

# Snowpack

## January storms boost Western snowpack

Capital Press staff

Big winter storms in January have generally pushed snowpacks around the West to above average levels.

But while water managers are optimistic, they warn it's still early. Warm temperatures late in the season, or dry conditions, could still change the summer outlook.

### California

A manual survey conducted Feb. 2 found more than four times as much snow as a month ago, and farm groups want the abundance to equate to considerably more water this summer.

But state and federal officials insist it's still early in the season, and the drought isn't over yet.

The state Department of Water Resources' manual survey at a mountain station about 90 miles east of Sacramento found a snow-water equivalence of 28.1 inches, up dramatically from the 6 inches found there on Jan. 3.

The site's average February snow-water equivalence in manual readings since 1964 is 11.3 inches. Electronic readings showed the statewide snowpack on Feb. 2 to be 173 percent of average for the date.

"We've got a very good snowpack, a very robust snowpack on the ground right now," state snow surveys chief Frank Gehrke told reporters.

Even before the survey was done, the California Farm Bureau Federation, Western Growers and the California Farm Water Coalition put out statements expressing hope that the well-above-normal snowpack equates to improved water supplies for farmers and ranchers.

"You would think that a snowpack in the range of 175 percent of average would assure plentiful water supplies, but that link has long ago been severed," Western Growers president Tom Nassif said in a statement. "Wildlife agencies often hold the key to determining how much water is available, because endangered-species laws reserve water for protected fish."

Nassif and others pointed to the passage of federal water legislation in December that included increased flexibility in the state's water system. CFBF President Paul Wenger noted that the legislation — the Water Infrastructure Improvements for the Nation Act — allows agencies to capture more water during winter storms and requires them to maximize supplies.

Some farms in the San Joaquin Valley received only 5 percent of their normal Central Valley Project allotments last year after the whole valley received no federal water for agriculture in 2014 and 2015.

The State Water Project has already increased its projected allocation to 60 percent of requested supplies, up from a 20 percent initial allocation. The U.S. Bureau of Reclamation typically makes its first allocation of CVP water in mid-February, though last season's was on April 1.

Bureau spokesman Louis Moore said this year's initial projection is "in the works," though he doesn't know when it will be announced. He said the snow surveys are a factor in determining allocations, and the WIIN Act may be.



Courtesy of Calif. Dept. of Water Resources  
From left, scientists Michael Peterson, Julianne McCall and Mikel Shybut assist state snow surveys chief Frank Gehrke with the second manual survey of the 2017 season Feb. 2 at Phillips Station in the Sierra Nevada east of Sacramento.

"This is actually still early for us to know what that (allocation) would actually be," Moore told the Capital Press. "I would say that conditions are improved, and folks are looking at what this could mean."

But water officials say they don't consider the drought to be over. State Climatologist Mike Anderson said eight of the last 10 water years have been dry, and this winter could be "one wet year in a string of dry ones."

Officials note that some Central Valley communities still depend on water tanks and bottled water, groundwater tables are still low and Lake Cachuma in Santa Barbara County is at just 12 percent of capacity.

One problem is that California is essentially getting too much precipitation too quickly, said Michelle Mead, a National Weather Service warning coordinator in Sacramento. As some parts of the Sierra Nevada got nearly four times their normal precipitation in January, "there's really no place to put all this water," Mead said.

### Idaho

By the end of a wet January, some Southern Idaho basins were already near or above their usual peak snowpack levels for the entire winter, according to a water supply outlook recently issued by USDA's Natural Resources Conservation Service.

For a second consecutive month, storms inundated the state south of Idaho's Salmon River. Monthly snow accumulation ranged from 200 to 250 percent of normal in the Bear River, Malad, Portneuf, Bruneau, Jarbidge and Camas Creek basins, according to the report.

The Boise, Big Wood, Little Wood, Big Lost, Hoback, Greys, Willow, Blackfoot, Goose, Salmon Falls and Owyhee basins received from 130 to 185 percent of average precipitation for the month.

"The jet stream brought a lot of moisture into the southern half of Idaho, and that's where we received significantly more moisture than normal," said Ron Abramovich, NRCS snow specialist for Idaho.

The Weiser and Payette basins received between 110 and 116 percent of normal January snowfall, while Northern Idaho was below normal, with the Kootenai, Priest, Coeur d'Alene and Spokane basins receiving 65 to 70 percent of usual monthly snowfall.

Abramovich said mountain snowpack usually peaks in late March to early April. But by the beginning of February — with 40 percent of winter still remaining — the Bear River basin was already exceeding its peak snowpack, and the Portneuf Willow and Blackfoot basins in southeast Idaho were at 95 percent of their peak. The Upper Snake had 81 percent of its usual peak, with mountain snowpacks ranging from normal to 160 percent of normal.

Streamflow forecasts to end the month were also rosy throughout Southern and Eastern Idaho, led by predictions of double the normal streamflows in the Bear and Owyhee basins. Abundant streamflow, ranging from 140 to 175 percent of normal, was also projected for the Big Wood, Little Wood, Willow Creek, Portneuf, Salmon Fall and Bruneau basins, as well as in the Snake River at the Heise gage and in Upper Snake River tributaries.

Reservoirs throughout the state are also catching up to their normal fill levels after most entered the winter below normal. The Boise reservoir system ended January at 102 percent of normal, the Payette system was at 99 percent of normal, the Magic, Little Wood and Mackay reservoirs were from 127 percent to 145 percent of normal and the eight major reservoirs in the Upper Snake system were at 96 percent of normal.

Abramovich said temperatures have stayed cold in the valleys throughout most of the winter, leading snow to accumulate in residential areas and making the winter seem even more severe to Idaho residents. Early February has brought warmer temperatures, leading to flooding in some areas. For example, the Idaho Transportation Department closed Interstate 86 on Feb. 6 from the I-84 junction to the Rockland interchange due to deep, standing water.

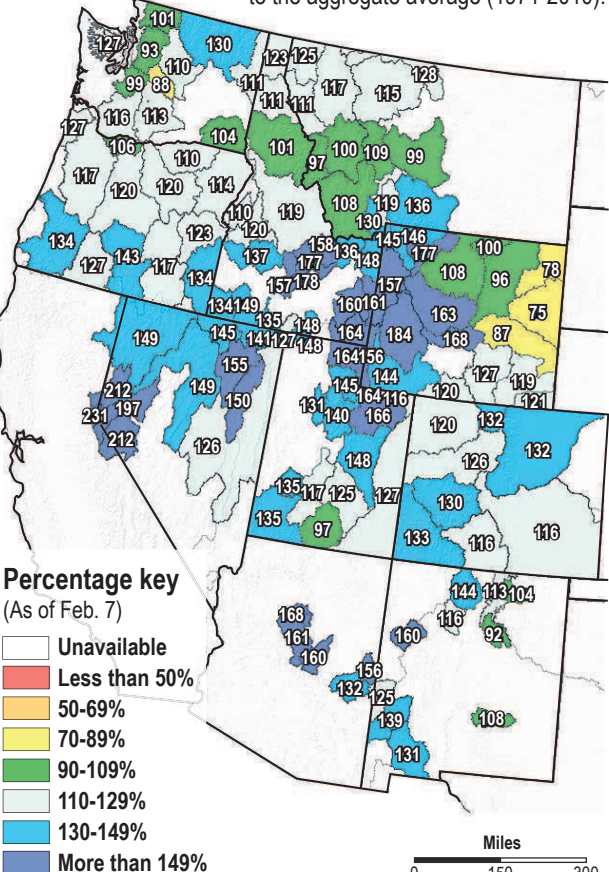
Abramovich said there's a good chance some early February storms may hit Northern Idaho. However, National Weather Service meteorologist Bob Survick said warm temperatures accompanying a 36-hour storm starting on the evening of Feb. 9 could result in rain up to 8,000 feet in the mountains, potentially eroding some of the abundant snowpack.

### Oregon

With a statewide snowpack that's 134 percent of average, Oregon's water outlook

### Western U.S. snow water equivalent

Basin-wide percent of Feb. 2017 snowpack compared to the aggregate average (1971-2010).



Source: USDA, Natural Resources Conservation Service  
Capital Press graphic

is healthy nearly two-thirds of the way into the snow accumulation season.

However, unless it increases from its current level, Oregon's snowpack would still be below normal at the traditional peak in early April, said Julie Koeberle, a hydrologist with USDA's Natural Resources Conservation Service. "The threat of rainfall in the mountains is there," Koeberle said. "We'd rather not see it rain in the mountains. We'd rather it continue to build as snow."

It's been cold enough during recent storms for most precipitation to be deposited as snow, but there's a potential for the snow level to rise to higher elevations, she said.

Rain wouldn't likely have much deleterious effect on the snowpack in higher-elevation mountains, but it could melt snow at lower elevations, Koeberle said.

The Owyhee basin in southeast Oregon has the strongest snowpack in the state, at 160 percent of average, followed by the Willamette basin in Western Oregon, which is 150 percent of average.

The Grande Ronde, Powder, Burnt and Imnaha basins in Northeast Oregon have the weakest snowpack at a respectable 109 percent of average.

While current snowpack levels bode well for summer stream flows, it's worth noting that Oregon was also in robust shape last winter, Koeberle said.

Record-high temperatures in April 2016, however, diminished snowpacks to the point where many streams were running below-normal in the summer, she said.

Due to low stream flows and strong irrigation demand, most of Oregon's reservoirs were at below-average levels when the rainy season began

dry and cold while elevations of 3,500 feet and lower have been at or above normal precipitation in Eastern Washington, Pattee said.

"In spite of what people see out their windows, the snowpack is behind average up in the mountains. There have been storms coming through but their focus has been in Oregon. ... So we've been getting the fringes," said Chris Lynch, U.S. Bureau of Reclamation hydrologist in Yakima.

The fringes swipe the Lower Columbia Basin, around Mount St. Helens, which is at 123 percent of normal snow water equivalent, Pattee said.

"It's been one of the driest Januarys since the late 1970s. Seven SNOTEL sites were at or below record for the month of January," he said.

SNOTEL (snow telemetry) sites are an automated system of snowpack and related weather sensors operated by NRCS.

Weekend storms on Feb. 4-5 finally brought a lot of snow to much of the state.

One of the best examples: Morse Lake SNOTEL site up the Lower Yakima toward Cayuse Pass received 42 inches of snow in just three days.

Statewide snowpack jumped from 91 to 102 percent of normal, Pattee said.

"If we can get one more dump like this and then cool off and get maintenance snows through March, it would make a huge difference," he said.

Whether that will happen is a big question. The outlook for the next 30 days is warm and wet and beyond that it's cool and wet, he said.

Snow water equivalent snowpack in the Spokane Basin was 82 percent of normal on Feb. 6. The upper Columbia (Okanogan and Methow rivers) was 99 percent. The central Columbia (Chelan, Entiat and Wenatchee) was 94, the upper Yakima was 80 and the lower Yakima 94. The lower Snake near Walla Walla was 89, south Puget Sound (from Cascade crest to lowlands) was 98, central Puget Sound 103, north Puget Sound 86 and the Olympics 106.

As of Feb. 6, the five mountain reservoirs serving the Yakima Basin were at 47 percent capacity and 93 percent of normal, Lynch said.

Warmer winters and springs the past several years have filled reservoirs sooner. The slower pace is more desirable, he said.

### Washington

It's been a great snow year for much of the West Coast, but not for most of Washington state, the Idaho panhandle and Western Montana.

A high pressure system off the Washington coast in January caused La Nina storms coming from the south and mixing with arctic air to ricochet back southward and dump on Oregon, Southern Idaho and California, says Scott Pattee, Natural Resources Conservation Service water supply specialist for Washington.

Normally, La Nina storms skirt high pressure to the south and deliver lots of snow to Washington, the Idaho panhandle and western Montana, he said.

High elevations have been

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