

Sierra Nevada snowpack hits highest level in nearly 30 years

February 1 2023, by Paul Rogers and Scooty Nickerson



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The statewide Sierra Nevada snowpack—the source of nearly one-third of California's water supply—is at its highest level since 1995, boosting hopes that an end to the drought is near, but also raising concerns that a few warm spring storms could melt it too early and trigger major

flooding.

Not since "Toy Story" packed [movie theaters](#), Steve Young led the 49ers to their fifth Super Bowl win, and gasoline cost \$1.28 a gallon has there been so much snow in California's most famous mountain range at the end of January.

"It's absolutely massive," said Kevin "Coop" Cooper, a ski resort consultant who lives near South Lake Tahoe. "I've spent so much time with my snow shovel that I named it. My wife thought I was having an affair."

The snowpack was 208% of its historical average on Tuesday, a day ahead of the high-profile Feb. 1 snow survey that state officials planned to take near Highway 50 by Sierra-at-Tahoe ski resort with TV cameras in tow. The last time there was as much snow, 28 years ago, on Feb. 1, 1995, it was 207% of normal.

The huge bounty is the third largest statewide since 1950, when consistent statewide records began, according to a Bay Area News Group analysis of historical data. Only 1952 (267% of average) and 1969 (230%) had larger amounts on Feb. 1.

In a few places, like Highland Meadow in Alpine County, the snowpack is the largest in recorded history.

Around Lake Tahoe, stop signs and fire hydrants have been buried in snow. Ski resorts that struggled during three years of drought, wildfire and COVID are seeing a banner year. The snow base Tuesday at Palisades was 11 feet deep. At Kirkwood it was 12 feet. And at Mammoth Mountain, south of Yosemite National Park, it was nearly 20 feet deep.

"We've had a lot to dig out," Cooper said. "I'm looking at a neighbor's house right now. He needs to get shoveling on his roof. Gutters can fill up, freeze and fall off the house. Or if you have a flat roof it can collapse from the weight of the snow."

The wintry windfall arrived in series of nine atmospheric river storms that began around Christmas and continued for three weeks. Since then, temperatures have been cool in the mountains, preserving much of it.

Snow is vital to California's [water](#) supply. Many winters, storms blanket the Sierra, a 400-mile-long rocky expanse memorialized by naturalist John Muir as "the Range of Light," that includes the lower 48 states' highest peak, Mount Whitney, along with the glorious granite walls of Yosemite Valley and the sublime shores of Lake Tahoe.

It melts in late spring and early summer. Billions of gallons pour down more than a dozen Sierra rivers like the Merced, the Tuolumne, the American, and the Feather. The water is caught in major reservoirs. It also recharges underground aquifers and provides food and habitat for fish and wildlife.

But in dry years, when few storms arrive, much less water is available for cities, farms and the environment.

The January storms caused serious flooding around Sacramento, Santa Cruz, Merced and Santa Barbara, killing at least 22 people, and creating power outages, mudslides and other damage.

The water also began filling reservoirs across the state. The largest, 35-mile-long Shasta, near Redding, on Tuesday was 56% full, or 87% of its historic average for that date. The second largest, Oroville, in Butte County, was 65% full, or 112% of its historic average.

Many major reservoirs are certain to rise higher as [snow melts](#) in the coming months.

"The storms could shut off," said Jay Lund, a professor of civil and environmental engineering at UC Davis. "That's the worst case. But even in the worst case, we're still going to have a good snowpack. Most of it is in the bank, and will appear as streamflow."

State water officials are thrilled at the start to the winter. They are also eyeing all that snow cautiously.

"The snowpack is great," said David Rizzardo, a supervising engineer with the state Department of Water Resources. "But it's also providing a very unique challenge."

Simply put, the drought will end if rain and [snow](#) continues to fill reservoirs. But if California receives big, warm, soaking storms that park over the Sierra, much of the snowpack could melt suddenly, causing mayhem.

That's what happened in 1997. Several warm "Pineapple Express" storms drenched the Sierra around New Year's Day. Yosemite Valley experienced its worst floods in a century. Entire campgrounds washed away. Half of Yosemite Lodge was destroyed. Across the Central Valley, big reservoirs filled to the top and released water uncontrollably. Levees broke, causing major flooding in Marysville, Yuba City and other communities. When it was over, 48 of California's 58 counties were declared disaster areas and damage totaled \$1.8 billion.

Hoping to reduce the chances of a similar event, dam operators in recent weeks have been increasing water releases from some reservoirs, like Folsom, northeast of Sacramento, and Millerton, near Fresno, to create more space.

It's a delicate balancing act. Farms, cities and [political leaders](#) want as much water stored as possible. The public sometimes forgets the dams were built not just to store water, but also to reduce flooding, experts say.

"You want to be able to reduce the flows downstream to allow time for evacuations or levee repairs," Lund said. "You really don't want to lose control where you don't have any more room for storage. We don't want to kill anybody downstream. That's the bottom line."

If the rest of the spring plays out well, moderate storms will come in, with dry spells in between, allowing reservoirs to gradually continue filling just as summer is starting and the risk of floods is ending.

"In a perfect year," Lund said, "you refill the reservoirs right at the very end of May."

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