

Crescenta Valley Water District

Weekly News Articles

March 5, 2023



Newsweek

March 6, 2023

Why California Drought Isn't Over Yet

California has been in the grips of a drought for the past ten years. But will that change following the influx of snow and rain that have pummeled the state over the winter.

At the end of February the state was hit by [severe snowstorms, even in areas used to extremely dry conditions](#). [A historic amount of rain also fell on the state](#) between December 26 and January 19.

So is the drought over?

There is no doubt that the [drought conditions in the state have significantly improved following the weather](#).

In October 2022, large portions of California were in an extreme or exceptional drought, according to the U.S. drought monitor. The rest of the state was in a severe drought, with very small portions in a moderate drought or abnormally dry.



However, since February 28, after heavy rain and snow swept across the state, most of the state is now classed as abnormally dry, while 16.7 percent of the state is not in a drought at all.

Some small portions are in a moderate-to-severe drought, while most of the state is abnormally dry.

The weather will provide seasonal storage for the state, and release water in the state's reservoirs later in the season.

But it will take a lot more than this to fully lift California drought status.

Hydrologist Roger Bales, a distinguished professor of engineering at the [University of California](#) Merced, told *Newsweek*: "Drought is a multi-year event. California has some buffer against a single dry year. An example is the very dry 2007, but with 2006 and 2008 being more 'normal' or average years, there were still water deliveries to irrigation and municipal water users. However, during this recent 3-year drought and the 4-year 2012-15 drought, water deliveries were severely curtailed."

It would take years of increased rainfall to fully lift California's drought status, as it has been dry for so long.

California's reservoirs have been in a dire state due to the drought conditions. The recent rain and snow will help to replenish them, but Bales said there will need to be more storms in 2023 to make an average year.

There is also a danger of flooding. When a region has been in a drought for so long, the ground becomes parched, meaning sudden rainfall fails to saturate in the ground. This can cause flash floods.

"A deep snowpack may not be the best metric of whether we are seeing a pause in drought conditions. It is also helpful to look at total precipitation. [On March 1] the northern Sierra Nevada precipitation index is at 43.5 inches, compared to a water-year average of 53.2. So we still need more big storms 2023 to be even an average year," Bales said.

"The Central and Southern Sierra indices are above the water-year average, which is good for water supply, but potentially bad for flooding if we get a warm atmospheric river coming in that results in faster snowmelt. I also refer to the northern Sierra index, because much of our water supply for southern California and many irrigation users comes from that large, wetter part of the state."

California is just one state suffering at the hands of the megadrought gripping the southwestern U.S.

The dry conditions gripping this region of the country have been ongoing for over two decades and have been even drier than any other U.S. megadrought within the past 1,200 years. Experts believe human-driven climate change is the main driver of the drought.

https://www.newsweek.com/california-not-out-drought-rain-snow-1785705?mc_cid=6a1dd2f9f4&mc_eid=9b7b868339

LA Times

March 7, 2023

Odds of El Niño returning to California are increasing. Would it bring even more rain?



Water courses along the concrete embankments of the Los Angeles River during a powerful storm in January.

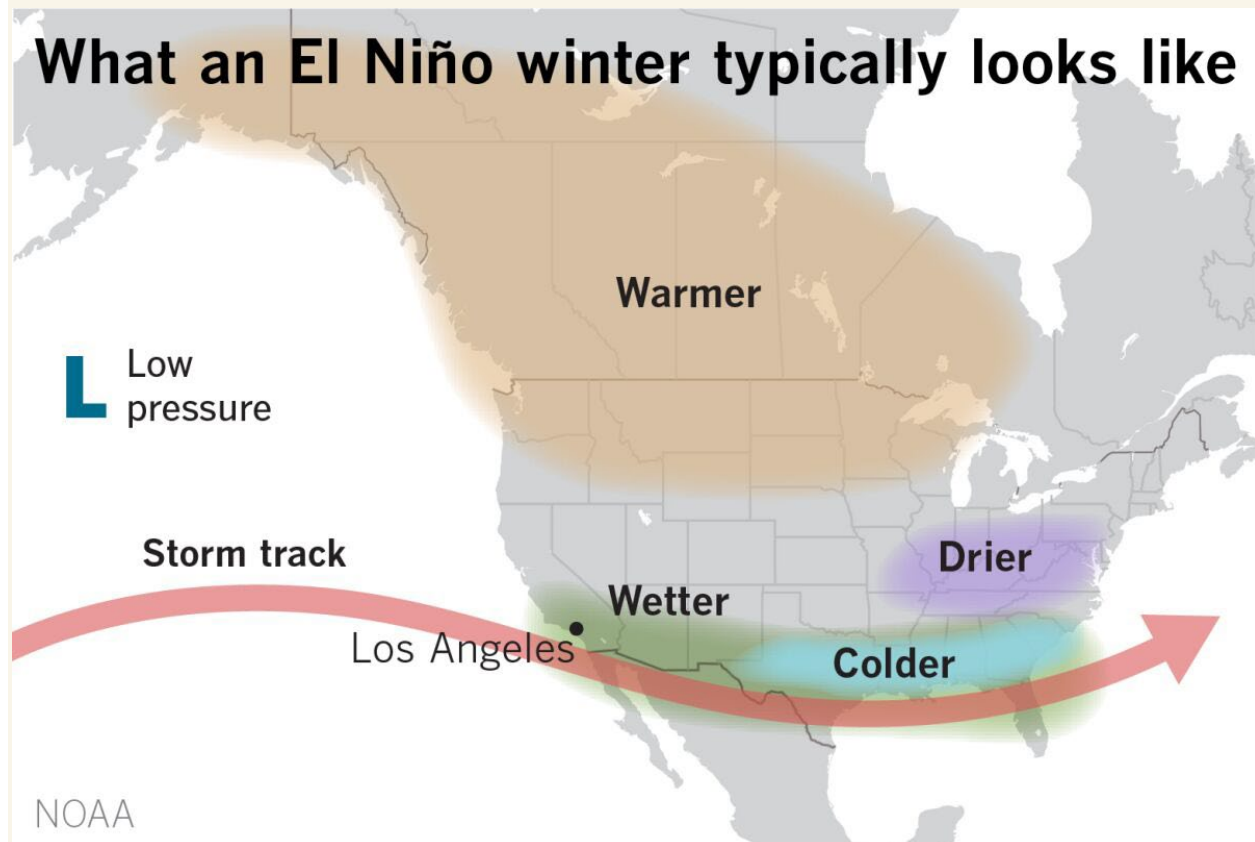
(David McNew / Getty Images)

The stubborn La Niña climate pattern that gripped the tropical Pacific for a [rare three years in a row](#) is waning, and the odds of an El Niño system forming later this year are getting stronger, according to recent meteorological reports.

The El Niño-La Niña Southern Oscillation, sometimes referred to as ENSO, has a major influence on temperature and rainfall patterns in different parts of the world, with La Niña often associated with drier-than-normal conditions in California, especially the southern part of the state.

El Niño, on the other hand, is linked to an enhanced probability of above-normal rainfall in California, along with accompanying landslides, floods and coastal erosion, though it is not a guarantee.

What an El Niño winter typically looks like



(Paul Duginski / Los Angeles Times)

The latest [outlook from the World Meteorological Organization](#) says there is a 90% chance of a return to “ENSO-neutral” conditions from March to May, with that probability decreasing as the summer goes on.

That decrease “can be seen as a potential precursor for El Niño to develop,” with a 35% chance of El Niño developing from May to July, the agency says.

Longer-lead forecasts show an even stronger chance of El Niño developing from June to August — 55% — though the forecasts are “subject to high uncertainty associated with predictions this time of year.”

<https://www.latimes.com/california/story/2023-03-07/is-el-nino-retruning-what-it-means-for-california>

Associated Press

March 9, 2023

La Nina, which worsens hurricanes and drought, is gone

WASHINGTON (AP) — After three nasty years, the [La Nina weather phenomenon](#) that increases Atlantic hurricane activity and worsens western drought is gone, the National Oceanic and Atmospheric Administration said Thursday.

That's usually [good news](#) for the United States and other parts of the world, including drought-stricken northeast Africa, scientists said.

The globe is now in what's considered a "neutral" condition and probably trending to an El Nino in late summer or fall, said climate scientist Michelle L'Heureux, head of NOAA's El Nino/La Nina forecast office.

"It's over," said research scientist Azhar Ehsan, who heads Columbia University's El Nino/La Nina forecasting. "Mother Nature thought to get rid of this one because it's enough."

La Nina is a natural and temporary cooling of parts of the Pacific Ocean [that changes weather worldwide](#). In the United States, because La Nina is connected to more Atlantic storms and deeper droughts and wildfires in the West, La Ninas often are more damaging and expensive than their more famous flip side, El Nino, experts said and studies show.

Generally, American agriculture is more damaged by La Nina than El Nino. If the globe jumps into El Nino it means more rain for the Midwestern corn belt and grains in general and could be beneficial, said Michael Ferrari, chief scientific officer of Climate Alpha, a firm that advises investors on financial decisions based on climate.

When there's a La Nina, there are more storms in the Atlantic during hurricane season because it removes conditions that suppress storm

formation. Neutral or El Nino conditions make it harder for storms to get going, but not impossible, scientists said.

Over the last three years, the U.S. has been hit by 14 hurricanes and tropical storms that caused a billion dollars or more in damage, totalling \$252 billion in costs, according to NOAA economist and meteorologist Adam Smith said. La Nina and people building in harm's way were factors, he said.

Climate change is a major factor in worsening extreme weather, alongside La Nina, scientists said and numerous studies and reports show. Human-caused warming is like an escalator going up: It makes temperatures increase and extremes worse, while La Nina and El Nino are like jumping up and down on the escalator, according to Northern Illinois University atmospheric sciences professor Victor Gensini.

La Nina has also slightly dampened global average temperatures, keeping warming from breaking annual temperature records, while El Nino slightly turbocharges those temperatures often setting records, scientists said.

La Nina tends to make Western Africa wet, but Eastern Africa, around Somalia, dry. The opposite happens in El Nino with drought-struck Somalia likely to get steady "short rains," Ehsan said. La Nina has wetter conditions for Indonesia, parts of Australia and the Amazon, but those areas are drier in El Nino, according to NOAA.

El Nino means more heat waves for India and Pakistan and other parts of South Asia and weaker monsoons there, Ehsan said.

This particular La Nina, which started in September 2020 but is considered three years old because it affected three different winters, was unusual and one of the longest on record. It took a brief break in 2021 but came roaring back with [record intensity](#).

"I'm sick of this La Nina," Ehsan said. L'Heureux agreed, saying she's ready to talk about something else.

The few other times that there's been a triple-dip La Nina have come after strong El Ninos and there's clear physics on why that happens. But that's not what happened with this La Nina, L'Heureux said. This one didn't have a strong El Nino before it.

Even though this La Nina has confounded scientists in the past, they say the signs of it leaving are clear: Water in the key part of the central Pacific warmed to a bit more than the threshold for a La Nina in February, the atmosphere showed some changes and along the eastern Pacific near Peru, there's already El Nino-like warming brewing on the coast, L'Heureux said.

Think of a La Nina or El Nino as something that pushes the weather system from the Pacific with ripple effects worldwide, L'Heureux said. When there are neutral conditions like now, there's less push from the Pacific. That means other climatic factors, including the long-term warming trend, have more influence in day-to-day weather, she said.

Without an El Nino or La Nina, forecasters have a harder time predicting seasonal weather trends for summer or fall because the Pacific Ocean has such a big footprint in weeks-long forecasts.

El Nino forecasts made in the spring are generally less reliable than ones made other times of year, so scientists are less sure about what will happen next, L'Heureux said. But NOAA's forecast said there's a 60% chance that El Nino will take charge come fall.

There's also a 5% chance that La Nina will return for an unprecedented fourth dip. L'Heureux said she really doesn't want that but the scientist in her would find that interesting. ____ Follow AP's climate and environment coverage at <https://apnews.com/hub/climate-and-environment> ____ Follow Seth Borenstein on Twitter at [@borenbears](https://twitter.com/borenbears) ____ Associated Press climate and environmental coverage receives support from several private foundations. See more about AP's climate initiative [here](#). The AP is solely responsible for all content.

<https://apnews.com/article/la-nina-severe-weather-noaa-hurricanes-3a3be03c7d445f3fb4c4ec240589346b>

Water Online

March 9, 2023

Thirst For Water: How The Nation's Largest Desalination Plant Is Generating Change

By Vic Bienes and Jeremy Crutchfield



Nearly a decade on, the Carlsbad Desalination Plant is a model of success not only for seawater reverse osmosis but also for visionary problem-solving

When the nation's largest desalination plant opened in Carlsbad, California, in 2015, people across the country were watching to see how it increased water supplies as groundwater dwindled, reservoirs dried up, and drought ravaged the Golden State.

Nearly 10 years later, the plant has demonstrated how seawater desalination can play a pivotal role in achieving water security. Dependent on the Colorado River and State Water Project, California found itself watching water supplies reach dangerously low levels, forcing water agencies statewide to look beyond the usual solutions and tap into new opportunities.

With a near-endless supply of water from the Pacific Ocean, the Claude “Bud” Lewis Carlsbad Desalination Plant processes up to 100 million gallons of water per day. The water is filtered through gravel, sand, and other compounds to reduce particulates before it goes through reverse osmosis (RO) filtration. Approximately half of the saltwater taken into the plant is converted into potable water — enough to supply about 400,000 people daily — while the remaining water is discharged as brine.

The plant’s success has fostered larger discussions about water supply and water management in the era of climate change.

Private-Public Partnerships

Water supply is not an issue that affects just municipalities or public works agencies; its reach is far and broad, impacting residents, businesses, agriculture, and manufacturing operations. In San Diego County, regional water officials knew they couldn’t go it alone. Businesses and residents were critical to ensuring the desalination plant would move from concept to commercialization.

Together with Poseidon Water and the Water Authority, a blue-ribbon panel of public agencies, residents, and stakeholders was engaged to educate and gain support for the project, which ultimately led to successfully obtaining required permits. While development costs and associated risks were shouldered by private enterprise — in this case, Poseidon and its investors — the Water Authority and its member agencies walked side-by-side every step of the way. With a thoughtfully developed plan, operational strategy, and design, the project became a gold standard among seawater desalination plants around the world.

Economics At Play

In an era when “do-more-with-less” has become a way of life, building and operating seawater desalination plants can be overwhelming. Although technical and scientific advancements have made desalination plants more efficient, they are still expensive to build and operate. That means water generated also costs more than water from other sources, including groundwater and the Colorado River. However, the costs of

seawater desalination are comparable to costs of other next-generation sources such as potable reuse — and those are the only new water resources available in many areas.

Given the scarcity of new supplies, the price of desalination is reasonable. Bringing the new water supply into homes through the Carlsbad plant increased the average monthly water bill in the San Diego region by just \$5 per household — or about the cost of a cup of coffee.

Measuring Environmental Impact

California has some of the strictest environmental regulations in the nation. With requirements on design and operation, the Carlsbad plant continually monitors water coming into the system, as well as the brine discharge.

Studies, along with continual monitoring, have demonstrated seawater desalination can be performed in an environmentally sensitive way without causing harm to the aquatic ecosystem.

Trailblazing

The Carlsbad Desalination Plant has also been a beacon for several other projects that are at various stages of development in California.

Last November, state officials approved a desalination plant along the state's central coast. There is relief in sight as the California Coastal Commission voted to approve a permit for the California American Water Co. to draw water from the coast of Marina, CA, to supply a private plant in Monterey County. Under the plan, the new water desalination plant would boost future water supplies in drought-stricken Monterey County.

But perhaps the most surprising desalination project comes from the Sonoran Desert. As part of an ambitious plan, Arizona officials recently voted to evaluate the prospects of creating a desalination plant on the Gulf of California. The goal would be to pipe water from the Sea of Cortez near Puerto Peñasco, Mexico, to Arizona, while allowing Mexico to use water generated by the plant in exchange for a share of the country's water sourced from the Colorado River.

Critical Conversations

Water supply will continue to be complex and contentious, especially across the western U.S., as drought, climate change, and diminishing groundwater supplies upend historical norms.

But given improvements in technology — as well as the growing need to diversify water supply options — desalination is becoming an increasingly important source of fresh water. Innovation is driving costs down to the point where desalination is an economically viable solution for alternative water supplies.

Similarly, legislative initiatives are receiving greater attention for their focus on alleviating pressure and finding practical solutions for water supply reliability. Public utilities, including the American Public Works Association, are driving forward the principle of responsible water use beyond conserving and recycling to innovating and responsibly pushing the envelope when it comes to ensuring this valuable commodity is available for generations to come.



About The Authors

Vic Bienes is an American Public Works Association national board technical director for fleet and facilities and grounds. He is a registered engineer and currently works for Kleinfelder Engineering as a major client manager. In 2018, he served as a board director for the County Water Authority and, in 2005, as the engineering design section manager for the County Water Authority.



Jeremy Crutchfield is water resources manager at San Diego County Water Authority.

Learn more about the American Public Works Association's water priorities at apwa.net.

<https://www.wateronline.com/doc/thirst-for-water-how-the-nation-s-largest-desalination-plant-is-generating-change-0001>

Cal Matters

March 10, 2023

California storms create paradox: Too much water in reservoirs, too soon



Snow melted into the South Fork of the American River in the Sierra Nevada on March 3, 2023. Photo by Fred Greaves, California Department of Water Resources.

In summary

As storms melt snowpack, managers released water to prevent reservoirs from overflowing and flooding Central Valley towns — and that sends water into the ocean. The warm rains melt snow that ideally would last into spring and help with water deliveries.

Two winters' worth of snow has already fallen in the Sierra Nevada since Christmas, pulling California from the depths of [extreme drought](#) into one of its wettest winters in memory.

But as a series of tropical storms slams the state, that bounty has become a flood risk as warm rains fall on the state's record snowpack, causing rapid melting and jeopardizing Central Valley towns still soggy from [January's deluges](#).

The expected surge of mountain runoff forced state officials on Wednesday to open the "floodgates" of Lake Oroville and other large reservoirs that store water for millions of Southern Californians and Central Valley farms. Releasing the water will make room for the storm's water and melted snow, prevent the reservoirs from flooding local communities — and send more water downstream, into San Francisco Bay. The increased flows in the Sacramento-San Joaquin Delta could help endangered [salmon](#) migrate to the ocean.

So what's the downside? These same storms are prematurely melting a deep and valuable snowpack that ideally would last later into the spring and summer, when farmers and cities need water the most.

The storms have created a tricky situation for officials who manage state and federal reservoirs in California, since they have to juggle the risk of flooding Central Valley communities with the risk of letting too much water go from reservoirs. They must strike a balance between holding as much water in storage, as long as they can, while maintaining room in reservoirs for more water later in the season.

"Water management in California is complicated, and it's made even more complex during these challenging climate conditions where we see swings between very, very dry, very, very wet, back to dry. We're now back into wet," said Karla Nemeth, director of the Department of Water Resources.

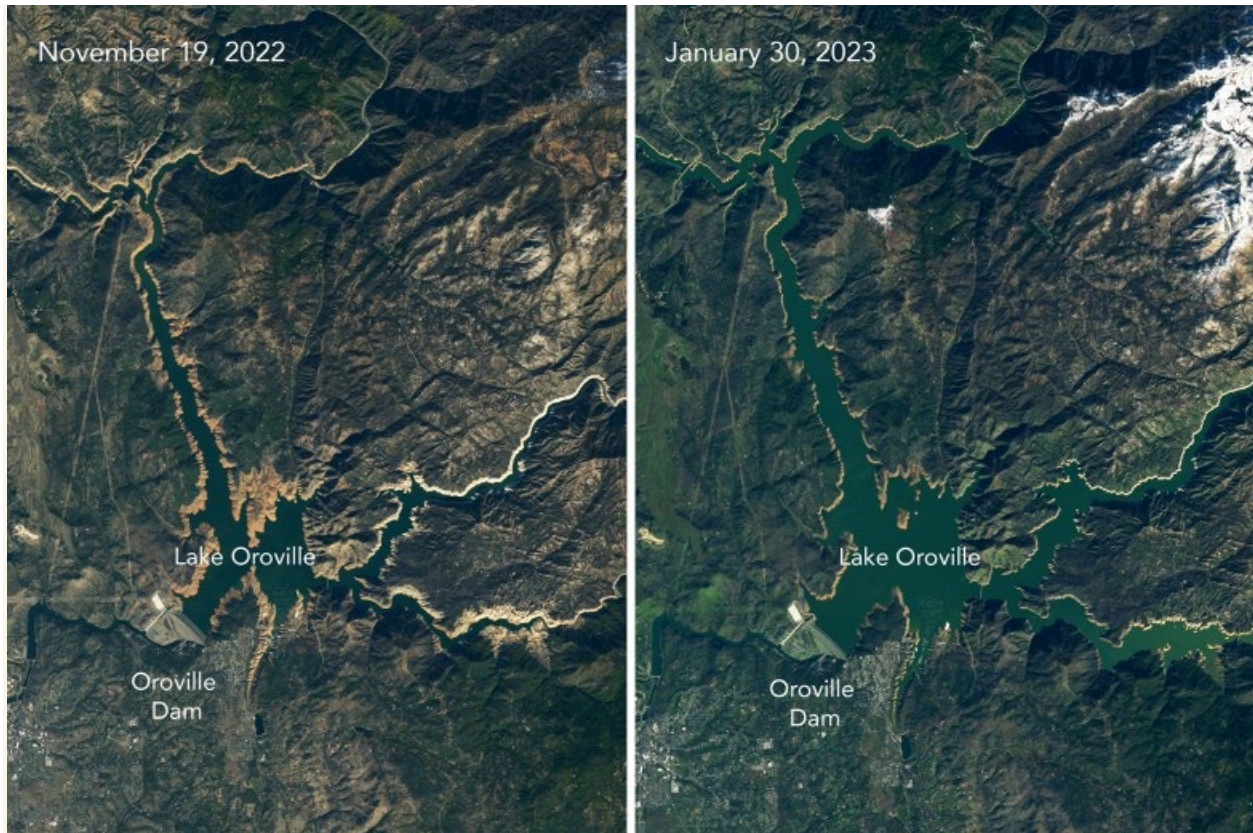
Rivers in the San Joaquin Valley are [forecast to flood](#) today or Saturday. Eleven locations are expected to reach the flood stage, although no "danger stage" flooding is anticipated, according to Jeremy Arrich,

deputy director of the Division of Flood Management with the Department of Water Resources.

To make room for more water, state and federal officials who manage California's major dams and reservoirs are releasing water. Some will flow into the ocean — which aggravates many water managers, Central Valley legislators and growers, who often say freshwater that reaches the bay or ocean is wasted. However, efforts are underway to divert much of the released water into [depleted groundwater storage basins](#).

On Wednesday, the Department of Water Resources [increased outflow](#) of water from Oroville from about 1,000 cubic feet per second to 3,500 cubic feet per second. By Friday, total releases could be as high as 15,000 cubic feet per second, according to Ted Craddock, deputy director of the State Water Project.

Oroville is now more than 75% full, containing 2.7 million acre-feet of water — up from less than one million in the beginning of December. In spite of releases, the reservoir's level will keep rising. Craddock said inflow in the next five days could hit 70,000 cubic feet per second. That's about half a million gallons of water per second.



Satellite images show how January storms boosted water levels in parched Lake Oroville, one of the state's largest reservoirs. State officials released water from the reservoir this week in anticipation of another major storm. Photos via NASA Earth Observatory

In 2017 Oroville's levels reached so high that the overflow water [damaged its spillway](#). An emergency spillway had to be used, eroding a hillside and triggering evacuation of about 200,000 people in nearby communities.

The U.S. Bureau of Reclamation announced a similar operational move for Millerton Lake, the reservoir behind Friant Dam on the San Joaquin River, which supplies water to growers throughout the Central Valley.

The two-day rainfall totals will be "quite astounding" and "will lead to some really significant runoff," said State Climatologist Michael Anderson. More storms are expected next week and later in March.

Rain on snow

Today's storm is creating what watershed scientists and weather watchers call a "rain on snow" event. Earlier this winter, freezing elevations hovered as low as 3,000 feet, meaning precipitation above that fell as snow.

That has changed, Anderson said. Freezing levels have risen to as high as 7,000 feet in the southern and central Sierra Nevada, where the bulk of the snowpack has accumulated. A National Weather Service [forecast](#) shows freezing elevations even higher, at 9,000 feet, and warned that "snow will melt easily below 5,000 feet," since it is already approaching the melting point of 32 degrees Fahrenheit.

State officials say the premature snowmelt from this storm likely won't have much effect on supplies this spring and summer.

"This winter, there has been an accumulation of snow at lower to mid-level elevations, which will experience melt during this storm and will generate runoff into foothill and valley communities," said David Rizzardo, manager of the state water agency's hydrology section.

"However, at higher elevations, where the vast majority of the snowpack is, we will not experience significant melt. Even with higher snow levels above 8,000 feet in these storms, we still anticipate seeing additional snow accumulation at the higher elevations that will add to our snowpack totals, especially in the Southern Sierra."

[John Abatzoglou](#), a UC Merced professor of climatology, said deep, soft snow has the physical capacity to absorb a great deal of rain. The snow may even freeze the rain, rather than vice-versa, effectively increasing the snowpack volume, at least for a while.

"As you add liquid to the snowpack, it gets denser, it gets warm, and it gets more apt to melt when the next storm comes," he said, noting that more atmospheric river events are coming next week.

Diverting underground

While the latest storms flood river valleys, state regulators have taken action to capture as much stormwater as possible before it flows into the ocean and use it to recharge groundwater basins.

On Wednesday, the State Water Resources Control Board approved a petition from the Bureau of Reclamation to divert 600,000 acre-feet of San Joaquin Valley flood waters into wildlife refuges and groundwater recharge basins. Diversions can begin on March 15 and continue until July.

“Given the time it takes for water to reach the downstream point of diversion at Mendota Dam, the approval period will allow for floodwater capture following storms expected this weekend,” the water board explained in a news release.

The action is intended in part to help meet Gov. Gavin Newsom’s goal of increasing groundwater storage by over 500,000 acre-feet per year, spelled out in his [Water Supply Strategy](#) released last summer.

But environmental groups protested the water board’s action.

Greg Reis, a hydrologist with The Bay Institute, said it will allow the bureau to divert all of the San Joaquin River except for 300 cubic feet per second — what he calls “a very, very small” amount of water. Floodwaters, he said, are important for ecosystem function and survival of fish, including threatened spring-run Chinook salmon.

He compared floodwaters in a river to a person’s increased pulse when they exercise.

“If you don’t get your heart rate up when you exercise, you don’t get the health benefits,” he said. “Same thing for a river. You’ve got to get the flows up, and the 300 cubic feet per second is certainly not adequate for a river like the San Joaquin.”

<https://calmatters.org/environment/2023/03/california-storm-reservoirs-flooding/>