March 20, 2025 – SUPPLEMENTAL CORRESPONDENCE

BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

March 20, 2025

Correspondence and media coverage of interest between March 13, 2025 and March 19, 2025

Correspondence

From: Dave Warner
To: BAWSCA Board of Directors
Date: March 19, 2025
Subject: Improving Reliability using the Design Drought

From: Tuolumne River Partners
To: Governor Gavin Newsom
Date: March 13, 2025
Subject: Healthy Rivers and Landscapes (HRL) Agreement

Water Supply Conditions:

Date: March 14, 2025
Source: San Francisco Chronicle
Article: California's snowpack is lagging behind average. Here's why

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March 19, 2025

Re: Improving Reliability using the Design Drought

Dear BAWSCA Board Members,

Thank you for your service.

One of your goals is a reliable water supply. You've taken many actions and have expended considerable resources towards this goal. One action you have not taken is to evaluate the risk associated with the Regional Water System's (RWS) design drought model. Remarkably, a minor change to the design drought model would likely increase RWS supply by 25 mgd or more with an insignificant change to risk.

Context: Climate Change

As you know, the SFPUC's Long Term Vulnerability Assessment (LTVA) found "no clear direction of change in mean annual precipitation over the planning horizon [2040 and 2070]." [1] It also found that, "there is a central tendency of warming of +2°C and +4°C by 2040 and 2070."[2] It also found that droughts become rarer due to warming. For example, the return period for the 1976-77 drought lengthened from 100 years to 130 years with 4°C of warming.[3]

In summary, the study found no clear change in precipitation through 2070 but did find a modest reduction in drought risk due to warming from climate change.

Water Storage is a Primary Factor in Drought Survivability

The more water stored, the more severe of a drought the RWS can survive. The 8.5 year design drought model is a combination of the 1987-92 drought, the most severe since flows on the Tuolumne were recorded (1922), and the 1976-77 drought, the driest two year period since 1922. It uses roughly 1,350 thousand acre feet (TAF) of storage to survive the 8.5 years. Using data from the LTVA, it has been estimated that this drought has a return period somewhere between 1-in-8,000 years and 1-in-70,000 years. However the SFPUC has not taken a position on an estimated return period for the design drought.

An alternative 8.5 year drought model

[1] Stated in the first bullet under ES.4 Results on page xxii of the executive summary of the LTVA.
[2] Ibid.
[3] See table 5-1 on page 157 of the LTVA.

If the 1976-77 component of the design drought is replaced with the average annual storage used for the 1987-92 component of the design drought, then the alternative 8.5 year model requires ~250 TAF less than the design drought. And it is still an 8.5 year model. Figure 1 below highlights the difference between the two models.

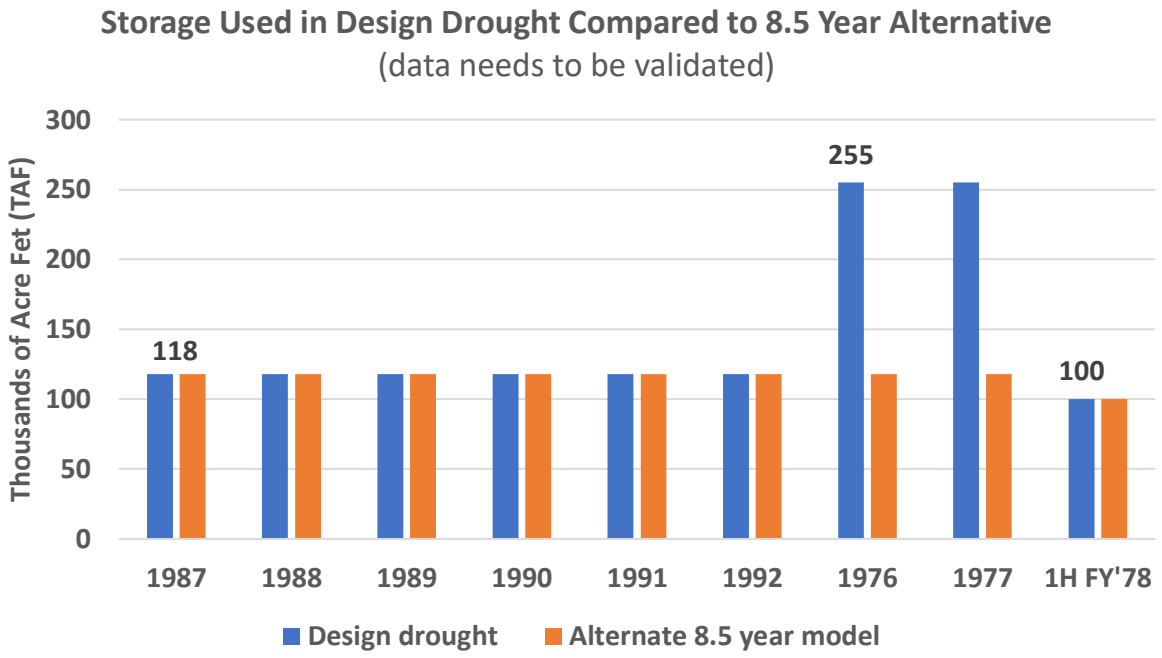

Figure 1: This chart compares the average yearly amount of storage used between the design drought in blue and the alternative 8.5 year model in orange. The only difference between the two models is that for the last two full years, the alternative model takes average annual storage used in the 1987-92 drought rather than the average annual storage used in the 1976-77 drought, freeing up roughly 250 TAF of storage. Storage used data from table 3-9 of the LTVA.

This alternative model has a return period in the range of 1-in-2,000 years, still an unusually long time and frees up 250 TAF of storage, which increases supply in the drought by 25 mgd, a substantial amount.

25 mgd would be a major improvement in reliability and can be done with a stroke of a pen with an irrelevant increase in risk. Please ask the SFPUC to provide return periods for both these models.

Best regards,

Dave Warner

March 13, 2025

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

Dear Governor Newsom,

On behalf of the San Francisco Public Utilities Commission, Turlock Irrigation District, and Modesto Irrigation District (collectively "Tuolumne River Partners or TRP"), we wish to express our appreciation for the support and attention your Administration has shown for the Health Rivers and Landscapes (HRL) process over the past years. We are encouraged by recent activity at California Environmental Protection Agency (CalEPA) and California Natural Resources Agency (CNRA) that indicates your continued commitment to getting a comprehensive HRL agreement ready for adoption by the State Water Resources Control Board (SWRCB) this summer.

As the General Managers of three agencies that collectively provide drinking water to over three million people, reliable and sustainable irrigation water to over 200,000 acres, and flood control for the Tuolumne River Watershed, we are committed to data-driven decision making that enhances water supply resiliency, ecosystem restoration, and carbon-free, affordable hydropower generation.

Recent staff comments regarding the Tuolumne HRL Agreement, however, are a considerable source of alarm. Specifically, we have learned that the SWRCB may not be planning to include the Tuolumne HRL Agreement with the Sacramento/Delta (Phase 2) agreement when it gets presented to the SWRCB for consideration and potential adoption this summer. If true, this would dramatically impact the effectiveness of the HRL Agreements since the Tuolumne is integral to the statewide HRL program.

The Tuolumne flow and non-flow commitments are part of the comprehensive statewide HRL program submitted to the SWRCB in 2023 and included in the 2023 Final Scientific Basis Report and Staff Report on the Sacramento/Delta Update of the Bay-Delta Plan, as well as their subsequent updates. For the past three years, under the leadership of California Department of Water Resources (DWR) Director Karla Nemeth, the Tuolumne River Partners have been actively participating with our counterparts in the Sacramento Valley and Delta in all aspects of the HRL program and the SWRCB's evaluation process thereof.

When the SWRCB adopted the Phase 1 update to the Water Quality Control Plan in December 2018, there was a detailed Tuolumne Voluntary Agreement on the table that the DWR and the California Department of Fish and Wildlife (CDFW) both supported. While the SWRCB adopted Phase 1 over our objections, it thankfully included a specific amendment in Resolution 2018-0059 (resolved #7) to include the Tuolumne River in any "Delta watershed-wide agreement."

Although our Agreement was ready, and the direction of the SWRCB to include a Tuolumne amendment was prioritized, our Agreement was sidelined as the Administration turned their focus to the Sacramento Valley and a desire for one comprehensive solution. We understand the desire for a holistic

agreement; however, over three years passed until the Administration engaged the Tuolumne again. The Tuolumne has been ready to implement its agreement since 2018.

The TRP has long maintained that any operational plan for the Tuolumne River must be grounded in research, data, and science tailored specifically to its unique watershed. That's exactly what our Agreement is built upon. With insights from over 100 scientific studies focused on the Tuolumne River, along with ongoing monitoring of salmonid migration patterns, water temperature, and environmental conditions, we have developed a balanced approach—combining optimized instream flows with habitat expansion—to drive consistent, year-over-year growth in native fish populations.

Spanning more than 80 pages, the Tuolumne HRL is a comprehensive and meticulously crafted program of flow and non-flow measures that can be best summarized as **More Water. More Habitat. More Fish. A Thriving Tuolumne River.**

More Water. The Tuolumne HRL includes more water in every water year type. This isn't paper water, rather actual water released to improve the fishery on the Lower Tuolumne River. The Tuolumne is also one of the only tributaries that is agreeing to release more water in critically dry years. Our proposal does not simply shift current releases from the summer to the spring. As part of our FERC relicensing process, we have detailed daily releases for increased flows year-round.

If the HRL had been adopted as proposed in 2018, the Tuolumne River would have seen an additional 250,000+ acre-feet of water, including over 150,000 acre-feet during the severe 2020–2022 drought—one of the three driest three-year periods on record.

More Habitat. Over the eight-year term of the HRL, the Tuolumne River Partners plan to develop 77 acres of high-quality salmon rearing and floodplain habitat while adding approximately 100,000 tons of gravel to key river sections to enhance salmon spawning and rearing. These aren't just promises on paper—action is already underway.

In 2024, the team completed an early implementation project in collaboration with the U.S. Fish & Wildlife Service and the CDFW. This effort restored 10 acres of critical spawning habitat by returning 50,000 cubic yards of gravel—historically removed during the Gold Rush—back to the river.

In 2023, the TRP partnered with River Partners to design and implement a comprehensive habitat restoration program, focused on improving the fishery and benefiting the local communities that depend on it. The team has been working to identify optimal restoration sites and is prepared to move forward with implementation as soon as the HRL is adopted.

More Fish. During the Phase 1 proceeding (2012–2018), the primary focus was ecosystem health, particularly the fall-run Chinook salmon population. The Tuolumne HRL is set to significantly boost smolt populations—by 164% compared to current conditions and, notably, by 93% over the flow-only, unimpaired flow regime adopted by the SWRCB in 2018.

The Tuolumne River Partners have dedicated over $80 million—fully self-funded—to support our HRL agreement. **Our projects are independent of state or federal funding, and we're ready to take action immediately to benefit both the ecosystem and our communities**. It would be unreasonable and defy common sense to exclude the only agreement that is self-funded, ready to implement, and contains detailed flow schedules.

The HRL is a comprehensive, integrated program. We implore you: do not separate Tuolumne HRL from its Sacramento Valley and Delta counterparts. Include the Tuolumne in one comprehensive HRL adoption process. We are clearly reminded in times of drought and flood of the interconnectivity of our watersheds and water infrastructure. Your administration inherited a fragmented Water Quality update plan that inappropriately broke the Delta update into two "Phases." Let's not repeat that mistake by fragmenting the HRL agreements.

To keep the Tuolumne aligned with the Phase 2 Parties, we respectfully request the following:

1. Direct the Water Board to expeditiously release and process any documents the Water Board may deem necessary to evaluate and adopt the Tuolumne HRL Agreement.
2. Commit to a concrete timeline for the adoption of the Tuolumne HRL Agreement.
3. Ensure that any Water Quality Certification issued pursuant to §401 of the Clean Water Act for the Don Pedro and La Grange Projects matches the terms and conditions of the Tuolumne's HRL Agreement.

We stand ready to assist the Administration to meet the moment and adopt a solution that can be implemented this fall.

Sincerely,

Brad Koehn
General Manager
Turlock Irrigation District

Dennis Herrera
General Manager
San Francisco Public Utilities Commission

Jimi Netniss
General Manager
Modesto Irrigation District

cc:
The Honorable Wade Crowfoot, Secretary, California Natural Resources Agency
The Honorable Yana Garcia, Secretary, California Environmental Protection Agency
The Honorable Karla Nemeth, Director, Department of Water Resources
Eric Oppenheimer, Executive Director, State Water Resource Control Board

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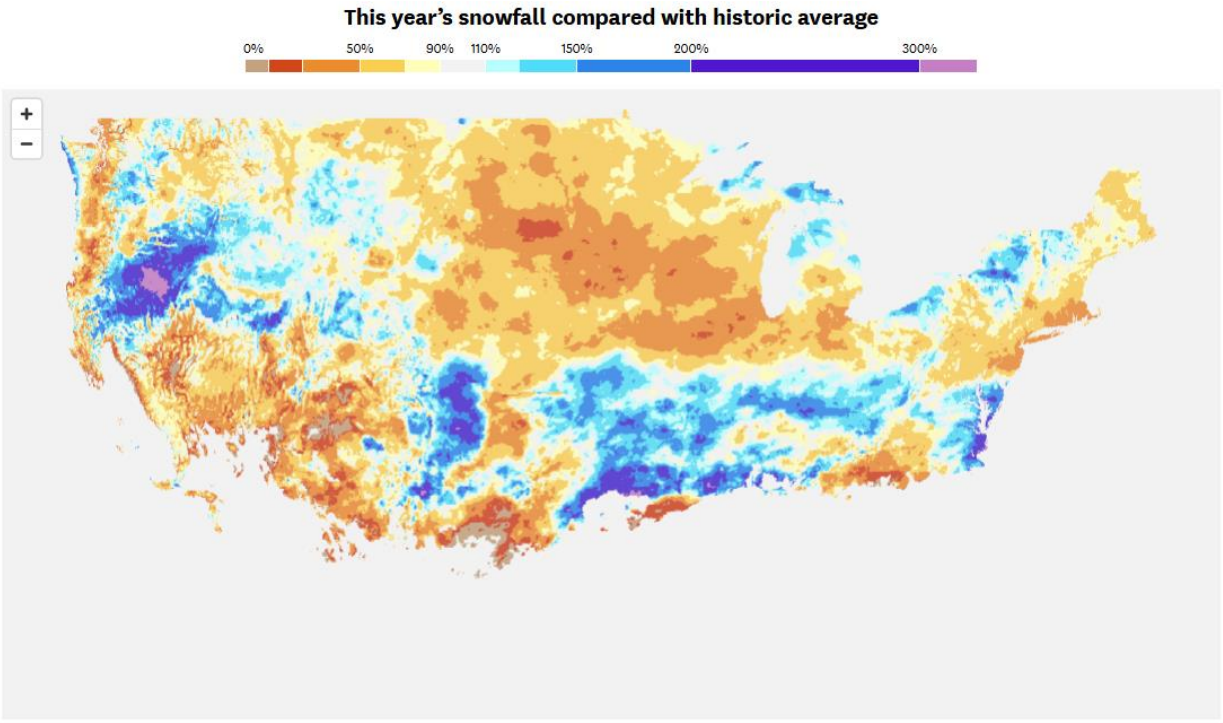
California's snowpack is lagging behind average. Here's why
This year's snowfall compared with historic average
San Francisco Chronicle | March 14, 2025 | Jack Lee and Vivien Ngo



Data from Sept. 30 to March 13. Data not shown for places with a 16-year average of 3 inches or less. Average data is calculated from the 16-year average, ranging from when data was first collected in the 2009 water year. Source: Greg Fall/NOAA Office of Water Prediction

Snow piled up in the Sierra Nevada this week, with 1 to 2 feet falling at Tahoe ski resorts Wednesday.

The cold storm system notably differed from earlier storms this season.

"This year has been a year of warm temperatures and rain when we should have had snow," said Andrew Schwartz, director of UC Berkeley's Central Sierra Snow Laboratory, located at Donner Pass.

California's statewide snowpack is running below normal, due to the low amount of water stored in the snow that has fallen. Other parts of the western United States are experiencing even larger deficits. Experts say there aren't immediate concerns for California reservoir levels but add that there could be heightened wildfire concerns come summer.

Below-average snowpack in California and the West
As of Thursday, the statewide snowpack is 86% of normal for this time of year, according to the California Department of Water Resources. But the snow hasn't been evenly distributed across the state, with more in the north than the south. La Niña conditions may have partially

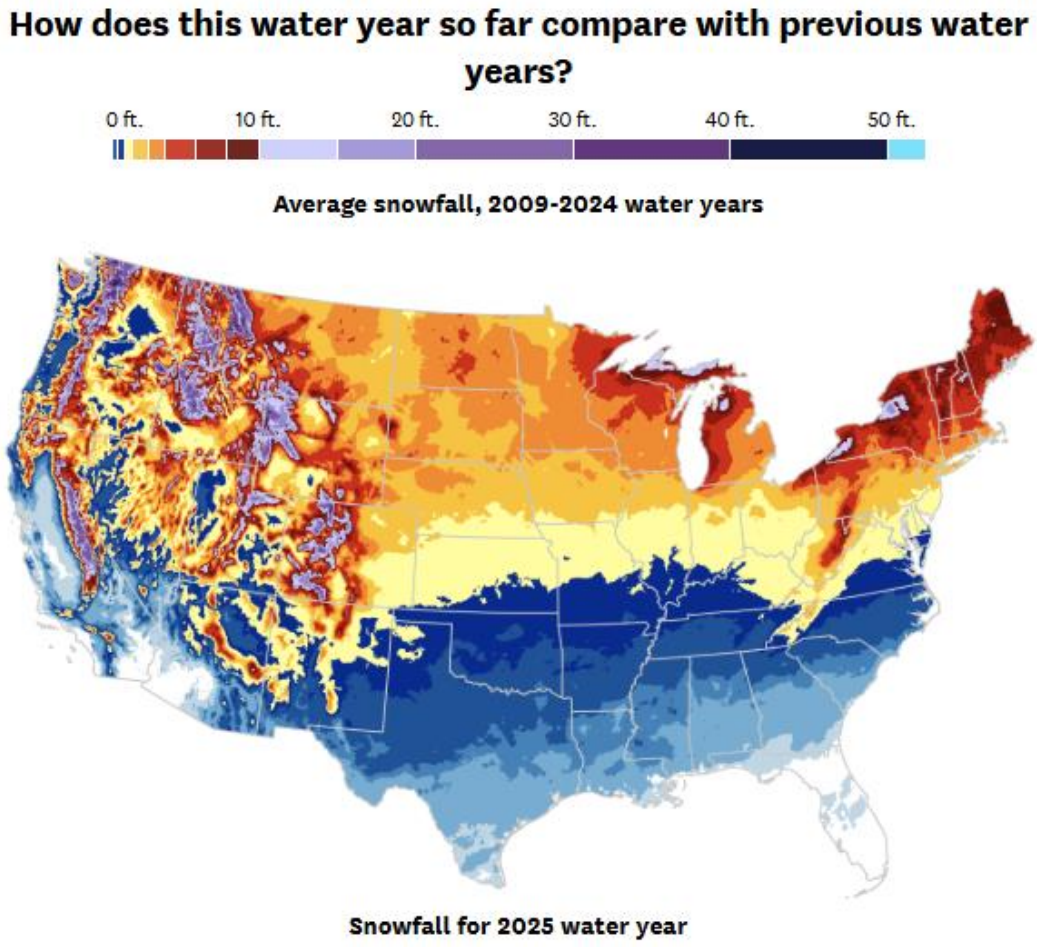
influenced the precipitation difference, said Dan McEvoy, a climatologist with the Western Regional Climate Center at the Desert Research Institute.

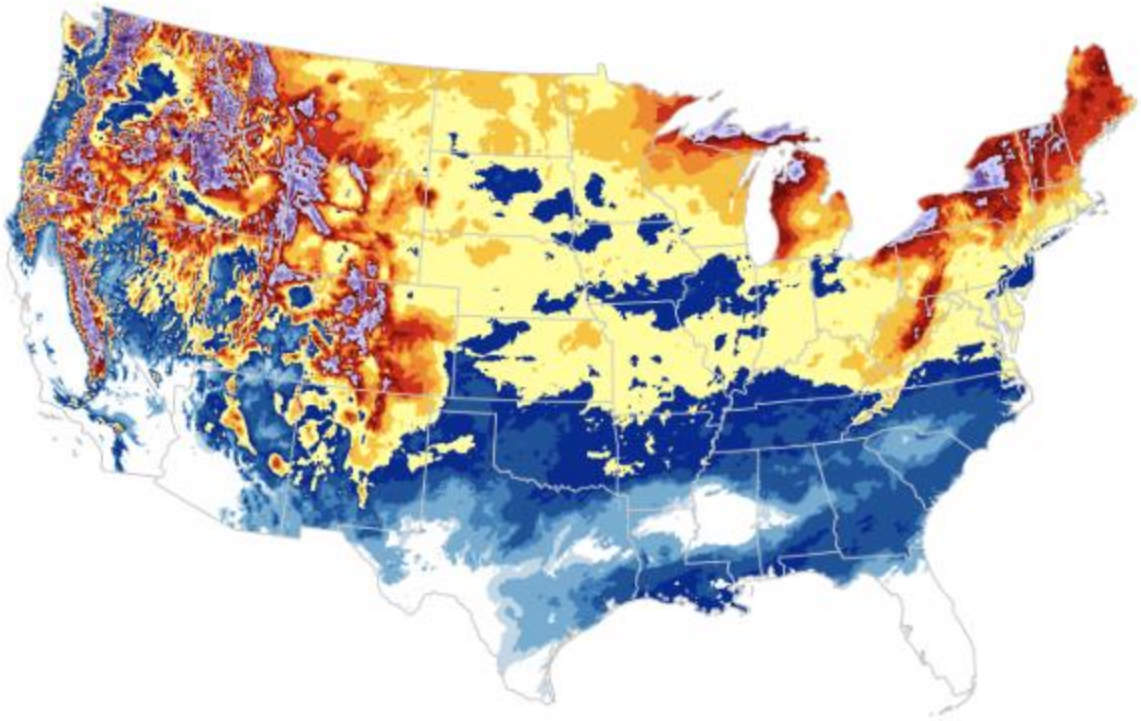
The northeastern corner of California, including Siskiyou and Modoc counties, tallied above-average snowfall over recent months. This includes Weed (Siskiyou County), which experienced blizzard conditions in November 2024, causing a shutdown of Interstate 5.

Locations on the Oregon border logged more than double the amount of typical snowfall this season. The numbers are based on the National Weather Service's National Gridded Snowfall Analysis, which estimates snowfall based on calculations involving direct observations and forecasts.

But the central and southern Sierra have experienced below-average snow this season, especially at lower elevations. Areas around Lake Tahoe have accumulated one-half to three-quarters of their typical seasonal snowfall, as of Thursday. That includes Palisades Tahoe and Heavenly ski resorts.

Still, California's snowpack is outperforming that of other parts of the western United States, which are experiencing snow drought.





Data from Sept. 30 to March 13. Source: Greg Fall/NOAA Office of Water Prediction

“For the West as a whole, the one thing that really stands out is the exceptionally low snowpack in a lot of the Colorado River basin,” McEvoy said. The Colorado River basin stretches from Wyoming to Arizona and New Mexico, providing water for seven states, including California.

How weather affected winter snow

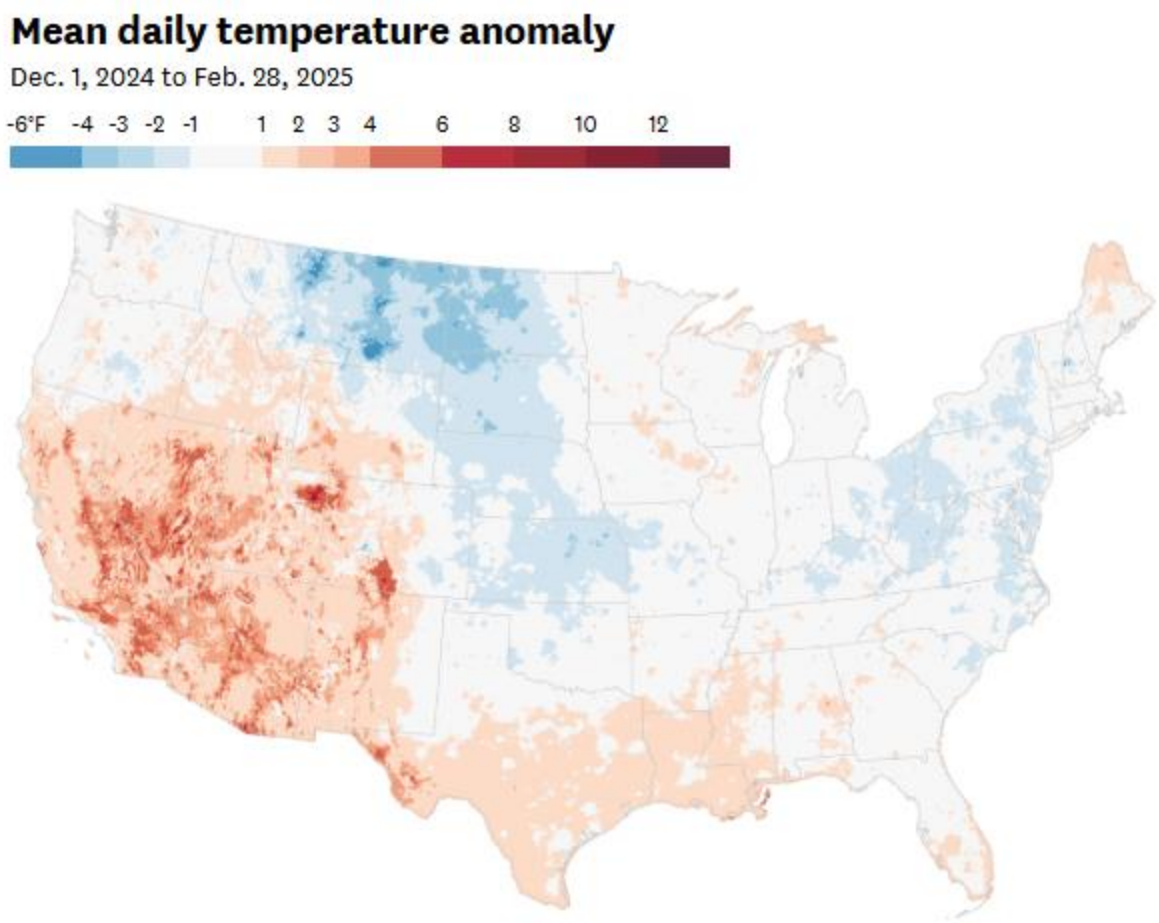
Early in the snow season, California’s snowpack was off to a roaring start, especially in northern reaches of the state. But then storms stopped coming.

“January was excessively dry,” Michael Anderson, state climatologist with the California Department of Water Resources, said by email. That’s despite California’s wettest months typically being December, January and February.

“Losing one of the three wettest months certainly set the snowpack back,” he said.

A ridge of high pressure over the Pacific blocked storms from reaching the West Coast, diverting them north toward Canada, McEvoy said. And when storms did arrive in February, they were affected by warm conditions.

This winter, average temperatures were a few degrees above normal over much of California. For some locations, that tilted the balance from snow to rain.



Anomaly measured relative to 1991-2020 average. Source: gridMET

“The early February storms just brought a lot of rain to the lower elevations in the Sierra Nevada that would often get snowfall,” McEvoy said.

Snow that did fall also had to contend with warmer-than-average conditions and prolonged dry stretches.

“There’s been quite a bit of time between the storms this year,” Schwartz said. “We’ve seen a lot of midwinter melt between them.”

Potential impacts of below-normal snow

California’s snowpack feeds reservoirs during the warmer months, as snow gradually melts.

Major reservoir levels are already higher than normal across the state, including at Shasta Lake and Lake Oroville. Consequently, there aren’t immediate concerns about the below-average snow negatively impacting this year’s water supply. But additional snowmelt is still beneficial, experts say.

“The rapid onset of long-lasting, extreme drought in the 21st century means that California water managers always prefer as big of a buffer as possible going into each summer,” Anderson said. Due to human-caused climate change, scientists expect California to swing more dramatically between wet and dry years in the future. Some scientists describe this pattern as “hydroclimate whiplash.” Scientists predict that the Sierra may experience little or no snow in the not-so-distant future, due to climate change.

Bigger concerns this year relate to fire danger, McEvoy said: A lack of snowmelt at lower elevations means that landscapes could quickly dry out when temperatures rise.

More snow is expected Friday and over the weekend, which will continue to bulk up California’s snowpack.

“But I think we need at least one more big storm system, if not two, to really get to above average for the state,” Schwartz said.

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