

## **Tahoe snowmelt: Will there be enough water?**

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LAKE TAHOE — Most of the usable water in the western states originates as mountain snowfall, according to the California Department of Water Resources. And because the spring melt is a gradual process, hydrologists and water resource officials can work together to forecast water supplies well into the summer months and plan accordingly.

But as the major snow-producing months give way to the spring melt, hydrologists and water resource officials in Northern California and Nevada brace for what could be the third year of drought conditions in a row.

This week, an updated report from the Natural Resource Conservation Service, an agency that surveys snowpack conditions and issues water resource outlooks, forecasts Lake Tahoe to rise by a maximum of 0.95 feet this spring and summer, 69 percent of the lake's average annual rise, according to Dan Greenlee, a hydrologist with the Natural Resource Conservation Service.

A below average rise of the lake means less water is coming out of the dam in Tahoe City, which means reserve reservoirs will likely be tapped in order to meet Floriston Rates, Greenlee said.

Meeting Floriston Rates is a century-old law designed to guarantee a minimum flow of Truckee River water, which in turn ensures municipal, agricultural and power generation demands from river water can be satisfied.

And having dealt with two dry summers in a row, water resource officials are prepared possible shortages.

“It's not quite as bad a previous years, and what that means for us at this point is it's going to be business as usual,” said Bill Hauck, water supply coordinator for the Truckee Meadows Water Authority.

Floriston Rates should be met into the fall months, Hauck said, and in the next few weeks, the water authority plans to close the dam gates at Donner Lake to fill it as much as possible by Memorial Day, hopefully sustaining water needs throughout the summer.

“It will be another below average year, but the snowpack is still good enough that the reservoirs are going to recover somewhat,” said Hauck. “This year could have ended up a lot worse,” he added.

Still, the real problem is that reservoir storage throughout Northern California and Nevada is so depressed that it's not likely the current level of snowpack is going to do much in the way of restoring average levels, said Frank Gehrke, chief of the California

Cooperative Snow Survey Program.

The current level of Lake Tahoe is 0.69 feet above its natural rim— 6,223 feet — and is expected to be back down to that level by mid to late summer, Greenlee said. Likewise, storage conditions for Northern California's major water supplies remain below average. Lake Oroville and Shasta Lake are 70 percent and 76 percent of average, according to Gehrke.

Here in Tahoe, the water masters office will soon begin making minimum releases from the dam in Tahoe City. If the storage level gets within a half-foot of the natural rim, however, then the main reserve, Boca Reservoir, would need to be tapped, according to Chad Blanchard, chief deputy in the federal water master's office in Reno.

But in the resource conservation service's "dry scenario" for this year's water outlook, Lake Tahoe would drop to, or below, its natural rim by September and Boca would not be able to supply the Truckee River later in the year. "Boca is small compared to Tahoe and it won't last very long," he added.

Among the other possibilities, medium precipitation this spring could have Lake Tahoe dropping near its natural rim by October, while the wet scenario has storage remaining above the rim for the entire year.

"These forecasts take a lot of factors into account and are not certain," Blanchard said . "It will really depend on the spring weather," he added.

As for Donner Lake, Hauck said at 5,929.37 feet, it looks pretty normal for this time of year and he expects it to operate just like it always has through the summer.

"It's certainly a much better situation than we had a month ago," Gehrke said, "we may lose ground but we're not going to gain much ... a lot of it depends on how the spring goes."

### Setting the stage

In 2007, a very warm, dry March stripped the Lake Tahoe Basin snowpack down to 40 percent of average by April 1.

Though carryover reservoir storage from the previous year would help meet water demands that summer, the conservation service called for well below average runoff that spring and summer and reduced water supply forecasts.

Despite another dry March the following year, the snowpack average at that same time was a promising 87 percent in Tahoe.

But by summer, when one of the driest springs on record had Blanchard saying lake levels for 2008 were almost as bad as the year before — even though the snowpack was

double what it was in 2007 — a significant amount of hope was placed on the 2009 winter to get out of the drought, declared June 4 by Gov. Arnold Schwarzenegger.

But unlike last year's weather patterns, moderate early and late winter storms have prevailed this year.

The biggest storm of the season pounded the Sierra during the first four days of March, padding the Lake Tahoe Basin snowpack by 12 percent.

And while that storm pushed the snowpack average above 90 percent for a few days, it's been mostly moderate precipitation that has sustained an average in the low to mid 80s through most of February and March.

“December, February and March were all pretty decent months if you look at them separately,” Greenlee said. “The thing that really hurt was January, which had very little snow and dragged snowpack averages down considerably.”

Weather patterns change from year to year, and it's not usual to have them repeat, said Wendell Hohmann, a meteorologist with the National Weather Service in Reno. That said, it is not likely that this spring will mimic last spring, he added.

Still, two previous years of well below normal precipitation means even if a series of spring storms boosted the snowpack up to average, it wouldn't help much with the current drought situation, according to Rhett Milne, a meteorologist with the National Weather Service in Reno.

“We could get out of this drought in one season, but it's not going to happen this season unless something exceptional were to happen,” he said. “We would have to get a prolonged, intense period of precipitation lasting weeks to really make a dent.”

Based on the average precipitation data collected from 1971-2001, those kinds of storm patterns rarely happen this time of year. Of the 37.2 inches of average precipitation received in Tahoe City each year, only 6.8 falls from April through September.

#### Soaking up resources

But it's not just the amount of precipitation that will determine water supply this year. It may turn out to be what's under the snow that could be the deciding factor.

With daytime high temperatures closing in on 60 degrees and no significant precipitation in the forecast, the Sierra snowpack may have already peaked. And as the snow begins to melt, weather conditions from last fall may play a significant roll during the runoff season this spring.

Ideally, a wet fall saturates the ground with water and leaves it “primed” under the snowpack through winter, according to Gary Barbato, a hydrologist with the National

Weather Service in Reno.

The last two winters, however, were preceded by dry falls and much of the spring runoff was soaked up by the ground, never making it to where it was so desperately needed.

“The odd thing about last year was that we had three-to-four feet of snow up in Tahoe, and when that all melted, there was no response by the Lake, meaning the lake level never went up during the spring melt,” said Greenlee. “Soils were so dry that all the runoff was soaked into the ground and never made it to the lake.”

But even though we entered this winter through a pretty dry fall, some warm winter storms have produced enough rain so that the soil won't soak up the entire spring melt, according to Greenlee.

“Water supplies are going to be tight,” he said. “We're going to see some pretty dry conditions by mid summer.”