessment listed the water quantities that appeared on the face of the PUD’s water rights. Both DOH and Ecology, however, were aware that some of these amounts were incorrect and inflated.

Consolidations**Mock
Determination**

That is because Ecology, in a situation that is likely rare, had earlier performed a “mock” tentative determination on some of the PUD’s water rights. While there is no official letter or document associated with this mock determination, it is recorded in email correspondence with Ecology staff that explained it was PUD’s intent to have these change applications processed through Cost Reimbursement — but PUD did not want to commit to a contract without first knowing how much water Ecology would find to be in good standing and eligible for transfer. Consequently, Ecology agreed to conduct a mock tentative determination to give PUD a preview of the likely outcome of processing the requested changes.

Ecology found through the mock determination that the water rights for the Alderbrook wells and three other of the six systems’ water rights afforded far less water than the amounts that appeared on the face of the water rights. For the Alderbrook system, which was served by one soon-expiring water rights permit and two water rights certificates, Ecology found that the PUD was entitled to less than half of the water on the face of those rights.

**Capacity vs.
Beneficial Use**

Why were the PUD’s rights less than they appeared? For the Alderbrook system, Ecology had issued the two original pumps and pipes water right certificates back in the 1960’s to a private developer for a resort, golf course, and a specified number of residences. As described earlier, the quantities on the face of the rights were based on system capacity rather than actual beneficial use. These certificates thus stated far greater quantities of water than could ever be needed to complete the Alderbrook project.

Thus, the PUD was not entitled to the excess water beyond the amount that the completed Alderbrook project would need. Just because the Alderbrook developer had transferred these rights to the PUD, and Ecology had later changed their purposes to municipal use, did not give the PUD a valid claim to water in amounts beyond the original Alderbrook project’s actual needs. The PUD, however, drafted its Union consolidation plan and its water rights self-assessment based on the flawed conclusion that the PUD had these valid inchoate rights and could use them to serve the expanded Union service area. DOH approved the Union consolidation plan and Ecology concurred.

Flawed Conclusion

While DOH and Ecology acknowledged the issue — DOH in a Union plan footnote and a letter approving the plan, and Ecology in an addendum to the plan — neither agency placed any effective safeguards to ensure that the PUD would not exceed its water rights or harm instream flows. The Union plan footnote acknowledged that Ecology had indicated that certain water rights, “due to the ‘pumps and pipes’ nature of these rights, may not be available for use outside their originally intended service areas.” DOH’s letter approving the Union plan stated its approval did not confer or guarantee any right to a specific quantity of water, and that the approved number of service connections was based on the PUD’s representation of available water quantity. DOH’s approval letter concluded, “[I]f the Department of Ecology (Ecology), a local planning agency, or other authority responsible for determining water rights and water system adequacy determines that you have use of less water than you represented, the number of approved connections may be reduced commensurate with the actual amount of water and your legal right to use it.”

Lack of Safeguards

Ecology’s addendum also did not contain safeguards. Ecology specifically allowed the PUD to forgo applying for a change of place of use (and accompanying tentative determination) until the point in time when the PUD desired to use the Alderbrook permit to provide water to the area located east of the Alderbrook golf course. This, however, failed to prevent the Alderbrook wells and other hydraulically connected systems from exceeding their water rights or from pumping that would further dewater Schumacher Creek. Among other things, the PUD could pump Alderbrook water to serve new areas besides those east of the golf course. And, increased pumping could begin under the same Alderbrook certificates that Ecology had indicated contained inaccurate, inflated amounts.

Ecology avoided yet another opportunity to place effective sideboards on the consolidation when PUD had to apply to Ecology to extend the Alderbrook permit’s development schedule. Ecology could have used that process to conduct a tentative determination. In the addendum, however, Ecology committed to *not* conduct a tentative determination on the permit, and to *not* review the water quantity that the permit authorized when the PUD sought to extend the development schedule.

Other Problematic Aspects of the Consolidation Strategy**IS ALL OR PART OF THE WATER SYSTEM MERGER AND EXPANSION ACTUALLY AN “INTERTIE”?****Interties**

Under RCW 90.03.383, suppliers who propose interties must apply to Ecology to change the water right’s place of use. An “intertie” is defined by statute as an interconnection of water systems that:

- Is not done for emergency supply purposes
- Will result in better management of those systems
- Does not include developing new sources to meet future demand

Additionally, this law prohibits interties from adversely affecting existing water rights. As noted

Consolidations

earlier, existing water rights include instream flows, even those with later priority dates than the supplier's water right. Many of these instream flows are currently unmet, and by ever-increasing amounts. Existing rights may also include tribes' unadjudicated federal reserved water rights.

Was all or part of the Union proposal actually an intertie? Earlier versions of the Union plan described system interties. Lower-level Ecology staff said that the merger was an intertie. They drafted a white paper opining that RCW 90.03.386 only applied to a single growing water system, and not to consolidating multiple water systems. The final Union plan that DOH approved, however, was changed to delete any descriptions of interties.

Legal Definitions

Unlike the term "intertie," the term water system "consolidation" is not defined in state law, regulation, or guidance. During discussions on the Union Plan, Ecology distinguished consolidations from interties. It said that consolidations occur when one water system controls or takes over another. Interties, by contrast, only occur when separate and independent water systems interconnect to provide backup water supply to enhance the resilience of separate independent systems. The intertie statute, however, does not say this and is not limited to merging separate and independent water systems.

In April 2022, Ecology issued a "Discussion Draft" of its updated Municipal Water Law Interpretive and Policy Statement that defines "consolidations." Ecology publicly stated that a water system consolidation occurs when a municipal water system's expansion includes taking over another municipal water system, and merging infrastructure. If the second municipal system's wells will continue to operate (while interconnected with the other system wells), then Ecology has no intention of evaluating the second system's water rights through a change application process. Ecology's view is that the interconnection and expansion can occur solely through DOH's water system plan approval process.

IS THERE CONSISTENCY WITH LOCAL COMPREHENSIVE PLANS AND DEVELOPMENT REGULATIONS?

As described earlier, municipal suppliers can automatically expand their water rights places of use when DOH approves a water system plan — without having to go through Ecology's change application process — as long as the new place of use is "not inconsistent with" local comprehensive plans or development regulations adopted under Washington's Growth Management Act. If the plan is inconsistent, however, then the supplier must apply to Ecology to change its water right.

Consistency Review

A municipal supplier must therefore submit a consistency review form to DOH during plan review. Even if the local government finds consistency, however, it is ultimately DOH's responsibility to make the right call. In the Union water system review, the Tribe pointed out many inconsistencies, including that the growth envisioned in the Union plan vastly exceeded local zoning regulations. DOH did not respond.

IS THE STATE ENVIRONMENTAL POLICY ACT (SEPA) BEING CORRECTLY IMPLEMENTED?

DOH's regulations require compliance with SEPA when it reviews a water supply plan servicing 1,000 or more units. The Union plan met this threshold.

Despite the likelihood of impacts to Schumacher Creek, the PUD issued a Determination of Nonsignificance ("DNS"). Ecology's SEPA staff objected. Their letter stated that "[t]he DNS was procured by misrepresentation or lack of material disclosure," and asked the PUD to withdraw it and revise its SEPA checklist to accurately reflect the proposed action and its impacts to Schumacher Creek. That did not happen, and neither DOH nor Ecology ever required otherwise. That decision closed off yet another avenue for analyzing the consolidation's environmental impacts and possible mitigation.

DNS Issues**EXPIRING WATER RIGHT PERMITS OFFER ADDITIONAL OPPORTUNITIES**

Ecology issues water rights permits and certificates. A water right permit is not a final water right, but instead allows the applicant to proceed with construction of the water system and to start putting the water to beneficial use in accordance with the permit's terms. Ecology issues a certificate after confirming that all the permit conditions are met.

If a water right permit is involved in the consolidation (as opposed to a certificate), another path exists for achieving streamflow protections. When the supplier asks Ecology to extend the permit, Ecology can either cancel it for good cause, or extend the permit with conditions. The conditions can include a tentative determination of water rights and streamflow mitigation requirements.

With the Union plan, the Alderwood permit was up for renewal. Ecology's lower-level staff sought conditions that included conducting a tentative determination and streamflow monitoring. As discussed earlier, however, Ecology's Union plan addendum closed off that possibility.

Permits vs. Certificates

Consolidations**DOH's Independent Statutory Obligations**

While Ecology has clear statutory duties — related to water rights, stewardship, and protecting and restoring instream flows — DOH is not without its own mandates. Some DOH mandates overlap with Ecology's duties. State law (RCW 43.20.250, WAC 246-290-100) requires that DOH approve water system plans only if they:

DOH Mandates

- Ensure that public water systems will provide reliable water supplies — i.e., are not later interruptible and subject to curtailment because they lack sufficient water rights to serve the predicted number of connections.
- Analyze impacts on the source from which the water is diverted or withdrawn using existing data and studies for both current and future water use.
- Include a water rights self-assessment that properly evaluates the system's legal ability to use water for existing or proposed uses in conformance with state water rights.
- Document factors related to a water system's source of water supply that may affect its availability and suitability to provide for both short and long-term needs. Factors include, but are not limited to: (a) other legal demands on the source such as water rights for other uses; (b) conditions established to protect species listed under the Endangered Species Act; and (c) instream flow restrictions established by Ecology rule.
- Go through a proper SEPA analysis. SEPA requires, among other things, that DOH administer its governing laws, regulations, and policies in accordance with environmentally protective policies, and condition or deny an approval in order to avoid or mitigate adverse environmental impacts.

Finally, under the 1971 Water Resources Act, DOH must, whenever possible, carry out vested powers in a manner consistent with the Act. The Act outlines "fundamentals" that include retaining base flows needed to preserve fish.

Conclusion**Protecting Flows**

From the tribes' perspective, the importance of healthy instream flows for fisheries cannot be overstated. Tribes depend upon fish and fishing for physical, cultural, and spiritual sustenance. As sovereign nations, tribes signed treaties with the United States in which they gave up most of the land that is now western Washington, in exchange for reserved rights to harvest salmon and sufficient water to sustain healthy salmon populations. For those rights to have meaning, there must be salmon to harvest. If salmon are to survive, and if treaty rights are to be honored, state agencies must assume a true stewardship approach to water, and conform to their environmentally protective mandates.

Avoiding Laws

Seeking ways to skirt or ignore existing water laws undermines the protection and restoration of instream flows. Water system consolidations are occurring around Washington and are being encouraged as a way to avoid asking hard but critical questions about streamflow impacts and reliability of water supplies. The consolidations are largely occurring out of the public eye. Closer scrutiny is warranted to ensure that DOH and Ecology are following state laws. Additionally, careful attention should be paid to Ecology's upcoming changes to its municipal water rights policy, POL 2030.

Recommendations

Legislative changes are likely warranted to protect ever-diminishing streamflows and fisheries, and to ensure future reliable water supplies.

Warranted legislation includes:

- Instituting public notice of water system expansions
- Increasing the scrutiny of municipal water rights before DOH approves system expansions
- Narrowing the focus of RCW 90.03.386 (the automatic water rights expansion provision)
- Disallowing consolidations or parts of consolidations that are actually interties
- Making mandatory and enforceable what are now suggestions for conservation and efficiency

Tracking Conservation

As to the last point, implementation of conservation standards appears to be falling into a void between Ecology and DOH. Water system conservation standards were one of the selling points for passage of the Municipal Water Law. Yet implementation leaves much to be desired. The law requires a review of water conservation measures before a municipal water supplier may use further amounts of its inchoate water right. In practical terms, however, it is unclear how this happens or if it happens at all. The MOUs between the DOH and Ecology do not address conservation requirements and thus appear to leave oversight of conservation requirements to DOH through its water system plan reviews. Even though Ecology is responsible for managing the water right side of the equation, it appears to have no role in reviewing compliance with conservation standards as it applies to the use of inchoate water. Perhaps this is another area where legislation could improve accountability for managing an increasingly limited resource.

Pathways

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PATHWAYS FOR LOCALIZED WATER INFRASTRUCTURE

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Introduction

The urgent need to radically increase investment in local water infrastructure across the United States is well documented. Drinking water, stormwater, and wastewater systems are in crisis in communities nationwide. Addressing drought, urban flooding, and water quality impairments — all of which are intensified by climate change — are critical priorities. Notwithstanding the recent historic expansion in federal and state support for these priorities, the size and scale of the need dwarfs the available loan and grant programs. The often-unacknowledged reality is that the overwhelming majority of water infrastructure spending, approximately 96%, occurs at the local level. The challenge for water resource managers and their political leadership is how to address these water needs sustainably, create resilience to climate change, and protect water quality, all while securing local water supplies and services for everyone equitably.

This article focuses on the considerable and largely overlooked opportunities presented by localized water infrastructure (LWI) — i.e., onsite decentralized installations and technologies widely distributed across communities. These are often described as distributed systems that extend beyond centralized water infrastructure and are located at or near the point of use. These installations and technologies, some time-honored and others trailblazing, could be the most impactful water infrastructure of the future. At scale, LWI performs the same functions as conventional water infrastructure. LWI provides reliable drinking water supply, effectively treats wastewater, and captures and manages stormwater. Indeed, onsite decentralized strategies often perform these functions more equitably and affordably. LWI also provides multiple co-benefits for communities such as permanent, green jobs, improved public health, and more green space. Getting to scale is already feasible technically, financially, and legally. Yet, realizing LWI's full potential remains untapped for a variety of reasons.

This article makes nine recommendations and identifies roughly two dozen achievable, practical action items to overcome the financing, institutional, legal, and policy barriers to largescale adoption of LWI. These recommendations and action items set a foundation for expanding access to and understanding of LWI in an effort to catalyze and accelerate the shift towards sustainable, climate resilient, affordable, and equitable water solutions. LWI solutions for drinking water utilities, pathways to scale, and real-world case studies are explored below. These themes are also discussed in greater detail in the *Tap into Resilience: Pathways for Localized Water Infrastructure* report published by the University of California, Irvine School of Law Center for Land, Environment, and Natural Resources (CLEANR) and WaterNow Alliance in September 2021 (www.law.uci.edu/centers/cleanr/news-pdfs/tap-into-resilience-report.pdf).

LWI Defined

Multiple Benefits

Solutions & Scaling

Pathways

Essential Functions

Limited Flexibility

LWI Categories

Localized Water Infrastructure

In urban settings, water infrastructure needs to perform three basic functions:

- 1) Provide clean, safe, and reliable drinking water supplies for homes, businesses, institutions, and industry
- 2) Move wastewater away from these properties, treat it to meet water quality requirements, and safely reclaim or discharge it without contaminating rivers, lakes, streams, oceans, and estuaries
- 3) Manage stormwater to limit flooding and related damage and, again, ensure that it is safely reclaimed or discharged without harm to public health, water bodies, and ecosystems

Centralized water infrastructure owned and operated by utilities can perform these functions well in many cases and has been the conventional approach for the past 150 years for most communities. Yet, centralized systems comprised of vast networks of pipes, pumps, reservoirs, tunnels, and treatment facilities “require more than a decade to plan, build, [and pay for]” leaving communities with “little flexibility as conditions change.” They are thus limited in their capacity to meet 21st century water management needs.

In particular, centralized systems do not have flexibility to adapt to changing conditions due to the “lack of inter-connectedness” between drinking water, wastewater, and stormwater systems and their “limited and specialized” functionality. (*Optimizing the Structure and Scale of Urban Water Infrastructure: Integrating Distributed Systems*, The Johnson Foundation At Wingspread (2014)). Many conventional facilities are designed for a singular purpose, which ultimately results in “wasted opportunities for more efficient and ecological urban water management.” (Leigh, Nancey Green & Lee, Heonyeong, Sustainable and Resilient Urban Water Systems, 10 SUSTAINABILITY 2 (2019), supra note 7 at 6.). Further, because centralized systems are designed for “a useful life of up to 100 years,” they are highly inflexible with limited reconfiguration possibilities. In addition, the high costs of centralized systems contribute to water inequity and affordability challenges due to the rate increases necessary to pay for improvements to these centralized systems.

In light of these limitations and in response to the growing strain on our local water systems, communities are looking for ways to supplement and extend the life of conventional, centralized infrastructure that are more integrated, affordable, equitable, and adaptive in order to build resilience and sustainability and provide multiple community co-benefits. Local governments across the country have begun to explore LWI to expand their options in this regard.

LWI is a “conceptual category” rather than a specific technology or legal term.

Generally, LWI can be grouped into four broad categories:

- 1) Water use efficiency
- 2) Reuse and other alternative non-potable water sources
- 3) Green infrastructure (GI)
- 4) Privately-owned lateral line replacements

The distributed, decentralized nature of these categories of water management solutions unifies them under the LWI umbrella.

Drinking water utilities can leverage LWI from each of these categories to meet water supply and quality needs. Water use efficiency solutions such as: indoor, high-efficiency appliances and fixtures; turf replacement and water-wise landscapes; smart irrigation controllers; and customer-side leak detection devices make it possible for utilities to treat conservation as a source of supply. Advanced onsite reuse systems, greywater systems, and rainwater harvesting provide alternative sources of water supplies by offsetting potable water use. Source watershed green infrastructure strategies — such as conservation easements, revegetation, riparian buffers, and wetlands restoration and creation — can be used to protect drinking water quality.



Figure 1: LWI Rain Barrel

Pathways

LWI offers a diverse array of water management strategies that can meet drinking water, wastewater, and stormwater needs. Many of these strategies are well known to the water sector (e.g., water efficient appliances, turf replacement, and green roofs), while others represent more emerging technologies that are just gaining traction (e.g., customer-side leak detection devices). In either instance, cities and utilities that have deployed LWI even on modest scales have realized the water management benefits they provide, making the case for accelerating and expanding LWI investments in communities nationwide on par with conventional systems.

Barriers**Pathways for Financing Localized Water Infrastructure**

Notwithstanding the feasibility, affordability, and multiple benefits of localized water infrastructure, LWI uptake has been slow and somewhat fitful. This is due partly to water managers' caution about plunging headlong into new technologies and strategies. But it is also due in large part to structural legal and policy barriers and constraints. Equally important, the pace of adoption has been slowed by perceptions that may not be entirely accurate. Both actual and perceived barriers can create challenges that unnecessarily limit flexibility and opportunity to move toward innovation and the greater community benefits LWI offers.

FINANCING CHALLENGES

For much of the 20th Century, the federal government played a major role in the development of local water infrastructure, particularly in the 1950s to 1970s. However, that support declined dramatically in the 1980s in line with a shift in Congressional policy to transition to full state and local responsibility for water investments. Today, with their revenues largely limited to rates and fees, cities, towns, and special districts responsible for local water resources spend far more on annual operations than long-term investment in infrastructure, at a ratio of roughly 3:1.

Most, although certainly not all, water resource management entities across the US are adept at accessing capital markets to finance their requisite treatment facilities, pipes, tanks, pumps, and other conventional water infrastructure. Fully realizing the benefits of LWI will require that they invest similarly in decentralized and onsite options involving private, as well as public, non-utility-controlled sites. Such investment represents one of the major financing opportunities — and challenges — for scaling deployment of LWI options.

Many, if not most, local and regional public water resource entities have the authority required to raise and invest capital in LWI, but are often held back by various barriers, perceived and otherwise, including most prominently:

Perceived Barriers

- Accounting limitations
- State gift prohibitions
- Limits on tax-exempt governmental bonds
- State and local laws limiting use of bond proceeds

Actual Barriers

- Lack of dedicated or sufficient revenue streams
- Federal and state loan program priorities
- Federal tax disincentives/lack of incentives

Solutions to these challenges are discussed below.

Financing Recommendations**EXPANDING PUBLIC FINANCING OPPORTUNITIES**

The first step in getting past LWI financing barriers is to expand our collective vision and definition of infrastructure. Once we appreciate that onsite reuse systems, permeable pavements, rain gardens, and high-tech leak detection devices all function as water infrastructure, the generational equity case for using debt rather than annual operating cash to pay for these investments makes itself. Moreover, many of the barriers to such investments are now due more to perception than legal barriers.

Four of the most important opportunities to expand financing for LWI and begin to close the water infrastructure funding gap include:

- 1) Accessing Municipal Bonds for LWI
- 2) Establishing Dedicated Revenue Streams for LWI
- 3) Prioritizing LWI Projects for federal & state grants and loans
- 4) Leveraging State & Federal Tax Codes

Accessing Municipal Bonds

Municipal bonds have long been the debt-financing vehicle of choice for cities and public water agencies. In order for local governments to invest in LWI at large scale, they will need to access capital

Fiscal Tools**Finance Opportunities**

Pathways

Bonds and Accounting

markets through municipal bonds, among other financing approaches addressed in latter sections of this article. Municipal bonds can be issued either as revenue bonds or general obligation bonds, which can also be marketed as green bonds or as innovative, outcomes-based, environmental impact bonds.

To use municipal bonds to finance LWI, however, local governments must first navigate accounting, legal, and tax constraints. Accounting rules on debt are, in fact, sufficiently flexible to enable utilities and municipalities to capitalize investments in localized infrastructure of all kinds. A small but important set of water utilities are finding that they can invest municipal bond proceeds in LWI and comply with the Governmental Accounting Standards Board (GASB) Concepts Statement No. 4’s requirement that the agency “control” the asset to be financed by entering into property liens or contracts with property owners. GASB has also promulgated an alternative to Statement No. 4. More than ten years ago, GASB issued Statement No. 62 codifying “Regulated Operations” accounting, providing that local governments may capitalize spending “business-type activities,” such as consumer incentives to implement LWI, as long as they effectively commit to repaying their investors. In addition, local governments must also have the requisite legal authority to issue debt to finance LWI. As with accounting guidelines, many of these legal requirements are sufficiently flexible to allow for, and are not complete bars to, bond financing LWI. Within existing flexibilities of the federal tax code, local governments are likely able to access tax-exempt governmental bonds to finance LWI, keeping these offerings attractive to investors.



Figure 2: Seattle Stormwater

GI Projects

Accessing Municipal Bonds: Seattle Public Utilities & King County

Challenge: Urban Stormwater Runoff

Localized Water Strategy: RainWise Program, which provides residential customers rebates that cover up to 100% of the costs to install rain barrels and rain gardens to capture stormwater runoff and reduce the risk of combined sewer overflows.

Financing Mechanism: Seattle Public Utilities and King County finance the RainWise program with municipal bond proceeds using the GASB No. 62 regulated operations accounting approach.

Results: As of 2021, the RainWise program has financed GI projects on private property that manage 26.5 million gallons of stormwater per year. In total, Seattle’s GI projects on public and private property manage 465 million gallons of stormwater per year, bringing the city closer to meeting its goal of managing 700 million gallons of runoff per year with GI by 2025.

Learn More: www.kingcounty.gov/services/environment/wastewater/cso/rainwise.aspx

Pathways

Fees and Revenue

Establishing & Leveraging Dedicated Revenue Streams

Financing LWI on a large scale may require additional vehicles and sources of capital — i.e., dedicated taxes, fees, or charges. Accessing municipal bonds may depend on a dedicated revenue stream to secure the debt. Two options for dedicated revenues are stormwater fees and special fees.

Stormwater fees can be structured in a number of ways, including:

- Tiers of stormwater rates based on the diameter of a property’s potable water pipe and assumptions about usage
- Based on a property’s “usage,” i.e., gallons of stormwater that a property generates per inch of rainfall either “parcel-based” or “impervious area-based”
- Based on assessed property value, i.e., property taxes

Special fees can include “conservation fees,” which collect funds to pay for water conservation programs or “watershed protection” fees, which help fund land acquisition efforts to protect water quality.



Figures 3 & 4: LA Stormwater Infrastructure

Parcel Tax

SIPs

**Establishing a Dedicated Revenue Stream:
Los Angeles County Parcel Tax**

Challenge: Addressing Contaminated Urban Stormwater Runoff

Localized Water Strategy: Clean Water Program that funds projects throughout the Los Angeles region to capture, clean, and reuse stormwater.

Financing Mechanism: Los Angeles County enacted a parcel tax via a ballot measure in 2018 that will generate approximately \$300 million per year for stormwater capture projects (see Patsch & Zhang, *TWR #198*). Securing the two-thirds majority to pass was a major hurdle, which the County overcame by partnering with an environmental non-governmental organization (NGO). This group was instrumental in garnering support for the measure and attributes its success to three key elements: 1) leadership at the County in the form of project champions on the Board of Supervisor and at the staff level; 2) local environmental and social justice groups aligned in their support of the measure; and 3) ongoing dialogue over the course of a year and a half among stakeholders through both formal and informal processes. These efforts resulted in all parties (NGOs, municipalities, organized labor, and businesses) reaching a compromise on the measure.

Results: Through this program, as of October 2022, nine Stormwater Investment Plans (SIPs) have been approved, funding over 100 infrastructure projects. Each SIP’s individual projects vary according to the type of capture infrastructure involved and the extent of additional community and nature benefits. Some projects create new parks and spreading grounds, others expand or significantly rehabilitate existing ones. Project purposes vary from infiltrating water directly to groundwater, capturing and reusing water from underground tanks, or creating low flow water diversions to wastewater facilities. Many projects also include recreational opportunities and the placement of native plants and trees to provide habitat, cool communities, improve air quality, reduce flooding, and sequester carbon.

Learn More: <https://safecleanwaterla.org/program-overview/>

Pathways**Federal Funds****Prioritizing LWI for Federal & State Grants and Loans**

Many federal programs provide financial support for LWI. By far the most significant of these programs are the Clean Water Act and Safe Drinking Water Act State Revolving Funds (SRFs), and the more recently enacted Water Infrastructure Finance and Innovation Act, known as WIFIA. The SRFs are administered by the states and are, as their name indicates, revolving funds that provide upfront cash to local entities to build water infrastructure. While some SRF funds are grants, the vast majority are loans. This is how water infrastructure programs have been sustained over decades. WIFIA program eligibilities are coextensive with the SRFs. WIFIA loans are issued by EPA for projects of \$20 million or more for large communities and \$5 million or more for small communities.

SRF's

The SRFs have provided low-cost loans to utilities building water infrastructure for more than 30 years, amounting to more than \$194.1 billion in project investments. The WIFIA program was created in 2014 and has overseen 49 loans totaling \$34 billion in credit assistance to help finance nearly \$20 billion for water infrastructure projects. Historically, these federal loans have been used to pay for conventional, grey infrastructure. However, there is no legal barrier to using these funds for green and nature-based solutions. The American Recovery Act of 2009 established a “Green Project Reserve,” that specifically requires all Clean Water SRF programs to use at least 10% of their federal capitalization grant for projects that address GI, water and energy efficiency, or other environmentally innovative activities. Notably, the Green Reserve is a floor, not a ceiling. Water use efficiency and distributed **green infrastructure (GI)** projects implemented via consumer incentive programs are already eligible for SRF loans — though these funds are not accessed to finance LWI as often as they can and should be. Further, most states do not yet clearly explain that localized options are eligible for SRF loans.

GI Reserves

In addition to these main federal and state loan programs, there are smaller grant and loan programs that make funding available for water infrastructure improvements, including the Land and Water Conservation Fund, Sewer Overflow and Stormwater Reuse Municipal Grants Program, and Water and Waste Disposal Loan and Grant Program. While such programs can be used to fund LWI, the eligibility criteria and application processes for many of these programs do not specifically prioritize LWI, and it is not clear whether utilities widely view these programs as potential sources of LWI financing. Updating these criteria and application processes is an important step to increased investments in LWI. For example, in 2022, the Bureau of Reclamation revised the eligibility criteria for the WaterSMART program to expressly state that indoor and outdoor water use efficiency measures on private property are eligible for WaterSMART grants.

Other Funds**Eligibility Criteria**

Federal dollars from the Bipartisan Infrastructure Law and the Inflation Reduction Act will reinvestigate investments in water infrastructure. These renewed federal investments should reflect 21st century needs and solutions. To this end, federal and state grant and loan programs should prioritize LWI as key strategies for building increased resilience at the local level.

Customer Incentives**Leverage State and Federal Tax Codes**

The ability of water utilities to employ financial incentives to motivate their customers to participate in LWI programs is key to their success, particularly at a large scale. State and federal tax codes are central to these efforts. Tax incentives can be powerful catalysts for action. Removing tax barriers is essential to avoid disincentivizing participation in otherwise strong programs.

On the federal side, the Internal Revenue Service’s (IRS) definition of “gross income” has been a major challenge for many years for water resource agencies attempting to provide consumer rebates. Rebates can greatly aid the deployment of a wide variety of cost effective, climate resilient, and environmentally sustainable LWI. The IRS and US Department of Treasury maintain that consumer rebates issued by public water utilities qualify as “income” for federal tax purposes — notwithstanding the fact that such rebates advance clear public interests. This has led utilities to conclude that they are required to issue 1099 tax forms to customers participating in rebate programs covering water use efficiency measures, GI installations, septic system upgrades, and more. It is widely believed among rebate program managers that taxing local water rebates as “income” operates as a major disincentive for private property owner participation in LWI programs. Indeed, in some areas, concern about federal taxation on rebates may be aggravating public health and safety challenges as homeowners refuse to participate in programs to swap out septic systems for upgraded, onsite treatment technology.

Tax Reform Needed

The IRS takes the position that only Congress can make the requisite IRS Code changes and, since 2014, efforts to address this issue administratively have not been successful. Federal legislation to address this issue and exempt a full range of financial incentives for decentralized and distributed water infrastructure from federal income taxation has been introduced, but has not yet been enacted as of December 2022.

Pathways**State Exemptions**

For the same reasons, exemption from state income taxes for water rebates are also critical. California's tax code, for example, exempts rebates for water efficient toilets, clothes washers, and certain plumbing for recycled water from both personal and corporate taxes. California also recently reinstated a personal income tax exemption for turf replacements. However, California's current exemption does not cover all types of efficiency rebates, such as those for other outdoor water conservation measures or stormwater management. The taxability of these rebates is a barrier to full-scale implementation of these crucial programs. Efforts to remove this barrier at the California legislature have not yet been successful. As this California example demonstrates, there has been some progress on clearing state income tax barriers, but work on this front remains to be done.

On the other hand, states such as Georgia, Maryland, and Texas, are beginning to show some willingness to use their tax codes to affirmatively support deployment of water infrastructure. These initiatives are particularly significant because they can provide vital support without draining local utility resources.

Financing Action Items

We have identified eight ways that utilities, federal, state, and local governments, along with NGOs, universities, and other partners can begin to overcome barriers and carry out the above recommendations for investing in LWI on par with conventional infrastructure approaches.

Local Water Resource Managers & Utilities

- Establish standards and/or targets for LWI in internal, capital investment plans, and other long-range planning; institutionalize the concept that these strategies can be debt-financed alongside, and in the same way as, conventional water infrastructure.

State & Local Governments

- Exempt public investments in LWI from restrictions on the use of bond proceeds on private property, and/or recognize investments in LWI as authorized debt-financed investments.

Federal & State Government

- Update tax codes to exempt consumer incentives designed to implement LWI from income tax.
- Create tax incentives for residents and businesses to invest in LWI.

Federal Government

- Create or update SRF eligibilities, and/or guidance and criteria to: (a) prioritize funding for LWI; and (b) expand SRF financial assistance mechanisms that can lower costs and accelerate the pace of LWI funding on a national scale.
- Update the IRS code to exempt LWI from the cap on "private activities" for purposes of tax-free governmental bonds.

NGOs & Universities

- Create and maintain a database of state-level statutory and regulatory public finance rules that may operate as, or may be perceived to be, barriers to capitalizing LWI investments. WaterNow has built an initial version of this database: <https://tapin.waternow.org/finance-database/>.
- Conduct a literature review of EPA and other resources related to the use of SRF funds to finance LWI, and create a summary report that compiles and synthesizes the relevant information and provides case study examples of SRF-funded strategies.

If implemented, these actions would help create multiple pathways for financing LWI in a way that realizes their full capability in providing drinking water, wastewater, and stormwater services.

INSTITUTIONAL CHALLENGES: OVERCOMING "SILOING"

Expanding the vision of water infrastructure — from centralized systems of pipes, tanks, and tunnels to include decentralized onsite strategies and technologies spread over a community — faces institutional as well as financial challenges. Predominant among these is the compartmentalized way in which water resources have traditionally been managed and regulated. Drinking water, wastewater, and stormwater are often under the jurisdictional purview of separate local entities and rarely fully integrated. It is even more rare for land use and water resource management to be integrated. This "siloeing" favors centralized water infrastructure initially designed to serve limited purposes.

Reflecting these limited purposes, each utility's roles, responsibilities, and capacities have historically been aligned to implement these centralized approaches. Further, due to the large fixed costs of centralized water infrastructure, agencies favor maintenance and upgrades to existing, centralized systems over introducing new LWI. In addition, certain types of LWI may be seen as incongruent with

Recommendations**Centralized vs Decentralized**

Pathways

utility business models. For example, in the western US, some water providers have resisted investing in distributed water use efficiency and onsite reuse at large scale because, while such measures could provide important supply and climate resilience benefits, they also result in substantial revenue losses if rates are based primarily on sales volume. Shifting to a business model that decouples revenues from volumetric sales can be a slow and challenging process.

Underpinning these structural challenges is the need for new or updated guidance and data-driven decision-support tools to assist policymakers and water managers shift from conventional systems to LWI. Pivoting to large-scale adoption of LWI is feasible, but will require an intentional approach to institutional issues that can operate as barriers.

Barriers

Institutional Barriers to LWI Adoption include:

- Lack of appropriate decision support tools and guidance
- Compartmentalized water management, i.e., water agency silos
- Lack of collaboration with other city departments and community groups
- Difficulty accessing water management potential of private property
- Outdated business models
- Limited scope of water utility role and capacity

Institutional Recommendations**BUILDING INSTITUTIONAL CAPACITY FOR ADOPTION OF LOCALIZED WATER INFRASTRUCTURE****LWI Strategies**

Addressing the institutional challenges to LWI entails long-term transformation of deep-rooted municipal and utility *modus operandi*. We have identified three sets of strategies with meaningful potential to open pathways to greater acceptance and adoption of LWI in the near term. These approaches are designed to pave the way for broader expansion of what investment-worthy infrastructure means.

Strategic Pathways to LWI include:

- Creation of alternative water service business models
- Development of new decision-support tools
- Creation of new pathways for collaboration

Revenue Stability**Create Alternative Water Utility Business Models**

A particular institutional challenge arises for public water providers in connection with increased efforts to deploy reuse and other water saving technologies. While it is widely acknowledged that “conservation is the cheapest source of water,” for many municipal water suppliers declining water sales equates to declining revenues. Maintaining revenue stability is a major driver because over 80% of water utility costs are fixed costs. Moreover, like other forms of water infrastructure, localized reuse and efficiency measures require investment. For these reasons, utilities can be deterred from investing in these strategies even though, over the long-term, reduced water demand can generate substantial financial savings for ratepayers and generate other co-benefits as described above.

Alternative Models

However, water utilities are not locked into a one-size-fits-all business model. Increasingly, they are developing alternative business models designed to maintain fiscal health without relying on volumetrically-driven water sales. There are a number of ways to accomplish this and make water use efficiency a core part of the utility business model. Strategies include budget-based rate structures and “shifting away from the single-purpose service provider model and becoming multi-purpose utilities that provide a variety of services at different scales” (The Johnson Foundation at Wingspread, *supra* note 15, at 18). The energy sector shifted in a similar way — as small-scale systems became more prevalent, power utilities began providing more distribution and grid management services.

Recommendations for Alternative Business Models include:

Strategies

- Providing services to operate and/or maintain LWI systems
- With respect to drinking water utilities, decoupling rates from revenues by implementing one or a combination of conservation-oriented rate structures
- With respect to internal agency structures, updating institutional hierarchies and traditional roles to reflect 21st century needs by:
 - Evaluating where staff capacities are most impactful in meeting utility and community goals
 - Realigning departments and roles to match utility priorities
 - Refreshing the utility’s stated mission to correspond with community values
- Providing LWI job training programs that can:
 - Create new local jobs, including for vulnerable youth
 - Garner greater confidence in LWI

Pathways

- Reduce the costs associated with acquiring skilled personnel to implement, operate, and monitor LWI systems

Water utilities are already demonstrating how development and implementation of alternative business models has allowed them to encourage water conservation and efficiency and better weather drought, while still maintaining revenue stability. As more water utilities demonstrate the long-term benefits of alternative business models that do not rely on selling water as a commodity, we expect that there will be greater opportunities to increase adoption of LWI.



Figures 5: Moulton Nigel

Alternative Rate Structure

Creating Alternative Business Models for Utilities: Moulton Niguel Water District

Challenge: Recurring Drought & Limited Local Supply

Local Water Strategy: Conservation

Alternative Business Model / Water Budget-Based Rate Structure: In 2011, the Moulton Niguel Water District (MNWD) began transitioning to a water budget-based rate structure, where customers receive a customized, monthly water budget designed to meet their indoor and outdoor needs. Customers who consume water efficiently and stay within their budget enjoy the benefit of low water rates, while over-budget water use is billed at increasingly higher unit costs. In addition to this updated rate structure, MNWD updated its organizational structure to integrate traditionally siloed departments and foster integrated management of key internal functions. For example, MNWD developed a department manager role to oversee utility finance, conservation programs, and rates. This involved evaluating utility needs, staff capacities, and community values and learning from those outside of the water sector. MNWD also employed a proactive approach to outreach and engagement with its customer base. The revenue generated from the higher rates customers pay for using water inefficiently is invested in conservation and efficiency programs for the community, allowing customers to see how that revenue is used.

Results: With a budget-based rate structure, MNWD has decoupled rates from revenue. MNWD collects two distinct charges from customers: a service charge to cover the majority of the District's fixed costs and a volumetric charge to cover the cost of water. Separating these revenue streams has allowed the District to achieve greater water use efficiency and revenue stability. Unlike many other water agencies, MNWD did not see a loss in revenue during the 2012 to 2016 drought. Further, the conservation and efficiency achieved with this rate structure has reduced overwatering and resulted in a decrease in dry weather runoff, which in turn reduces the amount of polluted urban runoff reaching surface waters. Linking finance with conservation efforts, as well as rate structures, has been an important opportunity for meaningful integrated water management at MNWD.

Learn more: www.mnwd.com/

Pathways**Develop New Decision-Support Tools**

Expanding water infrastructure options requires that municipal and utility leaders have credible and reliable tools, protocols, and guidance on which to base their decisions about implementation and investment. In the absence of such tools, managers and political decisionmakers fall back on conventional, analytical approaches designed for a substantially more limited set of strategic and financial options.

New Tools

One recommendation for addressing this is for NGOs, universities, and key federal agencies — such as the EPA and Bureau of Reclamation — to develop tools to assist local decisionmakers in their evaluation of various LWI.

Tools Could Be Designed to Accomplish the Following:

- Account for the full range of advantages and disadvantages of localized water strategies (i.e., consider benefits and interpret water savings as avoided costs rather than reduced revenues)
- Use a time horizon that accounts for cost efficiency of a localized water strategy over its lifetime
- Account for climate variability projections
- Evaluate impacts of land use decisions on water resources
- Forecast demand to accurately reflect downward trend in water use and integrate factors such as efficiency, change in economic activity, and denser development

Create New Pathways for Collaboration

A number of the institutional barriers to acceptance and adoption of LWI as legitimate infrastructure strategies reflect the evolving nature of how utilities function in municipal and community ecosystems. With notable exceptions, water utilities are prone to view themselves as technical service providers and typically perform their critical functions largely in isolation from other governmental departments and community organizations. This siloing means that pathways for collaboration with other agencies or departments rarely develop organically. Similarly, it does not always come naturally for utilities to be deeply engaged with the community organizations, institutions, and other partners generally vital to broad deployment of decentralized solutions.

Creating Partnerships

Greater collaboration and communication between public entities, different disciplines, and the community would enable the sharing of resources and technical expertise needed to facilitate both the assessment and implementation of LWI. This includes identifying and coordinating with key intra-city and community-based agencies, as well as NGOs and universities to effectively implement LWI programs.

Leveraging Skills

Because it is implemented on non-utility property, LWI can also benefit significantly from coordination among traditionally siloed agencies. For example, a recent report from the Pacific Institute, highlights how San Mateo, California, and Fort Collins, Colorado, have taken a coordinated approach to co-fund water customer incentive programs to install multiple-benefit LWI. These coordinated efforts opened the door to additional funding and made the programs more accessible to customers — effectively leveraging each utility's unique capacities and expertise.

Addressing Equity

Greater engagement and collaboration with non-traditional community partners can also help address local equity issues related to water resource management. Increasingly, municipalities and utilities are taking steps to incorporate equity considerations into their decisions. They are recognizing the need for a deliberate approach to address systemic racism when tackling equity-related challenges related to flooding, water quality, inadequate infrastructure, and climate impacts. Effectively addressing these challenges requires empowering disadvantaged and vulnerable communities that are disproportionately affected by giving voice to their concerns and needs. In their report *“Building Blocks of Trust: Building Lasting, Authentic and Equitable Relationships between Community Organizations and Water Utilities”* the River Network and WaterNow developed eight best practices for building trusting partnerships between water managers and community groups. The River Network also recently released its Equitable Water Infrastructure Toolkit, intended to help “stakeholders, advocates, and leaders” familiarize themselves with “water infrastructure funding and financing mechanisms” and “[u]nderstand the role and impact of local, state, and federal entities, and community organizations in addressing affordability and sustainability.”

Actions

Municipalities and utilities can collaborate with NGOs focused on promoting racial equity to incorporate a meaningful equity lens into their localized water strategies.

Promoting Meaningful Equity may include:

- Measuring and describing community disparities
- Providing local planners, public officials, community organizations, and foundations with the tools they need to engage marginalized populations and advocate for equity objectives

Pathways**Engagement**

- Transforming equity goals into targeted discussions on particular disparities that will be tackled
- Conducting a visible and inclusive public planning process designed to foster equitable participation in the decision-making process as well as the resulting localized programs
- Developing specific measurable equity-based objectives and achievable action items
- Eliminating barriers to participation. For example, bridging language and cultural barriers, expanding distributed GI, water use efficiency, conservation, or onsite reuse incentive programs to multi-family homes, and removing exclusions from participating in rebate or other incentive programs for customers with late or overdue payments.

Utilities have incorporated equity considerations into a variety of LWI programs such as water use efficiency strategies (e.g., high-efficiency indoor appliances and fixtures) and green infrastructure. As just one example among a growing number of communities, Tucson Water provides limited-income individuals and families with free high-efficiency toilets and offers grants (up to \$400) and loans (up to \$2,000) for rainwater harvesting systems.

New decision-making tools, alternative water utility business models, and new pathways for collaboration will help remove institutional barriers to greater adoption of LWI. There are some valuable decision-support tools already available, and some utilities have begun to update their business models.

Institutional Action Items

We have identified 10 action items for utilities, state and local governments, the federal government, NGOs, and universities that can be used to overcome identified institutional barriers to LWI and carry out the recommendations for operationalizing utility adoption of LWI.

Utilities & Local Governments

- Establish alternative business models designed to maintain fiscal health without relying exclusively on volumetrically-driven water sales (e.g., budget-based rate structures, repeal of volume discounts, flat fee combined with a variable, tiered rate, and/or fixed variable rates).
- Update institutional hierarchies and traditional roles to reflect 21st century needs. Shift utility goals from the single-purpose service provider model and move to a multi-purpose model that provides a variety of services at different scales informed by community values, staff capacities, department alignment, and utility priorities.
- Provide LWI job training programs that can: create new local jobs (including for vulnerable youth); garner greater confidence in LWI; and reduce the costs associated with acquiring skilled personnel to implement, operate, and monitor LWI systems.

Utilities Working with Technology, University & NGO Partners

- Identify and coordinate with key intra-city and independent community agencies, as well as NGOs and university partners
- Invest in tools and technologies that harness real-time data to inform improved rate modeling and decision-making
- Create a “data dictionary” for public water data that includes definitions, standards, and data collection protocols to “promote interoperability, efficiency, and user-flexibility”

State Governments

- Adopt and/or update urban water use planning requirements to include guidelines on how to conduct demand forecasting to reflect the reality that water demand is trending downward

NGOs, Universities, & the Federal Government

- Develop tools for local utilities to use to better evaluate the efficacy and benefits of localized water strategies, including head-to-head comparisons with conventional approaches
- Develop matrices to match localized water strategies with the different applications (residential, commercial, etc.), the various challenges the strategies can address, data needs, and financing tools
- Generate, collect, and analyze data on: (a) how LWI meets water supply, stormwater, and wastewater management needs; (b) environmental, economic, and social benefits of LWI; (c) how LWI meets public health and safety standards; (d) how capital costs, performance, and resiliency characteristics of LWI compare to centralized systems; and (e) the job creation potential of various LWI projects.

If implemented, these actions would help institutionalize LWI strategies for providing drinking water, wastewater, and stormwater services.

Recommendations

LEGAL & POLICY CHALLENGES

In addition to financing and institutional barriers, certain types of legal and regulatory requirements can hinder, or effectively preclude, larger-scale implementation and deployment of LWI. While these challenges can occur at all levels of government, state and local rules, regulations, and policies represent the majority of the laws and policies that govern whether, how, and where LWI can be implemented. Federal rules primarily concern the funding issues addressed above.

Municipal codes and ordinances can limit LWI because they were not drafted with localized solutions in mind. They often expressly or implicitly prohibit deploying LWI to meet water supply, wastewater, and stormwater management needs. For example, local rules such as parking lot requirements may specify use of conventional curbing or specific types of plants, which can restrict the use of bioswales, bioretention areas, or installation of drought tolerant plants. Similarly, well-intentioned state and local public health regulations can directly prohibit LWI. These regulations can restrict laundry-to-landscape greywater reuse for single-family homes as well as complex, campus-wide, advanced onsite reuse systems that treat black water. Additional examples of these regulations include: prohibitions on rainwater harvesting and the use of reclaimed stormwater; restrictions on soils used for infiltration; and requirements for vector control such as mosquito abatement rules that do not reflect the nuances of LWI.

The absence of policies, rules, and regulations that recognize LWI as available water management measures can operate as barriers to implementation as well. For example, absence of language about LWI in codes and ordinances may result in water managers not even entertaining the possibility of using such strategies. In other words, if a city's stormwater code makes no mention of bioswales, rain gardens, or other onsite GI solutions as ways developers can meet the city's post-construction stormwater standards, developers will likely use only conventional stormwater management options.

Granular scale state and local policies are crucial to LWI deployment. These policies govern on-the-ground adoption of LWI and present the main legal and policy implementation barriers when it comes to large-scale LWI uptake. As described above, there are generally two sets of legal and policy challenges to LWI implementation at state and local levels:

- Laws and policies that expressly and/or implicitly create barriers to LWI implementation
- Absence of state and local law and policies that either mandate or incentivize LWI

Recommendations

UPDATE STATE AND LOCAL LAW AND POLICY TO SUPPORT WIDESPREAD ADOPTION OF LWI

State and local laws and policies present key leverage points for decisionmakers and advocates working to establish flexible pathways for water entities to advance adoption of LWI at large-scale.

There are two important ways to apply these leverage points:

- Adopt new laws and policies to support LWI
- Update existing laws and policies to clear barriers to LWI

Adopt New Laws and Policies to Support LWI

Adoption of new state and local laws and policies that either require and/or incentivize LWI would help facilitate greater LWI implementation. These new laws and policies would provide local decisionmakers with guidance as to when LWI can appropriately meet water management needs, including whether LWI options meet state and local regulatory requirements.

The growth of greywater reuse in several western states demonstrates the relationship between state-established legal foundations or mandates and the local pathways for greater adoption of LWI. For example, California adopted guidelines for installation of residential greywater systems as part of the state plumbing code, providing the basis for many utilities and local governments to invest in public education, and incentive programs to advance adoption of these systems locally. So far, it appears to be working; public interest in greywater has grown, increasing installation of such systems. In 2019, Utah's Division of Water Resources adopted water conservation goals for municipal and industrial water use for nine regions around the state. These goals are likely to play a key role in spurring wider investment in and adoption of LWI by local water agencies working to meet them. In 2015, Colorado adopted Regulation 86 which outlines requirements, prohibitions, and standards for greywater use for non-drinking purposes that local jurisdictions can adopt to create their own locally administered greywater programs.

Western Resource Advocates (WRA) has built a database of several notable state water policies and programs from around the country related to urban water conservation, water reuse, and land use and water integration. Many of the policies and programs identified in WRA's database serve as robust examples for how states can establish policies to accelerate adoption of LWI (<https://westernresourceadvocates.org/>).

Pathways

Codes & Ordinances

Incorporate LWI

Leverage Points

Greywater Reuse

Examples

Pathways

Re-Prioritizing

Net Zero

There are several ways local governments can adopt new regulations to prescribe or incentivize LWI implementation. They can establish rules related to new development or redevelopment as a cost-effective approach. This can range from prioritizing GI for onsite, stormwater management in post-construction stormwater ordinances (as is done in Seattle, Washington, and Eugene, Oregon); to establishing conservation-oriented tap fees designed to promote water-wise growth in the arid West (as is done in Westminster and Castle Rock, Colorado); to adopting an ordinance requiring new development to reuse available greywater, rainwater, and foundation drainage for toilet and urinal flushing and irrigation (as is done in San Francisco, California). Local “net zero” water policies, which allow for new development so long as there is no net increase in water consumption, are another tool cities have used to advance LWI.



Figures 6: Westminster, Colorado

Tap Fees

**Adopting New Laws and Policies to Support LWI:
City of Westminster, Colorado**

Challenge: Drought, Climate Change, Population Growth, Limited Access to New Supply

Localized Water Strategy: Conservation & Efficiency

Policy: To incentivize water conservation and efficiency strategies that “ensure water availability at city-wide buildout,” the City of Westminster, Colorado (City), has set conservation-oriented “tap fees.” In other words, to connect to the City’s water system, new developments are charged based on the development’s planned landscaped area and projected annual landscape water demand. Connection charges are lower for developments that use water-wise plants and reclaimed water. The City also charges a two-factor connection fee for commercial, industrial, and institutional new and re-development. One element of the fee is based on meter size; the other is based on the type of business or activity and projected annual water use. This allows the City to recommend water efficiency measures that could result in reduced connection fees when the City reviews new developments’ design plans.

Results: Westminster’s conservation and efficiency programs, including its long-standing conservation-oriented tap fees, have saved the City both water resource and infrastructure costs. A 2013 study showed that the City had experienced a 21% reduction in average per capita water demand. This kept residential and business water rates 99% lower than they would have been without conservation. New customers in Westminster also avoided an 80% increase in water and sewer tap fees.

Learn More: www.cityofwestminster.us/

Pathways**Change Laws****Integrated Planning****LWI & Permits****Stormwater Capture****Recommendations****Update Existing Laws and Policies to Clear Barriers to LWI**

Updating local building, land use, and zoning laws offer key opportunities to accelerate adoption of LWI strategies. Changes can range from simply authorizing use of LWI where existing rules may be unclear, to specifically requiring incorporation of various types of LWI as available management practices to meet state and local regulatory requirements for efficiency and conservation. Local governments can also accelerate adoption of LWI by revising water supply planning regulations and policies to integrate water savings from water use efficiency, conservation, and reuse and identify these strategies as a means to improve efficiencies.

Land use planning policies can also be updated to integrate water planning and LWI. For example, Severance, Colorado's most recent Comprehensive Plan (Plan) includes a stand-alone water element and incorporates water conservation considerations throughout the Plan. This approach is designed to "bring about continued discussion surrounding water conservation for every planning document or decision that is proposed in the Town." To operationalize the policies in its Comprehensive Plan, Severance will rely in part on LWI implemented via rebates for: high efficiency toilets; adoption of water efficient landscape regulations; and irrigation design criteria designed to drive outdoor conservation measures. Other local governments could take a similar approach to integrated land use and water supply planning. This integrated approach also applies to local resiliency or sustainability planning that is already underway in many communities.

In addition, federal Clean Water Act (CWA) permit programs present opportunities to encourage local actors to employ onsite strategies as options for meeting permit requirements. For example, the California State Water Resources Control Board has amended the statewide industrial stormwater general permit to incentivize localized stormwater capture and use rather than limiting compliance options to centralized treatment. To this end, the permit authorizes onsite and/or offsite stormwater capture as compliance options provided the discharger meets the specific stormwater capture requirements outlined in the permit.

Under these permit terms, urban industrial development, in particular, presents opportunities for stormwater capture and greywater strategies due to the demand for non-potable water at industrial sites. Some industrial stormwater permittees have already demonstrated how implementation of such strategies can support CWA compliance. For example, several cement manufacturing facilities in southern California are retaining and reusing stormwater on site in their industrial operations. Another example is a grain elevator and export facility in Washington State that is infiltrating all stormwater runoff from its permeable surfaces onsite. Similar amendments to other state's industrial stormwater permits would incentivize more permittees to invest in stormwater capture strategies to meet their permit requirements.

Establishing new state and local guidelines, regulations, and policies or promoting LWI in existing laws and policies would just begin to scratch the surface of the many ways that cities, towns, utilities, and their states can create the policy pathways to accelerate adoption of these strategies. These modest changes would, however, have an outsized impact on increasing adoption.

Legal & Policy Action Items

We have identified nine action items for utilities, state and local governments, and NGOs and universities to take to begin to overcome identified legal and policy barriers and to foster large-scale adoption of LWI.

Utilities & Other Local Governmental Entities

- Develop internal/external teams to review municipal codes to identify unintentional barriers to LWI adoption as well as gaps in policies and ordinances needed to support larger scale deployment.
- Revise building codes and other relevant local ordinances and polices to require use of LWI in new development including, but not limited to: water use efficiency measures; onsite reuse systems; and GI.
- Establish criteria and monitoring guidelines in health and safety codes for onsite reuse of stormwater, graywater (relatively clean wastewater from baths, sinks, washing machines & etc.), and blackwater (wastewater from toilets).
- Revise ordinances or incentive programs to ensure private property owners maintain onsite facilities, and establish dedicated utility staff to ensure proper operation and maintenance of privately-owned LWI through oversight and inspection.
- Incorporate LWI objectives into comprehensive master plans and sustainability plans.

State & Local Government

- Update water supply planning regulations and policies to ensure that water savings from water use efficiency, conservation, and water reuse is treated as a source of supply.

Pathways

State Governments

- Eliminate state-level prohibitions to LWI technologies and strategies such as rain cisterns, onsite reuse and graywater systems; and/or establish state-level guidance for deploying such systems safely while protecting public health.
- Leverage regulatory requirements (e.g., municipal stormwater permits and wastewater treatment plant permits) by identifying LWI as authorized best management practices, as well as encouraging the use of LWI. For example, setting different deadlines for permittees that deploy LWI to meet permit terms and allowing for stormwater credit-trading systems.

NGOs & Universities

- Create a repository of local ordinances, policies, and programs that facilitate LWI such as building, plumbing, and land use codes, climate action or sustainability plans, and water supply and comprehensive plans.

Conclusion

LWI implementation at scale is both possible and highly beneficial. Public utilities have access to mechanisms to finance large-scale localized water infrastructure investments just as they do for conventional infrastructure.

The tools to counteract institutional inertia — that keeps the bulk of water utilities' resources and decision-making flowing exclusively towards conventional approaches — are already available or are readily achievable with the support from water sector partners, NGOs, and academia.

Finally, a growing number of federal, state, and local policies that authorize, incentivize, and prioritize LWI provide solid models for other communities as they work to shift towards these sustainable, resilient water resource management options.

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Caroline Koch, WaterNow Alliance Water Policy Director, is an experienced environmental attorney and leads the organization's work in identifying and addressing policy and legal barriers to implementation of sustainable water management practices through toolkit development, on-the-ground technical assistance, legislative and administrative advocacy, and policy white papers.

LWI is Possible

NFHP - Part 2

NFHP Assessments

NATIONAL FISH HABITAT PARTNERSHIP – PART 2 **PROTECTING, RESTORING, & ENHANCING US FISH HABITATS**

by Ryan Roberts, Association of Fish and Wildlife Agencies (Washington, DC),
 Gary Whelan, Michigan Dept. of Natural Resources (Lansing, MI),
 & Christopher Estes, Chalk Board Enterprises, LLC (Anchorage, AK)

Introduction

Part 1 of this article was featured in *The Water Report* #225 and provided a brief overview of the National Fish Habitat Partnership (NFHP) (<https://fishhabitat.org>). This article offers additional details on the conservation work of NFHP, accomplishments to date — including protecting intact, rehabilitating impaired, and improving degraded fish habitat — and the overall enabling legislation, America's Conservation Enhancement Act PL 116-188, Title II.

NFHP is currently the most comprehensive and diverse, nationwide, and partner-led network implementing science-based conservation actions for fisheries in the United States. To date, NFHP has completed two one-of-a-kind National Fish Habitat Assessments at actionable spatial scales (e.g., river reaches and individual estuaries). Many additional, smaller scale assessments have been performed by the 20 Fish Habitat Partnerships (FHPs), which are focused on specific landscapes/regions, fish species, or habitat types. In accordance with PL 116-188, Title II reporting requirements, NFHP is slated to complete the next national assessment by the end of calendar year 2025. The science assessments are supported and used by a broad range of partners including: state, federal,

NFHP - Part 2

tribal, local, corporate, non-governmental organizations, academic, and private stakeholders. Those assessments identified intact systems that need conservation protection actions and assessed the root causes of aquatic habitat degradation in altered systems to guide future fish habitat conservation efforts.

America's Conservation Enhancement Act ("ACE") – NFHP Provisions

NFHP has been operating since 2006 as a voluntary effort under the *National Fish Habitat Action Plan (NFHAP)*. The *NFHAP* was codified in the ACE Act (PL 116-188, Title II) which has 12 sections that characterize, define, and specify the actions to be achieved by NFHP. They are as follows:

- Section 201 – Defines the overarching purposes of the NFHP.
- Section 202 – Contains definitions specific to the legislation.
- Section 203 – Outlines the Board makeup, qualifications, selection process, term requirement criteria, required responsibilities, and overall Board processes and functions.
- Section 204 – Describes the FHPs including: purposes, qualification criteria, formal recognition processes, and responsibilities.
- Section 205 – Focuses on conservation projects. Defines the processes and outlines the criteria related to the selection, prioritization, and funding for FHP fish habitat conservation projects — including funding eligibility criteria and non-federal match contribution requirements (currently 1:1). Provisions within this section also define non-federal funds received by tribal partners.
- Section 206 – Defines key NFHP science and technical support roles for a number of federal agencies including: US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA), and United States Geological Survey (USGS) in addition to other federal entities. It also summarizes support functions and funding allocations for these roles and provides other related guidance.
- Section 207 – Summarizes Secretary of Interior, State, and Indian Tribe coordination requirements.
- Section 208 – Summarizes requirements and purposes of the Interagency Operation Plan (IOP) that is designed to support NFHP and cooperation from all federal agencies involved with fish habitat.
- Section 209 – Summarizes specific Board accounting and reporting requirements that are due once every five years to Congress and supplements the annual Congressional Reporting Requirements summarized in Section 204.
- Section 210 – Further clarifies the effect of the legislation and its limitations.
- Section 211 – Establishes non-applicability of the Federal Advisory Committee to both the Board and FHPs.
- Section 212 – Provides an overview of funding authorization, appropriation categories, and criteria that supplement other relevant prior sections.

ACE Sections

National Conservation Priorities

In accordance with Section 201 of the ACE Act, the NFHP Board (Board) is charged with establishing a consensus-based set of annual National Conservation Priorities (NCPs) to guide conservation actions implemented by NFHP and its FHPs. Seven NCPs were recently adopted by the Board for fiscal year (FY) 2024 (October 1, 2023 to September 30, 2024) at their September, 2022 meeting.

The FY 2024 NCPs include a wide range of conservation strategies for protecting, restoring, and enhancing fish habitats that also consider the diverse nature of the FHPs. Each FHP is unique, representing a diversity of systems and species, with their own subset of specific priorities. Using the NCPs in combination with overarching Board guidance — and in accordance with all the NFHP elements — each FHP is charged with adopting FHP specific conservation actions and projects. Each must meaningfully address fish habitat conservation goals and must be as equally diverse as the FHPs. The NCPs are also used by the Board to prioritize which annual conservation action projects proposed by individual FHPs will be funded, contingent on annual funding availability and other related requirements outlined by the ACE Act.

The current NCPs are:

1) Conserve waters and habitats where all processes and functions are operating within their expected range or natural variation

This priority focuses action on acquiring or protecting fish habitats that are currently intact and functioning for the purpose of preventing future degradation in other ways. In essence, protect what is currently working.

2) Conserve hydrologic conditions for fish

This priority focuses on ensuring that appropriate hydrologic (annual and daily flows in rivers and streams, and water levels in lakes, impoundments, and reservoirs) and hydrodynamic (current or water velocity) conditions are always available to allow fish to optimize their production. This is accomplished by rehabilitating degraded habitats and improving engineered hydrographs and hydrodynamic conditions to ensure needed fish habitats are available at the appropriate times.

3) Conserve physical living habitats and features that support viable and sustainable species and/or populations in impacted or at-risk systems

Goals & Strategies

Protect Habitats

NFHP - Part 2

This priority focuses on protection, rehabilitation, and/or enhancement of those critical habitat features within a waterbody that are necessary to support ecological function and processes such as: structure, vegetation, and habitat complexity. This includes improving those features that may be lacking, may have been altered, or simply may not be functioning effectively.

Water Quality**4) Reconnect fragmented fish habitats**

When aquatic habitats lack full connectivity, fish cannot freely move among the places they need to complete their life cycle and maximize their production. This priority is focused on identifying, removing, rehabilitating, or otherwise addressing anthropogenic barriers (i.e., dams, culverts, water quality and quantity issues, concrete, or straightened channels without any complexity) so they no longer restrict fish movement and instead allow fish to access habitats, migrate, locate refugia, and seek food and mates.

5) Conserve water quality for fish

This priority focuses on efforts to conserve the physical, chemical, and biological aspects of water quality, mitigate or remove impairments, and restore degraded conditions to support improved fish habitat.

6) Support the structure and function of Fish Habitat Partnerships

The FHPs conduct the foundational work necessary to ensure that NFHP achieves its mission to conserve (protect, restore, and enhance) the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people. This priority focuses on supporting strong and effective FHPs and their unique approaches to collaborative, science-driven fish habitat conservation.

Education**7) Enhance recreational, commercial, subsistence, and traditional fishing opportunities when conducting projects that conserve fish habitat**

This priority encourages actions (i.e., improving access, education, and participation) that are intended to broaden support for fish habitat conservation, increase fishing opportunities, support traditional fishing practices, and increase participation in fish habitat conservation activities by local communities, and particularly young people.

NFHP Project Map

Similar to the science driven national Board assessments, implementation of these annual NCPs are supported by recognized FHPs comprised of: federal, state and local agencies, non-governmental organizations, businesses, and tribes. They collaborate to develop and direct conservation actions to further the intent of the NCPs. Since 2006, NFHP has supported implementation of 1,299 projects benefiting fish habitats in all 50 states (see the most up-to-date map viewer at: <https://maps.usgs.gov/nfhp/>). NFHP works to conserve (protect, rehabilitate, and improve) fish habitat nationwide, leveraging federal, state, tribal, and private funding resources to achieve the greatest effect on fish populations by prioritizing FHP conservation projects. From 2006 to 2021, NFHP projects have reconnected 4,711 miles of rivers and streams, restored/rehabilitated 1,124 miles of rivers and streams, protected 11 miles of streams and rivers, protected 13,261 acres of habitat, and restored/rehabilitated 43,170 acres of river, lake, riparian, upland, estuary, and wetland habitat. These projects target the underlying system processes — including connectivity, hydrology, material transport (i.e. woody debris and sediment), bottom and channel form, and living habitat features — with an eye to move systems as close to the natural expected variation as feasible. Individual FHPs can also be contacted to learn more about these projects by using the contact information included in Part 1 in *TWR #225*.

Funding Sources

In 2022, the US Fish and Wildlife Service (USFWS), NOAA, and other NFHP partners provided more than \$53.2 million to support 78 fish habitat conservation projects across 37 states. The USFWS is providing \$5.4 million in 2022, with non-governmental organizations, state resource agencies, and other partners contributing an additional \$47.6 million. These projects represent a 9-to-1 leveraged funding match for federal funding with partnership project funding from other sources. These projects boost and empower locally led efforts to restore stream banks, remove barriers to fish passage, reduce erosion from farm and ranchlands, and conduct monitoring and assessments to identify conservation needs for fish and their habitats. Anticipated benefits include more robust fish populations, better fishing, and healthier waterways. For example, funded projects this year include dam removals in Indiana and Pennsylvania that reconnect large river segments, restoring native trout habitat in Colorado, and improving spawning and rearing habitat for salmon in Southeast Alaska. (A full list of funded projects can be found at: https://www.fishhabitat.org/images/uploads/NFHP_22_Projects_final_-722.pdf).

Funded Projects**Attracting Other Non-Federal Funding – Beyond the Pond**

While past funding contributions for the National Fish Habitat Partnership have been mostly consistent — provided by a combination of federal, state, tribal, and local governmental agencies as well as private, non-governmental, and corporate partners — much more funding is needed to support the myriad of fish conservation actions required to achieve long-term NFHP conservation goals. To facilitate and enable the solicitation of additional private funds, and allow individual FHPs to generate funds, the National Fish Habitat Fund, Inc., marketed under the brand “Beyond the Pond,” was established as a 501(c)(3) organization in 2014. Their website was also established and approved by the Board in 2015 and the organization received approval for non-profit status by the Internal Revenue Service to receive private NFHP donations.

Beyond the Pond

NFHP - Part 2

The Beyond the Pond website contains a donation webpage and a proactive communication platform to benefit NFHP. It shares messages on the economic, social, and ecological importance of fish habitat conservation, as well as the work of the FHPs and their successes. It is designed to assist potential corporate partners, and other private donors, understand how they can best help make a difference for fish habitat. In addition to having testimonials from supporting organizations, and highlighting Beyond the Pond conservation goals, the site provides global coverage of relevant conservation issues and real-life conservation stories from the 20 Fish Habitat Partnerships and other collaborators.

Partner Support

An example of a recent benefit of the Beyond the Pond organization, and its potential for additional significant longer-term benefits, is the Bass Pro Shops US Open Amateur Bass Fishing Team Tournament and Championships partnership. In 2021, they donated \$1.58 million dollars (including matching contributions from Toyota) to Beyond the Pond for NFHP fish habitat conservation. Beyond the Pond then used the Bass Pro/Toyota donations to establish a special competitive grant program to fund NFHP conservation projects executed by FHPs. Funding is for on-the-ground projects benefitting fish habitat and improving angling opportunities consistent with Board NCPs, with an emphasis on conserving reservoir and lake-related fish habitats. The following nine projects were selected and will be completed by December 31, 2023. In addition to the \$1.58 million provided by this donation, the FHPs awarded the grant money were able to leverage an additional \$1.4 million for a combined total of approximately \$3 million to implement the projects selected.

Projects funded with Beyond the Pond Bass Pro/Toyota funds included:**Habitat Structures****Beaver Lake, Norfolk Lake, Bull Shoals Lake, Arkansas**

The proposed project will directly benefit anglers by installing a number of new fish habitat structures that will help improve fish survival and ultimately improve angler success rates. Many of the current natural structures in these lakes are degraded and no longer support fish.

Blue Marsh Lake, Pennsylvania

This project will improve shoreline habitat by installing stone-framed deflectors to increase shoreline stabilization and reduce excessive shoreline erosion. This will provide additional foraging areas that will draw more fish to these areas and allow anglers more fishing opportunities. These platforms will also provide a stable platform for anglers to fish from, increasing the ease of use and enjoyment for many shoreline anglers in locations that are currently unavailable or not favorable.

Reduce Erosion**Lake Shelbyville, Illinois**

This project is providing new in-reservoir habitat structures, water quality improvements, and bank stabilization which will reduce excessive sedimentation. Additionally, the shoreline stabilization will increase angler access.

Mark Twain Lake, Missouri

Through this grant, the installation of artificial structures at two locations will restore approximately 60 acres of underwater fisheries habitat. The artificial structures are constructed of PVC materials and concrete and offer long-term durability. They can withstand the dual stresses of being submerged then dried and minimize the snagging of fishing lures. The structures will be placed at differing elevations in the reservoir basin to ensure a subset of structures are available at all times. Furthermore, this project incorporates the development of direct shoreline access to the rehabilitation area, which appeals to a broad demographic, including families, youth, senior citizens, and novice anglers.

Increase Access**Old Hickory Lake, Tennessee**

This project will benefit anglers by providing a substantial increase in access to quality fish habitat structures for anglers of all skill levels. Specifically, the project will add 400 artificial structures spread out among ten sites with a design that has a proven track record of attracting sportfish species. These sites will receive a special marker buoy as part of the new Bill Dance Fishing Trail in Tennessee and be specially chosen to increase angler success at various times throughout the year. Ten additional sites will receive two new ten-foot tall artificial attractors named Tennessee Towers. Ten large rock humps and two rock reefs approximately 75 feet in length will add offshore habitat for a range of fish species. The diversity of habitat structures installed by this project will greatly increase recreational opportunities for anglers by providing access to new high-quality fishing locations.

Improve Shoreline**Pymatuning Reservoir, Pennsylvania/Ohio**

Pymatuning Reservoir is the largest impoundment in Pennsylvania at 17,088 acres with a total of 70 miles of shoreline. The Pennsylvania Department of Conservation and Natural Resources is responsible for maintaining over 42 miles of the shoreline. The lake also includes 28 miles of shoreline in the state of Ohio. The reservoir was built on what used to be the largest swamp in Pennsylvania, and the former wetland soils are prone to erosion. Pymatuning Dam was completed in 1934, and as the lake continues to age, many miles of shoreline in this aging impoundment need stabilization to improve safe fishing access, fish habitat, and water quality for domestic water supplies. In addition to the shoreline erosion issues, the offshore fish habitat has also deteriorated over time. The Pennsylvania Fish and Boat Commission has developed a fish habitat improvement plan in cooperation with the Pennsylvania Department of Conservation and Natural Resources that will install a large number of shoreline stabilization structures to enhance shoreline rock habitat for fish, increase safe angler access, and improve water quality.

NFHP - Part 2**Sport Fishing****Ralph Hall Reservoir, Texas**

The large number of fish habitat structures constructed through this grant will create popular areas for anglers to target for many decades and is likely to potentially extend the life of the reservoir. The habitat created will increase the ultimate carrying capacity of sportfish in the reservoir, as well as improve angler success rate and overall yield of fish. Maps and the precise coordinates and descriptions of all fish habitat structures will be published online on Texas Parks and Wildlife's fish habitat website and shared with the angling public.

Table Rock Lake, Missouri

Through this grant, a total of 645 brush piles will be installed in Table Rock Lake to ensure this key habitat type remains a viable fish attractor for anglers as well as serves as nursery habitat for sportfish recruitment. This project will enhance a pilot project that was conducted through the Missouri Department of Conservation and the Arkansas Game and Fish Commission, Bass Pro Shops, and the US Army Corps of Engineers in 2007. From 2007 to 2013, more than 2,100 megastructures were deployed on Table Rock Lake and Bull Shoals Lake using specialty-built habitat barges made by Tracker Boats. This project will add additional structures to the original number.

Three-Mile Lake, Iowa

Through this grant, new natural fish habitat structures — including gravel spawning areas, rock piles, rock fields, and rock reefs — will be constructed to improve the fish habitat in Three-Mile Lake. In addition, over 1,300 feet of shoreline in critical need of repair from excessive sedimentation will be deepened and fortified with rip rap gravel. This shoreline enhancement will prevent future erosion into the lake. In addition, the shoreline improvements will prevent future water quality issues and provide additional underwater rock habitat for sportfish.

The Bass Pro and Toyota private sector financial contributions, administered by Beyond the Pond, matches other NFHP FHP funds needed to implement these nine habitat conservation projects and demonstrates the collaborative dedication of everyone involved to support habitat conservation and protect North America's natural resources. It also demonstrates how Beyond the Pond can facilitate and provide supplemental non-federal funding to support NFHP implementation and non-federal match contribution requirements.

Habitat Structures**Federal Cooperative Efforts to Enable NFHP**

While the ACE Act's Interagency Operations Plan (IOP) is a work in progress at this time, one example of how the IOP will ultimately benefit NFHP is the recent fish passage workshop. The USFWS partnered with NFHP to host a first of its kind fish passage project funding workshop as a means to more cost effectively coordinate, prioritize, and implement expenditures of federal, state, tribal, and non-governmental fish passage funds as provided in the Bipartisan Infrastructure Law and other existing programs. The workshop is already contributing to improved fish habitat conservation through better coordination between federal agencies of the \$2 billion dollars of fish passage funding and project implementation that was financially supported by passage of the 2021 Bipartisan Infrastructure Law. As the IOP is finalized and fully implemented, NFHP should see more of these broad cooperative efforts from the many federal agencies engaged in fish habitat conservation across our country.

Fish Passage**Conclusion**

We are pleased to offer this overview of NFHP to you along with a few examples of the many NFHP benefits and actions. We hope this introductory two-part series about NFHP, its Board, FHPs, and activities will encourage readers of *The Water Report* to learn more about the NFHP by exploring both the national website (www.fishhabitat.org) and individual FHP websites (web addresses listed below). We also hope readers will consider supporting NFHP implementation through participating in one or more of the FHPs, and/or consider serving on the Board when positions become vacant. Anyone interested in NFHP can attend and observe Board meetings.

Opportunities**For Additional Information:**

Ryan Roberts, Association of Fish and Wildlife Agencies, 202/ 838-3466, rroberts@fishwildlife.org
National Fish Habitat Partnership website: www.fishhabitat.org.

Ryan Roberts is the Program Manager for the National Fish Habitat Partnership. Mr. Roberts has 15 years of experience in public relations/communications and has worked with the National Fish Habitat Partnership since 2008. Mr. Roberts created several communications toolkits for use by National Fish Habitat Partnerships and created an overall communication strategy for the partnership. Ryan's contributions were key in the development and release of the Status of Fish Habitat Partnership 2010 Assessment and the 2nd Edition of the National Fish Habitat Action Plan (2012).

NFHP - Part 2

Gary Whelan is one of the two co-chairs of the NFHP Board Science and Data Committee and has worked on NFHP since its inception. Mr. Whelan is a Program Manager for the Michigan Department of Natural Resources – Fisheries Division where he manages the Research Section, Fish Health Program, and parts of a Habitat Management Unit. His fisheries career has spanned almost 40 years and he has worked in nearly every aspect of fisheries in the State of Michigan. In his role for NFHP, he has been responsible for all of the Board’s Science and Data efforts including the development and release of the Status of Fish Habitat Partnership 2010 and 2015 Assessments. He was also deeply involved in the development of the 1st (2006) and the 2nd Editions of the *National Fish Habitat Action Plan* (2012). Mr. Whelan holds a B.S. in Zoology (Fisheries Management focus) from the University of Wyoming and a M.S. in Fisheries Management from the University of Missouri.

Christopher Estes held a leadership role in the development of the 2006 *NFHAP*, formerly served as one of the original staff to the original NFHP Board, was an editor of the *NFHAP* 2012 edition, and has participated on the NFHP Board Science and Data Committee since its inception. Estes’ career in aquatic resources and habitat conservation has spanned nearly 47+ years with a focus on instream flow and water level conservation. He is currently an Aquatic Resources & Habitat Scientist for Chalk Board Enterprises, LLC and serves as a Director at Large of the Instream Flow Council. Estes was the 2021 recipient of the Stanley A. Moberly Award for his Outstanding Lifetime Achievements and Contributions to Fish Habitat Conservation, an award co-sponsored by NFHP, the American Fisheries Society, and NOAA Fisheries.

Reference List

- Atlantic Coastal Fish Habitat Partnership (*Board recognized March, 2009*): www.atlanticfishhabitat.org/
 Beyond the Pond Home Page: <https://beyondthepondusa.com/>
 California Fish Passage Forum (*Board recognized March, 2010*): www.cafishpassageforum.org
 Desert Fish Habitat Partnership (*Board recognized March, 2009*): www.desertfhp.org/
 Driftless Area Restoration Effort (*Board recognized October, 2007*): www.fishhabitat.org/the-partnerships/driftless-area-restoration-effort
 Eastern Brook Trout Joint Venture (*Board recognized October, 2007*): <http://easternbrooktrout.org>
 Fishers & Farmers Partnership (*Board recognized March, 2010*): <http://fishersandfarmers.org/>
 Great Lakes Basin Fish Habitat Partnership (*Board recognized October, 2009*): www.fishhabitat.org/the-partnerships/great-lakes-basin-fish-habitat-partnership
 Great Plains Fish Habitat Partnership (*Board recognized October, 2009*): www.prairiefish.org
 Hawaii Fish Habitat Partnership (*Board recognized March, 2009*): www.fws.gov/pacificislands/hfhp.html
 Kenai Peninsula Fish Habitat Partnership (*Board recognized January, 2010*): www.kenaifishpartnership.org/
 Matanuska Susitna Basin Salmon Habitat Partnership (*Board recognized October, 2007*): www.matsusalmon.org/
 Midwest Glacial Lakes Partnership (*Board recognized March, 2009*): www.midwestglaciallakes.org/
 National Fish Habitat Action Plan: www.fishhabitat.org/files/uploads/National_Fish_Habitat_Action_Plan_2006.pdf
 National Fish Habitat Partnership Board Member Recruitment, Recent Example: www.fishhabitat.org/news/national-fish-habitat-partnership-board-seeking-nominations-for-board-membe
 National Fish Habitat Partnership Board: www.fishhabitat.org/about/staff-board/
 National Fish Habitat Partnership Funded Projects: www.fishhabitat.org/images/uploads/NFHP_22_Projects_final_-722.pdf
 National Fish Habitat Partnership Network (20 FHPs): www.fishhabitat.org/the-partnerships/
 National Fish Habitat Partnership Projects Map viewer: <https://maps.usgs.gov/nfhp/>
 National Fish Habitat Partnership 2021-22 Progress Report:
www.fishhabitat.org/files/uploads/Final_NFHP_Report_to_Congress_2021-2022.pdf
 National Fish Habitat Partnership Science Assessments: www.fishhabitat.org/science-resources/
 Ohio River Basin Fish Habitat Partnership (*Board recognized October, 2009*): <https://orbfhp.org/>
 Pacific Lamprey Conservation Initiative (*Board recognized June, 2016*):
<https://www.pacificlamprey.org/>
 Pacific Marine and Estuarine Fish Habitat Partnership (*Board recognized January, 2012*): www.pacificfishhabitat.org/
 Reservoir Fisheries Habitat Partnership (*Board recognized October, 2009*): www.friendsofreservoirs.com/
 Southeast Alaska Fish Habitat Partnership (*Board recognized March, 2014*): www.seakfhp.org/
 Southeast Aquatic Resources Partnership (*Board recognized October, 2007*): <http://southeastaquatics.net/>
 Southwest Alaska Salmon Habitat Partnership (*Board recognized May, 2008*): <http://southwestsalmon.org/>
 Title II of America’s Conservation Enhancement Act (PL 116-188): www.fishhabitat.org/files/uploads/PLAW-116publ188.pdf
 Western Native Trout Initiative (*Board recognized February, 2008*): www.westernnativetrout.org

WATER BRIEFS

**BASIN PLAN
2022 HIGHLIGHTS REPORT****WA**

Washington State's Yakima Basin Integrated Plan (YBIP) is an innovative initiative applying collaborative and integrated approaches to solving classic Western water problems. Concentrated in one basin are the issues of: drought; climate change; maintaining a robust agricultural economy; Tribal rights; and fishery restoration. The YBIP process began in 2008, with implementation commencing in 2013. The initiative succeeded in both developing a plan and building unusually broad stakeholder support, which caused it to be hailed as a model for making progress on Western water issues. *See Malloch, TWRs #106, #108, #135 & #186.*

The annual Yakima Basin Integrated Plan Highlights Report for 2022 is now available.

Jennifer Carrington, the Bureau of Reclamation's Columbia-Pacific Northwest Regional Director, introduces the Report by identifying the YBIP's funding opportunities under the Bipartisan Infrastructure Law. The Report then presents a number of project accomplishments.

Project case studies include:

- Dam modifications increase juvenile salmon survival
- Cle Elum Pool Raise –Wish Poosh Campground renovations completed
- Cle Elum continues work toward fish passage
- Reconnecting fish habitat from the Tieton River headwaters to the Pacific Ocean
- Kittitas Reclamation District increases canal capacity and conserves water as it pursues its modernization program
- Bull trout rescue and rearing increases survival
- Studies and collaboration provide insights into how to improve the lower Yakima River
- Improved steelhead passage at Simcoe Creek
- Bateman Island Causeway and Delta restoration will improve ecological function
- Nelson Dam removal provides water supply, riverine process, and fish passage benefits
- Wapato Irrigation Project improves irrigation deliveries and safety
- Making a robust Yakima basin water market “smart”
- Aquifer replenishment on the Yakama Reservation
- Meeting surface water storage goals

FOR INFO Report at: www.usbr.gov/pn/programs/yrbwep/2011integratedplan/newsletter/2022ybip.pdf; YBI P website: www.yakimabasinintegratedplan.org

**TRIBAL WATER QUALITY
STANDARDS & BEST PRACTICES****US**

During the 2022 White House Tribal Nations Summit (Summit) on Nov. 30th, EPA Administrator Michael Regan announced a proposal to revise the federal water quality standards regulations to better protect Tribal rights under the federal Clean Water Act (CWA). With this action, EPA is working to ensure that state and federal water quality standards will protect tribal rights such as the right to fish or

gather aquatic plants — i.e., tribal rights reserved through treaties, statutes, executive orders, or other sources of federal law.

“By explicitly recognizing Tribal reserved rights in water quality standards, this proposal will help EPA ensure Tribal aquatic resources are abundant and safe to consume and reaffirms the Biden-Harris Administration's commitment to our Nation-to-Nation partnership,” said EPA Administrator Regan. The proposal, once final, would create a regulatory framework that would be applied on a case-specific basis to help ensure that water quality standards protect resources reserved to tribes, such as fish and wild rice. Additionally, the proposed regulatory framework would provide transparency and predictability for tribes, states, regulated parties, and the public.

According to EPA, the proposal also carries out the commitments to honor the federal trust responsibility and protect tribal reserved rights related to water resources outlined in EPA's 2021 action plan, Strengthening the Nation-to-Nation Relationship with Tribes to Secure a Sustainable Water Future. It also delivers on the Biden-Harris Administration's commitment to uphold the United States' treaty and trust responsibilities to the 574 federally recognized tribes.

“EPA's proposal is a positive step towards protecting treaty rights because it expressly recognizes that state water quality standards are subject to the reserved rights of tribal nations. The proposal is also consistent with EPA's fiduciary trust obligation to tribes: where a tribe has reserved rights, the federal government has a duty to protect those rights,” said Northwest Indian Fisheries Commission (NWIFC) Executive Director Justin Parker. “In this case, EPA is recognizing that water quality standards must be stringent enough to protect treaty-reserved resources and treaty rights. This action would have meaningful benefits to NWIFC's member tribes and their treaty resources and rights.”

EPA will accept comment on this proposal for 90 days, closing on March 6, 2023. EPA will also hold two online public hearings on this proposal on Jan. 24th and 31st (*see Calendar, this TWR*). Learn more about the proposed rule and public hearings on EPA's website: www.epa.gov/wqs-tech/reviving-federal-water-quality-standards-regulations-protect-tribal-reserved-rights.

Additionally, at the Summit, EPA Administrator Regan and 16 other federal agencies announced new best practices for Tribal Treaty and Reserved Rights. This set of documents will further the Biden-Harris Administration's commitment to engage in regular, meaningful, and robust consultation with Tribal governments and strengthen the protection of Tribal treaty rights. The best practices include three documents: (1) Best Practices for Identifying and Protecting Tribal Treaty Rights, Reserved Rights, and other Similar Rights in Federal Regulatory Actions and Federal Decision-Making; (2) a shorter Best Practices Field Guide; and (3) a Decision Flow

Chart. These best practices were developed in consultation with Tribal Nations and implement the agencies' *Memorandum of Understanding Regarding Interagency Coordination and Collaboration for the Protection of Tribal Treaty Rights and Reserved Rights*.

FOR INFO EPA's Clean and Safe Water in Indian Country website at: www.epa.gov/tribalwater

**UPPER BASIN
CONSERVATION PILOT****WEST**

The Upper Division States of Colorado, New Mexico, Utah, and Wyoming, acting through the Upper Colorado River Commission (UCRC), in partnership with the Bureau of Reclamation, announced their intent to launch a System Conservation Pilot Program (SCPP) for 2023. The SCPP is a key component of the Upper Division States' 5-Point Plan to address the impacts of the ongoing drought and depleted storage in the Upper Colorado River Basin.

The UCRC is seeking proposals immediately for the voluntary, compensated, and temporary water conservation projects for 2023. Project proposals must be submitted by February 1, 2023. The Upper Division States and UCRC will review and select projects for implementation in 2023. The full implementation of the SCPP is contingent on the passage of pending legislation in Congress and the finalization of the SCPP funding agreement between the UCRC and Reclamation, approved by the UCRC on November 21, 2022. The goal is to have water conservation projects underway in April 2023 to reduce consumptive uses in the Upper Basin Colorado River system.

FOR INFO Alyx Richards: 801-531-1150, arichards@ucrcommission.com or ucrcommission.com/system-conservation-pilot-program-for-2023/

**ECOLOGY REPORT
CLIMATE & STREAM FLOWS****WA**

On December 1st, the Washington Department of Ecology (Ecology) published a report entitled *Climate Change and Stream Flow: Barriers and Opportunities* written by Washington State University and the University of Washington for Ecology. This report identifies projected impacts from climate change and provides information on specific impacts to each watershed in the state. The report complements a report that was recently published by Washington Department of Fish and Wildlife about climate change impacts to surface waters, fish, and wildlife resources.

These reports project widespread increases in winter streamflow, declines in summer streamflow, and increasing stream temperatures. The reports highlight a need for further information to better project future shifts in temperature and precipitation and their effect on streamflow, understand how groundwater and surface-water interact, and estimate how climate change and other stressors will affect

salmon survival and water availability.

Ecology also posted the updated *Streamflow Restoration Policy and Interpretive Statement*. You can see this policy and all of Ecology's policies, procedures, and guidance documents on the "water rights and dam safety policies, procedures and guidance" page.

FOR INFO www.ecology.wa.gov > Streamflow Restoration; Dave Christensen, Ecology, 360/ 489-4227 or Dave.Christensen@ecy.wa.gov

LAKE POWELL ADJUSTMENTS LOW LEVEL ELEVATIONS

WEST

The Bureau of Reclamation announced December 2nd that it has begun monthly operational adjustments with reduced releases from Glen Canyon Dam under the Drought Response Operations Agreement (DROA). The adjusted releases are designed to help protect critical elevations at Lake Powell until the spring runoff materializes.

The monthly adjustments will hold back 523,000 acre-feet of water in Lake Powell from December 2022 through April 2023 when inflow to the reservoir is low. The same amount of water (523,000 acre-feet) will then be added to releases to Lake Mead between June and September after the spring runoff occurs.

Consistent with the DROA and the dam's Long-term Experimental and Management Plan Record of Decision, only the monthly volumes are being adjusted. The annual release volume of 7.0 million acre-feet for water year 2023 (10/1/22 through 9/30/23) will remain the same as described in the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (referred to as the 2007 Interim Guidelines).

These monthly adjustments will boost Lake Powell's elevation by nearly 10 feet by April 2023. Latest projections show the reservoir dropping below the 3,525 feet target elevation as early as this month. The target elevation is a buffer that allows for response actions to prevent Lake Powell from dropping below elevation of 3,490 feet, the lowest elevation that Glen Canyon Dam can still release water through its eight penstocks and generate hydropower.

Reclamation continues to closely monitor the basin's hydrology and released updated projections in December with the December 24 Month Study. Those projections, scheduled to be released Dec. 15, will include the modified monthly releases from Glen Canyon Dam.

FOR INFO Becki Bryant, USBR, 801/524-3659, ucbpao@usbr.gov or www.usbr.gov/newsroom/news-release/4383

TRIBAL FISHERY RECLAMATION AGREEMENT

CA

On December 16th, the Hoopa Valley Tribe (Hoopa or Tribe) asked a California federal court for an injunction against the US Bureau of Reclamation (Reclamation), the US Department of the Interior (DOI) and their representatives, that are responsible

for restoring Hoopa's fishery on California's Trinity River. According to the Tribe, Reclamation plans to set aside a twenty-two year-old agreement with the United States to restore the Tribe's fishery, which was devastated by Reclamation's unlawful over-diversion of water to industrial agriculture and other uses in California's Central Valley. This case is Hoopa's latest battle in an ongoing effort to defend its sovereignty and fishing rights.

"[DOI] Secretary Haaland knows the importance of tribal sovereignty and tribal fishing rights", said Council Member Jill Sherman Warne. "We hope our action today will cause the Secretary to hold Interior agencies to account for the unlawful actions they took during the Trump Administration, and continue to take, to terminate our rights, nullify laws to restore fisheries damaged by the CVP, and shift to federal taxpayers the hundreds of millions of dollars owed by CVP contractors for environmental restoration costs."

The case is *Hoopa Valley Tribe v. Bureau of Reclamation et al.*, E.D. Cal., No. 1:20-cv-1814-JLT-EPG, Filed 12/16/22. Specifically, Hoopa filed a motion for a preliminary injunction enjoining the Defendants from implementing the Trinity River Winter Flow Variability Project (WFV Project) in the absence of the concurrence of the Hoopa Valley Tribe. According to the Tribe's motion, Hoopa's concurrence is mandated by Section 3406(b)(23) of the Central Valley Project Improvement Act (CVPIA), Public Law 102-575 (1992). The Seattle firm of Morisset, Schlosser, Jozwiak & Somerville are the attorneys for Plaintiff Hoopa Valley Tribe. **FOR INFO** www.hoopa.nsn.gov; Thomas Schlosser, MSJS, 206/ 386-5200, or t.schlosser@msaj.com or www.msaj.com

RIO GRANDE AGREEMENT NM HABITAT RESTORATION

The Assistant Secretary of the Army for Civil Works Michael Connor joined the governors of two tribal nations in signing a design agreement Nov. 9, 2022. Governor J. Patrick Aguino of Ohkay Owingeh and Governor J. Michael Chavarria of Santa Clara Pueblo along with Connor signed design agreements with each pueblo for the Espanola Valley Ecosystem Restoration project. The approximately \$100 million project design agreement is the first of its kind in terms of scale with tribal nation sponsors. It is also the first to use the "ability to pay" provision for this type of project to significantly reduce the cost share of a tribal partner.

"This particular environmental restoration project is the first major army civil works project done, to be developed, authorized, and now funded solely to benefit the natural and cultural resources of tribal entities. This is a \$100 million dollar project, yet that fits into the category of major civil works projects solely to benefit tribal nations," said Connor.

When completed, the project is slated to restore 958 acres of aquatic and riparian habitats along the Rio Grande and its tributaries. The project is intended to benefit future generations by bringing back life along the river and the nationally scarce habitat of the bosque, which is an integral part of the cultural landscape and identities of both Pueblos.

Ohkay Owingeh and Santa Clara Pueblo previously received their tribal councils' approval to partner with the USACE-Albuquerque District for the ecosystem restoration project. Tribal council members, officials and staff from each Pueblo, representatives from N.M. Senator Ben Ray Lujan's and N.M. Senator Martin Heinrich's offices, and leadership from USACE's South Pacific Division and the Albuquerque District attended the ceremony.

The Albuquerque District team is coordinating with both Pueblos' technical staffs on the final location of the project's features in order to start design work. Española is located 25 miles north of Santa Fe, New Mexico. Ohkay Owingeh is located along the Rio Grande north of Española with which it shares a common border. The land includes river bottomlands and mountains. The pueblo has an enrolled population of a little more than 2,700. The Pueblo of Santa Clara, with an enrolled population of approximately 2,800, is located just south of Española on both sides of the Rio Grande.

FOR INFO USACE-Albuquerque District website: <https://www.spa.usace.army.mil/> >> Nov.18 Archive

INSTREAM FLOW COLUMBIA BASIN PROGRAM

NW

As early as 1991, the Northwest Power & Conservation Council's (Council's) fish and wildlife programs identified water transactions as a way to increase flows for fish. In the 2000 program, the Council recommended that the Bonneville Power Administration (BPA) establish a funding agreement for land and water acquisitions.

In 2002, BPA and the Council established the Columbia Basin Water Transactions Program (CBWTP) to fund water transactions to put more water into the basin's tributaries. The program is administered through a partnership between BPA and the National Fish and Wildlife Foundation.

Working through local entities to acquire water rights voluntarily from willing landowners, the program enables qualified local entities, states, tribes, and nonprofit organizations to work collaboratively with ranchers, farmers, landowners, and irrigation districts to develop, implement, and monitor water transactions.

CBWTP is a voluntary, market-based water transactions system that has proven to be an effective and fair way to balance out-of-stream water uses with the need to maintain stream flows for imperiled fish. Since 2002, the program has completed over 660 water right transactions, protecting over 2.3 million acre-feet of flow in key tributary streams across the Columbia Basin. These transactions have included a number of creative approaches, including split-season leases, source switches, permanent purchases, minimum flow agreements, and water produced through significant capital investments in irrigation efficiency projects. Along with funding from BPA, the program has leveraged a significant amount of matching funding.

FOR INFO CBWTP website:

www.nfwf.org/programs/columbia-basin-water-transactions-program

DROUGHT RELIEF PORTAL CA AGRICULTURAL BUSINESS

A coalition of agricultural associations and the Northern California Water Association announced on Dec. 5th that they have launched the California Drought Grant Website — a portal for information on the CA Small Ag Business Drought Relief Grant Program. The site provides key information about the \$75 million program, grant eligibility, and the ability to sign up to receive instant program updates as it becomes available in the upcoming months. When applications are available, they can be accessed from the site as well.

With the unprecedented dry year in the Sacramento River watershed, this program will be very helpful to the small businesses throughout the region who are vital to communities and farming, which supports the essential economy and the environment in the Sacramento Valley. In 2020, more than 370,000 acres of farmland were left fallow on the west-side of the Sacramento Valley, which is nearly 80% of the total farmland in this service area. The 2020 and 2021 water years left California, and especially California agriculture, damaged and vulnerable. A report by Daniel A. Sumner and William A. Matthews (Department of Agricultural and Resource Economics, University of California, Davis) estimates that in the Sacramento Valley there will be 14,300 jobs lost; \$1.3 billion in lost economic value added; \$732 million in lost labor income; and supply chains are devastated.

Applications for the CA Small Ag Business Drought Relief Grant Program are expected to be available in January 2023 and will require 2022 tax records. The partners of the Northern California Water Association on this ongoing effort were: the California Rice Commission, Agricultural Council of California, California Agricultural Aircraft Association, California Warehouse Association, California Tomato Growers Association, and Western Plant Health Association.

FOR INFO Grant website at: agdroughtrelief.org

DAM REMOVAL OR/CA HABITAT RESTORATION

On Dec 7th, NOAA and its partners released a plan for restoring habitat for salmon and steelhead in key areas of the Klamath River watershed. A decades-long effort to remove four dams on the lower Klamath River in California and Oregon would be the largest dam removal in the world. The dam removals would reopen access to more than 400 miles of habitat for threatened coho salmon, Chinook salmon, steelhead trout, and other threatened native fish. NOAA is one of many partners collaborating to build a network of restored habitat that can support these species once the dams are removed. NOAA, the Pacific States Marine Fisheries Commission, and Trout Unlimited have released a detailed plan for restoring habitat in a key portion of the watershed.

For decades, tribes, nonprofit organizations, private landowners, and federal, state, and local government agencies have worked to restore habitat across the Klamath River watershed. However,

this work primarily occurred either downstream of the Iron Gate Dam or upstream of the Link River Dam. The area between these two dams is known as the Reservoir Reach. It had previously been a low priority for restoration projects, since the dams blocked fish from accessing much of this habitat and much of it was inundated. With dam removals expected to begin in early 2024, restoration of this historically inaccessible habitat is now more important than ever.

NOAA and partners' new report outlines priority habitat restoration projects in the Reservoir Reach. The project team assessed current habitat conditions and limiting factors for salmon along 63 miles of the mainstem Klamath River and 39 miles of tributaries. The result is a list of nearly 200 high, medium, and lower priority projects, including:

- 82 potential habitat restoration projects, such as improving fish passage, reconnecting floodplains, and addressing sediment issues
- 78 potential fish screening projects, which would help prevent fish from entering diversions used to redirect water for agricultural, municipal, or industrial use
- 38 potential flow restoration projects to help maintain water flows at levels needed for salmon to thrive

The report will provide funders, researchers, restoration practitioners, and others with a resource to use when considering potential projects to implement in the Reservoir Reach.

The Klamath was once the third largest salmon-producing river on the West Coast, and an important source of food for Klamath Basin tribes. But dams, combined with land and water use impacts, have contributed to declines in salmon and steelhead abundance. This has impacted tribal, recreational, and commercial fisheries and the communities and economies they support. Individually, each of the many potential projects would provide important benefits for fish and water quality. Together, NOAA and partners' collective efforts will help continue to build a network of habitat on the Klamath River and its tributaries. Future dam removals will allow salmon, steelhead, and other species to access many miles of strategically restored habitat.

FOR INFO www.fisheries.noaa.gov/ > Klamath Dam Removal

WATER/ENERGY LINKAGE CA STUDY RELEASED

The Public Policy Institute of California recently released its December 2022 fact sheet on *Water and Energy in California*. The overall conclusion is that California's water and energy systems are inextricably linked.

"Climate change impacts on California's environment are evident, especially when it comes to our water cycle. The state's natural climatic volatility is increasingly marked by hotter and drier droughts and less frequent but more intense wet periods. These shifts not only stress California's water supplies, they also affect energy supplies in important ways. For instance, less water in

reservoirs increases drought vulnerability, and it also hinders hydropower production. There's also a relationship between water and energy on the demand side: the water system uses more energy than many realize for conveyance, pumping, and (especially) heating. This presents opportunities to save energy by saving water — helping to decarbonize the economy along the way."

The new fact sheet examines the points where California's water and energy systems overlap and identifies pathways for reducing risks and promoting smart conservation.

FOR INFO PPIC website at: www.ppic.org

CALIFORNIA REGULATIONS CA BAN ON WASTEFUL USES

On Dec. 9th, the California State Water Resources Control Board (Board) — citing the drought conditions continuing throughout the state — readopted an emergency regulation that bolsters California's conservation efforts by prohibiting wasteful water practices like watering lawns when it rains. The regulation was originally adopted in January 2022 and is now extended until January 2024. It applies to all water users including individuals, businesses and public agencies, and can be enforced through warning letters, water audits, or fines.

Reducing water waste helps the state's overall conservation efforts, a pillar of Governor Gavin Newsom's Water Supply Strategy, to replace supplies the state is anticipated to lose by 2040 due to hotter, drier conditions. "Extending the ban on these wasteful practices helps all of us make water conservation a daily habit," said E. Joaquin Esquivel, chair of the State Water Board. "And, as we can see from the state's recent double-digit conservation percentages during some of the driest months of the year, our emergency conservation regulations and actions by local suppliers are having a cumulative impact."

The regulation stems from the Governor's 2021 Emergency Drought Proclamation, which expanded the drought emergency statewide and encouraged the Board to supplement voluntary conservation measures by prohibiting certain wasteful water uses. Other practices prohibited under the regulation include using decorative fountains without water recirculating pumps and washing vehicles without an automatic shutoff nozzle. The regulation also directs that Homeowners' Associations (HOAs), cities, and counties not prevent homeowners from replacing their lawns with climate-appropriate vegetation.

The readopted prohibitions take effect within 10 days once approved by the Office of Administrative Law and filed with the Secretary of State and will remain in place for one year unless extended, modified or removed.

FOR INFO <https://drought.ca.gov/newsroom>

CALENDAR

January 15 WEB

Holistic Flood Management and Modeling Under Climate Impacts Webinar, Virtual Event: 3:00pm-4:30pm Eastern Standard Time. Presented by The Water Research Foundation. For info: https://event.webcasts.com/starthere.jsp?ei=1584295&tp_key=9aef6c6b0c

January 15-19 India

13th International Water Association Conference on Water Reclamation & Reuse, Chennai. Hall Barria at the Euskalduna Congress Palace. For info: www.iwareuse2023.com

January 16-19 ID

Idaho Water Users Association's 86th Annual Convention, Boise. The Riverside Hotel. RE: Reclamation Funding, Road Construction & Water Infrastructure, Modernizing the Boise River & Idaho's Domestic Exemption Status; Plus Updates From Reclamation, Idaho Dept. of Water Resources & Water Supply Outlook. For info: www.iwua.org/86th-Annual-Convention

January 17-19 WEB

UNESCO - IWRA Online Conference on Emerging Pollutants: Protecting Water Quality for the Health of People and the Environment, Virtual Event. For info: <https://en.unesco.org/events>

January 19 UT & WEB

Western Water Law 101: Not Broken and Ready to Meet the Moment - Wallace Stegner Center Event, Salt Lake City. University of Utah College of Law. Hybrid Event: In-Person and Online; 12:15pm-1:15 pm MST. For info: <https://sjquinney.utah.edu/events/>

January 23-24 WEB

Cybersecurity for Water Utilities: Most Common Threats, Counter Measures, & More - Online Course, For info: www.euci.com or 303/770-8800

January 24 WEB

Proposal to Protect Tribal Reserved Rights in Water

Quality Standards - Public

Hearing #1, 4:00pm-6:00pm Eastern Time. Presented by EPA. For info: www.epa.gov/wqs-tech/revising-federal-water-quality-standards-regulations-protect-tribal-reserved-rights

January 24-26 CA

American Water Summit: Re-Thinking Water, Los Angeles.

Los Angeles Airport Marriott. RE: Global Climate Challenge in Water + Wastewater Infrastructure. For info: www.americanwatersummit.com

January 25 TX

Texas Ground Water Association Annual Convention and Trade Show, San Marcos. Embassy Suites & Convention Center. Texas Water Well Drillers and the Texas Water Well Industry. For info: <https://www.tgwa.org/event-4792475>

January 25-26 ID

Idaho Ground Water Association (IGWA) 2023 Annual Convention & Tradeshow, Boise. Riverside Hotel. For info: <https://igwa.info>

January 25-27 CA

Navigating Uncharted Waters: CASA 2023 Winter Conference, Palm Springs. Hilton Palm Springs Hotel. California Association of Sanitation Agencies Conference. For info: <https://casaevents.memberclicks.net/winter-conference>

January 25-27 CO

Colorado Water Congress 2023 Annual Convention, Aurora. Hyatt Regency Aurora-Denver Convention Center. For info: www.cowatercongress.org

January 26-27 WA

30th Annual Endangered Species Act Conference, Seattle. Crowne Plaza Seattle Downtown; In Person, Live Webcast or On Demand. For info: The Seminar Group: 206/ 463-4400, info@theseminar.com or www.theseminar.com

January 26-27 WEB

Electric Power in the West Conference, Live Interactive

Online Broadcast. For info: Law Seminars Int'l, 206/ 567-4490, registrar@lawseminars.com or www.lawseminars.com

January 30-Feb. 1 CA

2023 Annual Pretreatment, Pollution Prevention & Stormwater (P3S) Conference: The Next 50 Years - Imagining the Future of Clean Water, Monterey. Embassy Suites Monterey. Presented by California Water Environment Association. For info: www.cwea.org/conferences/p3s-conference/

January 30-Feb. 2 NV

Nevada Water Resources Association Annual Convention and Trade Show, Sparks. Nugget Casino Resort. Water Rights in Nevada. For info: www.nwra.org/2023-ac-week

January 31 WEB

Proposal to Protect Tribal Reserved Rights in Water Quality Standards - Public Hearing #2, 2:00pm-4:00pm Eastern Time. Presented by EPA. For info: <https://www.epa.gov/wqs-tech/revising-federal-water-quality-standards-regulations-protect-tribal-reserved-rights>

January 31 NV

Nevada Water Reuse Symposium - 3rd Annual, Reno. The Nugget. RE: Water Scarcity and Reuse in Southern Nevada; 7:00am-1:00pm Mountain Time. For info: www.watereuse.org >> Event Calendar

February 2 UT & WEB

Colorado River: Crisis or Opportunity? - Wallace Stegner Center Event, Salt Lake City. University of Utah College of Law. Hybrid Event: In-Person and Online; 12:15pm-1:15 pm MST. For info: <https://sjquinney.utah.edu/events/>

February 4 CA

Diverse Needs: Species Protection & Water Supply - 2023 California Water Law Symposium, Sacramento. Pacific McGeorge School of Law. In-Person.

For info: www.waterlawsymposium.org

February 6-7 CA

30th Anniversary Groundwater Resources Association Conference - ESG / Climate Resilient & Sustainable Remediation, San Diego. Kona Kai Resort. ESG: Environment, Social & Governance. For info: www.grac.org/events/448/

February 7-8 CA

24th Annual California Groundwater Conference, Ontario. Ontario Airport Hotel. Presented by American Ground Water Trust-American Groundwater Association. For info: <https://agwt.org> >> Events

February 7-9 DC

Rural Water Rally 2023, Washington. Hyatt Regency Washington on Capitol Hill. Presented by National Rural Water Association; Brings Utility System Reps to Capitol Hill to Support Funding Programs, Training & Technical Assistance. For info: <https://nrwa.org/rural-water-rally-2023/>

February 9 WEB

Clean Water, Complicated Laws: How to Effectively Work with Water Quality Regulators - 2023 Water Quality Webinar Series, Free Webinar on Water Quality Issues, Laws & Regulations; 10:00-10:30am Pacific Time. Presented by Best, Best & Krieger. For info: <https://bbklaw.com/news-events/webinars/2023/01/clean-water-complicated-laws>

February 12-16 ID

Society for Range Management - Annual Meeting 2023, Boise. The Boise Centre & Grove Hotel. For info: <https://rangelands.org/news-and-events/>

February 16 WEB

Tribal Natural Resource Damages Assessments - 8th Annual Comprehensive Seminar, Live Interactive Online Broadcast. For info: Law Seminars Int'l, 206/ 567-4490, registrar@lawseminars.com or www.lawseminars.com



CALENDAR

February 16 **UT & WEB**

Measuring Water Use: The Good, The Bad, and The Ugly - Wallace Stegner Center Event, Salt Lake City. University of Utah College of Law. Hybrid Event: In-Person and Online; 12:15pm-1:15 pm MST. For info: <https://sjquinney.utah.edu/events/>

February 16-17 **VA & WEB**

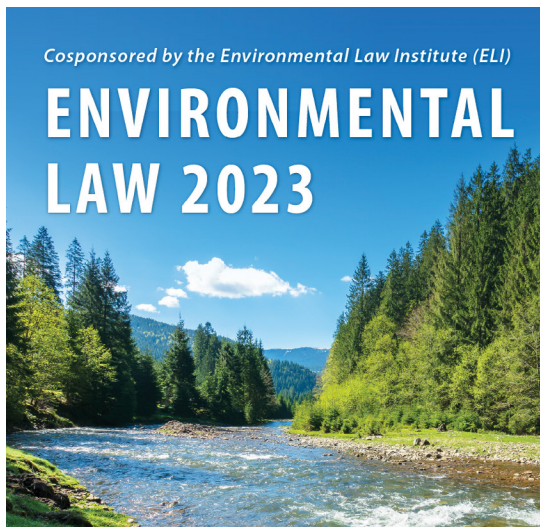
Environmental Law 2023, Arlington. In-Person & Webcast Event. Environmental Law Institute Co-sponsored With ALI CLE. For info: <https://www.ali-cle.org/course/ce008p>; or www.eli.org

February 20-23 **TN**

2023 Membrane Technology Conference & Exposition, Knoxville. Knoxville Convention Center. Presented by American Membrane Technology Association & American Water Works Association. For info: www.awwa.org/Events-Education/Membrane-Technology

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Family Farm Alliance 2023 Annual Conference - A Wake Up Call for America: Why Farms, Water and Food Matter, Reno. Silver Legacy Resort. For info: www.familyfarmalliance.org/events



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