BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

May 14, 2026

Correspondence and media coverage of interest between April 23, 2026 and May 14, 2026

From: Dave Warner
To: BAWSCA Board of Directors
Date: May 14, 2026
Subject: Disturbing rationing percentages in our UWMP's

From: Peter Drekmeier
To: Chair Vella and BAWSCA Board of Directors
Date: May 13, 2026
Subject: Urban Water Management Plans

From: Peter Drekmeier, Yosemite Rivers Alliance Policy Director
To: SFPUC President Arce and Commissioners
cc: BAWSCA Board of Directors
Date: April 13, 2026
Subject: Earlier Runoff Benefits the SFPUC.

Press Release

From: Office of the Governor
Date: May 8, 2026
Subject: California is more prepared for our water future than ever before

Water Supply Conditions:

Date: May 11, 2026
Source: The Guardian
Article: Lasers in the sky: hi-tech missions track record snowpack loss in US west

Date: May 11, 2026
Source: Nevada Current
Article: As drought worsens, Western states brace for wildfires, water shortages

Date: May 9, 2026
Source; San Francisco Chronicle
Article: A record El Nino may be forming – and the forecast model is literally off the charts

Date: May 4, 2026
Source: Public Policy Institute of California
Article: A Whiplash Spring and California's Water Supply

Policy:

Date: May 12, 2026
Source: Sacramento Bee
Article: Newsom water board pick draws opposition from enviros ahead of Bay Delta vote

Date: May 6, 2026
Source: Maven
Article: ACWA names Karla Nemeth as Executive Director, plus Karla Nemeth podcast: The hard truths of California water

Water Supply Management:

Date: May 2, 2026
Source: Maven's Notebook
Article: DWR unveils new vision to strengthen water management and climate resilience in San Joaquin Valley

Date: May 2, 2026
Source: Community Alliance
Article: Climate Change Drives California's Water Plan

Date: April 26, 2026
Source: California Water Blog
Article: AI Water Use Distractions and Lessons for California

Infrastructure:

Date: May 7, 2026
Source: The Cool Down
Article: California's first-of-its-kind solar project could save 63 billion gallons of water annually

May 14, 2026

Re: Disturbing rationing percentages in our UWMP's

Dear Board members,

Likely all of you have a version of this chart in your draft Urban Water Management Plans (UWMP's). It's rationing guidance from the SFPUC if the Bay Delta Plan were in effect.

Table 4: Potable Water Cutbacks in Future Multiple Dry Years

	2030	2035	2040	2045	2050
First Year	31.1%	33.0%	35.2%	36.8%	38.4%
Second Year	42.2%	42.9%	45.1%	46.8%	48.4%
Third Year	42.2%	42.9%	45.1%	46.8%	48.4%
Fourth Year	42.2%	42.9%	45.1%	46.8%	48.4%
Fifth Year	42.2%	42.9%	45.1%	46.8%	48.4%

42% rationing in year 2 of a drought growing to 48% rationing. A casual reader could ask:

1) 42% rationing in year 2 of a drought and 2030 is less than 4 years away—why are we not building alternative water supplies (AWS) now!!??
2) Why are we considering building additional housing when we don't have enough water as is!??
3) For Palo Alto constituents, is the 2020 version of this chart why we wasted a half million dollars on an AWS study that was shelved as soon as it was published?

You know that these percentages are based on the design drought model, an anachronism of the 1990s that has not been updated for the wealth of changes that have occurred since then. You also know that it is based on demand projections that are unlikely to occur.[1]

UWMP's should be consistent with BAWSCA's views and actions. It is unlikely that any board member would support 40%+ rationing in year two of a drought without at least further studying the merits of the design drought model and associated demand projections.

Please take action to develop a rationing table that doesn't unnecessarily alarm constituents.

Kind regards,

Dave Warner

[1] The SFPUC's Regional Water System (RWS) demand projections for 2040 were 264 mgd from their 2015 UWMP, 227 mgd from their 2020 UWMP and now 209 mgd in their draft 2025 UWMP. UWMP demand projections have significantly over-projected actual demand.

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San Francisco
Modesto
Sonora

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

Phone
209-588-8636

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May 13, 2026

Chair Louis Vella and Directors
BAWSCA
bawscaboardofdirectors@bawsca.org

Dear Chair Vella and Directors:

The May 21 BAWSCA Board meeting will be your last opportunity to address critical issues before the Urban Water Management Plans (UWMP) are due to the State and rate increases kick in. I encourage you to use this time wisely to address a few important issues.

Water Demand and Sales Projections Are Very Different

The SFPUC essentially uses two sets of books. Demand projections used in the UWMPs are produced by the SFPUC Water Enterprise (and BAWSCA), while sales projections are produced by the SFPUC Finance Bureau. There's a large discrepancy between the two sets of projections.

An SFPUC reported titled "Water Enterprise and Finance Bureau Water Demand Projections"[1] explains the projections as follows:

> **Water Enterprise**
> "…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."
>
> **Finance Bureau**
> "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."

Both the Water Enterprise and Finance Bureau have always over-projected demand/sales, but Finance has been much closer to the actuals. You'll see from the SFPUC's recent FY 2025-26 2nd Quarter Budget Report that water sales revenues (based on the lower Finance Bureau projections) were down by almost $23 million.

[1] SFPUC Water Enterprise and Finance Bureau Water Demand Projections, July 5, 2022 – https://sfpuc.sharefile.com/share/view/sa628ebe9c31e4326b84ffa2976f9f9a3

FY 2025-26 Water Budget Variances

Net Operating Result: $1.3M

Overall revenues down ($33.4) and cost savings of $34.7M leading to positive operating results $1.3M.

Total net impact on fund balance is ($1.7M) after legal settlements $3.0M.

Sources

- ($1.1M) or -0.3% retail water sales
- ($21.7M) or -5.8% wholesale water sales
- ($8.9M) or -44.8% in federal bond interest subsidy, offset with debt savings below
- ($1.8M) or -5.3% other sources, including installation charges and revenue transferred to Wastewater for Customer Assistance Program funding

Source: SFPUC FY 2025-26 2nd Quarter Budget Status Report, March 10, 2026[2]

This might help explain why the cost of SFPUC water has increased so much more this year than previously projected, and why there's a good chance the trend will continue.

Following is a table included in the 2025 UWMPs showing demand projections (produced by the Water Enterprise).

Table 20: Regional Water System Supply Utilized in Normal Years (mgd)

RWS Supply Allocation	Projected				
	2030	2035	2040	2045	2050
Retail Customers (a)(b)	62.7	61.2	61.9	64.0	66.7
Wholesale Customers (c)(d)	133.92	136.32	140.53	144.12	148.36
Total RWS Supplies	196.62	197.52	202.43	208.12	215.1

Notes:
(a) Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, if these alternative supplies are not available, up to 81 mgd of RWS supply may be used in normal years.

Attachment A shows the SFPUC's Financial Plan sales projections (note that sales are projected to be 193.9 mgd in 2050). The following table shows the difference in Regional Water System (RWS) demand/sales between the two sets of projections.

[2] SFPUC FY 2025-26 2nd Quarter Budget Status Report, March 10, 2026 – https://sfpuc.sharefile.com/share/view/seb03a545f6ef4b8b8355977efeca86e2

Total RWS (mgd)	2035/36	2040	2045	2050
UWMP	197.5	202.4	208.1	215.1
Finance	182.1	185.2	190.2	193.9
Difference	15.4	17.2	17.9	21.2

If history repeats, the 2050 demand projection in the UWMPs will be at least 21.2 mgd higher than actual demand, and likely even higher.

The SFPUC Alternative Water Supply (AWS) Plan Is Based on Flawed Numbers

Alarmingly, the SFPUC AWS Plan is based on Water Enterprise (UWMP) projections. The Plan projects the need to develop between 92 and 122 mgd. Based proportionally on AWS projects identified in the Plan, 92 to 122 mgd would cost $17 to $25 billion.

PureWater Peninsula, one of the two remaining viable AWS projects, would cost $747 million (see Attachment B) but would produce only 6 mgd of new water. Assuming BAWSCA pays for two-thirds of the project, that would amount to $500 million. Each BAWSCA member agency would pay its proportional share – tens of millions of dollars in many cases.

If the SFPUC based drought planning on the drought of record (1987-92) – the high end of what all other water agencies plan for – they would not need to develop any new alternative water supplies. Not 6 mgd, and certainly not 92-122 mgd.

Design Drought vs. Drought of Record

I included much more detailed information on this issue in my April 2 letter to the BAWSCA Policy Committee, which I'm attaching for convenience.

The Department of Water Resources' 2025 UWMP Guidebook references Water Code Section 10631 (b)(1), which requires "A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years..."

Valley Water, EBMUD and other large water agencies base their driest consecutive five-year sequences on the drought of record. The SFPUC selects five years out of the Design Drought. With a return period of at least 8,000 years, the Design Drought is 19 times less likely to happen than a reoccurrence of the worst drought on record.

What you don't see in the table provided by the SFPUC, is how much water is left in storage at the end of each year. You'll see from the following table that after the SFPUC's driest five-year sequence (1987-91), more than 600 thousand acre-feet (enough water to last more than 2.5 years) would still be available. This carryover storage is a key component of their plan to manage a biblical drought.

Table YRA-1 – Water availability under the 8-year Design Drought, with the Bay Delta Plan in effect, using SFPUC 2050 demand projections, and including storage.

	Design Drought Fiscal Years							
	86-87	87-88	88-89	89-90	90-91	91-92	92-76	76-77
Water available to RWS (mgd)	215.1	146.3	122.6	122.6	122.6	122.6	122.6	122.6
Mgd converted to 1,000 acre-feet (TAF)	241	164	137	137	137	137	137	137
Annual impact on storage (TAF)	-469	-263	+41	-206	-14	-159	-208	-192
Total SFPUC storage at end of year (TAF)	1,048	785	826	620	606	447	239	47

Source: Yosemite Rivers Alliance (using data provided by the SFPUC).

If the SFPUC were to use the same drought plan as other water agencies, they could manage the Bay Delta Plan (even at their high demand projections) without imposing extreme rationing. The following table shows that water would remain in storage not just after the driest consecutive five-year sequence, but even after the sixth year of the drought of record.

Table YRA-3 – Regional Water System supply availability based on the six-year drought of record using the SFPUC's 2050 baseline demand projection of 215.1 mgd. Table assumes the Bay Delta Plan is in effect. Incorporates 10% rationing in Years 3 and 4, and 20% rationing in Years 5 and 6.

	86-87	87-88	88-89	89-90	90-91	91-92
Water available to RWS (mgd)	215.1	215.1	193.6	193.6	172.1	172.1
Demand converted to 1,000 acre-feet (TAF)	241	241	217	217	193	193
Annual impact on storage (TAF)	-469	-340	-39	-286	-70	-215
Total SFPUC storage at end of year (TAF)	1,048	708	669	383	313	98

I encourage BAWSCA to question whether the Design Drought is a prudent planning tool or if the enormous amount of rationing it would require might deserve that it be revisited. I discussed this in detail in my April 2 letter.

SFPUC Policies Lead to Lower Sales and Higher Rates

As you're well aware, the Regional Water System is almost all fixed cost, so as demand declines rates must increase. Some of this negative feedback loop could be avoided through better policies, as explained in Attachment C.

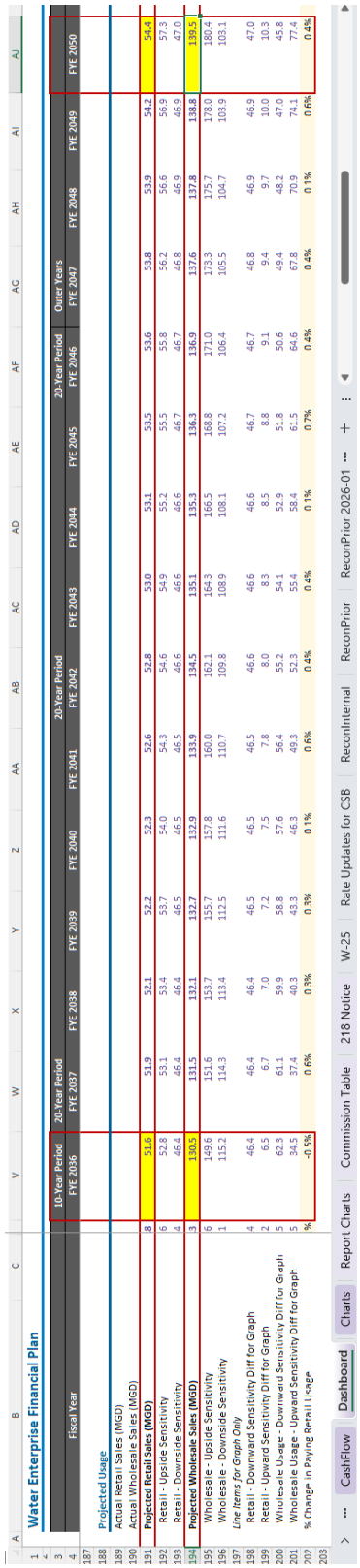
Thank you for the opportunity to share this information.

Sincerely,

Peter Drekmeier
Policy Director

Attachment A

SFPUC Financial Plan



Water Enterprise Financial Plan

Fiscal Year	10-Year Period FYE 2036	20-Year Period FYE 2037	FYE 2038	FYE 2039	FYE 2040	FYE 2041	20-Year Period FYE 2042	FYE 2043	FYE 2044	FYE 2045	20-Year Period FYE 2046	Outer Years FYE 2047	FYE 2048	FYE 2049	FYE 2050
Projected Usage															
Actual Retail Sales (MGD)															
Actual Wholesale Sales (MGD)															
Projected Retail Sales (MGD)	51.6	51.9	52.1	52.2	52.3	52.6	52.8	53.0	53.1	53.5	53.6	53.8	53.9	54.2	54.4
Retail - Upside Sensitivity	52.8	53.1	53.4	53.7	54.0	54.3	54.6	54.9	55.2	55.5	55.8	56.2	56.6	56.9	57.3
Retail - Downside Sensitivity	46.4	46.4	46.4	46.5	46.5	46.5	46.6	46.6	46.6	46.7	46.7	46.8	46.9	46.9	47.0
Projected Wholesale Sales (MGD)	140.5	131.5	132.1	132.7	132.9	133.9	134.5	135.1	135.3	136.3	136.9	137.6	137.8	138.4	138.5
Wholesale - Upside Sensitivity	149.6	151.6	153.7	155.7	157.8	160.0	162.1	164.3	166.5	168.8	171.0	173.3	175.7	178.0	180.4
Wholesale - Downside Sensitivity	115.2	114.3	113.4	112.5	111.6	110.7	109.8	108.9	108.1	107.2	106.4	105.5	104.7	103.9	103.1
Line Items for Graph Only															
Retail - Downward Sensitivity Diff for Graph	46.4	46.4	46.4	46.5	46.5	46.5	46.6	46.6	46.6	46.7	46.7	46.8	46.8	46.9	47.0
Retail - Upward Sensitivity Diff for Graph	6.5	6.7	7.0	7.2	7.5	7.8	8.0	8.3	8.5	8.8	9.1	9.4	9.7	10.0	10.3
Wholesale Usage - Downward Sensitivity Diff for Graph	62.3	61.1	59.9	58.8	57.6	56.4	55.2	54.1	52.9	51.8	50.6	49.4	48.2	47.0	45.8
Wholesale Usage - Upward Sensitivity Diff for Graph	34.5	37.4	40.3	43.3	46.3	49.3	52.3	55.4	58.4	61.5	64.6	67.8	70.9	74.1	77.4
% Change in Paying Retail Usage	-0.5%	0.6%	0.3%	0.3%	0.1%	0.6%	0.4%	0.4%	0.1%	0.7%	0.4%	0.4%	0.1%	0.6%	0.4%

PureWater Peninsula

SFPUC Capital Project Plan
Water Enterprise
Regional Water

Authority Level 1:	80528-Reg Alternative Water Supplies	Authority Level 2:	22779-Water Supply and Storage
FSP ID: Project Title	10036483: PureWater Peninsula	Facility Category:	Water Supply and Storage Program
Project Manager:	YinLan Zhang	Current Active Phase:	Pre-Construction
Prior Approved Budget:	$ 12,100,000	Proposed Budget:	$ 747,709,998
Prior Approved Start:	07/01/2020	Proposed Start:	07/01/2020
Prior Approved Finish:	07/01/2032	Proposed Finish:	06/30/2042

Description

PureWater Peninsula will bring 6 million gallons per day (mgd) of purified water into the Regional Water System. This is an indirect potable reuse project where tertiary effluent from Silicon Valley Clean Water would be treated to drinking water standards and conveyed to Crystal Springs Reservoir, where it would be blended with regional surface water supplies and treated again at the Harry Tracy Water Treatment Plant (HTWTP). The project entails the construction of a new advanced water purification plant and conveyance system. The advanced water purification plant would be located on Silicon Valley Clean Water property at Redwood Shores in Redwood City. The pipeline that convey the purified water would be from the new treatment plant at Redwood Shores to Crystal Springs Reservoir. A potential future Phase 2, including direct potable reuse and additional partners, is envisioned.

Justification

This project will provide 6 mgd of additional drinking water supply to supplement the Regional Water System and increase water supply reliability. Without the project, the regional water supply customers would face even greater water restrictions during dry years.
Water LOS Goal(s) Supported: Water Supply

Operating Impact

Crystal Springs Reservoir is owned and operated by the San Francisco Public Utilities Commission (SFPUC). A new water supply in this reservoir would impact permitting, reservoir management, and treatment plant operations at HTWTP. The SFPUC will own and operate new infrastructure related to this project, including an advanced water treatment facility and pipeline to Crystal Springs Reservoir.

Budget Change	Yes	Schedule Change	Yes	Scope Change	Yes

Reason for Change

The variance in scope is due to the inclusion of the full project. The variance in the proposed total project budget is due to inclusion of the full cost of the project, such as legal and right-of-way, design, construction, and construction management. The previous Capital Improvement Plan (CIP) included only budget for 10% design and environmental review. The variance in schedule is also due to fully loading the schedule through construction closeout.

Phase	2027-2036	2027	2028	2029	2030	2031	2032-2036
PL	$ 7,588,676	$0	$0	$4,091,199	$3,497,477	$0	$ 0
ER	$ 11,301,327	$0	$0	$2,055,825	$2,055,825	$2,055,825	$ 5,133,852
DS	$ 49,979,321	$0	$0	$0	$0	$9,091,741	$ 40,887,580
CM	$ 6,766,244	$0	$0	$0	$0	$0	$ 6,766,244
CN	$ 40,364,432	$0	$0	$0	$0	$0	$ 40,364,432
Total	$ 116,000,000	$ 0	$ 0	$ 6,147,024	$ 5,553,302	$ 11,147,566	$ 93,152,108

Source: SFPUC Water Enterprise Fiscal Years 2027-2036 Ten Year CIP, January 13, 2026, p. 94 – https://sfpuc.sharefile.com/share/view/sa9d58a5cbdfa427795f0da6a7727efd2

Attachment C

Irrational Fear of Water Shortages Leads to Budget Deficits and Rate Increases

Example: SFPUC Water Shortage Emergency Declaration (2021)

Summary

November 2021: Following two dry years, the SFPUC declared a Water Shortage Emergency and called for systemwide water use reductions. At the time of the declaration, the SFPUC had more than a million acre-feet of water in storage (see below) – enough to last 4.5 years.

April 2022: The SFPUC imposed a 5% drought surcharge on San Francisco retail customers to make up for lost sales. Wholesale customers enacted their own measures.

Early December 2022: SFPUC storage was at a drought low-point of 932 thousand acre-feet – still enough water to last 4 years.

January 2023: After extremely heavy precipitation in December and January, it was clear the SFPUC would achieve full storage. On January 17, storage was at 1.35 million acre-feet.

May 2023: The SFPUC finally lifted the drought surcharge, but not before it was built into their FY 2023-24 budget. That budget experienced a $25 million shortfall in retail (San Francisco) water sales and a $5 million shortfall in wholesale (BAWSCA) sales.

December 6, 2021 Reservoir Storage

Reservoir	Current Storage[1,2,3] (AF)	Maximum Storage[4] (AF)	Available Capacity (AF)	Percent of Maximum Storage	Normal Percent of Maximum Storage[5]
Tuolumne System					
Hetch Hetchy	263,600	340,830	77,230	77.3%	**71.8%**
Cherry	241,900	268,800	26,900	90.0%	-
Eleanor	16,450	21,495	5,045	76.5%	-
Water Bank	337,192	570,000	232,808	59.2%	**98.5%**
Total Tuolumne Storage	**859,142**	**1,201,125**	**341,983**	**71.5%**	-
Local System					
Calaveras	54,905	96,670	41,765	56.8%	-
San Antonio	48,525	53,266	4,741	91.1%	-
Crystal Springs	52,973	58,309	5,336	90.8%	-
San Andreas	15,960	19,027	3,067	83.9%	-
Pilarcitos	2,159	3,030	871	71.3%	-
Total Local Storage	**174,522**	**230,302**	**55,780**	**75.8%**	-
Total System Storage	1,033,664	1,431,427	397,763	**72.2%**	**80.2%**
Total without water bank	696,472	861,427	164,955	**80.9%**	-

Source: SFPUC Drought Conditions Update, December 6, 2021 – https://sfpuc.sharefile.com/share/view/s3f98fbd30ca8422f9bf2697011658a15

SFPUC storage hit its lowest point of the drought in early December, 2022, but there was still enough water to last four years.

December 5, 2022 Reservoir Storage

Reservoir	Current Storage[1,2,3] (AF)	Maximum Storage[4] (AF)	Available Capacity (AF)	Percent of Maximum Storage	Normal Percent of Maximum Storage[5]
Tuolumne System					
Hetch Hetchy	244,900	360,360	115,460	68.0%	**68.0%**
Cherry	244,700	273,345	28,645	89.5%	-
Eleanor	18,400	27,100	8,700	67.9%	-
Water Bank	253,147	570,000	316,853	44.4%	**98.5%**
Total Tuolumne Storage	**761,147**	**1,230,805**	**469,658**	**61.8%**	-
Local System					
Calaveras	56,932	96,670	39,738	58.9%	-
San Antonio	44,456	53,266	8,810	83.5%	-
Crystal Springs	51,735	58,309	6,574	88.7%	-
San Andreas	16,164	19,027	2,863	85.0%	-
Pilarcitos	2,153	3,030	877	71.1%	-
Total Local Storage	**171,440**	**230,302**	**58,862**	**74.4%**	-
Total System Storage	932,587	1,461,107	528,520	**63.8%**	**78.6%**
Total without water bank	679,440	891,107	211,667	**76.2%**	-

Source: SFPUC Drought Conditions Update, December 5, 2022 – https://sfpuc.sharefile.com/share/view/se561a2fd0c224d50b095180735655931

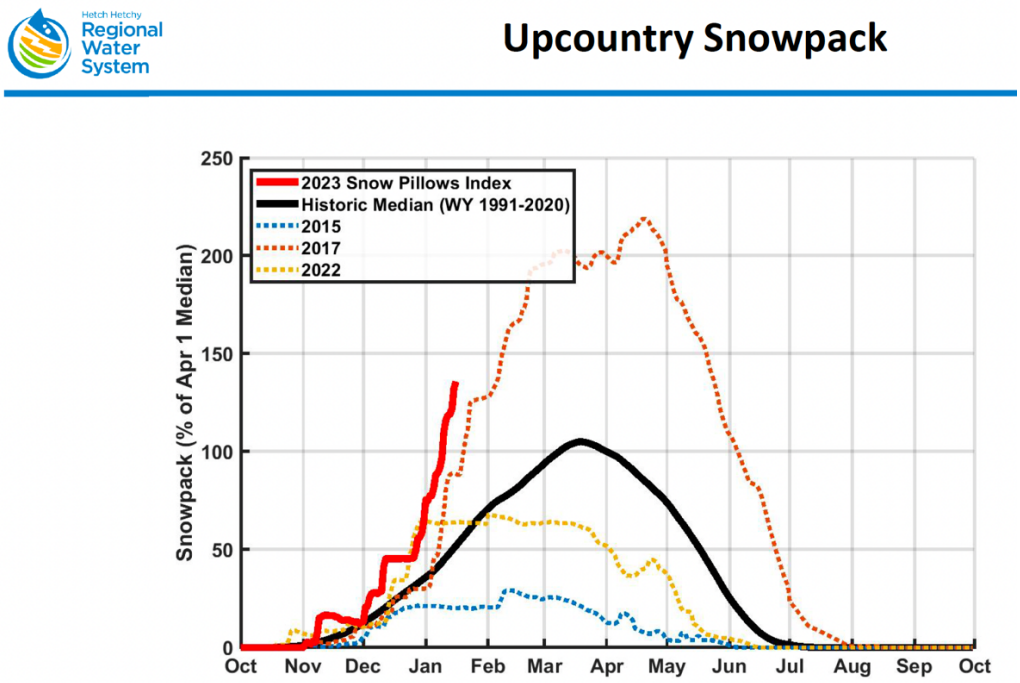
By mid-January 2023, SFPUC storage had already reached 92% of capacity and snowpack accumulation was on a record-setting pace. The drought was clearly over.

Current Reservoir Storage as of January 17, 2023

Reservoir	Current Storage[1,2,3] (AF)	Maximum Storage[4] (AF)	Available Capacity (AF)	Percent of Maximum Storage	Normal Percent of Maximum Storage[5]
Tuolumne System					
Hetch Hetchy	291,100	360,360	69,260	80.8%	**67.9%**
Cherry	228,229	273,345	45,116	83.5%	-
Eleanor	22,580	27,100	4,520	83.3%	-
Water Bank	570,000	570,000	0	100.0%	**98.6%**
Total Tuolumne Storage	**1,111,909**	**1,230,805**	**118,896**	**90.3%**	-
Local System					
Calaveras	96,741	96,670	0	100.0%	-
San Antonio	54,412	53,266	0	100.0%	-
Crystal Springs	65,834	68,953	3,119	95.5%	-
San Andreas	17,769	19,027	1,258	93.4%	-
Pilarcitos	3,139	3,030	0	100.0%	-
Total Local Storage	**237,895**	**240,946**	**4,377**	**98.7%**	-
Total System Storage	1,349,804	1,471,751	123,273	**91.7%**	**80.3%**
Total without water bank	779,804	901,751	123,273	**86.5%**	-

Source: SFPUC Drought Conditions Update, January 17, 2023 – https://sfpuc.sharefile.com/share/view/s1111ed0e5e0340309c66116c8fbdd606

Snowpack can be considered "water in the bank," and it was clear there would be a tremendous amount of runoff in the spring to top off all the reservoirs with lots of water to spill.



Source: SFPUC Drought Conditions Update, January 17, 2023

The SFPUC Water Enterprise was headed toward a large budget deficit in FY 2023-24 – it ended up being $25 million in lost retail (San Francisco) revenues and $5 million in lost wholesale (BAWSCA) revenues.

Here's how it was explained:

> *"Water and Wastewater:* revenues are projected to be below budget. The budget was adopted assuming the drought surcharge would remain. It was removed May of 2023. Additionally, the wholesale water volumes are lower than expected."[3]

Why did the SFPUC wait until May to lift the drought surcharge, and why did they assume it would remain in place for another year despite the extremely wet beginning to 2023?

How did the Water Supply Emergency and call for water conservation impact the wholesale customers finances and water rates?

Was it prudent for the SFPUC to declare a Water Supply Emergency when they had 4.5 year's-worth of water in storage? The Design Drought suggests it was.

[3] SFPUC FY 2023-24 1st Quarter Budget Report, December 12, 2023 – https://sfpuc.sharefile.com/share/view/se1f88d7d5b3a41829939713649bc1802

FY 2023-24 Water Budgetary Variances

- **Net operating result: ($3.6M)**
- Total sources down ($24.4M), and $20.8M in cost savings
- Programmatic Savings & Legal Settlements ($8.4M)
- *Net impact on fund balance: ($12.0M)*

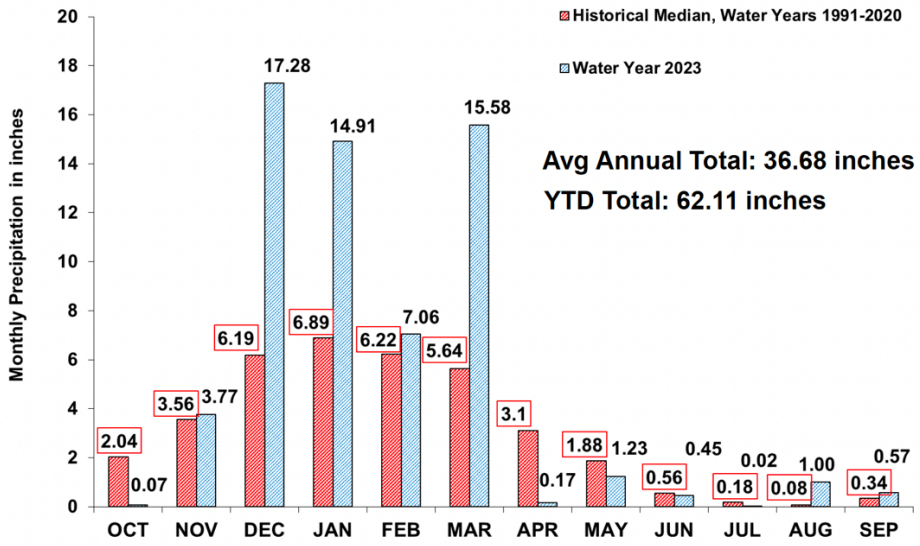
Sources

- ($25.0M) or -7.2% retail revenues
- ($5.2M) or -1.6% wholesale revenues
- $5.9M or 11.1% non-operating revenues

Source: SFPUC FY 2023-24 4th Quarter Budget Report, September 24, 2024 – https://sfpuc.sharefile.com/share/view/s297e2428d54946e5a39c984791d83b82

Based on the following graph, was it reasonable for the SFPUC to wait until May to lift their drought surcharge?

Upcountry 6-station Precipitation Index as of September 30, 2023 (end of Water Year 2023)



Source: SFPUC Water Supply Conditions Update, October 2, 2023 – https://sfpuc.sharefile.com/share/view/sf6f82f2b14124eb78816f30e2163bdb1

The SFPUC ended the water year entitled to enough water (2.77 million acre-feet) to refill all of their reservoirs almost twice.

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April 13, 2026

President Josh Arce and Commissioners
San Francisco Public Utilities Commission
commission@sfwater.org

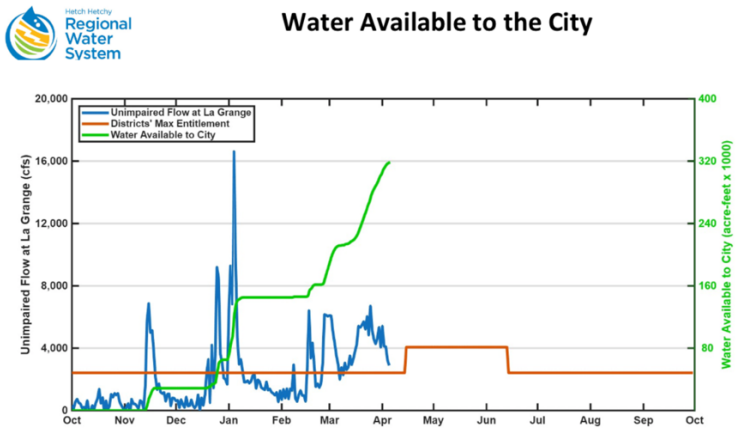
Re: Earlier Runoff Benefits the SFPUC.

Dear President Arce and Commissioners:

As a result of climate change, more precipitation will fall as rain and the snowpack will melt sooner. Runoff will shift to earlier in the season. The Long-Term Vulnerability Assessment states:

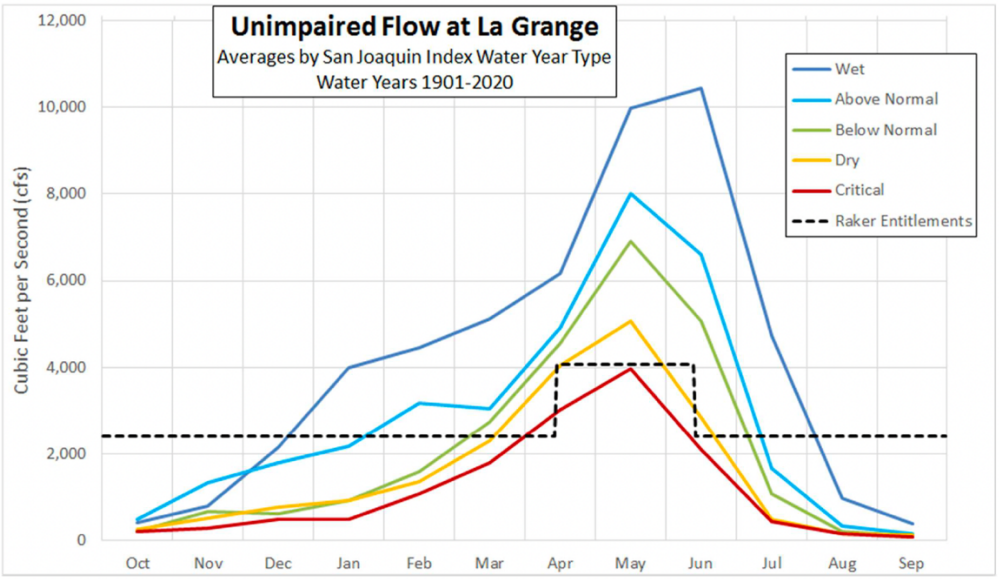
> "A +2°C warming leads to a spring runoff arrival 10 days prior to the baseline temperature conditions. Median of projections estimate warming around +2°C by 2040 with most projections and elicitations between +1°C and +4°C. At +4°C, the shift in timing would be closer to 20 days prior to baseline conditions. By 2070 RCP8.5, warming could reach around +4°C with most projections and elicitations between +3°C and +6°C." (p. 147)

Due to this year's warm, dry March, runoff has come earlier in the season. This has favored the SFPUC's water entitlements as you see in the current Water Supply Conditions Update. Most of the snowmelt is happening prior to mid-April when the water rights delineation between the SFPUC and Irrigation Districts changes from about 2,400 cfs of runoff to about 4,000 cfs. Had the runoff occurred between mid-April and mid-June there would have been less Water Available to the City (WAC).



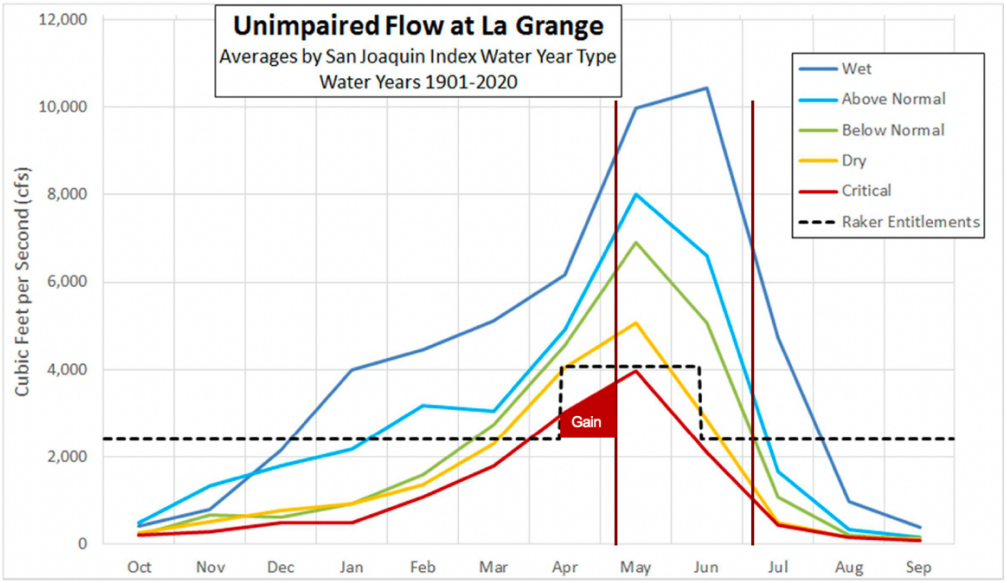
Source: SFPUC Water Supply Conditions Update, April 6, 2026

The following graph shows the average runoff in the Tuolumne River. The dashed black line delineates the cutoff between the Irrigation Districts' and SFPUC's water rights.

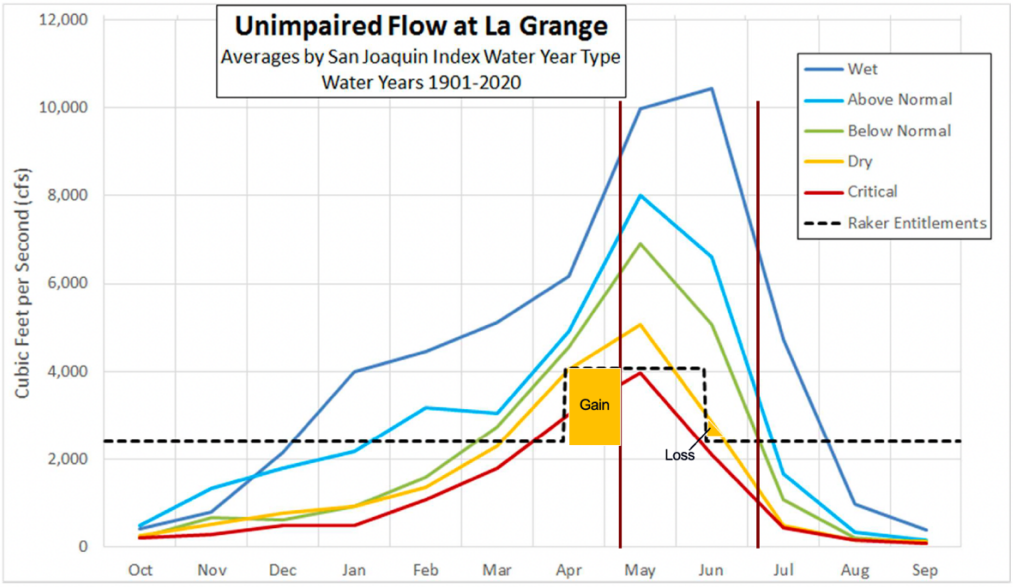


Source: SFPUC presentation, February 5, 2021

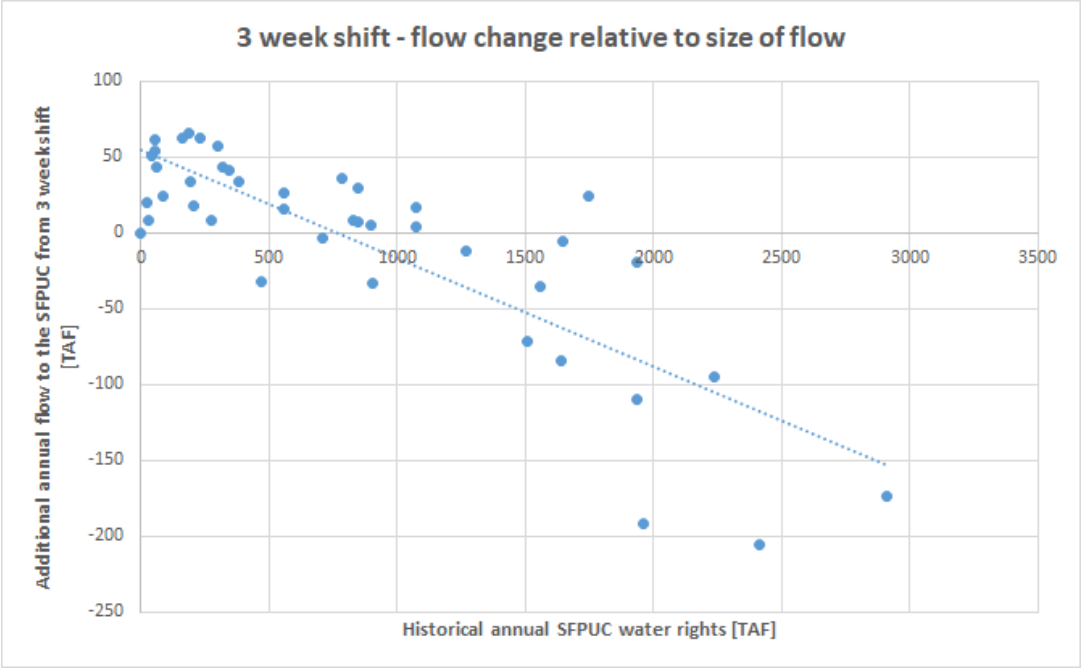
In the next two slides, two vertical lines were added to represent a three-week shift in runoff. Imagine everything shifting to the left, except the dashed black line, until the added vertical lines line up with the vertical dashed lines of the water rights delineation. In a "Critical" water year the runoff shown in red shifts from the period when the SFPUC is entitled to any flow above 4,000 cfs to the period when the SFPUC is entitled to any flow above 2,400 cfs. This is water the SFPUC would pick up as a result of earlier runoff.



In a “Dry” water year the SFPUC would pick up the water shown in the yellow rectangle below and would lose a much smaller amount of water shown in the yellow triangle.



Since we know what the daily runoff was in the past, it’s easy to quantify how a shift to earlier runoff would impact WAC. The following scatterplot (1971-2012) shows the results of a three-week shift in runoff. Zero on the vertical axis represents no change in water entitlements. Dots above zero represent years in which the SFPUC would pick up water. Years below zero represent years in which the Irrigation Districts would pick up water. The horizonal axis represents WAC – the further to the right, the greater the SFPUC’s water entitlements are.



Source: Dave Warner, Yosemite Rivers Alliance

Averaging out all the years, there is little to no change in WAC. The diagonal line crosses zero on the vertical axis at 750 TAF, which is the SFPUC's current average annual entitlement. However, you see that in dry years (on the left) the SFPUC tends to pick up water, and in wet years the SFPUC tends to lose water. Losing water entitlements in wet years is not a problem, because in those years water is usually spilled and it doesn't matter who the spilled water belonged to.

The following table shows the results of a three week shift in runoff. If the eight years of the Design Drought were to repeat, but runoff came earlier, the SFPUC would pick up a total of 237 TAF over the course of the Design Drought. To put this in perspective, last year's demand was 191 mgd, which is 214 mgd. In other words, the SFPUC would pick up more than a year's-worth of water as a result of a three-week shift in runoff.

Note that if 1976 and 1977 (very dry years) were not included in this analysis, the SFPUC would still pick up 217 TAF – a year's-worth of water – if the drought of record (1987-92) were to repeat with a 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

Source: Dave Warner, Yosemite Rivers Alliance

Please direct staff to respond to this analysis and incorporate any findings into future documents. Avoiding unnecessary investments in alternative water supplies would help reduce water rate increases dramatically.

Thank you for your consideration.

Sincerely,

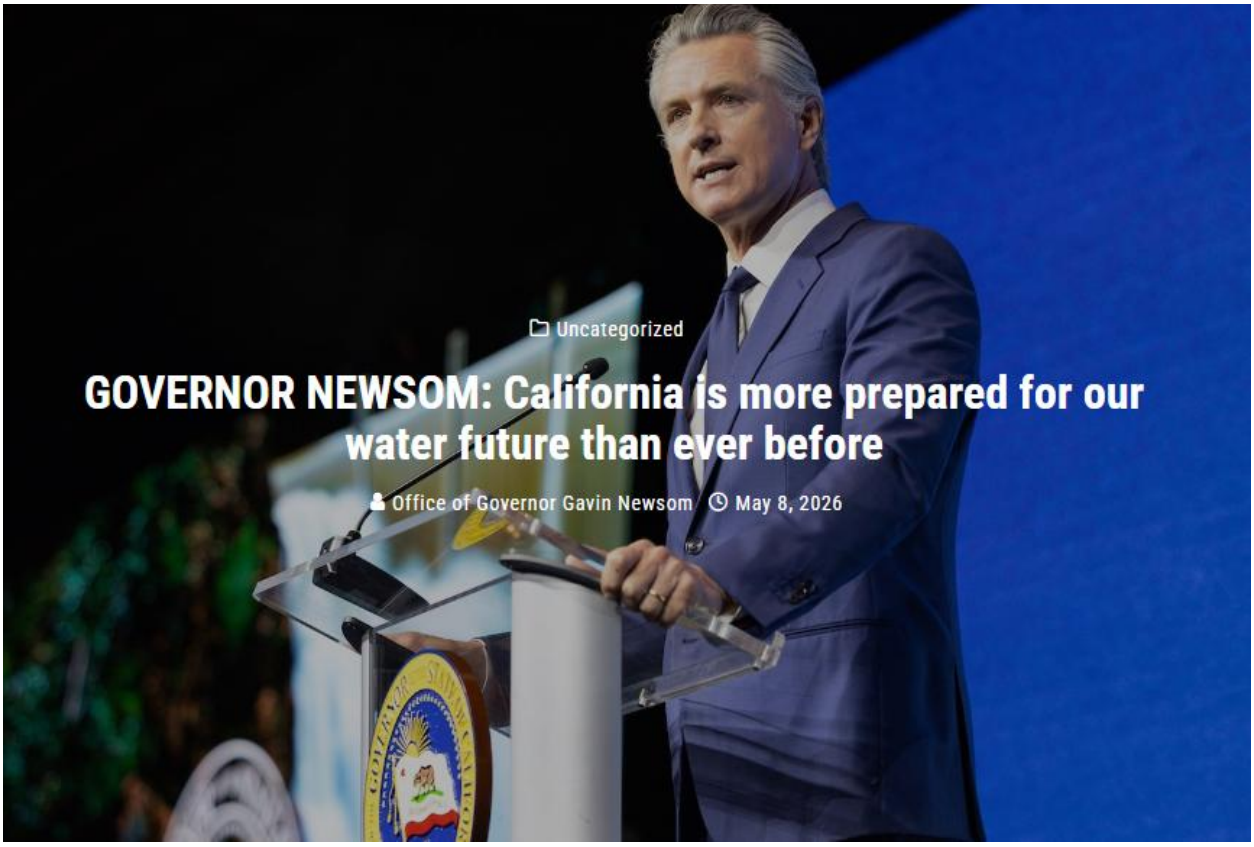
Peter Drekmeier

Peter Drekmeier
Policy Director

Cc: BAWSCA Board of Directors
SFPUC Citizens Advisory Committee

GOVERNOR NEWSOM: California is more prepared for our water future than ever before

Maven | May 8, 2026| Press release from the Office of the Governor



Governor Newsom today delivered closing remarks at the Association of California Water Agencies, highlighting the state's accomplishments since 2019 to help protect California's sustainable water future and outline what the state must do to maintain this progress.

Today, Governor Gavin Newsom spoke before members of the Association of California Water Agencies (ACWA), presenting a clear path forward to protect California's water supplies and ensure the state can continue to deliver water for its nearly 40 million residents. The annual event brings together water agencies from across the state that manage local water systems for communities.

"California has embraced a more balanced and forward-looking approach to water policy — rejecting the false choice between protecting our water future and building the infrastructure we need," said Governor Newsom. "We're taking an all-of-the-above approach by expanding water projects, restoring habitats, and improving water quality, because real progress comes from partnership, not polarization."

The Governor's remarks outlined actions by the administration to help ensure the state can continue delivering for Californians and laid out necessary steps for the state to maintain its course. Together since 2019, California has worked with stakeholders to modernize and

strengthen water systems, rebuild ecosystems and habitats, and prepare the state for a future with more intense drought, storms, floods, and wildfires as a result of climate change.

Surviving climate whiplash
Climate change has created dramatic shifts in how the state must manage water. In the last 15 years alone, California has experienced two worst-in-a-millennium droughts, one of which brought the driest three-year period in the state's history, followed by the wettest three-week period ever. In California and states throughout the nation, the wets are getting wetter, the hots are getting hotter, and the droughts are getting drier.

Recognizing the impacts of this extreme climate volatility, Governor Newsom has pushed forward to prepare the state's water systems for more climate whiplash by creating a comprehensive bottom-up strategy to maintain and diversify water supplies, protect and enhance natural ecosystems, and build stronger connections.

Strategies for a stronger water future

Soon after taking office, Governor Newsom laid the groundwork for a stronger water future by releasing the 2020 Water Resilience Portfolio, recognizing that water policy must be developed collectively with state and local agencies, climate leaders, and industry — working together to advance their shared interests and sustain California's water for generations to come.

Governor Newsom issued an executive order with broad and ambitious strategies, leading to 142 actions that will help sustain California's water, create infrastructure, and protect California communities, including:

- Providing access to clean water by funding the Safe and Affordable Drinking Water Act which would help repair water systems and provide stronger access to clean drinking water throughout the state.
- Creating more water storage and recycling to take advantage of wetter years and help ensure the state could better weather long-term droughts
- Creating collaborative water management in the Sacramento-San Joaquin River systems and the Delta by executing voluntary agreements through the Healthy Rivers and Landscapes Program.
- Advancing the Delta Conveyance Project, including by modernizing the project from the previous "Twin Tunnels" project and hitting key milestones under the California Environmental Quality Act and Delta Reform Act.
- Improving public health by repairing environmental damage in the Salton Sea — reducing cases of asthma and years of long-term environmental neglect.
- Restoring salmon, habitats, and tribal lands by removing dams from the Klamath River.
- Better use of data to make water management more efficient and effective.

Expanding access to clean water

California has long suffered from an inequity in its water systems, and in 2019, despite being the richest state in the nation, more than a million Californians were living in homes with contaminated drinking water. It was a medical and a moral crisis. Governor Newsom has

helped improve water quality for California residents who have a right to clean water free of pollution by:

Helping 1 million Californians gain access to clean water, through the launch of the SAFER drinking water program and over $1.8 billion in grants provided to disadvantaged communities..
Supporting Californians impacted by drought with investments to deepen wells, replace pipelines, and build storage tanks.
Removing dangerous pollutants from water systems including lead, arsenic, and uranium.
Consolidating and repairing failed water systems throughout the state with 180 water systems consolidated; and 300 returned to compliance.

Governor Newsom signed legislation to facilitate the consolidation of failing drinking water and sewer systems. The legislation was signed in East Orosi in Tulare County. Last month, the community broke ground on the East Orosi water system consolidation.

Adapting to climate extremes

As the most recent drought intensified in 2022, it became clear that the state needed a focused action plan to replace water supply lost by hotter dryer conditions in coming decades. Record-low runoff that year from dry soils and high spring temperatures underscored what the Department of Water Resources had concluded from scientific data and modeling: California could lose upwards of 10% of its water supply, or six to nine million acre-feet of water on average each year by 2040 — if it didn't properly adapt by better storing, managing, and transporting water supplies. In 2022, the administration created the "Water Supply Strategy" plan to help free up 500,000 acre-feet of water through more efficient water use and conservation, as well as;

- Create storage space for up to 4 million acre-feet of water, and capitalize on big storms
- Recycle and reuse at least 800,000 acre-feet of water per year by 2030.
- Safely use wastewater currently discharged to the ocean.
- Capture stormwater and desalinate ocean water and salty water in groundwater basins, diversifying supplies.

Groundwater: Restoring the water below us

Groundwater provides 41% of the state's total water supply – 60% in dry years. But when it is used, it must be provided with time and strategies for its supplies to replenish or recharge. Excessively pulling from this resource, especially in times of drought, creates land subsidence, or sinkage, and depletes natural resources.

Governor Newsom bolstered compliance with the Sustainable Groundwater Management Act, investing $1 billion and working with local communities to create 250 new groundwater sustainability agencies and 1,500 new groundwater projects. Governor Newsom also advanced restoration of floodplains, habitat restoration, and buffer zones to protect watersheds through the Multibenefit Land Repurposing Program.

Restoring river flows and revitalizing habitat

The Newsom administration, along with state, federal, and local leaders, developed the Healthy Rivers and Landscapes (HRL) Program as an innovative alternative approach to traditional regulatory requirements to improve environmental conditions while providing more water supply certainty to communities, farms, and businesses throughout California. The program, embraced by the State Water Resources Control Board, establishes an eight-year framework to improve the ecological health of the Bay-Delta – focusing on restoring habitats and targeted flows. This

means more water in rivers from January to June and has already resulted in 45,000 acres of native fish habitat restored.

Klamath Dam removed, Photo credit Swift Films

Building more water infrastructure, faster

Completing water infrastructure projects quickly is more important than ever. Through Governor Newsom's streamlining efforts, the administration is working to mitigate future cost increases and prepare California for the new climate reality. The Governor's Build More, Faster infrastructure agenda has cleared the way for $180 billion in infrastructure investments and accelerated projects by cutting red tape while preserving critical environmental protections.

During his administration, the Governor has advanced generational water infrastructure, including projects that:

- Move more water. The Delta Conveyance Project is vital to ensuring that California can continue to provide water to all of its residents through the State Water Project, which moves, and stores water used by 27 million people and 750,000 acres of farmland. During atmospheric rivers in 2024, the Delta Conveyance Project could have captured enough water for 9.8 million people's yearly usage. The Governor's efforts have moved the project closer to construction than ever before with the Delta Stewardship Council recently backing most of the project's certification of consistency.
- Store more water. Sites Reservoir will capture water from the Sacramento River during wet seasons and store it for use during drier seasons – holding up to 1.5 million acre-feet of water, enough to supply over 4.5 million homes for a year. Through streamlining and significant investments, the Governor has done more to advance this project than

any previous administration. California is also working to seismically retrofit San Luis Reservoir, which would add an additional 130,000 acre-feet of storage.

San Luis Reservoir

Restoring salmon populations

Salmon are profoundly important to California's precious ecosystems and economy. They provide important commercial, recreational, economic, intrinsic and cultural benefits to fishing communities, California Native American tribes, and the entire state. California's salmon populations are struggling to recover from years of drought, climate disruption, and other environmental and human-made challenges. California has taken significant and meaningful steps to rebuild salmon stocks across the state, including:

- Completing the largest river restoration project in American history with the removal of four dams along the Klamath River, in partnership with tribes. This reopened 400 miles of spawning habitat and for the first time in 100 years, the salmon are running again, and native plants are thriving.
- Launching California's Salmon Strategy for a Hotter Drier Future in 2024, laying the groundwork to restore and rebuild salmon populations. The state released a progress report shows that of the 71 action items outlined in the Salmon Strategy, nearly 70% are underway, with another 26% already completed.

What's next

The science is clear: California faces intensifying weather whiplash and warming temperatures in the coming years and decades. The Governor outlined the road ahead:

- Diversify our water supplies: Expand water recycling, build well-placed desalination, capture more groundwater recharge, and more.
- Rehabilitate our backbone infrastructure: Finally implement Delta Conveyance and aqueduct repairs of the State Water Project.
- Manage water more nimbly: Water agencies need to manage more adaptively in real-time to navigate quickly changing conditions and capture water supplies when they come.
- Restore river health: Get more flows and habitat back into our rivers: for our fisheries, water quality, and recreation.
- Collaborate: Move beyond finger-pointing to shared solutions across watersheds and even states, which is the most durable way forward.

# # #

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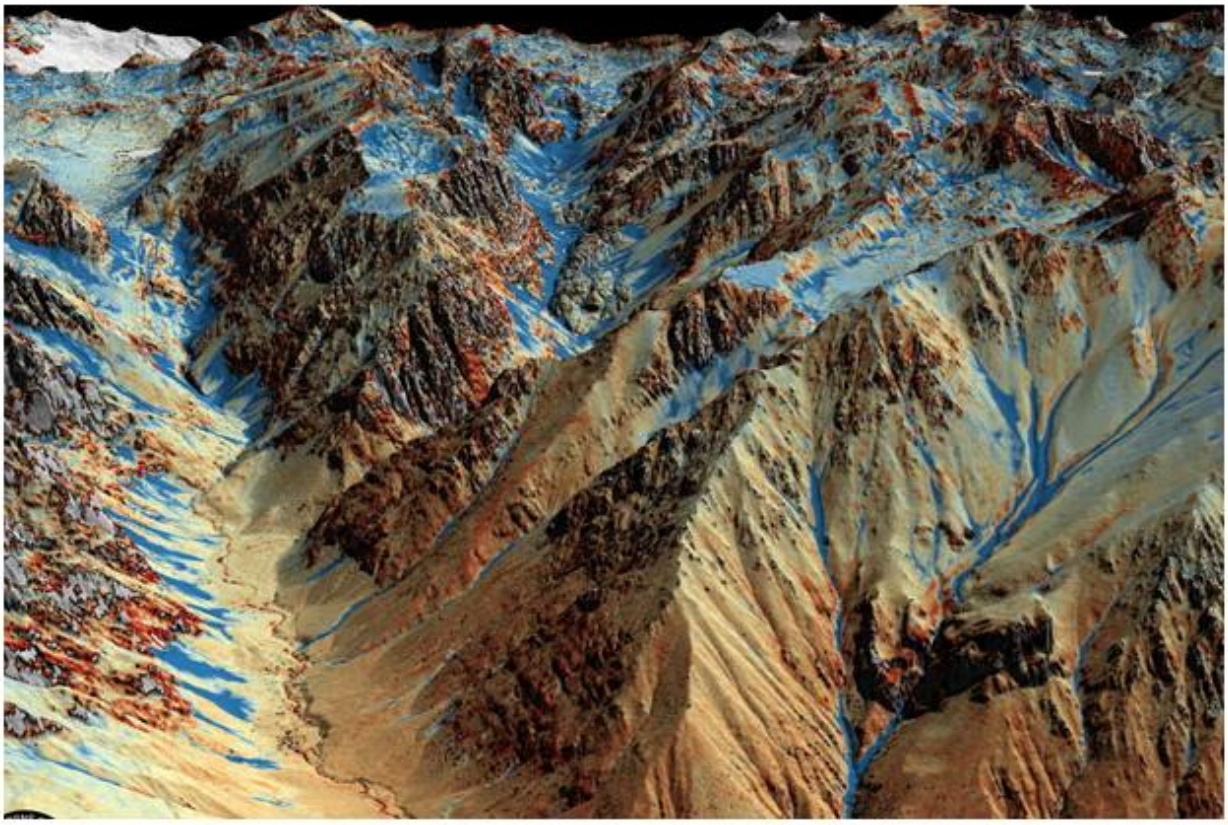
Lasers in the sky: hi-tech missions track record snowpack loss in US west

Data from missions showing critically low snowpack on mountains across the west raises alarm among experts

The Guardian | May 11, 2026 | Ben Tracy



A Lidar scan of snow on a mountain. Photograph: Airborne Snow Observatories

High above the jagged peaks of California's Sierra Nevada, the view from the cockpit is breathtaking. At first glance, the mountains appear draped in a pristine white blanket. But as the flight crew gears up for a high-stakes mission, the sensors onboard this specialized aircraft prove that looks can be deceiving.

"This is a distinct dry year," says Tom Painter, CEO of Airborne Snow Observatories.

Painter, who developed this technology at Nasa, isn't relying on a visual inspection. His plane uses Lidar, or rapid pulses of laser light, to calculate snow depth with surgical precision. "The Lidar sprays out about 800,000 pulses per second," he explains. The result is a 3D map of snow depth accurate to within 3cm. The technology also helps determine how much water is stored in the snowpack.

In the US west, where mountain ranges act as "frozen reservoirs", state water managers rely on this data as a survival guide. It helps them plan for exactly how much water will eventually reach the faucets of millions of people and the critical farm fields that feed the nation.

This year, the data is sounding an alarm.

The national drought picture is increasingly grim. According to the latest US Drought Monitor, more than 60% of the lower 48 states are now gripped by drought. It's the most widespread spring dry spell since the monitor began in 2000. While the south-east is now battling "summer-sized" wildfires in Georgia and Florida, the west is facing a different kind of crisis: a snow drought-fueled water shortage.

A record-warm winter followed by a blistering March heatwave, both fuelled by heat-trapping pollution, has decimated the western snowpack. According to Climate Central, the total water stored in the western snowpack this winter hit its lowest level on record right when it should have been hitting its annual peak.

"In March the spigot shut off and it shut off across the entire western US," Painter says. "Loss of snowpack like we've never seen. It's not in the record at all. So this is unprecedented."

The numbers back him up: the statewide snowpack in California stood at a mere 18% of average on 1 April and has declined ever since.

Standing by a rushing stream outside Reno, Nevada, Tom Albright, the state's deputy state climatologist, says spring runoff from snowmelt in the mountains is two months ahead of schedule. "We wish we could tell it to stay put a little longer," Albright says.

The danger of an early melt is twofold. First, once that snow is gone, the landscape begins to dry out months ahead of schedule which can fuel wildfires. Second, major reservoirs on the Colorado River that are already critically low, will not be replenished due to the lack of snowpack. "What happens when we don't have the snowpack is we lose what water there was early and then we're left with this really long dry season," Albright says. When asked what concerns him most about the coming months, his answer is immediate: "Fire. Particularly because we have such a broad area that's affected."

For decades, the water systems of the west were built on the assumption that the snow would stay in the mountains until the heat of mid-summer. The climate crisis is rewriting that playbook.

While this year's drought is anomalous when looking at the historical record, experts warn it is a preview of the coming decades.

"As we look forward this year will become less and less unusual and may become not unusual at all at some point in the future," Albright warns.

# # #

As drought worsens, Western states brace for wildfires, water shortages

Nevada Current | May 11, 2026 | Alex Brown

Water levels in Lake Mead have fallen as the Colorado River dwindles, threatening the water supply for cities and farmers in the West. (Photo courtesy of U.S. Bureau of Reclamation via Nevada Current)

From the Rockies to the Cascades to the Sierra Nevada, mountainsides across the West are sparsely covered by the snow that usually blankets the high country well into the summer.

That snowpack is like a savings account that the West draws on when the hot, dry months arrive. It moistens the landscape as it melts, lessening the risk of severe wildfire. The runoff feeds into river basins, and the swelling waterways provide power to hydroelectric dams, irrigation to farmers and drinking water to cities.

This year, Western states are heading into the summer with a desperately low balance — threatening wildfires, drinking water, crops, electricity and more.

“This has been an extremely poor year,” said Sharon Megdal, director of the Water Resources Research Center, a research unit at the University of Arizona. “This has gotten a lot of people concerned and alarmed.”

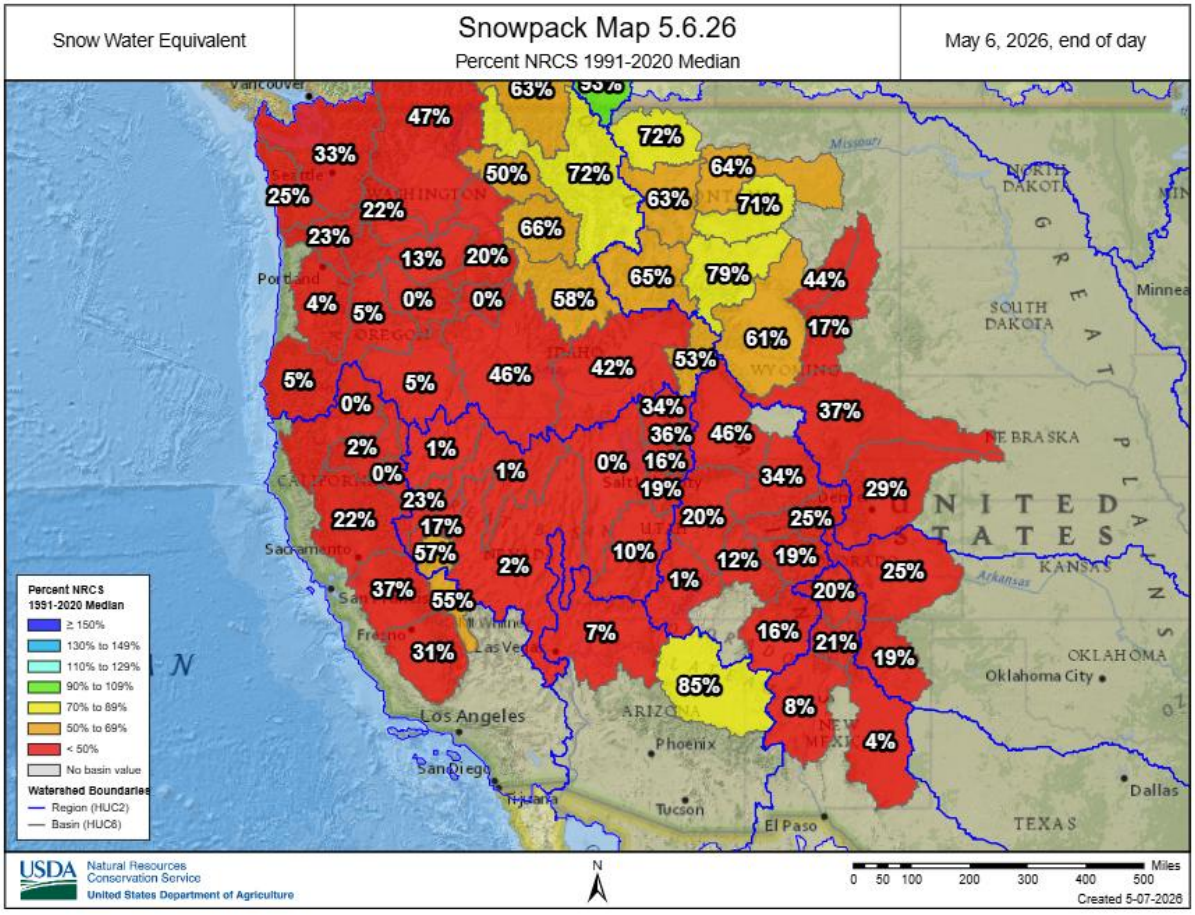
While a late-season storm brought heavy snow to parts of the Rockies this month, the region remains in a deep snowpack deficit.

As warmer weather arrives, states are preparing for a dangerous wildfire season across the drought-stricken West. Farmers and cities are bracing for potential cutbacks in their water allocations from rivers that have less to give. Fisheries managers are watching for low river flows that could threaten vital salmon runs. And worsening conditions could threaten the supply of hydropower that provides cheap, clean electricity to many Western states.

A hot, dry winter

Across nearly the entire West, states spent the winter waiting for snow that rarely arrived. Ski resorts lost millions of visitors as they struggled to stay open. Then in March, a record-breaking heat wave settled across the region, shrinking the already paltry snowpack.

“It’s unheard of,” Megdal said. “Things were already looking bad in January, but if you follow the projections, they had to keep revising the numbers downward because the snow just never came and we had this hugely hot period in March.”



The federal National Water and Climate Center produces a real-time map showing the snow water equivalent in river basins across the country — a measurement of how much moisture is being held in those mountaintop savings accounts.

The majority of the West is bright red, indicating that snowpack is at less than 50% of the median level for this time of year. Yellow and orange cover most of the remaining areas, showing regions that are still well below the median.

The most recent U.S. Drought Monitor map shows most of the country in abnormally dry or drought conditions, aside from the Great Lakes region and some other parts of the Midwest.

Wildfire

For many Western states, the most imminent threat from the dry winter is the prospect of a dangerous wildfire season.

Already, wildfires in Nebraska have burned hundreds of thousands of acres, shattering records and setting the stage for a record wildfire year.

The wildland fire outlook maps produced by the National Interagency Fire Center show above-normal fire risk spreading across much of the West by June and July.

“There’s a lot of red on the map,” said Matthew Dehr, wildland fire meteorologist with the Washington state Department of Natural Resources.

What we’re likely to see are wildfires moving more quickly through forests. When we do have a large fire event, it’s likely to move faster, be more significant.

– Washington public lands commissioner Dave Upthegrove

Dave Upthegrove, Washington’s public lands commissioner, said his agency is preparing for fire season as normal but with a heightened awareness that this summer could be demanding. He’s focused on educating residents about the risks, noting that 90% of wildfires in Washington are caused by humans.

“What we’re likely to see are wildfires moving more quickly through forests,” he said. “When we do have a large fire event, it’s likely to move faster, be more significant.”

He also noted that this year is Washington’s fourth consecutive year of drought conditions, making trees more susceptible to diseases and pests and compounding wildfire risk.

Dehr said spring rains could provide a bit of a buffer before the heat of July and August, but a recent stretch of sunny weeks has yet to provide relief.

Upthegrove noted that the challenging conditions across much of the West could make it more difficult for states to send wildfire crews to each other’s aid, if many states are battling big blazes simultaneously.

“As the climate crisis pushes a forest health crisis pushes a wildfire crisis, it’s going to stress the whole system, not just in our state,” he said.

Low water supplies

Many Western states also rely on snowpack to feed rivers that provide irrigation for farming and the water supply for cities. In particular, the Colorado River provides water for tens of millions of people across seven states, a region that has grown even as the river’s supply has dwindled in recent decades. Reservoirs that were full at the turn of the century are now nearing critically low levels.

“There hasn’t been enough flow in the river to meet all these expected demands, even in the good years,” said Megdal, the water researcher. “We’ve used up our savings and storage, so now what do we do?”

Water allocations for states, tribes and farmers in the region are governed by a complicated and fiercely contested system known as the Colorado River Compact. In recent years, cutbacks due to the low supply reduced the water allocation for central Arizona, including all of the water for agricultural users.

Now, states are fighting over even less water and struggling to negotiate who should bear the cost. Last week, Arizona, California and Nevada submitted a proposal to federal officials that would impose further cutbacks over the next two years in order to buy time for a longer-term deal.

“It’s turning out to be very hard to get the states to agree on how to slice up a much smaller pie,” Megdal said. “There are scenarios that are not zero probability that are catastrophic to the region.”

If the states are unable to reach an agreement, allocation for the river’s diminished water will be determined by federal regulators under the “law of the river.” Cutbacks imposed by the feds could fall heavily on central Arizona, Megdal said, cutting the supply for Phoenix, Tucson and some tribal nations.

Such uncertainty in the Colorado River basin and elsewhere “leaves farmers making planting decisions now without knowing whether sufficient water will be available to carry crops through harvest,” the American Farm Bureau Federation wrote in an April report.

The lack of water could force farmers to remove trees or vineyards, the Farm Bureau noted, or reduce cattle herds if the parched landscape does not supply enough forage.

Meanwhile, rivers running at a slow trickle could reduce the hydroelectric power produced by dams across the West. Across 13 Western states, hydropower accounts for nearly a quarter of electrical generation.

The Glen Canyon Dam in Arizona, which forms Lake Powell, produces about 5 billion kilowatt-hours of electricity each year, enough to power nearly half a million homes. But the lake level may soon fall below a threshold from which the dam can no longer generate power.

“Hydropower is so incredibly important because it has been the lowest-cost power for many in the West,” Megdal said. “There are big implications for the energy grid and the cost of electricity.”

# # #

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A record El Niño may be forming — and the forecast model is literally off the charts
San Francisco Chronicle | May 9, 2026 | Greg Porter

The sun reflects on the Pacific Ocean as it sets in March off the Southern California coast. The Pacific, in the tropics, may be poised for record warmth. Kevin Carter/Getty Images

A freight train of warm water is surging eastward in the tropical Pacific Ocean, kick-starting what is on track to be the strongest El Niño ever observed.

The latest model projections are off the charts. Literally.

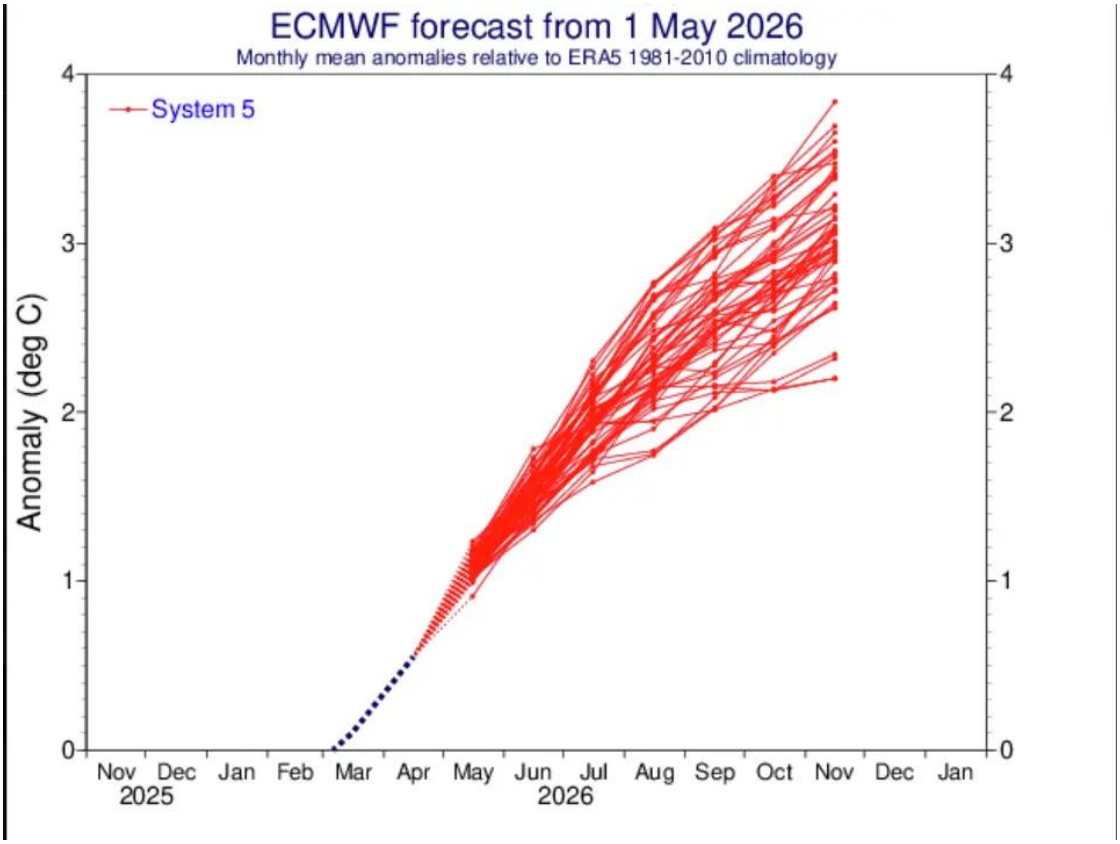
- Strongest El Niño in 140 years? This one could actually deliver for California
- Also: New rules change how La Niña and El Niño are classified. Here's what that means

If these models prove accurate, it will set off dramatic weather impacts everywhere from California's coast to the Arctic Ocean.

Most forecast models project Pacific Ocean temperatures to be warmer than the average by at least 3 degrees Celsius by November. For sea surface temperatures across this patch of the central Pacific, even a bump of 1 or 2 degrees Celsius is enough to reshape rainfall, storm tracks and temperatures around the world.

Such an event would surpass the peaks of the 1997-98 and 2015-16 super El Niños, the strongest on record. In those years, ocean surface temperatures were 2.4 and 2.6 degrees Celsius above average, respectively.

That's not all: Several recent model projections take the anomaly even further, past 3.5 degrees Celsius and into territory that requires the standard El Niño tracking chart to be redrawn.



The May 1 ECMWF seasonal forecast plume for the Niño 3.4 region. Each red line represents one of the model's 51 ensemble members. Most cluster well above 3 degrees Celsius by November, with several pushing past 3.5 degrees Celsius. ECMWF

A month ago, atmospheric scientist Paul Roundy of the State University of New York at Albany estimated that the developing El Niño had roughly a 30% chance of becoming the strongest event in 140 years. As of this week, he has raised that estimate to 50%.

"There has been enough momentum already transferred to the ocean to make a strong El Niño event a virtual certainty," Roundy said in an email, "but it remains a little less certain whether the event gets into record territory."

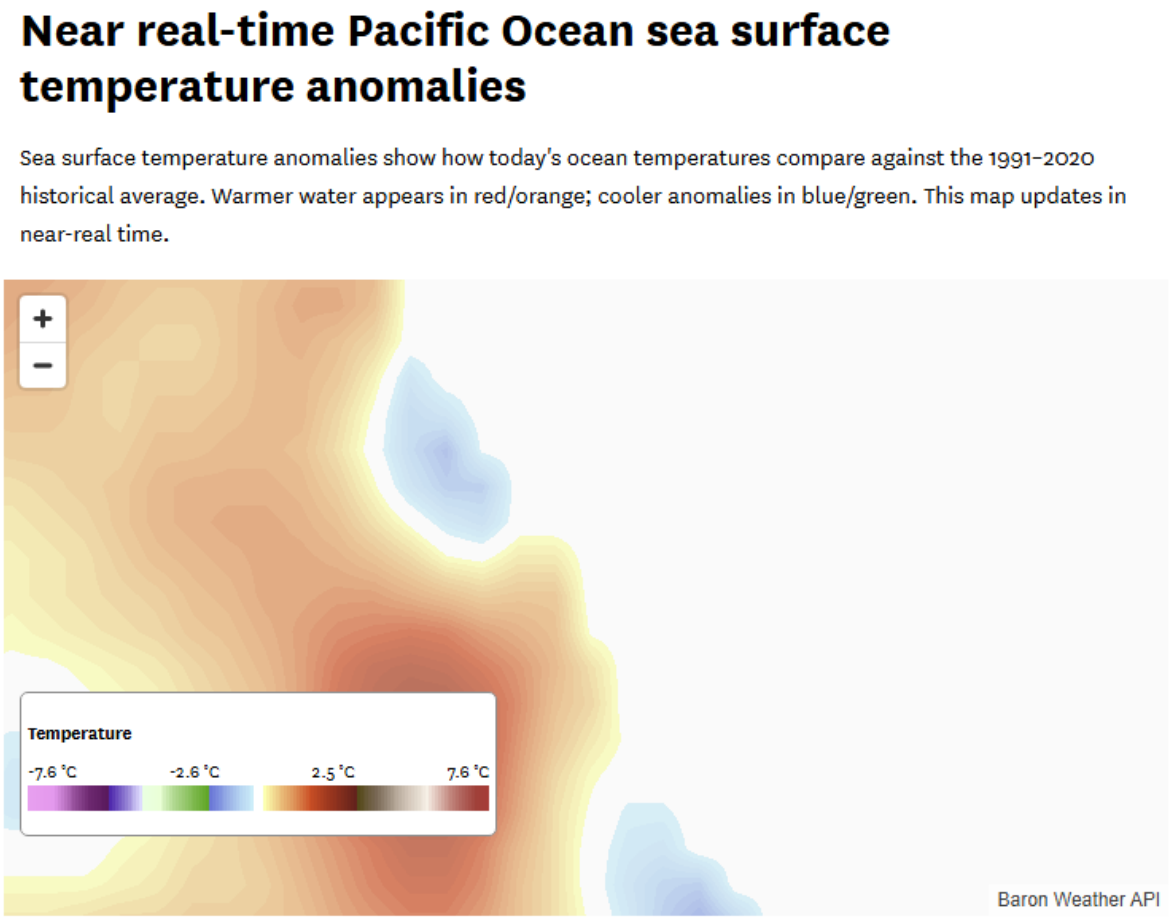
The American multi-model ensemble, an aggregation of leading forecast systems run by the National Oceanic and Atmospheric Administration, came to a similar conclusion in its update this week. The ensemble's peak ocean temperature forecast now sits at 3.1 degrees Celsius

warmer than average for November, with the event sustained at record-strong levels through at least January.

The Pacific is already roasting

The Pacific is already running hot at the bottom of the ocean. Below the surface, temperatures in parts of the equatorial Pacific are now more than 7 degrees Celsius above normal, more heat at this stage of an El Niño's development than has been observed in the modern record.

Surface warmth alone can fade quickly when the trade winds — which blow east to west — rebound. But heat stored hundreds of feet below the ocean surface is harder to reverse. It is what gives a developing El Niño staying power, and it is the central reason this event looks nothing like the 2014 false start, when the warming faded by April and the anticipated El Niño didn't arrive for another year.



Since January, a series of unusually strong westerly wind bursts has propelled warm water eastward across the Pacific Ocean basin. The most powerful, in early April, was a rare cluster of three tropical cyclones that Roundy described as potentially the strongest equatorial wind burst in more than a century.

Evidence of the strength of the coming El Niño is already showing up at the surface. As of May, the relative Niño index, NOAA's updated measure for tracking El Niño as climate change warms the ocean, sat at +0.436 degrees Celsius. The threshold for declaring an official El Niño is +0.5 degrees Celsius, sustained for three months.

The reach of a record El Niño

The ocean and the atmosphere are linked; they feed each other. The warmer the Pacific gets, the more energy it dumps into the air above it, fueling deeper, more frequent thunderstorms over the central and eastern equatorial Pacific. In a normal year, the bulk of that activity sits over the western Pacific and Indonesia. In a strong El Niño, it shifts thousands of miles east.

Those thunderstorms are the heat engine that drives a chain of high- and low-pressure systems wrapping around the planet. And where they set up matters for which regions will see the greatest impacts. Move the engine, and the rest of the chain moves with it: Some regions get more rain, while others lose it. Hurricane seasons in different ocean basins run hotter or quieter than usual.

The 1982-83 and 1997-98 El Niños, two of the strongest on record, pushed those shifts to extremes. California saw double its normal winter rainfall in 1997-98 and roughly $850 million in storm damage. Peru's fishing-reliant coastal economy took a hit on the order of 10% of GDP with each El Niño event. Eastern Pacific hurricane seasons surged. Heat and drought intensified across parts of Australia, Indonesia and southern Africa. On the flip side, the Atlantic hurricane season quieted and India's summer monsoon weakened, reducing rainfall across a region where agriculture desperately depends on it.

A record-strength event would not necessarily replay those impacts beat for beat. But the already-high global ocean temperatures mean the conditions needed for such impacts will be in place.

Daniel Cayan, a climate researcher at the Scripps Institution of Oceanography in San Diego, said the model evidence and the ocean observations now point in the same direction.

"The warming eastern-central tropical Pacific, along with updated model forecasts, continue to indicate a strong El Niño is developing," Cayan said.

NOAA's Climate Prediction Center is scheduled to release its updated outlook on May 14 and is expected to raise its El Niño odds.

# # #

A Whiplash Spring and California's Water Supply

Public Policy Institute of California | May 4, 2026 | Jeffrey Mount

Fourth Media Snow Survey of the 2026 Season, pixel-ca-dwr-2026_04_01_AN_0477_Snow_Survey

It has been widely reported that March was a disaster for California's snowpack. Summer seemed to arrive three months early, with record-shattering heat and dryness and a mere pittance of precipitation. Did a relatively cool, rainy, and even snowy April make up for it? The short answer is no—but it helped.

It's important to remember that snowpack is California's third-largest source of water storage, behind surface reservoirs and groundwater. Our statewide water supply grid is built around storing roughly 30% of statewide water supply in snowpack, a relatively reliable source of water through the 20th century.

In a typical year, snow accumulates from December through March. Around April 1, warming temperatures, lengthening days, and a higher angle of the sun cause the snowpack to warm up and start melting, raising rivers and filling reservoirs. Depending on how thick the snowpack is, this melting can last well into June and even July in some years.

A difficult March

Until the end of February this year, California was on track to have a below average—but still decent—snowpack. Then a hot, dry March melted away the snowpack.

What makes the March collapse so remarkable is its timing—a full month ahead of usual. In the space of one month, more than five million acre-feet of water stored as snow was lost. That is five times the amount of water delivered to southern California by the State Water Project. And most of that water did not get captured as runoff in reservoirs: some went into groundwater, some into soil moisture, and (thanks to the record “thirst” of the atmosphere) much simply evaporated.

A “miracle” April?

Did a miracle April save our water supply from a miserable March? A wet April changed the narrative a bit, but the reality is that March was a snowpack wipeout with implications for water supply in the future. At best, the cooler April conditions plus some helpful snowfall held things steady for the month, but the paltry remaining snowpack is now melting away and won’t add much to summer supplies.

What’s next for the state’s water supply?

The good news is that the state’s reservoirs are above their historical averages. However, they are not close to full and given the lack of snowpack (just 22% of historic average), there are no prospects for filling them. Still, they are full enough that significant shortages are unlikely this summer.

The March loss of snowpack will, however, reverberate into next year. Large reservoir releases that will occur this spring and early summer to meet irrigation demands will not be replaced by melting snow. This loss will likely translate to low reservoir levels this fall, limiting the amount of stored water available as insurance against a dry year next year. We are fine for now because of water we saved from last year. We will not be in as good shape if dry conditions return.

While this wet April was helpful, there is no undoing the damage that a record warm and dry March did to our third-largest source of water storage: snowpack. Most climate modeling suggests that years like this, with early snowmelt, are likely to become more common in the future. This March was a window into that future and a reminder that California needs to urgently invest in an adaptation strategy to deal with the increasing frequency and intensity of snow droughts.

# # #

Newsom water board pick draws opposition from enviros ahead of Bay Delta vote
Sacramento Bee | May 12, 2026 | Andrew Graham

White Slough in the Sacramento-San Joaquin Delta meanders past farmland in a drone image from Tuesday, Nov. 1, 2022. HECTOR AMEZCUA hamezcua@sacbee.com

Environmentalists and a salmon fishing group unsuccessfully lobbied a California Senate committee to reject Gov. Gavin Newsom's reappointment of a veteran State Water Resources Control Board member last week, as tensions over the board's upcoming vote on a controversial update to water policy for the Sacramento and San Joaquin watersheds spilled into the gubernatorial appointment process.

Gov. Gavin Newsom nominated Dorene D'Adamo to her fourth term on the board earlier this year, ahead of an expected September vote on the Bay-Delta Plan, which governs water use of the two rivers, their watersheds and the San Francisco Bay.

The plan relies on negotiated deals, called "voluntary agreements," between water districts and the state. Environmentalists and tribal governments oppose those agreements, calling them an abdication of the state's regulatory responsibility that gives irrigation districts too much sway over how much water will be allowed to flow through rivers and estuaries amid ongoing fishery and ecological decline.

D'Adamo has been a voice on the board for powerful interests such as the agricultural industry and urban water districts interests, her opponents charged at a May 6 hearing of the Senate

Rules Committee; those interests, they claim, have wielded too much sway in crafting the Delta Bay plan, while their own input has been sidelined or ignored.

“The State Water Board has consistently tipped the scales on behalf of agriculture and urban water interests, and as a result, we have multiple species headed towards extinction,” Max Gomberg – who ended a 10-year career for the Water Resources Control Board in 2022 with a public criticism of Newsom’s management of the agency – told the four senators present on the committee.

“This committee should not condone the ongoing environmental catastrophe in our Delta via regulatory capture of this board,” Gomberg said.

Gary Bopker, program director for the Sacramento-based environmental group Friends of the River, said he did not necessarily want board members who strictly align with environmental groups. But, he said, “I do want board members who are outraged about this crisis in the Bay Delta and the way it affects many communities, and who push timely and effective action to address the root causes.”

D’Adamo, he said, “has had 13 years to deal with that. I just think it’s time for a change.”

The board was not swayed by the opposition, with the senators voting unanimously to advance D’Adamo’s nomination for a vote by the full body.

For her part, D’Adamo committed during the meeting to continue to meet with environmental and fishing groups. Their resistance to the Bay Delta plan has “morphed into opposition for my confirmation,” D’Adamo said. “Where we’re going as a board is just not where they would like for us to go.”

D’Adamo did not contest the idea that she has ties to the agricultural industry — to the contrary, she said, those connections have allowed her to be a trusted voice with farmers and irrigation districts in water negotiations, including at times when she had to explain unwelcome changes to the industry.

“It can raise concerns about ‘am I going to just do whatever that community is asking for?’” she said. “And the answer to that is no, because I am really motivated to be on this board out of protection of water quality and protection of our water rights and balancing all beneficial uses, not just agriculture.”

That was the opinion of state Sen. John Laird, D-Santa Cruz, a senator highly rated by the California Environmental Voters, which ranks lawmakers on their environmental voting and campaign finance records.

“There’s tremendous value to having somebody that is trusted by the agricultural community,” Laird said to D’Adamo after her opponents spoke, “and that trust is used to occasionally tell

them that they can't have what they want, and you might be the only person that has them walk away and believe it."

Irrigation district leaders aren't entirely satisfied with the proposed Bay Delta plan either — some maintain it still requires too much water to flow through the system instead of being captured in reservoirs, according to previous Sacramento Bee reporting.

But representatives of several irrigation districts, along with agricultural lobbyists, the California State Association of Counties and bird hunting groups like Ducks Unlimited, spoke in favor of D'Adamo's reappointment.

Alex Biering, representing the California Farm Bureau, the state's heavyweight agricultural lobbying organization, told the committee she was there "in strong support of our friend," D'Adamo.

Newsom supports the voluntary agreements, a policy proposal that began under his predecessor Jerry Brown. On May 7, he again endorsed the idea in a speech to the Association of California Water Agencies, in which he described his eight years in office as a steady gain on the state's gnarliest water issues.

The governor said the voluntary agreements would help move the state away from "the old binaries of litigation," maintain healthy river flow levels, and that the plan included funding for the restoration of 45,000 acres of fish habitat.

Environmental organizations don't see it that way. Some plan opponents have indicated they're likely to sue if the Water Board adopts the policy, as it's expected to do this fall.

# # #

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ACWA names Karla Nemeth as Executive Director, plus Karla Nemeth podcast: The hard truths of California water

Maven | May 6, 2026 | Association of California Water Agencies (ACWA)

California Department of Water Resources Director Karla Nemeth has been selected to lead the Association of California Water Agencies (ACWA) as its next executive director, President Ernie Avila announced today.

Her selection follows a nationwide recruitment process and overwhelming support of the association's Board of Directors. Effective Sept. 1, Nemeth will oversee staff of the nation's largest statewide coalition of public water agencies. Based in Sacramento, ACWA represents approximately 470 members responsible for 90 percent of the water delivered to cities, farms and businesses across California.

Nemeth will lead a staff of more than 40, including a Washington D.C.-based office, supporting state and federal advocacy, educational outreach and events. ACWA's membership includes urban, rural and agricultural water suppliers of all sizes throughout California. She will lead ACWA as its first female executive director in the association's 116-year history.

"Karla Nemeth brings deep expertise and a proven track record navigating California's most complex water challenges," said ACWA President Ernie Avila. "Her leadership will strengthen ACWA's role as a leading voice and advocate for water agencies across the state."

Nemeth has served as Department of Water Resources (DWR) director since her appointment by Gov. Jerry Brown in 2018 and was reappointed by Gov. Gavin Newsom the following year.

DWR manages and protects California's water resources and supports the reliability of the state's electrical grid. During her tenure, Nemeth led DWR's efforts to adapt to more extreme weather driven by climate change, including investments in atmospheric and runoff forecasting, and aging and green infrastructure; better management of groundwater supplies; and programs to strengthen local water resilience.

In 2024, Newsom tasked her with implementation of key water projects to achieve his "Water Supply Strategy – Adapting to a Hotter, Drier Future," including modernizing California's water conveyance infrastructure, executing agreements in support of the Healthy Rivers and Landscapes Program, and stabilizing Colorado River supplies.

Prior to joining DWR, Nemeth worked at the California Natural Resources Agency as Gov. Brown's deputy secretary and senior advisor for water policy. She also served as Bay Delta Conservation Plan project manager from 2009 to 2014.

Nemeth holds a bachelor's degree in political science and Latin American studies from the University of California, San Diego, and a master's degree in public administration from the University of Washington.

PODCAST: The hard truth's of California water

SoCal Water Coalition's Executive Director Charley Wilson recently had the opportunity to sit down with Karla Nemeth, Director of the California Department of Water Resources, for an in-depth discussion about the challenges and realities facing our state's water future. This 50-minute conversation offers unprecedented insights into the policy decisions and infrastructure needs that will shape California's water security in the coming decades.

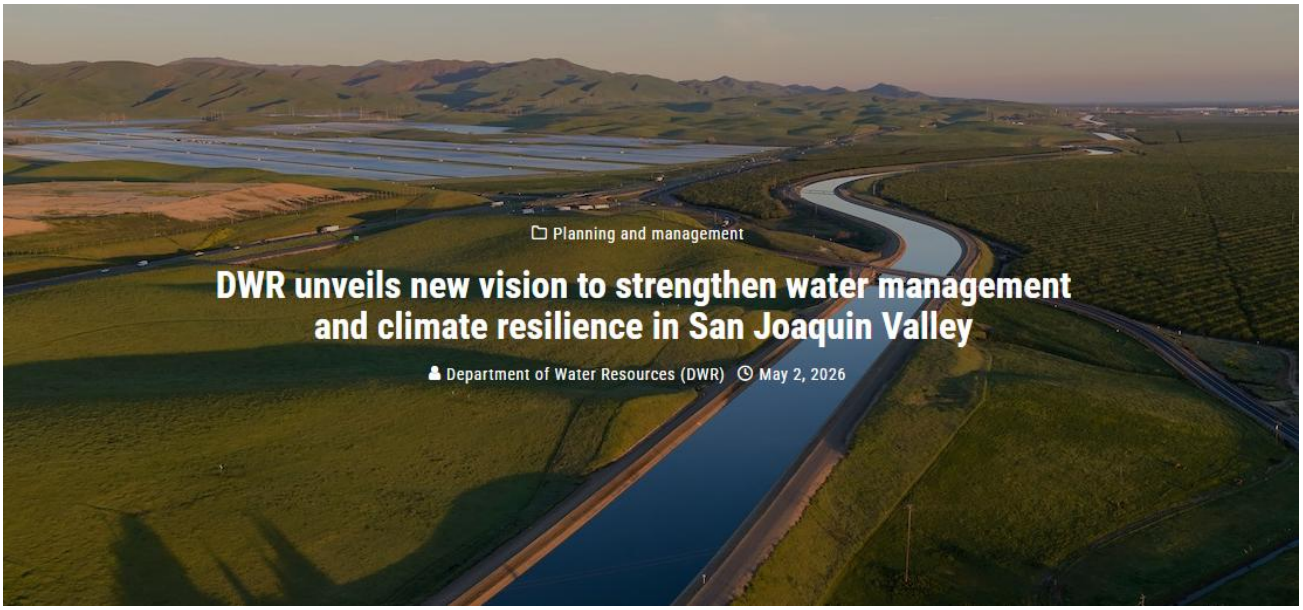
Director Nemeth provides a candid assessment of California's water outlook, including the projected 9 million acre-feet shortage by 2040, shifting snowpack patterns, and the complex role of desalination in our water portfolio. Her perspective on underground storage, the Delta Conveyance Project, and the need for enhanced collaboration between local and state agencies offers valuable context for our coalition's advocacy efforts.

The discussion touches on many issues directly relevant to our member agencies and the communities we serve. Director Nemeth's emphasis on moving beyond traditional approaches and embracing innovative solutions aligns with many of the principles our coalition has long championed.

# # #

DWR unveils new vision to strengthen water management and climate resilience in San Joaquin Valley

Maven's Notebook | May 2, 2026 | Department of Water Resources (DWR):



A north-facing drone view of the California Aqueduct near Crows Landing, located in Stanislaus County. Photo taken March 9, 2026. Nick Shockey / California Department of Water Resources

The San Joaquin Valley is at a turning point, where long-standing complex and interconnected water management challenges are intensifying with climate change and creating mounting pressures for communities, agriculture, and ecosystems. To confront these growing pressures, the Department of Water Resources (DWR) has developed A Vision for the San Joaquin Valley, an integrated plan with near- and long-term strategies to strengthen water management and climate resilience.

"Decades of severe groundwater overdraft and accelerating climate conditions have put the San Joaquin Valley on an unsustainable path," said DWR Director Karla Nemeth. "This vision provides the necessary framework for climate-resilient water management, aligning partners and guiding coordinated action to safeguard communities, agriculture, and ecosystems across the region."

This vision document builds on findings from three recently released DWR planning documents, the State Water Project Adaptation Strategy, San Joaquin Valley Conveyance Study, and the San Joaquin Basin Watershed Studies, to provide a coordinated roadmap to guide future investments and needed policy improvements.

The vision prioritizes near-term actions that can deliver benefits quickly, such as pilot projects that capture high flows during wet years and store water underground. These efforts can provide multiple benefits, including flood protection, improved water supply, ecosystem support, and greater equity. A key focus is raising groundwater levels to reduce damaging land subsidence,

which is currently reducing the capacity of key state and federal canals to deliver water where it is needed.

To make local implementation easier, the document focuses on working with state agencies to support local agencies through regulatory reforms that streamline recharge permitting and reduce administrative barriers as well as offering new tools like a public dashboard to help identify recharge opportunities. Long-term investments and policy changes focus on subsidence remediation and moving forward with critical water storage and conveyance projects.

The vision highlights a proactive and supportive State role in partnering with local agencies and communities to help address major challenges, while recognizing that even the most optimistic water management solutions will likely need to be paired with difficult but necessary land repurposing.

This innovative vision for the San Joaquin Valley is consistent with the new era of water planning in California, mandated by Senate Bill 72 (Caballero) which was signed by Governor Newsom in 2025. The modern California Water Plan will be more integrated, action-oriented, target-based, and based on real-world conditions that communities are experiencing under increasingly hotter, more extreme weather. As DWR develops California Water Plan 2028, efforts like this will serve as critical building blocks, helping to align regional investments with long-term statewide water supply goals and ensuring that planning leads to implementation on the ground.

Public Comment

A San Joaquin Valley Water Resilience Summit, hosted by the California Water Institute and sponsored by DWR, will be held at California State University, Fresno on May 20 and 21. The summit will provide an opportunity to present the vision and related planning documents, engage interested parties, and discuss pathways for advancing priority actions and building partnerships. Additional details will be shared as the event approaches.

The Vision for the San Joaquin Valley is available for public comment now until July 21, 2026. Public comments can be submitted to sjvision@water.ca.gov.

# # #

Climate Change Drives California's Water Plan

Community Alliance | May 2, 2026 | Vic Bedoian

The Friant-Kern Canal near the headworks at Friant Dam, photographed on April 22. The canal extends 152 miles to the Kern River, providing irrigation along the way. California's water policy depends on this and other canals. Photo by Peter Maiden

California's natural resources agencies are beginning to move ahead with an updated state water plan in response to climate warming that threatens an estimated 10% reduction in the state's available water by 2040. Late last year, Newsom signed SB 72 into law, giving state agencies the go-ahead for a broad-based water supply plan with conservation, new storage facilities and local projects at its core. A panel of state leaders recently discussed the importance of the plan for the state's future.

California's water supply plan for a hotter, drier climate came in the shadow of prolonged drought. In 2022, Newsom ordered a series of actions to build water resilience for the near future in the face of recurring climate whiplash. That strategy is being updated with a data-driven and science-based approach to calculating how much water, in any given year, will be available and how it will be stored and delivered. Those issues were unpacked by a panel of state leaders. Wade Crowfoot, heading the California Natural Resources Agency, outlined the challenge.

“If you grew up in California, you knew drought and challenges with this swinging drought and flood as part of our natural environment. We’re in a Mediterranean climate. So like other parts of the world that share this climate, we do have episodic swings of water from drought to flood. But we also know that climate change is sort of stacking the deck and creating more intense volatility.”

March 2026 provided a stunning example of the challenge facing the state’s water and wildlife agencies. Following February’s atmospheric rivers of rain and snow, it was the hottest and driest March on record. The Sierra Nevada snowpack almost disappeared, yet reservoirs in the state average 122% above normal. Karla Nemeth, director of the Department of Water Resources, said it could become the new climate pattern.

“What’s really interesting is this juxtaposition of our precipitation being at about average, our major reservoirs being above average for this time, but our snowpack being dismal. And what you see in that 18% of average peak snowpack is how singularly awful March was.”

California’s water plan is ambitious. Its goal is to increase water supplies statewide by nine million acre-feet. That’s roughly equal to the volume of water currently delivered by the state and federal water projects combined. The strategy includes building storage facilities above and below ground to capture floodwaters, recycling and reusing wastewater, collecting stormwater and desalinating ocean water. Local supply projects are also in the plan. Some $8 billion in funding is being allocated toward projects. Nemeth explained that the state is updating the way it manages water year by year.

“One is after 2021 we put a lot of time and attention into like a dryness model, a soil moisture model, which incidentally is not only important for our water resource management, but it’s also important for our colleagues at Cal Fire to really start to understand how does this really translate into potential wildfire risk.”

Nemeth explained that in addition to expanded aerial snow surveys, which measure water content of snow periodically throughout the year, the state is looking at individual watershed characteristics. That data will be important for local water agencies as they try to supply sufficient and affordable water to customers.

Craig Miller manages the Western Metropolitan Water District serving six million people in Riverside County. The key, he said, was to develop local sources and coordinate with the state and other water agencies on an overall plan going forward. He observed that large projects like desalination are too expensive for locals, so they must rely on their own watersheds for capturing rain and snowmelt.

Miller calculated that desalination could cost up to $8,500 per acre-foot compared to $400 an acre-foot cost of delivering surface water. “That really pushes this group of water managers to say, the, the brighter thing to do is to maximize the water that Mother Nature is putting on this state. And we have to figure out how to catch it and move it and not just move it for water users.

This is for the environment, and this is for recovery of species building habitat, agricultural needs and north and south urban needs."

Most of the water consumed by cities, farms and the environment is born in the Sierra Nevada. Sandi Matsumoto is director of the Nature Conservancy's California water program and a member of the California Water Commission. She described the process by which it gets to the valley in a usable form. "It really moves through our ecosystems, and it's sitting up in the forests and those forests store that water that we have. Meadows are incredibly important as water storage. And when they're in good condition, they're storing the water so that it can melt over the summer months and slowly deliver water down to the valley. In order to do that, we rely on our rivers. We have rivers, we have wetlands, and these are the mechanisms that actually move that water from the Sierra down into the valley floor."

Climate warming is changing the dynamics of mountain snowmelt and runoff. Warmer winters produce less snow and more rain. And, as we experienced in March, extreme temperatures can melt what snow does exist. Water managers can no longer count on snowbound water in the mountains to melt slowly into waiting reservoirs. While much attention is focused on the gray infrastructure of dams and canals, Matsumoto emphasized the importance of the green infrastructure for long-term water security.

"One important way is forest health. If we have healthy forests reducing fire risk, we're reducing the risk of mega fires and problems for air quality. And we're improving the ability to store water, to improve the water quality and to address flood risk. Similarly, if we can restore habitat and restore flows to our rivers, then we're facilitating groundwater recharge and really getting our aquifers pumping."

Matsumoto emphasized the important connection between our rivers and groundwater basins. "Take care of our groundwater basins and bring them into a sustainable place so people can use them during droughts. Groundwater actually helps water stay in the rivers because it's not percolating automatically into a depleted groundwater basin. There are these relationships like the mountain meadow relationship, a groundwater and surface water relationship, that I think are going to point the way toward some pretty interesting solutions."

The California water plan pledges an open process with outreach across the state. It will include clear targets to align state, regional and local actions. The California Water Commission will hold an advisory meeting on the 2028 water plan update on May 13 and 14 in Sacramento. Information is available from the Department of Water Resources website.

# # #

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AI Water Use Distractions and Lessons for California
California Water Blog | April 26, 2026 | Jay Lund

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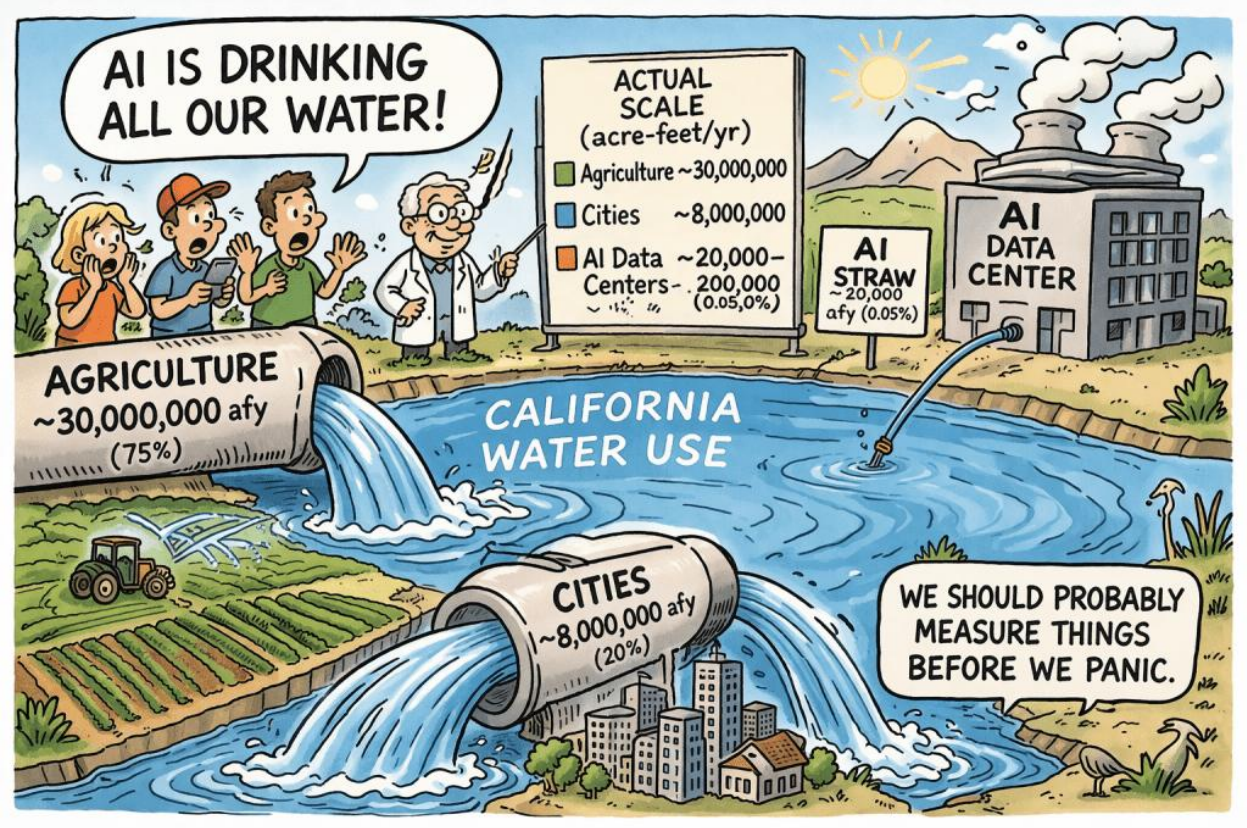

Image generated by: OpenAI. ChatGPT (GPT-5.3).

Artificial intelligence (AI) will affect many economic and natural resource sectors as these new technologies develop and mature. We are in the early years of this process. Like most new things, AI has become an object of small and great hopes and fears – from hopes for saving and helping humans to fears for destroying human minds and civilizations. A common concern in the media is AI's water use and its larger implications. While most AI concerns are speculative in these early days, AI water use is an example of our fears and hopes, as well as how some advocates (and researchers) can seize on public attention as an opportunity for advocacy (and funding).

A ChatGPT generated comic. The largest text bubble screams "AI is drinking all our water". The second largest says "we should probably measure things before we panic". In between the two bubbles are things like agriculture taking ~30,000,000afy, cities taking ~8,000,000afy, etc. Image generated by: OpenAI. ChatGPT (GPT-5.3).

Fears and Water

Early days of new technology bring wild fears and hopes as seen in media and public discourse. Americans, as historical leaders of new technologies, have seen these many times, from flying

cars of the Jetsons and Star Wars, to vaccines, surveillance technologies and databases, sewers, drinking water chlorination, etc. Some hopes and fears prove illusory (e.g., flying cars), some mostly positive (e.g., vaccines, water chlorination and fluoridation), while others prove to be more mixed (e.g., surveillance technologies and databases, the internet, and automobiles).

The rise of artificial intelligence is built on factories of data and computation, so-called data centers. These large warehouses of networked computers on racks require substantial energy to operate and water for cooling, in addition to physical square footage on the landscape. These computation "factories" have large energy demands that can influence local electricity prices. Their water use is mostly for cooling needs from the heat produced from their electricity use.

California water discussions are sometimes driven by fears, at times with little scientific basis. Data center water use has become a subject of fear and concern. As shown below, California data center water use is mostly modest, but will be larger in some other states having more data center activity and less well developed water infrastructure.

Estimates of Data Center Water Use in California

Many popular discussions, articles, and media reports reflect concerns for water use from the artificial intelligence industry. Some complain that AI companies and facilities are not "transparent" about their use of energy, water, and other resources, and this is certainly true, likely due to the field's competitiveness. But too many journalists, academics, and advocates wallow in speculation arising from this lack of explicit water use information.

Here are a range of estimates of AI data center water use for California, based mostly on simple fundamental physics of converting energy use to water use for cooling. I did these calculations and then, perhaps appropriately, checked and explored these estimates using four AI models.

Here are the results:

1. California has about 15 million square feet (sq ft) of floor space for data centers (about 340 acres). Total data center facility area would be larger, including parking, landscaping, and support buildings. Source: https://www.aterio.io/insights/us-data-centers

2. The energy dissipation needed for data center racks is about 2-12 kw/square meter.

3. At 100% efficiency, this rate of heat dissipation would evaporate 70–420 mm/day of water per square meter of floor space.

4. Major industrial cooling systems seem to have efficiencies of 60-90%, so this expands the range to 80 – 700 mm/day per cubic meter of floor space. This would be 29–255 meters of evaporation annually per square meter of data center floor space, roughly 25–150 times more annual evaporation than irrigated agriculture, per unit area.

5. So 15 million sq ft (1.4 million square meters) of data center, all operating continuously and using industrial evaporative cooling only, would have a total evaporation of 40 million to 357 million cubic meters of water for California annually, or 32,000 – 290,000 acre-ft per year.

6. Using the prompt, “How much water is likely to evaporate from data centers in California per year, assuming they are all using mostly evaporative cooling?” several free AI websites provided ranges of estimates, below. These AI also can provide ranges and sources for calculation assumptions.

Table 1: AI estimates of annual water evaporative losses from California data centers

AI Software	Estimate range (taf/year)	Remarks
Chat GPT	20–400	
Claude	14.4–21.5	Assumed less than 100% evaporative cooling
Gemini	2.3–40.5	
Co-Pilot	30–50	Also gave a broader 10–100 taf/year estimate range.

The overall range of estimates is broad, 2,300 acre-ft/year to 400,000 acre-ft/year. The still broad 32 – 290 thousand acre-ft (taf) per year water use estimate seems reasonable. A narrower estimate supported by all four estimations would be about 20,000 acre-ft/year. This is a lot of water for you and me, but pales (pails?) compared to total human water use in California, which is about 40 million acre-feet per year. So AI use is about 0.055 percent of annual human water use in California, and is probably among the more economically effective uses of water.

Using the broader initial AI water use estimate of 32,000 acre-ft/year to 290,000 acre-ft/year, this would be 0.08% to 0.7% of annual human water use in California. This would be enough to supply 10,000–100,000 acres of California's 7 million acres of irrigated agriculture.

For some areas outside of the arid West, this new industrial water use comes at a time when many large urban areas face declining use from conservation, and might provide desirable revenues for cities with excess water supply capacity. All water problems are local.

By the way, my breathing in making the blog post above might well have evaporated more water than occurred (incrementally) from all four AI estimates.

Lessons

I see some lessons here:

1. Don't panic over AI data center water use in California. A recent study for Central Arizona found that beer production consumed more water than data centers in that region. (But AI will bring more important concerns, such as the end of human civilization.)
2. The AI estimates spanned reasonable (and appropriately broad) ranges. AI is useful for quick preliminary estimation. AI also shows most of its work, especially if well-queried. AI can help expedite and formalize preliminary estimations for a variety of public and policy assessments, where quantitative estimation is sometimes conveniently omitted from discourse.
3. Beware of shallow discussions, articles, and "technical" reports that lack honest and reasoned estimates, even preliminary estimates. Expect better, with more technically supported policy reports.
4. "Facts are facts, but perception is reality." So much of our public discourse on water and other subjects is choked by chatter, untamed by reasoned evidence, data, and quantification. Today, with AI, we have little excuse for not attempting and using honest estimates to inform our discussions and tame our fears and hopes.

Alas, despite modern technologies and institutions, our human societies, technology, and understanding ultimately rely on 50,000-year old hardware (our brains!), which evolves slowly and mysteriously. Unavoidably, we work with individual and collective neural hardware limits.

# # #

About the Author

Jay Lund is an Emeritus Distinguished Professor of Civil and Environmental Engineering and Geography at the University of California – Davis. He is also a Vice Director of the Center for Watershed Sciences. His 68-year-old hardware with 50,000-year-old architecture is enjoying and struggling with the promise, threats, and turbulence of the AI revolution.

California's first-of-its-kind solar project could save 63 billion gallons of water annually

The project has the potential to be replicated elsewhere in the state and nation.

The Cool Down | May 7, 2026 | Erin Feiger

A vast solar panel array under a blue sky with clouds and workers in the background. Photo Credit: iStock

California's canal-top solar pilot has wrapped up, and the early results suggest the idea could do much more than generate clean electricity. It could also help protect one of the state's most precious resources: water.

As PV Magazine detailed, the 1.6-megawatt Nexus project, completed in September, was built over canals operated by the Turlock Irrigation District. The pilot is the first of its kind in the country and was designed to test whether solar panels installed above active irrigation canals can reliably produce power while reducing evaporation, limiting algae growth, and avoiding the need for additional land.

The project launched in 2022 through a public-private collaboration among TID; the California Department of Water Resources; Solar Aquagrid; and the University of California, Merced.

The collaboration helped move the idea beyond theory and into real operating conditions. The team used the pilot to study how canal-based solar performs across an irrigation season in an agricultural region where both electricity and water are under increasing pressure.

According to the project's initial findings, canal sections covered by solar arrays saw evaporation reductions of 50-70% over a full irrigation season. The covered sections also recorded an 85% drop in algae growth, which could reduce maintenance needs and operating costs for water managers.

Researchers also tracked electricity production, water quality, aquatic vegetation growth, and canal maintenance requirements, providing a broader view of whether this kind of system can work at scale.

The pilot tested several designs, including broad-span structures above wide canals, smaller systems over narrow channels, vertical setups along canal banks, and early retractable prototypes, according to PV. A battery energy storage system was also added at the narrowest site using 75-kilowatt iron-flow batteries from battery manufacturing company ESS.

Together, those setups are helping developers understand how they might adapt canal solar to varying hydraulic and structural conditions across California's vast canal network.

That is where the bigger promise comes in. A University of California study estimated that covering roughly 4,000 kilometers (2,485 miles) of California canals could conserve 63 billion gallons of water annually — enough for 50,000 acres of farmland or the residential needs of more than 2 million people.

For communities, that could mean a more resilient water system, less land pressure for new solar development, and more clean energy feeding the grid.

Others are putting solar panels on existing spaces, such as farmland, cemeteries, and parking lots, in efforts to reduce the need for additional land use.

The Nexus project has the added benefit of water preservation. As drought worsens worldwide and cities implement water restrictions, systems like this will become increasingly vital to protecting communities, the environment, and the global food supply.

At its core, the Nexus project was built to "generate empirical data under real-world operating conditions" and explore the "dual use of existing infrastructure," PV wrote. So far, the early numbers suggest the idea is more than just a clever concept.

"Project Nexus has the potential to demonstrate a new, innovative water-energy nexus project that can be replicated elsewhere in the state and nation to increase efficiencies in managing limited natural resources," its website states.

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