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April 11, 2019

The Honorable Jared Huffman
The Honorable Tom McClintock
The House Committee on Natural Resources
Subcommittee on Water, Oceans, and Wildlife

**Re: April 2, 2019 Subcommittee Hearing: "*WOW 101: The State of Western Water Infrastructure and Innovation*."**

Dear Chairman Huffman and Ranking Member McClintock:

Trout Unlimited (TU) has over 300,000 conservation–minded members and supporters, organized into 380 chapters in 35 state councils. Our mission is to conserve, protect and restore the Nation's trout and salmon fisheries and their watersheds. We have 280 staff spread across America who work with our members and a wide variety of partners – including farmers, ranchers, miners and state and local agencies – to accomplish our mission. TU's two decades of on-the-ground experience in restoring watersheds in the West has been spent addressing water scarcity and improving water management at a variety of scales.

TU has four primary insights from our decades of experience in restoring western rivers:

- Design and Implement Multiple-Benefit Water Infrastructure Projects
- Replicate Big Water Infrastructure Collaborations
- Create More Storage through Better Data
- Maximize Natural Storage to Mitigate for Flood and Drought Conditions through Hydrologic Restoration

Below, TU draws on its project experience across the West to describe each one in more detail.

1. **Design and Implement Multiple-Benefit Water Infrastructure Projects.**

Every aging, century-old piece of irrigation and water delivery infrastructure in the West is an opportunity to build flood and drought resilience through improved water

storage and delivery, and improved river health. Addressing the backlog of aging water infrastructure in the West presents an opportunity to re-design infrastructure that builds in improved stream and river flows through water conservation, improves fish passage, and restores natural riverine processes cut short by constricted and disconnected floodplains, degraded or eliminated riparian wetlands, or dewatered rivers and streams.

A good example is in eastern Washington's Wenatchee River basin, where TU worked with Pioneer Water Users (Pioneer) to change their point of diversion from the flow-limited Wenatchee River to the Columbia River. With the change in point of diversion, the project protected over 38 cubic feet per second (cfs) in the Wenatchee River, improving habitat for imperiled spring Chinook, steelhead and bull trout. Pioneer benefitted by adopting the most sophisticated irrigation system in the state that will last through the next century: the whole system is managed by a "brain" that dictates how the pressurized system rotates water use among five pumps.

The instream benefit to the Wenatchee is complemented in the Columbia by the fact that the system is based on demand. Withdrawal from the Columbia River only occurs when that the agricultural users need water. This collaboration also increased the water security for the town of Wenatchee by transferring saved water to their municipal supply. Although not a simple project—17 separate permits were obtained and 12 funders contributed to the project—its $3.4 million total cost for 7,823.5 acre-feet provides municipal, irrigation, and habitat benefits for imperiled species at $435 per acre-foot of water savings—demonstrating the success of investing in innovative infrastructure solutions to create multiple benefits.

The cost is high of neglecting these essential water infrastructure upgrades. Neglect of water infrastructure risks floods from failing dams, under-sized culverts, and bridges that need larger spans across floodplains. Neglect of water infrastructure also makes the impact of drought worse by wasting water in failing water delivery infrastructure. Any federal western water infrastructure investment should not miss the opportunity to provide multiple benefits at once—whether it is through existing funding under Bureau of Reclamation or Natural Resources Conservation Service programs, or new federal funding initiatives. These types of projects both upgrade existing infrastructure, but at the same time restore natural riverine processes that provide flood services through reconnecting floodplains and rivers, for example. Other projects will relieve water delivery bottlenecks by improving natural flows that provide drought resiliency for multiple water users while upgrading water delivery infrastructure. **While there are myriad project examples, what they share is re-designed existing infrastructure to meet simultaneous water storage or delivery goals with watershed restoration and multiple water-use goals.**

These are cost-effective projects that build partnerships and are smart, high-yield investments. California and other states are re-orienting their flood programs toward multiple-benefit projects that ensure public safety together with fish and wildlife conservation, groundwater recharge, and more cost-effective use of public funds. The federal government should support and replicate efforts like these. Current appropriations through Reclamation's WaterSMART program should be directed to conserve water for multiple uses, consistent with its statutory authorization under the SECURE Water Act, 42 USC §10364(a)(3)(B)(ii). Similarly, any reauthorization of the Water Infrastructure Improvements for the Nation Act, or the "WIIN Act," should likewise require multi-benefit project outcomes for any water infrastructure project or repair.

**2. Replicate Big Water Infrastructure Collaborations: Klamath and Yakima.**

Any federal investment in western water infrastructure on should strongly support the regional, cooperative initiatives which have taken watershed restoration and infrastructure reform to scale. **Successful western examples are the Klamath and Yakima river basin collaboratives. These multi-stakeholder investment plans stack benefits, and they recognize economic and business risks of avoiding upgrades and missing opportunities to promote resiliency.** Although Congress did not ratify the Klamath settlement before it expired, TU remains committed to a comprehensive solution for the basin and we believe that effort can point the way toward a common future there and in other places. As you know, Yakima's multi-stakeholder, basin-wide plan was federally authorized just this year.

These are examples of investment plans that have been made with a whole-system view—not just straight update and replace, but based upon more comprehensive, system-level evaluations. Their purpose is to make our infrastructure work for modern and future needs. These plans include new construction, deconstruction, re-operation of existing storage, upgrading water delivery, and investment in ecosystem service systems like floodplain, riparian, wetland, and streamflow restoration and management. Supporting drought resilience through a multi-pronged strategy reduces the need for government intervention and future spending, and creates a cost-effective system plan. Replication of the approach of the Klamath and Yakima investment plans should feature prominently in any western water infrastructure investment, and in any reauthorization of the Water Infrastructure Improvements for the Nation Act, or the "WIIN Act."

### 3. Create More Storage through Better Data.

Better reliance and utilization of existing data—and obtaining even better data—can dramatically improve reservoir operations. For example, Sonoma County has recounted its experience in 2013 in which strict, required adherence to fixed rule curves required the Army Corps of Engineers to release 25,000 acre-feet of rainfall from Lake Mendocino's reservoir when no flooding was forecasted. This single incident caused Sonoma County to lose water valued at tens of millions of dollars. It also demonstrates that more reservoir storage can literally be created from better data.

In much of the West, snowpack depth and melt rate, along with forecasted precipitation, can be used to develop reservoir operations that divorce reservoir operations from specific calendar dates for fill levels, and have more useful flood evacuation guidelines than strict adherence to specific rule curves. Bureau of Reclamation's and Army Corps of Engineers' application of these principles mean better instream flows, more flexibility for environmental considerations, such as periodic pulse flows, and more science-driven reservoir management that is responsive to both drought and flood years, making more storage water available to water users.

In some river basins with Endangered Species Act (ESA) consultation requirements, Reclamation and the Army Corps of Engineers have led successful efforts to modernize reservoir operations based on hydrologic relationships. This has allowed Reclamation and the Army Corps to do data-driven modifications of reservoir operations while still meeting water delivery and flood control obligations. Multi-stakeholder involvement has produced improved reservoir operation, even without ESA consultations and accommodation.

In Montana's Sun River without ESA-listed species, for example, TU's detailed analysis of the 100-year period of record on a daily time-step, combined with extensive use of the existing SNOTEL data, drove re-operation of the Bureau of Reclamation's irrigation-dominated Gibson Reservoir. This provided higher winter flows in the Sun River to create more fish habitat and promoted better reservoir management during the irrigation season to provide more river flows in summer. These basin-scale river flow enhancements happened without decreasing the amount of irrigation water delivery or storage. Rather, better analysis of existing snowpack, forecast, and river flow data incorporated into reservoir operations made more water available for multiple water uses.

Replicating such successful efforts both in and outside of the ESA context would make other river basins more drought and flood resilient as well. **Reclamation already has a mandate passed in 2009 in the SECURE Water Act's Section 9503 Climate Change and Water Program to "develop appropriate strategies to mitigate each**

**impact of water supply changes" analyzed under climate change scenarios. 42 U.S.C. § 10363(b)(4). This includes the "modification of any reservoir storage or operating guideline" or the "development of new water management, operating, or habitat restoration plans." 42 U.S.C. § 10363(b)(4)(A) and (B).**

Trout Unlimited suggests adding to Reclamation's existing congressional reporting requirements on its Climate Change and Water Program in 42 U.S.C. § 10363(c). A reporting requirement specific to Reclamation's progress on the development of modifications to reservoir operating plans and the development of new water management plans will promote more wide-spread adoption of such plans at Reclamation facilities. Any new reporting requirement should require reporting on specific progress under Section 9503's requirement to improve ecological resiliency and address adverse impacts to fish and wildlife. In addition, river basins that fail to implement mitigation analysis and strategies required under the Section 9503's Climate Change and Water Program—and show specific strategies to improve ecological resiliency and fish and wildlife habitat—over the next decade could be made ineligible to receive funding through other Reclamation programs, such as WaterSMART or under the WIIN Act, or through any specific appropriation to address drought in the West.

4. **Maximize Natural Storage to Mitigate for Flood and Drought Conditions through Hydrologic Restoration.**

By 2020, 70 percent of dams in the United States will be more than 50 years old. Some of the lessons we have learned over the era of large dam-building is that constricting a river with dams and levees is often not an effective or economical way address to the threat of flooding.

Some of the best investments to ensure public safety are to give rivers more room, not less. This means ensuring that rivers have the adjacent floodplains and wetlands they need to move and dissipate floodwaters naturally. Dams, levees, and rip-rap limit such options and often incentivize development and redevelopment in places most prone to damaging floods.

Floodplain reconnection and restoration of incised stream and river channels also carries benefits during drought. Stream restoration approaches that restore hydrologic processes promote natural water storage, capturing spring snowmelt and flood water in the landscape, and prolonging its release to the stream throughout the summer and fall. Over the last decade, TU and other restoration pioneers have used stream restoration to increase water table heights, activate abandoned floodplains, recharge wetlands, and

improve in-stream habitat for fish and other aquatic species. In 2016, Trout Unlimited partnered with the University of Montana to study the effect of floodplain and stream channel restoration on seasonal patterns of aquifer storage and streamflow on Ninemile Creek, in Montana.

*Degraded (top) and restored (bottom) reaches of Ninemile Creek. Restoration reduced channel incision, increased sinuosity and added riffle-pool sequences. Top image shows the degraded reach after overburden piles were removed, with the new, unconnected with the new, unconnected channel to the left. channel to the left.*

Our project monitored the impact of TU's restoration work after extensive placer mining in the mid-1800's. TU removed piles of abandoned mining waste, and returned the channelized stream into its natural floodplain. We used chemical groundwater tracers ($^{222}$Radon) and synoptic stream discharge measurements to evaluate changes in aquifer storage and groundwater contributions to streamflow from June-November 2016. We found that restoration resulted in a longer period of aquifer storage in the spring and a slower release of this stored water. Most importantly, at baseflow, restoration substantially increased groundwater contributions to streamflow. **Based on our results, we estimate that for every mile of valley floor restored, an additional 1.01 acre-feet of groundwater entered the stream <u>each day</u>**. While results will vary across drainages, our work shows that restoration can have a substantial impact on storage and streamflow generation processes. Floodplain reconnection, and restoration of incised stream and river channels, are valuable tools for mitigating the effects of drought in western rivers and streams.

TU encourages any investment in western water infrastructure to consider the value of drought and flood resiliency as part of the country's essential infrastructure. **Flood and drought resiliency come from functional watershed processes, which work more cheaply and more effectively with less capital investment than constructed structures.** California is capitalizing on this cost-savings by engaging in multiple- benefit flood planning, floodplain restoration and reconnection, and restoration of natural

infrastructure to absorb flood waters, such as high-elevation riparian meadow restoration. By carrying out all three areas as part of its flood preparedness, California is creating a model for federal investment. Restoration of watershed function is a sound investment that pays dividends over the long-term, without the depreciation in value and on-going, mounting expense of operation and maintenance of built structures. Investing in restoration of functional watershed processes along with other infrastructure investments is good for businesses that would be affected by drought or flood damage. Investment in natural infrastructure also saves government spending on emergency response.

Fundamentally, all four ways of promoting multi-benefit western water investments that we've described share one thing in common: partnerships. Each approach or project requires multiple agencies, entities, or areas of expertise working together in order to come to fruition.

The partnerships between irrigation districts and conservation is no better illustrated than the non-regulatory actions taken in Washington's Yakima River basin when drought conditions threatened crops and imperiled salmon and steelhead alike. In this photo, Kittitas Reclamation District is using its canal and infrastructure to add water to tributaries in the upper Yakima River, home to ESA-listed Steelhead and Chinook Salmon, a critical food source for the Southern Puget Sound Orca Whales. This is especially critical during drought years when the tributaries go dry late season.

Please don't hesitate to contact me or Trout Unlimited's Vice-President of Government Affairs Steve Moyer at steve.moyer@tu.org & (703) 284-9406 or laura.ziemer@tu.org & (406) 599-2606 if we can provide any additional detail, project examples, or project tours within Subcommittee Members' districts.

Yours truly,

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