

## February Drought Update: How Do Those Reservoirs Look?

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**Update, Feb. 9, 2015:** As expected, the big rains that have fallen in the northern half of California have boosted storage at the state's principal reservoirs. So now we're confronted with a glass half-full/half-empty proposition when we appraise how they're looking.

Case in point: The federal Central Valley Project's [Shasta Lake](#), the state's biggest reservoir, which has risen to almost precisely 50 percent capacity as of Monday. About 9.5 inches of rain have fallen at Shasta Dam in the past week, typical of the heavy precipitation that's fallen in the 6,700-square-mile watershed that feeds the lake. That's dumped about 220,000 acre-feet of water into the reservoir since the first of the month and lifted it to 71 percent of normal for this time of year, up from 52 percent in mid-December.

The State Water Project's [Lake Oroville](#), California's second-biggest reservoir, has gotten much less rain recently — about 3 inches at Oroville Dam since Thursday, with totals up to 10 inches in the 3,200-square-mile drainage basin. About 100,000 acre-feet have flowed into the reservoir since Feb. 1, raising it to 43 percent full and 64 percent of average for this time of year. That's up from 53 percent of normal in mid-December.

Shasta is storing about one-third more water than it was at this time last year; Oroville has about one-sixth more.

Other reservoirs of note:

- [San Luis Reservoir](#), the joint federal-state lake just west of Los Banos in the San Joaquin Valley — a facility that's wholly dependent on water pumped down from the Delta — is at 70 percent of average for early February and, thanks largely to our wet December, holds nearly double the water it did a year ago.
- [Trinity Lake](#), the big federal reservoir northwest of Redding, has seen a spike in flows during the past week's rains. But it's still only at 41 percent of capacity and 58 percent of its average for early February. Trinity Lake was tapped last summer to provide higher flows on the Trinity and Klamath rivers to head off a massive die-off of migrating chinook salmon.
- Reservoirs in the southern half of the state have not enjoyed even the partial recovery seen up north. [Lake McClure](#), the major reservoir on the Merced River, is at just 6 percent of capacity. [Pine Flat Reservoir](#), on the King's River, is at 14 percent of capacity.

**Update, Jan. 20, 2015:** Just over a month ago, we were watching rain gauges fill up and going to sleep at night with visions of our reservoirs rising again after a long, punishing drought. We'd had one of the rainiest Decembers in Bay Area history, with [San Francisco getting](#) 2½ times its normal rainfall for the year's final month; San Jose's total was three times normal.

Rainfall around the state's two biggest reservoirs — [Shasta Lake](#), on the Sacramento River north of Redding, and [Lake Oroville](#), on the Feather River just upstream from its namesake city — was just as copious as it was here on the coast. Shasta Dam got 23.5 inches of rain and Oroville got just over 13 inches, the highest December totals in decades.

The total volume of water stored in those two reservoirs jumped about 60 percent in just 31 days — about 1.3 million acre-feet, or roughly enough water for the entire Bay Area for a year.

And then?

The last time we saw real rain here in the Bay Area was Christmas Eve, when a front blew through the Bay Area and gave us a short, intense burst of precipitation. Since then, [meteorologists say](#), we've seen the re-emergence of atmospheric conditions similar to those that kept us dry the last couple of winters.

So how do the reservoirs look now?

The California Data Exchange Center, the go-to resource for state water data, publishes a [daily summary of reservoir conditions](#), and that snapshot shows a collection of key state reservoirs at 61 percent of normal for this time of year. That's better than things looked a month ago, and that's good news. The bad news, naturally, is that the torrents that were pouring into the Northern California reservoirs a month ago have slowed to a relative trickle.

Continuing to scrape for something that looks positive, we'll note that Shasta Lake and Lake Oroville are holding more water than they did a year ago at this time — about 18 percent more in Shasta's case, about 12 percent for Oroville.

Far to the south of the big northern lakes, San Luis Reservoir, a facility that's crucial to San Joaquin Valley farmers and to Southern California water districts, has about 60 percent more water than it did at this time last year. But it's still only half full.

One other dire fact to mention in this update: The Sierra snowpack is about one-third of normal. Here's the California Weather Blog's [synopsis](#) of the reasons for the snow drought:

*December's very heavy coastal rainfall did not translate to nearly as much mountain snowfall as might have been expected in a typical year, and mid-January snow water equivalent is tracking at near record-low levels once again—and is in fact on a very similar trajectory to both 1976-1977 and 2013-2014. The extremely minimal Sierra snowpack this year is the combined result of both regionally below-average precipitation to date across eastern California and well-above average (record-breaking) temperatures. Much of the moisture from December's extremely wet "atmospheric river" event fell near the coast, and never made it all the way inland to parts of the state that are critically important for snowpack storage. Both daytime and nighttime temperatures have been well-above average in the Sierra for several consecutive winters (in some cases, elevations as high as 10,000 feet have been experiencing mean temperatures above freezing in mid-winter!), and has caused precipitation in this typically snowy region to fall primarily as rain. 2014 has officially gone down in the record books as California's warmest year in recorded history (by a very wide margin), and one of the most visible manifestations of that record warmth is apparent in California's extremely low snowpack.*

**Original post (Dec. 15, 2104):** It's raining again, and if you believe weather forecasters and the computer models on which they rely, [we're in for wet weather](#) for most of this week.

That comes on top of an outlandish volume of water that [fell across the state](#) last week, variously computed as between [17 million and 100 million gallons per square mile](#) to [10 trillion gallons statewide](#).

That's great news in our parched state, for sure. By now you know, though, that there always has to be a "but," or in this case, several.

*That's great news, but remember how it quit raining after a beautiful wet December two years ago?*

*That's great news, but the Sierra snowpack is still unseasonably thin.*

*That's great news, but the state's reservoirs are still way below normal.*

And the biggest "but" of all: *That's great news, but when will we know for sure the drought's over?*

That final question is tough to answer, and the truth is that unless something surprising (though not unprecedented) happens, we'll be able to say whether the drought is really over only months and months from now. So I'm going to exercise my privilege as executive blogger and stick to what we can say objectively now, based on the mountain of daily statistics from the state Department of Water Resources.

As to the snow, the DWR California Data Exchange Center publishes [a daily summary](#) of water content for the Sierra Nevada snowpack. It's an important number because the state relies heavily on runoff from the Sierra snows to help fill reservoirs. (How much water is stored in the snowpack? About 15 million acre-feet in an "average" year, according to past DWR calculations. An acre-foot is about 326,000 gallons, and one rule of thumb says that's about enough to supply two average California households for a year.)

So the snowpack so far this year? As of Monday, it's 41 percent of normal for the date. That's not great. If you're looking for a silver lining to that meager-sounding number, here it is: We're still early in the season, and historically most of the snowpack is built during January and February. So there's still lots of time to catch up.

You can say the same about reservoir levels. Right now, storage at the big artificial lakes the state uses to manage its water supply is running far behind normal. A [daily state report](#) on conditions at major reservoirs says they're at about 55 percent of the average for mid-December.

The picture is about the same when you drill down to Shasta Lake and Lake Oroville, the state's two biggest reservoirs. Shasta, a federal facility, and Oroville, the main storehouse for the State Water Project, have a combined capacity of 8 million acre-feet and are used to direct water to farms throughout the Central Valley and to cities from the Bay Area all the way down to San Diego.

As of Monday, [Lake Oroville](#) was at 53 percent of average for this time of year and [Shasta](#) was at 52 percent. Both lakes are less than one-third of capacity.

So it's good news that water has been pounding into those big reservoirs, which together have added more than 500,000 acre-feet since Dec. 3, with each rising about 30 feet. Still, Shasta Lake is just a few feet higher today than it was in late August, when the picture above was taken. And that's proof enough that — the beauty, relief and occasional havoc the recent rains have brought notwithstanding — our long dry spell isn't quite behind us.

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