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**Senate Energy and Natural Resources Committee's Subcommittee on Water and Power
Hearing on *Natural Infrastructure and Western Water Management*.**

Chairman Wyden, Ranking Member Hyde-Smith, and Subcommittee members:

Thank you for holding this important hearing on the power of natural infrastructure to make vital contributions to sustainable water management in the West. Trout Unlimited (TU) and its over 300,000 members and supporters nationwide support and implement natural infrastructure projects. TU's mission is to conserve, protect, and restore North America's trout and salmon fisheries and the watersheds they depend on. In pursuit of this mission across the West, TU has worked with ranchers, farmers, states, Tribes, federal, state, and local agencies, local contractors, businesses, and many other partners to restore streams while also sustaining working lands and vibrant communities.

TU recently testified before House Natural Resources Committee's Water, Oceans, and Wildlife Subcommittee regarding the return on investment of natural infrastructure projects in terms of job creation, economic recovery, and climate resilience. TU presented on-the-ground project examples and academic literature showing that investments in watershed restoration benefits local communities and economies while building ecological capacity for climate resilience. Indeed, a [recent USGS study](#) found that between \$2.2 and \$3.4 million in total economic outputs are contributed to the U.S. economy for every \$1 million invested in ecosystem restoration.

TU's recent testimony before the Water, Oceans, and Wildlife Subcommittee is attached here for the record in this hearing. TU appreciates the Water and Power Subcommittee's leadership in promoting the key role of natural infrastructure to support sustainable water use in the West.

Yours truly,

Laura Ziemer



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Senior Counsel and Water Policy Advisor

March 11, 2021

**Statement of Laura Ziemer, Senior Counsel and Water Policy Advisor for Trout Unlimited
House Natural Resources Committee's Subcommittee on Water, Oceans, and Wildlife
Hearing on *Building Back Better: Water, Oceans and Wildlife*.**

Chairman Huffman, Ranking Member Bentz, and Subcommittee members:

Thank you for the invitation to testify today on behalf of Trout Unlimited (TU) and its over 300,000 members and supporters nationwide. TU's mission is to conserve, protect, and restore North America's trout and salmon fisheries and the watersheds they depend on. In pursuit of this mission across the West, TU has worked with ranchers, farmers, states, Tribes, federal, state, and local agencies, local contractors, businesses, and many other partners to restore streams while also sustaining working lands and vibrant communities.

1. Building Economic Recovery, Climate Resilience, and Racial Justice with Water Investments.

The Coronavirus pandemic threw [millions](#) of Americans out of work and shuttered businesses. Climate change trends hit home when [millions](#) of acres burned in scorching wildfires across the West and winter storms hit southern states ill-prepared for extreme weather. At the same time, racism's fault lines and societal inequities drew [millions](#) to the streets in protest. 2020 set unprecedented records for the number of unemployed, the number of acres burned, and the number of supporters for racial justice who turned out across the country. The co-equal priorities to build economic recovery, climate resilience, and racial justice—simultaneously—have never been more important.

The fate of the West across these issues is inextricably tied to its water. Federal investment in western water builds economic recovery when we repair and modernize irrigation water delivery infrastructure; it builds climate resilience when we efficiently recycle and re-use water and restore the West's great river systems; and it builds racial and social justice when we ensure Tribal and rural communities' access to clean drinking water and resolve Tribal water rights.

The Great Recession in 2009 and subsequent passage of the American Recovery and Reinvestment Act (ARRA) provide precedent for using conservation and restoration programs to get people back to work and improve our water supplies and river health. The combination of a warming climate, long-term drought, and population growth threaten the ecological viability of western rivers critical for people, fish, and wildlife. Modern solutions that provide multiple benefits must be responsive to the co-equal priorities of economic recovery, climate resilience, and racial justice. Such modern solutions are also key to responding effectively to the West's water needs.

TU's testimony today reflects our decades of place-based experience in the West. Our experience has taught us that working in support of Tribal water settlements aligns with river restoration and healthy communities. Our work in the rural corners of the West has taught us that partnerships to restore rivers must also sustain the people who work the land. Our work in state capitals and the halls of Congress has taught us that solutions to water scarcity must work at the basin scale for cities, agriculture, Tribes, and fish and wildlife. This work is neither easy nor fast; but the slow, difficult work of finding new ways to address water scarcity creates durable solutions that advance the health of our economies, rivers, and communities.

2. Economic Recovery and Western Water Investments.

The Colorado River Basin is emblematic of the West's needs for federal investment in water resources. More than 40 million people rely on the Colorado River and its tributaries for their water, and these rivers irrigate over five million acres of ranch and farmland, providing food and forage for people across the country. The economic importance of the Colorado River alone is estimated at over [\\$1.4 trillion annually](#). Finally, the Colorado River Basin is home to dozens of Tribal nations with substantial water interests; the federal government has not always included Tribes in water decision-making, although that has begun to change.

Despite the Basin's economic, ecological, and cultural importance, its largest reservoirs are now at historic lows due to a 21-year drought and growing demands. According to the Bureau of Reclamation, by 2060, demand for water from the Colorado River may exceed supply by more than a million acre-feet. While the federal role is more prominent in the Colorado River Basin than in any other western watershed, federal investment to address the challenges facing the Colorado River Basin—and watersheds across the West—will help the United States Build Back Better.

The following funding recommendations are based on the need for substantial investment in 21st-century western water infrastructure, water supply security, and ecological resiliency, as listed below. In addition, any infrastructure package as a whole should both improve water supply and benefit environmental conditions across watersheds; and, individual projects must minimize or avoid environmental harm:

- Increase funding to Reclamation for **WaterSMART programs**, including full funding for the **Cooperative Watershed Management** program.
- Increase funding to Reclamation for construction of water recycling and reuse projects, including **Title XVI authorized projects**.
- Increase funding to Reclamation for implementation of “natural infrastructure” strategies, including restoring natural watershed storage functions.
- Increase funding for increased municipal water conservation measures, including for low-income and economically disadvantaged communities.

- Increase funding to Reclamation for upgrades to irrigation water delivery infrastructure in ways that deliver ecosystem benefits or groundwater sustainability.
- Extend deposits into the **Reclamation Water Settlements Fund** for at least 10 years.
- Increase funding for construction of authorized Tribal water rights settlement projects.
- Full funding to Reclamation for the **Aquatic Ecosystem Restoration Program** (newly created program in FY21 Omnibus).
- Increase funding for water desalination infrastructure projects that avoid environmental harm.
- Increase funding for USGS stream gauge installation and maintenance in priority locations.

Infrastructure investment creates jobs and supports economies. Western water infrastructure investment multiplies these federal dollars by the long-term sustainability it creates. This is true across investments in **watershed restoration, municipal water infrastructure, and irrigation infrastructure.**

- a. **Watershed Investment:** Restoration investment results in both immediate job creation as well as sustained, long-term economic growth.

The “natural infrastructure” investment identified above has a similar economic multiplier as investments in traditional, built infrastructure. North of the Colorado River Basin, the [story](#) of TU’s restoration of Cedar Creek on Montana’s Lolo National Forest demonstrates this multiplier effect: 96% of the \$486,033 budget went to local firms, who put a dozen people to work on the job. All fuel, grass seed, and road gravel were purchased locally. Darin Haskins, principal of the small business Haskins Excavating in the small, rural town of Superior, employed three additional local operators. Darin also traveled to Washington, D.C. for the first time in his life to receive a national award with TU from the Forest Service for the project’s outstanding conservation benefit. The restoration broke a stalemate between timber and fish interests that had been playing out in Superior for several years, where concerns over imperiled bull trout populations in Cedar Creek had blocked a timber sale on the Lolo National Forest that was anticipated as an important economic opportunity for the town of Superior. TU designed the project to use timber receipts to help bull trout by rerouting the Cedar Creek Road out of the stream corridor, rebuilding and reconnecting a functional floodplain, and installing dozens of log structures to improve habitat. The project allowed the timber sale to move forward because it restores the fluvial processes that build and maintain habitat. It showcases TU’s pragmatic approach to restoration and the multiplier effect of restoration projects investing in local jobs and long-term sustainability.

Academic economic research bears out TU’s on-the-ground experience. Professor Todd K. BenDor *et al.*, compiled estimates of job creation from investment in restoration in their paper [Exploring and Understanding the Restoration Economy](#) (2014), from which this table is excerpted:

Table 2. Variation in job impact estimates by project type and geographic scale. For estimates in Garrett-Peltier and Pollin (2009), see Heintz et al. (2009) for the methodology used to derive the multipliers.

<i>Type of Restoration</i>	<i>Jobs per \$1 M Invested</i>	<i>Geographic Scale (State)</i>	<i>Source</i>
Forest, land, and watershed	39.7	National	Garrett-Peltier and Pollin (2009)
Invasive species removal	33.3	State	Edwards et al. (2013)
Grassland	13.0	County	Derived from DOI (2012)
Upland	15.0	State (OR)	Neilson-Pincus and Moseley (2010)
Wetland	6.8	County	Derived from DOI (2012)
Wetland	12.9	State (MA)	Industrial Economics, Inc. (2012)
Wetland	17.6	State (OR)	Neilson-Pincus and Moseley (2010)
Tidal marsh	7.1	County	Derived from DOI (2012)
Fish passage	10.4	State (MA)	Industrial Economics, Inc. (2012)
Fish passage	15.2	State (OR)	Neilson-Pincus and Moseley (2010)
Fish passage/dam removal	18.2	State	Edwards et al. (2013)
Dam removal	10.3	State (MA)	Industrial Economics, Inc. (2012)
Dam removal	20.5	State (CA)	Kruse and Scholz (2006)
River	9.7	County	Derived from DOI (2012)
In-stream	14.7	State (OR)	Neilson-Pincus and Moseley (2010)
In-stream	31.5	State (MT)	Shropshire and Wagner (2009)
Hydrologic reconnection	14.6	State	Edwards et al. (2013)
Riparian	19.0	State	Edwards et al. (2013)
Riparian	23.1	State (OR)	Neilson-Pincus and Moseley (2010)
Oyster reef	16.6	State	Edwards et al. (2013)
Oyster reef	20.5	County	Kroeger (2012)

Because restoration activities focus on revitalizing localized habitats, BenDor and his co-authors found that investment in these activities bolstered local economic benefits with up to 80 cents of each dollar staying local. Additionally, compensation from restoration jobs compares favorably to average wages in other sectors, as a subsequent study by BenDor *et al.*, [Defining and Evaluating the Restoration Economy](#) (2015), showed. Moreover, a [recent USGS study](#) found that between \$2.2 and \$3.4 million in total economic outputs are contributed to the U.S. economy for every \$1 million invested in ecosystem restoration. As TU's on-the-ground project experience and the academic literature show, investing in watershed restoration benefits local communities and economies while building ecological capacity for climate resilience.

- b. Municipal & Industrial Investment:** Multiplies immediate jobs with long-term sustainability, but demand for Title XVI projects far outstrips available funding.

Investment in municipal and industrial water recycling, re-use, and desalinization (where appropriate) also [creates jobs](#), and these jobs likewise support long-term economic growth by creating water security for municipal and industrial water users. Congress authorized the Bureau of Reclamation to reclaim wastewater for municipal or industrial nonpotable water supplies in 1992 under Title XVI of P.L. 102-575. The federal share for so-called "Title XVI" projects is limited to 25% of project costs. This original Title XVI legislation authorized construction of five projects to reclaim wastewater and six wastewater reuse and groundwater recycling studies. Subsequent congressional amendments to Title XVI brought the number of authorized projects up to 53. Most recently, the Water Infrastructure Improvements for the Nation (WIIN) Act in December 2016 (P.L. 114-322) made changes to Title XVI allowing an additional 54 projects to be approved under WIIN Act authority.

Relying on Reclamation data, the Congressional Research Service’s [Report 46471](#), *Federally Supported Projects and Programs for Wastewater, Drinking Water, and Water Supply Infrastructure*, at 13 (July 30, 2020) estimated that the “backlog of remaining federal funding needed to construct the 107 authorized Title XVI projects (*i.e.*, both ‘traditional’ and WIIN Act authorized projects) exceeded \$1 billion.” The demand for nonpotable water recycling and re-use projects is high, but the demand for the 25% federal cost-share for even already-authorized projects far exceeds current funding.

- c. Irrigation Infrastructure Investment:** Benefits to agricultural sustainability and rivers for multi-benefit projects multiply job-creation of infrastructure project.

Investment in irrigation infrastructure projects generate much-needed jobs in rural communities. They provide needed upgrades to aging water-delivery systems and can enhance stream flows for better conveyance of surface water to points of diversion and better aquatic habitat. The Western Agricultural and Conservation Coalition (WACC) supports and encourages such multi-benefit irrigation infrastructure projects. The WACC is made up of agricultural and conservation organizations, including the Family Farm Alliance, California Farm Bureau Federation, Farmers Conservation Alliance, and TU. WACC member, Marc Thalacker, Manager of the Three Sisters Irrigation District (TSID), has led by example in piping 55 of 64 miles of canal, installing a fish screen, building fish-friendly hydropower, and permanently returning 34 cubic feet per second (cfs) to the creek so that salmon and steelhead can swim through Sisters, Oregon for the first time since 1885. TSID’s modernization [story](#) includes diverse partnerships and persistence, and agricultural benefits of drastically-lower pumping costs, high-efficiency sprinklers, reliable water delivery, higher crop yields, and generation of 4 million kilowatt hours of green energy. The Farmers Conservation Alliance estimates that the cumulative impact of their irrigation modernization work with districts like TSID has supported [22,790](#) short-term jobs.

- 3. Climate Resilience and Western Water Investments:** Water and fire are the West’s greatest expressions of climate change.

Water and fire are the West’s greatest expressions of climate change. This makes water investments a top priority for building climate resilience. The three pillars of western water climate resilience are:

- I. **First Pillar—Water Security:** investments in water infrastructure contribute to both basin-scale and individual water users’ water security.
- II. **Second Pillar—Fish Passage:** investments in water infrastructure ensure fish passage and aquatic habitat connectivity.
- III. **Third Pillar—Environmental Flows and Natural Infrastructure:** investments preserve environmental flows and restore watershed function through nature-based solutions.

Smart water investments are needed across all three pillars of western water climate resilience.

a. First Pillar—Water Security

The Yakima River Basin’s Integrated Plan is a high-priority stimulus investment because its projects are planned and prioritized as important contributions to the economic and water security of the basin as a whole—including the basin’s robust agricultural community, Tribal community, and the recovery of its imperiled fish and wildlife. The Bureau of Reclamation funds multi-benefit projects to implement the Yakima Integrated Plan from the Water and Related Resources account within the agency’s annual spend plan. For example, TU has partnered with the Kittitas Reclamation District (KRD) on canal lining and piping, which then allows conveyance of that conserved water to streams key to imperiled salmon and steelhead. The story, [here](#), of this on-going project illustrates the important economic multiplier of well-designed projects like this one that are part of the Yakima Integrated Plan implementation.

TU and our WACC (Western Agricultural and Conservation Coalition) partners’ deep experience in multi-benefit water delivery infrastructure projects that increase water security for all users demonstrate that there are **five keys to unlocking multi-benefit irrigation infrastructure**:

- **Define Shovel-Ready** such that it includes projects that can proceed to construction between 1-3 years from date of project application so that the best projects have time for project permitting and final design work to incorporate co-benefits such as improved streamflows, fish-friendly hydropower, or co-locating fiber optic cable along ditch easements;
- **Invest in Project Planning** for some projects in order to meet high goals for providing multiple benefits;
- **Provide Higher Federal Cost-Share** for those best-in-class projects to produce benefits such as improving stream flows, providing fish passage, or burying energy transmission lines along with buried pipe in order to reduce wildfire risk from exposed lines;
- **Delay Match Repayment** for the non-federal share over a decade, creating a revolving fund of incoming reimbursement dollars for federal funds advanced to cover full project costs initially, to enable support for additional projects over time.
- **Coordinate Permitting across Federal Agencies** and facilitate state and federal agency coordination to advance project planning and execution.

The Bureau of Reclamation’s WaterSMART program provides important funding for irrigation infrastructure investment through its Water and Energy Efficiency Grants and Small-Scale Water Efficiency Projects under the WaterSMART umbrella. Congress’ amendment to Reclamation’s WaterSMART program in the FY2021 Omnibus bill authorized up to a 75% federal cost share for multi-benefit projects like TSID’s. Although Reclamation has the statutory authority to provide pre-development capital or planning funding to facilitate high-performing projects like TSID’s, described above, that provide important co-benefits and increase water security for all users, the agency has not implemented this authority to date under WaterSMART.

b. Second Pillar—Fish Passage and Aquatic Connectivity.

Connecting aquatic habitat around dams and diversions with fish passage structures is key to allow species like salmon and steelhead that cover great distances during their lifespan to access their full habitats. These engineered pathways are also one of the only ways of providing effective migration corridors for fish that respond to shifts in habitat suitability by moving away from water that has become too warm. Unfortunately, many dams and diversions were built over a century ago when little was understood about fish passage or salmon migration.

The new **Aquatic Ecosystem Restoration Program** added to Reclamation's program portfolio in the year's-end Omnibus bill is an encouraging response to this dilemma of aged infrastructure and modern urgency. Authorized at \$15 million/year, it provides broad authority for Reclamation to assist in and fund fish passage improvement and aquatic habitat enhancement, including removal of dams or other aging infrastructure if a project is supported by a broad multi-stakeholder group and maintains water security for all involved.

In the early implementation of this new program, Reclamation should work with the broad community of fisheries professionals to ensure a robust monitoring and adaptive management plan for up-stream and down-stream passage of the imperiled pallid sturgeon at the newly-rehabilitated Intake Diversion Dam and Bypass Channel on the lower Yellowstone River in Montana. The original infrastructure was one of Reclamation's first projects after the Reclamation Act of 1902 created the agency, and it still serves the Lower Yellowstone Project today, providing irrigation water for about 58,000 acres through 225 miles of canals.

Another priority to consider for the Aquatic Ecosystem Restoration Program is Bureau of Reclamation support for the ambitious Northern California's Potter Valley Project [collaborative](#). This multi-stakeholder effort is investigating options around aging infrastructure in the Eel River watershed to restore passage for Chinook salmon, summer steelhead, and other species above Scott Dam on the Eel River while meeting water users' needs in both the Eel and Russian river basins.

c. Third Pillar—Environmental Flows & Natural Infrastructure.

Drought resilience and flood-risk reduction start with intact hydrologic processes and healthy forest conditions at the landscape scale. This third pillar of climate resilience also requires built infrastructure that works with, rather than against, riverscapes. Examples include flows below dams that mimic a natural hydrograph and provide adequate aquatic habitat; diversion structures that avoid armoring banks or push-up dams; and, roads and bridges built to give rivers room to roam.

Healthy watersheds provide ecosystem services critical for natural and human communities and are key to improving resilience to climate change and reducing long-term severity of climate impacts. TU follows a watershed-scale approach that reconnects fragmented fish populations isolated by fish migration barriers and restores refugia habitat and water quality. These investments are not only good

for imperiled fish populations, but by restoring fluvial processes that create and maintain habitat, these watershed restoration projects also restore the ecosystem services of flood-risk reduction and drought tolerance that increase climate resilience across a watershed.

Investing in watershed restoration to build climate resilience and can be accomplished by:

- Increasing funding for the ***Pacific Coastal Salmon Recovery Fund***: through which NOAA provides funding to the states and tribes of the Pacific Coast region to implement projects that restore and protect salmon and steelhead populations and their habitats.
- Increasing funding for ***NOAA's Habitat Conservation and Restoration Program***, which restores fisheries, revive populations of protected species, and improve the resiliency of coastal communities. Within this program, TU is particularly supportive of the ***Community-Based Restoration Program (CBRP)***. The CBRP supports locally driven and voluntary coastal restoration projects with national, regional, and local organizations through competitively awarded public-private partnerships.
- Increasing funding for ***USFWS, National Fish Passage Program***: This program enables partners to fix obsolete culverts and remove outdated barriers to fish passage to increase fish habitat and improve the health of watersheds. The Fish Passage Program has identified approximately 484 high-priority fish passage projects (primarily culverts, bridges, or water diversions) across the country with a conservative cost estimate of \$23 million.
- Increasing funding for ***USFWS, Partners for Fish and Wildlife Program***: This program, currently authorized at \$75 million, is one of the USFWS's best programs for working with private landowners. For example, TU has partnered with farmers on working lands in the upper Potomac River drainage in West Virginia to provide over two million feet of fencing and water resource protection to restore eastern brook trout and enhance farm operations.

An example of these programs at work is NOAA's ***Community-Based Restoration Program*** funding support of TU's North Coast Coho Project. TU started this project in California over 20 years ago as a multi-stakeholder, partnership-driven initiative involving industrial timber companies, other landowners, local watershed groups, private foundations, and state and federal agencies. To date, the North Coast Coho Project has initiated over 124 projects. Among them are the removal of 11 fish migration barriers that opened access to approximately 61 miles of upstream habitat, such as this barrier-removal [project](#) along the "Skunk Train" railway. The North Coast TU partnership has treated 113 miles of stream with over 6,265 pieces of large wood and 264 miles of road preventing 632,360 yards³ of sediment (equal to about 63,000 dump trucks). The program is successful in implementing 8-12 projects per year across three, northern California counties due to its history of implementing numerous process-based restoration activities at a regional scale, and because of its extensive partnerships with public agencies and private entities.

The North Coast Coho Project works to restore ecosystem processes to create resilient summer and winter refugia and to mitigate the impacts of climate change to North Coast salmonids. This restoration makes the coastal watersheds of northern California more climate resilient for its communities and

imperiled salmon. In addition, habitat restoration in coastal areas generates, on average, [17 jobs per million dollars spent](#), which is higher than extractive industries such as coal and gas.

4. Tribal Sovereignty and Western Water Investments.

Tribal water right settlements are an important federal investment to support Tribal sovereignty and water management. Negotiated settlements allow tribes, states, and local water users to greater certainty on difficult issues of title to water, and they promote Tribal self-determination. Settlements also allow the parties to develop creative solutions to overarching water resources issues. Congress has enacted at least 34 Tribal water settlements, including the recent passage in the year's-end Omnibus bill, for example, of the [Navajo-Utah Water Rights Settlement](#), which affirms the tribe's right to 81,500 acre-feet of water per year and provides \$210 million in federal funding for clean water access for communities on the Navajo Nation at a time when the lack of running water on the reservation has exacerbated the effects of the COVID-19 pandemic there.

Federal funding is one of the key factors in making settlements actionable for the health and welfare of Tribes and surrounding communities, and for creating water certainty and economic-development opportunities in the West. Funding Tribal water settlements is needed to secure new water supplies, to build or rehabilitate infrastructure required to deliver water, and to protect resources such as treaty fishing rights that are of critical importance to Tribes.

In 2009, Congress created the **Reclamation Water Settlements Fund**, [P.L. 111-11, Sec. 10501](#), which authorizes the deposit of funds that would otherwise be deposited into the Reclamation Fund, into a separate account within the U.S. Treasury. Currently, the Secretary of the Interior is authorized to expend from the Reclamation Water Settlements Fund, without further appropriation, up to \$120 million a year of the amounts deposited through FY 2029, plus accrued interest, in each of the years from FY 2020 to FY 2034. The Secretary may use money in the Reclamation Water Settlements Fund to implement congressionally approved water rights settlements, if the settlement requires the Bureau of Reclamation to provide financial assistance, or to plan, design or construct water supply infrastructure. [H.R. 1904](#) would make the Reclamation Water Settlements Fund permanent so that additional Tribal water settlements can be implemented. TU supports its passage.

5. Conclusion.

TU's experience in grappling with water security in the West over the last twenty years involves key federal elements to support successful efforts: support for collaborative, watershed-scale solutions; bringing financing to these solutions based on streamlined federal funding and public-private partnerships; using and advancing the best science, technology, and tools applied to water management; and recognizing that these watershed-scale, locally-driven solutions require the

development of a portfolio of projects addressing watershed and flow restoration, reliability of irrigation water supply, Tribal water rights, and security of municipal water supply.

TU appreciates the attention given by this Committee to western water issues, and I thank you again for the opportunity to testify today.

Yours truly,



Laura Ziemer