BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

October 7, 2022

Correspondence and media coverage of interest between September 7, 2022 and October 5, 2022

Correspondence

From: Los Vaqueros Reservoir Expansion Project
To: CCWD Board
Date: September 23, 2022
Subject: Monthly Report

From: Dave Warner
To: President Anson Moran and members of the Commission
Date: September 12, 2022
Subject: The Reasonable Person Standard and the Design Drought Discussion

From: Peter Drekmeier
To: President Anson Moran and members of the Commission
Date: September 9, 2022
Subject: Follow up to the Design Drought Workshop

From: Stakeholders
To: The Hon. Gavin Newsom, Governor
Date: September 7, 2022
Subject: Senate Bill 1469 – Request Signature

Press Release

From: California Department of Water Resources
Date: October 3, 2022
Press Release: New Water Year Begins Amid Preparations for Continued Drought

Media Coverage

Water Supply Condition:

Date: October 5, 2022
Source: HydroReview
Article: California DWR preparing for fourth year of “extreme drought”

Date: October 1, 2022
Source: ABC10
Article: California Drought: Here’s what Northern California can expect in the new water year

Date: September 28, 2022
Source: Mercury News
Article: Four in a row: California drought likely to continue

Date: September 22, 2022
Source: LA Times
Article: California should expect a ‘fourth dry year’ as drought persists

Water Conservation:

Date: September 29, 2022
Source: SF Chronicle
Article: 'Sometimes shaming is your best and only option': Should California scorn people over water use?

Date: September 14, 2022
Source: Mercury News
Article: Water use drops significantly in Santa Clara County; drought targets met by increased conservation

Date: September 13, 2022
Source: Daily Journal
Article: Rethinking reusable water in San Mateo County

Date: September 8, 2022
Source: Bay City News
Article: 6 Bay Area Counties Lead State's Water Conservation Drive

Water Supply Management:

Date: October 3, 2022
Source: SF Chronicle
Article: California officials warn of more water restrictions in 2023 as fourth year of drought looms

Date: September 29, 2022
Source: Ca. Department of Water Resources
Article: DWR Takes Actions to Support State's Future Water Supply Strategy

Date: September 20, 2022
Source: NASA
Article: Eyes on the Snow as Water Supplies Dwindle

Date: September 13, 2022
Source: Somach, Simmons & Dunn
Article: Court of Appeal Determines That the State Water Resources Control Board Exceeded its Authority in 2015 When it Ordered Curtailment Among Valid Pre-1914 Water Right Holders Based on Insufficient Water to Serve Their Priorities

Water Infrastructure:

Date: September 29, 2022
Source: The Almanac
Article: At Google's campus, state and local leaders urge greater efforts to conserve water

Date: September 26, 2022
Source: Public Policy Institute of California
Article: The Environmental Benefits of the Water Storage Investment Program

Date: September 19, 2022
Source: KCRA
Article: Central Valley congressman introducing legislation to prevent Delta Tunnel project from gaining ground

Water Infrastructure, cont'd.:

Date: September 18, 2022
Source: SF Chronicle
Article: Southern California wastes a lot of water despite historic drought. But it can teach the Bay Area one big lesson

Date: September 7, 2022
Source: Palo Alto Weekly
Article: With costs going up, Palo Alto ponders next steps for new water treatment plants City Council to discuss proposals for salt-removal plant and purification facility on San Antonio Road site

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LOS VAQUEROS RESERVOIR EXPANSION PROJECT

SEPTEMBER 23, 2022

UPCOMING ACTIVITIES

September 26 – JPA Finance Committee Meeting

September 27 – Financial workgroup meeting

October 12 at 9:30 a.m. – JPA Regular Board Meeting at Grassland Water District in Los Banos

UPCOMING LAP BOARD COORDINATION

TBD – Valley Water Storage Committee

ADDITIONAL PROJECT INFO

https://www.ccwater.com/lvstudies

https://www.usbr.gov/mp/vaqueros/

https://cwc.ca.gov/Water-Storage/WSIP-Project-Review-Portal/All-Projects/Los-Vaqueros-Reservoir-Expansion-Project

www.losvaquerosjpa.com

MONTHLY REPORT

FUNDING

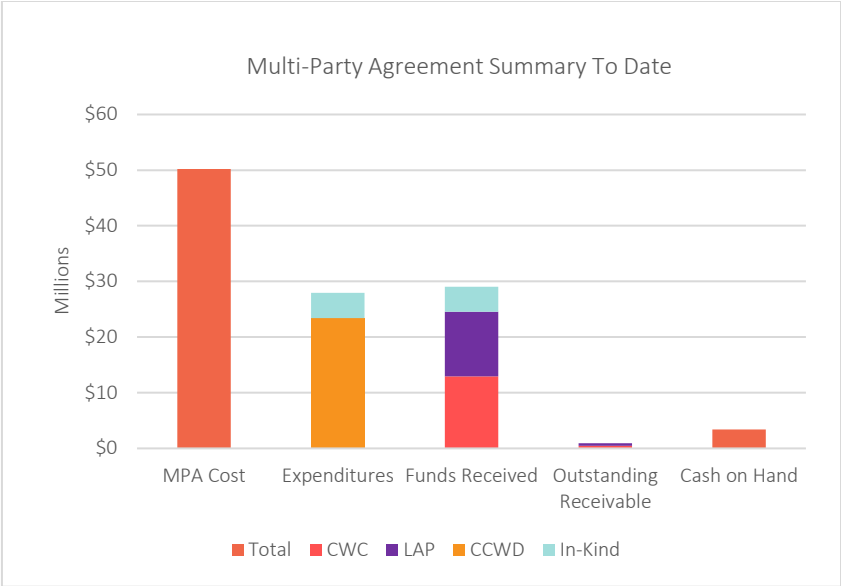
The FY22 Continuing Resolution that went into effect September 30, 2021 included $50 million in Federal funding for the Project. This is in addition to the $14 million that was appropriated in FY21. A funding agreement with Reclamation for the pre-construction cost share (approximately $7 million) was previously executed and the first invoice and progress report are planned to be submitted by the end of the month. Future Federal funding requests include an additional $150 million in the upcoming fiscal year. Some portion of the federal funding share may be available in the Bipartisan Infrastructure Law (the Infrastructure Investment and Jobs Act that was signed on November 15, 2021). Staff met with Reclamation during the Washington D.C. trip and expect that funding recommendations for storage projects will be announced in the coming weeks.

A Letter of Interest was submitted to the Environmental Protection Agency on September 6th. The JPA is seeking a loan for up to $675 million to fund the costs of the project not provided by the California Water Commission and Reclamation. Staff met with the EPA during the trip to Washington D.C.. The EPA is expected to invite the project to apply for a loan in October.

The Project qualified for funding under the Water Storage Investment Program and received an adjusted Maximum Conditional Eligibility Determination of $477,558,343 from the California Water Commission (CWC) on March 16, 2022. This amount reflects a recent inflation adjustment of 1.5 percent and an increase in over $7 million from the previous award. An amendment to the Early Funding Agreement with the CWC to reflect the increased award and align with the current project schedule was approved at the CWC meeting on May 18, 2022. Invoices are continuing to be submitted to the California Water Commission (CWC) monthly.

Amendment No. 4 to the Multi-party Cost Share Agreement was provided to partners. The local cost share for each agency is $1,094,000. Amendment No.4 needs to be fully executed by the end of the year.

The following chart provides an overview of the Multiparty Agreement (MPA) expenditures through May 31, 2022. The funds received, outstanding receivable, and cash on hand are shown through May 31, 2022.



JPA BOARD OF DIRECTORS MEETINGS

On September 14 the Los Vaqueros Reservoir Joint Powers Authority (JPA) Board of Directors met via Zoom. The JPA authorized the contract for the executive director. The next JPA Board Meeting has been scheduled for October 12 and the meeting agenda packet will be distributed to JPA Directors and Alternate Directors on Thursday, October 6 and posted to the JPA website on Friday, October 7. The October 12 JPA Board of Directors meeting is planned to take place in-person at the Grassland Water District office in Los Banos with a field trip to tour the wildlife refuges on the agenda. Additional details regarding the field trip and logistics will be provided.

PERMITTING

U.S. Fish and Wildlife Service (USFWS) has begun drafting the Biological Opinion for terrestrial species. District staff responded to USFWS comments on the Compensatory Mitigation Plan which supports the federal and state Endangered Species Act permitting processes. USFWS Migratory Bird Program staff continue drafting an Environmental Assessment for their eagle take permit action. California Department of Fish and Wildlife (CDFW) continues work on the Incidental Take Permit for terrestrial species and Lake and Streambed Alteration Agreement. The second draft of the Incidental Take Permit for aquatic species has been reviewed CDFW and staff are addressing comments. Central Valley Regional Water Quality Control Board (CVRWQCB) issued its Section 401 permit on June 30, 2022. The U.S. Army Corps of Engineers (USACE) continues work on its Section 404 permit which will be issued after Reclamation issues

its Record of Decision. Draft water rights change petitions have been prepared and submitted to staff at the State Water Resources Control Board for preliminary review.

DESIGN

The District awarded the Transfer Pipeline Inspection contract on July 6, 2022. Inspection began in early September and will continue through October. During the inspection, the District is receiving 35 cfs of blending water through the EBMUD intertie from Freeport.

Pipeline alignment coordination with regional transportation agencies continues on the Transfer-Bethany Pipeline (TBPL). Geotechnical investigations have been completed at the terminus of the TBPL, where the pipeline connects to the California Aqueduct (Turn-In). The 60-percent design of the Turn-In has been prepared and is under review.

Geotechnical investigations for the Pumping Plant No. 1 Replacement project have also been completed and 60-percent design is being developed. The District is also preparing responses to the value engineering report completed by Reclamation.

Design of the dam expansion is nearing completion, the plans, technical specifications and basis of design report have been submitted to the California Division of Safety of Dams (DSOD) for review.

GEI/Parsons has been selected to provide Capital Project Management Support services. The contract will be awarded in October.

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September 12, 2022

Re: The Reasonable Person Standard and the Design Drought Discussion

Dear President Moran and Commissioners,

Thank you for your design drought discussion on August 23rd. Thank you also for expressing your perspectives—they are immensely helpful for learning and for understanding the basis for policy decisions. The conclusions I heard were i) that the design drought was a judgement based on experience and how we operate the system; and ii) that return periods are a false promise and don't deliver on the ability to do better and can't predict what's going to happen next year.

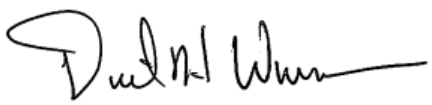
The trouble is, the data does do better than a decision to add two years to the 1987-92 drought based on experience. Please consider the reasonable person standard. It's a standard used by courts to determine negligence. Of 100 years of observed data, 1100 years of tree ring data, and 25,000 years of stochastic data, none of it found a drought using the design drought's amount of storage at a demand level of 265 mgd. In 26,000 years of data there was never a drought that used 1,350 TAF of storage to supply the regional water system with 265 mgd of supply. If the Tuolumne salmon could be the plaintiffs in the case, it seems like there is an argument for negligence, a reasonable person would conclude that the SFPUC can do better than the design drought model in meeting the needs of all stakeholders.

It also appears that there was bias by at least part of the commission not to have an interest in finding a drought model/stress test better than the design drought. If there had been an interest in finding a better model, I would have expected more questions. One question that comes to mind: Can climate scientists and or climate models tell us if the probability of the next year being a drought declines as the number of sequential drought years increases? If the answer is yes, that would be exciting news for drought planning. Given that the 25,000 years of stochastic data didn't find a drought as severe as the design drought, I would guess that there is such a relationship.

If part of the commission has a bias not to improve upon the design drought model, it would be incumbent on other commissioners to counteract that bias.

The design drought model is a consequential policy tool.

Best regards,



Dave Warner

cc: Dennis Herrera, Steve Ritchie

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Tuolumne River Trust

OFFICES
San Francisco

Modesto

Sonora

Mailing Address
P.O. Box 3727
Sonora, CA 95370

Phone
(415) 882-7252

Website
www.tuolumne.org

September 9, 2022

President Anson Moran and Commissioners
SFPUC
525 Golden Gate Ave.
San Francisco, CA 94102
Via Email

Re: Follow Up to Design Drought Workshop.

Dear President Moran and Commissioners:

I write to express my deep disappointment in the Design Drought workshop held on August 23. Our coalition of environmental and fishing groups put a lot of time and effort into preparing our presentation. We included numerous facts and evidence from the Long-Term Vulnerability Assessment (LTVA) to support our contention that the Design Drought is beyond conservative and needlessly harms the Tuolumne River and Bay-Delta. Your staff presented no legitimate evidence that the Design Drought is a prudent planning tool, yet you appeared to embrace their position.

Please ask yourself, what was the benefit of investing $743,000 of ratepayer money in the LTVA if the report will only sit on a shelf? Evidence that the Design Drought is legitimate did not materialize, so staff has downplayed or outright ignored the report.

It is clear to me that the series of seven SFPUC workshops that took place over a period of almost two years was just for show. To date, the SFPUC has made no policy changes in response to what you learned. The goodwill we put into the process was not met by SFPUC staff nor the Commission.

Earlier this year, your staff expressed concern that Hetch Hetchy might not fill, as if that would lead to dire consequences. In reality, Hetch Hetchy makes up just one quarter of SFPUC storage, and can hold enough water to last 1.5 years.

Hetch Hetchy ended up filling, so at the workshop staff shifted their gloom and doom scenario to focus on the Water Bank getting low. Never mind that this is the whole purpose of the Water Bank – when we experience a series of dry years, the Water Bank allows the SFPUC to keep useable reservoirs relatively full.

What was noticeably absent from the August 23 agenda was the Drought Conditions Update. I can only recall one other time when there was no such report in the agenda packet, and it was when a similar issue was being discussed.

I believe the Drought Conditions Update was intentionally omitted to prevent people from seeing how much water the SFPUC has in storage, despite the past three dry years.

According to a recent SFPUC document, the preliminary figure for systemwide water demand in FY 2021/22 was below 190 mgd. In the past, the final figure has been lower than the preliminary figure. 190 mgd equals 213 thousand acre feet (TAF).

Following is a slide from the current Drought Conditions Update.

Hetch Hetchy Regional Water System

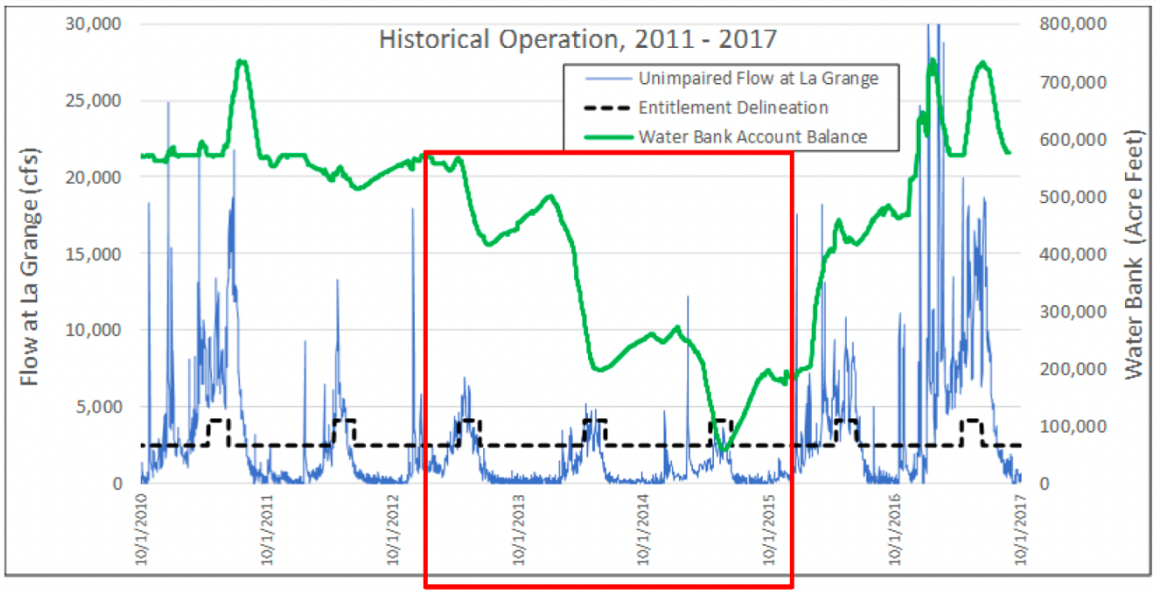
September 6, 2022 Reservoir Storage

Reservoir	Current Storage[1,2,3] (AF)	Maximum Storage[4] (AF)	Available Capacity (AF)	Percent of Maximum Storage	Normal Percent of Maximum Storage[5]
Tuolumne System					
Hetch Hetchy	301,000	360,360	59,360	83.5%	**86.2%**
Cherry	237,900	273,345	35,445	87.0%	-
Eleanor	23,340	27,100	3,760	86.1%	-
Water Bank	252,134	570,000	317,866	44.2%	**97.4%**
Total Tuolumne Storage	**814,374**	**1,230,805**	**416,431**	**66.2%**	-
Local System					
Calaveras	58,764	96,670	37,906	60.8%	-
San Antonio	45,309	53,266	7,957	85.1%	-
Crystal Springs	51,265	58,309	7,044	87.9%	-
San Andreas	16,251	19,027	2,776	85.4%	-
Pilarcitos	2,418	3,030	612	79.8%	-
Total Local Storage	**174,007**	**230,302**	**56,295**	**75.6%**	-
Total System Storage	988,381	1,461,107	472,726	**67.6%**	**84.2%**
Total without water bank	736,247	891,107	154,860	**82.6%**	-

You see that the SFPUC currently has more than four years-worth of water in storage. Even without the Water Bank, the SFPUC has more than three years-worth of water stored in its accessible reservoirs. This is hardly a crisis situation.

Your staff's workshop presentation depended heavily on the following busy and confusing graph, which only provides part of a much bigger picture. In my opinion, it was a desperate attempt to manufacture a case where one does not exist.

Water Bank Operation Through A Drought 2012-2016



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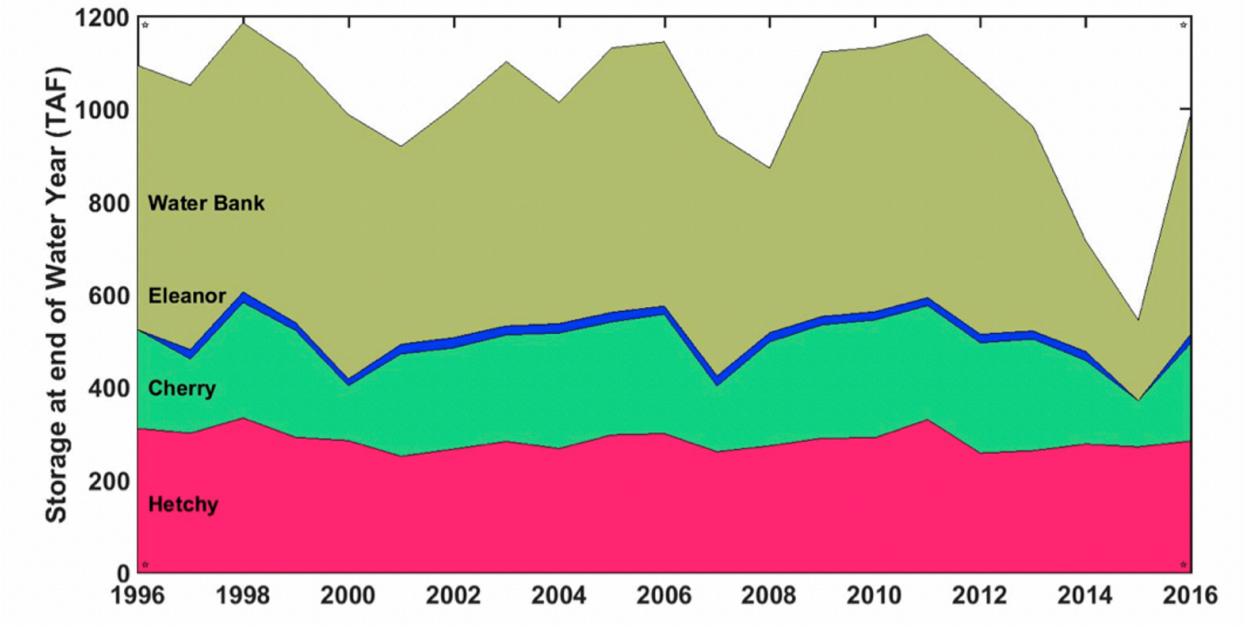
It would have been much more helpful if staff had produced a graph similar to the one below, but with the inclusion of the SFPUC's Bay Area reservoirs. (Bay Area storage is often intentionally overlooked, likely in attempt to make the SFPUC's water supply conditions look more dire.)



Source: SFPUC, 2016

We have requested that the SFPUC produce a graph similar to the one above, but with the inclusion of Bay Area storage. Using the SFPUC's sophisticated model, staff could easily produce a similar graph showing what storage would have looked like under historic conditions, but at current demand. A third graph could take into consideration what storage would have looked like had the Bay Delta Plan's unimpaired flow requirement been in place.

Staff ignores our information requests when the outcomes are unlikely to support their narrative. They still delay responses to you, but we're starting to see greater accountability. Please request the three graphs we have proposed. The public deserves transparency.

The 2012 to 2015 drought was very dry, and was followed by average precipitation in 2016. You'll see from the following slide that on July 31 total system storage was at 1,200 TAF, enough water to last five years. This demonstrates just how good the SFPUC's water rights are.

Hetch Hetchy Regional Water System

July 31, 2016 Reservoir Storage Levels

Reservoir	Current Storage[1,2,3] (AF)	Maximum Storage[3,4] (AF)	Available Capacity (AF)	Percent of Maximum Storage	Normal Percent of Maximum Storage[5]
Tuolumne System					
Hetch Hetchy	347,560	360,360	12,800	96.4%	**95.3%**
Cherry	256,170	273,500	17,330	93.7%	-
Eleanor	22,800	27,113	4,313	84.1%	-
Water Bank	421,410	570,000	148,590	73.9%	**96.0%**
Total Tuolumne Storage	**1,047,940**	**1,230,973**	**183,033**	**85.1%**	-
Local System					
Calaveras	35,419	96,670	61,251	36.6%	-
San Antonio	43,522	50,637	7,115	85.9%	-
Crystal Springs	53,386	58,309	4,923	91.6%	-
San Andreas	17,960	19,027	1,067	94.4%	-
Pilarcitos	2,504	3,069	565	81.6%	-
Total Local Storage	**152,790**	**227,711**	**74,921**	**67.1%**	-
Total System Storage	1,200,730	1,458,684	257,954	**82.3%**	**90.0%**
Total without water bank	779,320	888,684	109,364	**87.7%**	-

The SFPUC is rapidly losing credibility. The workshops provided some transparency, but the obvious conclusions have been ignored. We need your leadership!

Sincerely,

Peter Drekmeier
Policy Director

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September 7, 2022

The Honorable Gavin Newsom
Governor of California
California State Capitol
1021 O Street, Suite 9000
Sacramento, CA 95814

Re: Senate Bill 1469 – Request Signature

Dear Governor Newsom:

While the undersigned organizations represent a broad spectrum of interests and stakeholders, we share the common understanding that conservation is an integral component of the state's efforts to ensure that all Californians have both affordable and reliable drinking water, even in the face of persistent drought conditions. It is for that reason that we strongly support SB 1469 authored by Senators Bradford and Becker as it will preserve a critical water conservation tool for water utilities regulated by the California Public Utilities Commission.

SB 1469 enables water suppliers regulated by the Public Utilities Commission to take advantage of the regulatory best practice of decoupling, first implemented in 1981 with the assistance of consumer advocate Bill Marcus. In short, decoupling removes the linkage between utilities' financial performance and the amount of water they sell, eliminating their incentive to sell more water to improve their bottom line. Instead, SB 1469 enables water suppliers to focus their attention on promoting water conservation.

In addition to supporting California's water conservation efforts, SB 1469 will also help the state meet its climate change and energy efficiency objectives. There is a growing recognition that "saving water saves energy" because energy is needed for pumping, treatment, and distribution of drinking water. In California, as much as 19% of the state's electricity consumption goes towards pumping, treating, collecting, and discharging water and wastewater. In the simplest of terms, every drop of water saved also saves energy.

Finally, SB 1469 will also help to keep water affordable for millions of Californians. Decoupling allows utilities to have very progressive rate designs that reward customers who use the least amount of water—often those who have the fewest financial resources—with lower rates, while ensuring those

who use the most water also pay the most. Water suppliers with decoupling in place tend to have substantially lower fixed monthly service charges, providing greater flexibility and savings to low-volume users.

For these reasons, we respectfully request your signature on SB 1469.

Sincerely,

Weston Berg
Senior Researcher, State Policy
American Council for an Energy-Efficient Economy

Lauren Weston
Executive Director
Acterra: Action for a Healthy Planet

Ron Burke
President & CEO
Alliance to Save Energy

Nicole Sandkulla
Chief Executive Officer / General Manager
Bay Area Water Supply & Conservation Agency

Sarah Foley
Executive Director, Operations
California Water Efficiency Partnership

Sue Mosburg
Executive Director
California-Nevada Section of the American Water Works Association

Ron Stork
Resilient Rivers Director
Friends of the River

Victoria Rome
Director, California Government Affairs
Natural Resources Defense Council

Mary Holing
VP of Environment
Silicon Valley Leadership Group

Dennis Murphy
Director, Water & Sustainable Life
Sustainable Silicon Valley

Peter Drekmeier
Policy Director
Tuolumne River Trust

Kate Nutting
President
West Basin Water Association

CALIFORNIA DEPARTMENT OF
WATER RESOURCES

NewsNews Releases
Published: Oct 03, 2022

Contact:
Ryan Endean, Public Affairs Office, Department of Water Resources
916-820-8088 | media@water.ca.gov

New Water Year Begins Amid Preparations for Continued Drought

An aerial drone view at Bidwell Bar Bridge showing Lake Oroville on August 4, 2022 at 41 percent of total capacity.

SACRAMENTO, Calif. – Conserving water has become a way of life in California, especially as projections forecast warmer, drier conditions. The State's new water year has begun and with it comes fresh concerns about a fourth year of extreme drought for the state.

California's water year runs from October 1 to September 30 and is the official 12-month timeframe used by water managers to compile and compare hydrologic records.

Water Year 2022 ended on Friday and featured continued extreme drought with historically dry months and a record-shattering heatwave. Now, the focus shifts to the months ahead with state officials preparing for a fourth dry year.

Over the past 12 months, California saw extreme swings between record-breaking storms and dry conditions driven by our changing climate. In October 2021, parts of Northern California experienced the highest single-day rain totals ever, followed by a dry November and then a record snowfall in parts of the Sierra in December. Conditions took a turn again with the driest January, February, and March in over 100 years.

Despite some rain recorded in parts of California in September, uncertainty remains about what the new water year may bring. Long-range forecasting suggests warmer and drier than average conditions to persist.

"This is our new climate reality, and we must adapt. As California transitions to a hotter, drier future, our extreme swings from wet and dry conditions will continue," said DWR Director Karla

Nemeth. “We are preparing now for continued extreme drought and working with our federal, state, local, and academic partners to plan for a future where we see less overall precipitation and more rain than snow.”

Water Year 2022 ended with statewide precipitation at 76 percent of average. Statewide reservoir storage is 69 percent of average for this time of year. Lake Oroville, the State Water Project’s largest reservoir, sits at 64 percent of average for this time of year.

The current drought from 2020 to 2022 is now the driest three-year period on record, breaking the old record set by the previous drought from 2013 to 2015. This extended, extreme drought is having an impact on all Californians, especially the State’s most vulnerable communities. California is aggressively addressing the urgent need for financial and technical support for water resilience projects across California. To date, DWR has provided over $480 million in grant funding through its Small Community and Urban and Multi-benefit Drought Relief programs. This summer, the Legislature approved hundreds of millions in additional funding and programs to support these communities.

Californians can all do their part to adapt to the hotter, drier future by making water conservation a way of life. Governor Newsom has asked all Californians to reduce water usage at home by 15 percent. Learn more at saveourwater.com. DWR also recently announced a series of actions to make water conservation more affordable through financial assistance and tax exemptions.

State water officials will provide an update to the media on current dry conditions and the outlook for this winter. DWR will also outline actions being taken now to better prepare for a hotter, drier future. The media briefing will be held via Zoom at 1 p.m. today. Credentialed media can register at https://ca-water-gov.zoom.us/meeting/register/tZcsce-tqj8sGNQmPNGyb0S8b9_Po0Tduh8Z.

Californians can access current water conditions in real time at California Water Watch, a new website launched by DWR. This website will help Californians see their local hydrological conditions, forecasts, and water conditions down to their address or their local watershed. The site presents data from a variety of sources and allows the public to obtain a quick snapshot of local and statewide water conditions. Complete data for Water Year 2022 is available now.

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California DWR preparing for fourth year of "extreme drought"
HydroReview | October 5, 2022 | Elizabeth Ingram -

An aerial overview of the recently completed Lake Oroville main spillway during Phase 2 of the recovery efforts. Work continues on the concrete cap below the Lake Oroville emergency spillway weir at the Butte County, California site. Photo taken January 24, 2019. Kelly M. Grow / California Department of Water Resources, FOR EDITORIAL USE ONLY

The California water year has begun, and with projections forecasting warmer, drier conditions, the California Department of Water Resources said it has "fresh concerns about a fourth year of extreme drought for the state."

California's water year runs from Oct. 1 to Sept. 30 and is the official 12-month timeframe water managers use to compile and compare hydrologic records. Water Year 2022, which just ended, "featured continued extreme drought with historically dry months and a record-shattering heatwave," according to a release. Now, state officials are preparing for a fourth dry year.

Over the past 12 months, California saw extreme swings between record-breaking storms and dry conditions driven by climate change. In October 2021, parts of Northern California experienced the highest single-day rain totals ever, followed by a dry November and then a record snowfall in parts of the Sierra in December. Conditions took a turn again with the driest January, February and March in over 100 years. Water Year 2022 ended with statewide precipitation at 76% of average. Statewide reservoir storage is 69% of average for this time of

year. Lake Oroville, the State Water Project's (SWP) largest reservoir, sits at 64% of average for this time of year.

The SWP is a system of 32 storage facilities, 21 pumping plants, four pumping-generating plants, eight conventional hydroelectric plants and about 700 miles of canals and pipelines. Among these generating plants is the 762-MW Hyatt Powerplant at the foot of Oroville Dam.

Despite some rain recorded in parts of California in September 2022, uncertainty remains about what the new water year may bring. Long-range forecasting suggests warmer and drier than average conditions will persist.

"This is our new climate reality, and we must adapt. As California transitions to a hotter, drier future, our extreme swings from wet and dry conditions will continue," said DWR Director Karla Nemeth. "We are preparing now for continued extreme drought and working with our federal, state, local, and academic partners to plan for a future where we see less overall precipitation and more rain than snow."

The drought from 2020 to 2022 is now the driest three-year period on record, breaking the old record set by the drought from 2013 to 2015. California is aggressively addressing the urgent need for financial and technical support for water resilience projects across California, DWR said.

The October HYDRO+ free virtual training program, brought to you by Hydro Review and HYDROVISION International, will cover the topic of drought conditions in the U.S. and how the hydropower industry is affected. Click here to register for the Oct. 13 webcast.

# # #

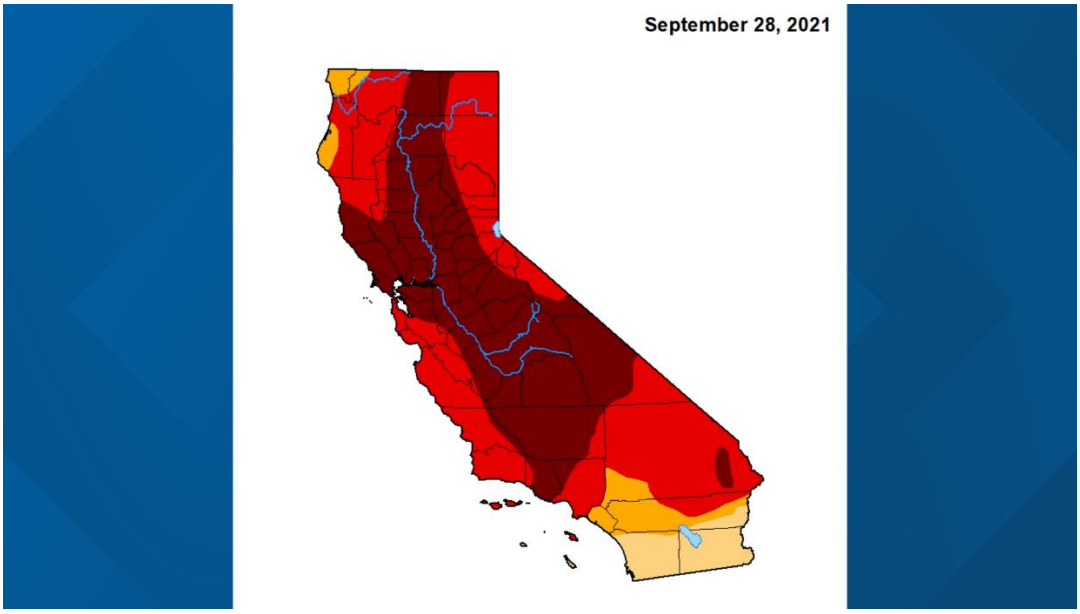
California Drought: Here's what Northern California can expect in the new water year
Model data predicts California will see a drier than normal winter ahead of a crucial water year.
ABC10 | October 1, 2022 | Brody Adams

SACRAMENTO, Calif — California finds itself in desperate need of a wet winter as drought continues to grip the state with the new water year beginning October 1.

The drought monitor paints a bleak picture for the state as the new water year begins. Exceptional drought conditions, the highest such level, engulfs most of the San Joaquin Valley and surrounding areas.

The slightly below-average water year did enough to drop exceptional drought conditions to only about 16% of the state compared to a whopping 45% this time last year. Events like last October's record-setting atmospheric river helped Northern California drop out of exceptional drought, for now at least.

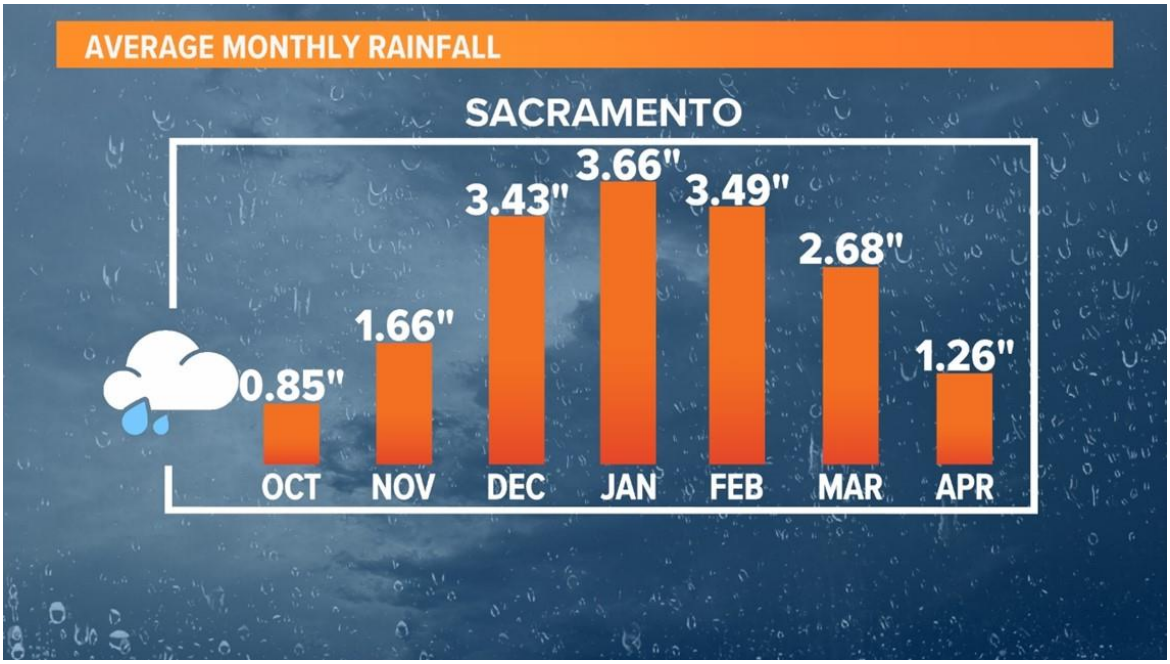
Drought monitor



Last year's drought monitor showed much more of the state in exceptional drought

This doesn't mean California is in good shape though. The water years from 2020-2022 were the driest on record for California, according to UC Merced Professor of Climatology John Abatzoglou.

The water year runs from October 1 to September 30, coinciding with about the time California receives its first major storms of the season.



Credit: ABC10. October is usually when California sees its first soaking storm

The 2022 water year that ended on September 30th wasn't as dry as previous years but was still dry enough to extend the drought to a fourth straight year.

Credit: ABC10. The entire state was below-average in terms of precipitation last water year.

This winter isn't shaping up to exactly be a drought buster either. Long range seasonal forecasts are in general agreement that it will be a drier than average year for Northern California.

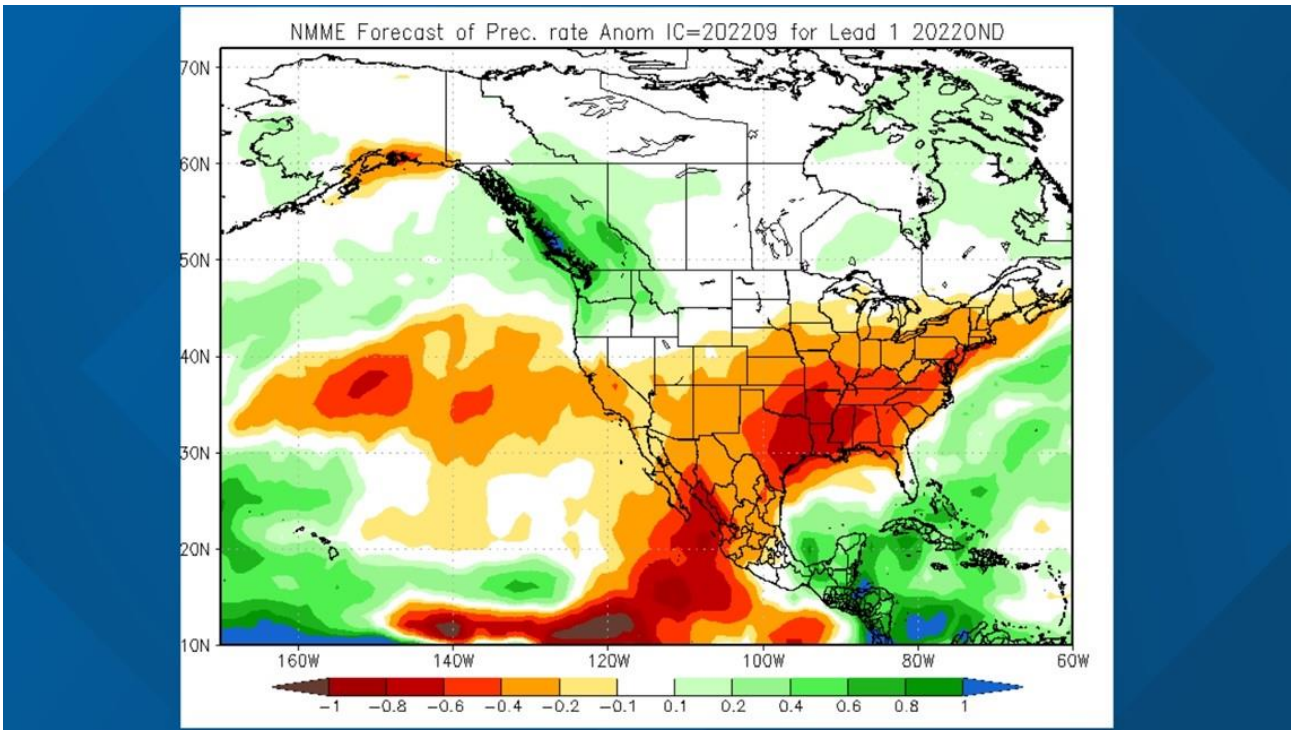
This is due to a myriad of factors, primarily the influence of a third straight La Niña year.

"La Niña traditionally means very little in terms of seasonal precipitation for Northern California. However, the last two years where we've had a La Niña, we've had below normal precipitation in Northern California," said Abatzoglou.

The typical La Niña is a pattern of drier conditions for the southern half of the state and wetter for the northern portions. Sacramento sits in the buffer zone between the two, making it harder to draw conclusions on La Niña's effect on precipitation trends.

With two very dry years coinciding with back to back La Niña's, it's natural to be pessimistic.

Model data from the North American Multi-Model Ensemble, which uses data from a range of forecast models, shows California receiving less than normal precipitation the next three months as well.



Credit: NOAA. The 3 month outlook predicts below-average rainfall for California

The map above demonstrates what one would expect from a typical La Niña winter, just shifted further north.

Abatzoglou explained that while the data is valuable, it is still far from perfect, especially for California.

"It's notoriously a hard place for our typical tools from a climate forecasting perspective to do a good job. That's a function of California having incredible volatility and seasonal precipitation

being especially in Northern California being at the hinge point of the ENSO (El Niño Southern Oscillation) dipole," he said.

Although these forecasts show that dry conditions are favored, anything can happen this winter.

"Even though the outlook is dry, if we do get some well-timed atmospheric rivers that come through that could change the fate of our drought situation entering the fourth year here," said Abatzoglou.

He said it would take a "conga line" of atmospheric rivers and record precipitation to bust the drought in California that is entering it's fourth year.

# # #

Four in a row: California drought likely to continue
Mercury News | September 28, 2022 | Rachel Becker

The Sierra Nevada had only small patches of snow near the Phillips Station meadow, shown shortly before the California Department of Water Resources conducted a snow survey on April 1, 2022. (Ken James, California Department of Water Resources)

As California's 2022 water year ends this week, the parched state is bracing for another dry year — its fourth in a row.

So far, in California's recorded history, six previous droughts have lasted four or more years, two of them in the past 35 years.

Despite some rain in September, weather watchers expect a hot and dry fall, and warn that this winter could bring warm temperatures and below-average precipitation.

Conditions are shaping up to be a "recipe for drought": a La Niña climate pattern plus warm temperatures in the Western Tropical Pacific that could mean critical rain and snowstorms miss California, according to Daniel Swain, a climate scientist with UCLA and The Nature Conservancy.

Swain said California's fate will depend on how exactly the storm track shifts, and that seasonal forecasts are inherently uncertain. Even so, "I would still put my money on dry, even in the

northern third of the state," he said. "It's not a guarantee. But if you were to see 50 winters like this one, most of them would be dry."

Through August, no other three-year period in California history has been this dry — even during the last historic drought from 2012 through 2016.

"Or did the last drought end? Which is the bigger question," said John Abatzoglou, a professor of climatology at UC Merced. "We're basically having droughts that are disrupted by wet periods."

California has seen lengthy droughts before, including two seven-year droughts that started in the late 1920s and 1940s. A more recent one lasted six years, from 1987 to 1992.

"To get these kinds of years, we have to go back to the late 1920s and the 1930s, which were the Dust Bowl years," said California state climatologist Michael Anderson. He tallies far more dry years than wet since the turn of the millennium. "If you look at the 21st century, we really only have a handful of wet years to work with."

It's not just the lack of rain and snow. Warmer temperatures, too, are exacerbating California's droughts. January through August ranked as California's fifth warmest year to date, following 2021's warmest summer on record.

"One thing that is unfortunately becoming easier to anticipate are warmer than average conditions due to climate change," Swain said.

The heat contributes to a thirstier atmosphere, plants and soils, which increases demand and reduces runoff that flows into reservoirs. "That's taking what's already been a really rotten, worst-in-the-instrumental-record precipitation drought, and making it into even a worse drought," Abatzoglou said.

Winter is coming. But will it rain?

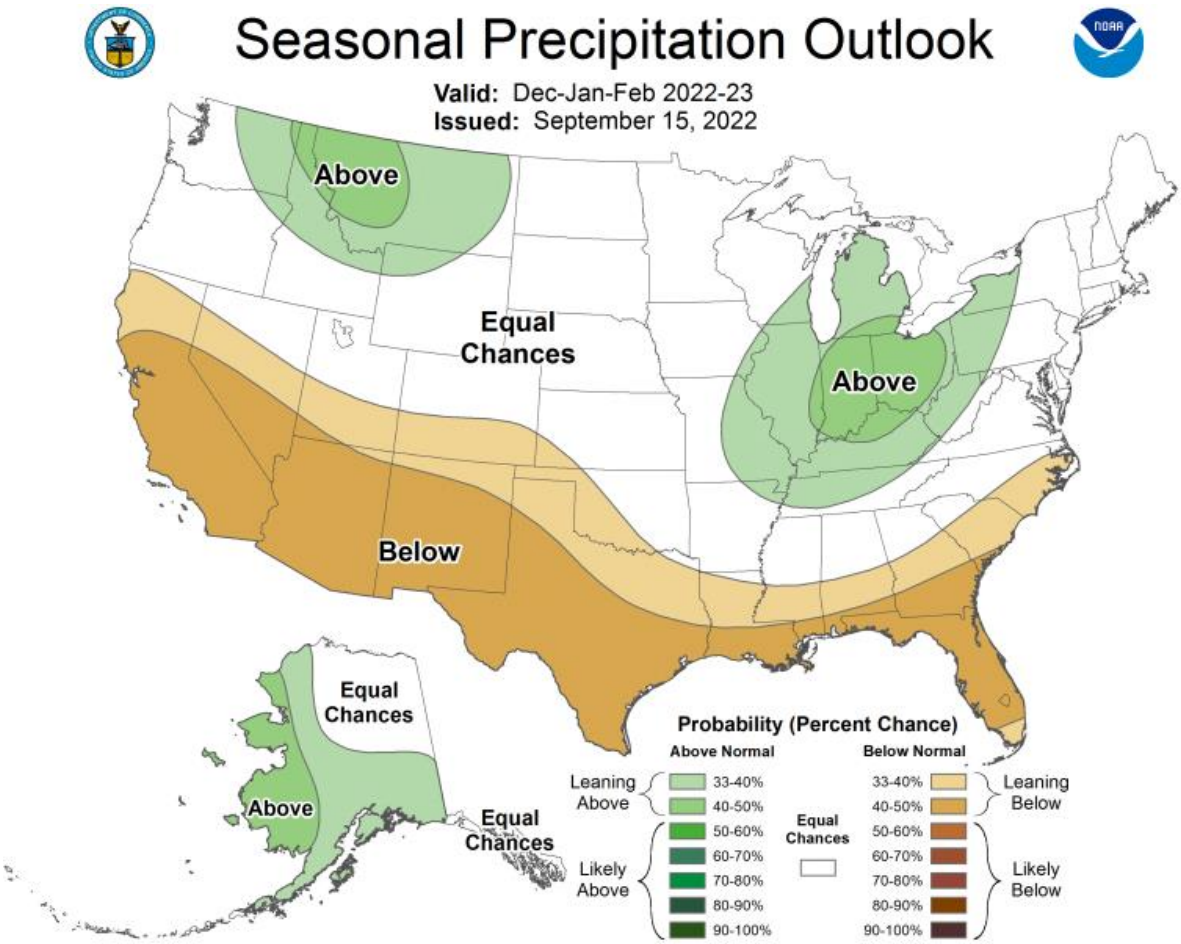
What the coming water year, which begins Oct. 1, will bring is still up in the air. But La Niña conditions are highly likely to continue through at least the fall, with an 80% chance of persisting through January, for a third year in a row.

A "three-peat" La Niña is rare: It has happened only twice before since record-keeping began. La Niña occurs when ocean temperatures in the Eastern Tropical Pacific are below normal, which can shift the storm track that California depends on.

"Seeing things that we've never seen before is very much on the table," said John Yarbrough, assistant deputy director of the State Water Project, which funnels water from Northern California to 27 million people and 750,000 acres of farmland.

Often La Niña means drier conditions in Southern California, but the effects on Northern California watersheds critical to the state's water supply can be harder to predict, according to Julie Kalansky, deputy director of the Center for Western Weather and Water Extremes at the Scripps Institution of Oceanography.

"Every year is such a unique story for water, which makes California exciting, but it also makes it hard to predict and say what will happen," Kalansky said.



What will ultimately shape the next water year is the number of storms known as atmospheric rivers that make landfall, and the amount of precipitation they unleash. The timing, too, will be important, Anderson said: when rain and snow falls can affect how much of California's precious snowpack rushes into reservoirs or soaks into the soil.

"From the water management standpoint, we're being mindful that it very well could be dry," Yarbrough said. "At the same time, we've got to be mindful that it could be very wet and you could have flooding. Both of those still are possible."

Dry spells punctuated by wet years are part of "the California story," Abazoglou said. "But obviously the last decade has shifted the balance towards more droughts."

What about snow?

Snow, too, is difficult to predict for the year ahead.

“It’s definitely more of a guessing game. You’re just sort of crossing your fingers and hoping,” said Michael Reitzell, president of Ski California, a trade association representing resorts in Nevada and California.

This past year was a strange one for the ski industry, he said — marred first by wildfires that damaged the Sierra-at-Tahoe resort, then by extreme snowstorms at the end of December that forced some resorts to close.

“In the holiday period, some resorts lost full days that would have been huge, huge revenue days,” Reitzell said. “That certainly does put a ding in things.”

This year’s snowpack measured at 38% of average statewide, at a time when it should have been its deepest on April 1. It was the worst snowpack in seven years and the sixth lowest April measurement in state history. The 2015 snowpack was the lowest on record.

Very little snow remained on the ground for the state’s snow survey in the Sierra Nevada on April 1, 2022. Photo by Ken James, California Department of Water Resources

The measurement came on the heels of a record-setting dry spell from January through March, with warm temperatures spurring an early season melt. This kind of early melt is difficult to

recover from, said Andrew Schwartz, lead scientist and station manager at the University of California, Berkeley's Central Sierra Snow Lab.

"Our soils get dry and soak up any additional rain or snow that comes in, so that doesn't make it to our reservoirs. And then we get these mass forest die-offs and subsequent forest fires," Schwartz said.

He agreed it's hard to say what La Niña will mean for the Sierra Nevada this winter. He said "some absolutely massive snow years" have happened during La Niña years.

"But we've also had some of the worst years on record happen here. So the La Niña doesn't look like it's going to play too much of a role up here, because traditionally it hasn't," he said. "With that being said, I'm expecting drier and warmer than average conditions."

A deep water deficit

California is entering the next year with a water deficit unlikely to recover with an average year of precipitation.

Groundwater levels in almost two-thirds of wells assessed have sunk below average, and by the end of August, reservoir storage had hit 69% of normal for the date. It's an improvement over last year, when reservoir levels had dropped to just 60% of average for the date.

But reservoirs are still not where they need to be. "We're still well-below average, still well-below where we would like to be," Yarbrough said.

Lake Oroville, at 1.24 million acre feet, remains below the 1.6 million acre-foot threshold that managers would like to see by the end of the year before considering exports. Last year, deliveries from the State Water Project dropped to 5% of requested supplies in March.

Initial water allocations are expected to be announced Dec. 1, and Yarbrough would not say what they were likely to be. Still, he said, "Do expect it to be on the lower end."

The US Bureau of Reclamation, which operates the Central Valley Project, also would not say how much water its recipients, including Central Valley growers, can expect next year. That announcement will come in February, spokesperson Mary Lee Knecht said.

But Ryan Jacobsen, CEO of the Fresno County Farm Bureau, is not expecting the news to be good.

"We find ourselves going into this year with such a substantial decline over the course of the previous three years that even an average year most likely is going to mean some not good allocations to farmers down here in the Valley," he said.

Jacobsen said local growers already have cut back on plantings for fall and winter crops. He expects even more fields to be fallowed as farmers decide not to plant annual crops like tomatoes, melons and corn to preserve their scarce water supplies for permanent crops like tree nuts and grapes.

One source of California's water supply is in even more dire shape than in previous droughts: the Colorado River, which remained a reliable source of water supply even during California's 2012 through 2016 drought. This time the river's massive reservoirs have hit historic lows.

"The Colorado River system is in deep crisis," said Alex Hall, a professor of atmospheric and oceanic sciences at UCLA. "That means Southern California is in a more difficult position than in the past."
Southern California's giant water importer, the Metropolitan Water District, issued unprecedented outdoor watering restrictions last spring for the 6 million people in its vast service area that depend on supplies from the parched State Water Project. Over the last three years, the water district has received its lowest total deliveries from Northern California reservoirs.

Now, the water importer is weighing how potential future cutbacks on the Colorado River could affect the rest of its customers as California, Arizona and Nevada hash out a deal to conserve the river's water, said Demetri Polyzos, Metropolitan's manager of resource planning.

"People are saying 'Hey, we've gone through this before. California is used to droughts,'" Polyzos said. "That is true. But we're seeing these things get a lot worse and worse and more difficult to manage through."

What is becoming increasingly clear is that the nature of drought in the West is changing from the plural to the singular as it endures for long stretches punctuated by brief spells of wet years.

"The idea of drought as a temporary, transient thing is shifting," Swain said. "We should be thinking more about long-term aridification."

# # #

California should expect a 'fourth dry year' as drought persists
LA Times | September 22, 2022 | Hayley Smithstaff

Officials said some of the state's biggest reservoirs, including Lake Oroville, above, are a bit more full than they were at the same time last year, but still remain well below average.(Francine Orr / Los Angeles Times)

California's reservoirs will enter fall in a slightly better position than last year, but the Golden State should prepare for more dryness, extreme weather events and water quality hazards in 2023, officials say.

The latest climate forecasting update from the Department of Water Resources came Wednesday, just days before the end of the water year, which runs from Oct. 1 to Sept. 30 in California. Officials said some of the state's biggest reservoirs, including Lake Oroville and Lake Shasta, are slightly more full than they were at the same time last year, but still remain well below average.

Water managers are now preparing for a "fourth dry year," as well as more unpredictable weather and wildfires associated with climate change, DWR Assistant Deputy Director John Yarbrough said during a meeting of the California Water Commission.

"We have more storage in the reservoirs, but we're still well below average, well below where we'd like to be," Yarbrough said. What's more, "we have to prepare and expect that we're going to see things that we haven't seen before."

Part of the challenge facing the state's water managers is that climate change is making it more difficult to predict and prepare for water outcomes, Yarbrough said. During the 2022 water year, officials observed significant swings between extreme wet and extreme dry conditions, including

a notably rainy October through December followed by the driest January through March on record.

Yarbrough said such variability underscores the need for conservative planning and aggressive multiagency action.

“When we look at patterns like this, it really challenges a lot of our practices for how we plan the system, for how we’re going to operate for the next year,” he said.

The 2022 water year also saw warmer-than-normal temperatures and drier-than-normal conditions, he said, but both metrics were slightly improved from the year prior. Lake Shasta, the state’s largest reservoir, is projected to end the water year with 1.48 million acre-feet in storage — up from 1.07 million acre-feet last year.

Still, Yarbrough emphasized that California remains in serious drought. Even with improved storage, Shasta sits at about 34% of its capacity, according to The Times’ drought tracker.

It’s “better than last year but not good enough,” he said.

Though California has experienced periods of drought in the past, Wednesday’s report came against a backdrop of significant water cuts and worsening aridity in what researchers have described as the driest 22-year period in at least 1,200 years.

What’s more, the state’s other primary water supply — the Colorado River — is also running perilously low, with federal officials warning that another 150-foot drop in Lake Mead could lead to “dead pool” conditions, or the point at which water falls below the lowest intake valve on the Hoover Dam.

The looming crisis has put the pressure on California and other nearby states to figure out how to significantly reduce their reliance on the river, and officials have said painful cuts are likely in the coming months.

But climate change isn’t only affecting water availability in California — it is also affecting the quality of water, especially in watersheds near wildfires, according to Andrew Schwarz, climate action coordinator with the State Water Project.

More than half of the Feather River Watershed — the largest in the Sierra Nevada — burned in wildfires between 2019 and 2021, Schwarz said. About a quarter of it burned at high intensity levels associated with significant tree mortality.

Such fire activity can have myriad effects on the watershed, including altered soil and vegetation. Schwarz said black carbon deposits from ash and burned trees can change the reflectivity of snow to make it melt faster, while high heat can make soil waxy, more water repellent and more prone to runoff. What’s more, erosion and debris flow can send sediment into rivers and other sources of water.

“It’s an incredible change in the landscape of a watershed, as you can imagine,” he told the California Water Commission.

That confluence of hazards means the state’s water managers are increasingly accounting for wildfires in their climate resilience efforts, Schwarz said, including improving water safety plans

for local residents and implementing new sensor data to help experts monitor changing hydrology.

“We’ll probably have more fire in the watershed, and so we’ll be able to continue to adapt to this and get better information as we go along,” he said.

Commissioner Alexandre Makler said the reports underscored the need for continued maintenance and asset management on the State Water Project.

“It needs to be in tip-top shape — that’s absolutely critical,” he said, adding that “it’s clear that there is a significant capital component in addressing the risk, and combining that with the planning process.”

California has been investing in such work, with the 2022-2023 state budget carving out $1.2 billion in new funds to lessen wildfire risk through better forest management and $2.8 billion to support drought resilience and response, among other items.

But the mounting challenges mean there is much work yet to be done. Other water priorities for the coming year include maintaining the quality of the Sacramento-San Joaquin Delta, which is the source of municipal drinking water for many communities, while continuing to meet minimum health and safety needs and protecting species and the environment, Yarbrough told the commission.

It’s also critical to conserve as much reservoir water as possible, he said, “so we have water again in case we’re faced with a fifth dry year.”

# # #

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‘Sometimes shaming is your best and only option’: Should California scorn people over water use?

SF Chronicle | September 29, 2022 | Kurtis Alexander

Amid a third painfully dry year, the Bay Area’s biggest water retailer began releasing the names of customers using “excessive” amounts of water this week, a practice that may soon tee up hundreds of households for humiliation and shame.

The move, by the East Bay Municipal Utility District, harkens back to last decade’s drought when several of California’s rich and famous, including such beloved stars as Giants great Buster Posey, Olympic figure skater Kristi Yamaguchi and comedian Amy Poehler, were outed for their lack of restraint at the tap.

Twitter and YouTube became bastions for scorning heavy water users. Video posts spotlighted obscenely large, green lawns, showpiece swimming pools and even water misters that some people use to cool off, often accompanied with the address of the allegedly wasteful property and the hashtag #droughtshaming.

East Bay utility officials, who say they just want to save water this year, maintain that their intent in releasing customer identities is not to ridicule anyone. In fact, officials stress that they’re not the ones publicizing any names. It’s the district’s policy, which sets a limit on how much water households can use, that makes the identity of violators a matter of public record and therefore fair game to others, including The Chronicle.

However, even as district officials distance themselves from the public outing of customers, they’re benefiting from it.

“The public records component can be very effective in some cases,” acknowledged district spokesperson Andrea Pook, referring to changes in behavior that the utility witnessed last decade after the names of water scofflaws made the papers.

One of the biggest water users to come to light then was Billy Beane, executive vice president of the Oakland A’s and subject of the Oscar-nominated film “Moneyball.” The sports icon was reported to have been using nearly 6,000 gallons of water a day at his Danville estate, more than 20 times as much as the district’s average household.

Once his consumption was widely broadcast, Beane promised to do better.

“We are more than displeased and embarrassed by the usage and are taking immediate action,” he said in a statement at the time.

Felicia Marcus, chair of the State Water Resources Control Board during the last drought and now a visiting fellow at Stanford University’s Water in the West Program, is not a fan of drought-shaming but says it works.

“No amount of money or penalty is going to get a very rich person to think about it,” Marcus said. “These are people often who have multiple homes. They may not live there and often don’t see their bills. Sometimes shaming is your best and only option.”

The East Bay Municipal Utility District’s current cap on water use, like most prior rationing programs, has a very high threshold, meaning it takes a lot of water to break the law. The roughly 1,646 gallons per day limit, which is enforced over a two-month billing cycle, is about eight times what the district’s average household uses.

Marcus says targeting these heavy water users in various ways is both highly effective in reducing an agency’s total consumption and the right thing to do from an ethical standpoint. If there’s only so much water to go around, she said, people should share.

“It plays to our sense of fairness,” she said.

Records obtained Tuesday from the East Bay Municipal Utility District show that just three customers exceeded the district’s water cap since it took effect this spring. However, the scant number of names is a product of the agency’s billing protocols, not necessarily consumer thrift.

Only information from three days of bills was provided by the district, which sends out its invoices on a continuous basis over two months. Water officials expect to name between 200 and 300 customers when the records are released again in late October.

The district serves more than 1.4 million people in Alameda and Contra Costa counties, including Oakland and Berkeley.

The Chronicle is not identifying the district’s three recent violators because they are not public figures, though it published a photograph of one of the properties — a large, gated home with a sprawling yard in Orinda.

At least one reader, among many who do not support the practice of drought-shaming, said even a photo like this one goes too far.

“You should take a moment and think of how it would feel for your home to be published and targeted in this context, and how you might feel about the safety of your family and small children in that situation,” the reader wrote. “A little bit of empathy can go a long way in today’s world.”

# # #

Water use drops significantly in Santa Clara County; drought targets met by increased conservation

Mercury News | September 14, 2022 | Paul Rogers

After months of missing water conservation targets while California's drought worsened, the 2 million residents of Santa Clara County appear to have turned the corner and are making significant progress now — much of it by dialing back sprinklers that irrigate their lawns and other landscaping.

Santa Clara County residents reduced water use by 16% in July compared to July 2019 levels, according to new numbers out Tuesday, surpassing the goal of 15% set by the area's main water provider, the Santa Clara Valley Water District.

"The residents and businesses of Santa Clara County have done an excellent job," said Aaron Baker, a chief operating officer of the water district. "That has come from a lot of hard work. We greatly appreciate it."

July was the first month in 2022 when water use in Santa Clara County beat the conservation target. In June, water use fell by only 9% from June 2019, and in May, it was just 2% lower than in May 2019. For the four months before that, which were exceptionally dry, residents used as much as 30% more than 2019 levels.

Baker noted that even with the impressive numbers from July, cumulatively, Santa Clara County residents have cut water use just 4% since June 2021 when the water district declared a drought emergency and asked for a 15% cut.

"We don't know when this drought is going to end," Baker said. "We are continuing to work to improve the numbers."

Overall, 14 of the 15 cities in Santa Clara County have now passed ordinances limiting lawn watering to no more than two days a week in an effort to conserve water. Only Milpitas still allows three days a week.

Since outdoor irrigation makes up roughly 50% of summer water use in California, water district officials say the mass effort to let lawns brown is now saving millions of gallons of water.

The district has been using some of the savings, along with emergency supplies it has purchased from farmers in the Sacramento Valley and other water agencies, to increase recharging rates of underground aquifers. By the end of this year, the rate will be 97% of the 20-year average, which helps raise groundwater levels and bank more for future years.

Tuesday afternoon, the district's board voted unanimously to pass new rules prohibiting commercial and industrial properties, including homeowner's associations, from watering "non-functional turf" even one day a week.

The rules do not prohibit watering trees, or grass that is used for recreation or community events, like sports fields, golf courses or gathering areas at schools. They do apply to ornamental lawns at office parks, private businesses and community institutions, such as churches, hospitals and courthouses, using potable water.

On June 10, the Newsom administration put those rules in place statewide, with fines up to $500 for violators. But it is up to each city and local water district to enforce them.

Violators will receive warning letters at first under the water district policy. Earlier this year, the water district put in place similar rules that let residents report water waste by other homeowners. They are now drawing hundreds of calls a month to a hotline (408-630-2000). Fines do not begin until after the third violation, and none have yet been issued, water district officials said Tuesday.

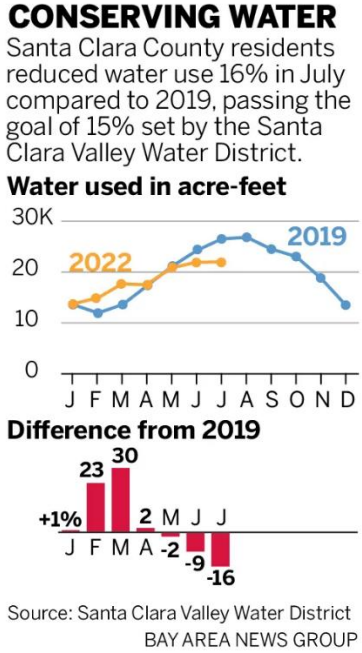

Chart showing: Santa Clara County residents reduced water use 16% in July compared to 2019, passing the goal of 15% set by the Santa Clara Valley Water District.

One of the South Bay's largest business organizations, the Silicon Valley Leadership Group, said Tuesday that it has not taken a position on the new ordinance. But conservation and boosting supply is important, the organization said.

"Addressing our ongoing drought crisis and ensuring Silicon Valley has the water it needs to continue to be a hub of innovation is a top priority for businesses in the region," said Mary Holing, vice president of environment for the group. "We have no time to waste."

Some homeowners have upgraded irrigation systems.

San Jose resident Richard McCaw said he used the district's rebate programs to install at nearly no cost about $500 worth of new high-tech gear, including a new sprinkler system controller and new valves on four faucets he uses to run drip irrigation lines to tomatoes, herbs and other plants in his yard.

The system, which he can control from an app on his phone, automatically adjusts watering based on the weather forecast. His water use fell 16.3% this summer compared to last.

“All I had to pay was the tax,” he said Tuesday. “It makes quite a difference. If you have cool weather then it cuts back, or if there is rain, it delays watering. I even adjusted it when I was on vacation in Alaska.”

After three dry years in a row, 97% of the state is now in a severe drought, with 40% in an extreme drought, mostly the Central Valley, according to the U.S. Drought Monitor, a weekly federal report.

But unlike during the last drought from 2012 to 2016, Santa Clara County is in a more severe predicament than many other parts of the state. Federal dam regulators in 2020 ordered the district’s largest reservoir, Anderson, near Morgan Hill, drained for earthquake repairs. The $1.2 billion job, which involves constructing a huge new outlet tunnel and essentially tearing down and rebuilding the 235-foot high earthen dam, is not scheduled to be finished until 2030.
On Tuesday, the district’s 10 reservoirs collectively were just 19% full. In addition to conservation efforts, the district has spent $21 million to purchase about 28,000 acre-feet of water from outside agencies. Also, state and federal agencies have provided it 78,000 acre-feet of “health and human safety” water above the low levels that they originally granted due to the drought.

“We need to be prepared for another dry winter,” Baker said. “We are in a multi-year drought. It is going to take a significant amount of rain and snow to get us out of it. We still have a big hurdle to overcome.”

# # #

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Rethinking reusable water in San Mateo County
Becker town hall on water scarcity identifies issues, looks for solutions
Daily Journal | September 13, 2022 | Nicholas Mazzoni

Sen. Josh Becker

Aging infrastructure, urban population growth and climate change are three factors why officials, experts and entrepreneurs are rethinking how a 250-year-old system is dating itself.

In an average year, we use 82 million acre feet of water in California. Agriculture uses 40% and urban areas use 10%, according to state Sen. Josh Becker, D-San Mateo, during a virtual town hall Thursday, Sept. 8.

“Unless we cut our greenhouse gas emissions. ... We will still see a significant increase in temperatures that are suspected to be the norm. And all these changes will affect water supply and quality,” Becker said in response to the heat wave we experienced last week.

Our once-through linear water system, while it has worked for the past 100 years, has given us a false sense of water abundance, said Newsha Ajami, Ph.D.,, chief strategy and development officer for research in the Earth and Environmental Sciences Area of Lawrence Berkeley National Lab.

On average, a residential home uses 59% of the water outdoors; alternatively, focusing on indoor use for water, we only need the highest quality for our faucets, dishes, cooking and

showering, which takes up around 13% of average residential use, according to American Water Works Association Research Foundation.

“We treat water to the highest quality, we bring it to your home and you use it for every purpose that you have, with that quality and that’s a serious inefficiency we have in our system,” Ajami said.

Reducing leaks, rethinking how to use water in the home, metering water at every scale, will be essential to move us forward, she added.

Ajami argues the nature in which we use our water needs to shift to not only conserving in drought years but when we have wet years as well so we can use our stored water like a bank savings.

“We have all this information around, how much energy we use for every device in our home but we don’t have that much detailed information about water because we have fallen behind when it comes to metering,” Ajami said.

San Mateo County is one of the counties in the Bay Area with voluntary cutbacks on water usage, but the effort is only a drop in the bucket. Climate change and rising temperatures have caused water to evaporate at an alarming rate, in what experts are calling, an “atmospheric thirst.”

“Literally, a warmer atmosphere is demanding more water from the planet,” Kristopher Tjernell, California’s deputy director of the Integrated Watershed Management Program, said.

Researchers believe by 2040 around 10% of California’s current water supply could be unavailable to us because of the increased rate of atmospheric evaporation due to climate change. Currently, statewide reservoir storage is averaged at 68% for this time of the year, Tjernell said.

“So, 68% is not a good number continuing the dry months ahead,” Tjernell said. “It has been worse in the past but it is definitely a sobering number amongst other statistics that are similar.”

Along with the governor, Becker supported funding $880 million to continue the state’s water resilience package with an additional $750 million for drought response. The 2021-22 budget package included an agreement to provide $4.6 billion across three years for water activities including $3 billion in the current year.

“These are the kinds of decisions we have to make now or otherwise we will suffer the consequences down the road,” Becker said.

# # #

6 Bay Area Counties Lead State's Water Conservation Drive

The six counties reached or exceeded Gov. Gavin Newsom's call for a 15 percent voluntary reduction.

Bay City News | September 8, 2022 | Kiley Russell

The new numbers show conservation gains in all 10 of the state's hydrologic regions, with the North Coast leading the way with a 28.5 percent water use reduction for July while the Bay Area reported a 17.3 reduction. (Shutterstock)

SAN FRANCISCO BAY AREA — As California faces the likelihood that the drought will drag on for yet another year, the state's urban water conservation numbers continue to increase.

On Wednesday, the State Water Resources Control Board released new monthly data that shows Californians cut back on water use by 10.4 percent in July compared to July 2020.

In June, statewide water consumption dropped by 7.4 percent compared to June 2020 and in May it dropped by 3.5 percent.

The new numbers show conservation gains in all 10 of the state's hydrologic regions, with the North Coast leading the way with a 28.5 percent water use reduction for July while the Bay Area reported a 17.3 reduction.

According to the Water Board, 14 counties — six of them in the Bay Area — reached or exceeded Gov. Gavin Newsom's call for a 15 percent voluntary reduction.

Sonoma achieved a 33.9 percent reduction, Marin reported 29.4 percent, Santa Clara hit 18.8 percent, Napa clocked it at 18 percent, San Mateo reached 17.9 percent and Alameda increased water savings by 16.6 percent in July compared to the same month in 2020.

In June, the second round of statewide emergency water use regulations took effect, which, among other things, bans irrigation of decorative grass on commercial, industrial and institutional properties.

They also require all 436 urban water suppliers to implement Stage 2 Water Shortage Contingency Plans.

These plans vary from supplier to supplier but often include things like rebates or other incentives for switching to drought-tolerant landscaping and fines or fees for overconsumption of water.

For example, the Santa Clara Valley Water District, which called for a mandatory 15 percent water use reduction in 2021, offers a Landscape Rebate Program of up to $3,000 for residential customers and up to $100,000 for commercial and multi-family customers.

The water agency also offers rebates up to $400 for people who install a "laundry-to-landscape" gray water system.

"This year marks our third consecutive year of drought, with the distinction of having one of the driest starts to a year on record, and an all-time low imported water allocation," said Valley Water board chair Pro Tem John Varela.

In March, the California Department of Water Resources reduced its deliveries to suppliers from the State Water Project from 15 percent of requested supplies to just 5 percent.

Also, in April, the U.S. Bureau of Reclamation limited deliveries of water to residential users from the Central Valley Project to just 55 gallons per person per day.

"To ensure we have enough water now and into the future, we must continue to make great strides in our conservation efforts," Varela said.

# # #

California officials warn of more water restrictions in 2023 as fourth year of drought looms

SF Chronicle | October 3, 2022 | Kurtis Alexander

Boats are seen in Shasta Lake as the shoreline is exposed by low water levels on Aug. 26, 2022. Stephen Lam, Staff Photographer / The Chronicle

California cities and farms should brace for little or no water from the state's big reservoirs in the coming year, a prospect that signals more water restrictions for households and more fallowed fields in the farm belt.

The warning was delivered Monday by state and federal water officials who said they are preparing for the possibility of a fourth year of drought. Both are considering, at least initially, reduced allocations for the many water agencies that contract for reservoir supplies from California's sprawling water projects.

The past three years, as tracked between October and September, marked the driest three-year period on record in California, yielding a statewide average of just over 46 inches of precipitation. Typically, California gets closer to 65 inches over three years. While no one knows for sure what the coming months will bring, many believe the odds favor another dry year, particularly in light of the warming climate.

“We can’t just continue to think of drought as something that happens occasionally,” said Jeanine Jones, drought manager for the California Department of Water Resources. “We’re really transitioning to different conditions that we need to plan for and adapt to.”

The October-through-September period, known as the “water year,” is relevant because it covers the entirety of the state’s fall-to-spring wet season. As of the end of this water year, total storage in the state’s reservoirs stood at just 69% of the historical average.

Managers of the State Water Project, operated by the Department of Water Resources, and the Central Valley Project, operated by the federal Bureau of Reclamation, both say they expect to significantly cut back water allocations for a third straight year, barring a barrage of miracle storms.

The projects each consist of numerous reservoirs in the Sierra Nevada and southern Cascades that carry water through a network of pumps and pipelines to irrigation districts and urban suppliers across the state. Most of this water comes from snowpack, which makes up nearly a third of California’s supply.

In the Bay Area, the Santa Clara Valley Water District, which serves nearly 2 million people, and the Zone 7 Water Agency in the East Bay, which serves about 260,000 people, lean heavily on project deliveries. The San Francisco Public Utilities Commission, by contrast, is not affected because it runs its own waterworks.

Last year, the allocation from the State Water Project, which supplies mostly urban areas, was reduced to a mere 5% of what was requested. The Central Valley Project, which supplies mostly agriculture, has a more nuanced means of appropriation, but most of its contractors also received little or no water. Both projects, though, worked to accommodate the basic “health and safety” needs of communities.

Project operators have not detailed exactly what next year’s allocation will be. But Karla Nemeth, director of the Department of Water Resources, said Monday that the December projection for the State Water Project, a good indication of how much water will follow, would be “low.” Ernest Conant, director of the Bureau of Reclamation’s California-Great Basin region, said it would be difficult to meet all the water demands.

As of the end of the water year, storage in the Central Valley Project, which includes giant Shasta Lake, was about 3.6 million acre feet, or about 30% of capacity. That’s only slightly better than last year’s 3.2 million acre feet, which went down as one of the lowest levels of storage in state history. Storage in the State Water Project ’s seven largest reservoirs was just over 2 million acre feet, or just under 40% of capacity and also below where it typically stands this time of year. Lake Oroville is the centerpiece of the state system.

The lack of reservoir deliveries this year was responsible for the fallowing of more than a half million acres of farmland that typically grow almonds, grapes, tomatoes, rice and myriad other

crops, according to numerous estimates. That's the most acreage left empty in California in recent memory.

Meanwhile, in urban areas, many utilities have begun restricting water use while Gov. Gavin Newsom has asked residents to voluntarily cut back 15%, compared to water use in 2020. Data released Monday shows only a 4% statewide reduction since the governor's plea in the summer of 2021.

State officials, however, insist progress is being made. In July, the last month for which there is data, Californians cut back 10.5%, compared to 2020.

"Really, this puts California solidly back on track when it comes to saving water," said Charlotte Ely, a conservation supervisor at the State Water Resources Control Board.

Newsom has threatened to put in place mandatory water restrictions for cities and towns if there isn't improvement and water conditions don't get better. But so far, he hasn't resorted to this tactic.

State and federal water officials, like most people, hope the coming year is wet. But many fear that a third year of a La Niña weather pattern, on top of the warming and drying climate, will mean more drought.

The La Niña, defined by cool sea surface temperatures in the central and eastern equatorial Pacific, can push the jet stream north and result in fewer winter storms hitting Southern California. The weather pattern, however, is a largely imperfect forecasting tool and what it means for Northern California fluctuates.

"There's a lot uncertainty right now," said Mike Anderson, climatologist for the Department of Water Resources.

# # #

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DWR Takes Actions to Support State's Future Water Supply Strategy
Ca. Dept of Water Resources | September 29, 2022


Water efficient irrigation used in residential neighborhood.

SACRAMENTO, Calif. – Today, the Department of Water Resources (DWR) announced new steps that, if approved, could save enough water to supply 4.7 million Californians annually while making conservation more affordable through financial assistance and tax exemptions. The actions improve long-term water conservation and reduce wasteful outdoor water use as California adapts to a hotter, drier future driven by climate change.

"We have the tools to make it easier than ever for Californians to conserve water and we're taking action to get it done. It will take forward-thinking practices to ensure that we're managing our water resources resiliently now and for the future," said DWR Director Karla Nemeth. "From regulatory recommendations to funding for lawn replacement and water conservation, DWR is putting California on the path to achieve historic water savings."

The new actions will build on California's ongoing long-term efforts to make water conservation a way of life while advancing water efficiency efforts outlined in California's Water Supply Strategy: Adapting to a Hotter, Drier Future. The plan, released by Governor Newsom this summer, sets a target of securing 500,000 acre-feet of additional water per year through increased efficiency and conservation.

DWR will be implementing and supporting actions that include:

Outdoor Water Use Recommendations

To help prepare for a hotter and drier future, DWR has submitted outdoor water use efficiency recommendations to the State Water Resources Control Board. With outdoor water use accounting for 50 percent of urban resident water use on average, the recommendations outline standards that would provide urban retail water suppliers with a framework to support more efficient outdoor residential water use. The framework will also include standards for the irrigation of large commercial, industrial, and institutional (CII) landscapes in their service areas.

DWR's outdoor water use recommendations combined with indoor residential water use recommendations submitted in November 2021 would result in expected long-term water savings of 450,000 acre-feet per year starting in 2030 – enough water to supply about 1.6 million homes or about 4.7 million residents for both indoor and outdoor annual needs. The recommendations would also result in near-term savings of 100,000 acre-feet a year starting in 2023. DWR's recommendations will be evaluated by the State Water Resources Control Board

through a formal rulemaking process, which will include additional analysis, engagement, and opportunity for public comment.

Indoor Water Use Legislation Signed

California also recently took additional steps to increase indoor water use savings with Governor Newsom's signing of Senate Bill 1157 (Hertzberg), which adopts recommendations made by DWR and the State Water Board last year to reduce indoor water use targets to 47 gallons per day by 2025 and 42 gallons by 2030. By adjusting indoor water use standards to reflect the joint recommendation of DWR and the State Water Board, the legislation will help increase water conservation and water use efficiency, ensuring a more water-resilient future for California.

Financial Assistance for Turf Transition and Conservation

DWR has developed a set of funding programs that will help build resiliency in all communities including underrepresented communities and Tribes. The funding programs include financial assistance for projects that strengthen resilience in urban communities, turf transition for residential and commercial landscapes and water conservation programs for urban water suppliers. DWR's programs will help to clear some of the hurdles that underserved communities face with direct install programs and support for local water agencies, while also helping build resiliency with equity in mind. DWR plans to release these grant programs in October. These new programs will build on the momentum created by the millions of dollars in grant funding that has been distributed by DWR in 2022.

Turf Tax Exemption

For those making smart water decisions to replace their lawns now and in the future, Governor Newsom signed Assembly Bill 2142 (Gabriel), which will exempt from state income tax calculations any grant, rebate or additional financial assistance awarded from a state or local agency for turf transition. The law will provide the exemption through tax year 2027.

These announced actions come on the heels of state and local leaders gathering today at the Bay View Google Campus to discuss the urgent need for all Californians, including businesses, to conserve water amid extreme drought. With California experiencing a climate transformation bringing hotter and drier conditions, each individual act of conservation makes a difference.

For more information on water use efficiency and the recommended standards, visit DWR's Urban Water Use Efficiency Standards webpage. For information about other DWR and State drought response efforts and funding programs, visit drought.ca.gov

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Eyes on the Snow as Water Supplies Dwindle
NASA | September 20, 2022 | Lia Poteet, Earth Applied Sciences

As the American West suffers a 22-year-long “megadrought” that researchers say is the worst in at least 1,200 years, water managers now have a new level of insight into just how much water will be available for their communities. Water departments in the West are using maps and models originally created by a NASA team to help track water and improve how we manage this precious resource. That team is now a private public-benefit company, Airborne Snow Observatories, Inc. (ASO), which is using the NASA-developed methods to work with the U.S. Bureau of Reclamation (USBR) – the largest wholesaler of water in the country – as well as the states of California and Colorado, and water managers internationally.

NASA Research Fills a Gap

Much of the American West’s water supply depends on the snow that builds up on mountains in the winter. In the spring and summer, as the snow melts, that meltwater is used for everything from washing hands to watering crops. NASA’s Airborne Snow Observatory began as a project from NASA’s Jet Propulsion Laboratory (JPL) and NASA’s Earth Science Division, when snow scientist and project lead Tom Painter identified how NASA science and remote sensing could help fill an urgent gap for water monitoring.

Ten years ago, communities had limited ability to accurately estimate how much water they’d get from melting snow – or when it would arrive. Now, the ASO team combines measurements from lasers and spectrometers on planes with Earth observations from NASA satellites to produce up-to-date forecasts and maps of the amount of water held in the snowpack – with up to 99% accuracy. This also increases the range of area in which snowpack can be measured, allowing water managers to know earlier the amount of water coming from snowpack throughout the spring and summer and plan with greater confidence. Using a plane also allows more precise measurements of snowpack, with NASA and other GPS satellite networks telling the scientists exactly where the ASO plane is relative to the topography of the mountains below.

The ASO team uses higher-resolution snow cover data from the joint NASA and U.S. Geological Survey Landsat satellite mission to update model snow cover, and the Moderate Resolution Imaging Spectroradiometer (MODIS) instrument on board NASA’s Terra satellite to guide rapid updates to flight planning. This view from above gives the team a better understanding of the area in between each flight, which allows them to update their models in near real-time.

“We actually just did that today,” Painter said over the phone, as he shared updates on his project with NASA. “We looked at the most recent Landsat acquisition, which told us how much of the snowpack had melted away, and where we should update our snow model and likewise actually fly to look for remaining snow. It makes for much greater efficiency of our work.”

NASA’s Terrestrial Hydrology Program, Western Water Applications Office (WWAO), and the Applied Sciences Program helped support ASO’s work prior to its spin-off. “NASA was remarkably supportive, helpful, encouraging, and prescient,” Painter added.

A view of laser technology, known as lidar, onboard an ASO plane. These lasers allow the planes to scan the snowpack they're flying over, immediately sending the data back for the ASO team to incorporate in their forecasts.
Credits: CADWR/Kelly M. Grow

Changing Tech for a Changing Climate

As the Earth warms from human-caused climate change, precipitation patterns and the timing of the melting snowpack is also changing – impacting the quantity of water available and making supplies harder to manage.

"With today's warmer and drier climate, older forecasting techniques are struggling to produce accurate results," said David Rizzardo, manager of the Hydrology Section for the California Department of Water Resources (CADWR). Using the data from these NASA-developed methods for the 2021-2022 winter "allowed us to understand that we had about half the water stored in the Sierra Nevada snowpack than was estimated from older snowpack estimation tools, which are based on historical distributions of the snow that are less relevant today due to climate change." This more accurate knowledge of how much water is stored in the snowpack and precisely where the snow has accumulated allows water managers like Rizzardo to better respond and plan.

Understanding the amount of water available from snowpack "has a direct impact on everything from watering crops to simple everyday hydration," Painter said. "If you drink a glass of water in San Francisco, it's from [California's] Tuolumne basin – one of the places we are actively monitoring."

Painter adds that the combination of NASA satellite data with observations from ASO flights also allows for a fast turnaround of information overall. "Now it's [a case of], 'here's the information from yesterday, our lasers touched every inch of snowpack.' For our partners who are now our customers, that became the enormous game changer."

# # #

Court of Appeal Determines That the State Water Resources Control Board Exceeded Its Authority in 2015 When It Ordered Curtailment Among Valid Pre-1914 Water Right Holders Based on Insufficient Water to Serve Their Priorities

Somach Simmons & Dunn | September 13, 2022 | Alyson E. Ackerman

Yesterday the Court of Appeal for the Sixth Appellate District agreed with Santa Clara County Superior Court Judge Walsh (Ret.) that the State Water Resources Control Board's (State Board) curtailment of certain water right holders' diversions during the 2015 drought was done outside of its enforcement authority under Water Code section 1052.

In 2015, the State Board issued curtailment orders to valid pre-1914 appropriative water right holders. The curtailment orders demanded these water right holders to immediately cease diversions and certify that their diversions, in fact, had ceased. The State Board based the curtailment orders on a purported insufficient available supply of water to serve these water rights. Numerous water service providers located in the Sacramento-San Joaquin River Delta challenged the curtailment orders.

The State Board relied on its enforcement authority in Water Code section 1052, subdivision (a). This provision, which appears in Division 2 of the Water Code, provides: "The diversion or use of water subject to this division other than as authorized in this division is a trespass."

The issue before the court was one of statutory interpretation. The accuracy of the State Board's allegation that there was insufficient water supply to meet the needs of some pre-1914 appropriative water right holders was not material to the appeal. Instead, the court's focus was "[t]hat the Board asserted jurisdiction based on this conclusion."

The court construed the language of section 1052, subdivision (a). In so doing, the court analyzed section 1052's plain language, its context within the larger statutory framework, case law interpreting relevant statutes, and the Legislature's intent in both enacting and amending section 1052.

The Court held that Water Code section 1052(a) does not provide the State Board authority to "curtail an entire class of pre-1914 appropriative water rights solely on the basis that the Board believes that there will be insufficient water to serve all pre-1914 appropriative rights."

# # #

This opinion, issued today, is certified for publication.

If you have any questions about this opinion or water rights in general, please contact Michael Vergara (mvergara@ somachlaw.com), Alyson Ackerman (aackerman@somachlaw.com), Theresa Barfield (tbarfield@somachlaw.com), Jared Mueller (jmueller@somachlaw.com), or Ellen Moskal (emoskal@somachlaw.com) for more information.

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At Google's campus, state and local leaders urge greater efforts to conserve water
The Almanac | September 29, 2022 | Kiley Russell

A purple fire hydrant that is part of the recycled water pipe infrastructure in North Bayshore area in Mountain View stands a short distance away from Google buildings that were under construction on Nov. 18, 2019. Photo by Magali Gauthier

A group of state and local water system officials gathered at Google's Mountain View campus Thursday, Sept. 29, to tout the benefits of conservation as California faces the likely prospect of a fourth consecutive year of drought.

Standing amid landscaping and office space designed to reduce potable water use by 60% compared to similar facilities, participants repeatedly emphasized the need for across-the-board water use reduction throughout the state.

"It's the third straight year of a bad and worsening drought," said California Natural Resources Agency Secretary Wade Crowfoot. "Our climatologists predict that as we move into the winter, we can expect another, fourth, dry year."

Climate change is wreaking havoc on the state's environment and its hydrologic cycles, Crowfoot said.

"What we're learning is that those of us like California that have a Mediterranean climate are experiencing more and more extreme weather -- the drys are getting drier and the wets are getting wetter," he said.

He praised Bay Area residents for reducing water consumption, which the region did by more than 17% in July compared to the same month in 2020. Statewide, residents reduced water use by nearly 7.5% for July.

"My message today is thank you and keep it up," Crowfoot said.

But Crowfoot said that conservation alone won't protect the state from drought and climate change and noted that over the next 20 years, hotter and drier conditions will likely reduce the amount of water available in California by about 10%.

Santa Clara County Valley Water District’s Anderson Dam in San Jose on July 7, 2021. Courtesy Jana Kadah/Bay City News.

The state is working with local water agencies like the Santa Clara Valley Water District, which organized Thursday's press conference, to diversify water supplies by expanding water recycling, recharging groundwater basins, reducing water waste and capturing and storing precipitation during the rainy season, he said.

Regulators are working to develop standards for efficient use of water, provide incentives for water re-use and to support rural communities that are most vulnerable to water supply shortages, said Sean Maguire, a member of the State Water Resources Control Board.

The Water Board provided $3.3 billion last fiscal year to expand access to safe drinking water statewide and $347 million in Santa Clara County since 2017 for wastewater projects, Maguire said.

Maguire emphasized the need for collaboration by government, the private sector and individual residents to help the state endure its ongoing water woes.

"We all need water and we're all in this together," he said.

This year's state budget set aside $2.8 billion to support drought resilience, improve conservation and protect drinking water supplies, including $400 million in grants to urban water systems for water efficacy projects and $260 million for water re-use and recycling efforts.

"Too much in California our water system is one-way. We just do not have enough re-use and recycling, and this is a part of that plan to get us there," said state Sen. Josh Becker, D-Menlo Park.

Locally, the Valley Water board recently amended the district's water waste ordinance to allow it to enforce state regulations that ban irrigation of decorative grass on commercial, industrial and institutional properties.

Valley Water also called for a mandatory 15% water use reduction in 2021 and offers rebates of up to $3,000 for residential customers and up to $100,000 for commercial and multi-family customers who want to switch to drought-tolerant landscaping.

The water agency also offers rebates up to $400 for people who install a "laundry-to-landscape" gray water system.

"We're looking to individuals, we're looking to households, we're looking to businesses both big and small to kind of join in the battle against droughts and floods and the variability we have in California's water supply," said Valley Water board director Gary Kremen.

# # #

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The Environmental Benefits of the Water Storage Investment Program
Public Policy Institute of California | September 26, 2022 | Gokce Sencan and Jeffrey Mount

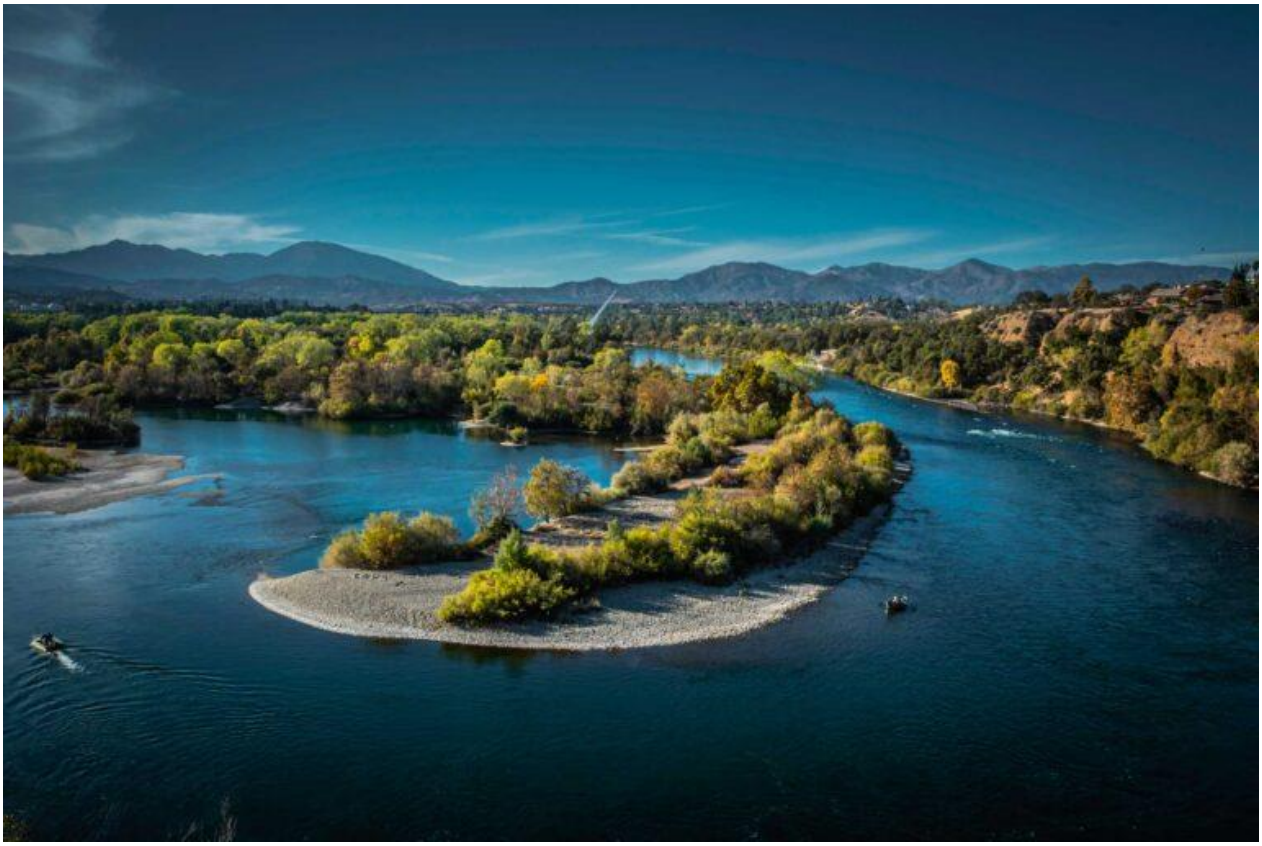


photo - The Sacramento River In California

In August, the Newsom administration announced its Water Supply Strategy. Storing water in wet years is central to this strategy, principally to cope with increasing drought intensity and the resulting water scarcity that will impact supplies for cities and farms.

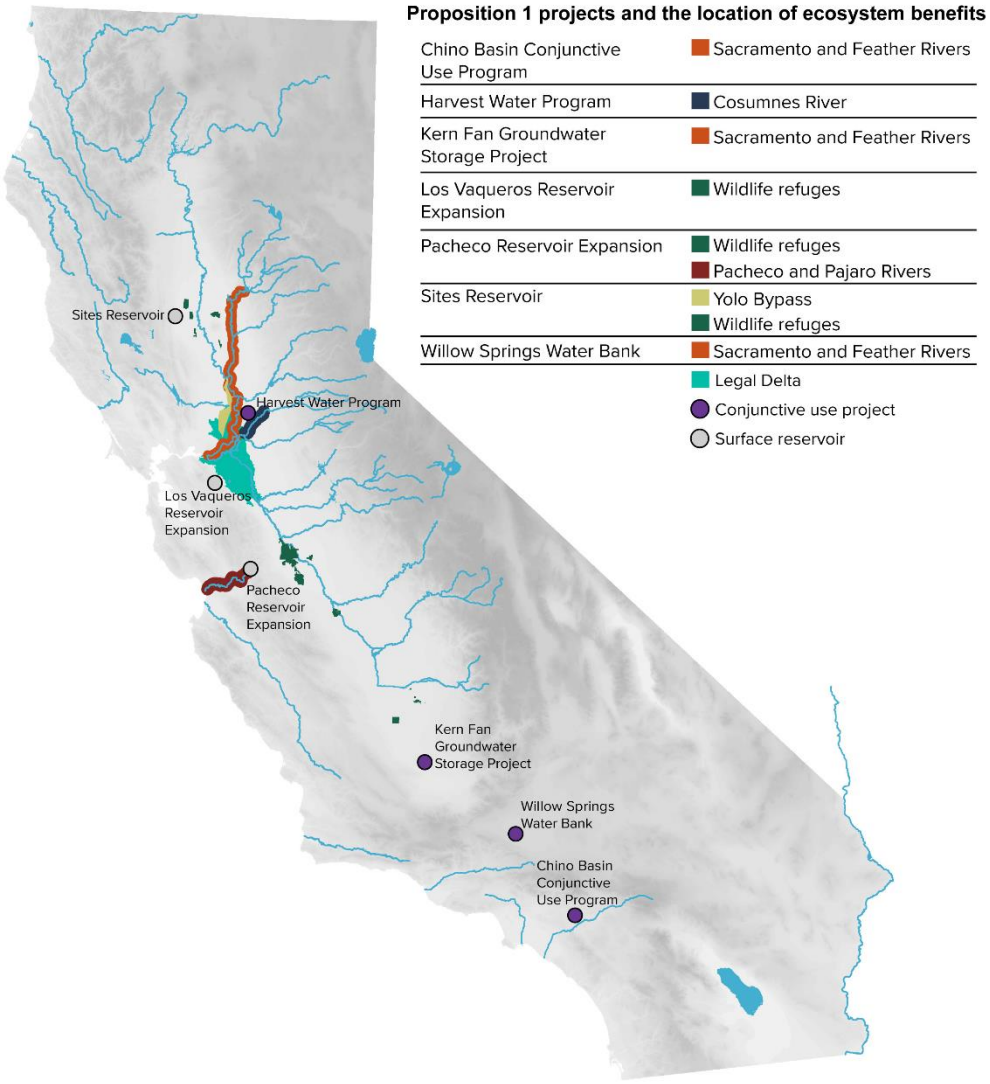
As part of our recent study, Storing Water for the Environment, we investigated current efforts to expand storage under the Water Storage Investment Program (WSIP)—a key component of a water bond passed by voters in 2014 (Proposition 1). WSIP put forth significant funding for storage—$2.7 billion—and it uses a novel approach. It requires that this funding go only to the public benefit portion of new storage, including new water for the environment.

Seven WSIP projects are slated to receive support. The amount of funding for each project was determined based on the value of its public benefits, which were calculated as part of a complex and often contentious process. Ecosystem benefits had to make up at least half the public benefits, and projects had to improve conditions in the Sacramento–San Joaquin Delta watershed.

The seven projects provide, among other things, water supplies for wildlife refuges and increased flows for salmon and steelhead habitat. Our analysis of available public data shows that the cumulative environmental water provided by these projects could exceed 200,000 acre-

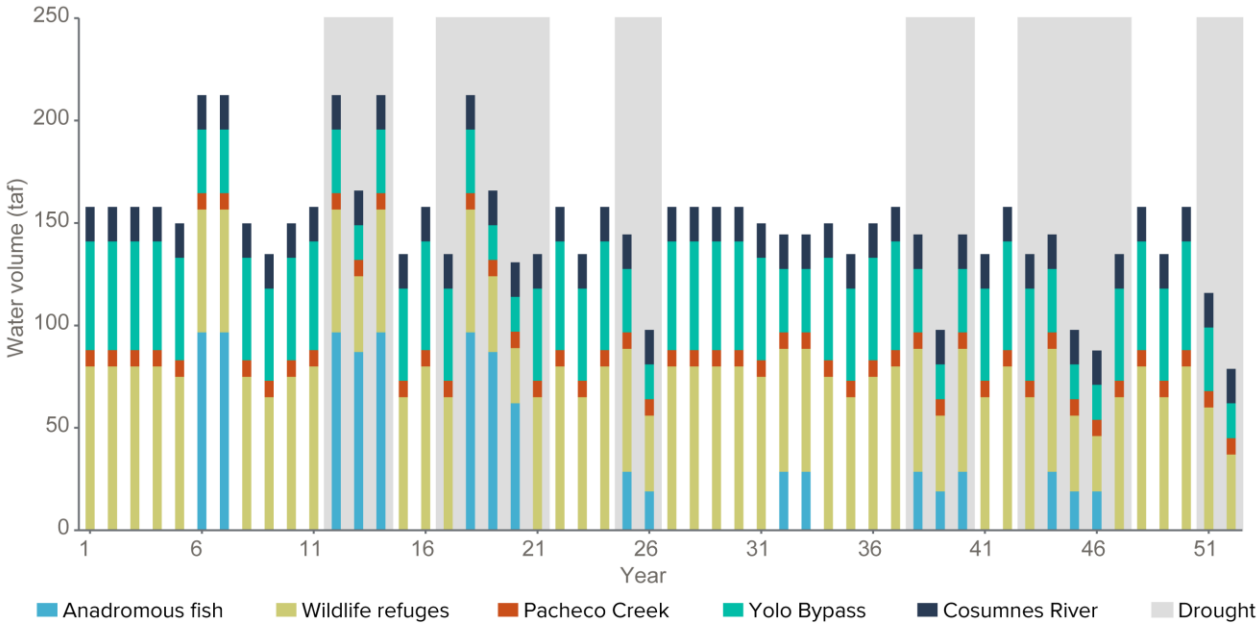
feet per year in an early drought year, or run as low as 79,000 acre-feet per year in successive drought years.

Locations of WSIP-eligible projects and their environmental benefits



SOURCE: Data compiled in Technical Appendix C to the report *Storing Water for the Environment*.
NOTES: Figure depicts the location of each WSIP project along with the approximate area of monetized benefits. Some projects also had additional benefits for which estimates of monetary value were not provided.
FROM: PPIC Blog, September 2022.

Combined environmental water flows from WSIP projects by ecosystem purpose or location



SOURCE: WSIP applications and personal communication with the project managers.
NOTES: Anadromous fish includes Feather River pulse flows provided by Chino Basin, Kern Fan, and Willow Springs projects. Wildlife refuges include the water provided for refuges by Los Vaqueros, Pacheco, and Sites reservoirs. Pacheco Creek includes the flows from the Pacheco Reservoir. Yolo Bypass flows come from the Sites Reservoir. Cosumnes River flows come from the Harvest Water Program. For additional notes on methods and assumptions see Technical Appendix C to the report *Storing Water for the Environment*.
FROM: PPIC Blog, September 2022.

In our Storing Water for the Environment report, we recommend diversifying the portfolio of water storage options for the environment to help manage an uncertain future. To our knowledge, the WSIP is the first attempt to incentivize new storage for the environment with public funds. WSIP faced several informational and administrative challenges. If this approach is used again in future bonds or legislation, it should:

- Improve accounting for environmental water. The estimated volume of flows in the figure above is unlikely to be realized. The three south-of-Delta conjunctive use projects depend heavily on exchanges of groundwater with State Water Project (SWP) contractors whose allocations are routinely cut during drought, making limited SWP water available (for example, during 2014, 2021, and 2022, no water would have been available for exchanges). Additionally, off-channel surface reservoirs—such as Sites, Pacheco, and Los Vaqueros—rely heavily on wet years to fill. The frequency of wet years—and how wet they are—will play a major role in the volume of water these projects can provide to the environment.

- Simplify the calculation of ecosystem benefits. Quantifying and monetizing ecosystem benefits was deemed necessary to meet the bond's requirements. But the complexity of the process made this difficult (and contentious). Project proponents could use different approaches that would yield vastly different benefits and monetary values. Simplifying and systematizing this process—perhaps by engaging an independent auditor for all valuations—would help.

- Be less prescriptive and more adaptive. The projects that sought WSIP funding were encouraged to be adaptive and multi-benefit. However, the benefit quantification and monetization process proved challenging, pushing projects to be highly prescriptive, with narrow requirements for timing, location, and volumes of water to be used for the environment. To adapt to changing conditions and make the most efficient use of environmental water, flexibility and regional coordination are needed.

- Steer future projects to prioritize ecosystem benefits. WSIP took a "bottom up" approach that relied upon proponents of water supply projects to advance proposals showing how their projects could help the environment. As a result, the environmental benefits—particularly the new ecosystem water—were diffuse and distributed over a large geographic area. Concentrating projects in a specific watershed and on critical ecosystem functions could produce more environmental benefits.

WSIP takes a novel approach to incentivizing the development of new storage while funding public benefits, such as new water for the environment. Our report offers suggestions for how to improve it—especially if future efforts seek to make the environment a priority, rather than an ancillary benefit funded by public dollars. Given the pace of warming and increasing drought intensity, California should look closely at all options for storage, including storing water for the environment.

# # #

Central Valley congressman introducing legislation to prevent Delta Tunnel project from gaining ground

KCRA | September 19, 2022 | Brittany Johnson

The battle for California's water supply is scheduled to take center stage at the nation's capitol on Monday, as Central Valley Congressman Josh Harder is set to take the strongest step yet to stop the state's proposed giant water tunnel from gaining ground.

"The Delta Tunnels is like a zombie project. Every time we kill it, Sacramento politicians bring it back. Once again, they've been trying the same playbook for 60 years," Harder said.

The Delta, fed by the Sacramento and San Joaquin Rivers, collects and moves water to more than 27 million Californians and is vital to 750,000 acres of farmland.

A scaled-down single tunnel, which is supported by Gov. Gavin Newsom, would bypass the central Delta and funnel water south, which according to state officials, would modernize aging water infrastructure.

"The Delta Tunnels doesn't modernize anything," Harder told KCRA 3. "All it does is build a giant tunnel to take the water that our community depends on and sends it down to Los Angeles. I don't call that modernization, I call that theft."

The congressman said he is going to introduce a new bill on Monday, called the Stop the Delta Tunnels Act, that would forbid the Secretary of Army from issuing a permit related to the project, effectively stopping all federal support for the Delta Conveyance Project.

"This bill essentially bans the Delta Tunnels from ever getting started, and makes sure that they cannot get a federal permit, which is what they need in order to start building, and it's going to ensure that we can save our water here, save our taxpayer dollars here, instead of sending it to LA, which doesn't actually do anything to solve the water problems across our state," Harder said.

California's Department of Water Resources is the project's proponent.

DWR said it cannot comment on pending federal legislation but sent the following statement:

"California faces a future of water instability, more rain, less snow, and more frequent extreme events like drought and flood.

The Delta Conveyance Project protects against future water supply losses caused by climate change, sea level rise, and earthquakes. It would allow us to capture, move and store water by making the most of big, but infrequent, storm events. And it would help ensure that the State Water Project will remain reliable for the 27 million Californians that need a safe, clean and affordable water supply. For additional information, please see the attached graphic," said

Carrie Buckman, environmental program manager for the Delta Conveyance Project at the Department of Water Resources

"If this is going to come down to the folks that are actually going to benefit, I care more about the thousands of jobs that we're going to lose for family farmers in the Central Valley than making sure that somebody in LA can have a little bit more water for their swimming pool," Congressman Harder said.

According to the state, the price tag for the Delta Tunnel is nearly $16 billion.

"This is going to be a publicly funded project from the dollars that you send to Sacramento. And I don't want my taxpayer dollars being used on a project that's going to steal the water that my family needs. And I don't want anybody else's family to be in that same situation," said Harder.

# # #

Southern California wastes a lot of water despite historic drought. But it can teach the Bay Area one big lesson

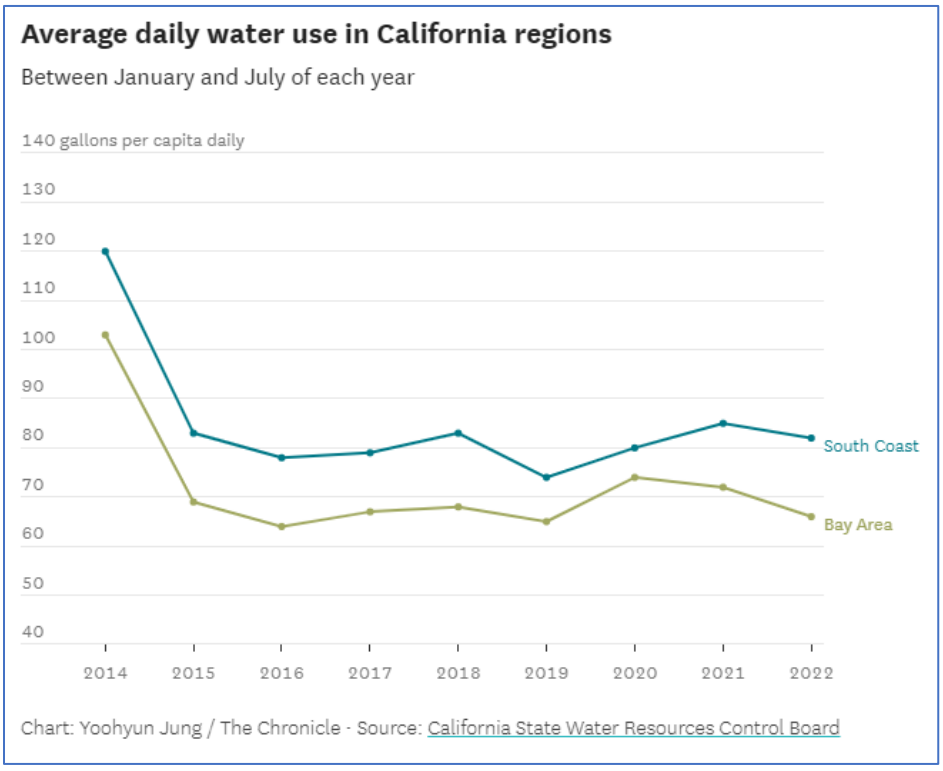
SF Chronicle | September 18, 2022 | Kurtis Alexander

When it comes to wasting water amid historic drought, Californians are good at pointing fingers.

Last month, criticism was showered on Hollywood's elite, including Sylvester Stallone, Kim Kardashian and Kevin Hart, who were accused of using water excessively. Some celebrity households consumed thousands of gallons of water per day during particularly dry times, bolstering Southern California's reputation for recklessly indulging in big lawns, pools and shiny, clean cars.

But given the bad rap that Southern California gets, is the Bay Area really that much better at stewarding its water? Well, it depends on how you look at the issue.

Residents of the Bay Area have historically been among the best in the state at conservation. This year is no different. From January to July, the nine-county region averaged 66 gallons of water per person, per day, compared with the state average of 86 gallons, according to state data reviewed by The Chronicle.



San Francisco residents used just 39 gallons per person, per day, the data show. That's basically not much more than a shower, several toilet flushes, maybe running a water-efficient appliance for dishwashing or laundry and — crucially — little or no outdoor watering. As the second-most-densely populated city in the U.S., San Francisco has little space for water-hungry lawns.

Northern California, including the foggy Bay Area, also benefits from more rain relative to Southern California, which means that lawns down south need more water to stay green.

But where the Bay Area tends to lag other parts of the state, experts say, is in developing and diversifying where it gets its water. The region's large water suppliers, including the San Francisco Public Utilities Commission, often rely almost entirely on runoff from rain and snow, and sometimes from few places, making communities particularly vulnerable to dry spells.

Cities such as Los Angeles and San Diego, while they might wield a heavier hand at the tap, have worked to broaden their supplies so they have more water during droughts. Some utilities along the state's southern coast get significant water from desalination, recycling and underground.

"The Bay Area could learn some stuff from Southern California," said Felicia Marcus, former chair of the State Water Resources Control Board and a visiting fellow at Stanford University's Water in the West Program. "I know they don't like to think that."

Southern California's assortment of water supplies was born of necessity. The area is generally hotter and drier than coastal spots to the north, forcing it to contend with droughts and water shortages for a long time — something that other parts of the state are realizing they'll have to do as the climate warms.

"Our region has invested heavily over the past 25 years to get more water," said Sandra Kerl, general manager of the San Diego County Water Authority, which supplies cities and water agencies serving about 3.3 million people. "Conservation alone won't get us to where we want to be."

At a cost of about $1 billion, San Diego County built the nation's largest seawater desalination plant, which provides 10% of the county's water. It has also developed several wastewater-treatment projects that have increased recycled water to 6% of its supply. Groundwater, local runoff and a variety of water imports account for the balance.

As a result of the diversification, Kerl said her agency's water supply remains robust despite three years of drought. Her agency has even expressed opposition to calls for statewide water restrictions, which Gov. Gavin Newsom has threatened to roll out, because residents have already made sacrifices — financially — to prepare themselves.

Left: The Tuolumne River flows downstream from the Hetch Hetchy Reservoir near the Sierra Nevada foothill community of Groveland, Calif., on September 1, 2022.
Right: Park visitors walk across O'Shaughnessy Dam in Yosemite National Park, Calif., on September 1, 2022. The O?•Shaughnessy Dam was completed in 1938 and is 430-feet tall. The 117-billion-gallon Hetch Hetchy reservoir supplies drinking water to about 2.5 million San Francisco Bay Area residents and hydro-electric power generated by two plants downstream.

The Bay Area has weathered droughts largely through conservation, with a big assist from its cooler, wetter weather and sometimes smaller parcel sizes, which reduce demand. In addition, supplies for much of the region are hardy, in spite of the lack of diversity. As a result, there's been little urgency to seek out new water.

The San Francisco Public Utilities Commission gets about 85% of its supply from three reservoirs in and around Yosemite National Park, including Hetch Hetchy, which have generally produced plentiful supplies for 2.7 million people in the city and its suburbs. The rest of the agency's water comes mostly from runoff collected at a handful of Bay Area reservoirs, including Crystal Springs in San Mateo County. Only small amounts come from groundwater and recycled water.

The East Bay Municipal Utility District, which serves 1.4 million people in Alameda and Contra Costa counties, gets about 87% of its supply from runoff in the Sierra Nevada's Mokelumne River watershed and 10% in the East Bay. The balance comes from recycled water. This year, the district also bought extra water from a supplier outside the region.

Bay Area water officials say they're working to broaden their sourcing.

Many agencies have begun to increase water recycling. A coalition of suppliers that includes the SFPUC and EBMUD is trying to expand Los Vaqueros Reservoir in the East Bay to store more water from the Sacramento-San Joaquin River Delta for regional use. The group is also looking into the possibility of building a shared desalination plant in the delta.

The city of Antioch has shown as much initiative as any Bay Area supplier, recently breaking ground on a small desalination plant in the delta with the hope of procuring 30% of its water there.

Construction continues on a new building which will house the reverse osmosis process at the Antioch Desalination Plant in Antioch, Calif. Thursday, Sept. 1, 2022.
Left: Construction on enhancements to the Antioch Desalination Plant. Right: Construction on a new building that will house the reverse osmosis process at the Antioch Desalination Plant.

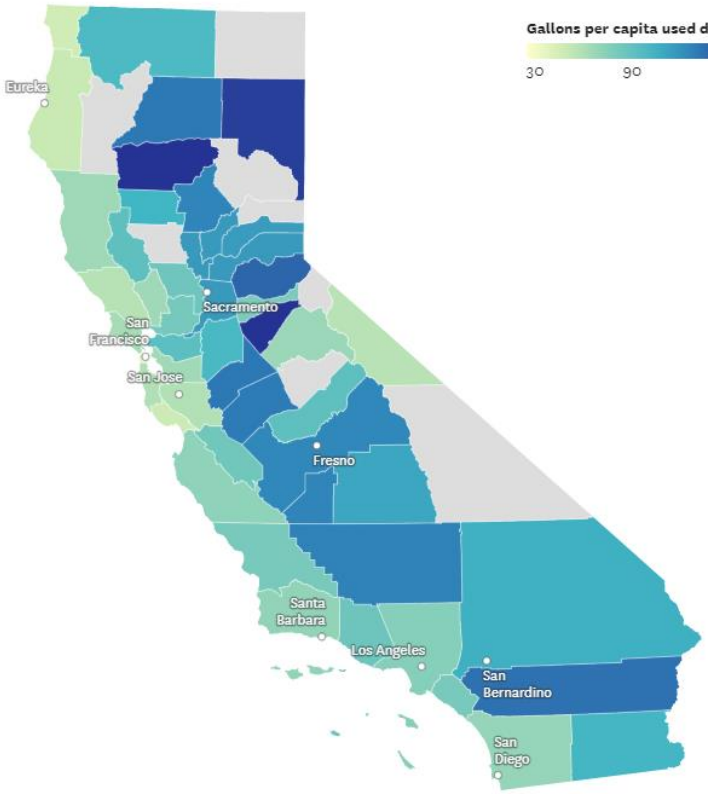
However, until these water projects come online, most of the region's water providers will have to rely on conservation to stretch supplies. Local calls for cutbacks, and in some cases restrictions, have been widely successful.

Over the past 13 months, when many state and local leaders began pushing for austerity, EBMUD customers have reduced water use 16.5%, compared to the baseline year of 2020, according to the most recent state records. San Francisco residents cut back 6.7%.
Over the same period, the Bay Area as a whole has reduced water use by about 9% compared with the baseline year of 2020. Only counties along California's far northern coast, where the weather is cooler and wetter, logged greater regional savings. The cuts are still not as deep as the 15%

reduction that Newsom has asked for — statewide savings have been 3.4% — but state water officials have been pleased that the conservation numbers have generally trended upward this year.

Residential water use in California counties

Average water use per person, from January to July 2022. Tap or hover over each county to view details.



Map: Yoohyun Jung / The Chronicle · Source: California State Water Resources Control Board

Regions in gray did not have relevant data.

The South Coast, meanwhile, defined as a hydrological region that includes Los Angeles, Orange County and parts of San Diego, Riverside, San Bernardino, Ventura and Santa Barbara counties, trimmed only a little more than 1% since last summer, compared to 2020.

“You have a strong sense of environmental stewardship” in the Bay Area, said John Coté, spokesperson for the San Francisco Public Utilities Commission. “When you add that to the SFPUC’s investment in conservation, you get a residential per capita water use that is among the lowest in the state.”

Coté noted several programs his agency offers to help customers cut back, including free water-use audits of homes and money for swapping out wasteful appliances and landscapes.

In stark contrast to San Francisco is Southern California’s Las Virgenes Municipal Water District. The district, which includes wealthy enclaves in the San Fernando Valley of Los Angeles County, is where the big water bills of several actors and athletes were made public.

The customers were outed after the district made it illegal to use more than a given amount of water, a quantity tailored to the parcel. The rationing policy is one of few in place in California. Under the district’s regulations, those who exceed 150% of their monthly allowance four times are subject to having a flow restrictor slapped on their water main.

About 2,000 customers, according to the district, have been threatened with the device, which slows faucets to a trickle. More than 70 have gotten them.

“If you’re trying to wash your hair, you’re going to be super aggravated because it takes a long time,” said Mike McNutt, public affairs and communications manager for the district. “But not only is this drought historic, it’s the most dire situation we could possibly be in and for people to disregard what we’re asking them to do, they absolutely deserve a flow restrictor being installed.”

# # #

With costs going up, Palo Alto ponders next steps for new water treatment plants
City Council to discuss proposals for salt-removal plant and purification facility on San Antonio Road site

Palo Alto Weekly | September 7, 2022 | Gennady Sheyner

The Palo Alto City Council will discuss cost projections for an industrial plant that would remove salt from local treated wastewater at the former Los Altos Water Treatment Plant on Sept. 12, 2022. Embarcadero Media file photo by Magali Gauthier.

The sprawling and largely undeveloped site at the eastern end of San Antonio Road in Palo Alto has seen little action in the 50 years since the Los Altos Wastewater Treatment Plant ceased its operations there.

While the city's trash hauler, GreenWaste, currently uses a southern portion of the Palo Alto site to sort its construction waste, the area is best known these days for its potential. Last month, the city received a $26.6 million grant from the state's Project Homekey program to build a transitional housing program for homeless individuals.

On Monday, the City Council will consider a municipal project with an even higher price tag and complexity: an industrial plant that would remove salt from local treated wastewater, making it more palatable for trees and vegetation and expanding its usage to more customers.

The desalination plant is a major component of the agreement that Palo Alto signed with Valley Water in 2019, which also envisions a larger water purification plant that would turn effluent water into potable water. At that time, Valley Water estimated that the salt-removal plant would cost $20 million

and offered to contribute $16 million toward its cost. The balance would be split between Mountain View, which would contribute 75%, and Palo Alto, which would provide the remaining 25%.

Both the water agency and its partner cities have long touted the benefits of the salt-removal plant, which would allow Palo Alto to expand a recycled-water system that today is largely limited to Shoreline Park and Baylands Golf Links. Now, however, they are also confronting a fresh barrier: costs that have more than doubled since the project was proposed.

According to an estimate from the firm Black & Veatch, which the city commissioned last year to evaluate the cost of the salt-removal plant, the projected construction cost has gone up from $19.5 million in 2017 to $40.5 million today. When other costs, including engineering services and construction management and program management, are factored in, the total cost is estimated at $52.6 million, up from $22.4 million in 2017.

The latest cost projections, which the council plans to discuss on Monday, reflect the "volatility and increases in construction prices since 2017 and the progression of the design from conceptual level to a fuller design that includes elements not initially considered," a new report from the Public Works Department states. This includes changing the design of the facility's foundations and raising electrical equipment in accordance with the city's policy on sea level rise.

The city is anticipating a $12.9 million grant from the federal government to help pay for the project. If the grant comes in, Palo Alto would be on the hook for about $6.2 million, while Mountain View would cover about $18.5 million under the 2019 agreement with Valley Water. With fresh estimates scheduled to come in at the end of this month, both cities plan to evaluate the new figures before moving ahead with construction, according to staff.

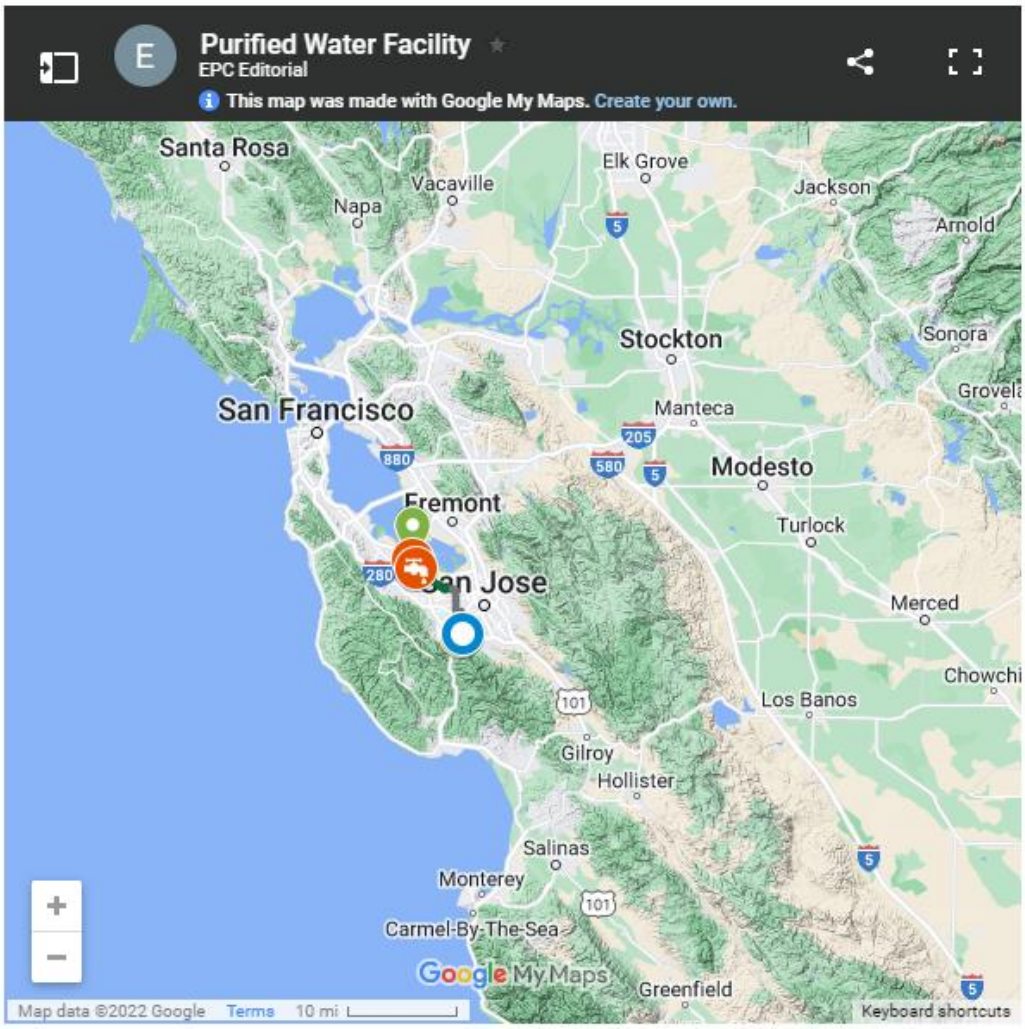
A plant to purify water

Intake pumps receive treated wastewater at the Silicon Valley Advanced Water Purification Center in San Jose on March 21, 2022. Photo by Magali Gauthier.

In addition to planning for the salt-removing facility, Palo Alto is working with Valley Water on a new purification plant that would also occupy the San Antonio site. This project, however, would be financed by Valley Water and operated through public-private partnerships, according to the agency.

The city and the water agency are working on a lease agreement for the site, which would be brought to the council for consideration at a future date.

If approved, the project would involve constructing a purification plant, a pump station and conveyance pipelines that would move local treated wastewater from the Regional Water Quality Control Plant near the Baylands to the San Antonio site, as well as from the site to the Los Gatos Recharge System complex in Campbell.



A look at how the water will get from Palo Alto's Regional Water Quality Control Plant to Campell's groundwater basin. Map by Jamey Padojino.

Valley Water has been planning a new purification plant for years. Last December, the agency's board voted to approve a staff proposal to move ahead with a project on the Palo Alto site. That followed months of discussions with both Palo Alto and San Jose, where Valley Water is hoping to expand the existing Silicon Valley Advanced Water Purification Center.

Kirsten Struve, assistant officer for the water supply division at Valley Water, made the case to the board for moving ahead with choosing the Palo Alto site as the agency issues a "request for proposals" for work on the purification plant. She noted that negotiations with San Jose would likely

take some time and cited the urgency of the project, "particularly in the face of the current drought and expected future route."

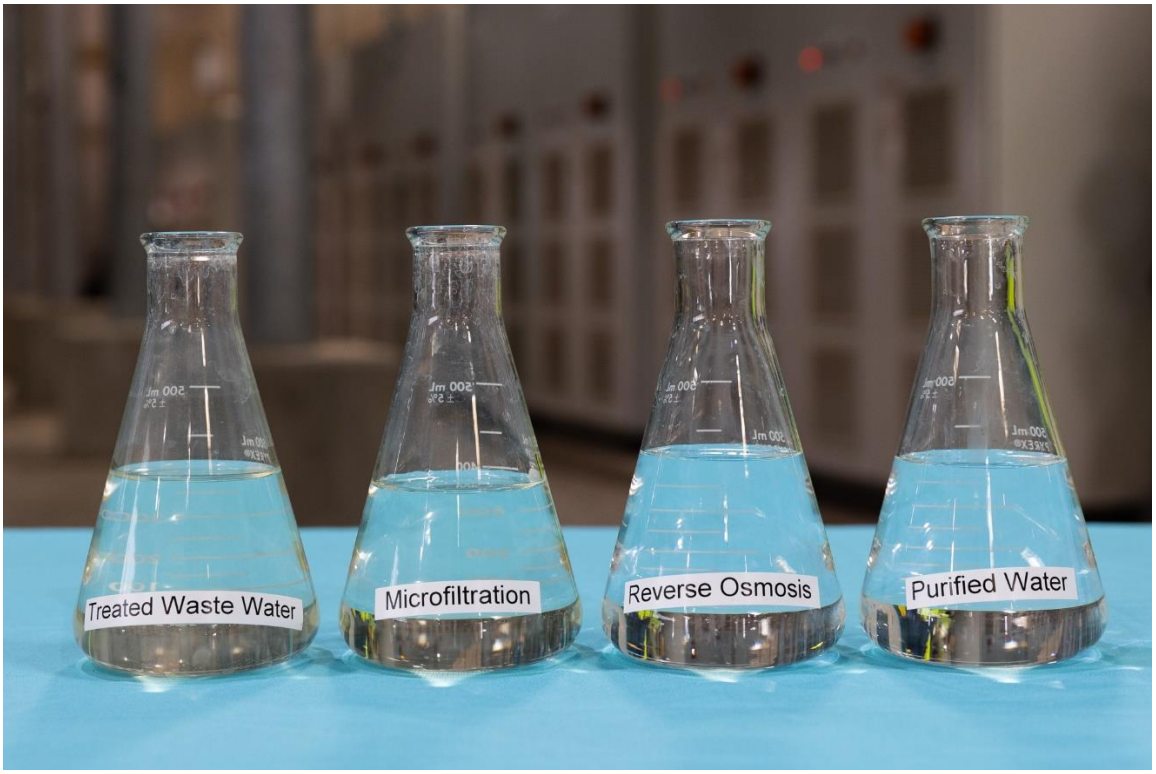
The board unanimously voted to select Palo Alto, with Chair Tony Estremera lauding the partnership for a new purification plant as a "once in a lifetime, generational achievement."

"These are basically the things that we leave behind," Estremera said at the meeting.

The new purification plant would rely on a process known as reverse osmosis to convert treated wastewater into potable water. Under this process, every 100 gallons of treated wastewater would produce about 85 gallons of purified water. The remaining 15 gallons would consist of "reverse osmosis concentrate" — the brine that gets left behind through the purification process.

Under the current proposal, the reverse osmosis concentrate would be blended with wastewater effluent and discharged into the Bay — the same process that has been used at the San Jose-Santa Clara Regional Wastewater Facility since 2014.

According to Palo Alto staff, the San Francisco Bay Regional Water Quality Control Board would need to approve the discharge permit and may require pretreatment of the reverse osmosis concentrate before it is discharged into the Bay. The staff report notes that Palo Alto will ensure that Valley Water is responsible for the discharge of reverse osmosis concentrate and any associated risks.



Four flasks contain water from different stages of the wastewater purification process at the Silicon Valley Advanced Water Purification Center in San Jose on March 21, 2022. On the left is treated wastewater the center receives from the San Jose-Santa Clara Wastewater Facility. On the far right is crystal clear purified water after going through the purification process. Photo by Magali Gauthier.

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