

# California drought: Sierra snowpack falls to one of lowest levels in 70 years

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Stressed by high temperatures and a record run of dry weather over the last three months, the Sierra Nevada snowpack, the source of 30% of the state's water supply, has hit one of its lowest levels for the end of winter

in generations.

With state water officials scheduled to conduct a snow survey Friday near Sierra-at-Tahoe ski resort, automatic sensors spread across the vast mountain range showed snow levels were just 39% of normal on Wednesday. The measurements were the latest evidence that California's three-year drought is growing more severe.

From a water-supply standpoint, the April 1 Sierra snow reading is traditionally considered the most important of the year. Very little snow falls after April 1, so water planners at cities, farms and wildlife agencies are able to assess how much is available for the summer ahead.

By comparison, on April 1 last year, the snowpack was 62% of normal. Going back to 1950, only five times has there been less snow on April 1 than this year, all of them during major droughts—in 2015 (5% of normal), 2014 (25%), 1988 (29%), 1977 (25%) and 1976 (37%).

"There was so much fanfare in December about the drought being over," said Andrew Schwartz, lead scientist at the UC Berkeley Central Sierra Snow Laboratory near Donner Summit west of Lake Tahoe. "We had a record-breaking December and have gotten very little if anything since."

Schwartz noted that in December, his station at 6,800 feet elevation in Soda Springs received 214 inches of snow from several huge atmospheric river storms—the most since modern records there began in 1970. But in a cruel twist of fate, the storm door slammed shut. In January, February and March combined, only 41 inches of snow fell, or 19% of the historical average for those three months.

"We've still got some snow up here," he said Thursday. "It's not barren. But it has definitely started melting. We've lost about a foot in the last week. We're starting to see bigger patches of soil."

The trend has repeated across the state.

In San Francisco, only 1.13 inches of rain fell in January, February and March this year. That's the lowest amount in that three-month period in 173 years, when records began during the Gold Rush in 1849, according to meteorologist Jan Null of Golden Gate Weather Services in Half Moon Bay.

If not for California's bountiful early storms in October and December, the Sierra snowpack would be even lower now.

The good news is that the early winter rainfall provided some hydrological "money in the bank," experts say, raising reservoir levels somewhat. Since Oct. 1, San Francisco has received 17.36 inches of rain, or 86% of its historical average; Oakland 15.89 inches, or 97% of its historical average; and San Jose 7.00 inches, or 60% of its average.

But because the previous two years were also dry, California's reservoirs did not refill this winter. They remain below average now, which is driving [water shortages](#) around the state that will only worsen during the hot summer months to come. And as the grasses and vegetation dry out, wildfires remain an ever-present threat.

On Thursday, the state's largest reservoir, Shasta, near Redding, was just 38% full. And its second largest, Oroville, in Butte County, was just 47% full.

"This is the third year in a row of drought for sure," said Jay Lund, director of the UC Davis Center for Watershed Sciences. "We've had more precipitation in Northern California than we had last year, and a little more than in 2020. But we've had a very long, dry period with dry temperatures over the last three months, and that isn't good. It's drying out all the soils and evaporating the snowpack. We might get less runoff

this year into the reservoirs than in 2020 or 2021."

Schwartz noted that climate change is contributing significantly to California's extreme conditions. Warmer temperatures are making droughts worse. And when high-pressure systems do break down off the West Coast, allowing lots of big atmospheric river storms to come through like in 2017, those winters are wetter-than-normal because warmer conditions cause more moisture to evaporate into the storms.

"We've always had these types of events, but [climate change](#) is making them more severe," he said.

All of California's 58 counties have been in a drought emergency since last year. On Monday, Gov. Gavin Newsom ordered the 420 largest water agencies in the state—cities, water districts and private companies—to increase water conservation by going to level 2 of their drought plans.

There are six levels in the plans, which are required by state law, with six being the most severe. Some providers, such as San Jose Water Company, which is in level 3 and requiring customers to water lawns no more than twice a week, already are there.

Others, including East Bay Municipal Utility District, Contra Costa Water District and San Francisco Public Utilities Commission, which serve millions of people in the Bay Area, are still in level 1 with mostly voluntary rules and little enforcement. Those agencies are expected in the coming month to tighten rules and potentially impose fines or higher rates for people using too much water. But that's not the only pain some customers might feel. On Friday, San Francisco instituted a 5% drought surcharge on water bills to cover the lost revenue from people using less.

Many residents still aren't acting like there's a serious drought. At the

Evergreen Nursery in San Leandro, manager Wallace Garrett said Thursday that few people are mentioning it.

"It's early in the season," he said. "That may happen. But we haven't had many people ask about reducing water use."

His advice: Check your plants. If leaves are drooping they need water.

"A lot of people overwater," he said. "Stick your finger in the soil about half an inch. If it's moist it doesn't need water."

And lawns, which use 50% of residential water in the summer?

"I recommend get rid of your lawn," he said. "Lawns are beautiful but they are a huge waste of money. You can't eat them. You spend a lot of money watering them. California native plants are just as beautiful and they require a lot less water."

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