BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

July 8, 2022

Correspondence and media coverage of interest between June 8, 2022 and July 13, 2022

Correspondence

From:	Peter Drekmeier, Tuolumne River Trust Policy Director
To:	SFPUC Commissioners
Date:	July 11, 2022
Subject:	Item 6g on the July 12, 2022 SFPUC agenda – Water Enterprise and Finance Bureau Water Demand Projections

From:	Peter Drekmeier, Tuolumne River Trust Policy Director
To:	SFPUC Commissioners
Cc:	BAWSCA Board of Directors
Date:	June 28, 2022
Subject:	SFPUC's Long Term Vulnerability Assessment

From:	Nicole Sandkulla, BAWSCA CEO/General Manager
To:	Mr. Michael Carlin, SFPUC Deputy General Manager and COO
Cc:	BAWSCA Board of Directors
Date:	June 22, 2022
Subject:	Thank You and Congratulations on Your Retirement

From:	Peter Drekmeier, Tuolumne River Trust Policy Director
To:	Nicole Sandkulla, BAWSCA CEO/General Manager
Cc:	BAWSCA Board of Directors
Date:	June 21, 2022
Subject:	Re: June 7, 2022 Letter to Board Policy Committee

From:	Zainul Singaporwalla India Keefer Lorena Perez
To:	BAWSCA Board of Directors
Date:	June 21, 2022 – June 6, 2022
Subject:	Bay Area Water Supply and Conservation Agency (BAWSCA), please drop your Lawsuit blocking environmental protections for the Bay

From:	Gustav Larsson, BAWSCA, Chair of the Board Nicole Sandkulla, BAWSCA CEO/General Manager
To:	Dennis Herrera, SFPUC General Manager
Cc:	BAWSCA Board of Directors and Water Management Representatives
Date:	June 10, 2022
Subject:	Individual Wholesale Customer Tier 2 Plan Allocations

Press Release

From:	Restore the Delta
Date:	July 6, 2022
Press Release:	CA Tribes, EJ Groups Respond to State Water Board on Delta Plan – Petition largely ignored; Restore the Delta Coalition considers next move

Press Release, cont'd.:

From: California Water Board
Date: June 28, 2022
Press Release: Preliminary data show water savings increase for May 2022 compared to May 2020

From: Water Education Foundation
Date: June 28, 2022
Press Release: State Water Board Releases Updated Draft Biological Goals for Protection of Fish, Habitat in the Delta. Bay-Delta Plan Implementation Continuing

Media Coverage

Drought:

Date: July 13, 2022
Source: The San Francisco Standard
Article: SF's Power Position in the Water Wars Means Few Local Drought Restrictions. But Can It Last?

Date: June 28, 2022
Source: San Francisco Chronicle
Article: California's drought means less water to go around. Who is winning the pursuit for water – and who is losing?

Date: June 27, 2022
Source: Bakersfield.com
Article: Water officials outline new watering restrictions as drought continues

Date: June 24, 2022
Source: East Bay Times
Article: As drought drags on, South Bay farmers struggle – and worry

Date: June 17, 2022
Source: San Francisco Chronicle
Article: Newsom refuses to mandate strict water cuts. Why his 'bottom-up' drought strategy is not working

Date: June 8, 2022
Source: The Fresno Bee
Article: California tells San Francisco, Valley farmers to halt water diversions as drought worsens

Conservation:

Date: July 10, 2022
Source: Sacramento Bee
Article: Californians are using less water. But drought conservation still misses Newsom's target

Date: July 9, 2022
Source: San Francisco Chronicle
Article: There's a simple way to cut your water use – but many Californians don't even know about it

Date: June 24, 2022
Source: Los Angeles Times
Article: Early signs indicate Southern California finally using less water. But big test lies ahead

Conservation, cont'd.

Date: June 21, 2022
Source: Sacramento Bee
Article: California has a drought and 4 million acres of lawns. Should state ban grass to save water?

Date: June 17, 2022
Source: Palo Alto Online
Article: Opinion: Palo Alto's water use is not what it should be

Water Supply Management:

Date: July 12, 2022
Source: Mashed
Article: What You Need To Know About The Water Crisis On The West Coast

Date: July 5, 2022
Source: Los Altos town Crier
Article: Local water agency uses tech to limit water use

Date: June 20, 2022
Source: Guru Focus News
Article: California Water Service Shares Findings of Report on Climate Change and Water Resources Sustainability

Date: June 16, 2022
Source: ABC 10
Article: The new ways California is working to change where and how we store water

Date: June 16, 2022
Source: Government Technology
Article: California Utilities Deploy Smart Water Meters Amid Drought

Water Infrastructure:

Date: July 6, 2022
Source: Sacramento Bee
Article: There are no simple solutions to California's complicated water problem. This is why

Date: June 27, 2022
Source: East Bay Times
Article: Huge reservoir near Bay Area could be expanded to store more water

Date: June 21, 2022
Source: Mercury News
Article: Water fight: Lawsuit filed against $2.5 billion dam project planned for Santa Clara County

Date: June 15, 2022
Source: San Jose Spotlight
Article: Drought and heat stress California's infrastructure

Water Policy:

Date: July 10, 2022
Source: CNN
Article: Property owners and officials find ways around century-old laws as the West runs out of water

Date: July 7, 2022
Source: California Water Research
Article: Problems with Bay-Delta water resources modeling have been recognized for decades

Date: July 7, 2022
Source: Los Angeles Times
Article: California deepens water cuts to cope with drought, hitting thousands of farms

Date: June 27, 2022
Source: Bakersfield.com
Article: Water officials outline new watering restrictions as drought continues

Water Quality

Date: June 28, 2022
Source: Treatment Plant Operator
Article: New EPA PFAS Advisories: What Now? WEF Offers Advice

Date: June 23, 2022
Source: Bloomberg Law
Article: EPA Plan to Use Superfund Law on PFAS Stirs Cleanup Cost Worries

Date: June 22, 2022
Source: Harvard School of Public Health
Article: Stricter federal guidelines on 'forever chemicals' in drinking water pose challenges

Date: June 17, 2022
Source: Patch
Article: EPA Issues New Drinking Water Health Advisories: See CA Impacts

Tuolumne River Trust

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July 11, 2022

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

Re: Item 6g on the July 12, 2022 SFPUC agenda – Water Enterprise and Finance Bureau Water Demand Projections.

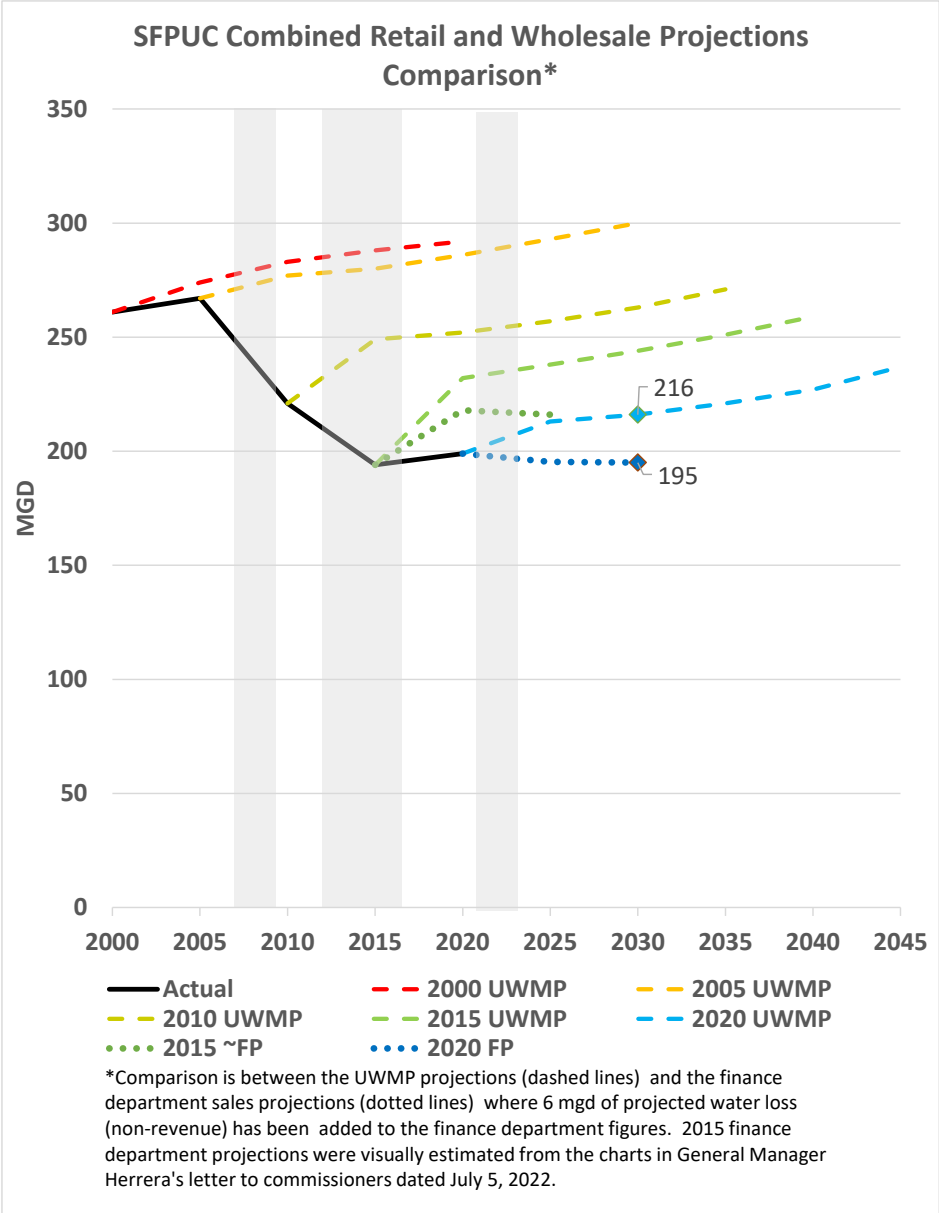
Dear President Moran and Commissioners:

We are pleased that staff has released a report comparing demand projections produced by the Water Enterprise for Urban Water Management Plans (UWMP) with those produced by the Finance Bureau for the SFPUC's 10-Year Financial Plans (10YFP). There's a lot of useful information in the report.

We found Figures 1 and 2 to be a little bit difficult to decipher because the horizontal axes are condensed and the wholesale projections are separated from the retail projections, making it challenging to see the full picture. To better highlight the differences between the two sets of projections, we produced the graph on page 2 of this letter.

While both the Water Enterprise and Finance Bureau have over-projected water demand, the Finance Bureau has been much closer to the actuals. The Water Enterprise has over-projected considerably.

While the staff report notes, "the SFPUC did not publish 10-year Financial Plan Sales Projections before 2015," between 2012 and 2014 the Plans began assuming demand would remain flat, based on the observed trend. For example, the 2014 Plan states, "68 MGD retail & 145 MGD wholesale sales projected flat from FY2014-15 onward compared to projected FY2013-14 sales of 68.6 MGD retail and 149.6 MGD wholesale."



The current staff report includes the following statements:

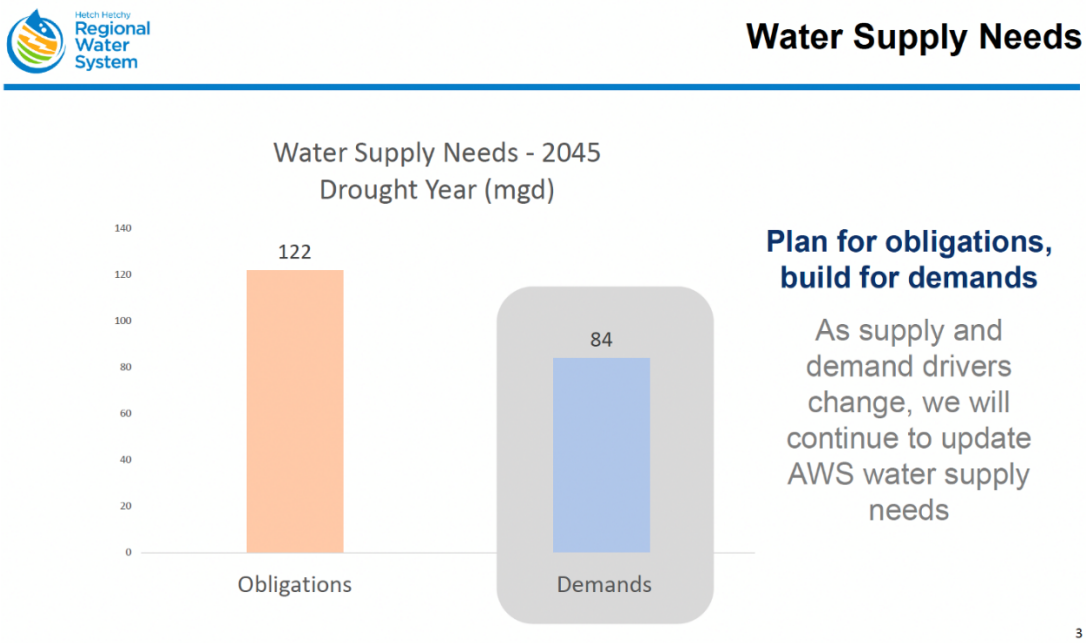
"It [UWMP Act] was not intended to establish the projected water demands that would be used for all operational and planning purposes."

"…the projections represent an outside bound of whatever demand will occur in the next 25 years...These demands will likely always be greater than actual demands because not all developments materialize, or they materialize slower than projected."

"By contrast, for the purpose of financial planning and for short term water system management, we estimate the demand that we are likely to experience. For budgeting and rate setting we use demand projections that are as close to actual as we can make them."

From the above statements you can see on the chart that 2030 RWS demand is expected to fall between 195 mgd and 216 mgd with the expected result being closer to 195 mgd.

Combining these statements and the approach the SFPUC is taking in the Alternative Water Supply process of "planning for obligations but building for demands," we request that the following graphic be updated to include a third (more likely) column based on Finance Bureau sales projections and labeled "Lower Demand Projections." The column that is currently labeled "Demands" should be changed to "Upper Demand Projections." With a decision on the length of the design drought expected on August 23, we encourage the creation of a similar graph based on a 7.5-year design drought.



Thank you for the opportunity to share our observations and requests.

Sincerely,

Peter Drekmeier
Policy Director

Dave Warner
TRT Volunteer

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June 28, 2022

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

Dear President Moran and Commissioners:

As we have mentioned before, the SFPUC's Long-Term Vulnerability Assessment (LTVA) conveys a lot of positive news regarding future water supply in the era of climate change. For example, the report states:

> According to climate projections and expert elicitations, there is a central tendency of warming of +2°C and +4°C by 2040 and 2070 (Representative Concentration Pathway [RCP] 8.5), respectively, **with no clear direction of change in mean annual precipitation over the planning horizon**.[1]

While the LTVA is a robust scientific study, it is vague at answering questions that will help you deliberate on the practicality of the Design Drought. We have been working to get answers for you. For eight months we have been making three primary information requests of SFPUC staff:

1) How might climate change impact the SFPUC's water supply at current demand and with the Bay Delta Plan instream flow requirements in place?
2) What is the return period (likelihood of occurrence) for the Design Drought?
3) How will earlier runoff (as predicted by the LTVA) affect the SFPUC's water entitlements?

SFPUC staff have not been forthcoming with answers to our questions, but we continue to make progress just the same. Following are some of our findings.

<u>Impact of the Bay Delta Plan on Water Supply</u>

The LTVA states:

> Climate change is not the single most important driver of vulnerability for the RWS. Under current RWS infrastructure conditions, either state-amended

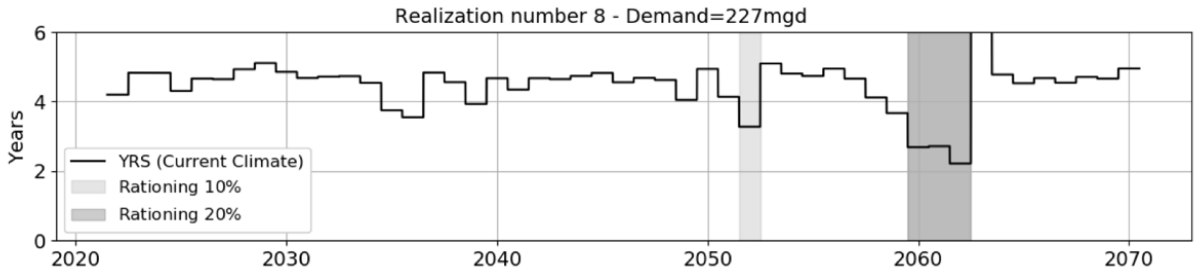
[1] Long-Term Vulnerability Assessment, p. xxii.

WQCP for additional IFR on the Tuolumne River or an increase in demand by 15% have significant impacts on the RWS performance that are equivalent to a decrease in mean annual precipitation of around 15%.[2]

In other words, the Bay Delta Plan instream flow requirement (IFR) is equivalent to a 15% increase in water demand or a 15% decrease in precipitation.

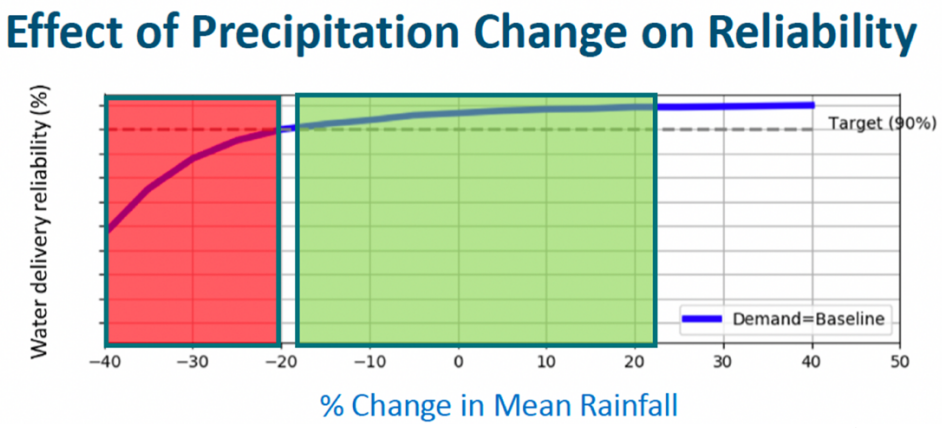
The baseline demand used in the LTVA (227 mgd) is 16% greater than actual current demand (195 mgd). **The implication is that by replacing the inflated 227 mgd demand with the IFR, we can assume that conclusions from the LTVA graphs that are based on 227 mgd demand can be applied to represent current demand and include the IFR.**

The graph below suggests that under current demand and including the Bay Delta Plan IFR, the SFPUC is projected to have no less than two years-worth of water in storage at any given time over the next half century.



Source: LTVA, Figure 5-26, p. 176

The graph below suggests that under current demand and including the Bay Delta Plan IFR, the SFPUC's delivery reliability would be 95% (assuming no change in mean rainfall, as projected in the LTVA), exceeding the 90% target.



Source: LTVA webinar, 1/27/22[3]

[2] LTVA, p. 250.

[3] "Long-Term Vulnerability Assessment of San Francisco Regional Water System," Alexis Dufour (SFPUC) and Casey Brown (UMass), January 27, 2022.

Return Period for the Design Drought

The following table was included in a document presented by the researchers who produced the LTVA on December 8, 2020. It shows predicted return periods for historic droughts and the Design Drought. At the time, a drought as severe as the Design Drought was projected to occur once in 25,293 years (see Return Period – Deficit).

Return periods of historical drought

Drought Event	Deficit (TAF)	Duration (Year)	Return Period (Year) (best estimate and 95% confidence interval)		
			Deficit	Duration	Deficit and Duration
1976-77	517	2	217 (188; 255)	30 (29; 31)	316 (273; 371)
1987-92	797	6	1,456 (1,031; 2,140)	486 (422; 563)	20,406 (14,589; 29,851)
2012-16	752	4	1,093 (820; 1,520)	121 (110; 133)	4,250 (3,190; 5,899)
Design Drought	1,309	8	25,293 (12,940; 56,679)	1,954 (1,620; 2,376)	1,371,578 (720,390; 2,997,390)

Source: "Hydrological Drought Frequency Analysis for the Upper Tuolumne River," 12/8/2020

The LTVA reduced the return periods for the known droughts, so we assume the return period for the Design Drought was reduced as well. We asked for an updated table, and received the following response:

> As discussed in our attached Memo to File, provided to you with this December 8 presentation, the study team determined that there were insufficient data points to provide a valid scientific analysis of the return period of the Design Drought, and its sensitivity to climate change. Despite additional work to try and correct for the limited data, the return period of the Design Drought was dropped from analysis, thus no further refinement, validation, or scientific analysis was undertaken.[4]

It is true, the LTVA acknowledged that the hydrologic model used to produce the LTVA overestimated flow in known dry years. It states:

[4] Letter from Dennis Herrera, General Manager of the SFPUC, to Peter Drekmeier and Dave Warner at TRT, June 15, 2022.

> The hydrologic model used to simulate the streamflow on the Tuolumne watershed in response to precipitation and temperature overestimates streamflow during dry years. For example, the flow computed at the Tuolumne River at La Grange is overestimated, and therefore WAC [Water Available to the City] is also overestimated by about 482,000 acre-feet during the drought sequence 1987-1992 (observed is 813,000 acre-feet versus simulated is 1,295,000 acre-feet).[5]

In other words, observed flow was 63% of simulated flow.

In response to this observed discrepancy, the return periods for the historic droughts were updated in the LTVA, but an update of the return period for the Design Drought was omitted.

Table 5-1 in the LTVA shows that with 0% change in precipitation and +2 degrees C increase in temperature (the median projection in the LTVA[6]), the revised return period for the 1976-77 drought (at 269 TAF demand: 240 mgd) is 105 years. The revised return period for the 1987-92 drought (again at 240 mgd demand) is 495 years.

Table 5-1. Effect of Precipitation and Temperature Change on the Return Periods Associated with the Severity of the Historic Droughts.

Return periods are round off to the nearest 5 years.

Threshold [TAF]	Drought Event	Changes in Precipitation			Changes in Temperature [°C]		
		0%	-10%	-20%	0	+2	+4
269	1976-1977	100	45	25	100	105	130
	1987-1992	420	120	45	420	495	675
	2012-2015	180	70	35	180	200	260
365	1976-1977	50	30	10	50	50	60
	1987-1992	445	105	20	445	470	575
	2012-2015	135	55	15	140	145	165

Source: LTVA, p. 157

TRT produced the table below comparing return periods from the 2020 document with those in Table 5-1 of the LTVA. The combined return periods for the 1976/77 and 1987-92 droughts in Table 5-1 are 36% of the combined return periods from the 2020 report. (As an aside, we are curious why this percentage is so much lower than the 63% difference between observed and simulated flow cited above.)

[5] LTVA, p. 59.

[6] "By 2040, the median projections of +2°C warming combined with 0% change in mean annual precipitation results in no significant change in mean annual WAC volume…," LTVA, p. 156.

We then applied 36% to the return period for the Design Drought from the 2020 document (25,293 years) and came up with an adjusted return period of 9,105 years.

Differences in Return Periods (Deficits) Between the 2020 Report and the LTVA

Drought Event	2020 Report	LTVA, Table 5-1	Table 5-1 / 2020
1976-77	217	105	48%
1987-92	1,456	495	34%
Combined	1,673	600	36%
Design Drought	25,293	9,105*	36%

*Estimated return period of the Design Drought based on 36% of 2020 figure.

Source: Tuolumne River Trust

To carry the analysis further, the "Memo to File" expressed concern about the large amount of uncertainty in the analysis. To mitigate this concern, we applied 36% to the lower bounds of the 95% confidence interval for the Design Drought return period and came up with an adjusted lower bounds of the Design Drought return period of 3,277 years.

Based on the above methodology, this means one can have 95% confidence that the return period for a drought as severe as the Design Drought would be at least 3,277 years. To put this length of time in perspective, 3,000 years ago humankind was entering the Iron Age.

Both the 2020 report and Table 5-1 used 269 TAF (240 mgd) to represent demand. 240 mgd is 23% greater than current demand of 195 mgd. Using current demand would make the return period for the Design Drought quite a bit longer. It should be noted that the 240 mgd demand used in the 2020 report and in Table 5-1 is greater than the 236 mgd demand for the RWS service area projected for 2045 in the SFPUC's Urban Water Management Plan, and staff has acknowledged that the figures included in the UWMP are more of an "outside envelope" than actual demand projections.

The implication of a 3,000 year return period (or longer, depending on demand) for a drought planning model is that making economic and environmental trade offs to plan for such a rare event is not justified.

Impact of Earlier Runoff on Water Supply

The LTVA found that runoff is expected to come earlier in the season as a result of a diminished snowpack and more precipitation arriving as rain instead of snow. It states:

> Therefore, an increase in temperature would result in less snowpack accumulation during winter season, as more precipitation will fall as rain rather than snow, leading to 1) a reduced spring runoff volume and magnitude and 2) an increase in winter flows. The spring runoff is also expected to occur earlier in the season (Figure 5-2).[7]

And:

> A +2°C warming leads to a spring runoff arrival 10 days prior to the baseline temperature conditions. Median of projections estimate warming around +2°C by 2040 with most projections and elicitations between +1°C and +4°C. At +4°C, the shift in timing would be closer to 20 days prior to baseline conditions. By 2070 RCP8.5, warming could reach around +4°C with most projections and elicitations between +3°C and +6°C.[8]

Our analysis of historic data suggests that if the two droughts that make up the Design Drought were to repeat, but runoff came three weeks earlier, the SFPUC would pick up an additional 237 thousand acre-feet of water – enough to add more than a year's-worth of water to SFPUC storage. This is because the Modesto and Turlock Irrigation Districts are entitled to the first 2,400 cubic feet per second (cfs) of runoff for most of the year. But between mid-April and mid-June (time of peak runoff), the Irrigation Districts are entitled to the first 4,000 cfs of runoff. Runoff between 2,400 and 4,000 cfs that shifts from mid-April-to-mid-June into the earlier season is water the SFPUC would pick up. Runoff between 2,400 and 4,000 cfs that shifts from post-mid-June into the mid-April-to-mid-June period is water the Irrigation Districts would pick up.

Using historic data, we produced the following table showing the impact on WAC (in thousand acre-feet) had runoff come three weeks earlier during the two droughts that make up the Design Drought. For example, had runoff been the same in 1976, but had arrived three weeks earlier, the SFPUC would have picked up an additional 20 thousand acre-feet.

Three Week Shift in Runoff

Year	SFPUC Pick Up	Year	SFPUC Pick Up
1976	+20	1989	+33
1977	0	1990	+54
1987	+51	1991	+9
1988	+8	1992	+62

Total Shift= 237 TAF Current Demand = 219 TAF/y

Source: Tuolumne River Trust

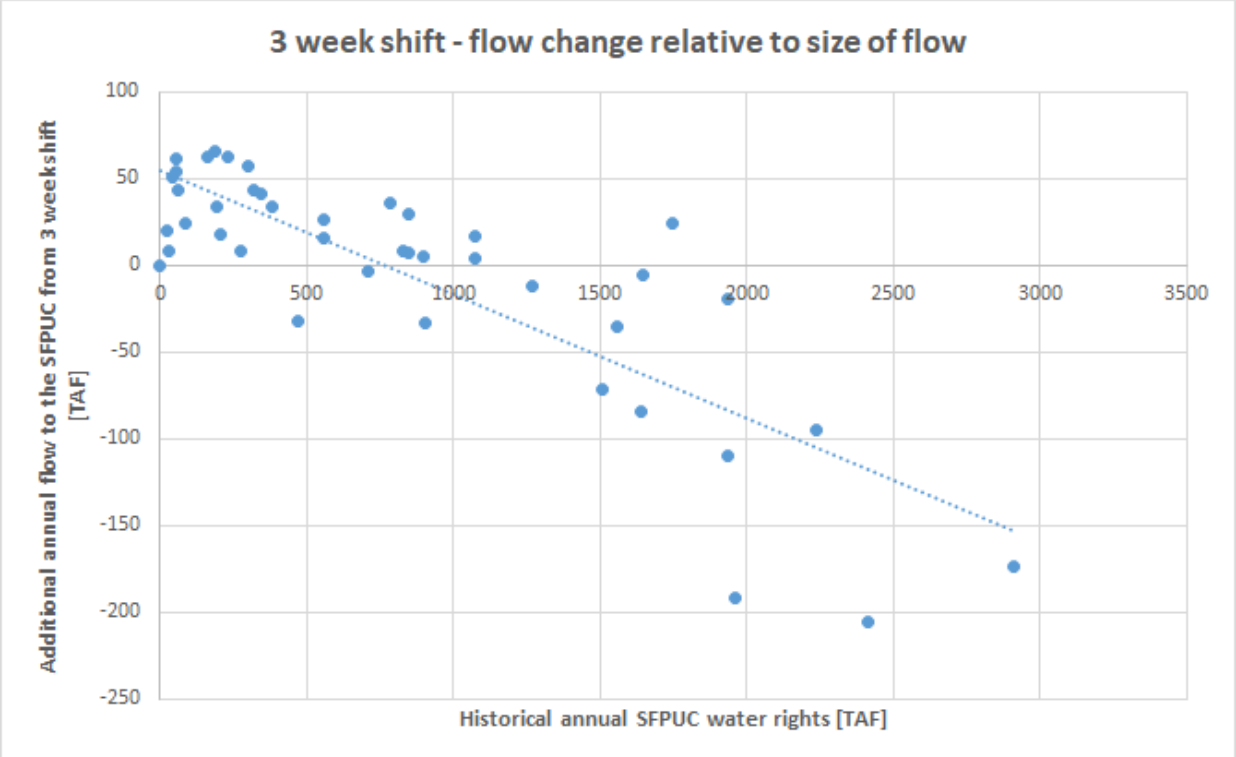
[7] LTVA, p. 147
[8] LTVA, p. 147

SFPUC staff have claimed that the shift in runoff will not have a significant impact on the SFPUC's water entitlements. However, it appears they only looked at the average. You will see from the following scatter plot that in dry years (like those making up the Design Drought) the SFPUC's water entitlements improve. In wet years they decrease, but in most of those years the reservoirs are full and water has to be spilled, so it doesn't really matter.

Each dot on the scatter plot represents one year over the past 42 years. For each year, we looked at the historic data and calculated whether a three-week shift in runoff would have increased or decreased "Water Available to the City" (WAC).

The horizontal axis represents historic WAC for each year, moving from dry years on the left to wet years on the right. The vertical axis represents the shift in WAC had runoff been the same for each year, but had arrived three weeks earlier. The zero line on the vertical axis represents no change in WAC. Dots above the zero line represent years in which WAC would have improved had runoff come earlier. Dots below the zero line represent years when WAC would have decreased had runoff come earlier.

The graph shows that in dry years, the shift in runoff almost always improves WAC, while the opposite occurs in wet years.



Source: Tuolumne River Trust

The implication is that during dry years the SFPUC's unique water rights on the Tuolumne are favorably impacted by earlier runoff due to increasing temperatures and should be incorporated into planning models.

SFPUC staff claim there are other factors involved in the relationship between earlier runoff and WAC, which might be the case, but they have failed to provide any data or analysis.

Conclusion

If the SFPUC were to use reasonable demand projections, remove one year from the Design Drought (a prudent decision given the extreme return period), and consider the increase in "Water Available to the City" as a result of earlier runoff, it would significantly change the risk analysis. The following table is based on 200 mgd demand, includes the Bay Delta Plan instream flow requirement, and incorporates the additional water available to the SFPUC as a result of earlier runoff.

Design Drought

(With Bay Delta Plan flows implemented and 3-week shift in runoff)

Year	Demand (MGD)	Rationing (%)	Storage Reduction (TAF)	Water in Storage (TAF)
=1986				1,517
=1987	200	0	401	1,116
=1988	200	0	313	803
=1989	200	10	-11	814
=1990	200	10	215	599
=1991	200	20	45	554
=1992	200	20	117	437
=1976	200	20	228	**209**
=1977	200	20	232	-23

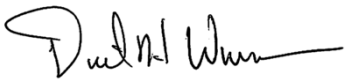
Source: Tuolumne River Trust

The results shown in the above table are beyond encouraging. Within the planning exercise that the Design Drought actually is, the SFPUC could manage a 7.5-year Design Drought and still retain positive storage with the Bay Delta Plan in affect, without developing any new alternative water supplies. The SFPUC could maintain positive storage over an 8-year Design Drought by developing 4,000 acre feet (3.8 mgd) of alternative water supplies.

Thank you for the opportunity to share our analysis of the LTVA. We look forward to working with you to implement decisions that will benefit the Tuolumne River and Bay-Delta ecosystems while also protecting the SFPUC's water supply.

Sincerely,

Peter Drekmeier
Policy Director



Dave Warner
TRT Volunteer

Cc: BAWSCA

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BAWSCA
Bay Area Water Supply & Conservation Agency

June 22, 2022

Mr. Michael Carlin
Deputy General Manager and Chief Operating Officer
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102

Subject: Thank You and Congratulations on Your Retirement

Dear Mr. Carlin,

On behalf of the Bay Area Water Supply and Conservation Agency, its 26 member agencies, and their water customers in Alameda, Santa Clara, and San Mateo Counties, I want to express our appreciation for your nearly three decades of service to the San Francisco Regional Water System that we all rely upon.

During your time at the San Francisco Public Utilities Commission (SFPUC), you were instrumental in efforts that have resulted in the Regional Water System being rebuilt to withstand a major credible earthquake and a robust Water Enterprise Capital Improvement Program designed to ensure that the Regional Water System will continue to provide a reliable water supply well into the future.

You and I have worked together for over twenty years serving this Regional Water System and its water customers. During this time and given our respective roles, there have been times where we have been on opposite sides of an issue. However, I have never questioned your dedication to public service and your loyalty to the Regional Water System. I appreciate having worked with you, and the BAWSCA region is grateful for your service.

We congratulate you on your upcoming retirement and wish you well in your new endeavors and good health for many decades to come.

Sincerely,

Nicole Sandkulla
CEO/General Manager

cc: SFPUC Commission
BAWSCA Board of Directors

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From:	Peter Drekmeier
To:	Nicole Sandkulla
Cc:	Tom Francis; aschutte@hansonbridgett.com; bawscaboardofdirectors
Subject:	Re: June 7, 2022 Letter to Board Policy Committee
Date:	Tuesday, June 21, 2022 10:24:01 AM
Attachments:	TRT Response to SFPUC Letter - 6-21-22.pdf TRT Follow-Up Questions.pdf

Hi Nicole,

Thank you for your letter. It's good to see BAWSCA supports a "robust and scientifically-based review of the Design Drought."

TRT believes the researchers who produced the Long-Term Vulnerability Assessment (LTVA) probably did update the return period for the Design Drought, but were perhaps instructed not to include it in the final LTVA because it showed just how unlikely the Design Drought is to occur. Attached is our analysis. Please feel free to share it with others who might be interested.

See you next week.

-Peter

Peter Drekmeier
Policy Director
Tuolumne River Trust
peter@tuolumne.org
(415) 882-7252

> On Jun 20, 2022, at 12:49 PM, Nicole Sandkulla <nsandkulla@bawsca.org> wrote:
>
> Dear Peter,
>
> This email transmits my response to your June 7th letter to the BPC regarding results of your Public Records Act request to the SFPUC. The hard copy original will follow by regular mail.
>
> Please call me if you have any questions.
>
> Regards,
> Nicole Sandkulla
>
> _____
> Nicole M. Sandkulla
> Chief Executive Officer/General Manager
> Bay Area Water Supply and Conservation Agency
> 155 Bovet Road, Suite 650
> San Mateo, CA 94402

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Website: www.BAWSCA.org

<2022_June20_ Ltr to PD Responding to His June 7 2022 Ltr to BPC_FINAL.pdf>

BAWSCA
Bay Area Water Supply & Conservation Agency

June 20, 2022

Mr. Peter Drekmeier
Tuolumne River Trust
PO Box 3727
Sonora, CA 95370

Subject: June 7, 2022 Letter to Board Policy Committee

Dear Mr. Drekmeier,

Thank you for your letter of June 7, 2022 to the Board Policy Committee in which you bring to its attention the results of a recent Public Records Act request for information from the SFPUC by your organization.

BAWSCA has looked into this issue independently, including having separate conversations with SFPUC staff and reviewing the SFPUC's June 15, 2022 correspondence to you and Mr. Warner and the associated documents, particularly the attached "Memo to File," which records the study team's determination of how to use, or not use, this data in the Long-Term Vulnerability Assessment.

Based on its review, BAWSCA does not believe this information was being "hidden" by the SFPUC. Rather, this information was never finalized for public distribution given the significant uncertainty, or lack of scientific validity, with the analytical results.

That said, BAWSCA agrees that a robust and scientifically-based review of the Design Drought will be important as part of the upcoming decisions the SFPUC will be making about investments in new, alternative water supplies, and that such a review could result in a need to update the Design Drought. BAWSCA looks forward to discussing what such a review looks like with the SFPUC and others.

Regards,

Nicole Sandkulla
CEO/General Manager

cc: Dennis Herrera, SFPUC General Manager
Steve Ritchie, SFPUC Assistant General Manager, Water Enterprise
BAWSCA Board of Directors
BAWSCA Water Management Representatives

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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

June 21, 2022

General Manger Dennis Herrera
SFPUC
525 Golden Gate Ave.
San Francisco, CA 94102
Via Email

Dear General Manager Herrera:

While we appreciate the fact that you replied to our letter of June 8 in a timely fashion, we were disappointed by your responses. Here is a summary with details following.

1) While you declined to answer our first question, we discovered it had already been alluded to in the Long-Term Vulnerability Assessment (LTVA). A 15% increase in water demand is the equivalent of the Bay Delta Plan instream flow requirement (IFR). The SFPUC failed to acknowledge this in your response to our questions.
2) You also didn't answer our second and third questions, but instead said they weren't appropriate, as more context is needed. We would appreciate the SFPUC answering our questions, adding any context where there is more to the issue of how earlier runoff might impact "Water Available to the City" (WAC). We would like to discuss this issue at our next SFPUC/BAWS meeting focusing just on dry years: both the specific impact of earlier runoff and then in combination with other factors you mention. Given Mr. Dufour's inability to explain droughts becoming rarer at higher temperatures, there is concern such an analysis was never done.
3) For our fourth question, you claimed poor data for estimating the return period for the Design Drought in 2020, but updated the return periods for the historic droughts in the LTVA. We believe an updated return period for the Design Drought at current demand would be greater than 10,000 years. We would appreciate the SFPUC responding to our analysis. Is it the case that the Design Drought would be so rare that none of the 25,000 scenarios analyzed came close to replicating it?

Following are some responses to your letter and our findings.

Question 1

TRT Question: How much of an increase in water demand would be equivalent to the Bay Delta Plan instream flow requirements under current conditions?

SFPUC Response: We have not calculated what increase in water demand would be equivalent to the Bay Delta Plan instream flow requirements under current conditions.

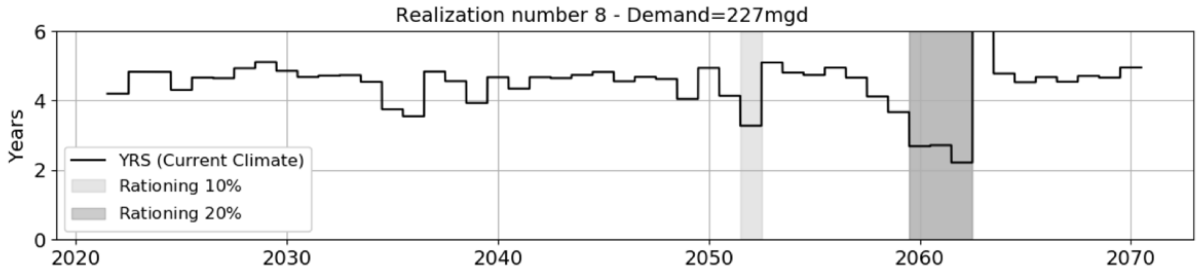
TRT Response: In reviewing the LTVA, we found the answer to our question. On page 250, the LTVA states:

> Climate change is not the single most important driver of vulnerability for the RWS. Under current RWS infrastructure conditions, either state-amended WQCP for additional IFR on the Tuolumne River or an increase in demand by 15% have significant impacts on the RWS performance that are equivalent to a decrease in mean annual precipitation of around 15%.

In other words, the Bay Delta Plan instream flow requirement (IFR), a 15% increase in water demand, and a 15% decrease in precipitation are all equivalent.

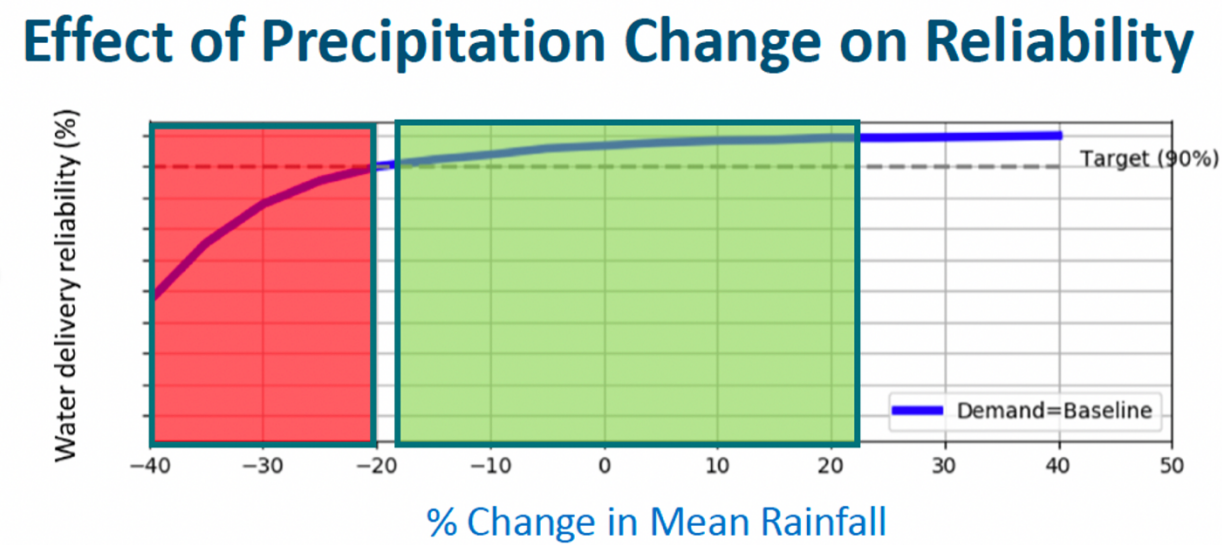
The baseline demand used in the LTVA (227 mgd) is 16% greater than actual current demand (195 mgd). Therefore, by replacing the inflated 227 mgd demand with the IFR, we can assume that all the LTVA graphs that use 227 mgd demand are the equivalent of using current demand and including the IFR. The following graphs should be of particular interest to all parties involved.

The graph below suggests that under current demand and including the Bay Delta Plan IFR, the SFPUC is projected to have no less than two years-worth of water in storage at any given time over the next half century.



Source: LTVA, Figure 5-26, p. 176

The graph below suggests that under current demand and including the Bay Delta Plan IFR, the SFPUC's delivery reliability would be 95% (assuming no change in mean rainfall, as projected in the LTVA), exceeding the 90% target.



Source: LTVA presentation, 1/27/22[1]

Questions 2 & 3

TRT Requests: 2) Please confirm whether or not this graph (scatter plot – "3 week shift – flow change relative to size of flow") accurately depicts its intention. If you believe it is incorrect, how would it change? 3) Please confirm whether you believe this table (change in WAC if runoff during the droughts that make up the Design Drought had come three weeks earlier) is accurate or not. If you disagree with the numbers, what do you think they should be?
SFPUC Response: The SFPUC does not agree that shifting the hydrograph by three weeks for the historic hydrology to determine changes in Water Availability to the City (WAC) is an appropriate analysis on its own. In fact, it provides an incomplete picture of what could occur in the future. When considering changes in WAC under future climates, the LTVA has taught us that the shift in timing of snowmelt runoff is only part of the story. One needs to consider the change in the total volume of runoff for the year, in particular. The analysis in changes to WAC due to climate change can be found in the LTVA beginning on page 150.

TRT Response: The LTVA failed to break down WAC by water year type. Our analysis, which we assume to be correct based on the SFPUC's lack of any corrections, clearly shows that in dry years WAC will likely increase over similar historical runoff conditions, while in wet years WAC will likely decrease.

The SFPUC points out that there are other factors that will likely influence WAC. It would be helpful if the SFPUC would explain those other factors in detail, and produce a graph and/or table showing what the SFPUC believes would likely happen if the droughts that make up the Design Drought were to reoccur, but runoff came three weeks earlier. This would be a good

[1] "Long-Term Vulnerability Assessment of San Francisco Regional Water System," Alexis Dufour (SFPUC) and Casey Brown (UMass), January 27, 2022.

topic for discussion at our next SFPUC/BAWS meeting, especially considering the amount of additional WAC the SFPUC would likely pick up.

Question 4

TRT Question: Have the numbers in the three columns under "Return Period (Year)" changed since this table (Return periods of historical drought) was produced? If so, what are the new numbers?
SFPUC Response: As discussed in our attached Memo to File, provided to you with this December 8 presentation, the study team determined that there were insufficient data points to provide a valid scientific analysis of the return period of the Design Drought, and its sensitivity to climate change. Despite additional work to try and correct for the limited data, the return period of the Design Drought was dropped from analysis, thus no further refinement, validation, or scientific analysis was undertaken. Significant further validation and scientific analysis of the drought periods retained within the LTVA was completed as the report was finalized and scientifically reviewed prior to publication by the Water Research Foundation. The table provided in your letter was included in an internal presentation from the University of Massachusetts investigators to the PUC project manager. That specific table was not included in the report. However, the data from the table in your letter was updated for the Final LTVA and is provided in Table 3.16 "Estimated Return Periods of Drought Severity and Duration for the Historic Drought Events" on page 77. The aim of this analysis was to demonstrate the sensitivity of the calculated return period of droughts to the likely effects of climate change. The results from this analysis are presented in Tables 5-1 & 5-2 on pages 157 and 159.

TRT Response: First of all, it should be noted that Tables 3-16, 5-1 and 5-2 all use 269 TAF (240 mgd) and 365 TAF (326 mgd) to represent water demand. The 2020 document used 269 TAF (240 mgd) to represent demand.

The LTVA acknowledged that the hydrologic model overestimated flow in dry years. It states:

> The hydrologic model used to simulate the streamflow on the Tuolumne watershed in response to precipitation and temperature overestimates streamflow during dry years. For example, the flow computed at the Tuolumne River at La Grange is overestimated, and therefore WAC is also overestimated by about 482,000 acre-feet during the drought sequence 1987-1992 (observed is 813,000 acre-feet versus simulated is 1,295,000 acre-feet). (p. 59)

In other words, observed flow was 63% of simulated flow.

In response to this observed discrepancy, the return periods for the historic droughts were updated in the LTVA, but an update of the Design Drought was omitted.

Table 5-1 (cited in the SFPUC response) shows that with 0% change in precipitation and +2 degrees C increase in temperature (the median projection in the LTVA[2]), the revised return period for the 1976-77 drought (at 269 TAF demand: 240 mgd) is 105 years. The revised return period for the 1987-92 drought (again at 240 mgd demand) is 495 years.

Table 5-1. Effect of Precipitation and Temperature Change on the Return Periods Associated with the Severity of the Historic Droughts.

Return periods are round off to the nearest 5 years.

Threshold [TAF]	Drought Event	Changes in Precipitation			Changes in Temperature [°C]		
		0%	-10%	-20%	0	+2	+4
269	1976-1977	100	45	25	100	105	130
	1987-1992	420	120	45	420	495	675
	2012-2015	180	70	35	180	200	260
365	1976-1977	50	30	10	50	50	60
	1987-1992	445	105	20	445	470	575
	2012-2015	135	55	15	140	145	165

Source: LTVA, p. 157

TRT produced the table below comparing return periods from the 2020 document with those in Table 5-1 of the LTVA. The combined return periods for the 1976/77 and 1987-92 droughts in Table 5-1 are 36% of the combined return periods from the 2020 report. (As an aside, we are curious why this percentage is so much lower than the 63% difference between observed and simulated flow cited above.)

We then applied 36% to the return period for the Design Drought in the 2020 document (25,293 years) and came up with an adjusted return period of 9,105 years.

Differences in Return Periods (Deficits) Between the 2020 Report and the LTVA

Drought Event	2020 Report	LTVA, Table 5-1	Table 5-1 / 2020
1976-77	217	105	48%
1987-92	1,456	495	34%
Combined	1,673	600	36%
Design Drought	25,293	9,105*	36%

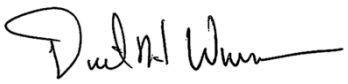
*Estimated return period of the Design Drought based on 36% of 2020 figure.

[2] "By 2040, the median projections of +2°C warming combined with 0% change in mean annual precipitation results in no significant change in mean annual WAC volume…", LTVA, p. 156.

Both the 2020 report and Table 5-1 used 269 TAF (240 mgd) to represent demand. 240 mgd is 23% greater than current demand of 195 mgd. Using current demand would make the return period for the Design Drought even longer. It should be noted that the 240 mgd demand used in the 2020 report and in Table 5-1 is greater than the 236 mgd demand projected for 2045 in the SFPUC's Urban Water Management Plan, and staff has acknowledged that the figures included in the UWMP are more of an "outside envelope" than actual demand projections.

We appreciate the opportunity to share our analysis with the SFPUC and other interested stakeholders. We hope this information will help shape our discussion at the next SFPUC/BAWS meeting.

Sincerely,



Peter Drekmeier
Policy Director

Dave Warner
TRT Volunteer

Tuolumne River Trust

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Modesto

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P.O. Box 3727
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Website
www.tuolumne.org

June 8, 2022

General Manger Dennis Herrera
SFPUC
525 Golden Gate Ave.
San Francisco, CA 94102
Via Email

Dear General Manager Herrera:

Thank you for hosting last week's meeting of the SFPUC/BAWS group. While we didn't get off to the best start, we see value in convening this group regularly, and are committed to engaging in a transparent and collaborative process. In this spirit, we present four questions we hope the SFPUC will responded to a timely manner. We're hoping our first and fourth questions can be answered immediately, and our second and third questions can be addressed by the end of the month.

We believe the responses to these questions will provide valuable information for consideration at our next SFPUC/BAWS meeting.

Question 1

The LTVA states, "At a demand of 227 mgd, the effect of state-amended WQCP under current conditions is equivalent to a reduction in mean annual precipitation of about 15% in terms of the water delivery reliability."

Is there a similar comparison between an increase in water demand and instream flow requirements? In other words, how much of an increase in water demand would be equivalent to the Bay Delta Plan instream flow requirements under current conditions?

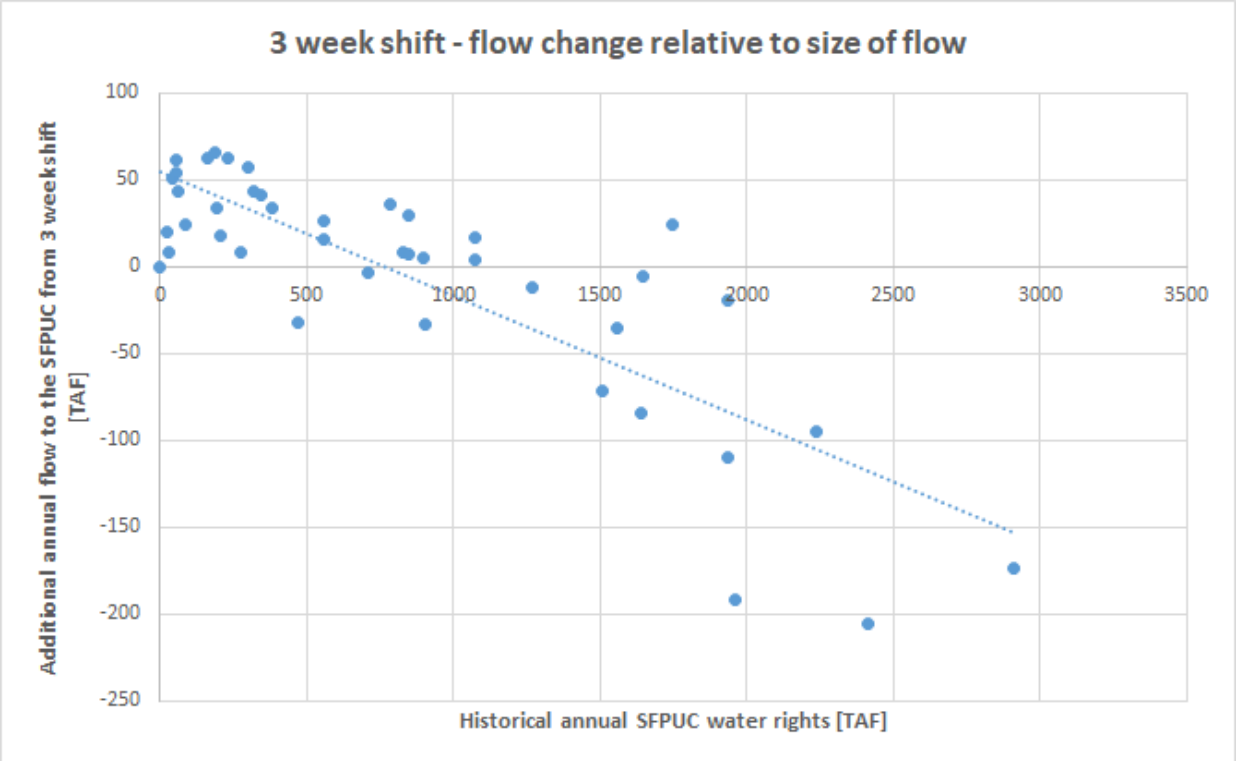
Question 2

TRT produced the following scatter plot. Each dot represents one year over the past 42 years. For each year, we looked at the historic data and calculated whether a three-week shift in runoff (earlier) would have increased or decreased "Water Available to the City" (WAC) as a result of runoff shifting into or out of the mid-April to mid-June time period when the Irrigation Districts are entitled to the first 4,000 cfs to the time period when the Irrigation Districts are entitled to the first 2,400 cfs.

The horizontal axis represents historic WAC for each year, moving from dry years on the left to wet years on the right. The vertical axis represents the shift in WAC had runoff been the same for each year, but had arrived three weeks earlier. The zero line on the vertical axis represents no change in WAC. Dots above the zero line represent years in which WAC would have improved had runoff come earlier. Dots below the zero line represent years when WAC would have decreased had runoff come earlier.

The graph shows that in dry years, the shift in runoff tends to improve WAC, while the opposite tends to occur in wet years.

Please confirm whether or not this graph accurately depicts its intention. If you believe it is incorrect, how would it change?



Question 3

Using historic data, we produced the following table showing the impact on WAC (in thousand acre-feet) had runoff come three weeks earlier during the two droughts that make up the Design Drought. For example, had runoff been the same in 1976, but had arrived three weeks earlier, the SFPUC would have picked up an additional 20 thousand acre-feet.

Please confirm whether you believe this table is accurate or not. If you disagree with the numbers, what do you think they should be?

Year	SFPUC Pick Up	Year	SFPUC Pick Up
1976	+20	1989	+33
1977	0	1990	+54
1987	+51	1991	+9
1988	+8	1992	+62

Question 4

The following table was included in a presentation on December 8, 2020 titled "Hydrological Drought Frequency Analysis for the Upper Tuolumne River" provided by the researchers who produced the Long-Term Vulnerability Assessment.

Have the numbers in the three columns under "Return Period (Year)" changed since this table was produced? If so, what are the new numbers?

Return periods of historical drought

Drought Event	Deficit (TAF)	Duration (Year)	Return Period (Year) (best estimate and 95% confidence interval)		
			Deficit	Duration	Deficit and Duration
1976-77	517	2	217 (188; 255)	30 (29; 31)	316 (273; 371)
1987-92	797	6	1,456 (1,031; 2,140)	486 (422; 563)	20,406 (14,589; 29,851)
2012-16	752	4	1,093 (820; 1,520)	121 (110; 133)	4,250 (3,190; 5,899)
Design Drought	1,309	8	25,293 (12,940; 56,679)	1,954 (1,620; 2,376)	1,371,578 (720,390; 2,997,390)

Thank you in advance for your timely responses.

Sincerely,

Peter Drekmeier
Policy Director

Dave Warner
TRT Volunteer

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From:	Zainul Singaporwalla
To:	BAWSCA2
Subject:	Bay Area Water Supply and Conservation Agency (BAWSCA), please drop your lawsuit blocking environmental protections for the Bay
Date:	Tuesday, June 21, 2022 4:22:33 AM

Dear Bay Area Water Supply and Conservation Agency,

Dear BAWSCA Directors:
I am writing to ask you to drop your lawsuit against the State Water Board's Bay-Delta Water Quality Control Plan. The state is seeking to better balance water use in order to protect the Bay-Delta, the Central Valley rivers that flow into it, and the fish and wildlife that live there. Your ratepayers do not want to fund anti-environmental lawsuits. They strongly support environmental protections.

Ratepayers reject use of our money to pursue a doomed lawsuit aimed at preserving excessive diversions from the Tuolumne River, the source of our drinking water. The state notified you in October, 2021 that these excessive diversions are unacceptable, in light of the environmental damage they're causing. Rather than work with the state to restore the environment, you are suing.

The Tuolumne is one of the Sierra Nevada rivers that feeds the San Francisco Bay-Delta. This entire ecosystem is on the brink of ecological collapse. Six fish species are now listed as threatened or endangered, and once-bountiful wild salmon populations are on the verge of extinction. Toxic algae blooms that flourish in the stagnant cesspool left after excessive upstream diversions threaten people, pets, and wildlife. The salmon fishing industry, and coastal communities they support, are struggling to survive. Salmon runs that are central to tribal culture and spirituality are in danger of being lost forever.

The Tuolumne River has among the worst flows of any Central Valley salmon river, particularly in dry years. It is not a surprise that over the past 30 years, mismanagement by the SFPUC, which supplies water to BAWSCA, as well as the Modesto and Turlock irrigation districts that also syphon from the Tuolumne, have produced the worst salmon recovery record of any major Central Valley river.

Your constituents on the SF Peninsula strongly support the environment. In 2016, more than 70% of Bay Area voters supported Measure AA, agreeing to tax themselves to restore the Bay's wetlands.

A peer review of your faulty restoration plan, commissioned by the National Marine Fisheries Service, confirmed that the plan is not supported by credible science.

We appreciate that BAWSCA agencies are committed to ensuring reliable water supplies to residents. We want reliable water too. The evidence shows that BAWSCA can maintain highly reliable water supplies while taking needed steps to protect the Tuolumne River and the Bay-Delta. It is time for BAWSCA and the SFPUC to catch up with communities like Los Angeles and Orange County, which are far ahead when it comes to investing in alternative water supplies like water recycling.

Again, we strongly encourage you to drop your lawsuit over the Bay-Delta Plan and support real environmental protections. We are confident that investments in proven water

management tools, currently not being used, can ensure a reliable water supply, while supporting a healthy Tuolumne River and Bay-Delta.

Sincerely,
Zainul Singaporwalla
Fremont, CA 94534

Christiane Barth

From: india keefer <india.sophia229@gmail.com>
Sent: Tuesday, June 7, 2022 4:40 PM
To: BAWSCA2
Subject: Bay Area Water Supply and Conservation Agency (BAWSCA), please drop your lawsuit blocking environmental protections for the Bay

Dear Bay Area Water Supply and Conservation Agency,

Dear BAWSCA Directors:
I am writing to ask you to drop your lawsuit against the State Water Board's Bay-Delta Water Quality Control Plan. The state is seeking to better balance water use in order to protect the Bay-Delta, the Central Valley rivers that flow into it, and the fish and wildlife that live there. Your ratepayers do not want to fund anti-environmental lawsuits. They strongly support environmental protections.

Ratepayers reject use of our money to pursue a doomed lawsuit aimed at preserving excessive diversions from the Tuolumne River, the source of our drinking water. The state notified you in October, 2021 that these excessive diversions are unacceptable, in light of the environmental damage they're causing. Rather than work with the state to restore the environment, you are suing.

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The Tuolumne River has among the worst flows of any Central Valley salmon river, particularly in dry years. It is not a surprise that over the past 30 years, mismanagement by the SFPUC, which supplies water to BAWSCA, as well as the Modesto and Turlock irrigation districts that also syphon from the Tuolumne, have produced the worst salmon recovery record of any major Central Valley river.

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We appreciate that BAWSCA agencies are committed to ensuring reliable water supplies to residents. We want reliable water too. The evidence shows that BAWSCA can maintain highly reliable water supplies while taking needed steps to protect the Tuolumne River and the Bay-Delta. It is time for BAWSCA and the SFPUC to catch up with communities like Los Angeles and Orange County, which are far ahead when it comes to investing in alternative water supplies like water recycling.

Again, we strongly encourage you to drop your lawsuit over the Bay-Delta Plan and support real environmental protections. We are confident that investments in proven water management tools, currently not being used, can ensure a reliable water supply, while supporting a healthy Tuolumne River and Bay-Delta.

Sincerely,

india keefer

Christiane Barth

From: Lorena Perez <saclore@yahoo.com>
Sent: Monday, June 6, 2022 8:22 PM
To: BAWSCA2
Subject: Bay Area Water Supply and Conservation Agency (BAWSCA), please drop your lawsuit blocking environmental protections for the Bay

Dear Bay Area Water Supply and Conservation Agency,

Dear BAWSCA Directors:
I am writing to ask you to drop your lawsuit against the State Water Board's Bay-Delta Water Quality Control Plan. The state is seeking to better balance water use in order to protect the Bay-Delta, the Central Valley rivers that flow into it, and the fish and wildlife that live there. Your ratepayers do not want to fund anti-environmental lawsuits. They strongly support environmental protections.

Ratepayers reject use of our money to pursue a doomed lawsuit aimed at preserving excessive diversions from the Tuolumne River, the source of our drinking water. The state notified you in October, 2021 that these excessive diversions are unacceptable, in light of the environmental damage they're causing. Rather than work with the state to restore the environment, you are suing.

The Tuolumne is one of the Sierra Nevada rivers that feeds the San Francisco Bay-Delta. This entire ecosystem is on the brink of ecological collapse. Six fish species are now listed as threatened or endangered, and once-bountiful wild salmon populations are on the verge of extinction. Toxic algae blooms that flourish in the stagnant cesspool left after excessive upstream diversions threaten people, pets, and wildlife. The salmon fishing industry, and coastal communities they support, are struggling to survive. Salmon runs that are central to tribal culture and spirituality are in danger of being lost forever.

The Tuolumne River has among the worst flows of any Central Valley salmon river, particularly in dry years. It is not a surprise that over the past 30 years, mismanagement by the SFPUC, which supplies water to BAWSCA, as well as the Modesto and Turlock irrigation districts that also syphon from the Tuolumne, have produced the worst salmon recovery record of any major Central Valley river.

Your constituents on the SF Peninsula strongly support the environment. In 2016, more than 70% of Bay Area voters supported Measure AA, agreeing to tax themselves to restore the Bay's wetlands.

A peer review of your faulty restoration plan, commissioned by the National Marine Fisheries Service, confirmed that the plan is not supported by credible science.

We appreciate that BAWSCA agencies are committed to ensuring reliable water supplies to residents. We want reliable water too. The evidence shows that BAWSCA can maintain highly reliable water supplies while taking needed steps to protect the Tuolumne River and the Bay-Delta. It is time for BAWSCA and the SFPUC to catch up with communities like Los Angeles and Orange County, which are far ahead when it comes to investing in alternative water supplies like water recycling.

Again, we strongly encourage you to drop your lawsuit over the Bay-Delta Plan and support real environmental protections. We are confident that investments in proven water management tools, currently not being used, can ensure a reliable water supply, while supporting a healthy Tuolumne River and Bay-Delta.

Sincerely,

BAWSCA
Bay Area Water Supply & Conservation Agency

June 10, 2022

Via E-Mail

Mr. Dennis Herrera
General Manager
San Francisco Public Utilities Commission
525 Golden Gate Avenue
San Francisco, CA 94102

Subject: Individual Wholesale Customer Tier 2 Plan Allocations

Dear Mr. Herrera,

This letter transmits the Wholesale Customers' individual percent share of the amount of water allocated to the Wholesale Customers collectively pursuant to Section 3.11.C of the 2018 Amended and Restated Water Supply Agreement between the City and County of San Francisco and the Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County (WSA).

Please find enclosed a list of each Wholesale Customer together with its percentage share as calculated in accordance with the methodology (Tier 2 Plan) adopted by the BAWSCA Board on November 18, 2021. In accordance with Section 2.2 of the WSA, Attachment H, and Section 2.2.1 of the Tier 2 Plan, the attached allocation factors use data from the three years preceding the drought. This includes data from FY 2020-21, which was not available when the allocation factors were first shared with the SFPUC in December of 2021. BAWSCA understands SFPUC will honor the allocations enclosed in this letter to calculate each Wholesale Customer's individual annual allocation.

Sincerely,

Gustav Larsson
Board Chair

Nicole Sandkulla
CEO/General Manager

Attachment A: Wholesale Customer Individual Tier 2 Plan Allocations

cc: Steve Ritchie, SFPUC, Assistant General Manager, Water Enterprise
Alison Kastama, SFPUC, BAWSCA Liaison
BAWSCA Board of Directors
BAWSCA Water Management Representatives
Allison Schutte, Hanson Bridgett

Attachment A

Individual Wholesale Customer Tier 2 Plan Allocations
Calculated in Accordance with 2021 Amended and Restated
Tier 2 Drought Response Implementation Plan

Agency	Allocation Factor
ACWD	7.2329%
Brisbane/GVMID	0.4975%
Burlingame	2.6297%
Coastside	1.1261%
CWS Total	20.2130%
Daly City	2.5624%
East Palo Alto	1.2605%
Estero	3.2119%
Hayward	11.6321%
Hillsborough	2.0563%
Menlo Park	2.2312%
Mid Pen WD	2.0266%
Millbrae	1.4849%
Milpitas	4.3391%
Mountain View	6.3182%
North Coast	1.9209%
Palo Alto	8.1178%
Purissima Hills	1.1175%
Redwood City	6.1910%
San Bruno	0.7292%
San José	2.4622%
Santa Clara	1.9029%
Stanford	1.0813%
Sunnyvale	7.0417%
Westborough	0.6129%
Total	**100.00%**

Contact:
Gary Mulcahy, Winnemen Wintu Tribe
916-214-8493 gary@ranchriver.com

Sydney Speizman, Stanford Environmental Law Clinic
443-745-8613, speizman@stanford.edu

For Release: 7/6/22

CA Tribes, EJ Groups Respond to State Water Board on Delta Plan –
Petition largely ignored; Coalition considers next move

SACRAMENTO, Calif. – Today, California Tribes and environmental justice groups filed a formal response to the State Water Resources Control Board. At issue is the coalition's request that the Water Board update the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Bay-Delta Plan")—a duty of the board now more than a decade overdue.

The letter calls the State's response inadequate

"While Petitioners appreciate the Board's statement that updating the Bay-Delta Plan is a "high priority" for the agency, the Board's actions do not bear this out. The Decision fails to acknowledge that the Board has been in clear violation for nearly twelve years of its statutory duties under both the Clean Water Act and California's Porter Cologne Act to review and update water quality standards for the Bay-Delta. Nor does the Board acknowledge the urgency of redressing these violations or suggest any intent to act with the speed that the law and the crisis in the Bay-Delta require. Rather, the Board falls back on the same tired narrative that it is 'preparing a Staff Report' with 'options for updating the Bay-Delta Plan,' which the agency has been suggesting since at least July 2018. The Board provides no greater reason now to believe that it will voluntarily follow the law than it did four years ago….
"…Petitioners intend to formally seek reconsideration of the Board's denial pursuant to Government Code section 11340.7(c) and will seek redress elsewhere if the Board does not meaningfully modify its Decision."

Background

On May 24, 2022, the Shingle Springs Band of Miwok Indians, Winnemem Wintu Tribe, Save California Salmon, Little Manila Rising, and Restore the Delta, represented by the Stanford Environmental Law Clinic, filed a Petition for Rulemaking with the California State Water Resources Control Board.

The May 24 petition included a litany of California's racist history that granted water rights only to white men. Native Americans, and communities of color in the Delta, were not given the opportunity to acquire water rights. Today, "senior" water rights holders still have a tight grip on river flows, even during an unprecedented drought. The Sacramento-San Joaquin Bay-Delta, the largest estuary on the West Coast of the Americas, is dying.

The petition was recognized as a significant new argument in California's ongoing water battles. Delta water crisis linked to California's racist past, tribes and activists say, Los Angeles Times, 5/26/22

The State Response Found Lacking

On June 24, the State Water Board, responded with this denial of the petition.

"The State Water Board's dereliction of duty continues. The Board's response did not actually address the issues central to our Petition for Rulemaking. So we are now considering all of our options," said Gary Mulcahy, Government Liaison for the Winnemem Wintu Tribe.

# # #

Restore the Delta Statement on Supreme Court Climate/EPA Decision

Statement

Preliminary data show water savings increase for May 2022 compared to May 2020

June 28, 2022 **Contact:** Edward Ortiz, Public Information Officer

SACRAMENTO – As we heard this morning during the State Water Board's meeting, California continues to experience severe dry conditions and extreme weather as summer officially begins. Many reservoirs throughout the state sit at critically low levels, the Sierra snowpack is essentially gone, and runoff has peaked for the year. Having foreseen this possibility last July, Governor Newsom called on all Californians to voluntarily cut back their water use by 15% in comparison with 2020, but there was a disappointing increase in water consumption in March and April of this year.

However, based on the latest preliminary data, I am hopeful that recent state actions, including regulations passed by the State Water Board to curb water waste and ban non-essential watering, will have an impact. Last month, the Governor directed water suppliers to report their water usage data more frequently to enable us to track water usage closer to real time.

Since then, water agencies covering more than half the state's population have provided us with preliminary or final data two weeks earlier than required. So far, we are seeing a statewide increase in water savings for May 2022 in comparison to May 2020. There is room for improvement, but also optimism based on these early numbers.

These preliminary numbers don't fully reflect the impact of the statewide emergency conservation regulation that came into full effect in June. That said, we are not close to where we need to be by any stretch of the imagination. We will have final numbers for the month of May in early July, which will give us a more complete picture of how the state is tracking to our conservation goals. Right now, one of the most important actions we all can take together is saving more water, especially outdoors where we tend to use more during hot summer days.

I want to thank the water suppliers who answered the call for reporting early and those who are doing their part to use water wisely. I encourage water suppliers who have not yet reported to do so as quickly as possible so that we can share more complete, more accurate data on May water savings.

- Joaquin Esquivel, Chair of the State Water Resources Control Board

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STATE WATER BOARD RELEASES UPDATED DRAFT BIOLOGICAL GOALS FOR PROTECTION OF FISH, HABITAT IN THE DELTA
BAY-DELTA PLAN IMPLEMENTATION CONTINUING
Water Education Foundation | June 28, 2022

STATE WATER RESOURCES CONTROL BOARD NEWS RELEASE – In its ongoing effort to address the prolonged decline of native fish and the deteriorating ecosystem in the Lower San Joaquin River, the State Water Resources Control Board today released a revised draft report that proposes initial biological goals to evaluate implementation and monitoring programs, as well as potential revisions to the Bay-Delta Plan.

The State Water Board adopted an update to the Bay-Delta Plan in December 2018 that established water quality standards and flow targets for the Lower San Joaquin River and its three salmon-bearing tributaries, the Stanislaus, Tuolumne and Merced rivers. Worsening drought conditions and existing flow objectives – established in 1995 and now insufficient to protect fish and wildlife – amplify the need to implement the changes as soon as possible.

The revisions, which include existing state and federal requirements and recommendations from the Bay-Delta Plan Biological Goals Scientific Advisory Panel, reflect public input received on a 2019 draft report.

Staff will hold a workshop July 18 to solicit additional feedback from the public and members of the Stanislaus, Tuolumne and Merced (STM) Working Group. Still in the initial stages of formation, the regional group will help coordinate flows and other activities in the Lower San Joaquin River watershed and assist with implementing, monitoring and assessing the Bay-Delta Plan.

Timelines for releasing the biological goals and other components of the updated Bay-Delta Plan, including draft compliance methods, were discussed at the Dec. 8, 2021, board meeting. Staff plan to initiate the environmental review process for implementing the Bay-Delta Plan for the Lower San Joaquin River this summer.

# # #

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SF's Power Position in the Water Wars Means Few Local Drought Restrictions. But Can It Last?

The San Francisco Standard | July 13, 2022 | Sarah Wright

As a severe three-year drought strains water supplies across California, Bay Area water agencies are increasingly looking to the city of San Francisco as a lifeline. Through the Hetch Hetchy dam and a network of aqueducts and reservoirs that brings water from the Sierra Nevada mountains to the coast, the city has plenty of water even now. And it's fighting hard to protect its position, battling in court against state efforts that could reduce its supplies.

That's good news for San Francisco residents, who have been asked to make only a token reduction in their water use even amid a drought emergency.

But the small cutback belies bigger trends that make San Francisco's water resources look a little less bottomless. About two-thirds of the Hetch Hetchy water is sold to wholesale customers, including neighboring cities and counties, and they are being asked to make much bigger cuts in consumption.

An SFPUC worker walks between the two reservoir basins at the Sunset Reservoir site | Jesse Rogala

This year, the San Francisco Public Utilities Commission asked for a voluntary 11% cutback across the system, which meant that some customers were asked to cut usage by as much as 35%. Meanwhile, many neighboring cities have to reduce their collective water use by closer to 16%. City residents, though, only have to trim by 5%—reflecting both the city's powerful position in the water system and the fact that cool and farm-free San Francisco has the lowest per-capita water usage in the state.

At the same time, some neighboring urban areas are becoming more dependent on water from San Francisco as they face dwindling supplies from the state water project and other sources. The SFPUC says it can provide—for now.

The city's obligations to its neighbors were hashed out in a series of lawsuits and negotiations in the 1970s and legislation in the early 2000s, giving the 28 wholesale customers that buy from San Francisco at least a little bit of leverage. But it was only in 2018 that San Francisco agreed to even the 5% cutback, and with the state leaning on the city to substantially reduce its take from the Tuolumne River, its main source of supply, it's not hard to envision the Bay Area water wars breaking out again.

Nicole Sandkulla, CEO and general manager of the Bay Area Water Supply and Conservation Agency (BAWSCA), which represents San Francisco's wholesale customers, said that as it gets more difficult for some of SFPUC's wholesale customers to hit high reduction targets, the question of who takes the brunt of the cutbacks could reemerge.

"In my mind, that's a source for future negotiations as we continue to see the pressures from the state for greater, greater, greater and greater efficiency," Sandkulla said.

San Francisco's powerful water position was born in 1913, when President Woodrow Wilson signed the Raker Act, handing the city the right to dam and flood the Hetch Hetchy Valley inside Yosemite National Park. In the 1930s, the city purchased the private Spring Valley Water Company, its reservoirs and water infrastructure on the Peninsula. Combining the two, the SFPUC created a robust water network that flows all the way from the Sierra Nevada mountains to the city and serves 2.7 million people—most of whom are not in San Francisco.

Looking up Hetch-Hetchy Valley from Surprise Point in 1908. | Isaiah West Taber, Courtesy Sierra Club

O'Shaughnessy Dam and Hetch Hetchy Reservoir. | Jim Yager Media & Jim Spadoni, Courtesy SFPUC

Hetch Hetchy has always been controversial: At the time it was built, conservationists including John Muir argued against the "sinful ingenuity" of its construction, and environmental groups like the Sierra Club condemn it to this day. Generations of politicians—including many current ones—have also denounced the fact that power from Hetch Hetchy is sold to PG&E rather than directly to the public, as the Raker Act required.

The SFPUC itself, too, has seen its share of scandals. The city department head is appointed by the mayor—now Dennis Herrera after its last general manager, Harlan Kelly, was ousted during the corruption scandals that rocked City Hall. The annual budget for the agency, which also handles sewage in the city, tops $1.4 billion.

There is no doubt that Hetch Hetchy is an exceptional water resource. It lies in a snow-heavy band of the Sierras, and thus gets more run-off than the more northerly Shasta, Trinity and Oroville reservoirs, which serve big state and federal water projects and are heavily depleted. The system also has massive storage capacity, and its northern California customers are lighter users of water compared to those in Southern California, where much of the state's water ultimately goes.

Water flows from a series of faucets in the control station at the Sunset Reservoir site | Jesse Rogala

And because the city's Hetchy Hetchy water rights predate the state's formation of the Water Resources Control Board in 1914, San Francisco is the last to have to reduce its water usage in times of crisis.

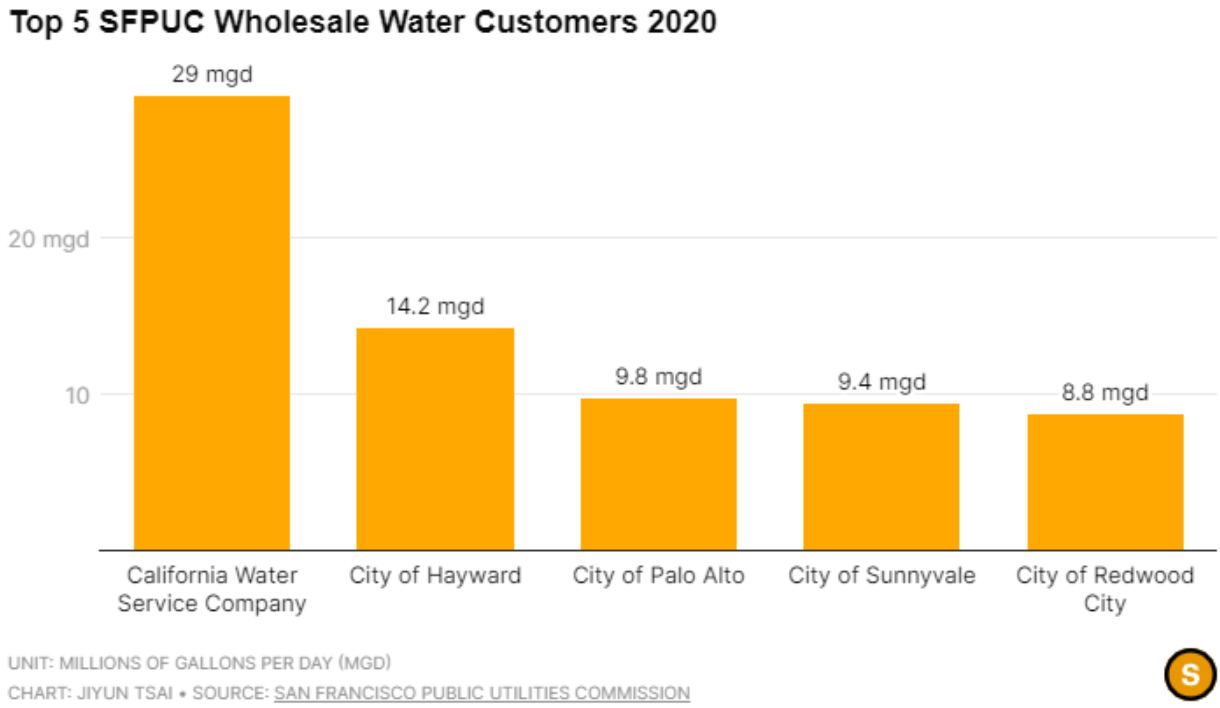
"The water supply conditions are really distinctly better for us than they are for the State Water Project and the Central Valley Project reservoirs up in the north state—Lake Shasta, Lake Oroville—those reservoirs are kind of hurting," said Steve Ritchie, SFPUC's assistant general manager for water. "Because we are so reliable, people have turned to us as their only reliable source during time of drought."

The crisis is so big that last month, the state banned water agencies from pulling any more water from rivers this year. But San Franciscans wouldn't know.

With Great Power Comes Great Responsibility

By controlling the water source and infrastructure, San Francisco has historically set the terms of who gets what and when.

Neighboring water users have chipped away at the city's dominant position over the years. A lawsuit in the 1970s resulted in a settlement that lays out just how much water various customers are guaranteed each year. BAWSCA was formed in 2003 to represent the jurisdictions that buy wholesale from San Francisco, and that collectively sent $300 million to the city for water just last year. In 2009, the agency negotiated a new 25-year water supply agreement on the wholesale customers' behalf and subsequent amendments, including one in 2013 to give the wholesale customers a say on any potential changes to the Hetch Hetchy system.



In 2018, the agency helped negotiate an amendment to the regional contract to, for the first time, require San Franciscans to make at least 5% cutbacks during drought.

# # #

California's drought means less water to go around. Who is winning the pursuit for water — and who is losing?

San Francisco Chronicle | June 28, 2022 | Kurtis Alexander

Shasta Lake, the largest reservoir in California, is part of the Central Valley Project, a massive, federally operated network for water delivery.

After three years of drought, the massive state and federal water projects that serve California's cities and farms have less water to distribute, forcing water managers to increasingly ration supplies.

This year, squeezed extra tight by the prolonged drought conditions, both the state and federal water projects are expecting to deliver mere fractions of what cities and farms are asking for. Water suppliers relying on project water must figure out how to cut use accordingly. For many smaller farms without backup, that could mean fields left fallow without crops. Scarce supplies also lead to water rate hikes.

Federal and state water delivery allocations in California, 2022

	Total requested (acre-feet)	Amount approved (acre-feet)	Percent approved
Central Valley Project	9,508,607	1,335,393	14%
State Water Project	4,172,786	218,908	5%

Table: Yoohyun Jung / The Chronicle · Source: US Bureau of Reclamation, CA Department of Water Resources

One acre-foot is equal to 325,851 gallons.

Everyone gets less water during a drought. But the breakdowns of the state and federal projects' water allocations show some groups — particularly farmers who have longtime rights to divert water — faring better than others.

They also reflect the overwhelming thirst of Southern California towns and cities — some of the most arid, and populous, parts of the state. The Chronicle analyzed this year's expected water allocations from the California State Water Project and the federal Central Valley Project, and how they break down and compare to previous years.

Here are some of the biggest takeaways of who got more from where:

State Water Project

The State Water Project, which includes the 444-mile long California Aqueduct and the Oroville Dam, supplies water to some 27 million Californians and 750,000 acres of farmland, according to the state water department, its operator. It also generates power and provides for recreational areas in the state.

The project has 29 long-term contractors — smaller, regional water providers, including cities, towns and irrigation districts, that sell the water to customers. For the past two decades, about a third of State Water Project water was for agricultural use and two-thirds for municipal, industrial or residential uses, state officials said.

For the second year in a row, the State Water Project is expected to deliver only 5% of the amount requested from contractors. The last time allocation was that low was in 2014 — the third year in that drought spell.

"We're not going to expect much additional precipitation on the horizon," said Molly White, the project's water operations manager.

State Water Project historical allocations to contractors, 1996-2022

The highlighted regions represent historical drought years

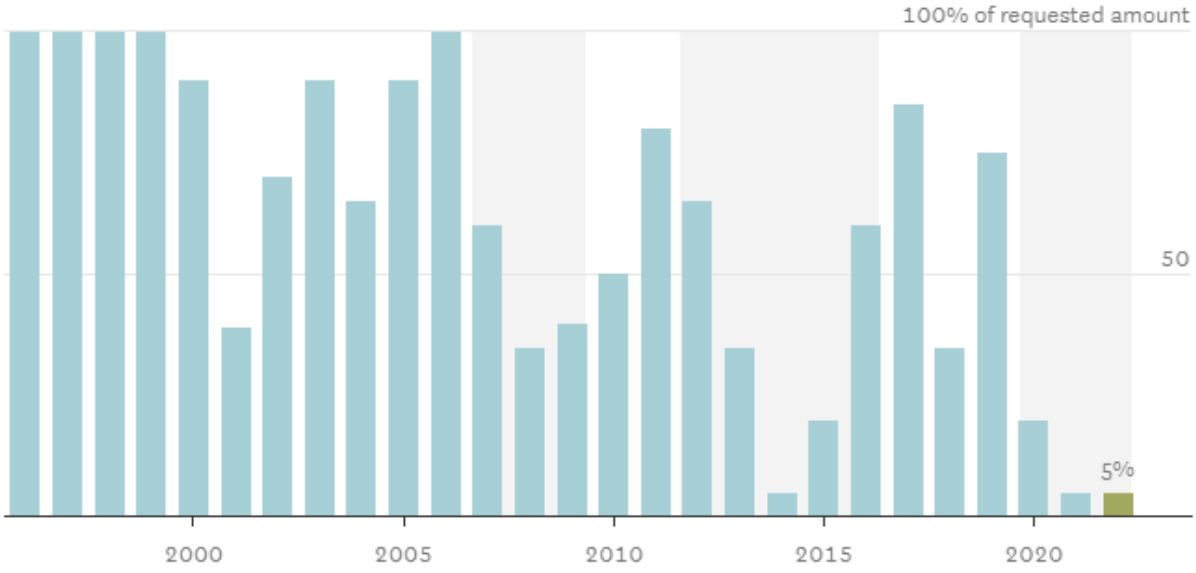


Chart: Yoohyun Jung / The Chronicle · Source: CA Department of Water Resources

The 2022 cuts were deep across the board among the 29 contractors, but some cuts were less harsh than others. Most were approved for just 5% of their requested amounts, but the state awarded larger percentages to communities with critical health and safety needs.

“Folks at the Department of Water Resources have been very clear that they’re not going to reduce allocation to 5% if that supplier’s going to have to turn off water to residences,” White said.

Napa and Solano counties’ water districts were approved for 15% of their requested amounts, compared with the 5% contractors in the Central Valley and Southern California received. But these Bay Area communities requested far smaller amounts to begin with.

State Water Project 2022 water allocations

Among 29 contractor agencies, including municipal suppliers

Contractor	Requested (acre-feet)	Approved (acre-feet)	% approved
Solano County Water Agency	47,756	7,164	15%
Napa County Flood Control and Water Conservation District	29,025	4,354	15%
Yuba City	9,600	1,440	15%
Butte County	27,500	3,000	11%
Kings County	9,305	466	5%
Santa Barbara County Flood Control and Water Conservation District	45,486	2,275	5%
Dudley Ridge Water District	41,350	2,068	5%
Desert Water Agency	55,750	2,788	5%
Antelope Valley-East Kern Water Agency	144,844	7,243	5%
Tulare Lake Basin Water Service District	87,471	4,374	5%

Table: Yoohyun Jung / The Chronicle · Source: CA Department of Water Resources

One acre-foot is equal to 325,851 gallons.

Contractor	Requested (acre-feet)	Approved (acre-feet)	% approved
Coachella Valley Water District	138,350	6,918	5%
Almaeda County Flood Control and Water Conservation District Zone 7	80,619	4,031	5%
Kern County Water Agency	982,730	49,137	5%
Plumas County Flood Control and Water Conservation District	2,700	135	5%
Alameda County Water District	42,000	2,100	5%
Santa Clara Valley Water District	100,000	5,000	5%
Oak Flat Water District	5,700	285	5%
Empire West Side Irrigation District	3,000	150	5%
San Luis Obispo County Flood Control and Water Conservation District	25,000	1,250	5%
Santa Clarita Valley Water Agency	95,200	4,760	5%

Table: Yoohyun Jung / The Chronicle · Source: CA Department of Water Resources

One acre-foot is equal to 325,851 gallons.

Contractor	Requested (acre-feet)	Approved (acre-feet)	% approved
Crestline-Lake Arrowhead Water Agency	5,800	290	5%
Littlerock Creek Irrigation District	2,300	115	5%
Metropolitan Water District of Southern California	1,911,500	95,575	5%
Mojave Water Agency	89,800	4,490	5%
Palmdale Water District	21,300	1,065	5%
San Bernardino Valley Municipal Water District	102,600	5,130	5%
San Gabriel Valley Municipal Water District	28,800	1,440	5%
San Gorgonio Pass Water Agency	17,300	865	5%
Ventura County Water Protection District	20,000	1,000	5%

Table: Yoohyun Jung / The Chronicle - Source: CA Department of Water Resources

One acre-foot is equal to 325,851 gallons.

The allocation amounts are based on a variety of factors, including river flows, water storage conditions, environmental requirements and how much rain and snow there has been, the water operations manager said.

In terms of the total amount of water, Southern California water agencies still take the bulk — nearly half — of State Water Project water, with the Metropolitan Water District of Southern California expected to get the most, at almost 96,000 acre-feet.

The Metropolitan Water District is a public regional wholesaler cooperative supplying water to roughly 19 million people in California through its numerous member agencies. This year, for the first time, it required significant cutbacks from its users, who must limit lawn-watering to one day a week.

Small water suppliers, especially those who rely entirely on one source and don't have alternatives to fall back on, tend to be much more vulnerable to water shortage, according to the water department. Most water suppliers don't rely solely on one source of water, however. Many, like the East Bay Municipal Utility District, have several sources, including access to reservoirs, groundwater pumping and purchasing water from other providers.

Annually, the State Water Project delivers 2 million to 4 million acre-feet of water. An acre-foot — about 326,000 gallons — generally provides enough water for one to two households for a year. By comparison, the Colorado River — another huge water source for the state, especially farmers in Southern California — is supposed to deliver 4.4 million acre-feet annually to California, though cutbacks are on the horizon due to the drought.

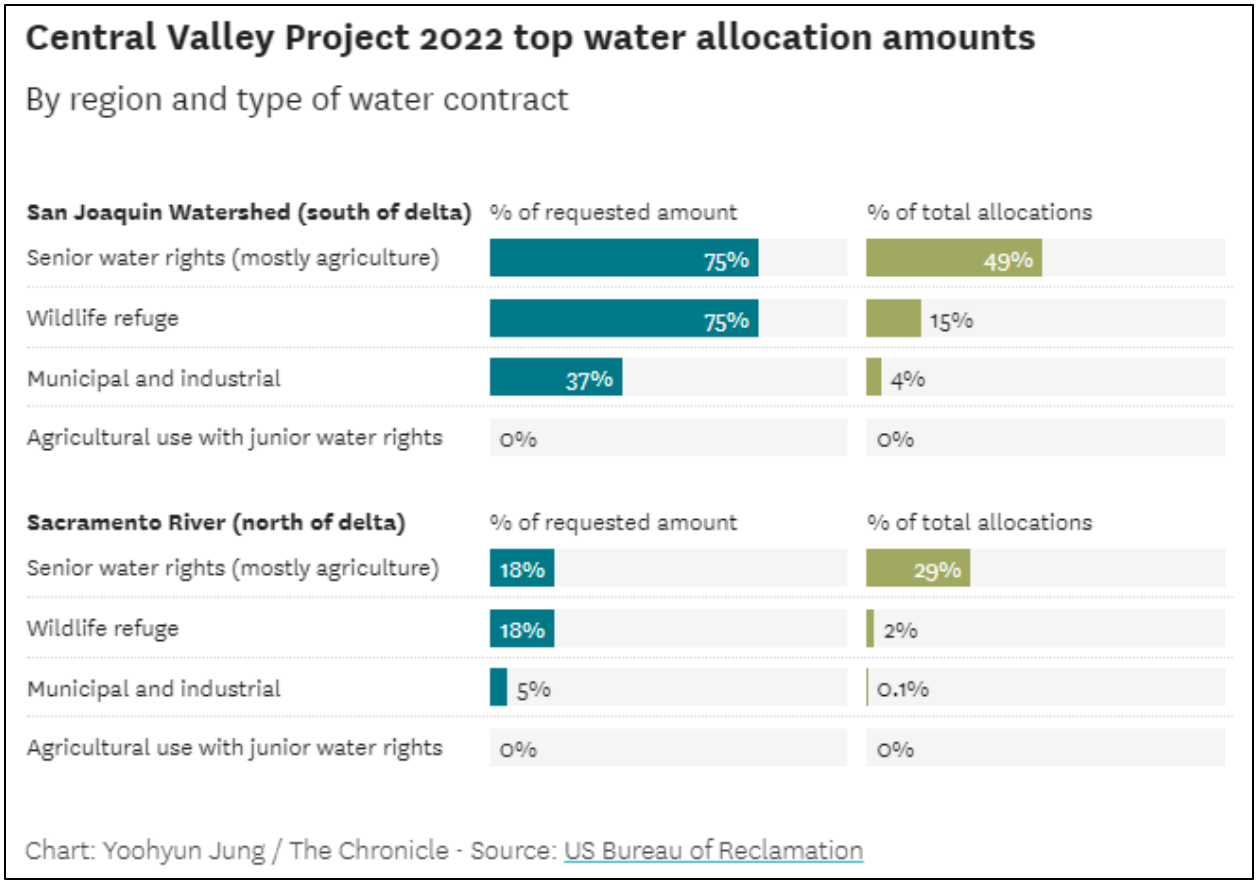
Central Valley Project

California's Central Valley Project, run by the U.S. Bureau of Reclamation, is much bigger than the State Water Project and is geared more toward agriculture. It counts more than 270 contractors, including the big irrigation districts in the San Joaquin Valley. It has historically supplied water for 3 million acres of farmland.

The federal waterworks also serves communities in the Bay Area and wildlife refuges.

The project, which captures water from the southern Cascades to the southern Sierra Nevada, consists of 20 dams and reservoirs - including the state's largest, Shasta Lake — and operates more than 500 miles of canals and pipelines to deliver water. It also operates 11 power plants.

This year, because of the drought, federal water managers announced that no project water would be sent to many of its contractors, effectively a 0% allocation. Those who receive water are doing so because of contractual obligations that date back decades or because of health and safety issues.



Faring best are senior water rights holders, typically farmers and irrigation districts.

This is not because the project allocates water based on water rights but because the federal government, in order to operate its project, committed to providing water to senior users who were drawing water from the Sacramento and San Joaquin river watersheds before the project began drawing water. Senior users are those with water rights dating back the longest.

But even those users are falling far short of what they normally get: This year, because of low flows, federal water managers made a deal with senior users in the Sacramento River watershed to take less than what they're due — just 18% of what they requested.

While the project's municipal and industrial contractors were officially allocated no water, the federal government is providing these customers enough to meet minimum health and safety needs. The Contra Costa Water District in the East Bay, for example, is getting 34% of its requested allocation.

Agricultural contractors who don't have senior water rights in the Sacramento and San Joaquin river watersheds are not getting any project water.

In the Friant (Fresno County) area, some contractors are receiving limited deliveries because the source of water there is different than in the rest of the project area, and federal managers say water is available.

The Central Valley Project has historically delivered about 7 million acre feet of water annually. By comparison, the Colorado River is supposed to deliver 4.4 million acre-feet annually to California, though cutbacks are on the horizon due to the drought.

# # #

Yoohyun Jung is a data reporter for The San Francisco Chronicle. Most recently, she worked as a data journalist for Honolulu Civil Beat, a watchdog news organization covering the Hawaiian islands. Born in Seoul, Yoohyun began her career in Arizona, where she worked for two of the state's largest newspapers covering various beats, including criminal justice and education. She is also an alumna of Reveal from the Center for Investigative Reporting Investigative Fellowship and The New York Times Student Journalism Institute.

Kurtis Alexander is an enterprise reporter for The San Francisco Chronicle, with a focus on natural resources and the environment. He frequently writes about water, wildfire, climate and the American West. His recent work has examined the impacts of drought, threats to public lands and wildlife, and the nation's widening rural-urban divide.

Before joining the Chronicle, Alexander worked as a freelance writer and as a staff reporter for several media organizations, including The Fresno Bee and Bay Area News Group, writing about government, politics and the environment.

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Water officials outline new watering restrictions as drought continues
Bakersfield.com | June 27, 2022 | Steven Mayer

Water use is about to change in a big way for commercial and industrial property owners interested in keeping their lawns green.

During a webinar on Tuesday hosted by the Greater Bakersfield Chamber, water officials with the city of Bakersfield and California Water Service said owners and managers of commercial, industrial and institutional properties are now barred from using potable water for irrigating non-functional turf.

The tough, new rules are coming via the State Water Resources Control Board.

"We want to make sure, and the city as a partner wants to make sure, that our businesses have the up-to-date information about what is and isn't in the regulations, what is and isn't legal, and also ways our members and commercial property owners have of ensuring that they are in compliance," said Nick Ortiz, Chamber president and CEO.

The primary goal of the webinar was to educate commercial, industrial and institutional property owners, to share important information and to help people successfully navigate the new regulations, said Bakersfield Assistant City Manager Gary Hallen.

The heart of the new regulations is a ban on using potable — or drinkable — water to irrigate "non-functional turf" at commercial, industrial and institutional sites.

The new restrictions are in response to Gov. Gavin Newsom’s March 28 executive order calling for water conservation directives to address "California’s new normal of climate extremes," the state said in a news release.

The new rules became effective on June 10.

"Trees are OK to irrigate," said City Water Director Sam Blue.

In fact, the state was clear that it wants to prevent the loss of trees, and other perennial plantings, a loss experienced locally during the last protracted drought.

Non-functional turf is defined by the water board as "a ground cover surface of mowed grass that is ornamental and not otherwise used for human recreation purposes."

It does not include "school fields, sports fields or areas regularly used for civic or community events."

In addition, residential properties are not affected by the new rules. Not yet. Residents may continue to irrigate turf, subject to local rules.

However, homeowners associations are affected by these regulations, but not on the residential properties themselves, water officials said.

The state board is encouraging people to reduce lawn irrigation on their properties and to convert turf to water-wise plants. But at this point, these actions are not required.

Residents may use recycled water or so-called gray water to irrigate lawns. But again, the board encourages people to prioritize the irrigation of trees and other plants due to the severity of the drought and the amount of water required for turf.

Those who violate the strict regulations could be subject to stiff fines.

Local or state enforcement may include warning letters, conservation orders, and fines of up to $500 per day, officials said.

The board is encouraging local agencies to provide additional assistance to disadvantaged communities and translate conservation announcements and materials into the languages spoken at properties in commercial, industrial and institutional sectors.

Rebates may be available for commercial, industrial and institutional sites that make water-saving improvements, such as replacing turf with low-water use landscaping, switching irrigation from spray to drip, replacing old equipment with smart irrigation controllers, and other changes.

# # #

As drought drags on, South Bay farmers struggle — and worry
Reduced water supply pushes California growers to rethink agriculture approach
East Bay Times | June 24, 2022 | Theodore Nguyen

Pipes at the bottom of the lake that transport water are exposed at Santa Clara Central Park in San Jose, California on Thursday, June 16 2022. Reservoirs are at 25.9% total capacity in the Santa Clara Valley. (Steven Arreola for Mosaic Journalism)

If you were to visit Anderson Reservoir in Morgan Hill, there would be nothing but a dried-up gorge, with bleached stones to show old water levels.

While the empty lake is attributed to its dam's 10-year restoration program, future water levels post-construction may remain dangerously low due to the drought. This could be the future of many nearby water sources.

With this year's drought looming over the western and southwestern United States, lower water output from local, state and federal reservoirs has put the agricultural industry and farmers at risk. California's major reservoirs, Lakes Shasta and Oroville, are currently under 50% maximum capacity, which has reduced harvests.

A dried up river is seen from above at at Santa Clara Central Park in San Jose, California on Thursday, June 16 2022. Reservoirs are at 25.9% total capacity in the Santa Clara Valley. (Steven Arreola for Mosaic Journalism)

A dried up river is seen from above at at Santa Clara Central Park in San Jose, California on Thursday, June 16 2022. (Steven Arreola for Mosaic Journalism)
“This year we produced less than expected,” said Daniel Vazquez of Ripon’s Villanueva Farms, which primarily grows cherries, apricots and figs. “Water rights were kind of hard.”

According to the USDA’s Economic Research Service, California ranks as the largest producer of livestock and produce. In comparison, other states such as Iowa primarily produce crops such as corn, grain, and soybeans. California’s diversity results in large differences in water usage per crop, ranking the state first in total water use compared with other states.

Gabriel Diaz of South San Jose works with local farms across the state to buy and sell fruits and vegetables to the rest of the country.

“Having a drought is a huge problem for us and for the farmers there, because there’s no fruit and we’re affecting markets around the world. California is a top producer of food, so drought is a serious business,” Diaz said.

Diaz said he believes that farming practices must shift to smarter water-conserving methods.

“One of the biggest problems for water is when you break up the soil structure. When you break that structure apart, all that water goes out to the atmosphere,” Diaz said. “When it does rain, it’s not going to really infiltrate as deep because there’s not much structure anymore, where it could easily go in those cracks and everything. Then, when the sun comes up, and it’s blaring hot in Fresno, all that water’s going to go back up to the atmosphere.”

As regions across the state attempt to restrict their residents’ water usage, water rates have gone up in part to act as a deterrent against unnecessary consumption. Some counties and federal agencies have cut off direct flow to farms to retain enough for its residents.

Although potential water cutoffs and shortages worry farmers, some remain optimistic.

“I think it’s going to improve over the years and then go down, like the drought climate might get bad but bounce back and get better — like every year changes,” Vazquez said.

As the drought drags on, farmers will continue to put their faith both in Mother Nature and in their local water agencies.

“It all depends on community and government help for small farmers. Every year is different, and as a farmer, you go with the weather and you need water for sure. As water rates stay good, we’ll be able to keep doing it,” said James Medina, a vendor and worker for Medina Berry Farms in Watsonville.

Others believe that the efforts of the water districts are helping. “I think they’re doing the best they can. I think it’s a slow process to try to change all this stuff around,” Diaz said. “We have to be just all of us smarter about our water practices, and then advocating for better soil practices.”

# # #

Editor’s note: This story is part of the annual Mosaic Journalism Workshop for Bay Area high school students, a two-week intensive course in journalism. Students in the program report and photograph stories under the guidance of professional journalists.

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Newsom refuses to mandate strict water cuts. Why his 'bottom-up' drought strategy is not working

San Francisco Chronicle | June 17, 2022 | Dustin Gardiner

2

Gov. Gavin Newsom has refused to follow in former Gov. Jerry Brown's footsteps and mandate that all residents cut back on water use amid the worsening California drought. But Newsom's calls for voluntary conservation aren't working. Newsom and sign interpreter Julia Townsend stand at the edge of a diminished Lopez Lake near Arroyo Grande (San Luis Obispo) in July 2021.

If Gov. Jerry Brown's drought strategy was defined by the "we're all in this together" mantra of collective sacrifice, Gov. Gavin Newsom's approach has been guided by the more individualistic notion of "it's not one size fits all."

Newsom, despite the state facing a third year of exceptional drought conditions, has refused to follow in Brown's footsteps by mandating that all residents cut their water use.

The governor has instead repeatedly called on Californians to voluntarily conserve, and has allowed the state's 436 local water agencies to create their own plans to prepare for impending water shortages.

But that approach has raised alarm bells among some water policy experts, environmentalists and legislators, who said the emphasis on local control and voluntary conservation simply isn't working.

Newsom's pleas for residents to voluntarily conserve have flopped. Last July, he called for people to cut water use by 15%. But consumption has soared in recent months — urban water use rose by 17.6% in April and 18.9% in March over the previous year.

Heather Cooley, director of research at the Pacific Institute, a water-policy think tank in Oakland, said allowing hundreds of water agencies to set their own strategies has led to mixed messaging and a sense of apathy.

"During the Brown administration the message really was, 'We're all in this together,'" she said. Now, "we're not getting the statewide message that highlights the severity of the drought and the need for everyone to do something."

At the core of Brown and Newsom's disparate approaches is a different philosophy about the extent to which the drought response should be centralized at the state level or decentralized to leave the decisions in the hands of local water boards.

Newsom has staunchly defended the latter approach, which he said empowers local officials to make plans that are better tailored to the unique hydrology and water needs in different parts of the state.

"The approach this year is different than the old administration. It's bottom-up, not top-down," he said during his latest news conference on the drought in mid-May. "Gov. Brown didn't have the benefit of lessons learned from the drought in 2012 to 2016."

Newsom hasn't been passive on the drought, either. He signed an executive order this spring that directed the state Water Resources Control Board to order water agencies to move to "level two" of their drought emergency plans.

That effectively ordered water agencies to prepare for the likelihood that their water supplies could be cut by up to 20%, and the move took effect June 10. Newsom also pushed to prohibit businesses and public institutions from using potable water to irrigate "nonfunctional" grass that only serves an ornamental purpose.

But compared with the mandatory cuts Brown imposed, the move has a lot less teeth. Local water agencies can prepare for a water shortage by requiring consumers to cut water use or by finding new sources of water, including drilling for more groundwater.

In some ways, the scenario is a case of deja vu from the last drought, when Brown became exasperated with water suppliers shrugging off earlier voluntary calls for conservation.

Felicia Marcus, the former chair of the Water Board and one of Brown's right-hand advisers on drought, said Newsom's predicament has strong parallels to the last administration. She said the former governor made the "hard call" to mandate water rationing only because local water agencies didn't step up.

While Marcus declined to second-guess Newsom's approach, she said she's been puzzled by increasing water use this year after how much consumers learned about being more efficient during the last drought.

"It should be going better," she said. "There's a failure of messaging happening out there, and I'm not sure by whom. You don't have the same alarm and the same edginess."

Newsom's approach has frustrated some legislators, especially those from rural counties where wells are drying up in droves. Complaints began to simmer in spring 2021, when Newsom declined to declare a statewide drought emergency and limited his initial declaration to a handful of counties.

At the time, he argued the state should make decisions based on the unique conditions in each county and poo-pooed the notion of mandatory cuts. That mantra has remained central to his local-control drought strategy, though he eventually extended the emergency declaration to all of the state's 58 counties.

"It's not a one-size-fits-all," Newsom said in April 2021, as he spoke from a high-and-dry boat launch overlooking the receding reservoir behind Oroville Dam.

State Sen. Melissa Hurtado, D-Sanger (Fresno County), said that after nearly three years into the current drought, she's perplexed Newsom doesn't have a clearer message.

"I don't think I have an understanding of what his strategy is," she said. "It would be good to know."

During the last drought, Brown imposed mandatory cuts about four years into the dry spell. He had earlier called for people to conserve voluntarily, but forced restrictions after that didn't work.

California saw a nearly 24% drop in urban water use after Brown signed an executive order in April 2015 requiring water agencies to cut usage by 25%. The order was in full effect for about 11 months, and major rainfall ended the drought in early 2017.

Newsom is about three years into the current drought that started in 2020. Less of the state is under extreme drought conditions than it was at the point Brown imposed mandatory water cuts in 2015. That said, conditions are rapidly deteriorating because of unusually hot winter and spring that caused snowpack to melt quickly.

The state's two largest reservoirs are now at lower levels than they were when Brown signed his executive order in 2015. Shasta Lake, the largest, has 49% of what it normally holds at this time of year, compared with 74% when Brown mandated cuts. Lake Oroville, the second-largest reservoir, is carrying 67% of what it normally holds at this point in the year, compared with 71% seven years ago.

That's why some water experts say it's time for the governor to get serious about mandates. But Newsom's defenders said it's still unfair to compare his response in the third year of the current drought to Brown's handling of a five-year drought.

For starters, they said Newsom hasn't been able to be focus on the issue to the same degree because he's been dealing with a host of crises: the COVID pandemic, catastrophic wildfires, and economic uncertainty. The state has also faced higher temperatures with this drought, which led to people to use more water in the winter and spring months.

"We're all juggling a lot and have been juggling a lot," said Natural Resources Secretary Wade Crowfoot, one of Newsom's top water-policy advisers.

Crowfoot was also an architect of drought policy in Brown's administration. He said there's a false perception that Brown got Californians to turn on a dime and conserve water when it actually took a few years and, eventually, mandatory restrictions.

"You're always going to start with voluntary," Crowfoot said. "You have to keep open the idea of more mandatory and prescriptive actions."

Newsom has also warned that more mandatory cuts could be coming, if people don't start cutting back. Last month, he met with with local and regional water officials to demand they do more.

That said, Newsom has leaned into the notion that local control in drought response is ideal. He's cited a report from Crowfoot's agency about lessons from the 2012-16 drought. The report states that mandatory water cuts should "balance statewide 'we're-all-in-this-together' approaches with ways to account for local and regional differences in climate and water availability."

The report also cites unintended consequences from the state's response to the last drought, including that cutbacks killed countless mature trees in urban areas, landscaping that provides crucial shade to combat rising temperatures because of climate change.

Newsom said his approach of requiring water districts to come up with their own plans, which he has dubbed a "a mandate for local mandates," reflects that takeaway about local control.

The governor also faces a tough political road navigating water policy in California. Similar to his predecessors, he has often been criticized by environmentalists who argue the state provides more water to agriculture than it can sustain. They also worry the state is missing its chance to save water early in a drought that could last years longer than previous dry spells.

Kathryn Phillips, former director for the Sierra Club California and a longtime environmentalist, said while she disagreed with aspects of Brown's approach on water, he spoke with more authority and urgency on the issue.

"With this governor, I feel like they're on some sort of photo-opportunity schedule," she said. "I don't anticipate substance from this administration when he's doing a press conference."

Newsom has likewise faced criticism from farmers, water agencies and business groups who say he hasn't done enough to modernize water infrastructure and expand storage to capture runoff from storms.

The governor's budget, which he's still negotiating with legislators who recently passed a placeholder budget, includes more than $2 billion for drought response, including funds for water recycling projects, more efficient irrigation systems for farmers and public education campaigns to increase conservation. That's on top of $5.2 billion the state allocated last year.

Charles Wilson, executive director of the Southern California Water Coalition, an advocacy group that represents water suppliers, cities and businesses, said part of Newsom's challenge is "natural fatigue" with drought restrictions.

He said people aren't motivated to stop watering their lawns or turn off the faucet when they brush their teeth if they don't see the state taking more significant action to resolve the problem long-term.

"You can't just rely on 'kill the lawn, I'm done,'" Wilson said. "You still have to build things. (Brown) had big infrastructure solutions."

In 2014, Brown and legislators negotiated a $7.5 billion bond package to pump funding into the state's aging water infrastructure, which voters overwhelmingly approved. But only a fraction of that money has been spent on projects so far.

Sen. Jim Nielsen, R-Gerber (Tehama County), helped negotiate that bond package with Brown and other legislators. He said Newsom has never spoken with him about the drought and seems to treat water as a back-burner issue.

"Jerry Brown, for all of his idiosyncrasies, did have a broader vision than this governor," Nielsen said. "What is not visionary is, 'Oh well, the locals will need to decide it, that's their problem.'"

# # #

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California tells San Francisco, Valley farmers to halt water diversions as drought worsens

The Fresno Bee | June 8, 2022 | Dale Kasler

O'Shaughnessy Dam at Hetch Hetchy Reservoir in Yosemite National Park, where much of San Francisco's water is held. National Park Service

State regulators have ordered the city of San Francisco and scores of San Joaquin Valley farmers to stop pulling water from Valley rivers, the latest sign of worsening conditions in California's drought.

The water-rights "curtailment orders" issued by the State Water Resources Control Board affect San Francisco's ability to pull water from the Tuolumne River, one of its most important water sources. Others affected include the Modesto and Turlock irrigation districts, which deliver water to farmers and residents in the northern San Joaquin Valley from the Tuolumne. All told, 212 public water systems are affected by the move.

Erik Ekdahl, the state board's deputy director, said Tuesday the move amounts to "significant, very deep cuts and curtailments.

The order doesn't mean taps will go dry in San Francisco. Water already held in storage isn't affected, and the San Francisco Chronicle reported that reservoirs controlled by the city have relatively strong supplies.

The curtailments are mostly centered on the San Joaquin Valley, and the board doesn't expect to curtail many water rights on the Sacramento River. But farmers and other rights holders on the Sacramento have already lost vast amounts of their water this year due to separate cutbacks mandated by the U.S. Bureau of Reclamation, resulting in widespread idling of rice fields in the Sacramento Valley.

The board made similar moves last August. What makes Tuesday's move so striking is that happened in early June, another troubling indicator of the severity of the drought, now in its third year.

Ekdahl, in a presentation to the state board, noted that the rainy season is over and the Sierra Nevada snowpack is effectively gone, meaning the state can't expect any relief for its parched reservoirs until fall. "We're not going to get a significant pulse of new snowmelt at this point," he said. "There is no more snow to melt."

Meanwhile, new figures released by the state board show that urban Californians remain largely indifferent to Gov. Gavin Newsom's call for 15% voluntary water conservation.

The board said per-capita urban water consumption in April fell by 7% compared to a year earlier — and was 17% higher when compared with April 2020.

All told, urban Californians have reduced consumption by just 2% since the governor called for savings last summer.

The fact that water usage fell in April compared to a year earlier was "at least heartening," said board Chairman E. Joaquin Esquivel.

Others, though, said the conservation numbers need to get a lot better. "These are not the numbers we wanted to see, and they are not the numbers we need to see," said Adel Hagekhalil, general manager of the Metropolitan Water District of Southern California.

Newsom has threatened to impose mandatory statewide cuts on urban usage if the conservation figures don't improve.

# # #

Californians are using less water. But drought conservation still misses Newsom's target
Sacramento Bee | July 10, 2022 | Dale Kasler

Californians are starting to save water, but not enough to meet Gov. Gavin Newsom's call for conservation in the face of one of the worst droughts in recorded history.

Urban water use fell 3.1% in May compared to the 2020 baseline set by the governor, according to figures released Friday by the State Water Resources Control Board.

While that's well short of the 15% call issued by Newsom last July, it does show that Californians are beginning to heed the governor's call for reduced consumption. Water use actually rose in March and April, according to water board data.

Not only did consumption drop in May, preliminary results for June show that water usage fell by nearly 8% compared with two years ago.

As conservation figures lagged, Newsom has hinted at taking stricter action, including the possibility of ordering mandated cuts in water usage. His predecessor Jerry Brown ordered a 25% cut in urban use in 2015, as the last drought reached its zenith, and two months ago Newsom met with a group of urban water-agency managers and warned of a crackdown if the conservation numbers didn't improve. He also had lawmakers appropriate tens of millions of dollars for a revved-up publicity campaign to encourage conservation.

"It appears the governor's message is being heard by Californians," the state water board said Friday.

Aside from pleading with Californians to save, the state has taken several steps to cut consumption. In June the state water board ordered the city of San Francisco, among others, to stop pulling water from the Tuolumne River, one of its most important supply sources. All told, more than 200 water systems were affected by the water rights "curtailments," which took effect this week.

Some municipal water agencies are taking steps of their own. The Metropolitan Water District of Southern California ordered about one-third of its 19 million customers to limit outdoor watering to one day a week, an unprecedented move by the giant agency.

There's little question of the severity of the drought. The largest reservoir in California, Shasta Lake, is half as full as it should be this time of year. Lake Oroville, the second largest, is 37% below average for early July.

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There's a simple way to cut your water use — but many Californians don't even know about it

San Francisco Chronicle | July 9, 2022 | Danielle Echeverria

Volunteer Carlo Cosenza digs a mulch basin during a greywater installation demonstration at a Vallejo home. Brittany Hosea-Small/Special to The Chronicle

As the latest California drought drags on, residents increasingly are facing local outdoor watering restrictions and urgent calls from state officials to reduce water use, while suppliers face cuts due to dwindling supply.

For many, this may bring up images of dead plants and brown shrubs in addition to shorter showers. But for those loath to let their landscapes shrivel, water conservation advocates are pointing to a different option: greywater systems, a relatively inexpensive solution that they say is gaining interest but is still relatively little known.

Greywater systems take water drained off from laundry machines, sinks or showers and repurpose it to irrigate parts of their landscapes. The simplest systems can be installed for a few hundred dollars as a do-it-yourself project — an investment, experts say, quickly recouped in water bill savings.

The technology isn't new — greywater systems have been around for decades. But experts note that California, a state long familiar with extreme drought, still doesn't have statewide

incentives for people to install systems that can save thousands of gallons of water each year for a family of four.

“There is no real blanket guideline available right now, and there are not a lot of incentives out there either to get people to do this,” said Newsha Ajami, a water expert at Lawrence Berkeley National Laboratory who had served on the Bay Area Regional Water Quality Control Board.

On a local level, incentives are not robust in the Bay Area either. Santa Clara County offers a $400 rebate through Valley Water, San Francisco offers $225, Contra Costa County and the East Bay Municipal District each offer up to $50, and other counties and water districts offer none at all.

Statewide, landscape irrigation accounts for about 50% of annual residential water consumption, according to the University of California Division of Agriculture and Natural Resources.

In the face of drought, all that water can be put to better use, experts said.

“Our plants don’t need drinking water,” said Justin Burks, a water conservation specialist at Valley Water.

A 2012 study by Bay Area-based advocacy group Greywater Action found that homes in the Bay Area and Monterey County that installed greywater systems reduced their per-capita daily water consumption by an average of 17 gallons, for an average household savings of about 14,500 gallons a year.

Another benefit: Using greywater means people can continue to grow plants and trees in their yard — which can provide food and shade and support wildlife — rather than ripping them out in the face of water restrictions, advocates said.

But while greywater has been shown to save both water and money, advocates and experts note that it’s faced a number of challenges to more widespread adoption over the years.

Burks noted that many people want a solution that’s “off-the-shelf” — one that they can easily switch to without making any other changes. But greywater systems don’t always fit the bill.

For example, the simplest laundry to landscape systems, which don’t involve a pump and a filter, produce water containing chemicals and dirt that can’t go into storm drains and sewers. As a result, they can’t be used for surface watering, meaning they won’t save your lawn. They also can’t be used to water vegetables if the edible part is in contact with the soil — like lettuce, strawberries or carrots. Instead, they pipe water into mulch basins around trees and shrubs, where the mulch itself acts as a filter.

And if the pipe gets clogged — which experts and advocates noted is rare, even with minimal maintenance — the backed-up water can get smelly, fast.

Using greywater also requires people to use a biodegradable laundry detergent, and bleach is prohibited — though you can turn the pipe off if you need to run a load with bleach or other more chemical detergents, experts said.

Nina Gordon-Kirsch, with Greywater Action, explains the process for digging mulch basins during a greywater installation demonstration at a Vallejo home. Brittany Hosea-Small/Special to The Chronicle

Other greywater systems have complex filtration and can repurpose shower water as well as laundry runoff to irrigate lawns and more diverse types of plants. However, these options require permits and become expensive quickly — costing up to thousands of dollars.

For years, reusing greywater was illegal, largely because it was treated the same as blackwater, or wastewater from toilets. In the 1990s, California changed its plumbing code to allow legal reuse of greywater, but still had significant restrictions on what that could look like.

In 2009, California allowed the installation of simpler greywater systems, like the laundry-to-landscape model, without a permit, so long as certain requirements were met, making it much more accessible, said Laura Allen, a founding member of Greywater Action who has been working on the issue for decades.

That's the moment, she said, that finally opened the door for more professionals and government agencies to really begin focusing on the systems.

But there are still lasting misconceptions about greywater, she said.

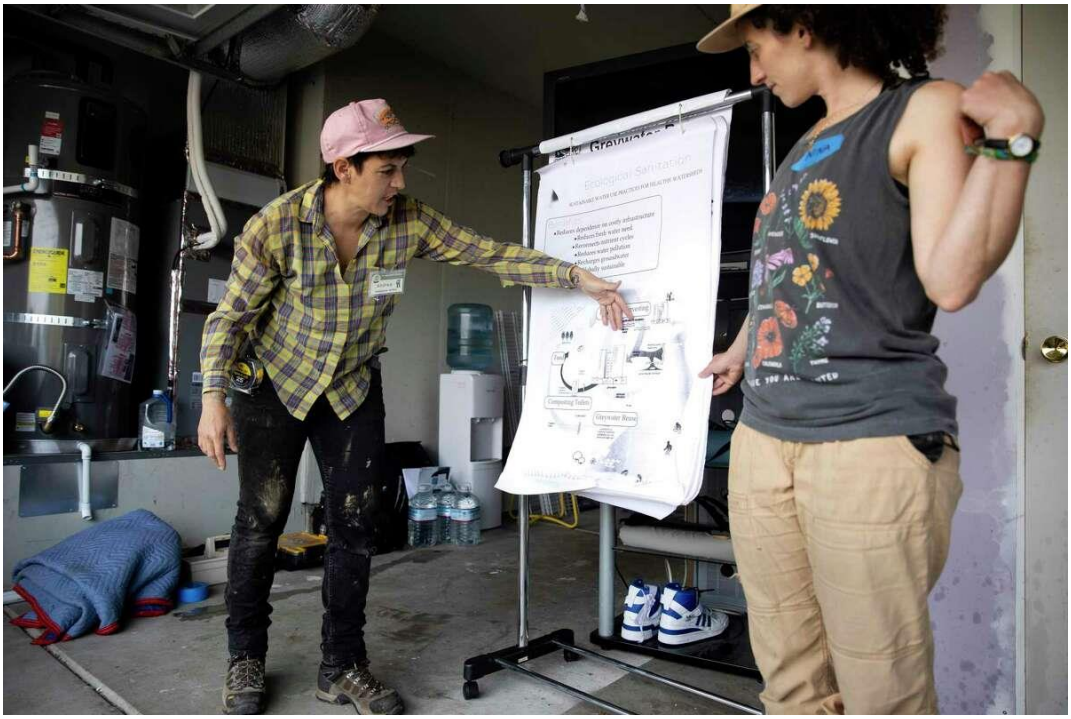
Some critics worry that greywater is unsafe and could contaminate soils, which could have effects beyond just a person's backyard. But advocates say evidence so far has shown that's not the case — and that greywater can actually be beneficial for life in backyards.

Greywater Action's 2012 study, for example, looked at 83 greywater systems in the San Francisco and Monterey Bay areas and found that they did not affect soil salinity, boron or other nutrient levels when compared to soils that had not been irrigated with greywater.

More recently, in her 2021 master's thesis for San Jose State, water researcher Sara Khosrowshahi Asl found the same thing — that greywater did not negatively impact soil quality, and in fact, for systems that had been in place longer, soil quality actually improved, as more nutrients were able to build up.

She explained that the most successful greywater efforts employ biodegradable or greywater-friendly detergent, which she found most people use.

"You don't need to add fertilizers anymore," she said. "Just the detergent itself and the things that are in the clothes add the nutrients to the soil."



Andrea Lara (left) and Nina Gordon-Kirsch, both with Greywater Action, talk with local community members during a greywater installation demonstration at a Vallejo home.
Brittany Hosea-Small/Brittany Hosea-Small / Special to The Chronicle

Another obstacle to more widespread adoption of greywater systems is California's water distribution system itself, said Ajami, the Stanford water expert.

She said that many water providers have already invested in larger-scale recycled water systems, which makes them less inclined to provide incentives for people who want to recycle their own water, because it would reduce the amount of water going to a centralized recycling plant.

“Their business model is not made for this kind of solution,” she said, in the same way electric utilities put limitations on people’s solar use.

Joseah Rosales, whose company Greywater Landscape Design helps people in the Bay Area and San Diego install greywater systems, said the patchwork of rebates makes things more confusing for those looking to add a system and need some help with the cost.

But the larger challenge, many advocates and experts said, is just how few people even know about greywater in the first place.

Advocates and policymakers point to Valley Water as offering one of the best opportunities for those looking to get into greywater. The South Bay water agency offers up to $400 to people installing a laundry to landscape system — the highest in the Bay Area — and has done so since 2014.

But, in those eight years, only 142 customers have taken advantage and built a system, said Burks, the water conservation specialist at Valley Water — which according to its website serves nearly 2 million people.

“That’s pretty impressive compared to most agencies, but it’s a drop in the bucket compared to the literally hundreds of thousands of potential properties in the county that could benefit from a laundry-to-landscape system,” he said.

As for what’s holding people back, he said that for one, many people aren’t aware that it’s an option. Compared to something like solar panels on a roof, greywater systems are much more inconspicuous, he and other advocates said, which makes them likely to arise as a topic of neighborly conversation.

“More people getting out there and talking about their system is going to be really paramount” to increasing the number of greywater systems statewide, he said.

And while laundry to landscape greywater systems can be installed as a DIY project — and there are workshops from various Bay Area groups who show it — it isn’t exactly simple. And even for those who can afford someone to install it, there aren’t enough installers to go around, experts said.

Rosales said that demand goes up with every drought, and there aren’t very many companies like his that focus on greywater.

Nicole Newell, who helps people install greywater systems through community group Sustainable Solano, said that each time her group conducts tours of its sustainable backyards, people express interest in greywater. But for those who don't feel equipped to do the installation themselves, it can be hard to find help.

"Our challenge is that there's not a ton of people doing this work," she said.

The Bay Area Water Supply and Conservation Agency, which assists more than two dozen water suppliers in San Mateo, Santa Clara and Alameda counties with planning, conservation and other programs, is creating a pilot program in response to "the increasing interest in greywater programs regionally," according to a board agenda item earlier this year.

Tom Francis, the agency's water resources manager, said he sees a lot of opportunity in greywater systems — though he acknowledged that maybe "pilot" isn't the right word, since greywater systems have long been proved to work. He said he hopes the program, by collecting detailed data on water savings and the cost of the systems, will give smaller water agencies more confidence and more information with which to create or improve their greywater programs.

But, like others, he said that much of the work essentially comes down to marketing.

"As water agencies, we've got to do a better job in selling it," he said. "We're so environmentally conscious here in the Bay Area, compared to any other place, I'm kind of surprised that more residents at least aren't aware of it."

# # #

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Early signs indicate Southern California finally using less water. But big test lies ahead
Los Angeles Times | June 24, 2022 | Hayley Smith

Less than a month after sweeping water restrictions took effect across Southern California, early indications suggest residents are finally heeding calls to conserve as officials report a noticeable drop in demand throughout the region.

Officials at the Metropolitan Water District of Southern California reported that demand was 5% lower than what they hoped to see under the first three weeks of restrictions.

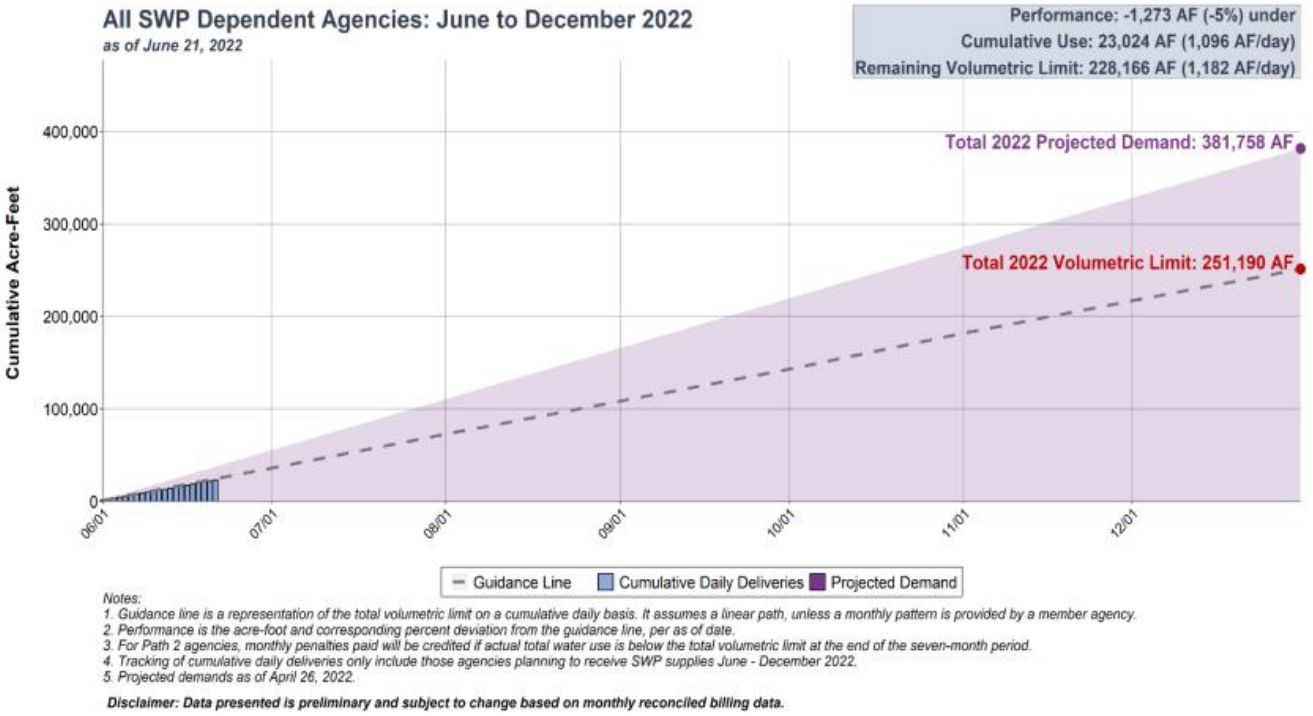
At the same time, water waste complaints have soared throughout Los Angeles, signaling perhaps that many residents have taken conservation to heart.

Although the initial indications were encouraging, officials stressed that the savings must continue as regional reservoirs continue to dip toward perilous lows. They also stressed it is still too soon to tell whether residents have truly turned a corner after months of backsliding.

“We must continue to conserve,” Joaquin Esquivel, chairman of the State Water Resources Control Board, said during a board meeting this week. “We have a long way to go. It is still a long summer that we have before us and a lot of work.”

Under the new rules, which went into effect June 1, Southern California water agencies were ordered to reduce their use of State Water Project supplies by 35% due to a water shortage emergency. The State Water Project is a complex system of reservoirs, canals and dams that functions as a major component of California’s water system, feeding 29 agencies that together provide water for about 27 million residents.

So far, the affected agencies appear to be staying within their budget, according to a report from the MWD, the regional wholesaler that ordered the cuts.



(Metropolitan Water District)

“It’s very early, and we’re just out of the starting blocks,” said Brad Coffey, the district’s manager of water resources. “What’s clear is that the agencies are taking actions to use less water than what we would have expected otherwise, so in that regard, this emergency water conservation program is showing early signs of success.”

The affected water agencies had initially projected the need for about 380,000 acre-feet of State Water Project water from June to December, but the MWD has only about 250,000 acre-feet to give. (An acre-foot is enough water to supply two to three families for a year, and would fill an Olympic-sized pool halfway.)

According to the latest figures, the agencies are so far keeping pace, using about 5% less than the volumetric limit in aggregate — or 1,273 acre-feet. To get there, some implemented one-day-a-week outdoor watering restrictions, while the others opted to stay below a specified amount.

The report does not provide a breakdown of demand by individual water agencies, and some, including the Los Angeles Department of Water and Power, said it’s too early to give an official update. Others were cautiously optimistic.

“Overall, as a region, progress is headed in the right direction,” said Dan Drugan, spokesman for the Calleguas Municipal Water District, one of the agencies affected by the rules.

“In southeast Ventura County, we need to step up our conservation efforts so that this trend continues for the region. It is still early. There remains a real possibility that our communities may have to move to a ‘no outdoor water use’ mandate in the fall if conservation goals are not achieved this summer,” he said.

The Inland Empire Utility Agency said it has benefited from investments in local supplies, which have enabled it to reduce its demand on imported water 35% below the targeted reduction.

“However, the time is now to continue to step up our efforts of preserving water supplies as we enter summer and as we prepare for next year as well,” deputy general manager Christiana Daisy said.

David Pedersen, general manager of the Las Virgenes Municipal Water District in western Los Angeles County, similarly said that things are “starting off on the right foot,” but there’s still a long road ahead.

“We have three weeks of data that we’re looking at, and June is not the hottest part of the summer,” he said. “It’s going to get harder as we get into July, August and September, so even though we’re tracking well, it’s way too early to get excited.”

Pedersen said Las Virgenes had to implement one of the region’s most stringent plans to meet the reduction, in part because the agency is heavily reliant on state water and in part because its customers have historically had high daily usage.

A 73% reduction will be required to get to the desired 80 gallons per person per day, he said, and so far, residents have done an “enormous job” and reduced demand by about 50%.

And though some neighborhoods in the Las Virgenes service area — including Calabasas and Hidden Hills — came under scrutiny during the previous drought for their excessive water use, officials this time around are working to prevent a repeat performance by installing flow restriction devices on customers who refuse to abide by their new one-day-a-week watering rules.

They've installed about 20 such devices so far, Pedersen said, but the concept is less about punishment and more about spreading awareness, which seems to be working.

"I do see some really exciting change happening, and that's one of them ... customers really, truly taking more ownership, more agency, in their water usage," he said.

There are other indications that residents are heeding the call.

Angelenos filed 1,198 reports of water waste to the Los Angeles Department of Water and Power in May, significantly more than during the same month last year, when 544 such reports were made, according to the agency. There were 672 reports in the first two weeks of June.

"We are very encouraged by the increase in water waste complaints we have received — it shows people are taking the drought seriously and trying to cut back their use as well as reporting on potential violations of the ordinance," DWP spokeswoman Ellen Cheng said.

Some of the common complaints are water running off of lawns and into the street because of excessive irrigation or people watering on the wrong days, she said. Under the new city rules, residents with even-numbered addresses can water on Sundays and Thursdays, while odd-numbered addresses can water on Mondays and Fridays.

The DWP's conservation response unit team is patrolling each day and following up on waste reports they receive, Cheng said.

"They are focused on educating our customers on the new ordinance but are also prepared to take stronger action with citations if the written warnings are ignored," she said.

About 314 of the water waste reports in May were made through My LA 311, city data show. Residents in Mid-Wilshire were by far the biggest complainers of that set, filing 86 reports to the service, while Brentwood was second with 53.

Residents are also showing progress statewide.

Preliminary figures released by the water board this week showed urban water use decreased by 5% in May compared with the same month in 2020, the baseline year against which current savings are measured.

The data are based on early reporting by many of the state's water districts, which have started turning in figures sooner in response to requests by Gov. Gavin Newsom and state regulators. If the number holds, it will be a marked improvement from April, when statewide water use increased nearly 18%.

But there is still more work to do. Last July, Newsom called on Californians to voluntary save 15%. The cumulative savings through May, according to the preliminary figures, are just 3%.

“It looks like some of the conservation and drought messaging is getting through — that people are making adjustments — but we do need people to continue to conserve water,” James Nachbaur, a director of the water board, said Tuesday.

Coffey, of the MWD, said he didn’t want the positive trend to imply that anyone can declare victory.

“We recognize that there’s a momentum that’s needed, so we’re trying to kind of get the car up to freeway speeds,” he said. “We’re not wanting to suggest that people could step off the gas yet when they’re on the freeway onramp.”

# # #

California has a drought and 4 million acres of lawns. Should state ban grass to save water?

Sacramento Bee | June 21, 2022 | Ryan Sabalow and Dale Kasler

As much as half of the water used in the state's urban areas is poured on outdoor landscaping, predominantly to keep residential lawns green. PAUL KITAGAKI JR. Sacramento Bee file

Californians have thousands of square miles of lawns, enough grass to cover almost every inch of Connecticut and Delaware combined — and they use a lot of water to keep them green. A lawn in the Sacramento area can soak up an average of 45,000 gallons a year, according to state calculations.

But when the State Water Resources Control Board imposed a new round of drought restrictions last month, it targeted a much narrower slice of water usage. The agency ordered businesses and local governments to stop watering the "non-functional" turf that grows around hotels, shopping malls, roadway medians and the like.

Experts agree: California could withstand this new era of megadroughts without ever worrying about rationing toilet flushes and putting timers in showers if its 14 million homeowners weren't watering their lawns.

As much as half of the water used in the state's urban areas is poured on outdoor landscaping, predominantly to keep residential lawns green. If Californians reduced the footprint of their lawns — replace turf with drought-tolerant plants or just let the grass die — it would leave the state with a meaningful cushion against water shortages.

"If everybody took out half their lawn, you would create enough water for the indefinite future," said Jeff Mount, a water expert at the Public Policy Institute of California.

But California won't tell its residents to tear out their lawns. The lush, green carpeting remains as much a part of the California experience as redwoods, coastal sunsets and Disneyland.

The former head of California's largest regional water agency says eventually that could change. Jeff Kightlinger, the former general manager of the Metropolitan Water District of Southern California, said he thinks some day the state will ban lawns — if not statewide, then at least in parts of the state.

"My guess is we'll get there," Kightlinger said.

As it is, new homes built in California since late 2015 have limits on lawn sizes. The Legislature is considering a bill that would set increasingly-strict targets for overall household water consumption, even when there isn't a drought. And surely millions of Californians will get a taste of life with a brown or yellow lawn this summer, given the curbs on water usage that have been imposed on a temporary basis in many areas of the state.

"We're surely going to have a lot less lawn," Mount said. "That's a given. And all the trends are pointing that direction."

Former Gov. Jerry Brown tried to prepare Californians for that future. In April 2015, on the day he imposed significant cutbacks in urban water use, he declared: "People should realize we're in a new era. The idea of your nice little green grass getting lots of water every day — that's going to be a thing of the past."

But transitioning California to a less-grassy urban landscape won't come easily.

BARRIERS TO LAWN REMOVAL

For one thing, millions of property owners who bought homes with lawns would need to tear them out and replace them with drought-tolerant landscaping — an expensive and labor-intensive chore for homeowners with limited time and incomes.

And if those residents were to just let their lawns die outright, there's a real concern the ugly, weed-filled spaces would form what are known as "heat islands" that raise neighborhood temperatures during California's blast-furnace summers. That's a particular problem in sweltering Southern California and the Central Valley.

Another key barrier: Many of California's 400-plus urban water districts face significant budget shortfalls when their customers use less water. Critics say this makes water districts less likely to aggressively crack down on customers over-watering their grass, and it stops them from wanting to invest as much in the sorts of programs that give rebates or other financial incentives to help customers tear out their turf.

And not everyone is convinced that lawns are the enemy.

Jim Baird, a University of California Cooperative Extension specialist in turfgrass management, listed a litany of reasons to keep lawns. He cited their benefits to "property values, mental

health, erosion control, groundwater recharge and surface water quality, organic chemical decomposition, carbon sequestration, and environmental cooling."

"Irrigating lawns is not rocket science," Baird said in an email. "We need to educate Californians on the proper (grass) species to use, as well as irrigation technology and practices. Turfgrasses don't waste water. People and faulty irrigation systems waste water."

That's largely the tack state regulators are taking — at least for now.

So far, Gov. Gavin Newsom has resisted mandating urban water conservation targets of the type imposed by his predecessor, Jerry Brown. During the last drought, Brown ordered the state's cities to reduce water use by a cumulative 25% — a move that pressured Californians to kill their lawns.

Instead, Newsom has asked Californians voluntarily to cut back their water use by 15%. And so far they haven't. The most recent state data from April show that urban residents have only reduced their water use by 2% since he issued his call to conserve last July.

The state board's decision last month to ban lawn watering around businesses was part of a broader move to ratchet up the pressure on urban water providers to have their customers cut back. The ban on watering turf in the commercial sector is expected to free up enough water to supply nearly 800,000 homes a year.

Nevada has taken it a major step further. Last year Gov. Steve Sisolak signed a bill permanently banning ornamental turf around businesses, starting in 2027. That will take out a lot of turf, about one-third of the grass surrounding casinos, traffic circles and other locations in the Las Vegas area.

Regulators don't want to see all lawns disappear from California, but they do think Californians need to be scaling back how much water goes on their grass, said James Nachbaur, a residential water-use expert at the State Water Resources Control Board.

"Lawns can definitely be part of the California landscape," Nachbaur said. "It depends on a lot of different factors. How much lawn? What kind of lawn? What's it being used for? What part of the state are you in? Those all come into play."

Then there's the key truth about California's water supply: Agriculture uses substantially more water than its cities do, no matter how much water is going on lawns. As a general matter, around 80% of the state's water used by humans goes for farming, according to the Public Policy Institute of California.

That figure is a reason why some argue that getting rid of lawns alone wouldn't do much to help the state's troubled aquatic ecosystems. Native fish species are struggling to survive due in large part to having so much of the water they need siphoned off to grow crops.

“A wholesale removal of every blade of grass in California is not going to do it,” said Sandra Giarde, executive director of the California Landscape Contractors Association. “It’s not going to save enough water.”

Pulling out all of California’s outdoor landscaping would reduce overall water use by just 10%.

“Would it be helpful to agriculture and ecosystems?” said Jay Lund, the director of the UC Davis Center for Watershed Sciences. “Sure. Yeah. A little bit.”

Tourists take photographs of the state Capitol in Sacramento in 2014 on the brown grass of the Capitol grounds. The turf was allowed to die to show California residents the seriousness of the drought and set an example for water use. “It’s California’s front yard,” said Brian Ferguson, a spokesman for the Department of General Services. “We”re trying to set an example in our front yard of what they can do in their front yards.” Paul Kitagaki Jr. Sacramento Bee file

CALIFORNIA LAWN POLICY

But that’s not to say policymakers haven’t been acting to reduce California’s lawns.

During the last drought, Brown set a goal of removing 50 million square feet of California’s turf. State and local governments spent more than $350 million on turf replacement rebate programs. There’s no one clearinghouse of data that would show how many lawns got removed since the last drought. But state and local officials said various “cash for grass” programs were successful.

In Southern California, the Metropolitan Water District, which delivers water to 19 million people, has had customers remove 200 million square feet of grass through its turf-removal program. That saved enough water to serve about 62,000 households each year. A statewide program eliminated 15 million square feet of turf, the Department of Water Resources said. The Newsom administration has asked the Legislature to revive the program this year, but the tentative budget approved by lawmakers didn't allocate funds for that purpose.

Sacramento officials recently announced their turf replacement rebate program has replaced 1 million square feet of lawns with drought-tolerant landscaping. These programs, along with Californians generally becoming more conscientious about their outdoor water use, have prompted many homeowners to pull out their grass.

"You walk around any suburban neighborhood," said Mount of the Public Policy Institute of California, "and you're going to see a whole lot less lawns."Regulators also have taken steps.

In 2015, in the worst of the last drought, lawmakers passed a law that prohibits cities from banning the installation of drought-tolerant landscaping, synthetic grass and artificial turf on residential property. That same year, the California Water Commission enacted rules limiting lawn sizes surrounding newly-built homes, saying that grass can't take up more than 25% of the landscaping.

After officially declaring the end of the last drought in 2017, Brown signed two bills that sought to cut down urban water use by setting water-use targets for water utilities.

The targets are designed to ratchet down the districts' water use over time, making conservation "a California way of life," as state officials put it. Local water agencies could get fined if they miss the targets.

A bill making its way through the Legislature this year would tighten up those "water budget" targets even further — a move that the bill's supporters hope will lead to less water going toward lawns in the years ahead.

Meanwhile, legislation that would reinstate a tax exemption for those who spend money on turf replacement passed the Assembly last month. The tax exemption had expired after the last drought. The bill is pending in the Senate.

At the same time, millions of Southern California and Bay Area homeowners are likely to see their lawns die this year — and not by choice.

Faced with a significant reduction in the water it receives from the wetter northern half of the state, the Metropolitan Water District of Southern California took the unprecedented step this spring to order about one-third of its 19 million customers to water lawns only once a week.

Santa Clara County's water provider, facing a similar shortage, is telling its customers to cut back on watering or face fines of up to $10,000 for wasting water.

But will Californians switch their sprinklers back on if the state ends up getting a few wet winters and springs in the years ahead?

Heather Cooley, director of research at the Pacific Institute, a water-policy think tank based in Oakland, worries that they might.

“We can’t go back to what we were doing before,” Cooley said. “We’re facing a hotter, drier West. And we need to change how we use water as a result.”

In urban areas, that will require Californians to end or at least scale back their love affair with lawns, which are as ubiquitous to California’s sprawling suburban landscapes as crowded freeways and strip malls.

HISTORY OF THE LAWN

Lawns in the United States date to Colonial times, when settlers from England brought with them the romanticized ideals of vast, grassy landscapes that at the time were popular with the European aristocracy.

The rainy, humid climates on the East Coast may have made it easy to keep Americans’ grass green, but settlers who began heading West after the Gold Rush would have had little hope of keeping grass alive year round outside of foggy coastal areas.

What became popular instead was the concept of “swept lawns,” said Chris Brown, former executive director of an organization now called the California Water Efficiency Partnership. The lawns were essentially bare dirt.

“Before there were irrigation systems,” he said, “people thought a swept, clean lawn with no weeds — ‘Just get rid of the weeds and sweep it’ — looked nice.”

That began to change during the Great Depression, when the federal government launched a dam-building boom — erecting Shasta, Hoover and others — to “reclaim” the West’s naturally flowing rivers. The feds’ dam management agency is still named the Bureau of Reclamation.

“It’s that value system,” Brown said, “that says, ‘Well, what’s the best thing to do with water running down the river? Let’s put it behind a dam. And then let’s use it, and let’s sell it and make money off of it.’ ”

The water stored behind those dams turned desert regions into massive farm belts in places where rain rarely falls. The dams also supported the massive building boom that saw desert cities like Las Vegas and Los Angeles turn into major metropolitan areas — filled with people who wanted lawns.

After World War II, millions of Americans began moving to new subdivisions. The lawn became popular in the arid West, thanks to all that “reclaimed” water pouring into those growing cities. Around that time, home sprinkler systems also came on the market.

“Growing up in the post-war 1950s,” said Giarde of the landscape contractors’ association, “everybody was getting that starter house that came with a lawn.”

For the next quarter century — a particularly wet period in the state’s modern history — no one really cared in California how much water anyone used to keep sprawling checkerboards of grass green in suburbia.

“This was at a time when the ethos in the industry was: If you ask people to conserve water, you lose your job,” said UC Davis’ Lund.

Tim Quinn, a visiting fellow at Stanford University and former senior executive with the Metropolitan Water District of Southern California, said he can’t envision the state ever prohibiting lawns. “To ban it entirely in my opinion would be over-reach,” he said. “It’d be very controversial.”

Attitudes started changing in California during the devastating drought of 1976 and 1977, which for the first time all but completely drained California’s largest reservoirs. It forced several cities and water providers to do the unthinkable: Tell people to start cutting back on their household water use and let their lawns turn yellow.

In the decades since, due in large part to more efficient household appliances and sprinkler systems, California has made a dramatic reduction in how much water goes to cities and their lawns.

Despite its population doubling since the 1960s, California’s urban centers now use the same amount of water per capita as they did back then.

That’s despite Californians still having nearly 4 million acres of lawns, according to the University of California’s Division of Agriculture and Natural Resources.

If Californians think about their ornamental and residential lawns as a crop, their turf is by far the state’s most expansive, outpacing hay (1.4 million acres), almonds (1.3 million acres) grapes (844,000 acres) and rice (514,000 acres).

CONSERVATION BUDGET SHORTFALLS

Part of the reason why many water districts are reluctant to tell their customers to use less water for lawns is because their financial systems were designed in the “reclamation” era when the state had ample water and no one much cared if water from hoses and sprinklers ran into the gutter.

Now, when they use less water, the districts’ cash flows start to dry up.

It stems from the way nearly all of the water providers’ billing systems are structured. Less water use typically means lower monthly utility bills, and for many utilities, there is no correlating decline in basic operating costs, such as payroll, debt obligations and maintenance of pipes and treatment plants.

In the last drought, Sacramento-area water districts lost $25 million in revenue in the first nine months of 2015, when the drought was at its worst and strict conservation measures were imposed by former Gov. Brown. That represented a 12% drop in revenue, according to the Sacramento Regional Water Authority, which comprises area water agencies.

In the years since, many districts have socked away cash as a drought buffer, and they've changed their billing systems to help offset drought losses.

Many increased the flat fees every customer pays, regardless of the amount of water used. Some instituted tiered systems that charge customers for using more water.

But even with the changes, most agencies will still lose some money if their customers turn their sprinklers off for long periods of time.

That's not a bad thing over the long run, said Mary Ann Dickinson, a consultant who was the president and CEO of the Alliance for Water Efficiency.

She's convinced that the short-term pain that comes with changing habits leads to permanent reduction in water demands. That ends up lowering costs for districts — and their customers — in the years to follow.

She points to studies that show that reducing water use means utilities won't have to spend as much money investing in new sources of water to accommodate future growth.

"If you're reducing the amount of long-term demand that your system is going to experience, that saves money in the long run," Dickinson said, "because you don't have to invest in as much infrastructure."

Still, the pain of raising rates — particularly on lower-income residents — makes it tough on water district boards of directors, said Sanjay Gaur of Water Resources Economics LLC, a Southern California consulting firm.

Raising bills when people are using less water during a drought can infuriate a utility's customers. "That's my experience," Gaur said. "People get really worked up."

VARIATION IN CALIFORNIA

Another factor that complicates discussions about lawns in California is just how big and complex the state is, both in terms of its varying climates and the differences in local water supplies.

On the foggy Northern California coast, lawns aren't nearly the water hogs they are in hot inland areas.

For instance, a 1,500-square-foot lawn in Crescent City on the North Coast would need around 22,000 gallons of water a year to keep it green, according to the state Department of Water Resources. But that same lawn in Palm Springs would require at least 63,000 gallons a year.

Different areas of the state also have dramatically different sources of water, making some areas more likely to face shortages during droughts.

The Sacramento area, bounded by two major rivers, has relatively good supplies — so much that several of its water agencies are selling some of their water this year to Silicon Valley, Southern California and other hard-hit areas. The deal is for enough water to supply about 70,000 households.

Sacramento's relative bounty explains why most of the area's water districts complained bitterly when Brown ordered them to cut water usage by as much as 36% in the last drought. Those were the strictest mandates in the state — a result of the Sacramento area's heavier-than-average water consumption. But Sacramento water officials said the mandates were unfair. The region has plenty of water, and it uses a lot because its lawns are relatively large and its summers are among the hottest in the state, they argued.

As the new drought enters its third summer, they're still pushing back against tough restrictions. Take the San Juan Water District, which serves wealthy Granite Bay. It was one of several water utilities that urged state regulators last month not to issue mandatory cutbacks for districts that had ample supplies and had invested in conservation.

San Juan's customers are never "going to get into a situation where people turn their taps on and nothing comes out," said Paul Helliker, the district's general manager.

As it stands, Helliker's district is only telling its customers to reduce lawn watering this summer to three days a week, even as residents in the city of Sacramento are ordered to cut back to twice a week. Helliker said the reduction would cut water use in the district by 20%.

Unlike other water agencies, San Juan also doesn't offer rebates to customers for replacing their turf.

Instead, Helliker's district provides rebates of up to $500 for residents who buy "smart controllers" for household irrigation systems. These are devices that can be programmed to reduce water use by automatically switching lawn sprinklers on and off depending on weather conditions.

Since 2013, just 608 of San Juan's 10,700 customers have taken the district up on the offer.

But even though Helliker isn't forcing draconian measures on his customers in Granite Bay, he's willing to tear out his own lawn.

A resident of east Sacramento, he's spending $30,000 this year to replace his grass with drought-tolerant landscaping.

He noted that there are other motivations besides water reduction that might inspire people to consider killing their lawns. For him, he'd like his outdoor space to be full of flowers that draw in bees, butterflies and hummingbirds.

“I don’t really care how much it costs,” he said. “I don’t really care how much water I’m going to save. I want to make my lawn habitat for pollinators.”

# # #

Opinion: Palo Alto's water use is not what it should be
Palo Alto Online | June 17, 2022 | Julianne Frizzell and Dave Warner

The MP rotator system involves sprinkler heads that spray smaller streams of water at a slower rate. Embarcadero Media file photo by Veronica Weber.

Palo Alto has a strong sustainability focus. So, it was a surprise to learn that Palo Alto is ranked 22 out of 26 water agencies for per person water use, measured against other agencies that get water from the San Francisco Regional Water System. Shouldn't we be among the best of this group?

Our actions matter. Our water use comes with a significant environmental cost. Eighty-five percent of our water is imported from the Tuolumne River in the central Sierra. Because of the excessive drawdown of water from the Tuolumne, salmon are on the verge of extinction, with only 578 salmon counted last year, where counts once measured in the tens of thousands.

The lack of salmon affects the whole Tuolumne ecosystem. Imagine you're a California black bear. You certainly can't rely on Tuolumne salmon to feed your offspring. The health of the Tuolumne is directly related to the amount of water we take out of the river.

How are we doing during this latest drought? Because of the severity of the drought, the San Francisco Public Utilities Commission (SFPUC) — the agency that manages the water system — asked the 26 member agencies to reduce water use by 10%. Yet, our utilities department

provided a table that shows Palo Alto's water use went down only 2.6% in the current water year through March, as compared to two years ago.

If we're about sustainability, shouldn't we be a leader in reducing our water use? For the 25 water agencies we're compared to, their average use went down 5.3%, about double our reduction.

One might argue that the first three months of the year were very dry, so we had to water our landscapes. Yes, but other cities have landscapes too and they were able to save twice as much water as us. They faced the same dry conditions.

Like any city, Palo Alto has its extremes. Some homes have gone all out, taking advantage of water-saving techniques such as planting low-water tolerant plants, removing lawns, saving and distributing rain water, or even going as far as having recycled water trucked to their homes. But other homes, at the opposite end of the water use spectrum, have lush lawns, overwatered shrubs, and inefficient or broken irrigation systems.

We hope that once more families learn that using less water is a life-or-death matter for the Tuolumne River ecosystem, they will be inspired to save more of our precious water. Let's find steps we can take to improve our water-use efficiency.

The following are some ways to save water:

- First, make sure you are not wasting water, both inside and outdoors. Most water waste is in landscaping. Confirm that your irrigation system is watering plants, not walkways or the street. The Santa Clara Valley Water District can help you by sending someone to do a Water Waste Outdoor Survey (go to waterwise@valleywater.org to schedule).

- Second, once your irrigation system is in good working order, water properly. You may be surprised to learn your plants need far less water than you are giving them.

- If you are interested in changing out your water-thirsty lawn, visit the city's Save Energy page. If you would like to know more about using rainwater for your landscape, go to the city's Stormwater Rebates page.

- And if you'd like to learn more about greywater systems, visit the Greywater Action website.

- In addition, you can apply 2 inches of organic mulch to shrub beds — we lose 30% of soil moisture through evaporation.

- There are some plants that you don't want to skimp on: Your trees are an important community asset. Be sure your valuable trees are getting enough water, even while

- Additional details and more information about the drought is available on this Drought Updates website.

- If you see water being wasted, you can report it to the city through email (drought@cityofpaloalto.org), phone (650-496-6968) and web via Palo Alto 311.

One of us — Dave — made a number of these changes this last winter and has already seen a drop in his water use as compared to last year. Some non-native plants were replaced with low-water natives such as the orange monkeyflower. Extra mulch was added to reduce evaporation. Drip irrigation schedules were reduced. A small patch of grass was replaced with a sitting area.

He did lose a plant to a gopher, but otherwise he's received compliments, and his backyard is more inviting.

We hope that once Palo Altans understand the consequences of wasting water, we'll all join together to use our precious Tuolumne River water more wisely.

# # #

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What You Need To Know About The Water Crisis On The West Coast
Mashed | July 12, 2022 | Claire Schuh


David Mcnew/Getty Images

The West Coast is facing a dire drought situation that's affecting citizens, property holders, and public officials. For context, a lot of the rules governing water rights go back a century or more, according to CNN. Today, there is less water to go around and more pressure on the system, thanks in part to worsening environmental conditions. Water rights attorney Nathan Metcalf said, "It's an old water system that many perceive isn't set up to deal with current climatic and hydraulic conditions. It's just not really set up to deal with climate change and the changing needs for water both from an environmental standpoint, and then there's also the rub between agriculture and municipal." States like California need to find new ways to allocate the precious supply of water and figure out how it can be distributed fairly.

The effects of the water shortage include power shortages and certain salmon runs nearing extinction, per Desert Sun. These drastic effects are reportedly taking hold because commercial farms have been taking up to 80% of the state's managed water – meanwhile, cities only receive 10-13%. Californians know this well – they're often hit with very strict water use guidelines. As the state faces the worst drought in 1,200 years, something has to change.

The government steps in to restrict water usage

California Democrats want to devote "$7.5 billion in state and federal funds" to creating a more robust water system, CNN reports. Their proposal includes plans to lessen water use in some areas, increase access to clean drinking water, and produce healthier fish habitats. The bill may

face issues in the legislature because it involves taking water from private property for public use.

Cities across California are implementing more water usage guidelines after Governor Gavin Newsom issued a statewide order that strengthened restrictions on water use. In San Diego, according to KPBS, people are barred from washing cars at home. Recycled water must be used "for construction purposes" if available. Landscape irrigation can only occur at certain times a day, and the number of days per week is capped. There are also rules regarding which types of hoses can be used for irrigating private property. In Santa Monica, residents will only be able to irrigate their yards twice per week, per SMDP.

It's not just California that's trying to outrun the drought. It is one of seven states that received a 60-day deadline to curtail their usage of Colorado River water before the federal government steps in to regulate, per Politico. Arizona and California could face the most dramatic cuts. People across the United States might see the effects of the drought while shopping. Per AccuWeather, grocery prices will rise amid the drought as crops become more expensive to maintain.

# # #

Local water agency uses tech to limit water use
Los Altos Town Crier | July 5, 2022 | Katherine Simpson

With 2022 the driest year on record in more than a century, local residents, water agencies and city governments are taking steps to limit water consumption.

The Mountain View City Council last week declared a Stage 2 water shortage emergency and imposed restrictions on outdoor water use.

At the Los Altos City Council meeting last week, City Manager Gabriel Engeland gave an update on the city's work so far to mitigate drought conditions, alerting council members to plans for the Environmental Commission to review "reach codes for water."

In Los Altos Hills, Purissima Hills Water District officials reported they succeeded in getting customers to reduce water use on their own by installing smart water meters for all customers in 2014.

PHWD general manager Phil Witt told the Town Crier that after nine years of experience with the smart meters, he thinks every district should add them.

"We're estimating 10% or more (savings) just on everyday water per customer," he said.

In 2013, before the meters were installed, PHWD customers used approximately 750 million gallons of water annually; in 2020, they used 670 million gallons, up slightly from the roughly 580 million gallons of water consumed in 2019.

San Jose Water last month announced plans to install smart meters.

The meters can (but don't have to) connect to an app on the customer's phone, sending reports about water use every 24 hours, much like the way smart watches notify people about how long they have slept or exercised on a given day. Using the reports, not only can customers set goals to reduce the amount of water they use, they also can spot leaks quicker.

Smart conservation
Los Altos Hills resident Steve Schmidt said his smart meter has helped him identify three or four leaks, and can determine leaks as sensitive as a running toilet or dripping hose.

Schmidt said his meter conveyed the stark difference between indoor and outdoor water use, especially in the Hills, where lot sizes are a minimum 1 acre.

"The amount being used for the irrigation cycle was enlightening," he said.

After seeing how much water his lawn was drinking up, Schmidt over time replaced all of his grass with native plants and some artificial turf in the backyard.

“Our water usage has just plummeted,” he said.

Users like Schmidt can even use the meters to tailor their irrigation systems to their garden – he said his wife compares the use reports to how well each plant is looking and adjusts the irrigation system from there.

“For me, I’m very much an engineer, so I’m good at looking at the data,” Schmidt said.

According to Samantha Vu, PHWD office manager, the technology hasn’t changed much since the meters were initially installed, but more and more customers are calling in with questions about how to analyze the data from their meters.

“The difference in the last few months would be that there’s a huge increase of customers utilizing the smart meters because of the drought,” she said.

Vu added that she’s also seen more sign-ups for the customer portal that allows residents to see their water use.

She receives calls from customers who report that “they pretty much religiously check their dashboard to make sure that they don’t have outrageous usage.”

# # #

California Water Service Shares Findings of Report on Climate Change and Water Resource Sustainability

Analysis underscores need for ongoing infrastructure investments and stakeholder collaboration

Guru Focus News | June 20, 2022

SAN JOSE, Calif., May 11, 2022 (GLOBE NEWSWIRE) -- California Water Service (Cal Water) released an Executive Summary of findings of its Climate Change Risk Assessment and Adaptation Framework (Climate Report) today. The report, prepared in conjunction with independent consultant ICF, identifies and prioritizes climate-driven risks to Cal Water's facilities, operations, and water supply portfolio, and underscores the need for ongoing infrastructure investment and collaboration.

"We are seeing the impacts of climate change on our communities, and we have been taking steps to mitigate, manage, and adapt to it," said Marty Kropelnicki, Cal Water President and CEO. "We're sharing findings of our analysis as we move forward with our environmental, social, and governance (ESG) commitments to work with community leaders and partners to address this business and societal imperative."

In 2016, Cal Water completed its first study to understand the impacts of climate change on its water sources. In 2020, the company began updating and expanding this work, resulting in the release of select findings from the Climate Report. As a result of its work with ICF, Cal Water has established a foundational framework to develop adaptation strategies designed to reduce the impact of climate change on its operations and better position the utility to meet customers' ongoing needs amid a changing environment. Additionally, Cal Water has already begun to address climate change risks through continued infrastructure investments. This includes:

- Wildfire preparation - Infrastructure projects and upgrades to increase reliability in the event of a wildfire and help prevent the loss of power at key facilities, along with protections for worker safety;
- Treatment plant analysis – Systematic review of climate change-driven risks to treatment plants caused by fires, droughts, intense rainstorms, or excessive agricultural nutrient loads; and
- Long-term demand model update – Improvements in modeling for more effective management of water resources, including addition of evapotranspiration, and updates of climate projection inputs.

"This framework will be foundational to our efforts to invest in the sustainability and resiliency of our business, so that we ensure that we can meet the needs of our customers well into the future," Kropelnicki said.

In addition to the framework, Cal Water plans to re-evaluate climate vulnerability and risk on a regular, periodic basis and consider ways to further integrate district-specific climate projections into supply reliability.

# # #

About Cal Water

California Water Service serves about 2 million people through 492,600 service connections in California. The utility has provided water service in the state since 1926. Additional information may be obtained online at www.calwater.com.

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The new ways California is working to change where and how we store water

Climate trend forecasts are showing weather volatility ahead with less snow and more rain falling in California. This has the state rethinking how we store water.

ABC 10 | June 16, 2022 | Monica Woods

California is a state of extremes with two distinct periods of wet and dry seasons. During the wet season, water must be stored to prepare for months without any precipitation.

With a changing climate, water storage is becoming one of the biggest challenges facing California. The system set up throughout the state is a complex myriad of above and below-ground storage, but what worked decades ago is no longer serving our water needs.

This has many water managers rethinking how, when, and where we can store water. In some cases, it's developing new oversight and in others, it's adjusting long-standing rules to try and keep up with water needs.

Two programs come to the forefront of this challenge:

- Forecast Informed Reservoir Operations (FIRO)
- Sustainable Groundwater Management Act (SGMA)

These address the growing water issue through better forecasting and innovative technology, moving us forward to try to help secure our water future.

Marty Ralph, director of the Center for Western Weather and Water Extremes (CW3E) is working with researchers and scientists in San Diego to better understand the biggest storms to hit the West Coast — called atmospheric rivers. These are large rivers in the sky that can deliver beneficial rain or devastating floods.

The presence of several good atmospheric rivers in a season can mean water to store in the dry season. When the state experiences years of few atmospheric rivers drought will result.

Ralph and his team are working to better forecast atmospheric rivers so water managers know when to store and when to release water. This is a fundamental piece of information needed for reservoir operations and flood protection.

Joe Forbis with the U.S. Army Corps of Engineers (USACE) says some of the dams in the state can't be to the top because there's not enough time to get water out before more come in from the storms.

Older forecasting methodology left many water agencies with limited information forcing them to release water to prevent flooding.

With improved forecasts from the CW3E, partners like the USACE can now add new flexibility to rules that dictate when to let water out and when to keep it in.

Forbis says a better understanding of the atmosphere and the climate help to make better use of the current infrastructure in the state.

This opens the door for programs Projects like FIRO.

Tested on Lake Mendocino during the 2019 and 2020 water years, water storage increased by 19% by integrating improved weather forecasting.

This is only part of the water puzzle though because even with better surface water management, the state needs more. That's when we turn to what's called groundwater. A natural underground system with the capacity to hold nearly 20 times the amount of our surface water system.

Steven Springhorn with the California Department of Water Resources (DWR) says there are about 500 plus underground water basins beneath our feet in our state. He says in drought years groundwater can supply up to 60% of our water needs. But it's been largely unchecked.

That's why the state is now requiring water basin managers to submit sustainability plans that meet standards under SGMA.

Up until now, knowing where and how to store this type of water has been somewhat limited. But a new program supported by DWR called Aerial Electromagnetic Survey is helping fill in the gaps by using electronic equipment attached to a helicopter to scan below the surface. Kind of like an MRI of the area.

Project manager Katherine Dlubec says this underground survey helps to determine the type of materials below the surface. Certain course materials like sands and gravels allow water to move through but finer grains like silt and clay tend to inhibit water flow. She says knowing the type of materials below the surface makes a big difference in where we can store water.

This should prove particularly helpful for areas like the Central Valley where data from 1998-2018 show over-pumping dropping groundwater levels by over two and a half feet a year.

But it's much better news for the nearly two million people relying on water from the American River Basin where groundwater levels are increasing.

This is due in part to projects like the Regional Water Authority's (RWA) Water Bank, an underground natural reservoir two times the size of Folsom Lake.

A climate resiliency project addressing the changing cycle of weather by storing water in wet periods and only tapping into it during dry periods.

RWA Legislative and Regulatory Affairs Manager, Ryan Ojakian, says climate change is their most significant challenge to meet their mission that when the two million people go to their tap, water comes out.

Storing water underground not only adds more flexibility but a bigger water portfolio throughout the entire state. Ojakian says that's our moonshot in the state of California to address the weather whiplash.

When asked about just building more dams, Joe Forbis says it’s more cost-effective to make the best use of our existing infrastructure and improve our groundwater.

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California Utilities Deploy Smart Water Meters Amid Drought

Smart meters send wireless signals in real time so residents and utilities can better track water use hourly, daily or weekly, making it easier to hit conservation targets and detect leaks amid drought seasons.

Government Technology | June 16, 2022 | Paul Rogers, Bay Area News Group

(TNS) — You've got a smart phone. Maybe a smart watch. Or even a smart doorbell.

In the coming months and years as California struggles with worsening droughts, millions of Bay Area residents will soon be getting a smart water meter.

Water meters — the clunky brass devices that sit in underground boxes near the sidewalks outside most homes and businesses, measuring water use — have been around since the 1820s. But in many areas, utilities only send out water bills every two months, or maybe once a month.

That means unless residents go out, lift the heavy concrete lid and dutifully write down the numbers on their analog water meters, most people don't know until weeks have gone by that they have a major leak from irrigation systems, old pipes or toilets, wasting thousands of gallons of water and running up their bill.

Smart meters instead send wireless signals in real time so residents and utilities can better track water use hourly, daily or weekly, making it easier to hit conservation targets and detect leaks.

“We are trying to get our customers over the ignorance-is-bliss mentality to the knowledge-is-power mentality,” said Nelsy Rodriguez, a spokeswoman for the East Bay Municipal Utility District, which provides water to 1.4 million people in Alameda and Contra Costa counties.

San Francisco installed smart water meters in 2014 during California’s last drought. Boston, Washington D.C. and New York City have them. But smart meters are expensive to install. The technology changes every year. Some utilities have been reluctant to take the plunge.

As California’s latest drought stretches into its third year, water supplies continue to tighten and state conservation rules increase, so a growing number of water agencies are deciding to upgrade.

On Friday, the San Jose Water Company, a private firm that provides water to 1 million people in San Jose, Cupertino, Campbell, Los Gatos, Monte Sereno and Saratoga, received final approval from the California Public Utilities Commission to install smart meter technology on the 230,000 water meters at homes and businesses in its service area.

Work on the $100 million project will begin in two years and will finish in 2026, with the average water bill going up about $5 a month to pay for it, company officials say.

The company ran a pilot project in San Jose’s Willow Glen neighborhood and found homes with the technology cut water use 7% on average, and the duration of leaks fell 38%.

“It went well,” said Liann Walborsky, a San Jose Water spokeswoman. “The customers who were in the pilot really enjoyed that they were able to see their water usage, and we saw results in conservation.”

To the east, the Alameda County Water District, which serves Fremont, Union City and Newark, is spending $41 million to upgrade its 86,500 meters by 2025. It already has finished 17,500, said spokeswoman Sharene Gonzales.

To the north, the Marin Municipal Water District is moving forward with plans to replace its 58,000 analog meters over three years at a cost ranging from $20 million to $25 million.

And East Bay MUD has installed smart meter technology on about 19,000 homes and businesses. The district’s board, based in Oakland, is scheduled to decide in September whether to expand the program.

“Just about every utility I know has a full smart meter system, or is investigating it, or is in the process of deploying it,” said Dave Wallenstein, an associate engineer with East Bay MUD.

The technology is not without controversy. When Pacific Gas & Electric installed smart gas and electricity meters across Northern California a decade ago, a small but vocal group of protesters fought the idea. They raised concerns about privacy and potential health risks.

In 2011, the California Council on Science and Technology, which advises state government on technology issues, concluded the radio frequency emissions from smart meters were well within federal safety standards for cellphones and microwave ovens.

Still, most agencies, including PG&E, allow customers to opt-out. Walborsky said San Jose Water will do that when specific plans are finished in the next two years and installation begins.

For people who already track their electricity use closely or watch their gas mileage in real time while driving, a smart water meter is another tool to “geek out” on, say some experts. Most systems, like San Francisco’s, allow people to log on to a website and track their water use. Some have smart phone apps. Some send text messages when there are big spikes in water use.

“I remember a project I was working on in Coachella Valley where somebody had a really high water bill,” said Lon House, a veteran energy and water consultant who works in Arizona and California. “They got irate. The water company said, ‘You used a lot of water in this particular week.’ They said, ‘Oh yeah, we went on a trip and left the hose running.’ ”

Some East Coast utilities have installed smart meters to cut down on labor costs. With wireless signals sent from meters directly, they no longer need employees to manually read the meters.

Some water experts say that as climate change continues to heat up the already arid West, nearly every city will have smart water meters, which also can detect large leaks in distribution pipes and, in some cases, more easily locate people who are watering lawns over the limited number of days in droughts.

“In a drought, a utility can either say, ‘You can never water your grass again,’ or you can say, ‘Here’s how much water you can use, you decide when you use it and how you use it,’ ” House said. “It’s a two-edged sword. It can be a bludgeon from the government, or it can be enabling for customers. But given what California is facing, they have to do this.”

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There are no simple solutions to California's complicated water problem. This is why
Sacramento Bee | July 6, 2022 | Dale Kasler

Yolo County farmer Fritz Durst stands at a field on June 8, 2022, that he usually plants with rice but is growing hay because of the drought. He is involved in the Sites Reservoir project, but the additional water it will provide is years away. BY PAUL KITAGAKI JR.

Fritz Durst, a farmer in Yolo County, didn't receive enough water from the federal government to plant a rice crop this spring. But the feds did give him a consolation prize.

In March the U.S. Environmental Protection Agency invited the backers of Sites Reservoir — a mammoth water storage project in the Sacramento Valley that's being personally led by Durst — to apply for a $2.2 billion construction loan. The loan is far from a done deal, but the invitation means the EPA is seriously interested in backing the project, bringing Sites tantalizingly close to reality after years of planning. This story is a subscriber exclusive

"I was ecstatic. We finally convinced people this was a worthy project," said Durst, chairman of the Sites Project Authority.

But the reservoir, planned for a spot straddling the Glenn-Colusa county line, 10 miles west of the Sacramento River, won't dig California out of its current mega-drought.

Even if all goes according to plan — a pretty big if — Sites wouldn't finish construction until 2030.

The status of Sites says a lot about how things stand in the third year of California's terrible drought. There are no quick fixes, no immediate remedies. The only way out of this, for the time being, is conservation, forcing farmers and homeowners alike to make do with less water.

"What people have got to realize is," Durst said, surveying one of his unplanted rice fields recently, "there's no easy solutions left."

Building support for a big water project is often a time-consuming process in California. And once the permits are in hand and the financing is set, it could be years before the goal of increased water supply is achieved.

That point is being driven home time and again with sobering regularity.

A simple, non-controversial water project in rural south Sacramento County, designed to "bank" billions of gallons of water below ground as a reserve for drought periods, won't be ready until late 2024. A more ambitious project, a multibillion-dollar recycling plant capable of putting a significant dent in the Los Angeles area's water woes, is moving through the planning process but won't produce drinkable water for another 10 years.

The fact is, California is responding to the drought at something other than lightning speed. Its urban residents aren't heeding Gov. Gavin Newsom's call to cut their water usage by 15%. Since he made his plea last July, water savings total just 3%.

And its public officials are struggling to get water-infrastructure projects over the finish line.

A catastrophic development — a city running out of drinking water — could prompt California to slash red tape or push through funding more quickly. Even so, the big complicated endeavors will still drag well beyond the life of the current drought — to a time, perhaps, when the public appetite for spending money on water projects will have diminished. Then, when the next drought hits, the projects will be at square one.

"We can't build infrastructure in under a decade," said Jeff Kightlinger, former general manager of the Metropolitan Water District of Southern California.

"If you don't start until five years from now, you won't have it until 15 years," he said.

In the meantime, Californians can't look to new reservoirs or other major water projects to ease the current drought.

"It takes so long to build something, to get the financing," said Jeffrey Mount, a water-policy expert at the Public Policy Institute of California. In the short run, "the real progress is going to be incremental — we're going to fix this canal here, we're going to fix this dam there."

WATER FROM THE SEA? NOT SO FAST

It's always loomed as a tempting remedy for a state that sits on the ocean and seems to be constantly dealing with drought: Pull water out of the sea. Feed it through a membrane to remove salt and other impurities. Drink up.

Desalination is a viable, though expensive, technology known around the world. A Carlsbad plant north of San Diego, the largest in the Western Hemisphere, has been humming since late 2015. It creates 50 million gallons of drinkable water a day and accounts for about 10% of the San Diego area's supply.

A man performs maintenance work in the reverse osmosis building at the Carlsbad Desalination plant in May in Carlsbad. The facility is the Western hemisphere's largest desalination plant, which removes salt and impurities from ocean water. Gregory Bull AP

But when the project's developer, Poseidon Water, proposed building a sister plant an hour down the road in Orange County, state regulators said no.

Last month the California Coastal Commission voted unanimously to reject a similarly-sized plant in Huntington Beach proposed by Poseidon Water, the company behind the Carlsbad project. The agency justified its decision mainly on environmental grounds: Commissioners said they feared for the marine life that would get sucked into the Huntington Beach plant's giant intake valve — and the sea creatures that would suffer from the millions of gallons of briny water that would get discharged into the ocean after the desalination process was completed.

Why did the commission reject Huntington Beach after approving Carlsbad years earlier? In part because the rules are stricter now, particularly the regulations on a plant's intake valves. The commission also said the risks to the Huntington Beach plant from earthquakes, tsunamis and sea-level rise are greater than previously believed.

The AES Huntington Beach Energy Center, shown in May, was the proposed site of the Poseidon Huntington Beach Seawater Desalination Plant. The California Coastal Commission rejected the proposal a few days later. Damian Dovarganes AP

As they voted down the Orange County project, commissioners said they weren't ruling out desalination as a concept. "We need every tool in the toolbox, including intelligent desalination," said Chairwoman Donne Bronsey.

Drought-stricken communities are taking a fresh look at desalination as a long-term solution to water shortages.

In 2017 the city of Santa Barbara reopened a desalination plant that had operated briefly in the early 1990s before being mothballed after heavy rains returned. The plant accounts for about 30% of the city's total supply, said water resources manager Joshua Haggmark.

Desalination is among the most expensive sources of water anywhere. The fresh water gushing out of the Carlsbad plant costs $2,725 per acre-foot, or nearly twice as much as the region's other supplies, said spokesman Ed Joyce of the San Diego County Water Authority.

The net effect: about an extra $5 a month in San Diego residents' water bills.

Given the cost, desalinated water is likely to remain a niche product, available to prosperous communities "if they're willing to pay a lot and they really need the water," said Ron Stork of Sacramento environmental group Friends of the River.
But they might need to find a new supplier. After the rejection in Huntington Beach, Poseidon says it doesn't foresee another big plant opening in the state.

"There is not a path forward for large desalination plants," said Poseidon spokeswoman Jessica Jones.

But Poseidon isn't giving up on California altogether. Jones said the company is in early discussions with public water agencies around the state about developing other projects — stormwater capture facilities, for instance, and even smaller-scale desalination plants.

"We know there's still a huge demand due to the drought," she said. "We have answers."

A RECYCLING PLANT THAT WILL TAKE YEARS

The Coastal Commission's rejection of the Huntington Beach project prompted anger. But a few days after the vote, the governor was smiling when he visited the site of a proposed water-recycling project east of Los Angeles.

The project in Carson would be capable of generating 150 million gallons of drinkable water a day — three times as much as the failed desalination plant. While recycling isn't new, this plant would deploy unusual technologies to achieve new levels of purity.

"Water recycling is about finding new water, not just accepting the scarcity mindset," Newsom said. "This is a profoundly important project for the state's future."

But not the immediate future. The Los Angeles County Sanitation Districts, which is developing the $4 billion project, is still assembling financing in partnership with the Metropolitan Water District of Southern California and water agencies in Arizona and Nevada.

It will be five years before the project, known as Pure Water Southern California, can create water that's clean enough to be used by oil refineries and other industries. It will be another five years after that, a decade from now, before the plant can make water clean enough to drink.

And probably not a moment sooner.

"Can we expedite this? Unfortunately, it's the state of the world. We have to look very carefully at all the environmental impacts, and that takes time," said Bryan Langpap, spokesman for the sanitation agency.

The fact that a project won't get done in time to ease the current drought doesn't mean California should forget about it, Kightlinger said.

Just the opposite. The former Metropolitan executive said projects should get started as quickly as possible so they'll be in place for future shortages.

"It's not like this is a temporary drought and things will be good in two years," he said. "We need to start moving on these projects."

WHERE ARE WATER PROJECTS OK'D BY VOTERS?

The last time California had a drought, voters were happy to spend money on water.

In November 2014, Californians overwhelmingly approved Proposition 1, which committed the state to borrowing $7.1 billion for various water projects.

The bond included $2.7 billion to build or expand reservoirs and other storage projects. The California Water Commission has spread that money between seven storage projects. But it's not enough to get any of them built. Developers of each facility are still cobbling together the rest of their financing — while plowing through environmental reviews, construction permits and other red tape.

Bottom line, not a single project has been built yet, nearly eight years after voters gave their blessings.

One project, to increase water storage in Silicon Valley, is being challenged in the courts. A group of environmentalists and landowners have sued over the proposed $2.5 billion expansion of the tiny Pacheco Reservoir southeast of San Jose. The project has been awarded $504 million in Proposition 1 money.

The plaintiffs say the Santa Clara Valley Water District must conduct additional environmental-impact studies to comply with the powerful California Environmental Quality Act. The water district says it has already done the required studies.

As it is, the reservoir expansion isn't scheduled to be completed until 2032. The lawsuit could set the project back a year.

Even the relatively basic projects are still slogging through a lengthy process.

The Sacramento Regional County Sanitation District has an ingenious plan for storing water. Its "Harvest Water" plan calls for building a network of pipes and pumps connecting its wastewater treatment plant, near Elk Grove, to an agricultural area at the south end of the county. Farmers would use recycled water to raise their crops instead of pulling water out of the ground. That would enable a sprawling aquifer — a hidden reservoir half the size of Folsom Lake — to fill up gradually, creating a bank for use in dry years.

In the world of California water, where litigation and controversy are taken for granted, Harvest Water is practically a slam dunk — albeit a slam dunk that will cost $444 million. The state has earmarked nearly $292 million in Proposition 1 money for the project.

Even so, the sanitation district is still working on some of its permits and is scrambling to find additional funding sources. Its consultants haven't finished designing the pumps and pipes. If all goes according to plan, construction will start next year and finish in late 2024 or early 2025.

"Infrastructure is always a challenge; it can't happen overnight," said Terrie Mitchell, the district's legislative and regulatory affairs manager. "Even in a perfect world, if you had all the stars aligned, it's going to take time to get things constructed."

END OF A BOOM ERA FOR BUILDING CALIFORNIA DAMS

Hoover Dam took five years to build during the Great Depression. The world's largest dam at the time, the product of 3.3 million cubic yards of concrete, the iconic Las Vegas project was finished two years ahead of schedule.

California's largest, Shasta Dam, was finished in seven years. Folsom Dam, completed in 1956, was an eight-year build.

Once upon a time, the state and federal governments built huge water-storage projects, and they did it relatively quickly, said the Public Policy Institute's Mount. Elected officials didn't worry much about the environmental consequences of damming the West's major rivers, and there was considerably less red tape.

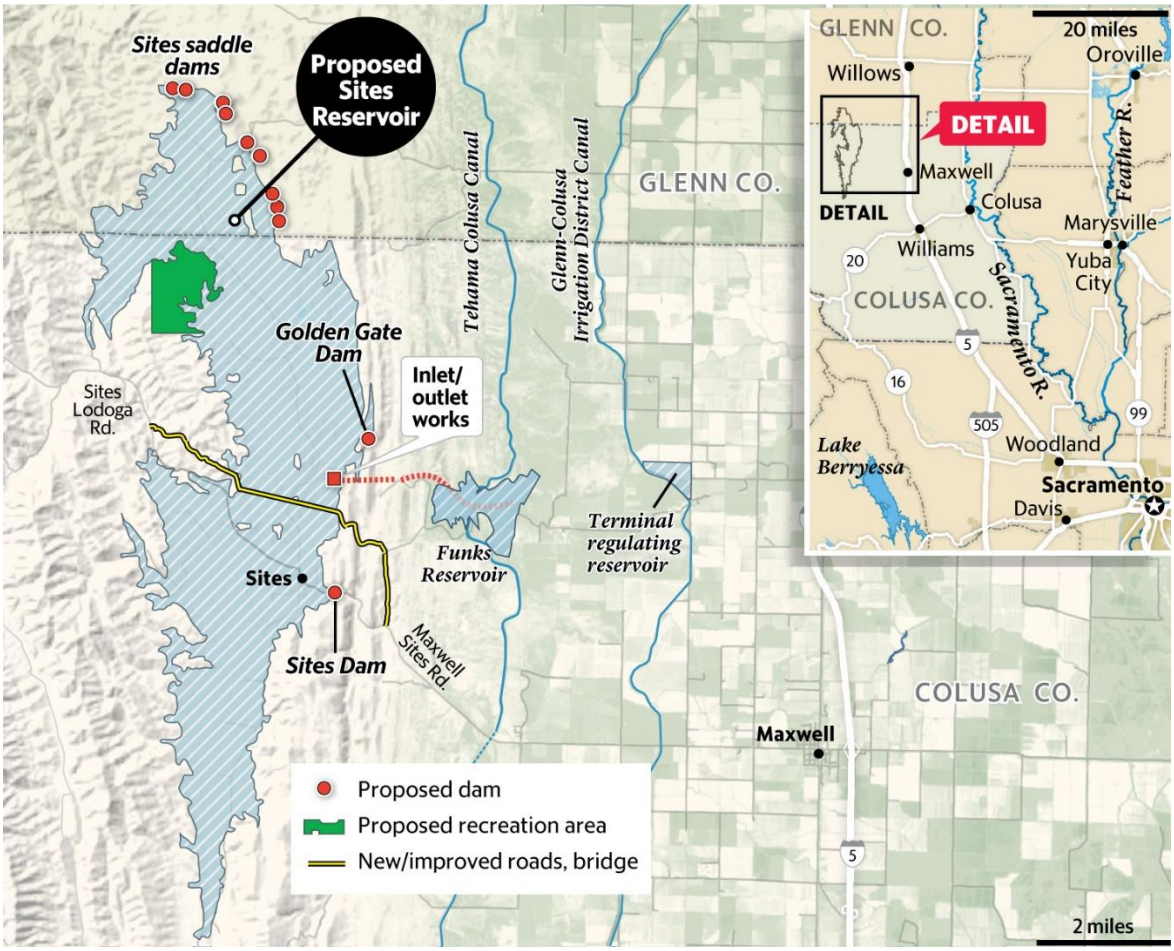
"That era is done," Mount said.

Which brings us to Sites Reservoir.

It's big — the largest reservoir built in California since the 1970s. It's expensive — at $4.4 billion, about four times costlier than the Harvest Water groundwater project in south Sacramento. And it's controversial — a concept based on pulling water out of the overtaxed Sacramento River and storing it for future use.

THE SITES PLAN

The proposed Sites Reservoir west of the town of Maxwell in the Coast Range mountains would flood the Antelope Valley in Colusa and Glenn counties. The reservoir would be filled by using two existing canals during winter, and release water using those canals during summer.



Map: The Sacramento Bee • Source: Sites Authority

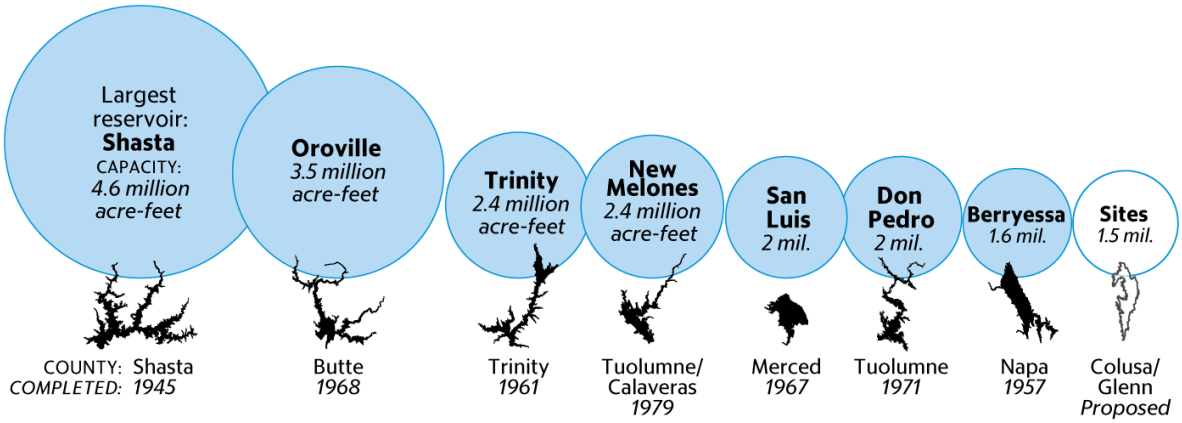
Not since the federal government's New Melones reservoir on the Stanislaus River, completed in 1979, has anything like this been attempted in California. Sites would become the first significant reservoir built in the state since the Metropolitan Water District opened Diamond Valley Lake (a facility about half the size of Sites) in the early 2000s.

Little wonder, then, that Sites is proceeding slowly.

The reservoir, to be built where a town called Sites once stood, was initially proposed by state officials in the 1980s. The initial plan went nowhere but was revived by leaders of several Sacramento Valley farm-irrigation districts. They formed a governmental entity called a joint powers authority in 2010 and began working on funding and design work.

As it stands today, Sites would hold as much as 1.5 million acre-feet of water, making it the eighth-largest reservoir in the state. The bulk of the water will be owned by 23 water districts that have pledged to "invest" in Sites. The largest investor, the Metropolitan Water District of Southern California, will lay claim to 311,000 acre-feet worth of supply once the reservoir is filled.

CALIFORNIA'S LARGEST RESERVOIRS
If built, the Sites Reservoir would be the state's eighth largest.



Map: The Sacramento Bee • Source: Sites Authority, California Dept. of Water Resources

Sites would draw water from the Sacramento River via a new underground pipe. That's the main point of controversy.

Environmentalists have criticized the notion of diverting water from the Sacramento, a river that's already a troubled habitat for fish. In drought years the Sacramento gets so warm in summer that legions of juvenile Chinook salmon, an endangered species, perish. A group called Save California Salmon gathered 50,000 signatures earlier this year on a petition opposing the project. A lawsuit by project opponents is by no means out of the question.

Newsom recently called Sites "something I've long supported," and the state has committed $875 million in Proposition 1 money, the largest single earmark from the 2014 voter-approved bond. Yet some state officials have questioned the wisdom of pulling water from the river.

In a letter sent to Sites officials in January, the California Department of Fish and Wildlife said the diversions contemplated by reservoir operators could mean "potentially significant adverse impacts" the river's fish populations, particularly in dry years. The agency suggested that Sites pull water out of the river more slowly.

Sites is evaluating the agency's comments, and those raised by other stakeholders, and expects to respond when it releases its final environmental impact report early next year, said Sites Authority general manager Jerry Brown (no relation to the former governor, who happens to live near the reservoir location).

WILL SITES RESERVOIR PENCIL OUT?
Environmentalists and other water experts saybuilding dams these days in California is hard for a reason: Most of the good locations have been taken, and much of the water has been spoken for.
"We've done all the easy stuff," Mount said. "Hard projects don't happen quickly."

In part because of pipeline limitations, Brown said Sites wouldn't release more than 500,000 acre-feet of water in any given year — one-third of its capacity.

As far as Stork and other environmentalists are concerned, that alone is reason enough to doubt the viability of Sites — or any other big storage proposal that's being hailed as a cure-all for California's droughts.

They argue that the harm done to faltering fish populations outweighs the relatively small amount of water these projects are able to capture. In a state that uses tens of millions of acre-feet per year, the output from Sites would amount to a mere trickle, Stork said.

"It's a demonstration that you can't dam your way to paradise anymore in California," he said.

But Fritz Durst says Sites makes perfect sense in a state with chronic water shortages. The announcement that the Environmental Protection Agency is interested in loaning big money to the project is proof of the project's worthiness — and could well prove decisive in getting the project off the ground.

"It's huge for us," he said. "If we're lucky, we'll be putting water into it in 2030."

Standing by his idled rice field near Knights Landing, in northern Yolo County, the chairman of the Sites Authority said the reservoir won't create an agricultural jackpot. The water in Sites would cost an estimated $700 per acre-foot, an enormous expense for farmers. He'd never use Sites water as his main source.

But as a backup supply? Sure.

"It's going to be supplemental water," Durst said. "It will be what gets you through tough times.

"Insurance is always too expensive 'til the day you need it," he added.

# # #

Bee staff reporter Ryan Sabalow contributed to this report.

Huge reservoir near Bay Area could be expanded to store more water
$1.1 billion earthquake safety project may be widened to enlarge reservoir
East Bay Times | June 27, 2022 | Paul Rogers

San Luis Reservoir, and B.F. Sisk Dam, shown here in March 2022, are located between Gilroy and Los Banos, California. The reservoir, which is 7 miles long, is a key part of California's water supply for Central Valley farms and some urban areas, including San Jose. (California Department of Water Resources)

Motorists zooming along Highway 152 through Pacheco Pass between Gilroy and Los Banos notice an unusual site amid the parched, oak-studded hills: A vast inland sea.

The shimmering body of water, San Luis Reservoir, is 7 miles long and a key part of California's modern water supply created when President John F. Kennedy pushed a dynamite plunger there in 1962 to kick off its construction. Today water from the massive lake irrigates farmland across the Central Valley and also provides drinking water for Silicon Valley, including San Jose.

Last Friday, a major new construction project started at San Luis — a $1.1 billion plan by the federal government to strengthen the huge earthen dam and raise it 10 feet to reduce the risk of it collapsing in a major earthquake.

But more than earthquake safety work is afoot.

Water officials in increasingly drought-plagued California have been hoping another project can be attached to the seismic upgrade — an effort to build the 382-foot-high dam even higher to expand the size of the reservoir.

Raising the dam 20 feet instead of 10 would cost another $1 billion. But it also would create 130,000 acre-feet of new storage, enough water to supply the needs of at least 650,000 people for a year.

“Any investment in California water infrastructure is vitally important,” said Cannon Michael, a 6th generation farmer in Los Banos who is pushing to expand the reservoir. “The population has really increased in California, but we haven’t kept up with our water investments.”

Michael is no ordinary farmer. The great-great-great-grandson of Henry Miller, a famous cattle baron in the late 1800s, he has a degree in English from UC Berkeley and serves as chairman of the board of the San Luis Delta Mendota Water Authority, an influential agency of 29 water districts that purchase water from the federal government, most of them in the Central Valley, but also including the Santa Clara Valley Water District.

In an interview, Michael said that 10 of the authority’s water agencies have agreed in concept to help fund the $1 billion project to raise the dam.

“We have a group of investors. We’re not far off,” he said. “Our goal is to get everybody signed and agreed to by the end of the year.”

San Luis Reservoir near Highway 152 between Gilroy and Los Banos on Friday, June 24, 2022. Water officials hope to build the 382-foot earthen dam higher to expand its storage. (Shae Hammond/Bay Area News Group)

California is famous for battles over dams – especially new dams on existing rivers. Most of the best spots which yield the most water – like Shasta Lake near Redding or Oroville reservoir in Butte County – were already taken generations ago. Other rivers, which run through places like Big Sur or the wild forests near the California-Oregon border, are off-limits to dams, protected by the National Wild and Scenic Rivers Act.

But when water agencies propose expanding existing reservoirs, environmentalists often don't put up a fight. A $1 billion plan to expand Los Vaqueros Reservoir in Contra Costa County, now about two years from breaking ground, has received no environmental opposition.

"I don't think this is a hill that very many people want to die on," said Ron Stork, policy director at Friends of the River, a Sacramento environmental group, of the proposal to raise San Luis dam.

When the huge earthen dam, which is 3.5 miles long on its crest — twice the length of the Golden Gate Bridge — was built 60 years ago, engineers were most concerned about shaking from the San Andreas Fault.

As earthquake science expanded, however, researchers realized that the Ortigalita fault, which crosses San Luis Reservoir, had the potential for a major quake of roughly 7.0 magnitude.

A dam failure, although unlikely, could put 200,000 people downstream at risk. Flood waters would devastate the nearby communities of Santa Nella and Los Banos, and would submerge 7 miles of Interstate 5. Water would go as far as Discovery Bay and Brentwood in Contra Costa County and cause damage to parts of Modesto, Manteca and Stockton.

Plans call for the earthquake retrofit to take roughly 9 years, with crews working 24 hours a day starting later this year. More than 10 million cubic yards of rock, gravel and soil will be moved from the hills near the dam — roughly the equivalent of 1 million dump trucks full — to harden the dam. The reservoir will not have to be drained.

The project is being funded mostly by the federal government with some state contributions. But if the other project to raise the dam height is going to happen, it would have to be funded and approved by 2027 so work could be done as part of the broader seismic job.

"We need to keep the public safety work moving and get that going," said Richard Welsh, an engineer and principal deputy regional director of the Bureau of Reclamation. "As far as the additional storage, (adding) that at the end of the project is OK. It can be married to the safety project and not hold up the safety project."
One potential funder of the expansion project is the Santa Clara Valley Water District. The agency, based in San Jose, provides water and flood protection to 2 million people in Santa Clara County.

It is struggling to move forward on plans for a $2.5 billion new dam near Pacheco Pass, a project hamstrung by difficult geology, cost overruns and environmental lawsuits.

A bigger San Luis Reservoir might be an option to store more of the district's state and federal water in wet years to use for dry years, said Cindy Kao, the district's imported water manager. But there are still many questions, she said, including who would pay for it, and who would get what amount of water.

"We want to keep our fingers in multiple pies until we see how they are baked and how they taste," Kao said.

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Water fight: Lawsuit filed against $2.5 billion dam project planned for Santa Clara County
Proposed 320-foot-high dam near Pacheco Pass doesn't have environmental studies as required by law, critics say
Mercury News | June 21, 2022 | Paul Rogers


Water fight: Lawsuit filed against $2.5 billion dam project planned for Santa Clara County

Critics of plans to build a huge new reservoir in Santa Clara County near Pacheco Pass have filed a lawsuit against the proposed $2.5 billion project, presenting a new hurdle for what would be the largest reservoir constructed in the Bay Area in more than 20 years.

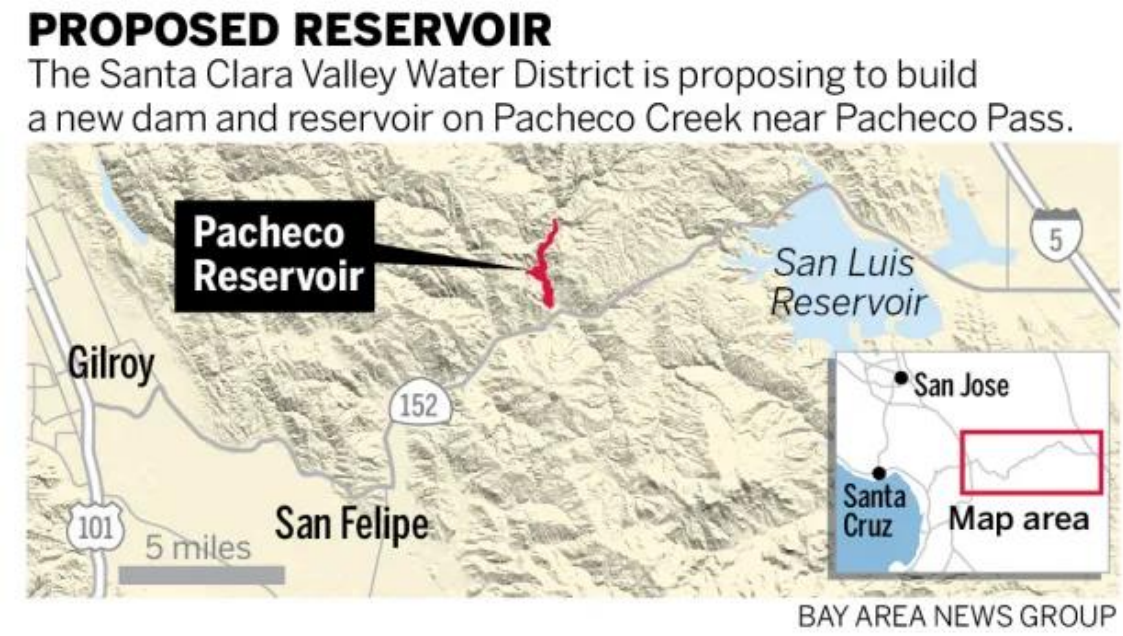
The group, called the Stop the Pacheco Dam Coalition and made up of environmentalists and landowners whose rural ranchland property would be flooded, sued the Santa Clara Valley Water District in Santa Clara County Superior Court earlier this month.

In the suit, opponents allege that the water district, a government agency based in San Jose, violated state law when it decided not conduct environmental studies to measure how upcoming drilling, boring and other geological tests will affect sensitive plants, wildlife and archaeological sites on the rugged landscape where the dam is planned just south of Henry W. Coe State Park.

"It's a very wild place. The North Fork of Pacheco Creek is full of rare plant life and wildlife. It is pristine. It is habitat for endangered species. I have seen eagles down there," said Osha Meserve, a Sacramento attorney representing the dam opponents.

On Tuesday, the water district, also known as Valley Water, issued a statement saying it has not violated the law.

“Valley Water has complied with all environmental requirements for this work and will continue to do so for the length of this project,” said Matt Keller, a district spokesman.



The geological work in question would require contractors to spend eight to 17 months drilling 226 borings and digging 57 test pits, up to 20 feet deep on various properties, including several private ranches that would be flooded by the dam. Trucks, trailers, heavy equipment and helicopters would need to make hundreds of trips over the landscape, the lawsuit notes.

The lawsuit says that the water district violated CEQA — the California Environmental Quality Act — a law signed by former Gov. Ronald Reagan in 1970 that requires detailed studies of major construction projects. It is asking a judge to order the district to do the studies and add them to a draft environmental impact report the district released last November.

The additional studies could potentially take a year or more.

The district’s plan calls for building a 320-foot-high earthen dam on the North Fork of Pacheco Creek in the rugged canyons about 2 miles north of Highway 152.

Construction would start in 2025 and finish in 2032. The reservoir would submerge 1,367 acres and have a 35-mile shoreline.

The new reservoir would hold 141,000 acre feet of water, replacing a small reservoir there now that was built in 1939. The new Pacheco reservoir — 23 times bigger — would be built upstream.

It would be the largest new reservoir built in the Bay Area since 1998 when the Contra Costa Water District constructed Los Vaqueros Reservoir in eastern Contra Costa County. It also would rank as the fourth largest reservoir in the Bay Area, behind Lake Berryessa in Napa County, Lake Sonoma in Sonoma County and Los Vaqueros.

The district hopes to take water it now stores nearby in the massive San Luis Reservoir and pipe it to a new Pacheco reservoir, filling it during wet years.

“We entered this winter in a drought emergency,” said John Varela, the district’s acting chairman, at a public hearing on the project Jan. 13. “Increasing our ability to store water in wet winters to use during droughts is vital to the region, especially in light of the fact that climate change is already resulting in more frequent, more severe droughts.”

District officials say that the project also would provide a more regular supply of water downstream for endangered steelhead trout.

The project received a huge boost in 2018 when the administration of former Gov. Jerry Brown awarded it $485 million from Proposition 1, a $7.5 billion water bond passed by voters in 2014. The district met a key deadline for the state funding when it released its draft environmental impact report for the project in November.

But it has run into big problems with cost overruns. In 2017, the district estimated the project would cost about $800 million. The following year, the price jumped to $969 million, then $1.3 billion by 2020. In January 2021, the district announced the cost had doubled again to $2.5 billion after initial geological studies found rock in the area was unstable — a finding that geologists had noted 20 years earlier when the water district considered, and then dropped, the idea.

In recent months, the price dipped to $2.3 billion after design revisions, but currently is back to $2.5 billion, district officials said Tuesday.

Critics, who include San Jose Mayor Sam Liccardo, say the price tag is far too high. They note that the district’s staff in April 2021 issued a report showing the cost would be $18,800 an acre foot, double the cost of expanding Los Vaqueros in Contra Costa County or raising the height of Sisk Dam on San Luis Reservoir. It’s also 20 times the cost of groundwater storage projects in the San Joaquin Valley and Palm Desert areas that the district could use.

The district also has not secured any federal funding or funding from other Bay Area water districts to help pay the bill, meaning its ratepayers could be on the hook for all costs.

Meserve said the district should focus instead on expanding recycled water, on stormwater capture projects and more groundwater storage.

“There are 1,500 reservoir sites in the state,” she said. “If you are ranking them this is probably the 1501st. Most of the good sites are taken. This isn’t one of them.”

# # #

Drought and heat stress California's infrastructure
San Jose Spotlight | June 15, 2022 | Erin Zimmerman

Valley Water will consider having water enforcers educate residents on conservation, and in some instances issue fines for repeat violators. Photo courtesy of Pixabay.

The heat this past weekend was a reminder that California's weather is changing—and we are in a hot-zone. Parts of California, including San Jose, are actually warming faster than the global average and some parts have already reached the 2 degrees Celsius cutoff cited by scientists as the point of no return.

California's infrastructure isn't ready

If the summer of 2020 taught us anything, it's that California's power grid is unprepared to deal with the consequences of climate change. High winds and temperatures now necessitate public safety power shutoffs, precautionary blackouts to prevent forest fires due to downed power lines. These shutoffs can leave thousands without power for days at a time.

The energy infrastructure also struggles with high demand. Just this past weekend area residents were warned of potential power outages in case demand outstripped supply due to high temperatures.

Californians are used to hot weather, but there is regular summer heat and then there is climate change hot. Just this past Friday, San Jose temperatures nearly reached 100 degrees and millions of Californians spent part of the weekend under an excessive heat warning.

The expected temperatures led Santa Clara County officials to advise vulnerable residents to stay indoors with air conditioning or make their way to available cooling centers. But cooling centers only work for short time periods and for vulnerable residents able to travel. Even healthy adults need to be careful during extreme temperatures, which is difficult for the many essential workers whose jobs require them to be outside.

Drought conditions also impact the ability of utilities to generate hydroelectric energy. According to the U.S. Energy Information Association (EIA), prior to the onset of the drought in 2019 about 19% of California's power was generated by hydroelectric. The EIA estimates that this year hydroelectric will account for just 8% of power generated.

We have already endured two heat waves this year, one in May and one last weekend, and summer doesn't officially start until June 20. Without adequate investments in more climate resilient electricity infrastructure, San Jose residents will continue to experience reliably unreliable power.

Californians aren't ready

California is now both hotter and drier. January to March of this year was the driest on record, and currently 95% of the state is experiencing severe to extreme drought conditions.

California is now drier than it has been in the last 1,200 years. It goes without saying that the severity of the current drought, which is part of a larger mega drought that started in 2003, can be attributed to climate change. Park Williams, a climate scientist at UCLA and the author of a study looking at the intensification of the mega drought, noted that "without climate change, this would not even be close to as bad as one of those historical mega droughts."

Despite the beginning of this year being the driest on record, Californians have continued to increase their water usage. Water use across the state was up by almost 18% in April compared to 2020.

For the first time ever, Valley Water has approved enforcement of water restrictions on outdoor water use. Valley Water board member John Varela said in a statement that the county needed to reduce its water consumption by 15%, largely by limiting outdoor watering. Restrictions went into effect on June 1. For those interested, Valley Water offers rebates for swapping out your lawn for a drought-resistant landscape and also have robust conservation programs. You can find water restrictions specific to you here.

Recent scientific simulations have predicted the current drought has over a 90% chance of lasting through 2023, and has an alarmingly high 75% chance of dragging on until 2030. This means the water issue isn't going away and will likely only get worse. It is essential that state and local governments, as well as local residents, invest in water conservation education and efforts.

# # #

San José Spotlight columnist Erin Zimmerman is a climate reality leader with the Climate Reality Project's Silicon Valley chapter. Erin, a long-time environmental and political activist, holds a PhD in political science. Her column appears every third Wednesday of the month. Contact Erin at environmentsanjosespotlight@gmail.com.

Property owners and officials find ways around century-old laws as the West runs out of water

CNN | July 10, 2022 | Stephanie Elam

With a megadrought draining water reserves in the West, states are looking for alternatives to handle water rights, many of which were set more than 100 years ago when water supplies were far more abundant.

Back then, just posting a sign next to a water diversion was enough to be considered a right, one which could still be honored now. But the climate crisis is now straining those rights. There just isn't enough water in California to satisfy what's been allotted on paper.

For years, debate has raged in California about the best way to fix the water rights system for life in the modern era. Many of the senior water rights held in the state were set before 1914 when the permit system was established and when mining was big business.

"It's an old water system that many perceive isn't set up to deal with current climatic and hydraulic conditions," Nathan Metcalf, a water rights attorney for California law firm Hanson Bridgett, told CNN. "It's just not really set up to deal with climate change and the changing needs for water both from an environmental standpoint, and then there's also the rub between agriculture and municipal."

Recognizing the dour effect of climate change on the state's hydrology, Democrats in California's Senate have proposed using $7.5 billion in state and federal funds to "build a climate-resilient water system."

Of those funds, $1.5 billion would be used to buy land with senior water rights from holders willing to sell them voluntarily in prioritized waters. The Democrats argue "fundamental changes" to the state's water system are "needed to realign demand, supply, and the flexibility of the system."

The proposal, which has yet to work its way through the legislature, would look to "retire water use incrementally from multiple water uses in a basin and across wide geographies" which would help provide clean drinking water while also improving fish habitats and wildlife refuge conditions.

"The problem with trying to regulate the senior water rights is that it's a property interest, so you always run the risk of a takings claim by taking that property," Metcalf said.

A takings claim could be brought by property owners against the government if it seizes private property for public use. Owners could also make a takings claim if regulations go too far in restricting their use of the land.

But Metcalf said there could be situations where it's mutually beneficial for a property owner to cede his or her water rights.

“If it’s economically advantageous for both the farmer and the state to purchase those water rights to put to another use, I think that’s a possibility,” Metcalf said. “I could also see certain agricultural sectors being opposed to that because you never know when or how you’re going to use that water right in the future.”

Metcalf said the government could simply buy senior water rights, which might be an easier option than trying to regulate those rights, which often leads to years of litigation.

A novel approach

In Northern California, the State Water Board is trying something it has never tried before: a voluntary water sharing agreement for water rights holders in the Upper Russian River watershed in Mendocino and Sonoma Counties.

For months, rights holders met once a week to come up with an agreement in anticipation of another supply shortage. It’s an effort to avoid curtailments spurred by the severe drought conditions last year, which led to water demand outstripping supply.

“Conditions deteriorated so quickly, there weren’t really alternative options. We had to move forward with the curtailment process. We developed an emergency regulation,” said Sam Boland-Brien, a supervising engineer with the State Water Board. “That resulted in all kinds of surface water users … in the upper part of this watershed having to stop diversions.”

Property owners and officials find ways around century-old laws as the West runs out of water
Shasta Lake, California's largest water reservoir, has been running well below full capacity this year. - George Rose/Getty Images

In fact, water levels got so low, “there was this really concrete risk that Lake Mendocino up near Ukiah was going to run empty,” Boland-Brien said, adding the storms rolling through in October last year kept the lake from running dry before the end of winter.

Coming too close to running out of water was the catalyst to find a better way to share water, he said.

The State Water Board said more than half of the total eligible water rights holders have signed up for the program, including municipalities along the river which hold the oldest rights in the watershed dating back to the late 1800s as well as local water districts and some larger institutional wineries.

The more rights holders involved, the better. By enrolling in the program, rights holders committed to a water use reduction of up to 20% to 30% for senior holders. Due to the oppressive drought, cities are also enforcing water conservation. Those water savings are incorporated into what can be shared with other rights holders in the community as well, Boland-Brien noted.

All the agreements create a pool of water available for more junior rights holders who would have otherwise had their water curtailed. Participants can also do further transfers or exchanges among each other, creating an added level of flexibility.

“What the program achieves is, it smooths out that ‘all or nothing’ aspect of the appropriative system,” Boland-Brien explained. He said a better-managed, voluntary system is more likely to get buy-in from rights holders than state regulatory actions alone.

“Those who still have water rights, produce a little bit,” Boland-Brien said. “They reduced their usage … so those that [have more junior rights] can make it through the irrigation season on a reduced amount.”

An emergency curtailment regulation remains in place as a backstop for those rights holders who did not join in the program. As water levels continue to drop, curtailments will kick in based on seniority.

The program went into effect July 1 and will expire at the end of the year, but there’s hope that it could be expanded into the future.

“The idea is that this would continue in future years and so each year there would be a slightly different mix of water supplies and people signed up so that even if you’re a junior some years, you could still benefit from the flexibility,” Boland-Brien said.

A court rules in favor of deviating from the law

The Upper Russian River program is in line with what Mike Young, a professor at the University of Adelaide and a specialist in water policy reform, says is needed to equitably handle water

rights in drought-stricken areas, except, he argues, every rights holder needs to be included in any water-sharing program.

“Everybody has a percentage share of whatever is available and that goes up and down,” Young said to CNN. “Have boards that make decisions in the interest of everybody, and everybody has an incentive to make the system work. The board makes the final decision, and the profits are allocated to shareholders … You run a water accounting system that looks like your bank account.”

In Nevada, a fight over Diamond Valley’s groundwater rights ended up at the Nevada Supreme Court, which set a precedent when it ruled 4-3 the state engineer can deviate from Nevada’s water laws, which are based on water rights seniority, to regulate Diamond Valley’s water under a new groundwater management plan approved by those water users when supplies are depleting.

About four years ago, Young spent time with farmers in Diamond Valley, an area in Eureka County which relies heavily on groundwater; too heavily, Young said. According to the court’s ruling, “the Diamond Valley Hydrologic Basin is over-appropriated and over-pumped, such that groundwater withdrawals from the Basin exceed its perennial yield.”

“The thing about rivers and groundwater resources is they don’t lie,” Young said, adding in one day, he helped the farmers draft the new groundwater management plan.

“Someone’s got to write the rule book down and the problem is that America doesn’t have a decent rulebook for playing the game called water use,” Young said. He argues developing water accounting systems where the resource is scarce should be basic.

“Every irrigator in the west should have a water account that says how much water they may take from the system,” Young said. “Taking water that is not in your account is seen by everyone as bad as going next door and harvesting their crop.”

# # #

Problems with Bay-Delta water resources modeling have been recognized for decades
California Water Research | July 7, 2022 | Deirdre Des Jardins

The drought years of 2021 and 2022 saw major errors in the Department of Water Resources' Bulletin 120 runoff forecasts and water supply projections in the Delivery Capability Report. The Joint Legislative Audit Committee authorized an audit of DWR's modeling and water management on June 27, 2022. But the problems are part of larger institutional issues with development and external review of modeling for water resources management, which have been recognized for decades by the Bay-Delta modeling community.
On June 9, 2009 — thirteen years ago — modelers and researchers from state and federal agencies and universities sent a letter to the CALFED Director and CALFED Lead Scientist, titled, Re: Improved Modeling Capabilities Needed for the Bay-Delta Planning Effort. The letter proposed the following:

> Longer-term responsibilities for the CALFED Science Program and the community of Bay-Delta modelers include elements of education, evaluation, development, licensing, research, and regular peer-review as part of a commitment to establishing and maintaining a state-of-the-art group of model developers, users, and interpreters. These elements are often discussed within the Bay-Delta modeling community, and there is broad-based support for collaboration and coordination for longer-term model and modeler improvement.
>
> … We recommend that the proposed program include the following:
>
> - Use of the diverse model and data development talents and capabilities already existing in California's agencies, universities, and consulting firms
> - Establish community-wide 2-year, 5-year, and 10-year goals for strategic model development
> - Leadership that maintains a consistent application-oriented scientific perspective and maintains focus on achieving strategic modeling goals (2-yr, 5-yr, 10-yr)
> - Requirement of product completion according to 2-, 5-, and 10-year schedules to satisfy near-term modeling needs
> - Proper mathematical verification of model codes and calculations, field testing of models, and peer-review of model algorithms and documentation
> - An external review committee to provide outside scientific advice, oversight, and quality assurance, drawing on expertise from other estuaries
> - Model codes and documentation made freely available in the public domain
> - Identification of a caretaker of model codes and documentation
> - Programmatic investment of $3 million/year for 5 years to support these recommendations
> - (Underlining added.)

Several months later, the Delta Reform Act of 2009 was passed, and the Bay-Delta Authority was dissolved. The modeling community's proposal to do proper verification and field-testing of

models, as well as peer-review of model algorithms and documentation, was never implemented.

It took a decade for the CALSIM III water operations model to be released. Deliveries in 2021 and 2022 have been 15-23% of model projections for 2-year and 4-year droughts. The model could have created systemic drought vulnerability for water agencies dependent on water from the State Water Project.

The proposal in the 2022 Senate Climate Budget Plan to provide $100 million in funding for water management science would be an important and needed step. The Senate proposal includes involvement by the Delta Independent Science Board, but the Board would need funding to properly implement external review.

Further Reading

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# # #

California deepens water cuts to cope with drought, hitting thousands of farms
Los Angeles Times | July 7, 2022 | Ian James, Sean Greene

California regulators have begun curtailing the water rights of many farms and irrigation districts along the Sacramento River, forcing growers to stop diverting water from the river and its tributaries.

The order, which took effect Thursday, puts a hold on about 5,800 water rights across the Sacramento and San Joaquin rivers' watersheds, reflecting the severity of California's extreme drought.

Together with a similar order in June, the State Water Resources Control Board has now curtailed 9,842 water rights this year in the Sacramento and San Joaquin watersheds, more than half of the nearly 16,700 existing rights.

"The need to take these curtailment actions is in many ways unprecedented. And it reflects just how dry things have been in California over the last three years," said Erik Ekdahl, deputy director of the state water board's water rights division. "After three years of really unprecedented drought, reservoir storage is at record lows for much of the state. And there's just simply not enough water to go around."

The number of water rights that fall under this year's orders is slightly less than the 10,200 curtailed in 2021. But the latest cuts have come earlier in the summer, affecting many farmers at the peak of their growing season, when they typically irrigate more.

A long list of agricultural water suppliers were emailed notices this week ordering them to stop water diversions from rivers and streams. They included Glenn-Colusa Irrigation District, Browns Valley Irrigation District and Nevada Irrigation District.

Cities from San Francisco to Sacramento to Redding have also been told to stop diverting water.

In all, more than 4,300 water rights holders are affected by the curtailments, many of them farmers.

California's water rights system allows for regulators to curtail rights and halt diversions based on the year a rights holder started using water.

In the Sacramento River watershed, Ekdahl said, "we're curtailing down to a priority date of about 1910," while those with older rights will be able to continue taking water.

While the initial cuts in June primarily affected those in the San Joaquin watershed, the latest order affects more than 5,000 water rights along the Sacramento River and its tributaries.

“Curtailments are never our first option, and yet we kind of need to go this route,” Ekdahl said.

He pointed out that much of Northern California has received only about two-thirds of the average rainfall over the last three years.

“We’re now in a really tough scenario where we have to look and evaluate how much supply and demand is there, and implement the water rights priority system like it was designed back in 1914,” Ekdahl said. “That’s important for just ensuring that there is water available and for providing a stable and orderly way to administer a very limited supply during drought.”

Those who have been told to stop diverting water have largely been complying, he said.

“It shows that people do recognize that we are in this scenario, we have to work through it all together. But it’s going to get harder,” Ekdahl said.

The cuts are intended to help preserve water supplies as much as possible, he said, not only to get through this year but also in case the state ends up enduring a fourth year of severe drought.

According to the state water board, the curtailments will reduce water diversions by about 789,000 acre-feet during July — more than the nearly 500,000 acre-feet that the city of Los Angeles supplies to customers annually.

Farms and cities across California have already been grappling with cuts in supplies from two large water-delivery systems, the State Water Project and the Central Valley Project.

The drought has taken a toll on California’s agriculture industry, which produces a range of crops including nuts, fruits, rice and hay for cattle.

Researchers at UC Merced estimated that reduced water deliveries last year resulted in 395,000 acres of cropland left dry and unplanted. And growers have been leaving more land fallow this year in the Central Valley.

Karen Ross, secretary of the California Department of Food and Agriculture, said initial projections point to more than 800,000 acres of farmland probably being left dry this year, including about 250,000 acres in the Sacramento Valley, which previously had largely been spared cutbacks.

“It’s a tremendous impact to the farms and to whole communities,” Ross said.

She said farms have effectively reduced water use over the last two decades while also increasing productivity.

Over the last 10 years, the amount of irrigated farmland has also gotten smaller, Ross said, and in the future, “we’re going to be farming a smaller footprint.”

That’s partly because of the gradual implementation of groundwater pumping limits under a 2014 California law intended to combat chronic problems of excessive pumping and declining aquifers.

The state’s $49-billion agriculture industry also is contending with drought years that are being compounded by warmer temperatures fueled by human-caused climate change.

Ross said that reality underscores the need to conserve now and adapt to hotter, drier futures.

She said the drought is a huge “punch in the gut because it’s so heart-wrenching.”

“It’s a very stressful time in ag,” she said. “But we are also very, very resilient.”

In addition to the curtailments of water rights, rice farmers who are part of a group called the Sacramento River settlement contractors have voluntarily reduced water use. Ekdahl said they are receiving about 18% of their full contractual allotments.

He said the state water board doesn’t have data on how the cuts will affect different crops in the Central Valley.

In the last year, many of the large irrigation districts have been able to use water stored in reservoirs, which isn’t subject to the curtailments, Ekdahl said. Many also continue to have access to groundwater, and some are able to buy water from other growers.

Ekdahl said who is affected and who isn’t is going to be a “site-specific kind of question.”

What’s clear is that without enough water to go around, he said, it will be difficult for some growers to find enough for their crops this summer.

# # #

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Water officials outline new watering restrictions as drought continues
Bakersfield.com | June 27, 2022 | Steven Mayer

Water use is about to change in a big way for commercial and industrial property owners interested in keeping their lawns green.

During a webinar on Tuesday hosted by the Greater Bakersfield Chamber, water officials with the city of Bakersfield and California Water Service said owners and managers of commercial, industrial and institutional properties are now barred from using potable water for irrigating non-functional turf.

The tough, new rules are coming via the State Water Resources Control Board.

"We want to make sure, and the city as a partner wants to make sure, that our businesses have the up-to-date information about what is and isn't in the regulations, what is and isn't legal, and also ways our members and commercial property owners have of ensuring that they are in compliance," said Nick Ortiz, Chamber president and CEO.

The primary goal of the webinar was to educate commercial, industrial and institutional property owners, to share important information and to help people successfully navigate the new regulations, said Bakersfield Assistant City Manager Gary Hallen.

The heart of the new regulations is a ban on using potable — or drinkable — water to irrigate "non-functional turf" at commercial, industrial and institutional sites.

The new restrictions are in response to Gov. Gavin Newsom’s March 28 executive order calling for water conservation directives to address "California’s new normal of climate extremes," the state said in a news release.

The new rules became effective on June 10.

"Trees are OK to irrigate," said City Water Director Sam Blue.

In fact, the state was clear that it wants to prevent the loss of trees, and other perennial plantings, a loss experienced locally during the last protracted drought.

Non-functional turf is defined by the water board as "a ground cover surface of mowed grass that is ornamental and not otherwise used for human recreation purposes."

It does not include "school fields, sports fields or areas regularly used for civic or community events."

In addition, residential properties are not affected by the new rules. Not yet. Residents may continue to irrigate turf, subject to local rules.

However, homeowners associations are affected by these regulations, but not on the residential properties themselves, water officials said.

The state board is encouraging people to reduce lawn irrigation on their properties and to convert turf to water-wise plants. But at this point, these actions are not required.

Residents may use recycled water or so-called gray water to irrigate lawns. But again, the board encourages people to prioritize the irrigation of trees and other plants due to the severity of the drought and the amount of water required for turf.

Those who violate the strict regulations could be subject to stiff fines.

Local or state enforcement may include warning letters, conservation orders, and fines of up to $500 per day, officials said.

The board is encouraging local agencies to provide additional assistance to disadvantaged communities and translate conservation announcements and materials into the languages spoken at properties in commercial, industrial and institutional sectors.

Rebates may be available for commercial, industrial and institutional sites that make water-saving improvements, such as replacing turf with low-water use landscaping, switching irrigation from spray to drip, replacing old equipment with smart irrigation controllers, and other changes.

# # #

New EPA PFAS Advisories: What Now? WEF Offers Advice
Treatment Plant Operator | June 28, 2022

The U.S. EPA's new interim drinking water health advisories for per- and polyfluoroalkyl substances (PFAS) have water utility leaders asking: What should we do in response?

The Water Environment Federation is offering advice on its website at www.wef.org/pfas. The advisories are much stricter than the previous levels "and likely mean hundreds, if not thousands, of drinking water systems nationwide will be affected," according to WEF.

While releasing the advisories, the EPA announced up to $5 billion in grants to help communities prepare for and deal with PFAS.

The EPA advisories most significantly affect two PFAS chemicals: perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Since 2016, the advisory level for drinking water had been 70 parts per trillion. The new interim advisories are 0.004 ppt for PFOA and 0.02 ppt for PFOS.

The agency also issued final lifetime drinking water health advisories GenX chemicals at 10 ppt and for PFBS at 2,000 ppt. WEF observes that these non-enforceable advisories are meant to share the EPA's latest information and to help utilities begin reducing risks to public health.

WEF president Jamie Eichenberger observed, "EPA's decision to reduce these health advisory levels from 70 ppt to as low as 0.004 ppt will have a significant impact on water utilities, who receive these chemicals from industry and consumers and are not generators themselves.

"We encourage EPA to continue to work toward source control to prevent these contaminants from entering our waterways in the first place and are looking forward to working with EPA to develop science-based effluent limits and drinking water standards that protect public health and the environment without placing an undue burden on our utilities and ratepayers."

Formal rules in the works

WEF notes that the setting of health advisory levels is the start of a science-based process to investigate the issue thoroughly in preparation for formal rule-making. The EPA's PFAS Strategic Roadmap includes targeting National Primary Drinking Water Regulations for PFOA and PFOS in autumn of this year; a final rule then would follow in autumn 2023.

The proposed rule would include both a non-enforceable Maximum Contaminant Level Goal and an enforceable Maximum Contaminant Level. WEF observes, "EPA has identified a series of technologies that are known to reduce PFAS concentrations. They include activated carbon, ion exchange, and high-press membranes."

The federation also noted that the new advisory levels for PFOA and PFOS are below the levels where they can be detected and quantified using current analytical methods.

Funds available

In confronting PFAS, the EPA also announced $1 billion in grants from the Bipartisan Infrastructure Law. This represents the first portion of $5 billion that ultimately will be available to reduce PFAS in drinking water “in communities facing disproportionate impacts,” according to WEF. “The EPA has published guidance detailing eligible applicants, eligible projects and how to apply for the funds.”

Additional funds are available through the Drinking Water State Revolving Fund ($3.4 billion) and the Clean Water State Revolving Fund ($3.2 billion).

Engage with customers

The EPA encourages water utilities to engage with their communities on PFAS and recommends that those finding PFAS in drinking water inform residents, deploy additional monitoring to assess scope and source of contamination, and explore steps to limit exposure.

Key messages to convey to customers, according to the EPA, are:

- Water agencies do not use or produce PFAS. They receive traces of the chemicals used by manufacturers and consumers.
- The EPA and the water sector are working together. The agency has committed to working with state agencies and drinking water systems on ways to reduce public health risks related to PFAS, especially in small and disadvantaged communities.
- Treatment systems to remove PFAS are already available and proven. They can be deployed at the utility level and at private wells and as point-of-use devices in homes.

# # #

For more information, visit www.wef.org/pfas.

EPA Plan to Use Superfund Law on PFAS Stirs Cleanup Cost Worries
Bloomberg Law | June 23, 2022 | Dean Scott

The EPA's plan to designate for the first time two "forever chemicals" as hazardous substances under the powerful Superfund law has sparked fears of runaway costs associated with cleaning up contaminated sites, attorneys say.

An Environmental Protection Agency proposal to designate PFOA and PFOS would be the first time the agency has wielded the Comprehensive Environmental Response, Compensation, and Liability Act, known as CERCLA or the Superfund law, to designate chemicals as hazardous in the 40-plus years since its passage.

The move would allow the EPA to apply the Superfund law's bedrock "polluter pays" principle to cleanups, which means the EPA or state agencies could recover full costs or contributions from polluters.

The plan, stuck in a White House review since January, raises concerns a hazardous designation would trigger reopening some remediated sites if significant enough levels of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) remain. The regulations, if finalized, are expected to impose detailed reporting requirements and could disrupt ongoing litigation focused on settling responsibilities for cleanups, say attorneys tracking the issue.

"If you have new contaminant data and there's reason to believe your site contains a compound that wasn't previously listed, then, absolutely those can be reopened," said Daniel Deeb, an attorney with Arent Fox Schiff LLP representing companies on CERCLA and other waste and cleanup litigation.

The EPA's action seeks to tackle a small slice of the ubiquitous PFAS compounds, which have been widely used in everything from rockets to heart stents, firefighting foam, and nonstick cookware since the 1940s. PFOA and PFOS were among the most widely used PFAS chemicals, and were selected by the EPA because there is ample research available on both. In recent decades they largely have been replaced by other variations of the huge per- and polyfluoroalkyl substances, or PFAS, family of chemicals.

Cancer, heart problems, and weakened immune systems are among the health issues associated with the substances, often dubbed "forever chemicals" because some remain in the environment indefinitely and in humans for years.

A hazard designation under CERCLA would give the EPA a new tool to force facilities around the nation to report on PFOA and PFOS releases that meet or exceed certain thresholds, helping to further focus where the agency puts its attention toward cleanups. EPA argues that designating the compounds hazardous is key to increasing its awareness of the location and size of the challenge of PFOS and PFOA releases.

Timing in Doubt

EPA planned to publish the proposal sometime this month, to be followed with a final rule in summer 2023. That timeline is looking increasingly ambitious as the Office of Management and Budget continues meetings over some of the thornier concerns over the rulemaking.

An EPA spokeswoman declined to comment on how soon the agency might unveil its proposal, a timeline that is largely in the hands of reviewers at OMB.

Since the proposal was sent for White House review in January, OMB has held 10 formal meetings with industries spanning airports and aviation, oil and gas, chemical manufacturing, and waste handling and recycling who highlighted unintended consequences, as well as with environmental advocates who support the EPA's move.

How EPA proceeds with the CERCLA hazardous designation could upend legal strategies and even ongoing litigation over waste site cleanups, according to several attorneys, particularly for sites where remediation is already underway that doesn't seek to clean up PFOS and PFOA.

But the EPA is on firm legal footing in wielding the Superfund law to deem certain PFAS chemicals as hazardous, even if it hasn't done so until now, said Peter Wright, who led the agency's Superfund program during the Trump administration.

Drain on Cleanup Funding

For decades chemicals have been deemed a CERCLA hazardous substance for the purposes of cleanups if determined to be a hazardous air pollutant or otherwise hazardous, said Wright, an attorney with Barnes & Thornburg LLP.

"EPA has never used its authority to uniquely designate a CERCLA hazardous substance," he said. "It has not had the occasion to use that authority, but it does have that authority."

Some worry that EPA's pursuit of the PFOS and PFOA hazardous waste designation could increase Superfund cleanup costs just as the program is getting more funding for cleanups that advocates have pursued for decades. The bipartisan infrastructure package provides $3.5 billion over five years for Superfund cleanups, on top of increases Biden has won via the annual appropriations process.

But that funding might not go as far as hoped if the agency's PFOS and PFOA designations drive up remediation costs, said Lisa Rushton, a partner with Womble Bond Dickinson who works on solid and hazardous waste management and cleanup issues.

"Yes, we're going to have more money there, but the costs of the remediation are exponentially larger" for extensive PFOA and PFOS cleanups, she said.

“When you just have, say, soil remediation, maybe you’re talking hundreds of thousands” of dollars, or groundwater remediation at a cost of millions, she said. But with any PFAS remediation, those costs could be exponentially higher, perhaps $10 million or even $100 million depending on the complexity, Rushton said.

The EPA in some cases has already begun requiring “at the very least investigations and sometimes remediation” of sites showing some level of contamination with the forever chemicals, Deeb said.

Future Concerns

The National Association of Clean Water Agencies, representing wastewater treatment agencies, has met with OMB to warn that such facilities could be on the hook for treatment and disposal of the material—utility costs that would likely be passed onto ratepayers. It has pressed House and Senate committee leaders to pass legislation to shield the water agencies from liability from EPA’s pending regulation, arguing that they played no role in producing the chemicals.

The clean water group reiterated those concerns at a June 13 meeting with OMB, including how the CERCLA designation would impact the handling of biosolids—the natural byproduct of sewage treatment often beneficially reused in fertilizers, said Amanda Aspatore, NACWA’s general counsel.

EPA is eyeing broader PFAS regulation under the Superfund law down the road. It plans to start with the earliest stage in developing federal regulations, an advance notice of proposed rulemaking slated for publication in November, to get input on designating other PFAS chemicals or even broad classes of PFAS as hazardous under CERCLA.

“The trend here is certainly for further regulation, and I would be very surprised if we’re not just seeing the tip of the iceberg now,” Deeb said.

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To see the latest updates on state-level PFAS regulations and legislation, check out Bloomberg Law’s PFAS State Activity Tracker here.

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Stricter federal guidelines on 'forever chemicals' in drinking water pose challenges
Harvard School of Public Health | June 22, 2022 | Karen Feldscher

June 22, 2022 – On June 15, the Environmental Protection Agency (EPA) released updated health advisories warning that even tiny amounts of two types of man-made compounds, PFOS and PFOA, are harmful to humans. Currently these compounds are found in drinking water systems across the U.S. Philippe Grandjean, adjunct professor of environmental health at Harvard T.H. Chan School of Public Health, discusses the new guidelines.

Q: Can you describe the EPA's new advisories and their implications?

A: The EPA issued guidelines with new limits for how much PFOS and PFOA should be in drinking water. Both of these compounds are part of a larger class of chemicals called PFASs—per- and poly-fluoroalkyl substances—which are also known as "forever chemicals" because they don't break down in the environment over time. These chemicals have water- and grease-resistant properties and are used in a wide variety of products, including nonstick cookware, waterproof clothing, food packaging, and firefighting foams. PFAS exposure has been linked with health issues such as kidney and testicular cancer, weakened immunity, endocrine disruption, fertility problems, and decreased birth weight.

The previous guideline, set in 2016, set a limit of 70 parts per trillion (ppt) for both PFOS and PFOA in drinking water. The new advisories decrease that by more than a thousandfold. The new limit for PFOS is 0.02 ppt; for PFOA, it's 0.004 ppt. Essentially, the EPA wants the limits to be as close as possible to zero as a growing body of research has shown how toxic these compounds are.

These new advisories are exactly in line with findings from some of our previous studies, which showed some of the serious health problems associated with PFAS exposure. For example, our 2012 study showed that children with higher PFAS exposure had a poorer response to routine childhood vaccinations against diphtheria and tetanus. We found that when PFAS exposure was doubled, children would lose 50% of the antibodies they should have had from their vaccinations—meaning that more and more of them were not being sufficiently protected against those diseases.

Our research has also shown that children with higher levels of PFAS when they were born—we measured the levels in cord blood—had lower antibody levels in response to later vaccinations. In addition, PFAS is transmitted through human milk. Unfortunately, the baby can end up with up to 10 times more PFAS in their blood than the mother had.

The EPA decided that since children are being born with PFAS in their bodies and they're getting it from human milk, they needed to figure out how to limit exposure in the general population to protect pregnant women. This was really inventive. It is the first time that I know of that a U.S. regulatory agency decided to protect the child by setting an exposure limit that takes into account a mother's exposure.

Q: A recent USA Today article noted that the new advisories "stunned" scientists and officials across the country. Why were people so surprised by the EPA's move?

A: What is surprising is that the decrease is very, very big. We're talking about PFAS concentrations in the water that are very hard, if not impossible, to measure with our current methodologies and instrumentation. I think it's entirely possible that we can measure these concentrations accurately, but it's going to take time to develop new methods.

The EPA's new advisories also create some uncertainty and confusion. The EPA is saying that it's important to get the PFAS contamination of drinking water as close to zero as possible. I agree. But the problem is that there's no way right now to get drinking water in agreement with the new limit. At least 100 million Americans are drinking water that probably has PFAS levels exceeding the current limit of 70 ppt. Because the guidelines are not legally binding, it's hard to know what difference they are going to make. If a community wants to sue a particular source of PFAS contamination, can they rely on EPA's guidelines at all? Would they hold any weight in inspiring better prevention at state and community levels?

Furthermore, a number of individual states, including Massachusetts, New Hampshire, Vermont, Michigan, New Jersey, and California, have lowered their guidelines on how much PFAS can be in drinking water, and in some cases those limits are legally binding. They're lower than 70 ppt but much higher than the very low limits the EPA just announced. The EPA guidelines could be a goal, but it would be more helpful to have a binding intermediate limit for PFAS that we would have to respect in the short term.

Q: The EPA also issued final health advisories for compounds known as GenX and PFBS, which are considered replacements for PFOA and PFOS, respectively. What can you tell us about those?

A: The limits on these two substances are higher than those for PFOS and PFOA because there are no human studies yet showing their harms. Almost undoubtedly the guidelines issued by the EPA for these substances are way too high.

There are probably thousands of compounds that are similar to these four, and they are unregulated. What's happening is that industry—for example, for the fire-extinguishing foam known as AAAF—just uses some other PFAS instead of PFOA or PFOS. It's what is called regrettable substitution—when you ban one kind of chemical and then you get something that may be just as bad or worse.

Some of the EU member states are working with the European Commission to figure out a way that member states can essentially regulate all of these PFAS. So there is a political movement to generate some sort of legislation that can protect Europeans from PFAS alternatives.

Many colleagues have expressed their frustration that we in the U.S., as well as internationally, are still discussing how to control the “old” PFASs, while we haven’t had time to document the new substitutes. That may take decades. Should we in the meantime allow the new PFASs to enter the environment and ourselves while waiting for the scientific evidence to develop? I would as a physician emphasize the need for prudent prevention and a strategy that protects us against the whole family of PFASs.

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EPA Issues New Drinking Water Health Advisories: See CA Impacts

Environmental groups have found harmful chemicals in drinking water across California.

Patch | June 17, 2022 | Michael Wittner

Polyfluoroalkyl and perfluoroalkyl substances, or PFAS, are known as “forever chemicals” because of their durability in high heat and water, which means they remain in the environment for years without breaking down. (Shutterstock)

CALIFORNIA – Human-made "forever chemicals" found in water supplies across the country, including in California, are more dangerous than previously thought, and local utilities should install filters to remove them or at least tell customers how dangerous they are, the Environmental Protection Agency said Wednesday.

Polyfluoroalkyl and perfluoroalkyl substances, or PFAS, are known as "forever chemicals" because of their durability in high heat and water, which means they remain in the environment for years without breaking down. They're found in a range of food and consumer products, and have been linked to infertility, thyroid problems and several types of cancer.

No state is untouched by PFAS contamination, according to a map compiled by the Environmental Working Group, a nonprofit organization sometimes criticized for exaggerating certain toxicity risks. But a growing body of scholarly and government research backs the assertion of both the EPA and EWG that even at low levels currently, these chemicals can cause harm over a person's lifetime.

Communities all across California, especially in the Los Angeles and Sacramento areas, were identified as being at risk in the map released by EWG.

The best thing people can do right now is install one of several commercially available filters, but they need to make sure the filter removes PFAS.

Melanie Benesh, legislative attorney for the EWG, told The Washington Post the EPA's advisory "should set off alarm bells for consumers and regulators."

"These proposed advisory levels demonstrate that we must move much faster to dramatically reduce exposures to these toxic chemicals," Benesh said.

Patch has reached out to California's State Water Resources Control Board for comment.

Communities with PFAS contamination may be eligible for funding under a $1 billion grant program included in the Biden administration's bipartisan infrastructure package approved by Congress last year.

U.S. manufacturers have phased out PFOA and PFOS, two compounds found in the cluster of forever chemicals widely used in nonstick cookware, moisture-repellent fabrics and flame-retardant equipment. A few uses remain, and they're ubiquitous in the environment, having accumulated since the 1940s, National Public Radio reported.

Even at levels so low they can't be detected in drinking water, these compounds pose a health risk, the EPA said in the revised advisory. The agency lowered the allowable limits of these two compounds, immediately drawing fire from the chemical industry

The American Chemical Council, which represents PFAS producers such as 3M and Dupont, said Wednesday the EPA's new standards "will have sweeping implications" on public policy, and "cannot be achieved with existing treatment technology and, in fact, are below levels that can be reliably detected using existing EPA methods."

Further, the industry group questioned the science behind the revised drinking water health advisory, saying it should have been delayed until the agency's own Science Advisory Board could review dramatically reduced toxicity levels that are "3,000 to 17,000 times lower" than those set in 2016.

"Getting the science right is of critical importance," the American Chemical Council said in a statement.

Health advocates say the problem can't be overstated. Forever chemicals have already prompted officials in Wisconsin, Minnesota and Michigan to issue advisories against eating certain fish caught in Lake Superior.

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