

COMMITTEE ON NATURAL RESOURCES
SUBCOMMITTEE ON WATER, OCEANS, AND WILDLIFE
REMOTE OVERSIGHT HEARING
MARCH 11, 2021
2:00 P.M. EST

Oversight Hearing on *"Building Back Better: Building Resilience for the Economy, Climate, and Ecosystems."*

QUESTIONS FOR THE RECORD
March 25, 2021

Responses from Laura Ziemer, Trout Unlimited, Senior Counsel and Water Policy Advisor:

Question from Chair Huffman

- 1) Healthy forests provide clean air, clean water, wildlife habitat, outdoor recreation opportunities, and jobs. Intact, functional streams and riparian ecosystems protect water quality and help conserve aquatic species. Additionally, 30 percent of the country's drinking water is filtered by forests. What can be done through federal policy to encourage and improve these positive benefits provided by forests while also protecting water supplies and improving the resiliency of water infrastructure, particularly in the context of climate change?

Answer:

Healthy forests provide numerous benefits, including preventing soil erosion; supporting water infiltration; regulating snow melt and water supply; improving water quality; lowering water treatment costs; capturing carbon; and benefiting wildlife habitat and fisheries. Implementing best practices in forest management and forest restoration can help maintain these benefits and potentially mitigate against watershed degradation, catastrophic wildfire, reductions in snow-melt runoff, and other climate change impacts. Forest management and restoration can also help in adapting to climate shifts as conditions in western watersheds change, increasing economic resilience through job creation and reduced emergency costs, among other benefits.

Within the Department of Interior's jurisdiction, Congress can encourage the Bureau of Reclamation to implement broadly its new authorities passed in the recent Consolidated Appropriations Act for FY2021 ([Public Law 116-220](#) at Division FF, Title XI, §1106). This included new congressional authorization for the Bureau of Reclamation's WaterSMART program to fund such nature-based solutions as floodplain water retention along streams and rivers, restoring incised stream channels and wet meadow complexes. Implementing such projects can improve forests' ability to regulate snow melt, prevent soil erosion, improve water quality, and provide

natural fire-breaks. Congress could prioritize and expand funding for these climate-resilient solutions to improve forests conditions in watersheds with Reclamation projects.

Creating new Department of the Interior authorities such as those passed by the House of Representatives in H.R. 2 in the 116th Congress would also provide new tools for improving forests' ecological resilience to climate change, improve water supply, and reduce risk of catastrophic wildfire. Passage of new authority such as S. 4189 introduced by Senator Wyden in the 116th Congress and Senator Bennet's *Outdoor Restoration Force Act* would similarly expand the tool-box for improving watershed and forest health.

Finally, existing United States Forest Service authorities fostering forest resilience include the *Collaborative Forest Landscape Restoration Program* (CFLRP) and *Water Source Protection Program*. CFLRP requires plans to "maintain or improve water quality and watershed function." The program leverages collaboratives to enhance forest and watershed health and reduce risk from uncharacteristic wildfire. As noted in the 10-year report to Congress: "CFLRP projects created nearly \$2 billion in local labor income and supported an average of 5,440 jobs annually. CFLRP opportunities brought together over 420 organizations to engage in local collaboratives and attracted over \$470 million in partner funding and in-kind contributions, including work on private and State lands." The 2018 Farm Bill reauthorized CFLRP through 2023 and increased funding from \$40 million to \$80 million. Full funding for, and permanent authorization of, CFLRP is warranted for this successful program. The *Water Source Protection Program* was authorized in the 2018 Farm Bill at \$10 million annually but has not received appropriated funding as of 2020. More robust administrative implementation of the *Water Source Protection Program* is warranted and can help to protect and restore watersheds for their water supply benefits.

Questions from Representative Cohen

- 1) In your testimony, you provided a chart showing that for every \$1 million invested in restoration projects, 15-40 jobs are typically created. Could you also provide estimates on how many jobs could be created by building modern water infrastructure projects like water recycling projects?

Answer:

Need for modern water infrastructure is a national issue. Job creation from investment in municipal water infrastructure is comparable to natural infrastructure and watershed restoration. Figure 7, below, reproduced from: Value of Water Campaign, 2017, "[The Economic Benefits of Investing in Water Infrastructure](#)" supports 15.5 jobs for every \$1 million invested; and, Figure 6 of the same report shows comparable results relative to other sectors:

Economic Impact of Funding the Water Infrastructure Gap

	Aggregate Impact	Direct Impact	Indirect & Induced Impact
Annual Impact			
Employment	1.26 million jobs/year	500,000 jobs/year	760,000 jobs/year
Labor Income	\$75 billion/year	\$32 billion/year	\$43 billion/year
Output	\$222 billion/year	\$82 billion/year	\$140 billion/year
Cumulative Impact (10 Years)			
Labor Income	\$750 billion	\$320 billion	\$430 billion
Output	\$2,220 billion	\$820 billion	\$1,400 billion

Impacts expressed in constant 2016 dollars. Source: IMPLAN 2015.

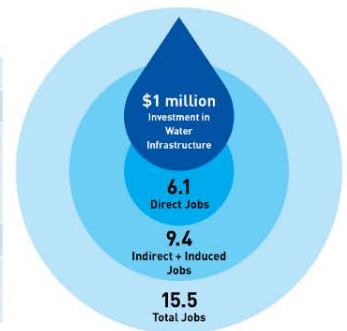
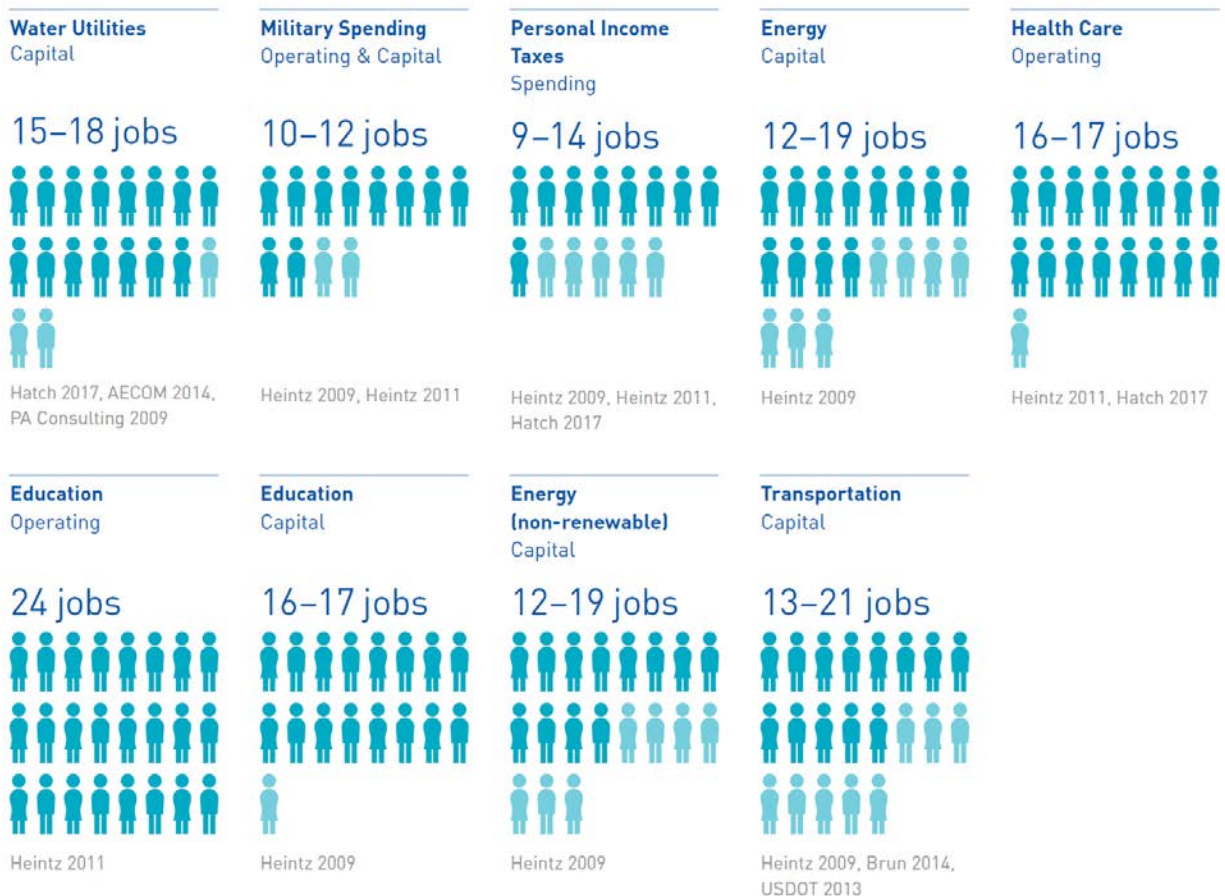


Figure 6

Jobs per \$1 Million by Sector and Expenditure Type



Values expressed in constant 2016 dollars.

- 2) In your testimony you advocate for increased federal funding for municipal water conservation measures, including for low-income and economically disadvantaged communities.
 - a. Our country has an unfortunate history of underfunding infrastructure and basic services for communities of color and low-income communities. Is this the case when it comes to water access, as well?

Answer:

Water challenges disproportionately affect the most vulnerable communities in America, even as water access is essential to prosperity. The Water Alliance's [Closing the Water Access Gap](#) (2019) at pages 11-12, reports that Native American households are 19 times more likely than white households to lack indoor plumbing; in addition, more than 2,000,000 Americans live without basic access to safe drinking water. Rural communities, unincorporated areas surrounding cities, and Tribal lands in particular lack water and wastewater infrastructure.

- b. How could increased funding for municipal water conservation measures benefit these communities?

Answer:

Increased funding for municipal water conservation is one important component of ensuring that all people have access to clean, safe, and affordable water service. A secure water supply is a fundamental building block of any community's economic vitality. As described in The Water Alliance's [An Equitable Water Future: National Briefing Paper](#), (2017), at 35-48, and its companion [Water Equity Clearinghouse](#), advance planning and local engagement can maximize the community and economic benefits of water infrastructure investments. Water utilities can act as place-based anchor institutions that leverage water investments for local employment and career pathways, business development and contracting opportunities, neighborhood improvements, and for building the community's climate resilience in the face of drought.

Questions from Representative Napolitano

- 1) Reclamation's Title XVI program has spurred investment in water reuse projects supplying water for nearly four million people each year. Despite this success, the program has a reported backlog of more than \$1 billion in eligible or approved water recycling projects.
 - a. Are you familiar with that backlog? If so, can you describe the benefits of reducing that backlog and investing in more water recycling projects?

Answer:

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, and more recently capped at \$20 million. Congress has directly authorized 53 Title XVI projects, and 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.

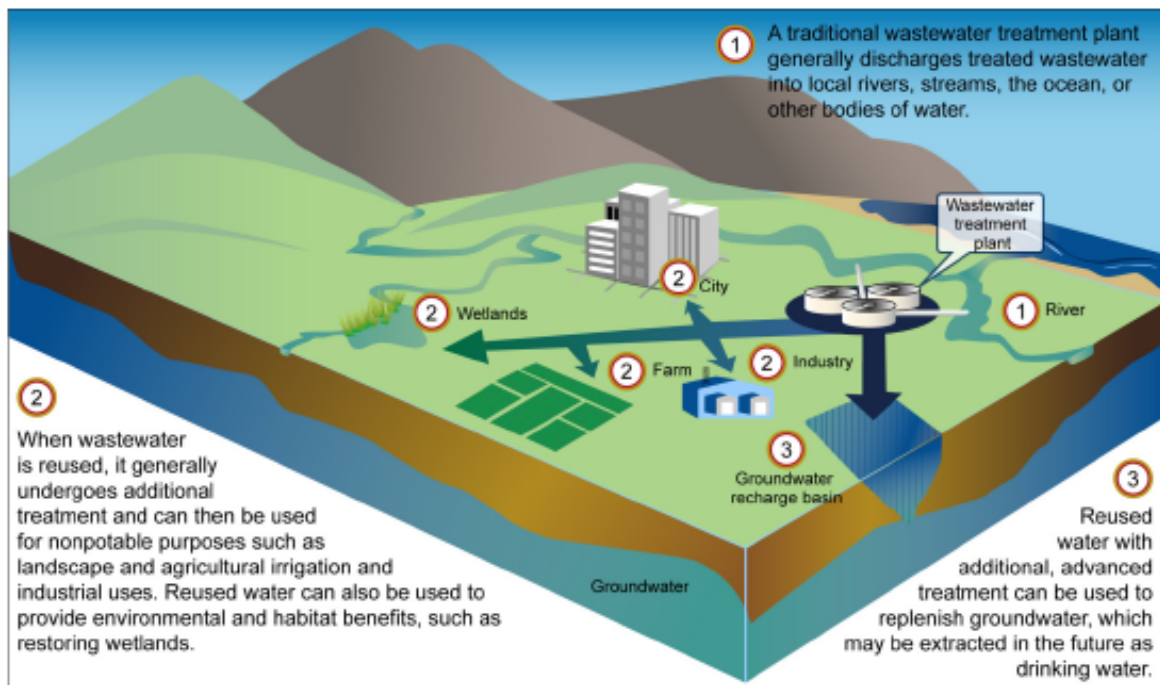
Relying on Reclamation data, the Congressional Research Service’s [Report 46471](#), *Federally Supported Projects and Programs for Wastewater, Drinking Water, and Water Supply Infrastructure*, at 13 (July 30, 2020) estimated that the “backlog of remaining federal funding needed to construct the 107 authorized Title XVI projects (*i.e.*, both ‘traditional’ and WIIN Act authorized projects) exceeded \$1 billion.”

The Government Accountability Office’s [GAO-19-110](#) Report, *Bureau of Reclamation: Water Reuse Grant Program Supports Diverse Projects and is Managed Consistently with Federal Regulations*, (December 2018), at page 14, cited Environmental Protection Agency 2012 findings that only 7-8% of municipal wastewater was being intentionally reused in the U.S. In coastal regions, the reuse of municipal wastewater does not pose the same potential to adversely affect the water supply of downstream users as inland discharges. The GAO Report, [GAO-19-110](#), at page 13, cited 2012 findings of the National Research Council of the National Academies that reuse of coastal municipal wastewater discharges could provide up to 27% of municipal water supply.

Figure 3 from the GAO Report illustrates the uses of Title XVI water recycling and reuse projects, such as these examples:

- Southern California’s Eastern Municipal Water District’s Title XVI project helped build water reuse infrastructure, including “purple pipe” delivery infrastructure for reused water, pumping stations, and storage tanks. The reused water irrigates sports fields, golf courses, parks, school grounds, and medians, reducing its reliance on water piped in from external sources.
- Del Puerto Water District’s Title XVI project provides reliable, “drought resistant” irrigation water to approximately 45,000 acres of farmland in California’s San Joaquin Valley that had been subject to water shortages.
- California’s coastal Watsonville Area Water Recycling Title XVI project irrigates high-value crops such as strawberries, other fruits and vegetables, and flowers, built when groundwater over-drafting led to saltwater intrusion that made groundwater unusable. The reduction in groundwater pumping through the Title XVI project helps prevent further saltwater intrusion into the groundwater aquifer.

Figure 3: Typical Uses for Reused Water



Source: GAO analysis of information from reports on water reuse. | GAO-19-110

- 2) My bill, the Water Recycling Investment and Improvement Act (H.R. 1015), permanently reauthorizes and boosts funding for this successful program. In your opinion, does increased funding for Title XVI represent a sound investment for the federal government?

Answer:

Title XVI projects are sound, federal investments for three reasons:

First, the federal share of a Title XVI project requires a 75% non-federal cost-share from the project sponsor. This leverages federal funding and ensures a strong fiscal commitment from the project sponsor.

Second, Title XVI projects are strategically deployed in areas where water security is at risk due to extended drought or over-appropriated water supplies. This means that Title XVI projects help create solutions for water supply under some of the most difficult, water-limited circumstances in the West.

Third, Title XVI projects create a sustainable, “drought proof” source of new water supply because it relies on re-use of wastewater rather than relying on unsustainable sources such as groundwater pumping from already over-tapped aquifers, or piping water in from other water-short basins.

Questions from Representative Matsui

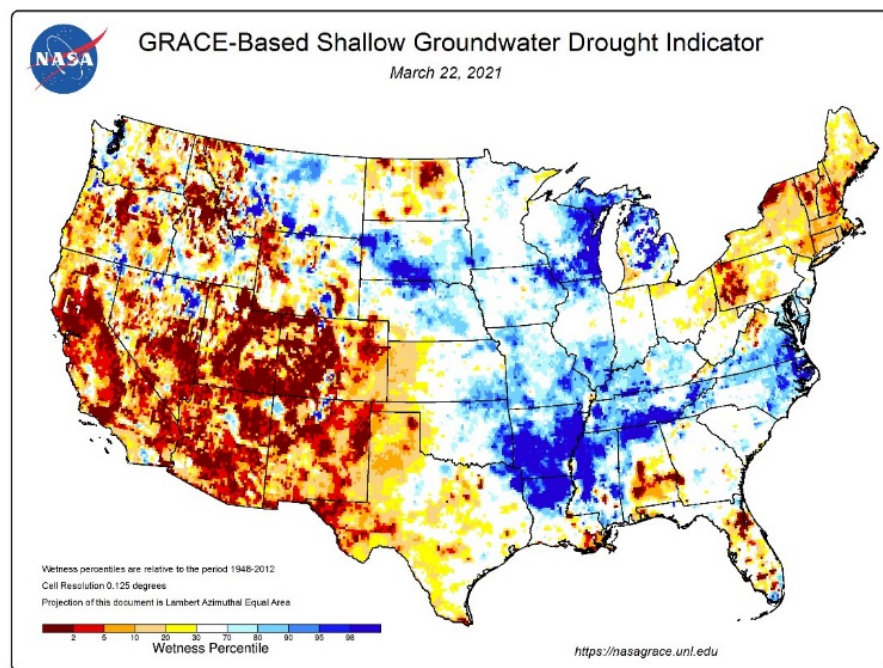
In Sacramento, I have been working with the City and Regional Water Authority on the Sacramento Water Bank, which will increase the region's storage and recovery capacities by more than fifty percent. Recently, I helped secure nearly nine hundred thousand dollars to begin its groundwater modeling. Similarly, the Sacramento Area Flood Control Agency is proactively looking at creative ways to increase capacity for flood protection during severe weather events while providing water for groundwater recharge and improving aquatic habitat.

Dr. Ziemer, as you mentioned in your testimony, the combination of a warming climate, long-term drought, and population growth threatens the viability of rivers critical to people, fish, and wildlife. My district experiences some of the most severe flood risk challenges in the country.

- 1) What solutions should Congress prioritize to help manage increasingly frequent and severe drought and how could groundwater banking or aquifer recharge be a solution to climate change related water shortages?

Answer:

Until recently, the United States has relied heavily on groundwater pumping to bridge the gap between water supply and demand. Groundwater overdraft, however, is becoming common as regulation of groundwater pumping lags behind the drivers of new groundwater development, such as drought's impact on surface water supply and growing demand for cities, towns, and agriculture. NASA tracks groundwater and soil moisture drought indicators, and updates conditions weekly at <https://nasagrace.unl.edu/>:



As shown in the March 22, 2021 update, groundwater supplies across the West are vulnerable to drought. New groundwater pumping, while still favored by such programs as the Bureau of Reclamation's Drought Program under WaterSMART in drought-prone regions, is not a sound federal investment in the absence of balanced regulation. Simply put, unsustainably-managed groundwater pumping does not contribute to long-term, sustainable water use.

New approaches to water management and innovation around investment in western water infrastructure are favoring the incorporation of natural infrastructure. Natural systems are cost-effective ways to convey and store water. This is particularly true in response to the growing need to protect people and property in the face of climate change and extreme weather—from extended drought to floods. Natural infrastructure water “storage” solutions include such approaches as aquifer recharge and optimizing floodplain water retention. These solutions mimic natural riverine or hydrologic processes. Moreover, there has been significant progress in quantifying the relative costs and benefits of natural infrastructure, such as the Morales, *et al.*, (2019) development of a [Natural Infrastructure for Aquifer Recharge Financial Calculator](#), designed for decision-makers in Mexico's Fondo de Agua Metropolitano de Monterrey (Monterrey Metropolitan Water Fund). In the Sacramento Valley, the [Conservation Strategy](#) for the Central Valley Flood Protection Plan (CVFPP) outlines an ambitious scope of work for multi-benefit projects to restore riverine processes and increase flood protection.

Fortunately, the recent Consolidated Appropriations Act for FY2021 ([Public Law 116-220](#) at Division FF, Title XI, §1106), included new congressional authorization for the Bureau of Reclamation's WaterSMART program to fund such natural infrastructure water “storage” solutions as aquifer recharge and floodplain water retention, supplementing Reclamation's existing authority under WaterSMART to promote groundwater banking. Congress should direct supplemental funding to these climate-resilient solutions to drought and flood-risk reduction.

2) What are the benefits of investments in watershed health and natural infrastructure?

Answer:

Drought resilience and flood-risk reduction start with intact hydrologic processes and healthy forest conditions at the landscape scale. This 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. Trout Unlimited (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.

TU's experience across hundreds of watershed restoration projects is that these projects are job creators. Academic economic research bears out TU's on-the-ground experience. In addition to the works cited in TU's written testimony, this University of Oregon [study](#) found that investment in natural infrastructure is especially good for the rural economy: every \$1 million invested in natural infrastructure creates 15-24 jobs, and \$0.90 of every dollar actually stays in the local economy.

Last year, Congress authorized additional funding for the Bureau of Reclamation's Cooperative Watershed Management Program and added a seat at the table for representatives of disadvantaged communities in watershed groups supported by the program.

- 3) How will more diverse participation in these watershed groups benefit western water management?

Answer:

The Consolidated Appropriations Act for FY2021 ([Public Law 116-220](#) at Division FF, Title XI, §1107), specifically directed that disadvantaged communities be sought out for participation in watershed health discussions supported by the Bureau of Reclamation's Cooperative Watershed Management Program. More diverse participation in watershed groups benefit western water management by focusing watershed groups' work on addressing the most pressing concerns of those living in the watershed. The Water Alliance's [Closing the Water Access Gap](#) (2019), at page 32, discusses the concerns of many people living in rural communities in California's Central Valley, where many residents' groundwater "wells are contaminated with nitrates and bacteria from farm and dairy runoff, arsenic, uranium, industrial chemicals like hexavalent chromium, or pesticide ingredients like 1,2,3-Trichloropropane." Watershed groups with diverse participation are the front lines for improving watershed health, including these serious water quality concerns.

- 4) As the western states continue to face drought, why are Cooperative Watershed projects useful?

Answer:

TU has deep experience in grappling with water security in the West. As western states face increasing periods and intensities of drought, locally-driven solutions responsive to the needs of all water users in a basin are going to be the sources of innovation and collaborative problem-solving. The Bureau of Reclamation's Cooperative Watershed Management Program (CWMP) is one of the few programs that directly supports and promotes the dialogue and planning for collaborative, watershed-scale solutions. CWMP funding also helps bridge planning with projects. Recipients of CWMP Phase I planning grants have described the program as a "godsend" for its ability to support and fund staff positions,

organizational work, and watershed group development. The projects resulting from this multi-stakeholder dialogue and planning are often then supported by financing based on public-private partnerships. They also present the opportunity for using and advancing the best science, technology, and tools applied to water management. Finally, these watershed-scale, locally-driven solutions often result in the development of a portfolio of projects addressing watershed health and flow restoration, reliability of irrigation water supply, Tribal water rights, and security of municipal or community water supply.

The Teton River in eastern Idaho provides an example of how CWMP Phase I planning grants lead to successful Phase II project funding that benefit all water users and the environment. A combination of private and public funding facilitated by a CWMP Phase II grant allowed the [Friends of the Teton River](#) to implement a pilot program to increase groundwater recharge and late season base flows in the Teton River. 2019 was the first year of the project and saw an increase in base flows and an estimated 10,000 acre-feet of aquifer recharge; the project continued in 2020 with expanded participation. The project changes irrigation practices by mixing spring flood irrigation—which recharges the aquifer—when water is abundant with summer sprinkler irrigation when water becomes more scarce. Friends of the Teton River received a Phase I CWMP grant in 2013 to form the Teton Water Users Association and the Phase II aquifer recharge project grew out of the “truly collaborative process” of bringing together stakeholders to form this group.

Questions from Representative González-Colón

- 1) In your testimony you argue that investing in watershed restoration projects is key to building resilience. You also list a number of existing federal programs that support these efforts, including NOAA’s Community-Based Restoration Program.

In Puerto Rico, the Community-Based Restoration Program has supported locally driven projects to restore endangered corals and seagrass beds damaged by Hurricanes Irma and Maria, as well as efforts to stabilize unpaved roads to reduce polluted runoff draining into the ocean.

- a. Can you briefly discuss the importance of supporting locally driven programs such as NOAA’s Community-Based Restoration Program? In your opinion, and based on your organization’s experience, why has this program been so successful and how can Congress strengthen it?

Answer:

In Trout Unlimited’s (TU’s) experience, creating locally-driven, multi-stakeholder partnerships to implement voluntary restoration projects bring people together to find solutions that work for everyone. NOAA’s Community-Based Restoration Program has been an important partner in this work. These projects create habitat benefits for imperiled salmon and steelhead, but also create ways for built infrastructure to work in harmony with important riverine processes and tidal habitats.

From Puerto Rico to California, the Community-Based Restoration Program has contributed nearly \$203 million to more than 2,180 coastal habitat restoration projects since its inception in 1996. These projects have restored more than 92,000 acres of habitat and opened more than 4,120 stream miles for fish migration. NOAA's [Restoration Atlas](#) displays nearly 30 years' worth of habitat restoration work across NOAA's programs—spanning wetlands, rivers, oyster beds, coral reefs, and more.

One of the reasons that NOAA's Community-Based Restoration Program, in particular, is so successful is that NOAA staff provide specific project support integrated with the agency's broader species-recovery work. In the words of Mary Ann King, TU project manager for the successful [Mill Creek Dam Fish Passage Project](#) in the Russian River basin, "We couldn't do this work without NOAA staff, period. The staff I work with are some of the most competent, skilled, savvy, and creative problem-solvers that I know, and we make an incredible team for fisheries recovery."

TU's Ms. King explains:

"NOAA staff participate in almost all phases of a project, especially for the programmatic coastal instream flow work we do, and for the most complex project work. They often sit on our Technical Advisory Committees, such as the Russian River Coho Water Resources Partnership; they provide a critical sounding board for project prioritization, permitting pathways, and funding strategies; they assist in permitting; they often provide funding for some of the most critical project phases that are hardest to fund; and sometimes they even volunteer their time to assist in post-project fisheries monitoring. The restoration community's ability to utilize NOAA's permitting tools, such as programmatic biological opinions and consistency determinations with California's Coastal Development Permits, is huge. Most critically, NOAA staff are often able to connect funding with projects and to 'unstick' projects in ways that we cannot (e.g., providing letters of support for water rights changes, working with the Army Corps to keep project permits moving, etc.). The NOAA Restoration Center's Joe Pecharich was part of all these project phases in our partnership on the Mill Creek Dam Fish Passage Project. Joe was one of the people who first identified the project as a priority, worked with us to get it funded from multiple sources, worked with us through the many permit challenges it presented, and was critical to its success."

NOAA and TU have had a partnership spanning over 20 years, with multiple projects along California's North Coast, and also in Maine and Alaska. NOAA has provided over \$28 million in restoration dollars to TU projects, and TU has brought over \$10 million in non-federal match. Ms. Anna Halligan, TU's North Coast Coho Project Manager, is stewarding a multi-stakeholder, partnership-driven initiative along California's northern coastline. Ms. Halligan echoes Ms. King's experience, explaining that "with NOAA staff, TU has been able to expedite the design time, quickly secure permits, and conduct additional monitoring that may not have been possible otherwise, for such projects as the Eel River's [Lawrence Creek](#) coho salmon restoration partnership."

In short, Congress can strengthen NOAA's successful Community-Based Restoration Program by expanding *both* its staff capacity to provide technical assistance *and* its funding to implement projects. It is this combination of the Program's ability to fund projects as well as work with partners to get the projects done on-the-ground that makes the Community-Based Restoration Program unique.