



HOUSE COMMITTEE ON
NATURAL RESOURCES
CHAIRMAN BRUCE WESTERMAN

To: Subcommittee on Water, Wildlife and Fisheries Republican Members
From: Subcommittee on Water, Wildlife and Fisheries staff: Kiel Weaver (kiel.weaver@mail.house.gov), Annick Miller (annick.miller@mail.house.gov) and Doug Levine (doug.levine@mail.house.gov), x58331
Date: March 28, 2023
Subject: Oversight hearing “*Why We Need to Store More Water and What’s Stopping Us*”

The Subcommittee on Water, Wildlife and Fisheries will hold an oversight hearing on “*Why We Need to Store More Water and What’s Stopping Us*” on Tuesday, March 28, 2023, at 2:00 p.m. EDT in Room 1324 Longworth House Office Building.

Member offices are requested to notify Thomas Shipman (thomas.shipman@mail.house.gov) by 4:30 p.m. on Monday, March 27, if their Member intends to participate in the hearing.

I. KEY MESSAGES

- Despite experiencing record drought over the past few years, some areas in the West are now experiencing historic precipitation levels.
- Lack of adequate surface and groundwater storage facilities will continue to result in flooding and uncaptured water for future use.
- The Biden administration has exacerbated this problem by opposing some new storage or handcuffing new or expanded facilities with red tape.
- It is also focused on diverting current water storage for environmental purposes that do little for fish while harming communities.
- Our national forests also serve as water storage, but timber management could be improved to help restore these watersheds.

II. WITNESSES

- **Mr. William Bourdeau**, Vice Chair, San Luis & Delta-Mendota Water Authority, Coalinga, California;
- **Ms. Tricia Hill**, Board Member, Klamath Water Users Association, Merrill, Oregon;
- **Mr. Andy Mueller**, General Manager, Colorado River Water Conservation District, Glenwood Springs, Colorado; and
- **Mr. Joshua Sewell**, Senior Policy Analyst, Taxpayers for Commons Sense, Washington, District of Columbia.

III. BACKGROUND

Over the past three years, much of the western United States has experienced prolonged, persistent drought and below-average precipitation.¹ Those same years have been some of California's (State) driest on record.² As of late last year, most of the State was experiencing severe and extreme drought conditions (see figure 1) and many of California's largest reservoirs were well below historic averages (see figure 2).

Since then, California has been hit by 14 atmospheric rivers³ which have significantly increased reservoir levels. To date, most of California's reservoirs are at or above their historical averages (see figure 3). In addition, the State has experienced historic levels of snowpack. As of March 22, 2023, the Statewide snow water equivalent (the depth of water that would cover the ground if the snow cover was in a liquid state) is 227 percent of average – with some regions of the State reaching as high as 283 percent of average.⁴ As the snow begins to melt, California will continue to face significant flood risks.⁵

Storage for the Future

Precipitation varies widely across the western United States. In California, precipitation occurs primarily in the late fall and winter months with greater amounts of precipitation occurring in the coastal and Sierra Nevada Mountain regions.⁶

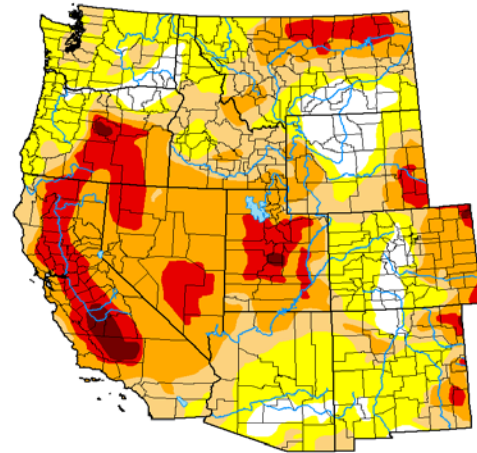
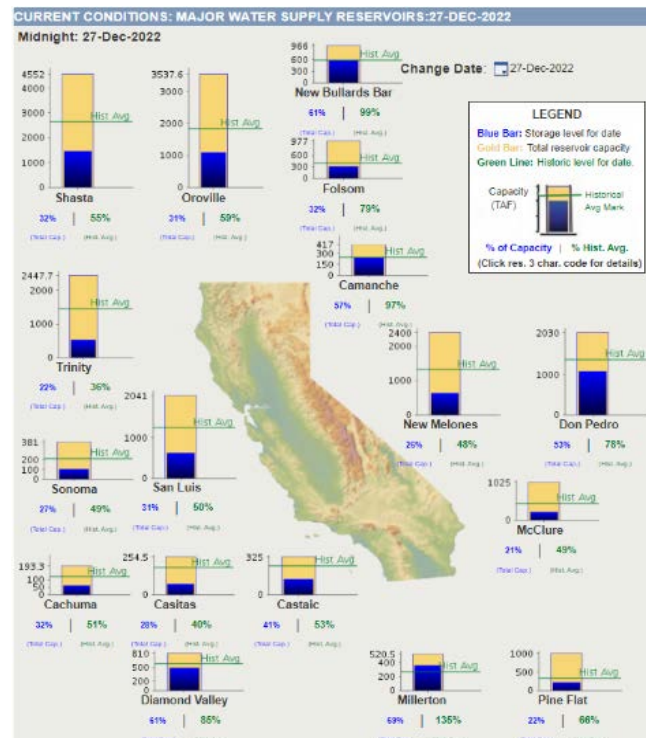


Figure 1: December 27, 2022, Drought Map
Source: U.S. Drought Monitor



Source: California Department of Water Resources

¹ NOAA, [Spring Outlook: Drought to persist, expand in U.S. West and High Plains](#) (March 18, 2021); [Spring Outlook: Drought to expand amid warmer conditions](#) (March 17, 2022).

² https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_SWC

³ Camponovo, M. March 19, 2023, *How many atmospheric rivers have hit California this winter?*

<https://fox40.com/news/california-connection/how-many-atmospheric-rivers-have-hit-california-this-winter/>

⁴ https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_SWC

⁵ Schneider, A. March 15, 2023. *Atmospheric rivers bring catastrophic flooding and record snow to California* <https://myfox8.com/weather/blog/atmospheric-rivers-bring-catastrophic-flooding-and-record-snow-to-california/>

⁶ USBR, *Sacramento and San Joaquin Rivers Basin Study*, March 2016.

https://www.usbr.gov/watersmart/bsp/docs/finalreport/sacramento-sj/Sacramento_SanJoaquin_SUMMARY.pdf

California's Central Valley is divided into three basins: the Sacramento Valley, the San Joaquin Valley, and the Tulare Lake Basin. The total mean annual inflow to the Sacramento and San Joaquin valleys is approximately 23.1-million-acre feet (AF), but annual flows have ranged from a low of 6.2 million AF in 1977 to a high of 52.7 million AF in 1983.⁷ An AF is 326,000 gallons of water, or enough to cover a football field with water one foot deep.⁸ In the Tulare Lake Basin the Kings, Kaweah, Tule, and Kern Rivers have a combined mean annual runoff of approximately 2 million AF.⁹

These basins are the water source for the State's main federal water project, the Central Valley Project (CVP). The CVP is a system of 20 dams and reservoirs that together can hold nearly 12 million acre-feet.¹⁰ Based on CVP water contracts, the project can deliver up to 9.5 million AF, but actual deliveries are much lower.¹¹ On average, the CVP delivers about 6 million AF of water per year.¹² However, over the past two years, deliveries have been much lower than average. As a result of drought conditions and low reservoir levels, in 2022 deliveries totaled 1.69 million AF¹³ and 3.9 million AF in 2021.¹⁴

The CVP system does not have enough storage capacity to capture water during big storm events and keep it for future use. As figure 3 shows, the recent storm events have filled most reservoirs. Snowmelt will likely require releasing much of the stored water for flood control in the coming months. Multiple attempts have been made over the decades to increase storage capabilities in California. Including a proposed expansion of Los Vaqueros Reservoir to increase the reservoir's capacity up to 275,000 AF from 160,000 AF. In 2020, the Bureau of Reclamation (Reclamation) found the expansion project to be feasible.¹⁵ However, the Biden administration has yet to

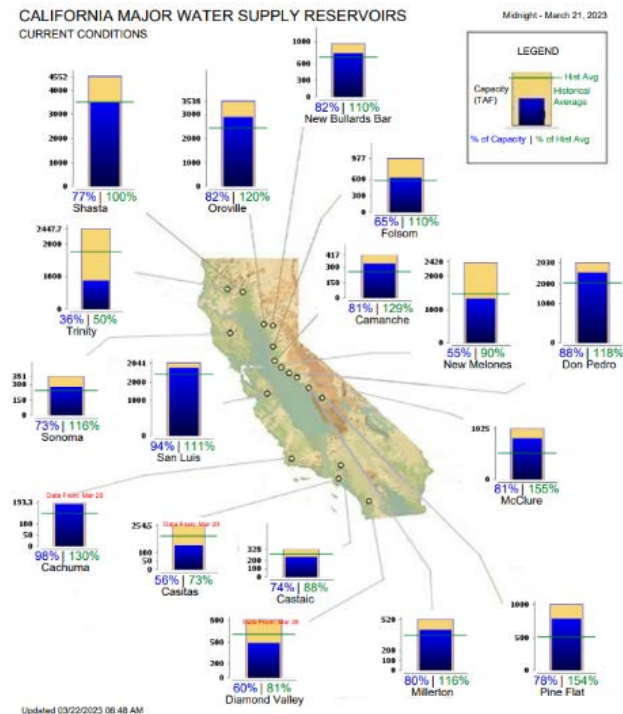


Figure 3: Reservoir Levels as of March 21, 2023. Source: California Department of Water Resources

⁷ Id.

⁸ Water Education Foundation, *What's an acre-foot?*, <https://www.watereducation.org/general-information/whats-acre-foot>

⁹ USBR, *Sacramento and San Joaquin Rivers Basin Study*, March 2016.

https://www.usbr.gov/watersmart/bsp/docs/finalreport/sacramento-sj/Sacramento_SanJoaquin_SUMMARY.pdf

¹⁰ USBR, *Central Valley Project, Background*, <https://www.usbr.gov/mp/cvp/>

¹¹ USBR, *Central Valley Project, Water Quantities for Delivery 2023*, <https://www.usbr.gov/mp/cvp-water/docs/cvp-water-quantities-for-delivery-2023.pdf>

¹² Of the 6 million AF, senior water rights holders receive 3.2 million AF, irrigation contracts receive 2.2 million AF, and approximately 600,000 AF is for municipal and industrial uses. <https://www.usbr.gov/mp/cvp/>

¹³ USBR, *Central Valley Project, Water Quantities for Delivery 2022*, <https://www.usbr.gov/mp/cvp-water/docs/cvp-water-quantities-for-delivery-2022.pdf>

¹⁴ USBR, *Central Valley Project, Water Quantities for Delivery 2021*, <https://www.usbr.gov/mp/cvp-water/docs/cvp-allocation.pdf>

¹⁵ USBR, *Reclamation and Contra Costa Water District advance plan to increase water reliability*, February 28, 2020. <https://www.usbr.gov/newsroom/newsroomold/newsrelease/detail.cfm?RecordID=69643>

complete its consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA), a critical step for the project.¹⁶ In November 2022, sixteen California Members of Congress and both of its U.S. Senators sent a letter to the administration urging it to move forward with the permitting process, in particular the ESA consultation.¹⁷

Another project that could improve California's water storage capabilities is Sites Reservoir, a proposed off-stream storage facility northwest of Sacramento, California. Sites Reservoir is anticipated to be operational around 2030, but the project's origins go back to the 1960s.¹⁸ While this project has had several starts and stops, it has been continuously studied since the early 2000's.¹⁹ The Final Environmental Impact Report/Environmental Impact Statement is expected to be released in Spring 2023.²⁰ The National Environmental Policy Act (NEPA) requirement to analyze project alternatives has been a leading factor delaying this project. Under NEPA, Reclamation and the State of California investigated 52 different project alternatives for Sites Reservoir.²¹ According to the Sites Project Authority, "Sites Reservoir could have diverted and captured 250,000 acre-feet of water as a result of the January storms if the reservoir was operational, and an additional potential 244,000 acre-feet of water as a result of the February-March storms."²²

Another storage opportunity could have been implemented at Shasta Dam in northern California. Under the Trump administration, Reclamation released its Final Supplemental Environmental Impact Statement on raising Shasta Dam by 18.5 feet. This would have provided an additional 634,000 acre-feet of stored water to increase anadromous (salmon) fish survival and water supply reliability while providing for flood control, water quality, hydropower generation, and recreation opportunities.²³ This project has faced repeated opposition by Democratic Members of Congress and has been ignored by the Biden administration.²⁴ As of March 22, Shasta Dam is 38

¹⁶ USBR, Los Vaqueros Expansion Project EIS/EIR. https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=903

¹⁷ Congressional Letter: Support for the Phase 2 Los Vaqueros Reservoir Expansion Project. November 1, 2022.

<https://www.ccwater.com/DocumentCenter/View/11747/JPA-Letter-of-Support---Federal---November-2022?bidId=>

¹⁸ In the 1960s, Reclamation evaluated construction of a 1.2 million-acre-foot Sites Reservoir. California Department of Water Resources (DWR). Bulletin 76-81: State Water Project – Status of Water Conservation and Water Supply Augmentation Plans. 1981.

https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/comments102612/desjardins/bulletin76-81.pdf

¹⁹ DWR received authorization to study Sites Reservoir in 1996 under State of California Proposition 204, The Safe, Clean, Reliable Water Supply Act. The Bureau of Reclamation was authorized by Congress through the California Bay-Delta Program (CALFED, Public Law 108-361, Water Supply, Reliability, and Environmental Improvement Act).

²⁰ Sites Reservoir Environmental Review, 2023-2024 Sites Reservoir Test Pits, Fault Studies, and Quarry Studies.

<https://sitesproject.org/environmental-review/>

²¹ Testimony of Thad Bettner, General Manager, Glenn-Colusa Irrigation District before the Natural Resources Committee, February 7, 2012. <https://www.govinfo.gov/content/pkg/CHRG-112hhrg72805/pdf/CHRG-112hhrg72805.pdf>

²² Sites, Press Release: *New Analysis Finds 2023 Storms Would Have Yielded Water for Up to 2.4 Million People, Farms, and Businesses if Sites Reservoir Were Operational Today*, March 16, 2023. https://sitesproject.org/wp-content/uploads/2023/03/Sites-News-Release_March-Storm-Diversion-Data_FINAL-3.16.2023.pdf

²³ USBR, Final Supplemental Environmental Impact Statement, *Shasta Lake Water Resources Investigation*. https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=47404

²⁴ Since FY2021 appropriations, Democrats have included funding prohibitions for the Shasta dam raise in appropriations bills. Rep. Ken Calvert has offered amendments to remove this rider each time. <https://calvert.house.gov/media/press-releases/rep-calvert-offers-california-water-storage-amendments-during-energy-and-water>

feet from reaching its maximum storage capacity.²⁵ The reservoir has risen nearly 100 feet since January 1, 2023.²⁶

There has also been an increased focus on groundwater recharge, which faces regulatory hurdles throughout the western United States. While state law is responsible for the management and regulation of groundwater supply, including pumping and recharge, federal water infrastructure (including dams and canals), are often designed or operated to assist in the management and recharge of groundwater resources. For example, the location of use of water from a federal irrigation project is restricted by that project's authorized boundary. However, aquifers can underlie both project and non-project lands, and in certain cases non-project lands may be better suited for recharging the aquifer. In the Fiscal Year 2021 Consolidated Appropriations Act, provisions were included that would allow the use of non-project lands that share an aquifer with project lands for groundwater recharge.²⁷ In addition, the provisions expressly authorized the use of excess capacity at Reclamation facilities to be used for non-project water intended for aquifer recharge.

While such efforts address federal water projects, states can have regulations in place that stifle groundwater recharge. For example, to use water from rivers and canals for groundwater recharge, the State of California requires a permit from the State Water Resources Control Board and the California Department of Fish and Wildlife.²⁸ After multiple atmospheric rivers hit the State, Governor Gavin Newsom signed an executive order suspending these permitting requirements in many areas.²⁹ The order lasts until June 1, 2023, and is intended to make it easier for local water districts and farms to route river flows to fields and other sites where the water can boost aquifers.

A Republican witness from California will testify on the importance of adequate water storage and the current impediments on expanded or new storage.

Access to Water

A primary purpose of Reclamation projects is to capture mountain snowmelt, store it, and distribute it during the summer months. These water projects led to homesteading and promoted the economic development of the western United States. Today, Reclamation is the nation's largest wholesale water supplier, providing water to farmers that produce 60 percent of the nation's vegetables and one quarter of its fresh fruit and nut crops.³⁰ In addition, most of the western United States' largest cities – particularly those that benefit from Colorado River basin waters (Los Angeles, Phoenix, Las Vegas, Denver, and others) – owe their continued existence to Reclamation's multi-purpose projects.

²⁵ USBR, Northern California Area Office Daily Operational Data, March 21, 2023.

<https://www.usbr.gov/mp/cvo/vungvari/daily.pdf>

²⁶ California Department of Water Resources, Shasta - Storage Conditions, March 21, 2023.

<https://cdec.water.ca.gov/resapp/ResDetail?resid=SHA>

²⁷ P.L. 116-260, Consolidated Appropriations Act of 2021. <https://www.govinfo.gov/app/details/PLAW-116publ260>

²⁸ Water Education Foundation, *Gavin Newsom Waives Permits to Put California Flood Water Underground*, March 13, 2023.

<https://www.watereducation.org/aquaformia-news/gavin-newsom-waives-permits-put-california-flood-water-underground>

²⁹ State of California, Executive Order N-4-23, March 10, 2023. <https://www.gov.ca.gov/wp-content/uploads/2023/03/3.10.23-Ground-Water-Recharge.pdf>

³⁰ USBR, Facts. <https://www.usbr.gov/main/about/fact.html>

However, after the passage of the ESA, water stored for agricultural use had its importance diminished in many watersheds. In recent years, western water projects have received zero allocations for agriculture, with available supplies used for environmental benefits.³¹

Natural drought has played a role in diminished supplies, but in places like California and Oregon water that had been allocated to farms and ranches has been re-directed for environmental purposes – mainly for perceived fishery needs through the issuance of Biological Opinions (BiOp). Many federal project operations are guided by BiOps issued by the National Marine Fisheries Service (NMFS) and/or the USFWS over ESA-listed species. The intent of a BiOp is to ensure that the proposed action will not reduce the likelihood of survival and recovery of an ESA-listed species. While a BiOp is not an ESA recovery plan, it can also serve as a component of a recovery plan.

The federal Klamath Project (Project) in southern Oregon and northern California is a leading example of the imbalance in federal water policy. The Project in northern California and southern Oregon irrigates approximately 200,000 acres and is the regional hub for agricultural food production and wildlife refuge habitat for waterfowl in the Pacific Flyway. In addition, tribal nations upstream and downstream within the Klamath watershed depend on water, although their needs may vary depending on their location.

Operations of the Project, namely diversions from Upper Klamath Lake, are believed to affect several species of fish that are currently listed as threatened or endangered under the ESA. Two species of fish – Lost River and shortnose suckers – that reside in Upper Klamath Lake have been listed as endangered since 1988. In addition, coho salmon on the Klamath River have been listed as threatened since 1995. The USFWS is responsible for overseeing administration of the ESA with respect to the sucker fish³² while the NMFS is responsible for managing coho under the ESA.³³

In 2019, USFWS and NMFS issued new BiOps to address their respective listed species. In 2020, this consultation was modified, leading to the current operating regime known as the Interim Operations Plan.³⁴ This plan details what Reclamation will do to meet the obligations under the ESA imposed by the FWS³⁵ and NMFS³⁶ in their individual BiOps.

To address the FWS BiOp, Reclamation is required to maintain the surface elevation of Upper Klamath Lake to at least at 4,142 feet above sea level in April and May (during sucker spawning)

³¹ Certain water users in the CVP and Klamath have received zero water allocations in the last three years.

³² The Lost River sucker and shortnose sucker were listed as endangered on July 18, 1988 (53 FR 27130).

³³ National Oceanic and Atmospheric Administration, 62 CFR, p. 24588, May 6, 1997, and 64 CFR, p. 24099, May 5, 1999.

³⁴ USBR, Final Biological Assessment, *The Effects of the Proposed Action to Operate the Klamath Project from April 1, 2020 through March 31, 2024 on Federally Listed Threatened and Endangered Species*. <https://www.usbr.gov/mp/kbao/docs/klamath-2020-ba.pdf>

³⁵ U.S. Fish and Wildlife Service, *Biological Opinion on the Effects of Proposed Klamath Project Operations from April 1, 2019, through March 31, 2024, on the Lost River Sucker and the Shortnose Sucker* (USFWS 2019 BiOp) <https://www.fws.gov/cno/pdf/BiOps/FWS-BiOp-Klamath-Project-Operation-VI508.pdf>

³⁶ National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) *Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for Klamath Project Operations from April 1, 2019 through March 31, 2024* (NMFS 2019 BiOp) <https://www.fisheries.noaa.gov/resource/document/2019-klamath-project-biological-opinion>

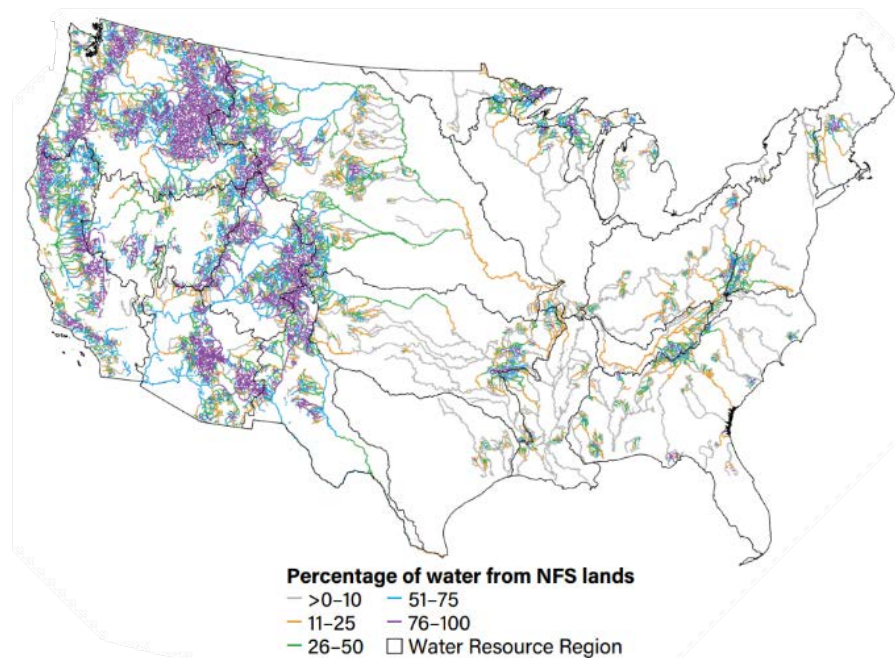
and not lower than 4,138 feet at all times.³⁷ The minimum elevation of 4,138 feet means permanently maintaining a minimum of 60,000 acre-feet or ten percent of the capacity stored in Upper Klamath Lake. At the same time, under the NMFS BiOp, Reclamation must release significant volumes of water from Upper Klamath Lake – including, under dry conditions, all the water and more that physically flows into the lake – to produce designated flows in the Klamath River 40 miles downstream of the Project, including a spring “flushing flow” of over 6,000 cubic feet per second, for the purported benefit of coho salmon.³⁸ The specific purpose of the flushing flow is to disrupt and move gravel that contains microscopic worms, which are the intermediate host of a salmon parasite.

Klamath Project water users commonly point out that re-allocation of their historic irrigation supplies to provide higher Upper Klamath Lake elevations and Klamath River flows has not led to any known benefit for the threatened and endangered fish populations.³⁹

A witness from the Klamath Water Users Association will testify on the impacts these federal policies have had on the Klamath Project.

Forest Health Impacts on Water

Much of the water in the western United States comes from watersheds whose lands are mostly owned and operated by federal agencies, primarily the U.S. Forest Service (FS), the Bureau of



Source: U.S. Forest Service

³⁷ USBR, Final Biological Assessment, *The Effects of the Proposed Action to Operate the Klamath Project from April 1, 2020 through March 31, 2024 on Federally Listed Threatened and Endangered Species*. <https://www.usbr.gov/mp/kbao/docs/klamath-2020-ba.pdf>

³⁸ Id.

³⁹ Schwartz, A., *Feds pledge \$1.2 million to update Klamath Project science*, July 30, 2020. https://www.heraldandnews.com/news/local_news/feds-pledge-1-2-million-to-update-klamath-project-science/article_506f000f-1c44-5788-8054-ef86f225a46f.html

Land Management (BLM), and the National Park Service (NPS). These watersheds provide water for human consumption through municipal and agricultural uses, as well as environmental and recreational uses. The snowpack in these forests is the western United States' main source of water storage. For example, National Forest System lands contribute 46.3 percent of the surface water supplies in the western United States.⁴⁰

However, a lack of proper forest management, combined with worsening drought conditions and rising temperatures, has made communities across the western United States less resilient to wildfires. According to the latest FS fireshed mapping, 71 percent of BLM lands and 89 percent of FS lands “have the potential for wildfires to ignite and spread to communities.”⁴¹ High intensity wildfires damage water-producing infrastructure, forest and soils, and lead to reduced water quality and uncertain water quantity for farms and communities.⁴²

Upland watershed and forest management activities can help increase water quality and quantity, as well as mitigating the risk of catastrophic wildfire. At a March 8, 2023, Water, Wildlife and Fisheries Subcommittee oversight hearing, Mr. Dan Keppen referenced work being done by Family Farm Alliance president Pat O'Toole to design a comprehensive, multistakeholder, large landscape initiative to restore two severely degraded (non-functioning) 50,000-acre watersheds: one in the Medicine Bow National Forest in Wyoming and a second in the Routt National Forest in Colorado.⁴³

In California, the North Yuba Forest Partnership, which includes the Yuba Water Agency, has developed a strategy to treat 20 million acres on national forest lands and up to an additional 30 million acres of other federal, state, Tribal, private, and family lands over the next decade.⁴⁴ In Arizona, the Salt River Project, through a partnership with Northern Arizona University, funds research projects that aim to support the development of solutions that protect watersheds. Some of the research includes research demonstrating that forest thinning treatments can lead to improvements to snowpack distribution and accumulation.⁴⁵

A witness from the Colorado River Water Conservation District will testify on the importance of forest health and management to water supply and the need for streamlining the permitting process as part of water storage.

⁴⁰ U.S. Forest Service, *Quantifying the Role of National Forest System and Other Forested Lands in Providing Surface Drinking Water Supply for the Conterminous United States*, September 2022.

https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/GTR-WO-100.pdf

⁴¹ A fireshed is a landscape-scale area that faces similar wildfire threats where a fire management strategy could affect fire outcomes. Alan Ager, et al. “Development and Application of the Fireshed Registry,” USDA Forest Service Rocky Mountain Region, May 2021.

⁴² USDA, U.S. Forest Service, *Wildfires Alter Forest Watersheds and Threaten Drinking Water Quality*. May 2019.

<https://www.fs.usda.gov/research/treesearch/58606>

⁴³ Testimony of Mr. Dan Keppen, Executive Director for Family Farm Alliance before the House Natural Resources Committee, March 8, 2023. https://naturalresources.house.gov/uploadedfiles/testimony_keppen.pdf

⁴⁴ Yuba Water Agency, North Yuba Forest Partnership. <https://www.yubawater.org/317/North-Yuba-Forest-Partnership>

⁴⁵ Northern Arizona University, *Protecting our water: SRP-funded projects take on challenges of snowpack, watershed health* <https://news.nau.edu/srp-2022/>