# WHY WE NEED TO STORE MORE WATER AND WHAT'S STOPPING US

# **OVERSIGHT HEARING**

BEFORE THE

SUBCOMMITTEE ON WATER, WILDLIFE AND FISHERIES

OF THE

# COMMITTEE ON NATURAL RESOURCES U.S. HOUSE OF REPRESENTATIVES

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# OVERSIGHT HEARING ON WHY WE NEED TO STORE MORE WATER AND WHAT'S STOPPING US

Tuesday, March 28, 2023 U.S. House of Representatives Subcommittee on Water, Wildlife and Fisheries Committee on Natural Resources Washington, DC

The Subcommittee met, pursuant to notice, at 2:16 p.m., in Room 1324, Longworth House Office Building, Hon. Cliff Bentz [Chairman of the Subcommittee] presiding.

Present: Representatives Bentz, McClintock, Radewagen, LaMalfa, Boebert, Duarte, Hageman; Huffman, Peltola, Magaziner, and Porter.

Mr. BENTZ. The Subcommittee on Water, Wildlife, and Fisheries will come to order.

Good afternoon, everyone. I want to welcome our witnesses, Members, and our guests in the audience to today's hearing. The Subcommittee is meeting today to hear testimony on why we need to store more water, and what is stopping us.

Without objection, the Chair is authorized to declare a recess of the Subcommittee at any time.

Under Committee Rule 4(f), any oral opening statements at hearings are limited to the Chairman and the Ranking Minority Member. Therefore, I ask unanimous consent that all other Members' opening statements be made a part of the hearing record if they are submitted in accordance with the Committee Rule 3(0).

Without objection, so ordered.

I now recognize myself for an opening statement.

# STATEMENT OF THE HON. CLIFF BENTZ, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. BENTZ. The purpose of today's hearing is to talk about storage of water. And many people, I have noticed, here in the eastern part of the United States don't understand that the western part of the United States is an arid and dry region, and that about 78 million people living within it have to, for the most part—Seattle excluded—store water to get through the spring, summer, and a portion of the fall months. This is a necessity for most of those 78 million people.

There are some, and if you read *Cadillac Desert*, you would discover that folks have asserted water storage is bad and irrigation is worse. I would suggest that that particular approach has been proven incorrect, and that many of the problems that are suggested in that 30-year-old book have been appropriately addressed.

The one thing that has happened that is of serious concern is the increased, not-anticipated demands on stored water. So, for those

of us who have been in this space for a long time, we recognize that, originally, the instream interests were ignored, and thus, when water was stored, the anticipated use was generally for three or four purposes: hydro, agriculture, flood control. Over time, the purposes of that stored water have been expanded to include instream interests, tribal rights, and other new demands.

Without commenting upon the nature or quality of those demands, I will simply say that they are real, and they need to be taken into account. This means that the original storage approach has been necessarily modified to include a lot of uses that weren't previously contemplated. So, of course, we need to store more water.

The challenge, of course, is finding out how to do it. And most of us who have studied how water is stored in the West understand that it is extraordinarily expensive to put in a new reservoir. It is extraordinarily expensive to raise the height of some, although I think the calculus today is changing.

In other words, in the past, 100 years ago, folks went to the Federal Government and pointed out, if we are going to settle out here in the West, the Federal Government was going to have to help, and the Federal Government did. And the reason it did so was to make sure that people who chose to live out here could actually make a living. And if you go back and read the congressional minutes of the original Reclamation Act, you will find that the focus was on making sure that people could make a living out here.

So, that is the foundation for the original investment. But now the challenge is, in constrained-spending times, how do we pay for increased water storage if we are going to raise the height of a dam, or if we are going to use some of the other techniques?

Then that brings me to the other techniques, and some of our witnesses today will be talking about how much water we could generate in upper regions of our watersheds if we just better managed our forests. So, we have ongoing studies in different states to determine how much water would be saved if we did a better job of removing, let's say, the 1,000 stems per acre, and reducing it down to that which forestry experts tell us we should have; how much water could we save if we had appropriate places for snow to rest, as it waited to melt; how much can we generate in the upper regions by preserving the snow and the snowpack in the watersheds better.

One of the challenges that we have, of course, in any water situation is that, just when drought is overwhelming, you get 65 feet of snow in the Sierra. And so, all of a sudden, everyone thinks the problem is over and it is time to move on. That most assuredly is not the case, as we will hear testimony regarding what is happening in the Central Valley.

And we will have some focus upon aquifer storage, which I think is probably the most likely, and both financially and readily available, means of storing water. So, we are going to be talking about that also today, and I welcome that kind of dialogue. It happens that we will be holding an off-site hearing in the Central Valley soon, and I look forward to having these discussions.

It is important today that we recognize this is an oversight hearing. I hope the discussion will lead us to solutions that work for all of the people that now need this stored water.

I left cities out; I shouldn't have. There are literally millions of people now reliant upon stored water. So, I think it is extraordinarily important that this hearing be successful today.

With that, I will stop my opening statement and ask the Ranking Member, who I recognize, to speak for 5 minutes.

# STATEMENT OF THE HON. JARED HUFFMAN, A REPRESENTA-TIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. HUFFMAN. Thank you, Mr. Chairman. Good afternoon, everyone. Today's hearing has a title that poses a rhetorical question: What is stopping us from storing more water?

And the answer that my Republican colleagues offer boils down to a very familiar scapegoat, if you have followed their work in the Natural Resources Committee in recent years. They suggest that, even though Western states like California have built the world's largest system of dams over the past century, capable of diverting and storing millions of acre-feet of water, we could build a lot more if we just didn't have to comply with those troublesome environmental laws like NEPA.

And in the case of the Klamath Basin, where it is more complicated than somebody proposing a new dam, the suggestion is that the shortages and hardships that are impacting everyone in that basin, all stakeholders, Upper Basin, Lower Basin, the suggestion is that all of that would be manageable if it wasn't for that darned Endangered Species Act.

This week, they are scapegoating environmental laws for our water challenges. Last week, it was blaming NEPA for high gas prices, inflation, and pretty much everything but the common cold. Pick any issue that comes before this Committee, turn to Page 1 of the GOP playbook, and it says, "Trash our environmental laws." As the saying goes, when your only tool is a hammer, everything looks like a nail.

So, look, attacking environmental laws may be great politics in some places, but it is not a serious response to complex Western water challenges. And to claim that environmental laws are the reason that we don't have more storage in Western states requires you to ignore a lot of facts.

In recent years, my home state of California has added 6 million acre-feet of new surface and groundwater storage, all while foundational environmental laws like NEPA and the ESA were in place. That is real, wet water. It helped California recently get through the worst drought in recorded history.

The Interior Department has told this Committee that they are not aware of a single Reclamation dam that has ever been denied construction because of delays associated with environmental review. Interior does cite the high cost of new dams and a lack of cost sharing partners as the primary reason new dams that have in some cases been authorized by Congress, but never constructed. But it is not NEPA, and it is not the ESA.

The proposed Shasta Dam is a great example, one of the highest priority projects for some. But it is an illustrative example, because that project has had a completed environmental impact statement going all the way back to 2015. That is nearly 8 years ago, and yet it hasn't been built because it has no non-Federal cost share partner to help pay for it.

Now, in truth, Mr. Chair, the primary impediment to new dams is the enormous cost of these projects, and the inability of project beneficiaries to pay for them without massive government subsidies and the fact that water managers are finding cheaper, smarter, better ways to develop water supply resiliency. Why aren't large dams more competitive with these other solutions?

Well, numerous independent experts have told us nearly all the best dam sites were taken when the West built dams just about everywhere during the 20th century. The remaining proposed locations don't yield very much water in return for their multi-billiondollar construction price tag.

California alone has 41 million acre-feet of water storage, surface water storage. Virtually every major river and tributary in the state is already dammed. Our state water board will tell you that many of these rivers and tributaries are over-appropriated. That is why more and more water managers are turning to 21st century water infrastructure projects like groundwater storage, water reuse, recycling, water use efficiency, and, in some cases, desalination. These are projects that they deem to be viable, and in many cases they provide communities with drought-proof water supplies that don't depend on the whims of changing hydrology, hydrology that is changing because of climate change.

While water managers are trying to diversify their portfolios and pursue these cost-effective strategies, some of my colleagues just can't let go of the notion that we should focus almost entirely on big dams. And this stubborn mythology really can distract us from pursuing things that actually can be done, like the many water supply enhancement projects that are going to happen in the years ahead because of the record amount of money—\$8 billion—we invested in last year's Congress through the Infrastructure Investment and Jobs Act in Western water—a bill that, unfortunately, my Republican colleagues on this Committee voted against.

So, Mr. Chairman, I look forward to the conversation today. I am glad that we are going to be hearing about the principle of beneficiary pays, which has always been a very, very important principle for reclamation projects.

I yield back.

Mr. BENTZ. Thank you, Mr. Huffman. I will now introduce our witnesses: Ms. Tricia Hill, Klamath Water Users Association Board Member in Merrill, Oregon; Mr. Joshua Sewell, Senior Policy Analyst at the Taxpayers for Common Sense; Mr. William Bourdeau, Vice Chair of San Luis and Delta-Mendota Water Authority, Los Banos, California; and Mr. Andy Mueller, General Manager of the Colorado River Water Conservation District in Glenwood Springs, Colorado.

Let me remind the witnesses that, under the Committee Rules, you must limit your oral statements to 5 minutes, but your entire statement will appear in the hearing record. To begin your testimony, please press the talk button on the microphone.

We use timing lights. When you begin, the light will turn green. When you have 1 minute remaining, the light will turn yellow. And at the end of 5 minutes, the light will turn red, and I will ask you to please complete your statement.

I will also allow all witnesses to testify before Member questioning.

I now recognize Ms. Hill for 5 minutes.

# STATEMENT OF TRICIA HILL, BROAD MEMBER, KLAMATH WATER USERS ASSOCIATION, MERRILL, OREGON

Ms. HILL. Chairman Bentz and members of the Subcommittee, thank you for this hearing and allowing me the honor of testifying. My name is Tricia Hill, and I am here appearing for Klamath Water Users Association. I am blessed to work every day with my family, and proud to be a fifth generation Klamath Basin farmer.

I had hoped that my daughters would be the sixth generation of women in my family to farm in the Klamath Basin. But without a real commitment from the Federal Government to sustainable water use in the Klamath Watershed, I can't imagine they will ever see this future.

Although in many places, reclamation made the desert bloom, that is not so for my home. Two hundred years, two thousand years, two million years our farmland was under water. The Upper Klamath Basin is naturally a giant sponge filled with lakes and marshlands with the ability to store over a million acre-feet. A portion of these lands were reclaimed, resulting in the lands I am now blessed to farm, some of the richest farmland in the world.

The water, which once covered the surface of our farms, was stored in the winter and early spring by enlarging natural lakes such as Upper Klamath Lake. Our groundwater was recharged every year through the application of water for growing crops, crops that need less water to grow than would have ever evaporated from these historic lakes and marshlands.

That all changed in 2001. Since then, water that would have never left the Upper Basin has been taken and released for river flows, which literally leave our wildlife and our communities in the dust. Water which fed our ecosystems in the Upper Klamath Basin, replenishing soils, providing habitat, and growing food is now labeled project supply as the water delivered to historic lake beds and marshes only benefit agriculture. Meanwhile, the water being flushed downriver received the mantle of "environmental water," even though the flows required by NMFS were neither natural nor sound management of the environment in the Upper Basin.

For over 20 years, our air quality, our soil quality, our wildlife, our drinking water, and our economies are continuously sacrificed on the altar of the need to do something, regardless of how effective this something is. Our reality: If there is a problem, the fish agencies' go-to solution is to take water from the Upper Basin.

One hundred years ago, Reclamation built storage on the Klamath Project, which was paid for by farmers and ranchers, from Upper Klamath Lake, which is partially utilized, to Tule Lake and Lower Klamath Lake, which are completely dry. The problem is, between conflicting biological opinions for ESA lake suckers and downstream coho salmon, we cannot fill these natural storages during the winter, and we are prevented from using them during the summer.

We know fish populations and fish-based communities are hurting, too. We respect those communities and their very real concerns and values. But we have over 20 years of history showing regulating the Klamath Project does not and will not fix ailing fisheries that these communities depend on.

In the Klamath Basin, fish science has gone out the window. Water is now nothing more than a political game to see who could amass the most acre-feet from the investment in our project supplies. Winning has become the goal, instead of the actual success for species and our communities.

As a member of the agricultural community, I will tell you we feel targeted and devalued. We are struggling to explain to our children why raising food has become a thing to be ashamed of, and why the promises made in the Klamath Hydrologic Settlement Agreement by Federal, state, and tribal governments to address our agricultural community's needs have been forgotten.

In short, there are no winners, only losers. KWUA urges this Subcommittee to take a hard look at how stormwater is being managed by Reclamation in the Upper Basin.

In the Klamath, this is not an issue of environmental laws. It is an issue of not following the law. The details and decisions that are going in the Upper Basin would quite literally shock you. It should embarrass the entire government that Federal agency discussions over water for endangered species in the Klamath Basin sound more like used car lot negotiations instead of scientific discussion.

It is my hope and KWUA's goal to engage in collaborative dialogue and problem solving that honestly addresses all the important interests in the basin. We have stood ready to do so since the expiration of our prior settlement efforts in 2016. We in the Klamath Project still believe in a shared future, where all Klamath Watershed communities are successful, period.

On the behalf of the farmers and ranchers in the Klamath Project, I thank you for the opportunity to testify before you today, and I am happy to answer any questions you might have.

### [The prepared statement of Ms. Hill follows:]

#### PREPARED STATEMENT OF TRICIA HILL, FARMER, ON BEHALF OF KLAMATH WATER USERS ASSOCIATION

Chairman Bentz, Ranking Member Huffman, and Members of the Subcommittee, thank you for this important hearing and for allowing me the honor of testifying before this Subcommittee.

My name is Tricia Hill. I am a farmer, and work in partnership with my parents, my uncle, my brother, and my sister.

I am appearing on behalf of Klamath Water Users Association (KWUA), where I am a board member and past President of the Board of Directors. KWUA is a nonprofit corporation, formed in 1953, whose members are irrigation districts who are contractors of the United States Bureau of Reclamation's (Reclamation) Klamath Project. Our members use water from the Klamath River and Upper Klamath Lake.

I would like to bring the Subcommittee's attention to Reclamation's management of Upper Klamath Lake, the Klamath Project's main storage reservoir, and the Klamath River, and the impact of this management on farms and ranches, and the communities in the Upper Klamath Basin and specifically the Klamath Project area. For producers in the Klamath Project, the issue is less a matter of developing more stored water, and more a matter of being stopped from using stored water. In fact, we are prevented from using water that inundated our lands thousands of years ago. That land, which includes farms and critical national wildlife refuges, is being dried up by today's federal water policy.

#### **The Klamath Project**

As you consider issues of the Klamath Basin, I urge that you not think of the Klamath Project as an irrigation project that grew out of drying up rivers. Although in many places Reclamation has "made the desert bloom," this is not so for the Klamath Project.

Two hundred years ago, two thousand years ago, and two million years ago, much of the area we now farm was under water. It was lakebed and marsh, fed by flow from the Klamath and Lost Rivers that spilled into these lakebeds. The idea behind the Klamath Project was to use the very same water that was normally on the lands; that water would be stored in other places (reservoirs) and then applied for irrigation during the spring and summer.

This vision greatly contributed to why the Klamath Project was one of the first federal water projects authorized after the passage of the Reclamation Act. In addition, the area has extremely fertile soils, natural topography to facilitate the efficient movement of water, and lakes that could be used as natural storage reservoirs.

This view was expressed by Charles Walcott, Director of the U.S. Geological Survey, testifying that "the feasibility of this project from an engineering standpoint is beyond question and it is also one of the cheapest projects" that Reclamation had investigated up until that time.<sup>1</sup> The reason for Walcott's optimism was in part due to the fact that Upper Klamath Lake "could be utilized as a storage reservoir for the irrigation of a large body of land, approximating 300,000 acres lying almost equally in Oregon and California."<sup>2</sup>

Congress agreed with the potential benefits of the Klamath Project, passing the legislation necessary for its construction. The first deliveries through the Project began in 1907. Shortly after, a dam was constructed at the outlet of Upper Klamath Lake, providing controlled storage of water to ensure adequate irrigation supplies for the Project.

Even though those who designed the Klamath Project did not have our technologies, their planning was remarkable. Evaporation and evapotranspiration from the then-present areas of open water and marsh was a greater amount of water than what our crops consume today. In plain terms, under current conditions, even when every acre is irrigated, less water is consumed on the land than was consumed historically in the natural or "pre-Project" condition of the region.

For several generations, the water supply for the Klamath Project was considered more than adequate for multiple uses. Communities were built; first, by early European settlers, whose vision and energy continue to be sources of amazement. Later, veterans of World War I and World War II were awarded homesteads in thanks for their service. In the latter half of the twentieth century, Hispanic families joined these immigrants, and are valued, prominent members of our communities.

Two highly valued federal wildlife refuges were also reserved when the Klamath Project was constructed. They are: Lower Klamath and Tule Lake National Wildlife Refuges (NWR), managed by the U.S. Fish and Wildlife Service. It is fitting that Project facilities are the sole means for delivery of water to these refuges, as the waterfowl and other wildlife that grace the Project landscape do not distinguish between the public and private lands they call home.

As time passed, local irrigation districts eventually took over operation and maintenance of most Klamath Project facilities. The size and role of the local office of Reclamation steadily diminished to the point, in the early 1980s, when Reclamation seriously contemplated transferring responsibility for the remaining facilities to the districts and effectively closing shop.

#### Storage in Upper Klamath Lake in Relation to Food

Before addressing what has transpired to the Klamath Project over the last three decades, I want to explain briefly some details of the Project's primary water source. Upper Klamath Lake is the largest body of fresh water in Oregon and constitutes one of the greatest natural reservoirs in the world. Only a small dam was required to beneficially store the water in this reservoir rather than having it flood Tule Lake

<sup>&</sup>lt;sup>1</sup>H.R. Rpt. No. 3764, 58th Cong., 3rd Sess. (Jan. 20, 1905).

 $<sup>^{2}</sup>Id.$ 

and Lower Klamath in the late winter and spring. As envisioned by engineers in 1905, that stored water is returned to these lands over the growing season.

The total capacity of Upper Klamath Lake is more than 650,000 acre-feet, of which approximately 500,000 acre-feet is stored in a 6-foot operating window, sometimes known as "active" storage. That is, within each foot of water stored in Upper Klamath Lake there is approximately 80,000 acre-feet of water. That amount of water can irrigate 40,000 acres of farmland in the Klamath Project for a full year.

To break that down further, an inch of stored water in Upper Klamath Lake can

fully irrigate well over 3,300 acres for a full year. For further context, a single acre of irrigated land in the Klamath Project can produce 55,000 pounds of potatoes, 7,000 loaves of bread, or 20,000 bags of peppermint tea.

Applying simple multiplication, an inch of water in Upper Klamath Lake equals 23 million loaves of bread. And, assuming the average American consumes about 50 loaves of bread in a year, then an inch of water feeds over 460,000 Americans.

We could perform a similar exercise with pounds of potatoes or cheese, heads of garlic, jars of onion powder, and on and on. Food grown in the Klamath Project can be found in every grocery store and restaurant in America. This is all thanks to the vision of Reclamation engineers, the infrastructure paid for by Klamath Project water users, and the work we all proudly do.

# **Events Since the 1990s**

For nearly 100 years, the Klamath Project received full water deliveries-all that was needed or at least very close to that—every single year. Farms and waterfowl thrived. This was the Project of my childhood. Fields thick with golden heads of wheat. Skies filed horizon to horizon with vees of migrating geese. My fingernails caked with earth after helping my dad "check spuds." My sister's laugh when we stalked the ditches for turtles and frogs. However, in the last 20 years, that has changed as a direct result of actions taken under the federal Endangered Species Act (ESA).

In 1988, Lost River and shortnose suckers were listed as endangered under the ESA. In response, Reclamation began managing water levels in Upper Klamath Lake for the purported needs of these fish to survive, thereby limiting water deliveries to the Klamath Project.

A decade later, a segment of coho salmon, the population that spawn in tributaries in Oregon and California, were listed as threatened under the ESA. In response, Reclamation added more pressure to the Upper Klamath Basin and began managing flows from Upper Klamath Lake into the Klamath River-40 miles downstream of the Klamath Project-for the purported needs of these additional species of fish.

What occurred since that time could (and should) fill volumes, but undeniably one fact is true—interests advocating on behalf of the river and the lake have effectively negotiated for all the water they have demanded. This is so even though the demands do not correspond with the historic reality of our basin.

For the Klamath Project, the initial shock was 2001, when irrigation supplies were cut off for the first time ever. No water was delivered until late July, at which time the damage was already done. Any crops that had been planted withered and fields quite literally blew away. Family farms were bankrupted, and communities were devastated.

Following 2001, the National Academy of Sciences was asked to weigh in on the Federal agencies' decisions with respect to water management and whether or not they were justified. In a series of thorough reports, a blue-ribbon panel of scientists found that the decision to shut off water to the Klamath Project was not justified, that best available science did not support the lake levels and river flows that had been required, and that federal agencies in effect needed to look elsewhere-beyond the Klamath Project-to find solutions for ESA-listed fish

American taxpayers have now spent hundreds of millions of federal dollars on researching suckers and salmon and the reasons for their decline. Even more money has been spent for the sake of "restoring" their habitat. But the sad fact is even though the dollars are gone and countless biological opinions have been written by the fishery agencies, and irrigation and refuge supplies have been severely curtailed, no one can say "we have addressed the factors that are actually limiting fish populations.'

Dikes have been breached and thousands of acres of farmland flooded. Dams that existed for almost a century have been ripped out (with more potentially to come). Thousands of productive acres of world class farmland have gone out of production in the name of restoration, with negligible results. There were attempts made by many—led primarily by farmers and tribes—to come up with a durable solution. A settlement agreement was signed in 2010, which ultimately expired in 2015 due to lack of congressional authorization.

The fish agencies' inability to truly identify what is hurting fish means they only have one knob to turn. So, they have fundamentally changed the operation of the Klamath Project, and all of the people and wildlife that live here suffer from those changes.

As a farmer, I understand there are things I can control and things that I cannot control. I cannot change the weather, so I tweak my tillage or fertilizer plan to adapt. The difference is that as a farmer I pay the cost of those actions. The fish agencies cannot control ocean temperatures or invasive species preying on juvenile suckers, so they reduce Klamath Project water deliveries in an attempt to compensate. It does not matter so much if redirecting irrigation water will or will not help the fish in the river or the lake, it only matters that they can control "something" that could affect fish. As a result, we have a decades-long history of decimating the Klamath Project and refuges to increase water supplies for ESAlisted species, and no record of success in helping those species.

Our air quality, our wildlife, our drinking water, and our economies are all sacrificed on the altar of the need "to do something" regardless of how effective that something is. Our reality is that if there is a problem, the go-to solution is regulating the Klamath Project, because that is something that can be done. It is not fair, but more importantly, it is not effective.

Meanwhile the species have apparently continued to decline, notwithstanding the water already being set aside for them. The response, rather than reconsidering the agencies' approach, has been to instead simply allocate more and more water to the fishes' purported needs.

The dysfunctional operations plan controlling the Klamath Project is a dramatic example of the problem. In my reality, every drop of water that enters Upper Klamath Lake is allotted to one of three "buckets"—lake, river, or Project. The Project's "bucket" basically only gets water that spills over or out of the other two. In effect, the Project gets the scraps. This system completely contradicts the historic reality of water in the Upper Klamath Basin and ignores that the water that ends up "down river" is only available because of the infrastructure that was built for an irrigation system and paid for by Klamath Project farmers and ranchers.

Instead of recognizing the needs of people and wildlife up and down the Klamath, the federal government micromanages every single drop of water in the Upper Klamath Basin based on dates on a calendar providing zero flexibility. The whole process of consulting on the effects of the Klamath Project and its obligations under the ESA is now a competition over who can get more water—at the expense of another party. Victories are now measured in acre-feet allotted, not fish or habitat recovered.

The last three years in particular have shown this disconnect. During the time period 2020 through 2022 combined, there was roughly 2.1 million acre-feet of inflow to Upper Klamath Lake, of which 1.7 million—or 80 percent—was released for river flows. Comparatively, less than 300,000 acre-feet—or 15 percent—was available for farms and refuges within the Klamath Project.

Breaking those figures down further shows how storage operations in Upper Klamath Lake have been completely turned upside down. During each of the last irrigation seasons, Reclamation has released more water from Upper Klamath Lake to provide flows in the Klamath River than has flowed into Upper Klamath Lake during the same time period. The year 2021 provides a vivid example.



From a regulatory perspective, Reclamation is required to ensure that the effects of its actions not result in jeopardy to coho salmon in the Klamath River. We cannot understand why Reclamation must release more water than nature provides in order to make sure that it is not *causing* jeopardy by the operation of the Klamath Project. The regulatory problem here is that the ESA has devolved into a competition for water rather than a process that addresses Reclamation's impacts.

In other words, purporting to be acting under the ESA the fish agencies are taking water that for the past century was used to grow food for tens of thousands of families across America and provided important habitat for migrating birds and wildlife on the Pacific Flyway and re-allocating it for no apparent benefit to listed fish.

#### At What Cost?

For me, the definition of cost depends on which hat I am wearing.

As a child of the Klamath Basin, the cost that makes my heart hurt is that the pair of sandhill cranes in my valley are gone. The frogs and water snakes that populated my yard near the irrigation canal are nowhere to be seen. Due to the agencies focusing solely on a few species, hundreds of other species in the basin have literally been left in the dust.

As a mother, the cost is that I constantly fret about the dust from dried up fields and wildlife refuges and the effect that has on my daughter's asthma. I warn my girls about the length of their showers and running the washing machine because I know our well—dependent on recharge from irrigation water—is going dry. Reallocating water that historically would have resulted in lakes and marshes to the river is destroying our air quality and the water table that my community relies on for home use.

As an employer, the cost that keeps me awake at night is the impact to my employees. Like all the farmers in the Upper Basin, my employees are my family. Although I am grateful for the efforts of federal and state agencies and members of Congress advocating for financial assistance in the Klamath Basin, that is not enough to do more than cover the mortgage. I do not want to let my employees go, but without water there are no jobs for me to give them. By forgetting the needs of our Upper Basin communities, the current system is driving good people out of the basin who deserve a home and a future.

As a business owner, the cost that is the ultimate reality is the economics. Historically, a normal water supply for the Klamath Project from Upper Klamath Lake was between approximately 350,000 and 500,000 acre-feet. In other words, beyond the food production value, an acre-foot of water has historically generated between 1,000 and 1,400 for the economy of the Klamath Basin.

Klamath Project irrigators have repaid their respective allocated shares of the costs incurred by the federal government in constructing the Project. Since then, farmers have funded and taken over the operation and maintenance of most Project facilities. We also pay money to the United States government to cover its share of the costs—in advance—of the facilities that Reclamation still maintains. Over the years, we have paid hundreds of millions of dollars for the upkeep of Project facilities so that we can continue to serve their intended purpose, which is helping grow food for this nation and provide for healthy habitat in the wildlife refuges in the basin.

As a result of requirements of the ESA, the Project supply for farms and refuges of the Klamath Project has been insufficient in eight of the last ten years, idling tens of thousands of productive agricultural acres each year and costing the economy more than two hundred million dollars annually. Hundreds of businesses have been lost; families have been put into hardship; and generations of farmers and our employees are hurting.

These impacts are felt and shown throughout our communities. County revenues to pay for police, fire, and other essential services are diminished. Schools close. Grocery stores and restaurants close. Movie theaters close. Community pools are emptied, and parks go unwatered, leaving trees and open space to dry up and die. People and families begin to move away.

Had these sacrifices somehow improved the situation for the fish, helping them recover, perhaps I could explain to my neighbors why we hurt. Sadly, I have no explanation, other than that the political environment is not sensitive to producers or agricultural communities.

Suckers in Upper Klamath Lake continue to fail to recruit new adults to the population, meaning in effect that no juveniles are surviving to an age where they could reproduce. Hundreds of millions of larvae are born and can be found around the lake each spring and early summer but they are effectively gone by fall. There has been three decades of research on this problem, and we still do not have a good explanation of why. Yet the Klamath Project and its people and wildlife continue to suffer.

For salmon, since the institution of specified flows in the Klamath River, disease conditions have flourished. Disruption of the historical flow regime and loss of peak flows to maintain year-round minimum flows has caused an explosion of the annelid worms that cause *C. Shasta*, a parasite that can be lethal to juvenile salmon.

We hope federal decision-makers may finally (even if reluctantly) coming to grasp that more water in the lake or the river does not equal more fish. I am reminded of a passage in one of the NRC's reports that states:

Whereas professional judgment is essential for successful ESA implementation where site-specific information is absent, its use is more problematic when initial judgments fail empirical tests. Reversal of an initial judgment may seem to be an abandonment of duty or a principle, but it is unrealistic to expect that all initial judgments will be proved scientifically sound.<sup>3</sup>

The fish, the federal agencies that manage them, the people that harvest these fish—they do not pay these costs. They do not help maintain and fix Klamath Project facilities. They do not even pay for any of the costs to maintain and operate Link River Dam, which in the last 20 years has been operated almost exclusively for the purported benefit of the fisheries.

#### Conclusion

Please visit my farm and my community. I work hard to make it a place that both people and wildlife want to be. Come to my home and you will see sustainable farming practices, employees treated with respect and dignity, snow-capped mountains, and fertile soils. Other countries, and other regions in America, cannot compare to the conditions we have to grow food.

You will also see two of our country's first wildlife refuges, which former Interior Secretary Stuart Udall once described as our nation's most important areas for waterfowl and shorebird conservation—85,000 acres in the heart of the Pacific Flyway.

Those resources are being jeopardized and ultimately deserted. Farms in some cases have gone without water for more than three years. The refuges, the remnants of an ancient Pliocene lake, are dry for the first time in *millions* of years. Birds are disappearing, as is other wildlife. And the food that this basin used to grow is being lost. Food prices are not just going up; grocery store shelves are literally going bare. We built the Klamath Project's water storage decades ago, but that investment is now being squandered for no good scientific reason.

KWUA urges this Subcommittee to take a hard look at how water is being managed in the Klamath Basin. The details and the decisions being made that I could not go into detail in my testimony would, quite literally, shock you. Fish science has gone out the window as apportionment of Klamath Basin water has become a tool of politics, not wildlife and fisheries management. The backbone of this nation's food supply and food security—irrigated agriculture in the West—is being broken for no good reason.

Despite these grave concerns, there can be a better future. We are mindful that we are not the only communities, and we are latecomers compared to our Native American neighbors. We want their fish, and their communities to flourish. Our issue, however, is that destroying my community and our wildlife will not recover the important fisheries in peril. It is my hope, and KWUA's goal, to engage in collaborative dialogue and problem-solving that honestly addresses all the important interests in the basin. We have stood ready to do so since the expiration of our prior settlement efforts in 2016. Unfortunately, we do not perceive that other parties have the same objectives, and the overall atmosphere in the basin is toxic. We welcome any assistance of the Subcommittee in turning this situation around.

On behalf of the farmers and ranchers in the Klamath Project, thank you for the opportunity to testify before you today, and I am happy to answer any questions you may have.

Mr. BENTZ. Thank you, Ms. Hill. I now recognize Mr. Sewell for 5 minutes.

<sup>&</sup>lt;sup>3</sup>National Research Council. 2004. Endangered and Threatened Fishes in the Klamath River Basin: Causes of Decline and Strategies for Recovery. Washington, DC: The National Academies Press. (p. xvi.) https://doi.org/10.17226/10838.

# STATEMENT OF JOSHUA SEWELL, SENIOR POLICY ANALYST FOR TAXPAYERS FOR COMMON SENSE, WASHINGTON, DC

Mr. SEWELL. Good afternoon, Chairman Bentz, Ranking Member Huffman, and members of the Subcommittee. Thank you for the invitation to testify at today's hearing. I am Joshua Sewell, Senior Policy Analyst at Taxpayers for Common Sense, a national, nonpartisan budget watchdog based here in Washington, DC.

Today's hearing has a very appropriate title. You don't have to be a resident of a Western state to understand not just the desire, but the need to store more water. For me there is no debate on that point.

But the second part of the title is critical: What is stopping us? I would argue that one major factor is that, despite being very valuable, water is often not appropriately valued by both consumers and managers. Creating and improving tools to better price and better utilize this valuable resource is critical to both the region and the country's economic future.

To quickly answer the question, the greatest challenge now is finding projects that allow us to obtain and manage water at a price we can afford. What is stopping us is a lack of beneficiaries willing to bear the high costs of those new projects.

Now, as a fiscal watchdog, it is incumbent upon me to remind the Committee and observers of our current fiscal environment. This year's Federal budget deficit is projected at \$1.4 trillion. Deficits are projected to average \$2 trillion annually over the next decade, all added onto the \$31.5 trillion in total U.S. debt through today. That fiscal path is not sustainable.

Knowing this, leadership, especially in this chamber, has committed to addressing our nation's deficit problem, and at TCS we strongly support leadership's commitment. This commitment and scrutiny, however, must be applied to every part of the budget, including Federal taxpayer support for Western water, support that has been ongoing for more than a century.

Since the Bureau of Reclamation's creation in 1902, a veritable dam-building spree has unfolded. Now, nearly every major river and tributary in the West is dammed multiple times. California alone, as has been stated, has 1,400 dams. A complex, critical, and in many ways, miraculous network of water capture, storage, and distribution, much of it federally financed, sprawls across the West.

And the truth is, for the most part, those sites where the engineering, economic, and electoral calculations penciled out, dams have been constructed. What we are left with now are a few multibillion-dollar projects where the economics just don't work. When the numbers are crunched, many proposed reservoir expansion or construction projects provide too little water and too few reasonable locations to make them affordable for the beneficiaries who would be responsible under law for the bill.

Now, facing an uncertain future from a more dynamic climate and, as has been stated, an unsustainable debt burden, now is the time to follow the fiscally prudent path of not putting all our eggs in one basket or, in this case, all of our hopes for water in one model of storage.

How, then, do we store more water in a manner that is fiscally responsible, while not shortchanging competing public priorities seeking to benefit from that limited water? By following a few principles.

Fix it first. We have already invested billions of dollars in storage and transport infrastructure as Federal taxpayers, and I think it is important that we need to fix and improve that infrastructure where it still serves a purpose.

We also must expand beyond traditional on-river reservoirs. Offstream reservoirs, projects that plan for scaled storage, flood plain restoration that encourages aquifer recharge, these can often provide for new and more stable opportunities for water storage.

We also must have projects that work in normal and drought years. Stormwater capture, wastewater recycling, agricultural efficiency, and reuse, these can often produce water for use at much lower costs per acre-foot, compared to new, large reservoirs.

But in the end, it also comes back to this—as a reminder that we are a budget group—is the government adequately pricing a scarce resource?

Most of what people seem to talk about is Uncle Sam opening his checkbook and building more projects. But under reclamation law, it is the beneficiaries who are supposed to pay—or rather, repay. And I don't hear a lot of beneficiaries opening their wallets to cover the true cost of these big, expensive projects.

So, in the end, I think what is stopping us is that too many people look at the days of old and think a costly, big dam paid for by taxpayers, that is the solution. But we can't afford to focus on just one remedy, no matter how familiar, easy to comprehend, or historically prevalent. Instead, we must ensure all the water storage tools in the 21st century toolbox are being utilized, that beneficiaries pay their financial share for projects, and that we increase the return on these critical investments.

I thank you for this opportunity, and I look forward to any questions you may have.

# [The prepared statement of Mr. Sewell follows:]

# PREPARED STATEMENT OF JOSHUA SEWELL, SENIOR POLICY ANALYST, TAXPAYERS FOR COMMON SENSE

Good afternoon Chairman Bentz, Ranking Member Huffman, and members of the Subcommittee. Thank you for the invitation to testify at today's Subcommittee hearing, Why We Need to Store More Water and What's Stopping Us. I am Joshua Sewell, Senior Policy Analyst at Taxpayers for Common Sense, a national nonpartisan budget watchdog group based in Washington, DC.

You don't have to be a resident of a western state to understand not just the desire, but the need to store more water. Access to sufficient quantities of quality water is critical to the economic future of an important part of our country. As I will document in my testimony, as the populations and economies of western states have grown, more storage has been added in recent decades. I will also document many of the reasons that even more has not been developed. But I also think the second part of the hearing's title is critical—what is stopping us. I would argue that one major factor is that historically, despite being very valuable, water has not been appropriately valued by both consumers and managers. Creating and improving tools to better price and better utilize western water will be critical to both the region and the country's economic future.

Before getting into the particulars, it is important to remember the fiscal environment in which this important hearing is being held. The federal deficit for fiscal year 2023 is currently projected to be \$1.4 trillion. This deficit and all future deficits, which are currently projected to average more than \$2 trillion annually over the next 10 years, will be piled onto the current federal debt of nearly \$31.5 trillion. Our nation has reached its statutory debt limit with the Secretary of the Treasury employing extraordinary measures to avoid a catastrophic default on our debt obligations. Leadership, especially in this chamber, has committed to addressing our deficit problem, and as a budget watchdog we support this commitment.

It is in this environment that we must develop public policy, whatever the challenge being addressed. It has long been TCS's position that our fiscal challenges are so great that no part of the federal budget can be held sacred. Lawmakers must scrutinize every spending program, tax policy, or revenue generator, no matter how popular or familiar, to ensure taxpayers are getting the best return on our federal investments and from our federal policies.

As such, this scrutiny rightfully applies to policies, procedures, and projects intended to secure water in western states.

Obtaining and managing water in the public's interest at a cost that is fiscally responsible is today's primary challenge. The recent droughts and long history of the west show that western water users need to use available water better. As federal taxpayers are in the midst of a potential generational debt crisis, we must ensure efforts to address this challenge produce the most return on federal investments. To get those projects approved and delivered in a timely manner, those investments must serve the greatest number of public interests, not one particular user or another. Projects to increase storage capacity in the west are one potential tool. Other tools include more efficient use of water currently available, maximizing efficiencies from existing, at times under-maintained federally financed infrastructure, and prioritizing future investments on projects that increase stability and predictability in water availability through diversification of storage. When it comes to ensuring the economic future of western states, we must follow the fiscally prudent path of not putting all our eggs in one basket, or all of our hopes for water in one model of water storage.

# Background

Since the creation of the Bureau of Reclamation in 1902 federal taxpayers have invested significantly in the water infrastructure of western states.

Western water users have benefited tremendously from various forms of federal financial assistance. Under reclamation law beneficiaries of projects are required to pay for the capital costs of their share of benefits from those projects, with the period for repayment having been extended from an original 10 years to now typically 40 years. Besides having a long repayment period, the clock for these payments does not start until the project is completed. History has shown that projects can deliver water for decades without being deemed complete (or substantially complete) and thus not starting the clock on the bulk of repayment costs. And at least for agricultural beneficiaries, there are no interest calculations, meaning these users are effectively treated to a no-interest federal loan lasting decades.

Federal assistance has been extended to project elements beyond initial construction that are vital to water users. Loans for the construction of agricultural water distribution systems, water service contracts, and authorization to provide relief from payment for users unable to pay their full obligation are additional ways various users have benefited from federal assistance.

Quantifying the exact dollar amount these benefits have provided is difficult, but it is in the billions of dollars easily.

Importantly federal investments in western water infrastructure are not simply an artifact of history, they continue to this day. In addition to the annual appropriations the Bureau of Reclamation receives, billions of dollars were included in recent legislation, such as \$8.3 billion in the Infrastructure and Jobs Act.<sup>1</sup> While a common criticism from some is bemoaning the lack of new reservoir construction since the late 1970s, there has been investment in projects to increase water storage. It just does not always take the shape of large, traditional reservoirs.

does not always take the shape of large, traditional reservoirs. Federal taxpayers can and should continue to provide federal assistance to western states to help their water management, but that assistance cannot be unlimited or have too narrow a focus on one set of beneficiaries.

# Fiscally Responsible Solutions for Storing More Water

The critical task now is to figure out how to store more water in a manner that is fiscally responsible and does not short-change competing public priorities seeking to benefit from that water. There are several principles that, if followed, will provide the opportunity to develop these fiscally responsible solutions.

<sup>&</sup>lt;sup>1</sup>United States Bureau of Reclamation, www.usbr.gov/bil, accessed March 25, 2023.

# **Price Water Correctly**

First, we must price water correctly. It's a basic rule in economics that when resources are priced incorrectly, inefficient use occurs. In other words when some-thing is cheap, we don't value it. While a lot of responsibility in rate setting is rightfully done at the non-federal level, there is a federal responsibility in pricing water correctly. Project economic evaluations must be based on sound, credible science and assumptions on both the project cost and potential benefits side. When reality-based project costs are calculated we must strengthen the beneficiary pays principle for water projects. People and institutions manage their resources more responsibly when it is their money that is at risk. We need to ensure all parties are pulling their weight. Congress needs to make the statutory and regulatory changes to improve water markets by first charging closer to market rates for water. Finally, project planning and development must be guided by the fact that multiple parties and types of beneficiaries have a valuable stake and legitimate interest in water management decisions. All these parties must be provided with a seat at the

negotiating table. The Los Vaqueros project from the Contra Costa County Water District (CCWD) is one example of how new surface storage infrastructure can be built. In 1997 CCWD completed 100,000 acre feet, later expanded to 160,000 acre feet, of new offriver storage at the Vaqueros Reservoir and over the years undertook a number of other projects to update and enhance water intake and delivery infrastructure. While this project was financed with water district bonds, it can serve as a model for engagement and use of federally funded projects. As the General Manager of the district testified, by having broad stakeholder involvement from the beginning and exploring project alternatives in a way that sought to serve all these stakeholders to avoid or mitigate environmental harms, the parties ultimately settled on the project that made the most economic sense with the option of scaling up if future partners and economic opportunities developed.<sup>2</sup>

#### Fix-it-First

Second, fixing existing infrastructure to maximize its performance is one of the most cost-effective ways to increase storage and efficient use of available water. As I mentioned earlier, federal taxpayers have already invested heavily in western water infrastructure. Even if new large reservoir storage projects are constructed, there must be adequate infrastructure to manage and deliver the water they capture. Deficiencies that reduce the capacity to use already available water, such as the 33 mile sag in the Friant-Kerr Canal that reduced water flow by nearly half, should be a primary focus. While this particular deficiency is on pace to be fixed by September of next year,<sup>3</sup> many other opportunities exist. Lawmakers must not repeat the all too often folly we see of new projects crowding out critical maintenance.

# **Expand Options Beyond Traditional On-River Reservoirs**

Focusing solely on construction of new and bigger reservoirs is too narrow and fiscally irresponsible. The challenge of securing enough water to meet our needs is too important and too complex to tackle with most of our tools left inside the toolbox. The tendency to focus almost exclusively on one solution, new and bigger reservoirs, has the unfortunate effect of ignoring many other tools that can be a part of the solution. It is also fiscally irresponsible to gamble the West's economic future on an effort focused solely on capturing more water in a historically wet year

California alone has 1400 dams. After aggressive 20th century dam building, the truth is that those sites where the engineering, economic, and political calculations pencil-out the easiest, are mostly built. The vast majority of rivers already have dams and adding another doesn't generate more water; in fact, in some cases it will capture water that was going to be captured by another dam. A dam isn't a divining rod. And while there is a lot of attention being paid to the enormous recent precipitation events, you can also look at the Colorado River Basin and see enormous empty reservoirs. We can't cost-effectively build storage to capture all the rain, nor should we. Attempting to do so would result in excess unused storage capacity most years and an underinvestment in tools capable of providing water in years of average precipitation or even drought.

 $<sup>^2</sup>$ Water for Our Future and Job Creation: Examining Regulatory and Bureaucratic Barriers to New Surface Storage Infrastructure: Hearing before the Subcommittee on Water and Power of the Committee on Natural Resources, 112th Congress (2012) (Testimony of Jerry Brown, General Manager, Contra Costa Water District. $^3$ SJV Water, "Temperance Flat Dam Put on the Shelf Indefinitely," GVWire, July 1, 2020. Accessed March 25, 2023.

That's why a more diverse and diversified strategy is needed.

# **Plan for Dry Years and Wet Years**

Developing a suite of policies that work in all types of years, by utilizing all costeffective options for water storage will be key. New dams to produce new reservoirs may be an appropriate tool. But numerous projects undertaken over the last 40 years show they are not the only tool, and sometimes, there are better tools. Again, new reservoirs are not off the table. But other more innovative options are likely to produce quicker, more stable returns, at a cheaper cost to all involved. That is, we should increase the use of 21st century appropriate approaches, including water reuse and recycling, water-use efficiency, and groundwater storage.<sup>4</sup> As an example, the Los Angeles Department of Water and Power is working to clean up contaminated groundwater in order to use the aquifer to store water, including recycled water and urban storm water.<sup>5</sup> These types of projects often have lower capital costs than large reservoirs and can produce water for use at much lower costs per-acrefoot. The current historically wet year in California should also prompt policymakers to adopt effective water management techniques that pre-date the Bureau of Reclamation. Floodplain restoration, temporary flooding of agricultural fields, and mountain meadow preservation and restoration are all tools that can be used to cost-effectively manage and capture precipitation often while recharging quickly draining aquifers.

### Conclusion

There are numerous opportunities to more efficiently use western water. Reservoirs, even new ones, may be an appropriate tool. But they can't be the only tool. I think what's stopping us, is that too many people look at the days of old and think a costly big dam paid for at taxpayers' expense is the solution, when in reality, it is a lot of measures like reuse, conservation, floodplain restoration to allow groundwater recharge, off-stream storage, and yes, charging closer to market rates for water that is solution.

Thank you again for the opportunity to testify, and I look forward to your questions.

Mr. BENTZ. Thank you.

I now recognize our next witness, Mr. Bourdeau, for 5 minutes.

# STATEMENT OF WILLIAM BOURDEAU, VICE CHAIR, SAN LUIS AND DELTA-MENDOTA WATER AUTHORITY, COALINGA, **CALIFORNIA**

Mr. BOURDEAU. Chairman Bentz, Ranking Member Huffman, and members of the Subcommittee, it is an honor to testify before you today. My name is William Bourdeau. I am here with 26 years of experience in business, agriculture, and water infrastructure policy which informs my testimony.

My family took public service very seriously. My grandparents are buried here in Arlington National Cemetery. My grandmother was in charge of the infectious disease ward in the South Pacific during World War II, and my grandfather earned the Distinguished Service Cross and two Purple Hearts on the beaches of Okinawa. I joined the Marine Corps when I was 17 years old, committing myself to service, serving our nation. I have continued my dedication to public service, serving on multiple boards that support the communities where I live and work.

<sup>&</sup>lt;sup>4</sup> Natural Resources Defense Council, "The Untapped Potential of California's Water Supply," une 10, 2014. https://www.nrdc.org/resources/untapped-potential-californias-water-supply,

<sup>&</sup>lt;sup>5</sup>Nelson, Barry. "New Water Storage Strategies Serve California's 21st century Needs," The New Humanitarian. January 25, 2018. https://deeply.thenewhumanitarian.org/water/community/ 2018/01/25/new-water-storage—strategies-serve-california's 21st-century-needs. Accessed March 25, 2023.

I am here testifying on behalf of the San Luis and Delta-Mendota Water Authority. The Water Authority is a very diverse group of members from a variety of municipalities to the largest contiguous wetlands in the western United States, and also some of the most effective and efficient farmers in the world.

The economic and social effects of not having enough water are real where I live, and these communities are some of the most impoverished. The human suffering is real. Adequate and reliable water supplies are essential to public health, the environment, and the economic vitality of the San Joaquin, San Benito, and Santa Clara Valleys. The Water Authority's member agencies are doing their part to conserve. Our farmers have spent billions of dollars putting drip irrigation in the system.

We are blessed in the state of California. We have very fertile soil. We have a Mediterranean climate, and we are blessed by the Sierra Nevadas that captures a tremendous amount of snow and rain, particularly in years like this. And we are able to apply that water precisely when the plant needs it. It not only saves water, but it increases our productivity.

Our municipal water users have been working hard to conserve, as well, and they have deployed smart devices to help conserve both indoor and outdoor water use, and they have invested in recycling.

If we want California agricultural production and the associated food security that accompanies it, we need to meaningfully invest in our infrastructure. I believe that it is a national security issue. As a Marine, I understand if you cut off someone's supply lines, they become vulnerable. And if we rely on foreign countries for our domestic food supply capability, we become vulnerable.

Right now, California's climate has swung from drought to flood. We need to take advantage of these flood flows. We need to make sure we can divert the water. We need the permits, and we need to capture and store much of this water in the aquifers that have been depleted.

This year, we have been blessed with lots of snow and rain, and the reservoirs have been filling up. According to the Bureau of Reclamation, one single day in March, they were able to capture 145,000 acre-feet of water in Shasta Reservoir. But with additional storage capability, more could have been achieved. On that same day, we lost about 200,000 acre-feet of water out to the ocean.

We need storage and better conveyance capacity for agricultural water supplies, for drinking water, for recreation, and for the environment. If we do not build more storage and invest in efficient water infrastructure, we will continue on the pendulum of extremes of abundance and scarcity.

We shouldn't have to wait for a crisis to make good decisions. We should be proactive. We should be making investments in this infrastructure. We should find ways to streamline the costs. I understand these projects can be very costly, but the longer we wait, the more expensive they get. We also need to make sure that Congress takes a hard look at how these regulations are structured, and making sure that we can get these projects built in a timely fashion. In conclusion, while it is difficult to compare ourselves to the generations that came before us, we have the chance to implement meaningful change that will enhance the quality of life for generations to come. We need to identify the best projects and avoid overstudying, undue delays, and build a better system. My hope is that today's critical discussion on the future of the West and water infrastructure will pave the way for such transformative steps and a better future for generations to come.

Thank you very much, and I look forward to answering any questions.

# [The prepared statement of Mr. Bourdeau follows:]

# PREPARED STATEMENT OF WILLIAM BOURDEAU, VICE CHAIR, SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

California's water infrastructure system has not kept pace with needed investments to capture, increase, and distribute water supply. This need for increased investment is vital not only to provide greater conveyance and storage capacity for water users in more arid parts of the state but also for the beneficiaries of California's \$50 billion agriculture economy.<sup>1</sup>

Chairman Bentz, Ranking Member Huffman, and members of the Subcommittee, thank you for allowing me to testify today. It is a great privilege.

My name is William Bourdeau, and I bring over 26 years of expertise in business, agriculture and water infrastructure policy to the Subcommittee. At the age of seventeen, I proudly joined the Marines, committing myself to serving our nation. Even after leaving the armed forces, I have continued my dedication to public service and the communities where I live and work.

I hold several key leadership positions, including Vice Chair of the San Luis & Delta-Mendota Water Authority, Chair of the California Water Alliance, and Chair of the Valley Future Foundation. Additionally, I serve on the board of directors for the Westlands Water District, American Pistachio Growers, Family Farm Alliance, and the Agriculture Foundation of California State University, Fresno. Today I am testifying as the Vice Chair of the San Luis & Delta-Mendota Water Authority ("Water Authority").

My grandparents were part of the Greatest Generation, a time when nearly every American made significant sacrifices for our nation. While it is difficult to compare ourselves to that generation, we have the chance to implement meaningful changes that will enhance the quality of life for generations to come. My hope is that today's crucial discussion on the future of the West and domestic food security will pave the way for such transformative steps.

# Introduction to Water Authority

The Water Authority is a public agency with its principal office located in Los Banos, California. It was formed in 1992 to serve two important roles: 1) to operate and maintain certain south of Delta Central Valley Project ("CVP") facilities, including the Jones Pumping Plant, the Delta-Mendota Canal ("DMC") and the O'Neill Pumping Plant; and 2) to provide representation on common interests of the Water Authority's member agencies. Most of the Water Authority's member agencies depend upon the CVP as their principal source of water. The Water Authority's member agencies serve water to approximately 1.2 million acres of agricultural lands within the San Joaquin, Santa Clara, and San Benito Valleys, nearly 2 million people in the Silicon Valley, and millions of waterfowl that depend upon nearly 200,000 acres of managed wetlands and other critical habitat within the largest contiguous wetland in the western United States.

<sup>&</sup>lt;sup>1</sup>Dubetz & Horton, Sharing the Cost: Accelerating Water Resilience through Infrastructure Finance in California, Milken Institute (2022). Available at: milkeninstitute.org/report/water-resilience-california-finance-infrastructure.

### The Water Authority Member Agencies have Invested Locally and Regionally; the United States, in Partnership with the State of California and Local Water Agencies, Must Do More

Those served by the Water Authority's member agencies are leaders in water conservation. Farmers have taken numerous steps to improve water use efficiency, with over 90 percent using measures such as laser leveling, employing computer aided drip irrigation, and utilizing global positioning systems. Municipalities have created rebate and incentive programs for outdoor and indoor conservation, the installation of water saving devices, graywater systems, and rainwater capture, in addition to significant investments in recycled water programs to reuse the same molecules of water multiple times.

Conservation alone is not sufficient to address the needs of all regions of California. The United States, in partnership with the state of California and local water agencies, must break what appears to be a never-ending cycle of planning and get to building—build new surface water storage, develop the facilities to increase groundwater storage, and improve how water in California is conveyed from places where they cause immense damage to where they can instead create tremendous benefit. This call for action is similar to the call that led to the initiation and construction of the Central Valley Project and State Water Project, among other water projects, in California—one where humanity harnessed the incredible power of nature to spread benefits throughout California, rather than simply leaving some regions subject to its destructive wrath.

The lack of meaningful investment in fundamental infrastructure over the past few decades, particularly water storage and conveyance, has compromised the ability of multi-purpose water projects to serve their diverse interests. People, environment, and businesses are suffering. The communities where I live, where I work—those served by the Water Authority's member agencies—are vulnerable. This vulnerability is of acute concern to me because many of the communities most negatively impacted by the lack of meaningful investment are some of the most impoverished regions of California. Simply put, adequate and reliable water supplies are essential to the public health, ecosystems, and regional economic viability of the San Joaquin, San Benito and Santa Clara Valleys. Prior generations recognized the importance of water development by constructing California's intricate water system, however, much of that infrastructure must be modernized, particularly in light of the hydrologic impacts of a changing climate.

The effects we see from the rapid change in hydrologic cycles—for example between the extreme dry conditions in 2021 and 2022, and the storms and flooding that California has been experiencing since last December—are stark illustrations that the State's water infrastructure is inadequate. This year, with new and improved infrastructure, California could have better controlled the water and held it for use during a time when water will be less plentiful; instead, much of that benefit has been lost and even worse, flooding has caused incomprehensible damage. Water infrastructure, and particularly storage, is a critical tool for resiliency in light of drought. Storage provides many benefits, including water supply for irrigated agriculture and drinking water for people. It provides flood protection, hydropower, and recreation. It also provides critically important resources for the environment, for example, by establishing cold water flows for fish and water for wildlife refuges. Given California's increasingly variable hydrologic cycle, the capacity to store water during times of high flows for beneficial use during dry periods may be the difference between economic and environmental viability and disaster. Farms, cities, industries, and the environment all benefit from the active management of water.

# Break The Planning "Do-Loop"

Federal and state laws and regulations are important to ensure the environment is protected. However, we have seen that the important benefits they provide have been weaponized to delay the implementation of projects, with great financial, socioeconomic, and environmental cost. California must move forward to construct new storage and conveyance projects and must make improvements to existing infrastructure without the undue delays that have plagued many of California's water infrastructure efforts over the last 40 years or so. We need to ensure the economic backbone of California is strengthened. We need to focus on the activities that support a more resilient and sustainable economy and environment for all of California. By stating—or restating—its intent, Congress can provide important leadership and direction.

### Surface and Groundwater Storage are Needed

Aquifer storage and recovery provides an important source of water for California. Indeed, many in California have been and will continue to utilize the plentiful water flowing through California's rivers and streams today to increase the quantity of water in groundwater basins and help them recover from significant pumping that occurred for the last few years. Those efforts, and even new ones, however, cannot reap the full benefits that Mother Nature can provided and has provided this year. Aquifer storage and recovery has its limits and thus surface water storage will continue to—must—play an important role in California's water portfolio. The current conditions in California best demonstrate that.

With a climate that tends to alternate between flooding like that caused by the atmospheric rivers we have seen this year and the two droughts that persisted for six years in the last decade, additional infrastructure could have yielded significant benefits. According to data from the California Department of Water Resources and U.S. Bureau of Reclamation, on a single day in March (March 13, 2023), the Bureau of Reclamation was able to add more than 145,000 acre-feet of water to the storage in Shasta Reservoir. The amount of storage is impressive—enough to supply up to 300,000 households with water for one year—but with additional surface storage capabilities, more could have been achieved. On that same day, approximately 200,000 acre-feet of water flowed out of the San Francisco Bay to the Pacific Ocean. One would think that some of that outflow could have been captured with no or limited impact to the environment. This example should render beyond debate the conclusion that California must improve its water infrastructure to become climate resilient, and surface and groundwater storage are critical components of reaching a more sustainable and viable future.

# The Investment is Warrented; Congress Can Help

California's economy, including its agricultural productivity, plays an important role in the local and national economies. Studies performed by noted economist Dr. Michael Shires have found that agriculture from just one of the Water Authority's member districts, Westlands Water District, contributes about 5 billion dollars per year to the California economy through direct and indirect economic effects. This economic engine accounts for over tens of thousands of jobs. California agriculture produces well over half of total U.S. production of almost every category of fresh fruit and vegetables consumed in the United States. Domestic food production is important for national security and generally produces higher quality food, applying more stringent environmental and labor protections, than many other countries.

The past two drought cycles in California have been very difficult for California's people, farms and its environment. Fortunately, California has recently been blessed with record or near record amounts of snow and rain. Unfortunately, several of the Central Valley Project storage facilities reached or are approaching operational capacity (unable to store water due to flood control limits). And, many reservoirs are projected to have limited capacity to store water when the snowpack melts later in the spring. As a result, a significant amount of water from the atmospheric rivers and snow pack will flow through reservoirs, not be stored, and thus not be available for beneficial use in years when nature provides less natural precipitation and snowpack.

This lost opportunity is especially frustrating in a time where many Water Authority member agencies have received a 0 percent surface water allocation in the prior two years. Moreover, in the last decade, those Water Authority members received water allocations below 20 percent seven times, including four years with no allocation, and only received above 75 percent or more twice, which continues to reinforce that California's water system is no longer able to provide the reliability necessary to support the demands placed on it. Rainfall and snowpack patterns are changing, and California's water management strategies must be responsive to this new reality.

Storms that started in December, which delivered much needed relief from dry conditions and restored reservoir levels, also provided more water than our system can convey and store in such a short time period, resulting in over 4 million acrefeet of outflow, more than is necessary to maintain Delta water quality and to support important ecosystem functions.

In an era of increasing uncertainty, we must advance long-term and sustainable solutions—we must protect and restore our critical infrastructure that serves as the backbone of California, we must increase our ability to store water during limited, but more extreme hydrologic events like those in January 2023, and we must improve the operational flexibility of our system so that we can adapt to the challenges presented by each water year. Increased groundwater storage is important but that alone will not meet the needs of California. The time to invest is now—we cannot allow this moment to pass without meaningful action to build water resilience for our communities, farms, and ecosystems.

We have not built a federal surface storage project in California since the 1980s. To put that in perspective, since 1980 the population—one component of demand on water—has increased by 15 million people. The construction of the Central Valley Project was a monumental and historic undertaking in California, however we cannot assume that a system built decades ago can fully satisfy current demands of residents, the crops that feed the nation and world, businesses, and the environment. We need to make investments in our water infrastructure that look forward and build more flexibility into our water management system. We need to significantly increase the amount of water that is stored on the surface and in the ground. If we do not do that, we will continue on the pendulum of extremes of abundance and scarcity. These storage methods need to be pursued together to be most effective; unlike what some have proposed, we cannot simply replace surface storage with groundwater recharge projects. Long-term water supply reliability for all regions in California and for the environment cannot be stabilized without additional surface storage and conveyance capacity.

If Sites Reservoir and the Los Vaqueros expansion project were completed, California would have an additional 1.6 million acre-feet of storage capacity today. This increased storage capacity would serve multiple beneficial uses-including 1) up to 54,000 acre-feet per year of water for millions of waterfowl that travel the Pacific Flyway each year and depend upon the largest contiguous wetlands west of the Mississippi delta, and 2) up to 300,000 acre-feet of water to help manage river conditions for at risk fish species. An additional project-the B.F. Sisk Dam Raise and Reservoir Expansion Project-would leverage existing construction work that is being undertaken as part of the B.F. Sisk Dam Safety Modification Project and raise the dam an additional 10-feet, creating approximately 130,000 acre-feet of water storage in San Luis Reservoir. The additional storage capacity would increase operational flexibility and water supply reliability for Water Authority member agencies. Congress needs to take a hard look at improving the regulatory processes for infrastructure projects, to ensure decisions on whether to construct them swiftly, especially in light of the significant federal investments that have been made in the Infrastructure Improvement and Jobs Act and the Inflation Reduction Act.

Congress must also look at the uncertainty in our system right now. The beneficiary pays principal is predicated on the assumption that a project sponsor incurs cost outlays at the onset of a proposed project and recoups those costs only after the project is complete and the benefits are accruing. However, when water project operations are highly uncertain, in large part as a result of litigation and the regulatory environment, like those experienced in California today, the project sponsor does not have the benefit of stability when making long term projections on major investments. Think of this in terms of a business investor: would you invest in a business where there is little certainty if the business could operate at 100 percent, 50 percent, or even 0 percent of capacity from one year to the next? We can and must do better to create the space where important investments in water infrastructure can be made with less risk.

# Conclusion

The past few years in California have proven very difficult for the Water Authority's member agencies. Although California has recently been blessed with record or near record precipitation, many people, many businesses, and much of the environment are still trying to recover from the impact of recent drought years. Unfortunately, for many, the precipitation that has fallen on California has been less of a savior and more of a disaster. Devastating floods and emergency evacuation orders are all too common. And, as history has shown, the next drought lies immediately head. That is why the hearing today is so important and topical: why are we unable to capture and store more of this water? There will always be extreme wet and dry periods in California. We need to avoid over-studying, undue delays, and build: build a system that can capture more water during wet periods so that we—the people, businesses, and the environment—have a sufficient water supply to avoid the devastating impacts of dry periods.

I again want to thank the Committee for allowing me to testify at today's important and timely hearing.

Mr. BENTZ. Thank you. With that, I now recognize Mrs. Boebert to introduce our next witness, Mr. Mueller.

Mrs. BOEBERT. Thank you, Mr. Chairman. It is my honor to introduce Andy Mueller, General Manager of the Colorado River Water Conservation District.

Prior to taking the helm at the Colorado River District, he spent 23 years in private law practice on the West Slope of Colorado. His work ranged across the breadth of critical Western Colorado topics: water, natural resources, land use, and community issues. For 9 years, from 2006 to 2015, he was Ouray County's Director on the Colorado River District Board, his last two as Board President.

Andy is a wealth of knowledge on water and forestry issues, and I couldn't be more thrilled that he made the trip to be here with us today in Washington, DC.

And with that, Andy, you have 5 minutes, and you may begin your testimony. Thank you so much.

# STATEMENT OF ANDY MUELLER, GENERAL MANAGER, COLORADO RIVER WATER CONSERVATION DISTRICT, GLENWOOD SPRINGS, COLORADO

Mr. MUELLER. Thank you, Representative Boebert. Thank you. Chairman Bentz, Ranking Member Huffman, and the other members of the Subcommittee. I appreciate the opportunity to speak here today with you.

On Colorado's Western Slope, water is everything. Our rivers form the backbone of our rural economy that depend on multigenerational farms and ranches, thriving recreational industries, and the environmental beauty for which our state is so renowned.

For 85 years, the Colorado River District has worked to protect the water interests of the communities of western Colorado. Melting snowpack, occasional rain, and the associated runoff from the Colorado's Western Slope provides 70 percent of the main stem of the Colorado River's entire natural flow. This water supports over 40 million people, 5 million acres of irrigated agricultural land, 2 countries, 30 sovereign tribal nations, 7 states, and 11 national parks.

Hotter-than-average temperatures over the last 23 years have diminished the flows of the Colorado River by 20 percent, and sound science tells us that we should plan for further significant reductions. We need to create both long-term and short-term solutions.

In the long term, one of the largest variables over which we have any control at all is the health of our forests and our ability to collect, filter, and convey water. In the short term, accessible and easily adaptable storage solutions mean that our communities, our agriculture, and our rivers can continue to thrive year to year.

First, I will address the long term. Snow is the primary form of Colorado River water storage, and our forests are, by far, the largest reservoirs in the Colorado River Basin. High-elevation forests, those over 9,000 feet in elevation, play an especially critical role in capturing, preserving, and filtering the water that is essential for the health and economic well-being of not only the Western Slope, but the entire Colorado River Basin. Our forest lands help sustain river base flows in the summer, when crops, boaters, and fish need water. As far back as the Organic Act of 1897, Congress expressly recognized the importance of watershed protection in the national forests. Just over 65 percent of all forest land in Colorado is federally owned, and right now current efforts to manage Colorado's forests are not keeping pace with the realities of a changing climate and hydrology.

Since 2000, the headwaters of our communities and the Colorado River have experienced back-to-back hot, dry, windy springs, and early summers. Heating results in dry soils and catastrophic wildfires in the heart of our most important watersheds.

In 2020, for example, Colorado experienced the three largest wildfires in the state's recorded history, all three in the same season and all three in the headwaters of the Colorado River. Studies indicate that fires will only get bigger and more severe. Without natural filtration of a healthy forest after a severe wildfire, sediment, ash, and other nutrients and chemicals flush directly into the rivers, requiring expensive infrastructure upgrades to the drinking water sources for 80 percent of our state's population.

We applaud the large-scale investments dedicated to forest health in the Bipartisan Infrastructure Law and the Inflation Reduction Act. However, these investments currently prioritize forested lands in the wildland-urban interface. Because the dollar value of man-made infrastructure is weighted so heavily in these decisions, the important headwaters of the Colorado River and the natural infrastructure and high-elevation forests are not receiving adequate funds to address the compounding threats they face. Preliminary conversations have begun to reallocate funding with this in mind, but we cannot underscore the urgency for fully supporting these efforts expeditiously.

Now let's talk about dealing with the short term, and the benefits and need for high-elevation, small reservoirs. On the western slope of the Rockies, we don't live below major reservoirs like Lake Mead and Lake Powell, which provide multi-year carryover storage for Colorado's lower-basin states. As mentioned earlier, the snowpack of our high-elevation forest is our largest reservoir.

And once the snow is gone, our largest storage bucket is too. By applying best practices developed over decades and informed science, we can use these small buckets, anywhere from 10,000 to 100,000 acre-feet, in strategic high-mountain locations to re-time the releases of water to mitigate the impacts of a warming climate. And to do so we can benefit both consumptive needs and nonconsumptive needs. We have numerous examples of this in our state, but, unfortunately, many of our stream systems are without high reservoirs in the high-mountain state locations, and do not allow us to achieve success in these areas.

I encourage you to direct additional Federal resources and bolster new and existing storage opportunities. But as important as funding, if not more, are the regulatory approvals that must be streamlined, and our Federal programs need to work efficiently and effectively.

Thank you very much for the opportunity to testify.

# [The prepared statement of Mr. Mueller follows:]

# PREPARED STATEMENT OF ANDREW MUELLER, GENERAL MANAGER, COLORADO RIVER WATER CONSERVATION DISTRICT

Chairman Bentz, Ranking Member Huffman, members of the subcommittee, thank you for the opportunity to speak with you today about these important issues.

My name is Andrew Mueller, and I am the General Manager of the Colorado River Water Conservation District. On Colorado's Western Slope, water is everything. Our rivers form the backbone of a rural economy that depends on multigenerational farms and ranches, thriving recreation industries, and the environmental beauty for which our state is so renowned.

For 85 years, the Colorado River District has worked to protect the water interests of western Colorado. We work every day to manage, conserve, develop and protect West Slope water on behalf of the state of Colorado and the citizens in the 15 Colorado counties that form the headwaters of Colorado River and its principal tributaries in the state.

Importantly, melting snowpack, occasional rain, and the associated runoff from within our District alone provides 65% of the natural flow of the mainstem of the Colorado River. When you include runoff from our sister conservation district to the south, the Southwestern Water Conservation District, snowmelt and runoff from Colorado's Western Slope provides for 70 percent of the River's natural flow.

The Colorado River is aptly referred to as the hardest working river in America, and its headwaters are vital to the health and future of the American Southwest. The high-elevation forests west of the Continental Divide capture the snow that becomes the water that supports over forty million people, five million acres of agricultural land, two countries, thirty sovereign Tribal nations, seven states and eleven national parks.

Hot temperatures over the last 23 years have diminished the flows of the Colorado River by 20%, and sound science tells us we should anticipate and plan for further significant reductions. Even in wet years, the river no longer reaches its natural mouth at the Sea of Cortez and legal claims to the Colorado River's water significantly exceed the average annual flow.

Thankfully, on the slopes across Colorado's high country, the snow-water equivalent of 2023 winter storms soared past the seasonal averages of the last thirty years—but if history tells us anything, we can't rely on that to continue. Colorado experienced a similarly robust snowpack in 2011 and 2019, but both followed closely on the heels of 2012 and 2020, both brutally dry years.

Managing a system where the only certainty is uncertainty means looking both at long term and short-term solutions. In the long term, one of the largest variables over which we have any control is the health of our forests and their ability to collect, filter and convey water. In the short term, accessible and easily adaptable storage solutions mean that our communities, our agriculture and rivers can continue to thrive year to year.

# I. Managing High-Elevation Forests to Support Healthy Watersheds

The Role of High-Elevation Forests as our Largest Reservoirs

The role played by high-elevation forests in capturing, preserving, and filtering water is critical not only to the health and economies of the Western Slope, but to the entire Colorado River basin. Forests above 9,000 feet in elevation are the most productive when it comes to collecting snowfall during the winter and releasing it throughout the summer, and the vast majority of these super-collector regions are on federally owned land. As the snowpack in those high-elevation forests slowly melts, it is filtered through soils, recharging groundwater, filling reservoirs, and flowing downstream to thirsty farms, ranches, cities, and industrial users. Snow is the primary form of Colorado River water storage, and our forests are, by far, the largest natural reservoirs of the Colorado River Basin—the critical natural counterparts to the built reservoirs of Lakes Mead and Powell.

Across the West, federally owned forested lands are the dominant water source, providing approximately 52% of the total water supply.<sup>1</sup> In the state of Colorado, specifically, 80% of residents depend on a water source which comes from high-elevation forests.

<sup>&</sup>lt;sup>1</sup>Liu, N., et al (2021). Forested lands dominate drinking water supply in the conterminous United States. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/ac09b0.

Our forest lands also enhance the drought resilience of irrigated agriculture and water-related outdoor recreation. They help sustain river base flows in the summer when crops, boaters, and fish need water. Well-managed forests and their supporting natural water infrastructure provide numerous additional public benefits, including preventing soil erosion, improving water quality, lowering water treatment costs, capturing carbon, and benefiting wildlife habitat and fisheries.

The economic impact of the clean, reliable water sources which depend on healthy forests cannot be overstated. According to a study in 2020, Upper Basin of the Colorado River in the southwestern United States supports municipal, industrial, agricultural, and recreational activities worth an estimated \$300 billion per year within the state of Colorado alone.<sup>2</sup>

#### Wildfire Impacts on Watersheds

Since 2000, the headwaters communities of the Colorado River have experienced back-to-back-to-back years of hot, windy springs and early summer heat, which have caused our snowpack to sublimate—or turn snow directly from its solid state to a gas-leading it to disappear into the atmosphere instead of melting and flowing into our rivers.

The multidecadal drought in the Upper Colorado River Basin has also brought on a historic soil moisture deficit that severely impacts runoff from snowmelt. Year after year, unusually dry soils from warmer than normal temperatures and a lack of moisture are absorbing more of the water that melts from our snowpack in the Rocky Mountains. As temperatures rise, moisture evaporates from our plants and soils, creating a massive water debt which comes due when snows melt, consuming water before it reaches the rivers and streams creating both quality and quantity problems for many municipalities who rely on high mountain streams for their water.

Higher temperatures and dryer conditions in recent years have also led to catastrophic wildfires that have laid bare large swaths of our forested lands in the heart of our most important watersheds. Take 2020 for example, when Colorado experienced the three largest wildfires in the state's recorded history-all in the same season. Recent studies project a 50 to 200 percent increase in annual area burned in Colorado by approximately 2050, compared to conditions of the late 20th century, based on projected warming of 2.5 to 5 degrees F.

Certain severe fires can create water repellent or "hydrophobic" soils. After these fires, rain events can flush ash, sediment, and nutrients into waterways and impact essential water infrastructure and water quality. Without that natural filtration of a healthy forest, sediment flushes directly into the river, requiring expensive infrastructure upgrades to drinking water sources. Chemicals and nutrients which would otherwise not have made it into the water also build up, leading to algae outbreaks and unhealthy water quality.

Watersheds and water infrastructure on both sides of the Continental Divide have been seriously impacted by wildfire, resulting in hundreds of millions of dollars in restoration and mitigation expenses in the Centennial State alone. Nationwide, the National Oceanic and Atmospheric Administration estimates that wildfires cost \$16.5 billion in 2020 and \$67.3 billion between 2016 and 2020.

Suffice to say, negative impacts on both water quality and quantity are widespread in the aftermath of mega-fires in the headwaters and downstream users, in this case, the 40 million who live in the Colorado River Basin, ultimately pay the price.

<sup>&</sup>lt;sup>2</sup>Hadjimichael, A., et al (2020). Defining Robustness, Vulnerabilities, and Consequential Scenarios for Diverse Stakeholder Interests in Institutionally Complex River Basins. *Earth's Future*. https://doi.org/10.1029/2020EF001503.

<sup>&</sup>lt;sup>3</sup>Dale et al., 2001; Westerling et al., 2006; Millar and Stephenson, 2015; Abatzoglou and Williams, 2016; Westerling, 2016). <sup>4</sup>Spracklen et al., 2009; Yue et al., 2013; Olivia L. Miller; et al, Journal of Hydrology, vol. 11, May, 2021.

### Funding Forest Management

Current efforts to manage Colorado's forests are not keeping pace with the realities of a changing climate and hydrology. In 2019, federal agencies (primarily the Forest Service and BLM) reported over 100 million acres of federal land at high risk of wildfire.<sup>5</sup> The Colorado Forest Action Plan recently identified 2.4 million acres of forested land in our state in urgent need of treatment to reduce wildfire risk and protect watersheds at an estimated cost of \$4.2 billion.<sup>6</sup>

In Colorado, just over 65% of all forest land is federally owned.<sup>7</sup> In our district alone, 67% of the lands are owned by the federal government, making organizations such as the United States Forest Service (USFS) and the Bureau of Land Management (BLM) critical players in the long-term health of our forests and the water resources that originate within them.

Intentional, well-funded forest management strategies based in science are one of the most critical tools to protect Colorado's headwaters landscapes. We applaud the large-scale investments dedicated to forest health in the Bipartisan Infrastructure Law and the Inflation Reduction Act. However, these investments are largely prioritizing forested lands within the wildland-urban interface. For example, although the USFS' 10-year strategy to address the wildfire crisis contains selection criteria such as critical watersheds, sources of drinking water, and habitats for native fish and wildlife, USFS priority landscapes in Colorado almost exclusively focus on forests located near Colorado's Front Range and urban core.<sup>8</sup> Because the dollar value of man-made infrastructure is weighted so heavily in these decisions, the important head waters of the Colorado River, natural infrastructure and highelevation forests are not receiving adequate funds to address the compounding threats they face.

While we appreciate the Forest Service's efforts to scale forest health treatments strategically, we also believe there is a moral and economic responsibility to take seriously the stewardship of our headwaters landscapes. Preliminary conversations have begun to allocate more funding with this in mind, but we cannot underscore the urgency of fully supporting these efforts expeditiously. Knowing what we do about predicted forest conditions over the next few decades, it is important to recognize that the immediate cost to man-made infrastructure may not be the greatest one. Timely intervention and accessible funding will be the difference between effective mitigation of health and economic impacts, versus a spiraling crisis which will threaten our nation's water and food security.

Finally, we encourage our federal partners to engage with local stakeholders and allies to spend the initial investments provided through the BIL and IRA strategically and wisely, and to support consistent, large-scale investments in our nation's forests. In March, The Nature Conservancy, American Forests, and NWF proposed increasing funding by at least \$1 billion annually for proactive, climate-informed forest restoration and management.<sup>9</sup> The investment required to be able to adapt to our hotter, drier reality is considerable, but if we do not start soon, the cost will be that much greater.

# II. Small-Bucket Storage as an Effective Drought-Mitigation Tool

#### High-elevation Storage and Coordinated Releases

Western Slope water managers, including local, state, and federal stakeholders, are currently working with existing tools to mitigate the impacts of increased uncertainty in water supply and quality. No singular entity can make a measurable impact on a problem of this scale, however. Through strategic, cooperative efforts, stakeholders across the West Slope have been able to implement small-scale, effective measures to mitigate some of the immediate impacts of hotter summers and lower river levels.

<sup>&</sup>lt;sup>5</sup>(2019). WILDLAND FIRE Federal Agencies' Efforts to Reduce Wildland Fuels and Lower

 <sup>&</sup>lt;sup>5</sup>(2019). WILDLAND FIRE Federal Agencies Efforts to Reduce Wildland Fuels and Lower Risk to Communities and Ecosystems. https://doi.org/GAO-20-52.
<sup>6</sup>Colorado State Forest Service, (2020). Colorado Forest Action Plan. https://doi.org/https://csfs.colostate.edu/wp content/uploads/2020/10/2020-ForestActionPlan.pdf.
<sup>7</sup>DiMaria, J., et al (2017). Forest Management to Protect Colorado's Water Resources. https://doi.org/https://www.fs.usda.gov/rm/pubs\_journals/2017/rmrs\_2017\_venable\_n001.pdf.
<sup>8</sup>(2023). Confronting the Wildfire Crisis: Expanding Efforts to Deliver on the Wildfire Crisis Stratery. https://doi.org/https://www.fs.usda.gov/rm/pubs.journals/2017/rmrs\_2017\_venable\_n001.pdf.

Strategy. https://doi.org/https://www.fs.usda.gov/sites/default/files/fs\_media/fs\_document/WCS-

Strategy. https://doi.org/https://www.is.usda.gov/sites/default/files/is\_media/is\_document/WCS-Second-Landscapes.pdf. <sup>9</sup>T.N.C. (2020). Revitalizing America's National Forests Policy Recommendations for Restoring Forests to Deliver Natural Climate Solutions and Ecological Benefits. https://doi.org/https:// forestclimateworkinggroup.org/wp-content/uploads/2020/11/Revitalizing-Americas-National-Forests.Sep-2020.pdf.

By applying best practices developed over decades and informed by science, we can utilize these small buckets—ranging from 10 thousand acre-feet to 100 thousand acre-feet in strategic high mountain locations—to time the releases of water to address a wide array of consumptive and non-consumptive needs along the river. For example, anytime we have reservoirs which are reasonably full or projected to fill, we coordinate storage releases into the Colorado River to create a peak in the hydrograph to benefit river health, endangered species, and downstream agricultural users. This practice allows for greater flexibility for management of limited water resources even in dry years. Two examples of reservoirs which the Colorado River District has utilized to achieve these benefits are included below:

#### **Elkhead Reservoir**

The Yampa River starts in the mountains above Steamboat Springs and runs through the northwest corner of Colorado to its confluence with the Green River in Dinosaur National Monument. Elkhead Reservoir is a small, 25,500-acre-foot capacity reservoir located on a tributary to the Yampa and partially owned and operated by the Colorado River District.

In the summer of 2021, low snowpack and an early, hot and dry summer reduced the flow of the Yampa River to historic low levels, and, for only the second time in history, a "call" was put on the river. In this case, a call meant that the Division Engineer, or local water administrator for the State of Colorado, cut off the access to water for many junior local agricultural producers just at the time these same families' cattle herds were being forced off of federal high country grazing allotments due lack of feed.

In order to take the call off and protect our farmers and ranchers, the Colorado River District coordinated a release of 677 acre-feet of water from Elkhead Reservoir. The releases were timed not only to allow irrigators to have access to the water during the hottest months of the year, but also to alleviate the impacts of high water temperatures on local fish populations.

#### **Ruedi Reservoir**

Ruedi Reservoir is a federally owned reservoir built on the Fryingpan River, a tributary of the Roaring Fork River, and when full, it holds approximately 102,000 acre-feet of water. Ruedi is another example of small-bucket reservoirs providing outsized benefits to sections of the Colorado River in support of productive agriculture and endangered fish habitats.

In 2018, an exceptionally dry, hot summer led to low streamflow in the Roaring Fork River, a river with an exceptional trout fishery that provides millions in economic inputs for local communities. The resulting rise in water temperature threatened native trout species and caused concern for irrigators downstream.

In response to this extremely difficult season, the Colorado River District and Ute Water Conservancy District contributed a combined total of 8,000 acre-feet of water from late July into September. Those contributions were used to substitute water that would have typically come from Green Mountain Reservoir's "Historic Users Pool" to satisfy the Cameo Call. Five municipalities from Aspen to Palisade also agreed to contribute more than 1,500 acre-feet of unscheduled "contract water" held in Ruedi for agricultural and environmental needs along the lower Roaring Fork River and farther downstream on the Colorado River.

ExxonMobil followed suit in September by contributing 5,000 acre-feet of Ruedi releases to provide water for endangered fish species in what is known as the 15-Mile Reach between Palisade and the Colorado River's confluence with the Gunnison River.

These carefully timed releases, the product of local, federal, and private entities' commitment to watershed health, were able to provide flows that also supported local ranchers and farmers for 110 miles of the river. By protecting the endangered fish critical habitat flows of the 15-Mile Reach, the releases also protected those same producers by maintaining long-term compliance with the Endangered Species Act, allowing them to continue irrigation operations without interruption.

# Funding and Permitting Small-Bucket Storage

On the Western Slope of the Rockies, we do not live below major reservoirs like Lakes Mead and Powell, which provide multi-year carry over storage for the Lower Basin states. As mentioned, the snowpack of high-elevation forests is our largest reservoir, providing only a single year or partial year supply; once the snow has melted or sublimated, our largest storage bucket is gone. Manmade storage is a foundational piece of the management strategies on which Western Slope water managers have relied on and benefits productive agriculture, municipal water systems, recreation, and programs like the Upper Colorado River Endangered Fish Recovery Program. Many of our major streams do not even have small capacity reservoirs to assist with mitigating the impacts of hotter, drier years, and many of the small existing reservoirs were built over 100 years ago and need enlargement or significant rehabilitation.

We encourage directing additional federal resources to bolster new and existing storage opportunities that collaboratively address multiple needs and are strategically positioned to minimize evaporative loss, while capturing critical runoff patterns. In addition to funding, regulatory approvals must be streamlined, and our federal programs need to work efficiently and effectively. For example, the Colorado River District views the Watershed Protection and Flood Protection Act (PL-566 Program) as an important and impactful funding source to advance strategic storage opportunities and irrigation modernization projects across the West. However, current approval authorities largely rest within the national headquarters of the NRCS, far from local staff. The Colorado River District supports delegated authority to State Conservationists to streamline approval processes, while avoiding nonlinear, duplicative processes that result in long-term delays.

Mr. BENTZ. Thank you very much. I thank all the witnesses for their testimony.

I will now recognize Members for 5 minutes for questions, and we will begin with Congresswoman Radewagen for 5 minutes.

Mrs. RADEWAGEN. Talofa. Thank you, Chairman Bentz and Ranking Member Huffman, for holding this hearing today. Thank you to the panel for their testimony.

Although Western water tends to dominate the conversation, water management is something that is important to all communities, and I am sure that there will be takeaways from today's hearings which will be useful across the country.

For example, in my home district of American Samoa, we suffer from outdated infrastructure and poorly-managed wells which contaminate our water table. We also deal with runoff, which damages our shoreline and our reefs. Many communities like ours need Federal support and guidance to protect both our water supply and the environment, not to mention the added complication of protecting the economy and reducing inefficient spending.

My questions are all somewhat related, so I will read them all off and anyone on the panel who wishes can answer in any order.

Floods and droughts are hard to predict, and this is not a problem that can be solved by one or two large projects. One of the through-lines of today's hearing is the conflict between a need for a wide variety of solutions versus the bureaucratic and regulatory process. Could any of you please speak a little more about this conflict?

In your experience, what are some of the barriers that impede smaller, more local water management projects?

And putting our eggs in multiple baskets is generally good practice, but doing something just for the sake of doing it leads to wasted effort. What type of data should we be collecting to make sure a water management solution is worth it?

And how can we better recognize when a particular approach is not working to make changes and avoid the sunk cost fallacy?

Mr. Mueller?

Mr. MUELLER. Congresswoman, if I may—or excuse me, Mr. Chairman, may I answer the Congresswoman's question?

Mr. BENTZ. You are recognized.

Mr. MUELLER. Thank you.

Congresswoman, I would just speak to your first of the several questions, and that would be an example of an issue where the bureaucratic world runs headstrong into small storage projects or small water improvement projects. And the Watershed Protection and Flood Protection Act, otherwise known as PL 566 Program, administered by the NRCS, is a really important and impactful funding source to advance strategic storage opportunities and irrigation modernization practices across the United States.

Unfortunately, our experience with this program is that multiple levels of review built into the system within the NRCS often means that we deal with inconsistent and sometimes directly contradictory directions from different levels at the NRCS.

A fairly easy solution to avoid this would be to de-centralize the decision-making into the offices of the state conservationist in the NRCS, and avoid the, I think it is called a national business center, or there is a fancy name for it, the National Watershed Management Center. It is an autonomous office of the NRCS located in Arkansas. It is where many of our PL 566 projects in Colorado go to rot, because we can't get decisions out of that agency.

And I think that that is true throughout the United States, and I imagine in your territory, as well. So, that would be helpful.

Mrs. RADEWAGEN. Would anybody else care to respond? I have about a minute left.

Mr. Sewell?

Mr. SEWELL. Well, this is an area where we would actually have some agreement, in that I think, as long as we have—some deference to state and regional planning is very important, I think, in making some of these decisions. As long as that decision, if it is coming with Federal dollars, does not contradict the national plans that we have with this area, because these are, oftentimes, Federal dollars that go with this.

But I think Ms. Hill has something to say, as well.

Mrs. RADEWAGEN. Thank you, Mr. Chairman. I will now yield to Mr. LaMalfa.

Mr. LAMALFA. Ms. Hill wanted to answer. Is that correct?

Mr. BENTZ. Ms. Hill, did you wish to answer?

Ms. HILL. I did.

Mr. BENTZ. Oh, please go ahead.

Mrs. RADEWAGEN. Oh, excellent.

Ms. HILL. I am sorry. I just wanted to speak on your comment regarding how do we know when something isn't working. In the Upper Klamath, we have not only over nearing now 25 years of the application of biological opinions that have shown no recovery of species, as well as specific peer review from the National Academy of Science specifically saying that the hardy flows that are controlling the amount of water that has to go downriver in the winter time for main stem habitat, which was peer reviewed and said do not help Coho, that should be enough to tell us that we are doing something wrong, especially with now in the Upper Basin we have two of our greatest national wildlife refuges completely dry, and many homes that do not have drinking water because the base moisture of those ancient lakes is gone because that water is being rerouted downriver.

So, I would say, in that case, it is telling you it is time to do something different. Thank you.

Mrs. RADEWAGEN. Thank you, Mr. Chairman.

Mr. BENTZ. I thank you, and I recognize Congresswoman Porter for 5 minutes.

Ms. PORTER. Thank you very much, Mr. Chairman. I want to start off by thanking the Chair for raising an issue that many Californians and I back home face, which is storing more water.

Recent droughts show that Western water users need to get creative and prioritize investments for water storage systems that can prove to be reliable amid a changing climate, whether it is atmospheric rivers or crippling droughts.

I have concerns with what is being said about remediating water scarcity. While I agree that dams and reservoirs are important tools in water storage, they can't be our only option.

Mr. Sewell, in your testimony you mentioned that creating and improving tools to better use Western water will be critical to both the region and the country's economic future. But you warn us about putting all of our eggs in one basket. Can you elaborate on why fixating on one solution to water management would be ineffective and fiscally irresponsible in addressing water storage needs?

Mr. SEWELL. Yes, I certainly appreciate the question. First, I want to say that we too do not oppose dams or reservoirs or expansion of existing reservoirs. But I think in any sort of infrastructure that we have experienced, as well as other safety net programs that we fund from the Federal taxpayers, is having diversity is generally a better risk management tool.

It is one thing—acknowledging that this is such an abnormally wet year in the West, that those wet years are not going to be here every year. So, we are concerned that we want to use our limited Federal funds in the most efficient way to provide that water in the abnormally wet years and those abnormally dry years when they come. So, it is really about risk management.

Ms. PORTER. California has more than 1,400 dams in the state. Yet, this Committee is talking about the need to develop and authorize more surface water storage, despite there being limited to no sensible dam sites left.

Mr. Sewell, would it be in taxpayers' best interests to continue to fund new dam projects in California?

Mr. SEWELL. If the numbers say yes, then yes. But I think it has shown that the easiest places economically, engineering-wise, and politically to build dams are done. So, at this point, new dams tend to be very costly in dollars and in political issues.

Ms. PORTER. And does California's recent bout of atmospheric rivers change your answer with regard to the dams?

Mr. SEWELL. No, it would not.

Ms. PORTER. So, it is in the taxpayers' best interest to have a diverse strategy of water management.

Mr. SEWELL. Absolutely.

Ms. PORTER. Can you give us some other examples of diverse water management strategies where we might better invest taxpayer dollars and have better returns on our investment for water storage?

Mr. SEWELL. Certainly, and I think Mr. Bourdeau actually mentioned one that we have strongly supported in some of our other water issues—not in the West, but it would work in the West, as well—is that aquifer recharging via flooding, by controlled flooding at times in areas where you have excess water, and you can have that storage through the aquifer by doing some of that flood plain management, so I think that is a really important tool.

But also, the other is in stormwater management in urban areas. I mean, certainly, there is some amount of water if it is stormwater management, as well as water recycling that is going to be there as a baseline in almost every year, even the drought years. So, they do take some cuts in the urban areas. You are just going to have some amount of water that is always available.

So, I think having that water available, those tools in the dry years and the wet years, is a good way to have that redundancy or multiple options of capturing that water that is greatly needed.

Ms. PORTER. I really appreciate you pointing that out, because the Irvine Ranch Water District, a water management company in my district, has been a long-standing example of diverse strategies of water storage, and they have positioned themselves well to weather drought, as well as years of heavy rain because they have invested in expanded water recycling, better management of groundwater, establishing emergency water supplies, and, of course, enhancing water efficiency. And the result has been a 25 percent drop in residential per capita water use, while still maintaining a vibrant, beautiful, and economically strong, growing community.

If taxpayers are going to spend billions on water infrastructure, I think it is our job to ensure that those projects provide long-term availability for the water resources that we already have.

I yield back.

Mr. BENTZ. Thank you. The Chair recognizes Congressman LaMalfa for 5 minutes.

Mr. LAMALFA. Thank you, Mr. Chairman.

Ms. Hill, you have a tough situation up there, where a project was created about 100 years ago. First of all, why was it built? Why was that project built augmenting Klamath Lake?

Ms. HILL. The purpose of the Klamath Project was essentially, at the time, to feed the nation. It was considered one of the most economic projects possible because we had natural storage in three, four different lakes.

And then, because of the topography of the land, it does not cost us to pump water, it basically flows downhill.

And finally, again, we have some of the most amazing soils not just in the United States, but in the world.

Mr. LAMALFA. So, that project augmented the storage up there by around 400,000 acre-feet. When it is full, it is 400,000 acre-feet of stored water is the term, right?

Ms. HILL. Yes, our capacity is over half a million, but we have some deadpool that is associated that is always in the lake. Mr. LAMALFA. Yes, OK. And since about 2001, that has all changed. This water had been used for agriculture, as well as benefiting the refuges for the ducks, the wildlife, et cetera, right?

Ms. HILL. Yes, sir, that is correct.

Mr. LAMALFA. What changed in 2001?

Ms. HILL. We now have the application of the Endangered Species Act for both suckers that live in Upper Klamath Lake, as well as coho salmon that live in the Lower Klamath River.

Mr. LAMALFA. So, you have a lake that is now deeper because of the creation of the project. It has created more water. The water that was in that lake was created for agriculture, but the existing lake still has its water underneath that additional new water that is the project.

So, basically, the Federal Government has been infringing upon the water storage that you have paid for as water users up there. You are paying for that. Of course, BOR can't account for the bills paid yet. They don't know how much is still owed. They have been infringing—at least since 2001 on your water right, correct?

Ms. HILL. Yes, and then in addition to paying those costs, we also actually pay annual operation maintenance costs for all of the facilities in the project, regardless if those facilities are used to irrigate or if those facilities are used to flush water downriver.

Mr. LAMALFA. So, you are paying for the project if you get zero water, you are paying basically to administer fish water.

Ms. HILL. That is correct.

Mr. LAMALFA. OK. Mr. Sewell, you are concerned about the price per water, I guess, per acre-foot. What should environmental water, how do you bill that? What should it be valued at, such as the water that is coming out of Klamath, or coming out of Lake Shasta, or whatever that is not used for agriculture because in Shasta, for example, it has to be held longer in the year, so the water is colder at the bottom of the lake.

Mr. SEWELL. Yes, Congressman. I would have to admit that I would have to defer to people who have better expertise in that.

I do think that if and when the water is used for other purposes, then those beneficiaries should be paying the fair cost of that. But I would have to defer to folks who have better expertise on this specific issue.

Mr. LAMALFA. Well, who needs to be targeted with paying a better cost or a fairer cost at this point, since you think there is a deficiency?

Mr. SEWELL. Well, it depends, I think, on which project, obviously. But in this particular instance I would have to look into it more myself. But I do think that this is an issue that needs to be addressed.

But the ESA and the Clean Water Act, these long-established authorities are there for a reason, as well. So, I think as long as we get all the parties that are responsible at the table, we can come to a conclusion.

Mr. LAMALFA. ESA came along long after these projects did, and they want to redo these water rights. So, when you are criticizing Lake Shasta, Lake Oroville, Folsom, these large projects, these were designed as 5-year reservoirs to hold water for 5 years of drought when they are full. So, the idea that they don't pay off, you get stored water for people and agriculture, and electricity, and fish. And you get flood control, which we could be using a lot more of right now. You get hydroelectric power, you get recreation, you get a lot of benefits.

So, I don't think that there is enough being looked at as to what the true value of this stored water is when we say, oh, it is just going—basically, the bottom line, what isn't being said in the room is that agriculture is getting some water, too much water too cheap. That is the common refrain, even though 50 percent of all California water or more is going out for environmental purposes, out to the ocean. Forty percent in a good year is agriculture, and about 10 percent is going to people's use.

So, people are being asked to cut  $2\frac{1}{2}$  out of that 10 percent to get down to 55 gallons per day,  $2\frac{1}{2}$  out of 100, when 50 percent is environmental. What is the value of water is the real question here. What is the cost of environmental water, when we are not even recovering species the way the concept is sold to us?

Thank you. I yield back.

Mr. BENTZ. Thank you. The Chair recognizes Mr. Magaziner for 5 minutes.

Mr. MAGAZINER. Thank you, Chairman. I am new here, and people told me that Congress could be a crazy place. And I think we are seeing that on full display right now, because for years we have seen and heard Republican Members of Congress deny climate science, say that climate change isn't real. I believe members of this Committee have called climate change a hoax or a scam.

And universally, the other side opposed the Inflation Reduction Act to help transition our country to clean, affordable energy, opposed the International Climate Accords to reduce greenhouse gas emissions in this country and in other countries. And now today, we are having a hearing because it is not snowing as much as it used to in the mountains out West, and areas out West are running out of water. Well, I wonder why that is happening. And the idea that we are continuing to have Members deny the science, while in some cases large areas of their own states are literally running out of water is insane.

Climate change is contributing to water scarcity. And instead of taking this seriously, we are denying the science at every turn. And we know what is coming next. What is coming next is the request for taxpayer bailouts. And the working people in my district in Rhode Island are going to be asked to help pay to build the infrastructure to deal with these water shortages, because for too long, too many politicians have been in the pockets of the Big Oil and gas companies and denying the climate science.

So, how are we going to pay for all of this? Well, I have an idea. Why don't we ask the oil and gas companies that made over \$300 billion of profits last year to chip in to help solve the climate crisis that they have profited from? Three hundred billion dollars a year can build a lot of water tanks.

Why don't we ask them to chip in, instead of funding junk science to deny climate change, funding the campaign accounts of politicians who stall on action to transition to renewables? Why don't we ask them to help chip in to clean up the mess that they are making?

Mr. Mueller, you stated in your testimony that hot temperatures over the last 23 years have diminished the flows of the Colorado River by 20 percent. Do you agree that climate change is impacting the availability of water out West?

Mr. MUELLER. Yes.

Mr. MAGAZINER. And do you also agree that if we don't do anything, if man-made climate change continues unabated, that the problem is likely to get worse?

Mr. MUELLER. Yes.

Mr. MAGAZINER. Thank you.

Mr. Sewell, in your testimony you talk about pricing water correctly, and I am hoping that you can help us understand, as a lay person, what that means. Does that mean that homeowners, mom and pop businesses on Main Street, would necessarily see their water bills go up if we had a fairer system for pricing water?

Mr. SEWELL. Thank you, Congressman. What we mostly mean by that is maintaining this beneficiary pays system. So, under reclamation law, certain beneficiaries are supposed to cover the cost of their access to water. That is primarily what we are talking about there.

I don't necessarily think it means an across-the-board increase to other types of users.

Mr. MAGAZINER. Yes, I think that is an important point, that we stick with this principle that the average person not see increases under a system for fear of pricing.

And can you also talk a little bit more about what are some of the best practices out there, particularly in agriculture, for more modern and efficient methods of irrigation, of water-efficient crops?

Are there technologies that we, as a Federal Government, should be incentivizing to help promote conservation of water resources? Mr. SEWELL. Yes, I certainly think there is an opportunity to

Mr. SEWELL. Yes, I certainly think there is an opportunity to incentivize better conservation practices. But part of it also is just giving operators, giving producers the opportunity to innovate and implement some of these practices.

There is some technical assistance that can be provided, and it is going to have a significant debate in the farm bill about this issue. But I think part of it is we do need to get the regulatory environment correct, have the right assistance, but we also have to have the responsibility on all those who are affected by climate change to have it be part of the solution.

Mr. MAGAZINER. All right. Well, I see I am out of time, so I yield back. Thank you.

Mr. BENTZ. Thank you. The Chair recognizes Congresswoman Hageman for 5 minutes.

Ms. HAGEMAN. Thank you.

Mr. Sewell, are you a hydrologist?

Mr. SEWELL. No, I am not.

Ms. HAGEMAN. Are you an irrigation engineer?

Mr. SEWELL. No, ma'am.

Ms. HAGEMAN. Do you manage irrigation projects or municipal water supplies?

Mr. SEWELL. No, ma'am.

Ms. HAGEMAN. Are you a farmer?

Mr. SEWELL. I am not.

Ms. HAGEMAN. OK. I am honored to have represented irrigation districts, municipalities, counties, farmers, ranchers throughout my legal career. And two of the first projects that I was able to work on were projects built under the 1902 Reclamation Act, the Buffalo Bill Reservoir up near Cody, Wyoming and Pathfinder Reservoir in central Wyoming. Buffalo Bill is 870,000 acre-feet and Pathfinder is 1.16 million acre-feet of water.

I also dealt a lot with Lake McConaughy in Nebraska, roughly 2 million acre-feet. And when I went back and looked at the history of these projects, one of the things that struck me is how the people at that time pretty much say exactly what you are saying today, which is that these projects aren't feasible, or that there isn't sufficient water, or that it doesn't make sense economically, or that these are not good projects.

And then we look at what we have been able to create over the last 100, 130 years by building the Klamath Project, and the ones that I just described. And pretty much every single time they proved people like you absolutely wrong. And I think that that is what we will see if we invest in our infrastructure the way that our forefathers did.

When I look at those magnificent projects that they built, and I look what they have created in terms of fisheries, and sufficient water for recreation and for irrigation and growing food, and the communities that they support, what you realize is that the folks who built those and had that vision—and they did have vision, it wasn't just a vision of scarcity and a vision of naysaying, they actually had a vision of what they could build and what they could create, and they did it—and they created those projects not just for themselves, but they created those projects for us to this day.

I look at Ms. Hill and Mr. Bourdeau and Mr. Mueller, and I think about what you do in terms of trying to provide water, trying to grow food, trying to feed the people of this country, trying to make sure that there are sufficient water supplies for our citizens. And I commend you on the work that you do. I am glad that you are not naysayers. I am glad that you are not the kind of people who say, "No, we can't build these projects, we can't operate these projects," because history has shown that we can. It is interesting that I have people tell me that in Wyoming we

It is interesting that I have people tell me that in Wyoming we don't have places for reservoirs, we don't have areas where we can store additional water, where we could open up additional lands for irrigation, because I am here to tell you that we do. And there are many places in Wyoming where we could build such projects.

One of the things that would be important in those areas is that that is also where we can create fisheries where there are none now. And the reason that there aren't any now is because in Wyoming, like so much of the Western United States, without irrigation, without reservoirs we don't have fisheries because many of our streams go dry by July of every year. And maybe, Mr. Sewell, you weren't aware of that, but in Wyoming, Colorado, Montana, many of our streams don't have live water because we are snowpack states. And once that snowpack is gone, that is kind of the end of our irrigation season or our ability to have water. Mr. Bourdeau, I want to thank you for being here and for your service to our country. And I wanted to highlight something you pointed out in your testimony, and that is after mentioning the obvious need to increase the amount of water stored through surface infrastructure and groundwater storage projects, you warned that if we do not do this, we will continue the pendulum of extremes of abundance and scarcity. And I think that that is one of the things that strikes me and that Mr. Duarte has said repeatedly to me, is that there isn't morality in scarcity, yet that seems to be what the other side continues to push.

to be what the other side continues to push. According to the Pacific Institute, California's urban areas are letting between 700 and 70,000 and 3.9 million acre-feet of water wash out to sea, depending on how dry or wet the year is. Mr. Bourdeau, while there are many things we can do to improve the water situation, can you speak to what a year like this could have looked like if surface infrastructure reclamation projects were a priority to the state of California and the current Administration?

Mr. BOURDEAU. Well, I am in a region that is capable of growing food in abundance, and we do it to the highest and most stringent environmental standards in the world. We can provide food to our nation. And if we have water, we cannot only help our food security, but we can create jobs and opportunities, and allow people to live the American dream.

So, yes, I do think water is still a necessity, and we should invest in our future.

Ms. HAGEMAN. Thank you. I yield back.

Mr. BENTZ. Thank you. I recognize Ranking Member Huffman for 5 minutes.

Mr. HUFFMAN. Thanks, Mr. Chairman.

Well, Mr. Sewell, apparently your testimony that we should continue the 120-year policy of beneficiary pays and look at things like cost effectiveness when we consider Federal investments in water infrastructure has touched a nerve. But I found it pretty sensible. Rest assured, though, a couple of months down the road, when we get to the debt ceiling, you will hear a lot of rhetoric about fiscal conservatism and fiscal restraint. You have to brace yourself for political whiplash around here.

But I want to follow up on this thread of cost effectiveness, because we have a raging debate apparently in this Committee about what is preventing us from building new dams. In your analysis and your assessment, what is stopping us from building new dams? Is it environmental laws?

Mr. SEWELL. It appears to be mostly cost. I think, again, most of the easiest places, the least costly places to construct these dams, they have happened. So, now the projects we are left with tend to have high price tags, and those high price tags, because these projects are primarily not for fish and wildlife, they have to be paid for by those beneficiaries.

Mr. HUFFMAN. Why is the beneficiary pays principle something we have honored for the last 120 years? Why is that important?

Mr. SEWELL. Having user pay principle in any infrastructure and honestly, in almost any program—is important because it helps stretch taxpayer dollars farther, it helps to get more projects. And we have seen this in other infrastructure as well, that when users have to put in their own money, projects become better. Sometimes they become smaller, but often they become more efficient.

So, the thing is, when you are gambling—I shouldn't say gambling—when you are using house money, you are going to think differently. That is just a common consumer, common infrastructure. We see it with states, we see it everywhere.

Mr. HUFFMAN. You also talk about the importance of pricing water closer to actual market value of that water. We don't always do that in the western United States, do we?

Mr. SEWELL. No. Not having an accurate price for the true cost of water or other resources is a common problem in Federal policy.

Mr. HUFFMAN. Are you aware of some of the biggest Federal water contracts we have in California with the Sacramento settlement contractors and the San Joaquin River exchange contractors: 2.1 million acre-feet for the Sacramento settlement contractors; 600,000 acre-feet for San Joaquin exchange contractors? Those are bigger amounts of water than the city of Los Angeles uses every single year.

And under those Federal water contracts, 100 percent of that water is delivered for free. What are the policy implications of that, and do you think it is fair?

Mr. ŚEWELL. Thank you, Congressman. As you know better than I do, and many members on this panel do as well, there is a clash between state water rights and laws that predated the Bureau of Rec and Federal projects delivering water to other newer beneficiaries. So, I would defer to people who have better expertise on this.

However, it just seems common sense that we need to set rates so that users are held responsible for repaying those true costs of capturing and delivering their water. And I am sure this will cause a little bit of a stir, but those agreements from the past, they have to be reevaluated from time to time. I mean, just the fiscal situation we are in requires that. And just like we are already thinking about the Colorado River Compact, and making sure it applies to the actual amount of water that we think, that we know we are going to get, we have to do the same thing.

Mr. HUFFMAN. And to its credit, the Bureau of Reclamation, for the first time, is re-negotiating the San Joaquin River exchange contract. They need to look at the free delivery of that water, which just is untenable in this day and age, given how much taxpayers are kicking in to public infrastructure, how much other water users around the state are paying for that water.

But I want to move on to Mr. Bourdeau, because I appreciated your testimony, sir. You talked about the importance of investing in a range of water infrastructure projects, not just surface storage, but also projects to better recharge the even greater amount of water we can capture in groundwater. But we are going to need facilities to do that.

I think you alluded to the importance of maintaining existing infrastructure too, like the Friant-Kern Canal, which needed some public investments to address the sag and loss of capacity. Last Congress, we allocated \$8.3 billion, the biggest investment in Western water infrastructure in history, for exactly those kind of projects. Is that going to be helpful in trying to achieve water resilience in California?

Mr. BOURDEAU. I do think so. Yes, sir.

Mr. HUFFMAN. OK, thank you. I yield back.

Mr. BENTZ. The Chair recognizes Mrs. Boebert for 5 minutes.

Mrs. BOEBERT. Thank you, Mr. Chairman.

Mr. Mueller, I am very pleased that you traveled to Washington, DC to be here with us and testify. And I thank you so much for your expertise on this issue, as well as many others in the Western United States, particularly in Western Colorado.

Your testimony warns that we should be valuing our headwaters as much as our wildland-urban interface. Can you share with the Committee what is at stake?

Should the Federal Government continue to ignore managing the forests in our headwaters?

Mr. MUELLER. Certainly, Congresswoman. Eighty percent of our state's residents depend on water that originates in our national forests. And the difference between timely intervention and proper management techniques in our forests in Colorado and throughout the West and effective mitigation of these issues will mean the difference between having a reliable source of drinking water for all of our residents. It will mean being able to provide food from local sources and regional sources to the tables of our residents in the Western United States and throughout the country from our ranches and farms.

It is truly a crisis that is one of those slow moving crises headed toward us all. You can see it coming, and I would say that we are failing to do what we need to do.

Mrs. BOEBERT. Thank you. And Mr. Mueller, as you discuss in your testimony, wildfires have lasting impacts not just on our forests, but for our ability to utilize our forests as our largest reservoirs. In Colorado, this is extremely important, as 80 percent of our residents rely on these forests, the majority of which are federally owned, for their municipal supplies and as a critical source of water.

What are the impacts to the Colorado River, which is already in a 23-year drought, if the Federal Government continues to fail to manage our forests?

Mr. MUELLER. Well, I think it is really important to emphasize that our forest is our single largest reservoir in the state of Colorado and, in fact, in the entire Colorado River Basin. A poorly managed forest, a forest that suffers from beetle kill and overgrowth due to literally a century of fire suppression, is a forest which cannot continue to produce water in a reliable fashion.

The natural infrastructure within that forest is incredibly important to all 40 million people who depend upon the Colorado River for drinking water and all 5 million acres of irrigation.

Mrs. BOEBERT. We heard colleagues from the other side of the aisle criticizing our desire for infrastructure for more water storage projects. I think when the Federal Government allocates infrastructure dollars, it should go toward infrastructure. Last year, we passed an infrastructure bill, \$1.2 trillion. Less than 9 percent of it actually went toward anything infrastructure-related. And I didn't hear any of my colleagues on the other side saying, "How are we going to pay for this? Who is this coming from? Where is this money going to come from to be able to afford this?" So, I am in favor of more water storage projects and the Federal Government being responsible.

I don't think that any of us are climate change deniers. I fully agree that the climate is changing. It happens four times every year, Colorado sometimes four times in one day. So, we just want to be good stewards of our land. We want to manage, we want to conserve, and certainly conserve our water.

So, can you discuss the importance of developing small-scale storage in Colorado?

Mr. MUELLER. Certainly. I think the small-scale storage, it is an interesting situation. I understand other parts of our country in the West are looking for larger storage vessels. In our headwaters in Colorado, we have streams that have been flowing year-round that, due to the rising temperatures and hotter, drier summers, reduced snowpack, we have seen those rivers going dry. Very important commercial, recreational fisheries, very important supplies for agriculture and for our cities.

Small-scale storage allows us to modify the way we have been handling the supply of water. And I can tell you, our existing small-scale storage, interestingly enough, was designed and built for consumptive users, and we have actually modified the way we utilize that storage so that we can help mitigate the impacts of these rising temperatures.

Mrs. BOEBERT. And quickly, what about large-scale storage, some of the biggest hurdles, and specifically, as an example, the Wolf Creek Reservoir, which is in Colorado's 3rd District.

Mr. MUELLER. Sure. I think that we touched on this a little bit the regulations under NEPA for a small project like Wolf Creek or others that we are proponents of in Western Colorado, our local communities find the burdensome regulations of NEPA that are oftentimes duplicative and extremely long. I mean, it can take 10 years to go through that process for a small district, really difficult for us to quickly adapt to this changing climate.

So, if we can modify those processes to allow us to actually develop these storage buckets faster, it would help us tremendously.

Mrs. BOEBERT. Thank you, Mr. Mueller.

And this political science denier yields.

Mr. BENTZ. Thank you. The Chair recognizes Mr. Duarte for 5 minutes.

Mr. DUARTE. Hello, and hey, William. Good to see you, a man from my district.

Mr. BOURDEAU. Good to see you.

Mr. DUARTE. I know you are a local leader in many things, water and agriculture down there in the San Joaquin Valley, and it is great to have you here today. Any good ideas for additional water capacity in California that you believe are viable?

Mr. BOURDEAU. Well, I was thinking about that while people were testifying, and I do believe there are locations that are well suited for large-scale storage projects.

But what I thought is there are also existing dams or reservoirs that, because they are aging infrastructure, that they need to be reinforced and retrofitted to make sure they are safe, because we would hate to have a dam blow out and all the catastrophic actions that would occur as a result.

So, it may be cost effective to raise those dams as they are reinforcing them, and make them safe for society.

Mr. DUARTE. Which ones? Have you looked at numbers and specifics on that? Shasta? San Luis, and going, going, going. I know we talk about Don Pedro.

Mr. BOURDEAU. Yes, there are many dams that I think could use some—not only making sure it is safe, but you could raise it so you can increase the water supply.

Mr. DUARTE. Along Highway 5, the California Water Project engineers spotted dozens of dam sites. And the Del Puerto Water District is building one right off Highway 5 to the west I looked at in a visit to the district the other day that can hold up to 80,000 acre-feet of water. It is very economic.

Have you studied the alternative sites of smaller-scale reservoirs?

Mr. BOURDEAU. I think we look at all sites. We don't discount any location or any place, because we need a reliable water supply. So, we wouldn't turn a blind eye to anything that was viable.

Mr. DUARTE. Another question: dredging. We are flooding right now. You are flooding. I am flooding. The whole district is flooding because of an inundation of rains. I believe we need to get more serious about dredging. A lot of the dams that we have are underutilized for agriculture and other uses—environment, human, urban—because we keep a certain amount of head space in them for flood water prevention every year.

If you have bigger spill capacity, you can keep less flood water head space in the dams, and actually net more human use or environmental use water carried over from winter through summer.

Have you seen any dredging in the Valley in the last 20, 30 years since our 1982/83 rains?

Mr. BOURDEAU. I haven't personally seen any dredging in the Valley.

Mr. DUARTE. You live there?

Mr. BOURDEAU. Yes, I do.

Mr. DUARTE. You get around a bit?

Mr. BOURDEAU. I do.

Mr. DUARTE. I see you around a bit.

Mr. BOURDEAU. I absolutely do.

Mr. DUARTE. So, if there was significant dredging of anything happening, we would know it.

Mr. BOURDEAU. We would.

Mr. DUARTE. Yes. We are not dredging our rivers. We are losing our flood control capacity every year with siltation. And some of the easiest water we have at hand is simply to increase the flow rates of our rivers and drainages to be able to spill it when we have too much, and hold more until we reach that point.

Mr. BOURDEAU. Well, the Water Authority is part of a working group which includes the Department of Water Resources, the Bureau of Reclamation, and other stakeholders that is working on this very issue. Delta channels suffer from diminished capacity due to siltation. The program would improve drinking water quality, water supply operations, and habitat for fish and wildlife by removing excess sedimentation.

Mr. DUARTE. Thank you, that is a helpful answer. So, we wash a lot of water out of the Delta each year, and we are trying to save the smelt and save the salmon. Are we helping the smelt? Are we helping the salmon? How are the numbers going?

Mr. BOURDEAU. That breaks my heart, that we are putting so much resources to something and not achieving success. I think we are better than that. I think we can find ways to help the environment, but also free up water for human progress.

Mr. DUARTE. I know you follow many issues in your area. How is the man-made dust bowl in your region of the Valley affecting the population?

Mr. BOURDEAU. It is heartbreaking to see the most productive farmland in the world fallow, and it does create respiratory issues and increases the opportunity for the spore that causes Valley fever. So, there are some serious issues that should be considered.

Mr. DUARTE. Yes. So, there are more dams we can build. We can get better yield off the dams we have by focusing on a multi-faceted endangered species approach, versus just washing water out through the delta each year. How much water do we wash out in a typical year, William?

Mr. BOURDEAU. Oh, tens of millions of acre-feet.

Mr. DUARTE. Yes, I know you have communicated on that a number of times.

Are you a state water contractor?

Mr. BOURDEAU. Personally, no. But I know several people that are.

Mr. DUARTE. My understanding is state water contractors talk about user pays. How about payers get to use?

State water contracts have been paying their \$250 an acre-foot for the last half decade now, and I think their deliveries have been 5 to 10 percent in some years.

Mr. BOURDEAU. Yes, very difficult to manage through that.

Mr. DUARTE. They are paying for 90 percent of their water at a rate of about \$250 an acre-foot, and actually getting 5, 10 percent of what they are paying for. But we are worried about user pays. Can we, again, worry a little bit more about those who pay get to use the water?

So, these are things we are dealing with. Thank you, Chairman. I will yield back.

Mr. BENTZ. Thank you. The Chair recognizes Congressman McClintock for 5 minutes.

Mr. MCCLINTOCK. Well, I know none of you deal directly with the Shasta Dam, but that is the biggest in the Sacramento system. As you may know, it was designed to be 800 feet. When it was built in 1944, it was built to only 600 feet. They didn't need the extra water at the time. They simply assumed that the generations that followed would have the common sense to complete the dam.

By adding that extra 200 feet of elevation, it would mean an additional 9 million acre-feet of water storage, nearly tripling the capacity of the dam, nearly doubling storage in the entire Sacramento system. The current proposal, though, is to increase it by 18.5 feet. That is still something, that is still about 600,000 acre-feet of additional water storage.

Here is the plan on enlarging Shasta Lake. It is dated November 1978. Mr. Bourdeau, you are shaking your head. Why has it taken 45 years, and still we haven't managed to raise it by that simple amount?

Mr. BOURDEAU. I wish I knew the exact answer to that, but I believe it is because we have been over-studying it. And by the time we are done with the study, it is outdated and we have to study it again.

And I think there are many projects that we should be actually getting some results. I do think the studies have been done, and we need to move forward.

Mr. MCCLINTOCK. There is a little town called Forest Hill in Placer County. They get their water from the Sugar Pine Reservoir. It was built years ago with spillway, but no spillway gate. They didn't need the extra capacity at the time. They do now. So, they proposed adding a spillway gate to add additional storage to that lake: \$2 million for the gate.

But then they discover that they have to budget at least \$1 million on top of that for environmental studies, another \$2 million on top of that for environmental mitigation. And then the Forest Service wanted to charge them \$6 million as the cost of relocating several campsites and a trail that went around the lake. So, that \$2 million project that was a heavy lift for a little community within reach—that became an \$11 million boondoggle.

Does it surprise you that 10 years later that project has not been completed?

Mr. BOURDEAU. It doesn't surprise me at all.

Mr. MCCLINTOCK. Now, again, what would you speculate would be the reason for this?

Mr. BOURDEAU. The costs.

Mr. MCCLINTOCK. And costs driven by construction, or costs driven by idiotic regulations and slothful bureaucracies?

Mr. BOURDEAU. Regulation and bureaucracy.

Mr. MCCLINTOCK. And what is it that can be done about that? Mr. BOURDEAU. Well, the gentlemen in this room and ladies can find a way to streamline that process and make it so we are not negatively impacting the environment, but we are not making things cost prohibitive so we can't compete with our neighbors around the world producing food for our country.

Mr. MCCLINTOCK. Ms. Hill, two reapportionments ago, I represented the California part of the Klamath River. And when I arrived there, I am told of this terrible salmon crisis: a population had collapsed, and we had to tear down four perfectly good hydroelectric dams as a result. And my response to that was, well, why doesn't somebody build a fish hatchery?

It turns out, of course, somebody did years ago. It is the Iron Gate Fish Hatchery, it is attached to the Iron Gate Dam. It produces 5 million salmon smolts a year; 17,000 return annually as fully grown adults to spawn in the Klamath. But they don't let us include them in the population counts. To add insult to insanity, when they tear down the Iron Gate Dam, the Iron Gate Fish Hatchery goes with it. And then you do have a catastrophic collapse of the salmon population. Do I have those facts straight?

Ms. HILL. I am sorry, I can't say specifically, but yes, in general. Mr. MCCLINTOCK. All right. Well, Mr. Bourdeau, I have legisla-

Mr. MCCLINTOCK. All right. Well, Mr. Bourdeau, I have legislation that was actually passed the last time the Republicans had a House majority—I am trying to get a hearing now in this Committee, and I hope to have it marked up soon—that would change the permitting structure so that these environmental studies would run concurrently, not consecutively.

When applications are filed for new dam construction, the Bureau of Reclamation would be made the lead agency, and would have a limited time to complete the studies and make a decision. Would that help our ability to restore water storage to the Western United States?

Mr. BOURDEAU. Yes, sir.

Mr. McCLINTOCK. Anyway, thanks very much.

I yield back.

Mr. BENTZ. Thank you. The Chair recognizes himself for 5 minutes.

One of the great things about waiting until the end to have the last word is that there will be very few people listening to the last word.

[Laughter.]

Mr. BENTZ. But I am so happy to have the witnesses here today that have testified, and a couple of remarks in response to some of the things we have heard.

You will note that the title of our hearing today says nothing about surface storage. In my opening statement, I referred to aquifer storage, of course, managing our forests better, and then raising height of dams because, of course, we are all cognizant of cost and, indeed, most of the good places for surface storage have been taken.

There is another thing that needs to be mentioned, and that is that folks who think and want to blame our current circumstance on climate change always carry with it the fact that if suddenly we stopped creating  $CO_2$  in the USA, the situation would be better. And it wouldn't be. Our current circumstance is baked in, and it is going to stay this way or get worse for the next 30 to 40 years, despite our best efforts. So, that means this conversation today is extraordinarily important, because we are going to be dealing with it for a long time. And all the blame and caustic remarks, I think, are really not that productive.

One of the things that I did hear, hopefully, a common goal is storage in aquifers. And to that end, anticipating this, I reached out to Dr. Helen Dahlke, professor of Integrated Hydrologic Sciences at UC Davis, and spoke with her at length along with staff yesterday. And she had mentioned the new way of identifying the best places in the Central Valley to place water so that it promptly begins to proceed downward into the Earth toward the 140 million acre-feet of space that is available for aquifer storage.

But those new scientific methods of identifying the location of the site, the best thing is that I think the folks at this dais right now

have a common goal of trying to take advantage of that. And I would say that the most important thing that is going to come out of this hearing today is that the Ranking Member and I will be working together to try to figure out how to advance our efforts in that space.

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Likewise, the forest being the biggest storage device, of course they are. And the Ranking Member and I were also commenting that that is a place of common interest. Raising dams, that is a place perhaps of common interest, perhaps not, but it makes a lot of sense.

One other thing. There has been much talk about pricing water. Let me say that the highest cost water I have heard of is \$3,800 an acre-foot out of the desal plant in Southern California. I am all in favor of desal. But at \$3,800 an acre-foot, the normal cost is around \$2,000. If we put that number on the amount of water that is available but being lost to the sea, it is in the billions. It is truly in the billions.

So, why we are allowing those billion-dollar bills to float down our rivers into the sea is unclear to me, particularly in California, when it has to justify its use of the Colorado while allowing this kind of unfortunate event to occur.

I have way more questions than we have time for, but I wanted to make these points before we closed out tonight.

And once again, I want to thank all of the witnesses for their help, and I look forward to working with you in the future.

With that, can I say we are adjourned, or do we have something else?

Hold on a second. The closing script.

[Laughter.]

Mr. BENTZ. I thank the witnesses again for their valuable testimony, and the Members for their questions.

The members of the Committee may have some additional questions for the witnesses, and we will ask you to respond to these in writing. Under Committee Rule 3, members of the Committee must submit questions to the Subcommittee Clerk by 5 p.m. on Friday, March 31. The hearing record will be held open for 10 business days for these responses.

If there is no further business, without objection, the Subcommittee stands adjourned.

[Whereupon, at 3:42 p.m., the Subcommittee was adjourned.]