BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

October 4, 2023

Correspondence and media coverage of interest between September 25, 2023 and October 1, 2023

Correspondence

From: State Water Contractors and coalition of water agencies
To: State Water Resources Control Board
Date: September 28, 2023
Subject: Support for Voluntary Agreements

Water Supply Conditions:

Date: October 1, 2023
Source: California Water Blog
Article: The myth of normal river flow: Drought floods, and management of California rivers

Date: September 27, 2023
Source: ABC 10
Article: Reviewing the record-breaking water year in Northern California

Date: September 26, 2023
Source: NCAR & UCAR News
Article: NCAR Experimental Prediction System Calls For A Super El Nino This Winter

Date: September 25, 2023
Source: Courthouse News Service
Article: More than 90% of California out of historic drought as water year ends

Water Policy:

Date: September 30, 2023
Source: Sacramento Bee
Article: Diane Feinstein championed the environment. On California water, her legacy is complicated

Date: September 29, 2023
Source: Maven's Notebook
Article: Reactions: Here's what water agencies and NGO's have to say about the State Water Board's Bay Delta Plan environmental document

Date: September 29, 2023
Source: Cal Maters
Article: The Bay-Delta ecosystem is collapsing. California just unveiled rival rescue plans

Date: September 28, 2023
Source: San Francisco Chronicle
Article: California wants to restore the rivers and San Francisco Bay to health. Here is the controversial plan

Water Policy, cont'd.:

Date: September 26, 2023
Source: Union of Concerned Scientists
Article: Will California Take This Small, but Important Step Toward a More Equitable Water Rights System?

EMAIL TRANSMISSION

September 28, 2023

State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Chair Esquivel, Board members and staff,

We, the undersigned participating water agencies, are writing to express our strong support for the Voluntary Agreements, which will enhance healthy rivers and landscapes while helping California adapt to our climate reality by strengthening the environment, communities and farms.

Today, your staff issued a series of documents to update the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta). Protecting California's Bay-Delta watershed and its many beneficial uses is one of the State Water Board's primary responsibilities. This includes updating and adopting the Bay-Delta Water Quality Control Plan (Bay-Delta Plan), which establishes water quality control measures and flow requirements needed to provide reasonable protection of beneficial uses in the watershed, including environmental, municipal, domestic and agricultural water supplies.

The draft documents include a staff report describing the State Water Board process to evaluate alternatives, a Substitute Environmental Document (SED), a scientific basis report and other supporting materials. The public will have an opportunity to comment on the different alternatives over the next several months. The State Water Board will consider those comments and adopt the Bay-Delta Plan Update in late 2024, after evaluating the alternatives and their environmental effects, and ensuring the new plan will protect the beneficial uses of water in the Bay-Delta watershed.

Agreements to Support Healthy Rivers and Landscapes

On March 29, 2022, Governor Newsom convened state, federal and local water leaders to announce broad agreement on measures to provide additional water flows and new habitat to help improve conditions in the Sacramento-San Joaquin River Delta watershed. Also referred to as the Voluntary Agreements, this program for healthy rivers and landscapes is one of the alternatives that will be fully analyzed by the State Water Board over the next year.

The memorandum of understanding (MOU) signed in 2022 and subsequent amendments outline terms for a transformational program that will provide substantial additional flows for the environment to help recover salmon and other native fish, create new and restored habitat for fish and wildlife and provide significant funding for habitat improvements and water purchases. The terms also include a governance and habitat monitoring framework with clear metrics and goals to allow state, federal and local partners and stakeholders such as Tribes and NGOs to analyze progress and manage adaptively to ensure the program is effective.

If approved by the State Water Board, the program of implementation required under the *Agreements to Support Healthy Rivers and Landscapes* will become the new Bay-Delta Plan. The plan will be implemented through binding agreements between the State Water Board, state and federal agencies and participating water agencies to direct water, funding, and habitat restoration efforts to improve the health of California's Bay-Delta ecosystem and its tributaries.

We, the undersigned participating public water agencies from Red Bluff to the Mexican border, are working together with state and federal agencies on the *Agreements to Support Healthy Rivers and Landscapes* as a new and transformational approach to California water management – one that provides a better future for California to adapt to our climate reality. We support this approach, which offers:

- Substantial water – between 500,000 acre-feet and 700,000 acre-feet (more than half of Folsom Reservoir's 975,000 acre-feet capacity) – dedicated to the environment in many water years.
- Significantly reduced environmental effects throughout California compared to the traditional regulatory flows-only approach.
- A comprehensive portfolio of actions in river reaches, from ridgetop to river mouth, designed to reactivate the landscape-scale patterns of biophysical habitat conditions that robust, resilient populations of salmon (and other fish, bird, and wildlife populations) depend upon.
    - At least 155,000 acre-feet of additional water in critically dry years, and over 700,000 acre-feet of water in dry, below normal, and above normal years.
    - Restoration of over 27,000 acres of floodplain habitat, 434 acres of instream habitat and 291 acres of spawning habitat in rivers throughout the state. Many projects have already been completed as part of early implementation.

- A commitment to over $2.5 billion in funding to support water purchases, crop idling, a robust science program and construction of new habitat, including dedicated resources to monitor and ensure performance.
- Actions throughout the state designed to restore ecosystem function while concurrently helping secure water supplies for communities, farms, other fish and wildlife, recreation and hydropower.
- A collaborative science program that relies upon the latest scientific information from the University of California, USGS, NGOs and other leading institutions and agencies to guide actions and learn from applied science.
- Partnerships and collaboration with state, federal and local water agencies.
- Inclusive governance that will address changing climate conditions, support research to improve management actions for native fish and welcomes the participation of Tribes and environmental organizations.
- Collaborative and adaptive management of flow and non-flow measures through structured decision making informed by the latest science.
- A program that brings people from different backgrounds and disciplines together to make California a better place.

The Time to Act is Now

While there have been some notable successes, the various efforts to manage the Bay-Delta over the recent decades have not worked as planned overall, as both important species and water supply reliability have declined in the Bay-Delta and throughout the state. To change course and offer a different approach and trajectory, state, federal and local leaders have come together around these innovative agreements that will improve environmental conditions more quickly and holistically than traditional regulatory requirements, while providing more certainty to communities, farms, and businesses.

California's recent dry years have shown us how quickly we need to move and how much we can get done with a mutual commitment to additional flows, accelerated habitat restoration and learning together what works best – so that we can do more of it.

We look forward to working with the State Water Board in this process and to expanding our partnerships with diverse organizations throughout California to implement the *Agreements to Support Healthy Rivers and Landscapes*.

Sincerely,


STATE WATER CONTRACTORS
SWC
Served by the State Water Project
FOUNDED IN 1982

NCWA
Northern California Water Association

RWA
Regional Water Authority
BUILDING ALLIANCES IN NORTHERN CALIFORNIA

SCWC

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

SAN BERNARDINO VALLEY
A REGIONAL WATER AGENCY
SINCE 1954

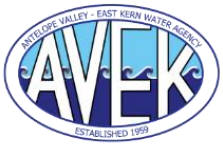
YUBA
WATER AGENCY

KERN COUNTY
WATER AGENCY

Sacramento River
SETTLEMENT CONTRACTORS

PVID
EST. 1918

NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESERT WATER

ANTELOPE VALLEY - EAST KERN WATER AGENCY
AVEK
ESTABLISHED 1959

WESTERN CANAL WATER DISTRICT
NELSON, CA

SAN LUIS & DELTA-MENDOTA
WATER AUTHORITY

Mojave
Water
Agency

WATER & POWER
Serving Central California since 1887

WATER
DISTRICT

SCV WATER

TCCA
Tehama Colusa Canal Authority

CENTRAL COAST WATER AUTHORITY

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

SOLANO COUNTY
WATER AGENCY

CASITAS
Municipal Water District

SAN GABRIEL VALLEY
MUNICIPAL
WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

SAN GORGONIO PASS WATER AGENCY
Established 1961

CONTRA COSTA
WATER DISTRICT

MID
Modesto
Irrigation
District
Water and Power

The myth of normal river flow: Drought, floods, and management of California's rivers
California Water Blog | October 1, 2023

Is California still experiencing drought? Even after a winter of record rainfall and snowpack, followed by a tropical storm, this is still an important question. And if you read the headlines, the answer is…yes and no. Although drought has been declared officially over, unsustainable groundwater pumping and overallocation of surface water leads to water deficits that persist, stressing rural communities, urban water supplies, and ecosystems. So even in this year of abundant rainfall and snowpack, water managers and river ecologists are still thinking about drought. In fact, drought conditions can be thought of as the base case, or the more common of two extremes that tend to drive management action in California. As climate change increases frequency and severity of both drought and flood in California (Swain et al. 2018), water managers must continuously plan for both very dry and very wet conditions.

What makes water management in California so challenging?

California's patterns of rainfall and river flow are defined by variability and extreme events. Precipitation and streamflow in California are more variable from year-to-year and within a year than any other part of the U.S. (Dettinger 2011). The dry season can last for 6 months or more in many parts of California, with many rivers relying on groundwater to keep flowing, and species relying on the ability to migrate from drying rivers to survive. Freshwater species are adapted to natural variability in river flow, but not to the alterations in flow caused by people – including water extraction, river regulation from dams, and climate change. The vast majority of rivers in California experience altered flow conditions (Zimmerman et al. 2018) and human water use, management, and habitat loss have worsened drought conditions (AghaKouchak et al. 2015). Human activities have at least doubled the probability of occurrence of extreme drought compared to natural conditions (He et al. 2017). This pattern would only intensify if climate change were included in the analysis.

A result is that freshwater biodiversity is in crisis, in California and around the world. Declines in biodiversity in freshwater habitats are happening faster than any other habitat type. Freshwater covers less than 1% of the earth's surface, but holds 10% of the earth's species, including one-third of all vertebrates (Tickner et al. 2020). The Living Planet Index (www.livingplanetindex.org) indicates population declines for freshwater species of 81% between 1970 and 2012, the greatest decline over all habitat types, with the main threats including habitat loss and degradation from dams and unsustainable water use. Freshwater biodiversity loss in California follows – or even leads – the global trend. In 2021, 73% of California's freshwater fishes were extinct, listed under the Endangered Species Act, or considered species of special concern (Leidy and Moyle 2021). Beyond fishes, nearly

half of California's freshwater species are threatened with extinction, and that number is far higher – 90% for species found only in California and nowhere else on earth (Howard et al. 2015).

When are California rivers experiencing drought, and when is it a problem?

Here's what we know: drought conditions are occurring with more frequency, greater severity, and longer duration. Human water use compounds the effects of drought, further stressing the state's ecosystems and impacting farms, rural communities, and urban water supplies. Water use and management in California has become unsustainable in many watersheds, contributing to the drastic loss of freshwater biodiversity, decimating California's iconic rivers, and triggering legal battles over a limited public resource with far too many demands. The problems are complex and overwhelming.

Where do we begin? One of our most critical needs is the ability to identify where drought conditions are likely, so that planning and action can occur in advance of the driest months and years. The U.S. Drought Monitor produces weekly maps of drought status based on precipitation, soil moisture, and other factors, as a way to determine drought impacts across the country – influencing agriculture, water supply, and terrestrial ecosystems. However, the U.S. Drought Monitor does not assess drought status in rivers and streams or potential drought effects on freshwater ecosystems. To fill this need, the Salmon and Steelhead Coalition, comprising The Nature Conservancy, Trout Unlimited, and California Trout, developed a Drought Flows Monitor web tool (https://rivers.codefornature.org/#/apps) that identifies watersheds likely experiencing critically dry conditions. This tool can be used as a trigger to act quickly and efficiently to mitigate the effects of drought on freshwater species, regionally as well as in crucial watersheds. The Drought Flows Monitor can help guide decisions by identifying California watersheds with historically low natural flows where ecological risk from human water use is very high.

How does it work?

The Drought Flows Monitor relies on data in the Natural Flows Database (NFD) that can be accessed at https://rivers.codefornature.org/. The NFD models a range of natural stream flows for every stream reach in California at the monthly time step for 1950 to the present and is extended monthly. The most downstream reach of the largest river in each large watershed was selected to summarize statewide drought effects. Mean monthly natural flow predictions were downloaded from the NFD for each reach, and the likely presence of drought was assessed by comparing that monthly flow to the historical range of flows for that month and location. Drought severity was then characterized using U.S. Drought Monitor categories (https://droughtmonitor.unl.edu/).

Categories include exceptional drought (lowest monthly flow for the model period); extreme drought (monthly flow in the 2-5th percentile of the range for the model period); severe drought (6-10th percentile); moderate drought (11-20th percentile); abnormally dry (21st-30th percentile) and average/ wet (31st-100th percentile). Figure 1 illustrates how the flow predictions for a given month and watershed are assigned to these categories.

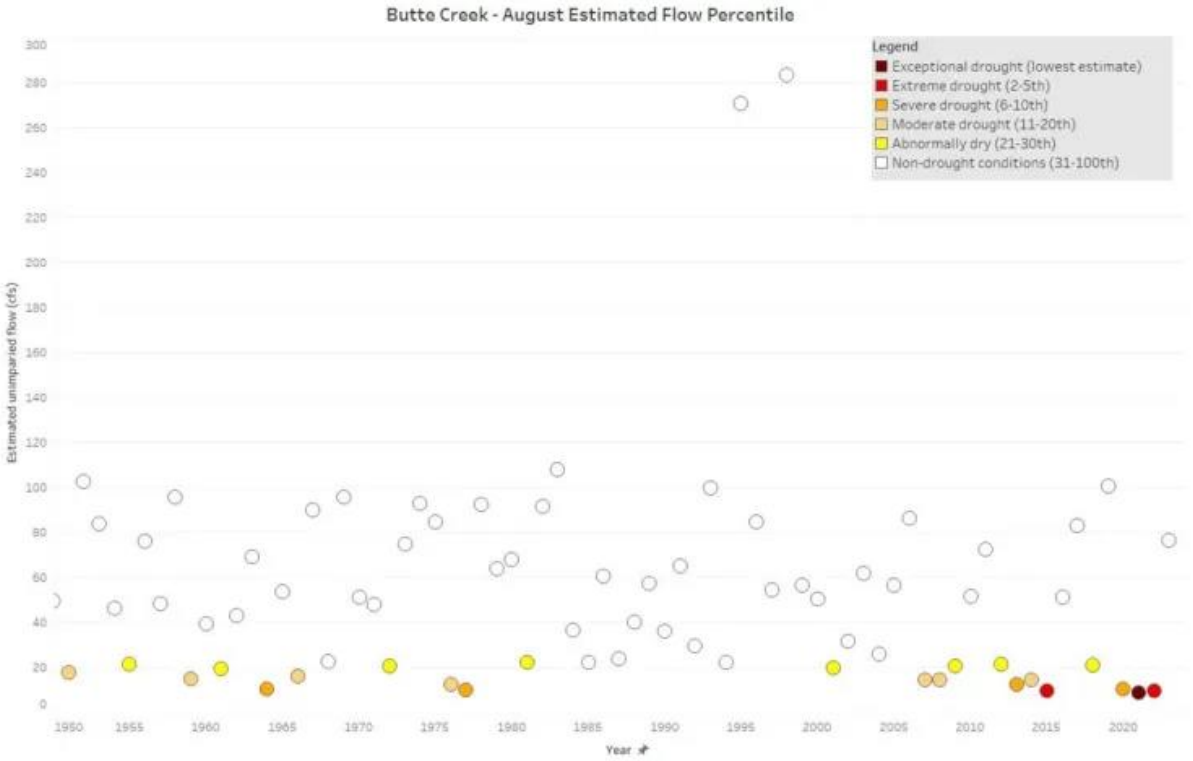


Figure 1: Estimated unimpaired flow for July from 1950 to 2023 for Butte Creek. The lowest predicted flows are assigned a drought category and colored based on the percentile rank.

The tool can be used to look at historical and current drought conditions in California's watersheds. Figure 2 shows drought status of California's watersheds for the wettest (2017) and driest (1977) years from 1950 to 2022, according to the Northern Sierra 8 station index. One pattern is that drought conditions in 1977 were widespread and severe, but tended to be more widespread and severe in March and April than in August. This doesn't mean conditions weren't dry in August – streams were going dry and water was scarce – but three important insights can be gleaned from this pattern.

First, drought effects are not synonymous with dry streams. Abnormally low flows during the wet season are common during drought and can have big impacts even if a river doesn't go dry. A river that might have 2,000 cfs in March of a wet year might only have 200 cfs in March of a drought year. That difference can have vast ecological consequences for species that rely on high flows to inundate rearing habitat and support migration in March.

Second, drought effects often appear in late winter and early spring and will likely persist until the start of the following year's wet season. The reduction in August drought severity in 1977 shown in Figure 2 is likely because many streams have very low or no flows in August in most years, rather than because drought severity has lessened. Surface flow assessments can't distinguish an average year from a drought year when flow is zero in both cases, even if impacts on riparian species and groundwater levels might be quite different. We know this because few areas of California are likely to get significant rain after April, and during dry years the end of significant storms often happens earlier, in March. Longer dry seasons are likely to become more common with climate change (Swain et al. 2018). We don't have to wait until summer to start thinking about changing water management. We

can confidently begin drought management actions much earlier, evaluating any rare late-season storms that may improve conditions.

Third, human and ecological experiences of a drought are based on observed flow – or what actually occurs in a river – rather than natural flow. These maps don't include the effects of dams, diversions, or discharges. Streams often go dry during a drought because of the interaction of natural drought effects and human use – which is why human water use should be managed during drought years to avoid exacerbating drought effects that further degrade or dry up perennial streams and rivers.

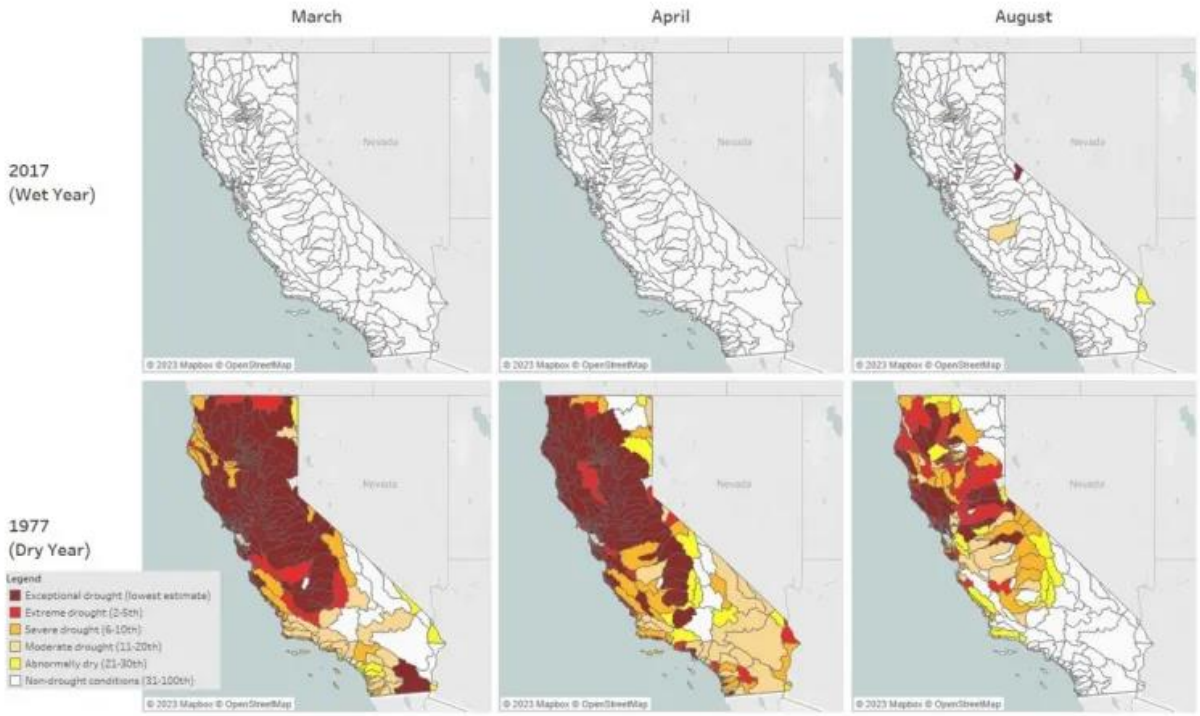


Figure 2: Drought Flows Monitor results for the wettest and driest years during the 1950-2022 period according to the Northern Sierra 8 station index.

How can the Drought Flows Monitor improve water management decisions?

The Drought Flows Monitor captures current and historical drought conditions that occurred throughout California. Drought conditions can be detected for any month, but patterns of two or more months of drought by March or April result in drought conditions likely to persist until the start of the next wet season. This means we can tell fairly early in a year if water will get scarce during drier and hotter months.

At least two types of management decisions can be made using this information: 1) immediate water conservation efforts for priority streams and rivers as a watershed enters drought conditions, according to natural flow estimates, and 2) planning for longer-term drought actions over the dry season, once a watershed has been in drought conditions for two or more months by April. The drought categories in the Drought Flows Monitor provide a useful framework for tailoring drought actions as drought severity increases, potentially beginning with voluntary water conservation efforts in the abnormally dry category, and progressing to water restrictions or curtailments as watersheds

enter severe, extreme, and exceptional drought. Advanced drought planning is lacking for most of California's watersheds, but this tool provides data helpful in closing that gap, providing advance notice, and addressing water scarcity before it becomes an emergency.

What about human water use?

The Drought Flows Monitor only considers natural flow conditions, as an indicator of natural drought stress. It is not a comprehensive indicator of drought conditions experienced by freshwater species as it does not account for additional human modifications to flow and habitat. In some locations with long-term gages, results from the Drought Flows Monitor can be compared to gage data to confirm observed flow conditions are indeed critically dry, and identify locations where human water use is likely further stressing freshwater species. The Monitor includes links to USGS gages and visualizations of current flow observations compared with historical discharge to help users assess whether drought categories based on natural flows are consistent with observed data. But because gage locations are very limited, other approaches to assess actual flows and ecological stress are still needed. To help fill these data gaps, The Nature Conservancy is currently working with collaborators to model actual flows in all stream reaches in California, to provide a dataset of flows that include human modifications and can be compared with natural flow conditions and enable alteration assessments, even where gages are not present. You can learn about our work on actual flows modeling on the California Water Blog: https://californiawaterblog.com/2021/09/26/developing-tools-to-model-impaired-streamflow-in-streams-throughout-california/.

The Drought Flows Monitor can be used to trigger drought actions directly, and as a tool to identify watersheds to verify instream conditions and stress to freshwater species through site visits or collection of field data. Collection of site-specific data is resource-intensive and cannot be applied across large spatial scales; so, a hierarchical approach of identifying priority watersheds using the Drought Flows Monitor that are further assessed using site-specific empirical methods can help protect rivers across large areas. Used together, statewide assessment of drought severity using the Drought Flows Monitor, combined with empirical observations at targeted watersheds, can help guide decisions to protect freshwater species in the rivers and streams with the highest ecological risk of water use. That said, knowing actual flows is not necessary for action when drought conditions are expected. When a watershed experiences drought, any additional decrease in flow risks harm to freshwater species, and drought actions are warranted. The Drought Flow Monitor is a tool for developing more comprehensive management that is responsive to changing conditions, fast to implement, and widespread – the type of approach needed to protect freshwater biodiversity in a changing climate.

# # #

Julie Zimmerman is the Director of Freshwater Science for The Nature Conservancy's California Chapter. Jennifer Carah is a Senior Scientist for The Nature Conservancy's California Chapter. Kirk Klausmeyer is the Director of Data Science for The Nature Conservancy's California Chapter. Bronwen Stanford is Lead River Scientist for The Nature Conservancy's California Chapter. Monty Schmitt is a Senior Project Director for The Nature Conservancy's California Chapter. Mia Van Docto is a Conservation Hydrologist for Trout Unlimited. Mary Ann King is the California Water Project

Director for Trout Unlimited. Matt Clifford is the California Director of Law and Policy at Trout Unlimited.

Reviewing the record-breaking water year in Northern California

The water year runs from Oct. 1 - Sept. 30 the following year, and the 2022-23 water year was one to remember across California.

ABC 10 | September 27, 2023 | Brody Adams

Credit: KXTV

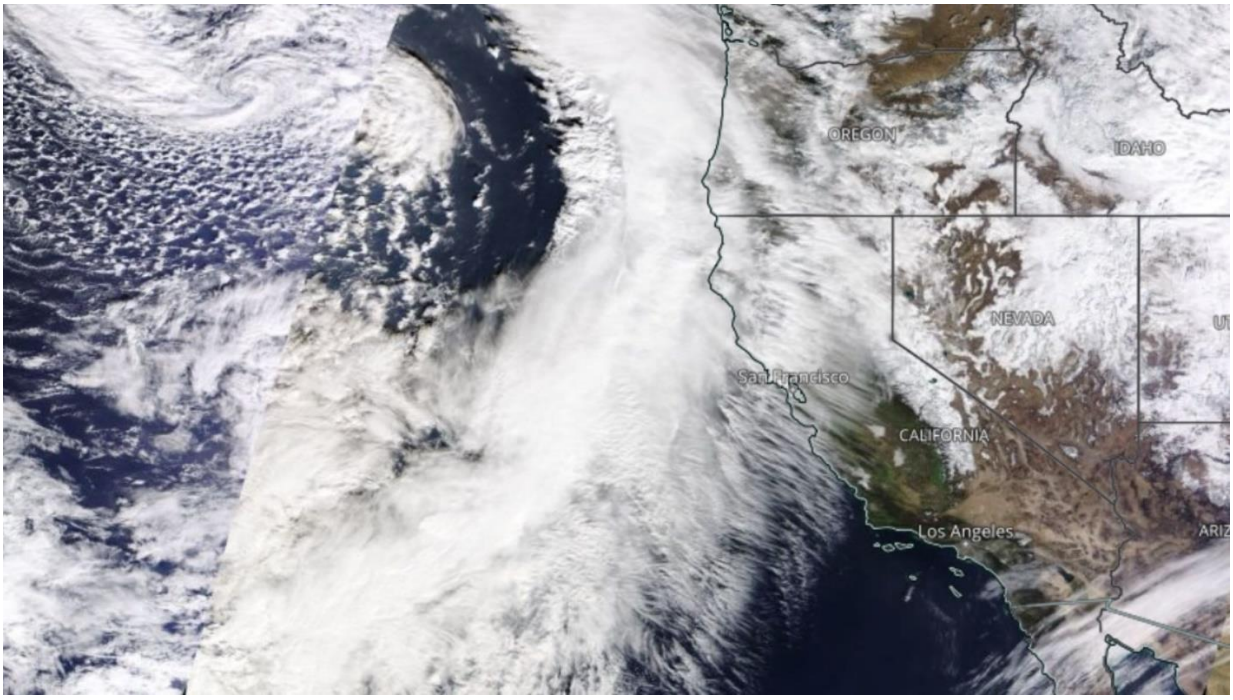
SACRAMENTO, California — Sept. 30 marks the end of a water year to remember in California.

With the new water year kicking off Oct. 1, it’s worth looking back at the water year that was from record snowfall to landfalling tropical storms and everything in between.

Entering the 2022-23 water year, a rare third consecutive year of La Niña dampened hopes of breaking the historic drought California was enduring as it entered the water year.

Although the La Niña event was weakening, California typically ends up drier during these events, and seasonal outlooks favored a drier fall and winter for the state. Those predictions couldn't have been more wrong.

California was hammered with a train of atmospheric river events throughout the winter and spring. The first of these atmospheric river events slammed into California the day after Christmas and the next three weeks featured 10 separate landfalling atmospheric rivers.



NASA satellite image shows an atmospheric river approaching the California coastline on Jan. 7, 2023. Credit: NASA Worldview

During this stretch, valley totals ranged from 8-15" of rain, the foothills received 20-30" of rain, and the Sierra received a whopping 10-15 feet of snow. The rain and snow didn't stop there.

Although February was slightly below average in terms of precipitation, March featured a return of a persistent train of atmospheric rivers slamming into the state. Sacramento received nearly 5" of rain, well above the average of 2.8" for the month.

All the rain and snow came with a price, however, and widespread flooding dominated headlines throughout the early months of 2023.

By the time of the last snowfall in May, many ski resorts had seen their snowiest winter on record, including Kirkwood, Mammoth, Bear Valley, Dodge Ridge and Boreal. All those resorts surpassed the elusive 700" benchmark.

The Central Sierra Snow Lab, located at Donner Pass, received 754" of snow this year, which equates to almost 63 feet.

California settled into its typical dry pattern once the summer rolled around, but the wet soil levels kept wildfire danger low throughout the summer, and the very cool and cloudy spring and early summer created conditions that were deemed “best case scenario” by the California Department of Water Resources (DWR).

Two events toward the end of summer also helped keep moisture levels elevated as the state entered the height of fire season: Hurricane Hilary and an unseasonably cool storm during Labor Day weekend.

Although the effects of Hilary were modest in Northern California compared to down south, the Sierra still picked up beneficial rain as the system passed through.

Heading into the new water year, California is in excellent shape with water storage and Downtown Sacramento will end the water year with 26.22" of rain, well above the average of just over 18".

Pardee Lake in Ione. Credit: Christopher Camp

After the melt-off period in the spring and summer, Lake Shasta was at 98% capacity, Oroville was at 100% capacity, and Folsom Lake was nearly full at 95% capacity. These bodies of water were quite parched heading into the winter due to the three years of drought preceding the deluge and ranged from 25-32% capacity before the atmospheric river events rolled in.

Reservoir levels remain elevated, too. As of Sept. 27, Shasta is at 74% of capacity (131% of historical average), Oroville is at 75% (136% of historical average) and Folsom is 69% full (135% of historical average).

According to DWR, groundwater storage also increased by an impressive 3.2 million acre-feet thanks to the wet winter.

With a strong El Niño building in the Pacific, the odds are shifted toward another wet winter for California.

# # #

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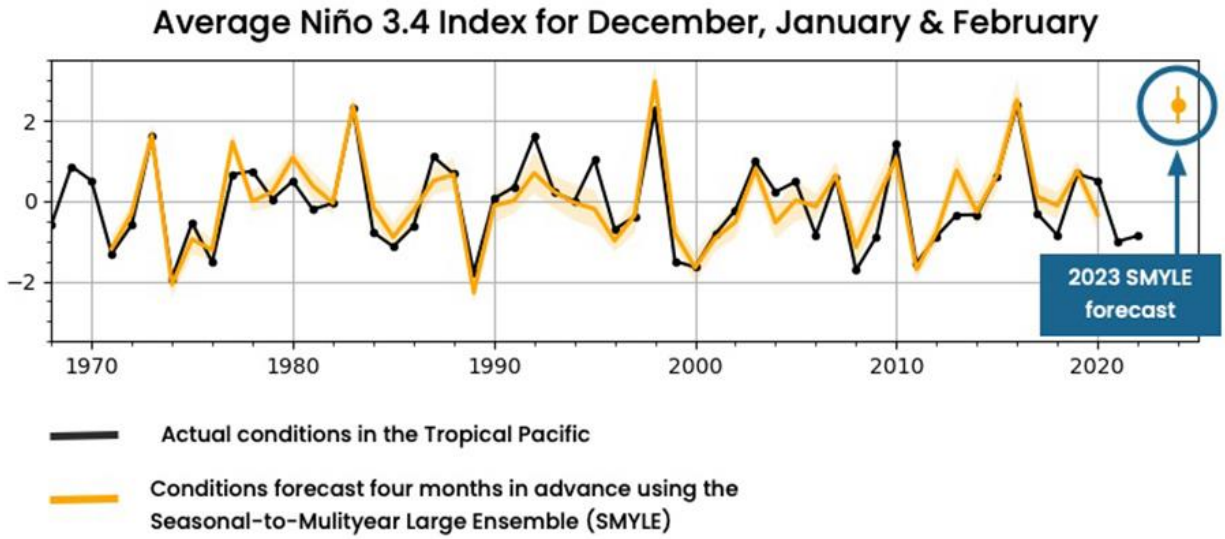
NCAR EXPERIMENTAL PREDICTION SYSTEM CALLS FOR A SUPER EL NIÑO THIS WINTER

New system forecasts an event similar to the 1997-98 El Niño

NCAR & UCAR News | September 26, 2023 | Laura Snider



The Seasonal-to-Multiyear Large Ensemble (SMYLE) prediction system accurately hindcasted past El Niños, as shown in this graph. NCAR scientists have run the system in real time to predict the strength of this winter's El Niño, which is forecast to be on par with the 1997-98 event.

Current El Niño conditions are likely to develop into one of the strongest events on record — comparable to the major El Niño of 1997-98 — according to an experimental prediction system developed for research purposes by the National Science Foundation's National Center for Atmospheric Research (NCAR).

"Our forecast system has shown that it can do a remarkably good job of accurately hindcasting past El Niño events when we've tested it using historical data, which gives us high confidence in this forecast," said NCAR scientist Stephen Yeager, who helped lead the modeling effort.

El Niño events are characterized by warmer-than-average temperatures in the Tropical Pacific Ocean. The phenomenon, which usually peaks in December, can have a significant impact on weather patterns across the country, causing the northern U.S. and Canada to become warmer and drier than usual while the southern U.S. becomes wetter.

Scientists commonly define El Niños using a metric called the Niño 3.4 Index, which is a measure of how much warmer (or cooler) the sea surface temperatures are in a defined rectangle of the Tropical Pacific Ocean compared to the long-term average. El Niño conditions occur when the average Niño 3.4 Index is above +0.5 degrees C. An official El Niño event requires the running three-month average index to be +0.5 degrees C or higher for five consecutive months.

The Niño 3.4 Index for August was +1.3 degrees Celsius. NCAR's new forecasting system predicts the index will rise to an average of +2.4 degrees over the months of December, January, and February. By comparison, the 1997-98 El Niño peaked at a three-month average of +2.4. The slightly stronger 2015-16 event peaked at +2.6.

The experimental NCAR El Niño forecast was born out of an effort by NCAR scientists and their colleagues in the research community to more thoroughly explore what phenomena in the Earth system might be predictable a season to two years in advance. Extending forecasts beyond the two-week weather window is the focus of significant research in the Earth system science community. However, much of the work has either been directed at the subseasonal-to-seasonal time frame (from a couple of weeks to a year out) or in the decadal timescale (several years to a decade out), leaving a gap in the middle.

To fill the hole, the researchers developed a new protocol for running the NCAR-based Community Earth System Model, version 2, (CESM2). The new project was devised and executed by the CESM Earth System Prediction Working Group, a collection of experts from both NCAR and the community interested in advancing our fundamental understanding of Earth system predictability on timescales running from subseasonal to decadal.

The group performed an extensive series of hindcasts using historical conditions. For each year from 1970 through 2019, the scientists ran quarterly forecasts, kicking off CESM2 with the conditions that had existed on that day (Nov. 1, Feb. 1, March 1 or Aug. 1). The model simulations took into account not just the historical conditions in the atmosphere (how warm, humid, windy, etc. the atmosphere was on that date) but also the state of the oceans, sea ice, and land. This is different from weather models, which typically rely only on atmospheric conditions to begin their forecasts.

Once the model was "initialized" with the historical data, the scientists ran the model forward two years. For each quarter, the scientists ran 20 separate simulations for a mind-boggling total of 6,400 simulated years.

The resulting dataset, called the Seasonal-to-Multiyear Large Ensemble (SMYLE), is a freely available trove of information that researchers can use to search for phenomena that may be predictable. By comparing simulation results with what actually occurred, scientists can identify those events that we have the best chance of accurately forecasting in the future. The types of phenomena that scientists think may have at least some ability to be predicted in the seasonal-to-multiyear time frame include sea ice thickness, snow cover, ocean acidification, and upper ocean temperatures in some regions, among others.

An initial analysis of SMYLE also revealed that the system did a remarkably good job of forecasting the occurrence and strength of El Niño and La Niña events. With an El Niño taking shape this fall, the Earth System Prediction Working Group decided to run the system in "real time" last month, producing a 20-member ensemble forecast for the upcoming winter.

The El Niño strength predicted by the 20 members of +2.4 degrees C average over December, January, and February is higher than the average predicted for the same time period by the dynamical models used for the standard El Niño forecasts, but it is still within the range.

The average forecast produced by the standard models (also run in August) predicted an index of +1.86 degrees C. But some individual models predicted a stronger El Niño, including the European Centre for Medium-Range Weather Forecasts (ECMWF) model, which predicted +2.35 degrees C; and the Meteo France Seasonal Forecast, which predicted +2.41 degrees.

“Our system is predicting a warmer event than many other systems,” Yeager said. “But it isn’t out of the realm of possibilities. Only time will tell if we’re accurate, but we believe our system has something to offer and we’re excited to be able to contribute this knowledge to the conversation going on right now about the impacts El Niño may have in the coming months.”

# # #

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More than 90% of California out of historic drought as water year ends
Courthouse News Service | September 25, 2023 | Natalie Hanson

While California experienced multiple destructive floods in 2023, experts say the water year also ended on a high note with most counties completely free of drought.

Less than one week until California's new water year begins, experts say the state is nearly free of drought — but there is no guarantee that another wet winter is soon to arrive.

The state, according to the Sept. 19 U.S. Drought Monitor, is 93% free of drought, a big improvement since measuring at 72% drought-free three months ago.

Only small regions of drought remain along the state's southeast corner bordering Arizona and in the northernmost region at the Oregon border.

A Sept. 19 map shows much of California now being free of drought conditions. (U.S. Drought Monitor via Courthouse News)

However, experts warn the full scope of recovery from several years of drought will not be known until a report in early April to assess the 2023-2024 snowpack.

Daniel McEvoy, associate researcher at the Western Regional Climate Center's Desert Research Institute, said in a webinar Monday that while it is good to see much of the western U.S. out of drought, the coming winter will be key to see if that progress holds.

"There isn't really a clear signal yet as to what this coming wet season will do in terms of going into or staying out of drought," McEvoy said.

He said after the wet winter, drought conditions returned in early summer only to be done in by sudden late summer storms like Hurricane Hilary, causing some regions such as Southern California to record the wettest summer on record.

The late-season storms also helped keep soil moisture at record high levels in areas that really needed it. This bonus combined with the help of lower evaporative demand — which means less moisture lost as water evaporates into the atmosphere, thanks to lower temperatures, high humidities and more cloud cover this year.

Those conditions mean that "the weather and climate have been in our favor for a quiet fire season," he said. The only exception so far has been the Smith River Complex, which has burned more than 94,000 acres but is 85% contained.

More good news: McEvoy said that all major reservoirs, outside of the Colorado River and Lake Mead, are in good shape thanks to the winter's deep snowpack.

In California, the only basin of some concern is Trinity Lake in Northern California, which is at 85% of average and 53% of capacity and should be monitored. And it will take multiple years of very wet conditions to improve the deeply strained Colorado River basin system, he said.

Scientists are also warning that El Niño may contribute to a rise in global land and ocean surface temperatures. El Niño is a naturally occurring weather phenomenon that oscillates with its opposite, La Niña. El Niño periods can last several years and are associated with heat and unpredictable weather.

The NOAA Climate Prediction Center's director David Dewitt said El Niño may help drive above-normal precipitation in the southwestern U.S., and peaking sea surface temperatures. That in turn could mean increasing global land temperatures — a bad sign when global temperatures have already broken records this year. The planet saw its warmest three-month period on record after El Niño emerged and injected even more heat into the warming planet's atmosphere, the European Union's climate agency said this month.

Dewitt said El Niño is likely to keep affecting the globe through next spring, and temperatures are expected to stay above normal on the West Coast and the country's northernmost states from October through January. The southernmost third of the country has a "modest chance" of seeing more precipitation than normal, including in Arizona and Southern California.

“Every El Niño has been different,” Dewitt said.

Dry weather is expected throughout much of Northern California for the next week, though forecasters said in a discussion released Monday that precipitation is expected in the Sierra Nevada mountain range by the weekend.

“This precipitation is expected to be a mix of rain and snow, with snow falling above 8,000 feet, and rain falling below 8,000 feet,” the forecasters said.

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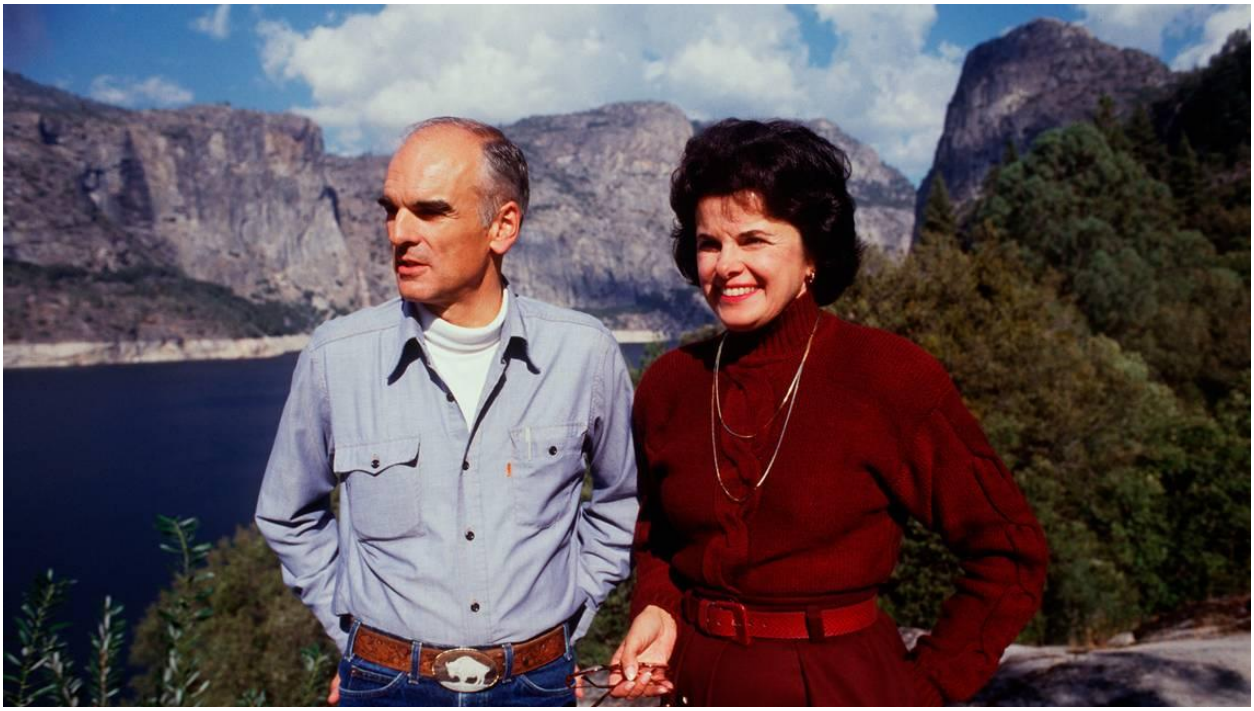
Dianne Feinstein championed the environment. On California water, her legacy is complicated

Sacramento Bee | September 30, 2023 | Ari Plachta



Then-San Francisco Mayor Dianne Feinstein and Interior Secretary Donald Hodel and talk at the Hetch Hetchy Reservoir in October 1987. SKIP SHUMAN Sacramento Bee file

It was 1990, and a self-identified city girl in a denim skirt and boots perched herself atop bales of hay near Los Banos in California's farming heartland. Dianne Feinstein was running for governor and looking for votes.

"I want to be a good governor for the agriculture industry of California," she told the crowd, the Los Angeles Times reported. But the former San Francisco mayor lost the race to Pete Wilson, a more familiar face in the world of Central Valley agribusiness.

Feinstein would win election to the Senate two years later and become a powerhouse, the longest serving woman U.S. senator. With her passing this week, she left behind a strong legacy on the environment, brokering deals to restore precious landscapes.

On California water, her record is less straightforward. It was marked by a testy relationship with environmentalists, strong rapport with the state's agricultural power brokers and a ferocious work ethic that led her to master the subject.

Particularly in the last decade, San Joaquin Valley farmers saw a friend in Feinstein, who increased their water allocations in drought. Environmentalists, in turn, often faced an uphill battle to protect ecosystems and native fish as the climate grew more extreme.

Barbara Barrigan-Parrilla, executive director of Restore the Delta, called the senator's legacy on California water "complicated." She pointed out that the senator gave Central Valley environmental groups a win in 2013 when she designated the Sacramento-San Joaquin Delta as California's first National Heritage Area.

"She thought there were trade offs that you can make to keep everybody whole and that the environment would remain healthy," Barrigan-Parrilla said. "California has a long history of managing water the way we do without significant environmental impact. But climate change has caught up with all of that and made it all much worse."

After taking office in 1992 following a decade as the mayor of San Francisco, Feinstein championed conservation legislation. She worked to pass a bill protecting millions of acres of California wilderness, including a 1994 measure that created the Death Valley and Joshua Tree national parks.

Feinstein grew up attending summer camp on Lake Tahoe's shores, and it made a lasting impact. She authored multiple restoration efforts starting in 2000 that directed more than $1.3 billion to North America's largest alpine lake. She hosted summits in the area, where she owned a palatial vacation home.

A tough deal broker, she built a reputation for bringing the competing interests of farmers and environmentalists to compromises after long hours of negotiating. In 2006, that resulted in the San Joaquin River restoration package.

The agreement resolved an 18-year-old lawsuit and called for $500 million-plus worth of investment to revive the river fishery that had been wiped out decades before following the construction of Friant Dam.

According to a participant in the deal, Feinstein closed it by leaving the negotiating table to talk privately with former general manager of Westlands Water District Tom Birmingham.

Historically California's largest and most influential farm water utility, Westlands grows nearly $2 billion in nuts, fruits and vegetables a year. After the federal government blessed these farmers on the west side of the San Joaquin Valley with subsidized water in the 1960s, the district has seen a dwindling water supply.

The senator's relationship with Westlands' Birmingham started out rocky. In a 2000 meeting at her office, an injured Feinstein asked Birmingham for help and he accidentally let her injured foot fall a couple inches to the ground. But they ended up forming a close friendship, in which the two would schedule late-day meetings in D.C. to chat over a glass of wine.

Birmingham credits Feinstein's fondness for San Joaquin Valley farmers in part to the summers she spent at a Kern County ranch belonging to a friend of her father's, an experience that left her with a positive impression of agriculture and its need for water.

"I feel truly blessed by having had the opportunity to work with her and and to get to know her and become her friend," said Birmingham. "Senator Feinstein's lasting legacy is that people in

every region of this state will be served by projects that are operated utilizing the best information available, and in the smartest way possible, to supply water and to minimize or avoid environmental impacts."

In 2016, Birmingham proposed a piece of legislation to Feinstein's office that became the WIIN Act, which encouraged increases in water allocations south to farmers and cities from the Sacramento-San Joaquin Delta. Environmental advocates say they weren't consulted on the proposal.

In turn, the senator was heavily criticized by Democratic allies. California Senator Barbara Boxer concluded her legislative career by opposing her own bill because Feinstein had attached the WIIN Act to it.

"This is so wrong, it is shocking," Boxer told reporters at the time.

Republican House Speaker Kevin McCarthy, who worked with Feinstein on the bill, credited the WIIN Act on Friday as "the most significant California water bill in 25 years."

But even among environmental advocates who wanted to see more water in California's system preserved for fish and ecosystems, there was respect for the senator's intellectual rigor, attention to policy details and deep love for the state.

Barry Nelson, longtime environmental advocate formerly with the Natural Resources Defense Council, called her a "ferociously effective senator even though I disagreed with her."

"I used to tell staff that the hardest thing they're going to do is meet with senior elected officials who are really hard to get, and I would always cite Feinstein as the example," Nelson said. "She would start against us, but you could get to her if you worked incredibly hard."

As Gov. Gavin Newsom receives pressure to appoint a replacement for Feinstein, longtime observers of water politics say he is unlikely to find someone so willing to to work across the aisle with congressional Republicans and whose affinity for agricultural interests belies her San Francisco roots.

"Senator Feinstein was always willing and eager to listen and find solutions," said Johnny Amaral, chief operating officer and chief of external affairs for the Friant Water Authority, which serves farmers in the San Joaquin Valley. "For ag water agencies, it has been very difficult to find elected officials on the Democrat side of the aisle."

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REACTIONS: Here's what water agencies and NGOs have to say about the State Water Board's Bay Delta Plan environmental document
Maven's Notebook | September 29, 2023

Yesterday, the State Water Board released its release of its draft staff report and Substitute Environmental Document for the Bay-Delta Water Quality Control Plan, which includes analysis of the voluntary agreements. Here's what Metropolitan Water District, Restore the Delta and its coalition of tribes and NGOs, and the State Water Project Contractors and its coaliton of water agencies had to say.

Metropolitan Water District

Adel Hagekhalil, general manager of the Metropolitan Water District of Southern California, issues the following statement on the State Water Board's release of its draft staff report and Substitute Environmental Document for the Bay-Delta Water Quality Control Plan, which includes proposed Agreements to Support Healthy Rivers and Landscapes, also known as the Voluntary Agreements. The agreements will be considered by the State Water Board in its update of the Bay-Delta Plan.

"We are pleased to see the State Water Board is considering a range of alternatives, including the Voluntary Agreements, in its process to update its Water Quality Control Plan. The proposed Voluntary Agreements released today would transform the way we manage water in California. For too long, we have been singularly focused on flows as a means to protect the Bay Delta's fragile environment. These agreements would take a new approach. They recognize that building a sustainable Bay-Delta requires improving habitats for fish and wildlife, additional water flows for species, dedicated funding sources, clear metrics and monitoring to analyze progress toward our goals and change course if necessary.

"We look forward to working with the State Water Board throughout this process and support their consideration of the Voluntary Agreements over the next year. We encourage everyone who cares about the Delta's health and California's water supply to share their thoughts during the public comment period. It is important that all voices are heard."

Restore the Delta: Tribes and Delta Activists: What to look for in New State Water Board Documents

Today, the California State Water Resources Control Board ("Water Board") released its Draft Staff Report for the Phase II Update of the Bay-Delta Water Quality Control Plan ("Bay-Delta Plan"), including an illegitimate voluntary agreement program alternative.

Coalition Partners, Shingle Springs Band of Miwok Indians, the Winnemem Wintu Tribe, Little Manila Rising, and Restore the Delta have filed a Petition for Rulemaking with the U.S. Environmental Protection Agency (EPA) seeking a timely and meaningful update of the Bay-Delta Plan, and are also complainants in an ongoing investigation conducted by the EPA

under Title VI of the Civil Rights Act into the State Water Board's discriminatory mismanagement of Bay-Delta water quality. Coalition Partners, joined by Buena Vista Rancheria, offer initial observations and comments.

Bay-Delta Plan & Voluntary Agreement Updates

The State Water Board is required to produce a Substitute Environmental Document to analyze the environmental impacts of an update to the Bay-Delta plan to comply with the California Environmental Quality Act (CEQA). The Substitute Environmental Document (also referred to as the "Staff Report") includes an analysis of all potential environmental and economic impacts that would result from changes proposed to the Bay-Delta Plan, as well as an analysis of project alternatives and mitigation measures to avoid or minimize impacts. The current Staff Report is for Phase II of the Bay-Delta Plan update and addresses inflow requirements in the Sacramento River, the Delta, and eastern Delta tributaries, as well as Delta outflows, cold water habitat, and interior Delta flows.

In March 2022, the California Natural Resources Agency released a Memorandum of Understanding ("MOU") Advancing the Term Sheet for the Voluntary Agreements ("VAs") to Update and Implement the Bay-Delta Water Quality Control Plan, followed by the State Water Board's January 2023 Draft Scientific Basis Report Supplement in Support of Proposed VAs for the Sacramento/Delta Update to the Bay-Delta Plan. The VA process has been proposed as an alternative pathway to update and implement the Bay-Delta Plan; however, the VA process has only further delayed the overdue update to the Bay-Delta Plan. The VAs, as they have been proposed, would reduce protections for the Bay-Delta ecosystem, including trading away increased instream flow requirements for scientifically groundless habitat mitigations. The proposed VAs stem from an exclusionary negotiation process for the benefit of large water rights holders, which barred the most impacted parties from sitting at the negotiating table: California Native American tribes and environmental justice communities in the Delta, as well a broad range of important stakeholders such as conservation and fishing groups. If the Water Board moves forward with the implementation of the VAs, it would formalize the exclusion of tribes and community stakeholders, further supporting discrimination claims set forth in the Title VI complaint and subject to ongoing EPA investigation.

Update For Bay-Delta Plan Needed

An update to the Bay-Delta Plan is long overdue. The federal Clean Water Act and California Porter-Cologne Act require the Water Board to conduct triennial reviews of the Plan and update standards as necessary to ensure the protection of beneficial uses. However, the Board has not comprehensively reviewed the Plan since 2009 or updated standards subject to the Staff Report since 1995. The Board's 2018 updates for lower San Joaquin River flows and southern Delta salinity limits (Phase I of the Bay-Delta Plan update) have yet to be implemented.

While standards languish, the health of the San Francisco Bay/Sacramento-San Joaquin Delta estuary continues to decline. Poor water quality has impeded tribes from safely practicing traditional ceremonies and activities and has impacted subsistence and cultural fishing practices. The lack of adequate flows and the absence of any objectives for harmful algal

blooms (HABs) have fueled the continued proliferation of HABs throughout the Delta, impairing tribal practices and the health and welfare of environmental justice communities. Imperiled native fisheries, from Delta smelt to Chinook salmon, continue to decline, impacting food sources for tribes and environmental justice communities throughout the Bay-Delta and jeopardizing the cultural survival of fish-dependent tribal communities. A proper Staff Report supporting the Bay Delta would codify and ensure the protection of Tribal Beneficial Uses, set quantitative criteria for HABs, and recognize inadequate flows as the primary variable in the decimation of native fish habitat and driver of HABs.

Throw Out the VAs

Voluntary Agreements serve as backroom deals that continue to leave Tribes, Environmental Justice communities, conservation groups, fishing communities, and other vital stakeholders out of the government-led planning process. These Voluntary Agreements will only continue to uplift senior water rights holders and water districts, entrenching marginalization and exclusion of tribal and environmental justice communities from water rights and management. Voluntary Agreements are also not in keeping with the best available science or with regulatory requirements for science-based, public decision-making. This process will not solve the ongoing fisheries and ecological collapse of the Delta, nor will it benefit the disadvantaged communities that will suffer from these repercussions. The VA process is inequitable and a failed effort to solve the Bay-Delta's water problems.

The VAs are illegitimate for these and other reasons:

1. VAs exclude Tribes and environmental justice communities. Voluntary agreements are a result of private negotiations between senior water rights holders, powerful water districts, and government agencies. Tribes and environmental justice communities that would be most impacted by the VAs were not included in or consulted on negotiations; integrating VAs into the Bay-Delta Plan update will formalize the exclusion of these communities and other stakeholders from decision-making on water quality standards.

2. Fail to provide adequate flows for fish and wildlife. Water flows outlined by the proposed VAs are inadequate and are not supportive of the restoration of native fish and wildlife species in the Delta. Native fish populations have long been threatened by the diversion of flows that benefit water districts.

3. Promote the proliferation of Harmful Algal Blooms. Harmful Algal Blooms ("HABs") are a continued threat to fish, Delta communities, and native religious and cultural practices. This year proved that adequate flows in the system mitigate the proliferation of HABs. By trading away flows for scientifically baseless habitat mitigations, VAs would promote the proliferation of HABs and accompanying public health concerns and water use and access impairment.

4. Not protective of Tribal Beneficial Uses or respectful of government-to-government relationships with tribes. Tribes depend on healthy waterways for traditional, cultural, spiritual, religious, and subsistence use. Tribes are also sovereign nations, with formal rights to

government-to-government consultation in decision-making processes that affect tribal lands and interests. Tribes have not been consulted on the VAs, and the VAs would substantively trade away protection of Tribal Beneficial Uses for other interests. The VA process undercuts the State's commitments to respecting tribal sovereignty and repairing its relationship with tribal communities. And the State Water Board's acceptance of the VAs undercuts its commitments in its 2021 Racial Equity Resolution to recognizing and protecting Tribal Beneficial Uses, meaningful engaging tribes, and establishing co-management practices with tribes.

Questions for the Press to Consider When Reviewing the Board's Documents
Coalition Partners will be working diligently in reviewing the Staff Report. We will be looking for the following:

1. Which of the unimpaired flow alternatives are grounded in the best available science? And which of the flow alternatives, along with the voluntary agreements, are grounded in political science?

2. How are tribal beneficial uses defined and analyzed in the document? Is there a clear pathway forward for Tribal Beneficial Use designations that are well received by tribes in the present?

3. Does the Staff Report set forth quantitative criteria to create objective targets for HABs? Are they incorporating the US EPA's 2019 recommendations for HABs standards?

4. Do proposals ensure the recovery of California's native fisheries, including salmon and Delta smelt fisheries? The board affirms its commitment to the goal of doubling salmon populations. But does the plan's details indicate that implementation will achieve that objective narrative?

5. Is modeling and proposed management in keeping with California's climate reality?

6. How does the Bay-Delta Plan Staff Report deal with Delta operations criteria, upstream storage, and cold water pools?

7. While the Plan does not continue to rely on waiver of standards through temporary urgency change orders in its baseline to manage Bay-Delta flows during dry years, why does the voluntary agreement alternative continue to do so? Is a voluntary agreement plan that encompasses continuous emergency drought measures really a science base plan? Or a political plan for take water on demand?

Statements by the Parties:

Ivan Senock, Tribal Historic Preservation and Cultural Resources Director for Buena Vista Rancheria:
"Without fully planning for, protecting, and enhancing the Delta through achievable water quality, equitable management, and tribal beneficial uses of Delta watershed rivers and the estuary, the

Bay-Delta Plan staff report is woefully incomplete — which is particularly troubling after years of delays due to the closed door voluntary agreement process which left out Buena Vista Rancheria and the other Delta watershed tribes. Water flows are tied to the health of Tribes, Delta communities, fisheries, wildlife, and plant life — all parts of the environment that are tied to indigenous cultural practices and the overall health of Tribal people."

Malissa Tayaba, Vice Chair of the Shingle Springs Band of Miwok Indians:
"Part of our Title VI complaint filed with US EPA focuses on the failure of the State Water Board to adequately engage and consult with tribes around Bay-Delta planning, which is part of required government-to-government consultation. California tribes were given insufficient notice on the Bay-Delta Plan Draft Staff Report release, demonstrating that the Board fails to understand what government-to-government consultation means for California tribes. If they cannot get the process right, it creates a great deal of distrust for working through the substance, or lack of substance, within the Bay-Delta Plan itself for tribal concerns."

Gary Mulcahy, Government Liaison for the Winnemem Wintu Tribe:
"As we have said, there is something wrong when California Indians have to file a complaint with the Federal Government to protect our civil rights. A Bay-Delta Plan without a tribal beneficial use plan, lack of tribal and community protections from harmful algal blooms, and adequate flows for the recovery of salmon (Nur) for our people means that the Board is not taking our just demands seriously."

Gloria E. Alonso Cruz, Environmental Justice Advocacy Coordinator for Little Manila Rising:
"The Draft Staff Report must include crucial concerns about the importance of freshwater flows for human and wildlife health. Impaired water bodies are already severely impacted by the proliferation of Harmful Algal Blooms in areas used for cultural practices, subsistence, and recreation. Not including these concerns fundamentally neglects health concerns."

Concerning the Voluntary Agreements, "The processes to update the Voluntary Agreements (VAs) are not representative of the current demands to address environmental justice objectives in the Bay-Delta. Water negotiations should conduct comprehensive outreach efforts to consult impacted communities and grant privileges that go beyond providing input to consider."

Cintia Cortez, Policy Analyst for Restore the Delta:
"The State Water Board has yet to create a protective HABs standard for communities that live adjacent to the Delta and its tributaries, or fully acknowledge the definitive science that links insignificant flow to the formation of HABs. Moreover, recently published research by the University of North California indicates what we have been positing – that cyanotoxins from HABs contribute to pollution in the Delta AB617 communities."

She adds that, "The Voluntary Agreements are an exclusionary process for tribes and environmental justice communities. The communities we represent are being harmed by inadequate management of Bay-Delta flows. Voluntary Agreements will reduce flows in a

system whose water quality is presently suffering from outdated water quality standards. The Board needs to direct its resources to complete the update to the Bay-Delta Water Quality Control Plan and away from VAs that continue to threaten public health."

State Water Contractors and coalition of water agencies issue support letter for the voluntary agreements following State Water Resources Control Board Draft Staff Report on updates to the Bay-Delta Plan

The State Water Contractors and a coalition of water agencies and organizations issued a letter in support of the Voluntary Agreements following the State Water Resources Control Board's release of the draft staff report on updates to the Bay-Delta Plan. The Voluntary Agreements will enhance healthy rivers and landscapes while helping California adapt to our climate reality by strengthening the environment, communities and farms.

Healthy Rivers_SupportLetter_9.28.23

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The Bay-Delta ecosystem is collapsing. California just unveiled rival rescue plans
Cal Matters | September 29, 2023 | Rachel Becker

With the Bay-Delta watershed in the throes of an ecological crisis, California's water regulators Thursday unveiled several controversial options for managing the heart of the state's water supply.

The long-awaited, nearly 6,000-page draft is part of a fiercely contentious but under-the-radar process to update the Bay-Delta Water Quality Control Plan, with high stakes for both wildlife and water providers serving cities and millions of acres of farms.

State water officials have said that existing requirements for water quality and flow through the critical but imperiled San Francisco Bay and Sacramento-San Joaquin Delta watershed have "failed to protect fish and wildlife" and must be updated "to halt and reverse the ecosystem collapse."

Several of the strategies the report evaluates would set minimum amounts of water to remain in rivers and streams, which could ultimately require water suppliers and other water users to cut back on how much they divert for people and farms.

Another approach assessed is a controversial pact that Gov. Gavin Newsom reached last March with major water suppliers, who volunteered to surrender some water and help restore habitat in the watershed.

Next comes a gauntlet of workshops, hearings and public comment meant to help shape regulations that the State Water Resources Control Board likely won't even consider adopting for at least another year. Once it does, it could take years to put the updated Bay-Delta plan into action.

For the vast majority of the watershed, it's already been 30 years since water officials made meaningful changes — a delay that has infuriated environmentalists, Native tribes, Delta-area residents and the fishing industry.

The draft report weighs several approaches to update standards for most of the Bay-Delta watershed, including the Sacramento River and its tributaries; the Mokelumne, Cosumnes and Calaveras rivers; and the San Francisco Bay-Delta itself.

Spurred by inadequate flows, the loss of habitat and degraded water quality, native fishes are experiencing "prolonged and precipitous declines" in the watershed, state water regulators reported in 2018. Among the threatened and endangered: the winter-run chinook salmon and the tiny Delta smelt, a cucumber-scented indicator of the ecosystem's health.

Though the State water board said it remains agnostic for now about which of the strategies it will ultimately approve, the document devotes a lot of ink to discussing one that's sort of a Goldilocks proposal when it comes to water flow — not the highest or the lowest, but in the middle.

It calls for minimum flows of at least 55% of the amount of water that the rivers would have carried were they not dammed or diverted, resulting in an average of about 1.5 million acre-feet more water flowing out through the Delta, state water official Diane Riddle said at a media briefing.

This water, which then couldn't be exported south to farms and cities, would be enough to supply about 4.5 million households.

That's more than the flows that would result from the "voluntary agreements" deal reached by the Newsom administration and water suppliers, which results in about 500,000 to 700,000 additional acre-feet flowing through the Delta, according to Riddle — less in extremely wet or dry years.

A coalition of water suppliers — including the State Water Contractors, an association of 27 public water agencies — responded to the report with their strong support for these voluntary agreements.

"These innovative agreements … will improve environmental conditions more quickly and holistically than traditional regulatory requirements, while providing more certainty to communities, farms, and businesses," the coalition said in a letter to the board.

But environmentalists say the voluntary agreements do not provide enough water to protect fish and wildlife. And tribes and environmental justice organizations said they were the result of backroom negotiations that excluded people of color, a complaint that the U.S. EPA is now investigating.

Malissa Tayaba, vice chair of the Shingle Springs Band of Miwok Indians, said they were not given sufficient notice of the report's release. "If they cannot get the process right, it creates a great deal of distrust for working through the substance, or lack of substance, within the Bay-Delta Plan itself for tribal concerns," she said.

Despite their dueling visions, both water suppliers and environmental organizations said it's high time for the draft to be completed.

"We're glad to have this report, but it's way too long in coming," said Jon Rosenfield, science director at San Francisco Baykeeper. "Fish, wildlife, water quality and communities are suffering while the state dawdles on addressing major problems in its crown-jewel aquatic ecosystem."

The Delta has long been the epicenter of some of the most turbulent water wars in California, and the Bay-Delta Plan touches many of them. Here's more to know:

Taking a toll on fish and fishing

Stretching from about Fresno to beyond the Oregon border, the vast Bay-Delta watershed drains water from about 40% of California. It's formed by the Sacramento and San Joaquin river systems, which join at the Sacramento-San Joaquin River Delta and flow out to the Pacific through San Francisco Bay.

Where Delta Water Comes From and Goes To

This critical water hub is where state and federal pumps move water from Northern California reservoirs south to help supply more than two-thirds of Californians with drinking water and irrigate millions of acres of agriculture.

It's home to more than 750 species of animals and plants, and is vital to the fishing industry, supporting about 80% of the state's commercial salmon fishery. This year, for only the third time ever, California saw its commercial and recreational salmon season cancelled.

"Without healthy Bay-Delta salmon runs, we don't have a healthy California salmon fishing industry," said Barry Nelson, a policy representative for the Golden State Salmon Association.

The culprits behind fish decline are many, including habitat loss, invasive species, and Delta water export pumps so powerful they can make rivers run backward. But a “significant contributing factor”, state water board staff reported in 2018, is the loss of water diverted for farms and cities, which reduces freshwater flows needed to keep water quality, temperatures and other conditions hospitable to fish.

“The overall health of the estuary for native species is in trouble,” water board staff wrote five years ago, “and expeditious action is needed on the watershed level to address the crisis.”

The last major updates for the Sacramento River and Delta were in 1995

“Expeditious” is the last word most would use to describe the process of updating water quality and flow standards for the Bay-Delta.

Migratory birds congregate on a flooded agricultural field along Woodbridge Road in Lodi, Calfornia. At least half of the Sacramento-San Joaquin Delta’s Pacific Flyway migratory water birds rely on the region’s wetlands. Photo taken January 25, 2019. Photo by Florence Low / DWR

In 2018 the state water board adopted new standards for saltwater encroaching on the southern Delta and set flow requirements for the Lower San Joaquin, Stanislaus, Tuolumne and Merced Rivers. The update has not yet been implemented, and is already the subject of a dozen lawsuits.

But for the rest of the watershed, aside from minor modifications in 2006, it’s been almost 30 years since the plan was updated.

“I will acknowledge this has taken us longer to get to this point than we had all hoped,” said Eric Oppenheimer, chief deputy director of the state water board. While it was hard to ascribe a specific reason, he said, the droughts diverted personnel and attention.

Environmental groups blame the delay on negotiations with major water users to develop those voluntary agreements. The agreements have been in the works since 2016 and have not yet been finalized. Riddle said the state board expects additional documents needed to flesh out the deal to be submitted by the end of the year.

Even the federal government has urged state officials to move faster.

“EPA is concerned about the ongoing delays in completing revisions to the Sacramento and Delta portion” of the water quality control plan, Tomás Torres, water division director for EPA Region 9, wrote to the State Water Board in January.

Torres encouraged the state to “make decisions expeditiously now” and amend the plan later “should more specific voluntary agreements be developed in the future.”

Why water agencies love the voluntary agreements, and enviros hate them

Signed by powerful suppliers like the Metropolitan Water District of Southern California and agricultural providers like Westlands Water District, the U.S. Bureau of Reclamation and state agencies, the voluntary agreements take aim at the uncertainty of the regulatory process and the lawsuits that result.

“There’s been fights and lawsuits about how much flow should go to outflow, how much flow should go to habitat, how much flow should go to cities and agriculture,” said Alison Febbo, general manager for Westlands Water District, a major Central Valley irrigation supplier. “And the (voluntary agreements) are trying to say, ‘Let’s stop that fighting. Let’s all work together and collaborate.’”

Still, she said, there’s much to be hashed out. “If anybody leaves the table, it kind of falls apart,” she said. “I can’t say that Westlands is 100% completely supportive no matter what. We think it’s a good path. We think it’s the right way to go. But we have to see how it all turns out.”

Environmental and fishing organizations said that habitat cannot be traded for water, and that the trade contradicts the state's own science.

"Habitat restoration is definitely necessary for some of these fish, but there is no solution to what ails the San Francisco Bay and its watershed that does not involve significant increases in flow," Rosenfield said. "Flow controls all of the habitat conditions."

State Water Board scientists agreed in a 2017 report, saying that "recent Delta flows are insufficient to support native Delta fishes for today's habitats…Flow and physical habitat interact in many ways, but they are not interchangeable."

Why the U.S. EPA is investigating

In 2022, the Shingle Springs Band of Miwok Indians', Winnemem Wintu Tribe, and several environmental organizations including Stockton-based Restore the Delta filed a federal complaint with the EPA, saying that the state has allowed "waterways to descend into ecological crisis, with the resulting environmental burdens falling most heavily on Native tribes and other communities of color."

Among their concerns: the state's lengthy delay in updating the water quality standards, which the complaint says has worsened harmful algal blooms, low flows, and contamination — interfering with cultural, subsistence and recreational uses of the waterways for tribes and communities of color in the watershed.

"Instead, the health risks of (harmful algal blooms) layer on top of outsized environmental burdens already borne by these communities," the complaint says.

The coalition asked the EPA to investigate and to develop its own water quality standards for the Bay-Delta. The board has said that it will cooperate with the investigation, and is weighing adding tribal and subsistence fishing beneficial uses to the Bay-Delta Plan.

But Gary Mulcahy, government liaison for the Winnemem Wintu Tribe, said that's not enough.

"There is something wrong when California Indians have to file a complaint with the Federal Government to protect our civil rights," he wrote in a statement.

"A Bay-Delta Plan without a tribal beneficial use plan, lack of tribal and community protections from harmful algal blooms, and adequate flows for the recovery of salmon (Nur) for our people means that the Board is not taking our just demands seriously."

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California wants to restore its rivers and San Francisco Bay to health. Here is its controversial plan

San Francisco Chronicle | September 28, 2023 | Kurtis Alexander

A tugboat cruises the Sacramento River in Rio Vista this month. A major new state water plan seeks to halt the decline of the Sacramento-San Joaquin River Delta. Noah Berger/Special to the Chronicle

California water regulators have teed up what promises to be one of the state's biggest debates on water in years, releasing a long-anticipated proposal to revive dozens of rivers, creeks and wetlands by reining in the draws of cities and farms.

The goal is nothing short of ensuring that sufficient water is flowing from the High Sierra to San Francisco Bay, to nourish vast and diverse landscapes, support fish and wildlife and halt the decline of the Sacramento-San Joaquin River Delta, the largest estuary on the West Coast and the hub of the state's water supply.

The nearly 6,000-page document released Thursday, an update to what's known as the Bay-Delta Plan, focuses on boosting water flows, and limiting pumping, in the delta and the Sacramento River basin. A previous update, in 2018, did the same for the San Joaquin River basin, to the south. Taken together, the two updates, once implemented, provide regulatory standards for the entire Sacramento-San Joaquin River watershed, from the Oregon border to Fresno.

"It is a consequential effort," said Eric Oppenheimer, chief deputy director of the State Water Resources Control Board, in a briefing on his agency's update to the Bay-Delta Plan. "It reflects years of scientific analysis that we've undertaken and years of public input."

Regulation of flows in the Sacramento-San Joaquin River watershed has not been fully updated since 1995. Since then, waterways have been choked with pollutants, algal blooms have proliferated, salmon populations have collapsed, and climate change has raised the specter of deeper droughts. Rivers and creeks sometimes run dry, or come close to it, because of the constant pumping.

The delta, where much of the state's river water flows before being exported to the Bay Area, Southern California and the agricultural lands in between, has borne the brunt.

Getting more water back into the watershed to improve the situation, however, has been a sore point for the scores of municipal and agricultural water agencies that take water from the rivers, creeks and wetlands. A handful of agencies, including the San Francisco Public Utilities Commission, have already sued the state over the 2018 update to the Bay-Delta Plan, saying they'd have to forfeit too much water. Similar wrangling could arise with the new update.

The update for the Sacramento River basin and the delta offers several alternatives for moving forward. The state water board's leadership is expected to settle on one option next year. But the main proposal calls for the Sacramento River and its many tributaries as well as the three rivers feeding the delta from the east (Mokelumne, Calaveras and Cosumnes) to maintain, on average, 55% of their natural flow, meaning 45% can be taken by water agencies.

Currently, these waterways, on average, run at about 45% of their natural flow, with 55% diverted, according to state data. The proposed change would represent a loss of about 2 million acre-feet of water for the water agencies, the equivalent of about five San Francisco Hetch Hetchy Reservoirs.

How this loss would be split up among water agencies will be the subject of future discussion, though it's likely to be dictated by the state's water rights system, which prioritizes seniority.

In addition to flow requirements, the update to the Bay-Delta Plan contains a handful of other measures. These include restrictions on how much water can be pumped out of the delta, flow requirements from the delta to San Francisco Bay, and requisite releases of cold water from reservoirs to accommodate salmon runs.

As an alternative to the water board's regulation, several water agencies, along with the operators of the state and federal water projects, have proposed a plan of their own. Dubbed the "voluntary agreements," the plan calls for allowing the agencies to take more water than what the board wants but with the tradeoff of restoring natural habitat for fish and wildlife.

Water agencies have said that, without their alternative, cuts to residential, agricultural and corporate water users may be inevitable.

The water board's leadership has said it will consider the voluntary agreements.

Conversely, many environmental groups, fishermen and tribal leaders have called on the water board to go further to protect the Sacramento River basin and the delta. Previous reports by the water board have shown that consistent benefits for fish and wildlife will come only if the rivers and creeks maintain at least 55% of their natural flow. The benefit is far greater if 75% of the flow is maintained, according to the reports.

Whatever pathway is ultimately selected, it may be years before it's implemented.

The water board has been working on a revised Bay-Delta Plan since 2008, and even the update approved by the board's leadership in 2018 is still not enforced. The court fight over the 2018 revisions continues, and the board's leadership, rather than proceed with the new regulation, has agreed to also consider voluntary agreements proposed by the water agencies in the San Joaquin River basin.

Public comment on the Bay-Delta Plan update for the Sacramento River basin and the delta is open through Dec. 15. The document also serves as the required environmental analysis for the regulation. The water board has scheduled several public hearings on the proposal in the interim.

The separate proposal by the state Department of Water Resources to build a tunnel beneath the delta to expedite water exports is not mentioned in the summary of the Bay-Delta Plan update. The movement of water through the pipeline, though, would probably be subject to whatever regulation comes out of the plan.

"This is a major milestone, but there's a lot of work ahead of us," Oppenheimer said.

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Will California Take This Small, but Important Step Toward a More Equitable Water Rights System?

Union of Concerned Scientists | September 26, 2023 | Amanda Fencl

Earlier this summer, I wrote about three bills that were poised to make long overdue changes to California's outdated and inequitable water rights system. Whether you call it updating, modernizing, or reforming, changes to the water rights system have long been considered a political third rail—the electric kind you don't touch.

Amanda Fencl
Western States Senior Climate Scientist

This year, one of those water rights bills, Senate Bill 389 (SB 389) made it through the gauntlet of the legislature and will become law if Governor Newsom signs it. The bill would give the State Water Resources Control Board (the Water Board) the authority to verify pre-1914 appropriative and riparian water rights. It passed by a clear majority–58-17 votes in the Assembly and 30-8 in the Senate–and most opposition was withdrawn. UCS joined a broad group of organizations in submitting a letter to Governor Newsom urging him to sign the bill.

How a bill becomes a law in California: Senate Bill 389 went through various committees and votes before being approved by the California Legislature this month. Source.

Senate Bill 389 allows the Water Board to investigate all water rights

As I wrote earlier this year, the Water Board decides how much water gets diverted from rivers and who gets to use it. The most senior water rights holders, namely holders of pre-1914 appropriative and riparian water rights, have not had to play by the same rules as others. Many senior water rights holders obtained these rights before tribes, people of color, women, and many others had any right to land and water.

SB 389 gives important authority to the Water Board to review, verify, and issue decisions on senior water rights claimed before the Water Commission Act of 1913. If Newsom signs SB 389, the Water Board will finally have the ability to investigate and ascertain the validity of senior riparian and appropriative rights. This means they would be able to confirm whether a claimed right is inflated or not and whether a user may be diverting and taking more than they should.

With SB 389, the Water Board would be able to proactively manage everyone under the same rules. It would no longer need to rely on information self-reported by "senior" water rights holders to make management decisions. This is particularly important during California's periodic dry years, when the Board may ask water rights holders to curtail or limit their water use to ensure minimum flows in a watershed that would support ecosystem health, water quality, species survival, tribal practices, and other demands.

Other western states are decades ahead of California

Oregon joined the Union in 1859, and 50 years later in 1909 enacted its water code. As in California, property owners could hold a "vested" water right that precedes the water code's adoption. In 1987, however, Oregon passed a law that gave anyone with a pre-1909 water rights claim 5 to 7 years to register their claim with the Oregon Water Resources Department. Failure to file created the rebuttable presumption that there was no legal claim (read more). For the last 30 years, Oregon has been able to make surface water management decisions with better information about all its water users than California.

Washington state joined the Union in 1889, and in 1917, nearly 30 years later, enacted its water code. Impressively, the 1967 Water Right Claims Act directed the state's Water Resource Department "to record the amount and location of pre-code water rights and exempt groundwater uses, by authorizing the state to accept and register water right claims" (read more). Failure to register conclusively waived and relinquished any right to water. For the last 50-plus years, Washington has been able to make more informed surface water management decisions than California.

In 2017, Nevada passed a bill that effectively gave water rights claimants 10 years to submit proof of their claim to the state or abandon them:

- "Section 1 of this bill requires any claimant of a pre-statutory water right to submit proof of the claim to the State Engineer on or before December 31, 2027, regardless of whether an adjudication has been ordered for a water source. If a claimant fails to submit such proof, the claim is deemed to be abandoned."

It's past time for California to catch up with its neighbors.

Newsom should sign SB 389 without hesitation

Modernizing water rights means adapting a 19th century system, inherently inequitable by design, to 21st century needs. California is one of the last western states to do this and arguably, it's doing it with the weakest tool. There's no deadline by which water rights holders must do this or abandon their claim like other states have included.

Senior, pre-1914 water rights reflect 45% of surface water right holders and 35% of surface water diversions by volume; they have never been adequately documented and remain poorly understood. As climate change exacerbates the volatility and unpredictability of California's water system, understanding the whole set of users and their demands is more important than ever for climate resilient management. SB 389 provides a small, but important, step toward a more transparent and equitable water rights system.

Fortunately for us, Senator Ben Allen and his SB 389 co-authors, Assemblymembers Bauer-Kahan and Wicks, are working to incrementally improve California's water rights system and catch up with our western neighbors. Check out the Planning and Conservation League's resource page to learn more about all three water rights bills and ongoing efforts to pursue a fair, balanced, equitable, and timely tool set for the state.

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