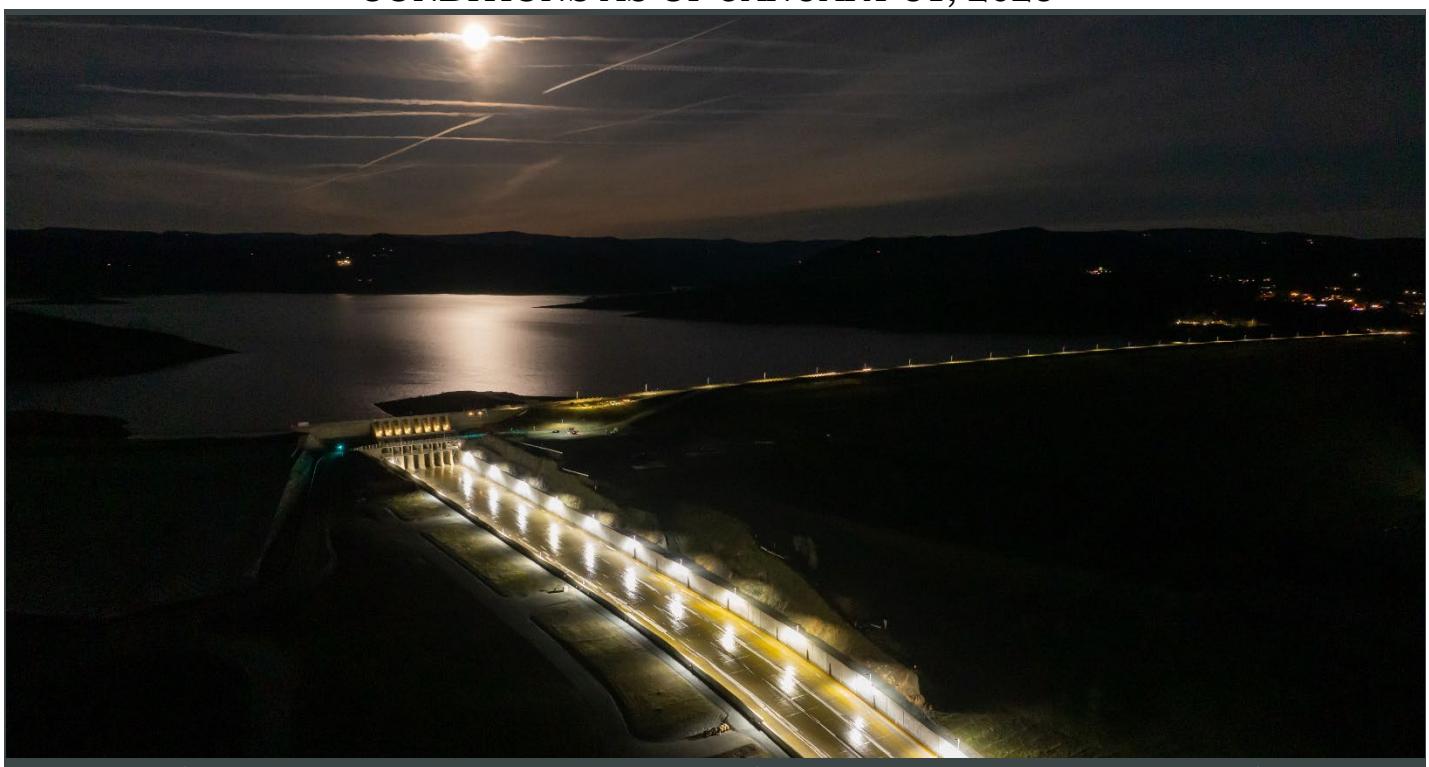
CALIFORNIA HYDROLOGY UPDATE

CONDITIONS AS OF JANUARY 31, 2025



The California Hydrology Update is a regular summary of current weather conditions in the State of California and serves as a supplement to the data on the California Water Watch website. It is produced by the California Department of Water Resources Hydrology Section and Sustainable Groundwater Management Office teams. For tips and resources on how to make water conservation a way of life, please visit saveourwater.com.

PRECIPITATION

At the end of January, the state's average for accumulated water year precipitation fell below average. January is an essential month for California to receive precipitation, but for the majority of the month, the state saw no significant precipitation accumulation. As a result statewide precipitation totals fell below average. The statewide accumulated precipitation through the end of January 2025 was 10.3 inches, which is 84% of average. During most of January, California received no precipitation and set new lows for the driest January on record for several locations. The few storms systems that passed through California were mainly from low pressure making a presence in the region and the main accumulation of precipitation occurred generally during the periods of January 1-6, 25-27, and 30-31 (shown in Figure 1).

January 2025 started with a moisture plume near Northern California, which resulted in moderate precipitation for the North Coast (up to 2 inches) and trace amounts of precipitation along the Sierra

Nevada during January 1-2. Another low-pressure system and cold front traveled into California starting January 3, which resulted in up to 3.0 inches near Smith River and near Lake Shasta, 0.5 to 2.0 inches for the North Coast and Sierra Nevada, up to 1.5 inches for the Central Valley, and up to an inch for the greater Bay Area. During January 4-6, trace amounts of precipitation (up to an inch) from scattered showers were observed in the North Coast and along the border with Oregon. Starting January 8, a ridge of high pressure dominated over the region, which resulted in dry conditions across California. California did not receive precipitation from around January 8-24, which was largely due to high pressure remaining off the west coast. The severe lack of precipitation for the water year in Southern California, with most areas not receiving any rain this water year, was a large contributing factor to the devastating Palisades and Eaton fires. The fires began on January 7, right when California was embarking on an abnormally dry period and was sustained by Santa Ana winds with gusts up to 90 miles per hour. The Palisades Fire burned 23,448 acres and is considered the third most destructive wildfire on record for California (and most destructive for Los Angeles). The Eaton Fire burned 14,000 acres and is considered the second most destructive in California. By the end of January, both fires were 95% contained, there were 29 fatalities, and over 18,000 structures were damaged or destroyed.

During January 25-27, a slow moving cold low-pressure system was able to travel into California, which resulted in light precipitation along the Sierra Nevada, and Central and Southern California. This also resulted in below average temperatures and lower freezing elevations (about 3,500 to 6,000 feet) late in the evening on January 25 overnight into January 26.

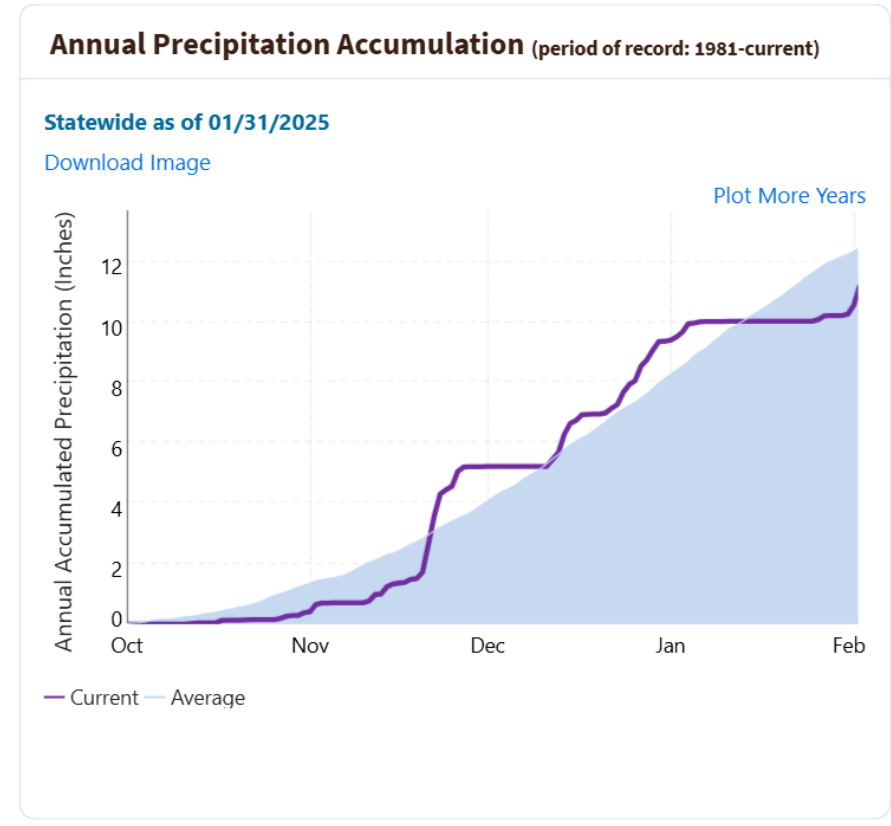


Figure 1. Statewide average accumulated precipitation from October 1, 2024 to January 31, 2025 (purple line) and historical average (shaded blue).

At the end of January, a low-pressure system near the Pacific Northwest and a tropical moisture plume making its way into California marked the beginning of a series of storms and atmospheric rivers impacting California into early February. Starting January 30, trace amounts of precipitation for the North Coast (up to 0.5 inch) were observed, which spread to further south into Central California the following day.

Precipitation totals for January 31 included up to 4.0 inches for the North Coast, up to 1.5 inches for the North Bay area, up to 2.0 inches for around Lake Shasta and the Sierra Nevada.

As shown in Figure 2, for the water year to date through the end of January 2025, Northern California received above average accumulated precipitation, Central California received below average accumulated precipitation, and Southern California received well below average accumulated precipitation with many areas receiving no precipitation. The North Coast has accumulated about 34.6 inches of precipitation for the water year through end of January, which is 117% of average. The Sacramento River region has accumulated about 19.3 inches of precipitation for the water year through end of January, which is 102% of average. The San Joaquin River region has accumulated about 7.6 inches of precipitation for the water year through the end of January, which is 55% of average. The Central Coast has accumulated about 4 inches of precipitation for the water year through the end of January, which is 38% of average. The Tulare Lake region has accumulated about 3.9 inches of precipitation for the water year through the end of January, which is 51% of average with the majority of this precipitation accumulating in November.

The Climate Prediction Center (CPC) monthly outlook issued on January 31, 2025, indicates 50-70% chance of above normal precipitation for Northern California, up to 50% chance of above normal precipitation for Central California, and equal chances of below, near, or above normal precipitation for Southern California during the month of February 2025. The CPC seasonal outlook covering the period of February 2025 through end of April 2025 indicates up to 40% chance of above normal precipitation for Northern California and equal chances of below, near, or above normal precipitation for Central California, and up to 50% chance of below normal precipitation for Southern California.

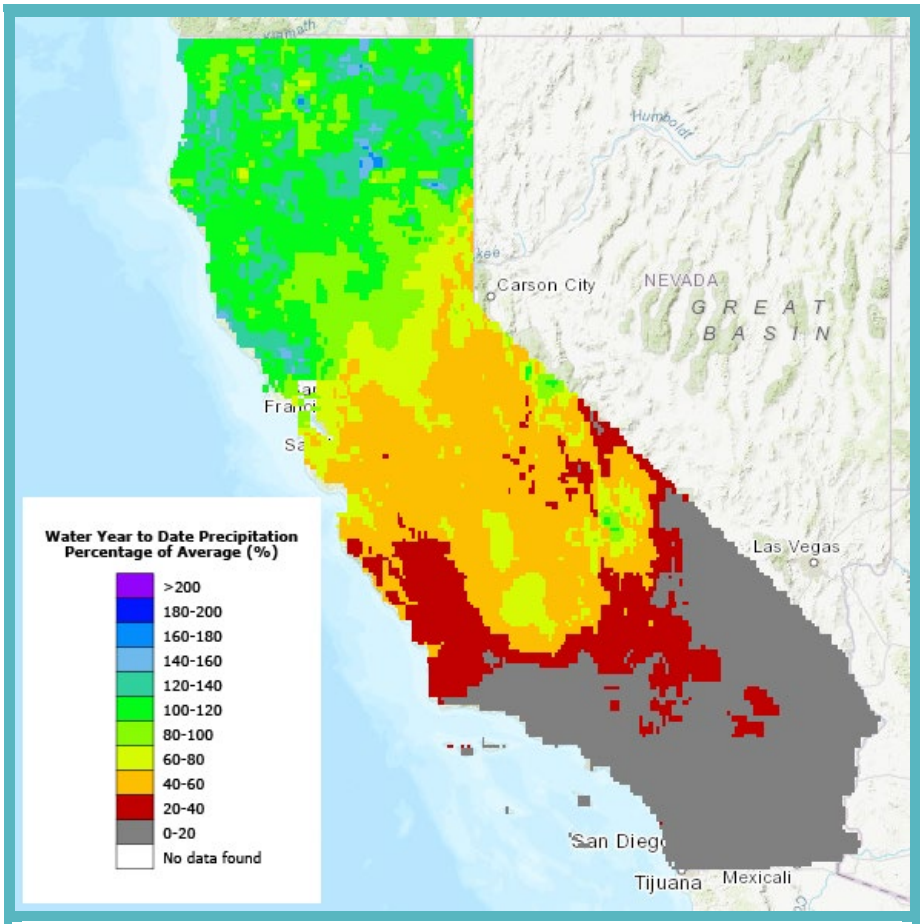


Figure 2. Percent of average for the accumulated precipitation from October 1, 2024 to January 31, 2025.

Sources: Statewide Hydroclimate and Water Supply Conditions, Forecast Information, Center for Western Weather Water Extremes (CW3E) Event Summaries, California Nevada River Forecast Center (CNRFC) Data Archive, Western Regional Climate Center (WRCC) Monthly Updates

TEMPERATURE

The statewide average temperature for the end of January was about 43.2°F, which is about 1.8 degrees below the historical average for this time of year. The statewide average temperature was above average during January 1-12, near average around January 13-25, and below average during January 26-31. The two graphs in Figure 3 show the statewide mean temperatures for the water year through January 31 (on the left) and the month of January 2025 (on the right).

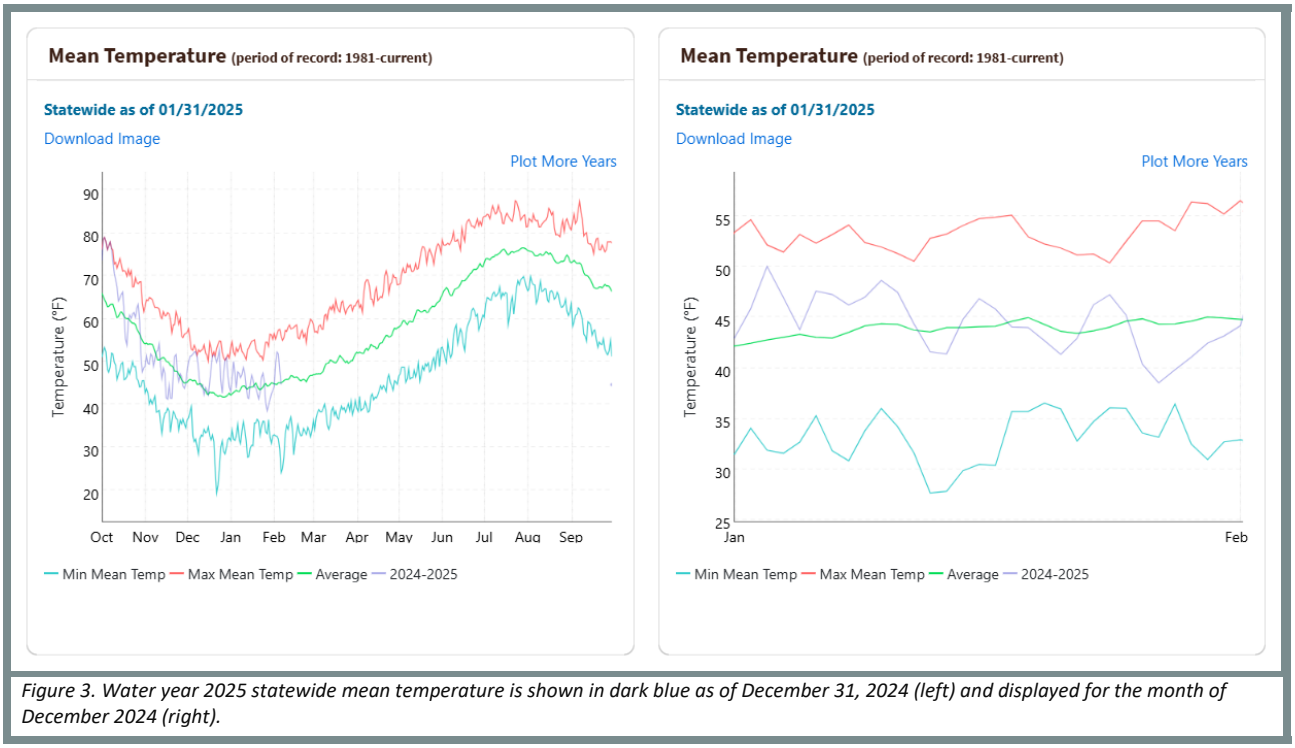


Figure 3. Water year 2025 statewide mean temperature is shown in dark blue as of December 31, 2024 (left) and displayed for the month of December 2024 (right).

According to CPC, La Niña conditions continued during the past month and expected with 59% chance to remain into the February-April 2025 period. CPC predicts with a 60% chance of El Niño Southern Oscillation (ENSO) neutral conditions during March-May 2025. The CPC temperature outlook issued on January 31, 2025 indicates below normal temperatures with 33-40% chance for Northern California, and equal chances of below, near, or above normal temperatures for the rest of the state during the month of February 2025. The CPC seasonal outlook covering the period of February 2025 through end of April 2025 indicates 33-40% chance of below normal temperatures along the border with Oregon, 33-40% chance of above normal temperatures along the border with Arizona, and equal chances of below, near, or above normal temperatures for the rest of the state.

Sources: Statewide Hydroclimate and Water Supply Conditions, CPC 30-Day Forecasts

RESERVOIRS

Statewide reservoir storage at the end of January was 115% of average. As shown in Figure 4, most reservoirs have near or above average storage for this time of year.

In general, with the dry conditions from January, outflow from reservoirs were minimal to optimize storage or to make necessary releases to maintain top of conservation levels. Near the end of January (mostly into early February) select reservoirs started to increase releases in anticipation of the series of storms and atmospheric rivers.

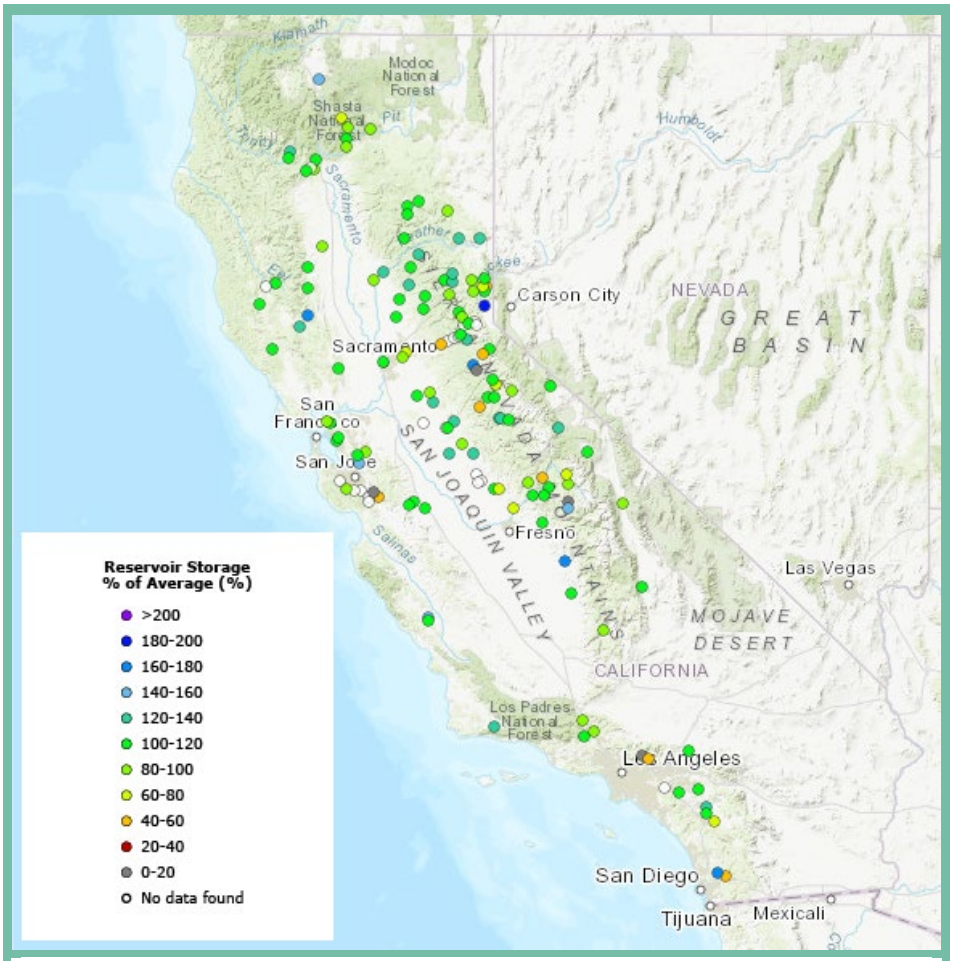


Figure 4. Reservoir storage percent of average for January 31, 2025.

At the end of January, most flood control reservoirs were near their respective top of conservation levels, with a few were slightly encroached. The major flood control reservoirs that were slightly encroached at the end of January include: Black Butte Lake, Terminus Reservoir, Success Lake, Lake Mendocino, and Lake Sonoma.

The few major flood control reservoirs notably below their respective top of conservation storage at the end of January include: Lake Oroville (by about 370 TAF), Folsom Lake (by about 177 TAF), New Don Pedro Reservoir (by about 291 TAF), Eastman Lake (by about 42 TAF), Millerton Lake (by about 187 TAF), and Pine Flat Reservoir (by about 257 TAF).

Sources: California Water Watch, California Data Exchange Center Reservoirs Flood Control, CNRFC Observed Date of Peak Flow

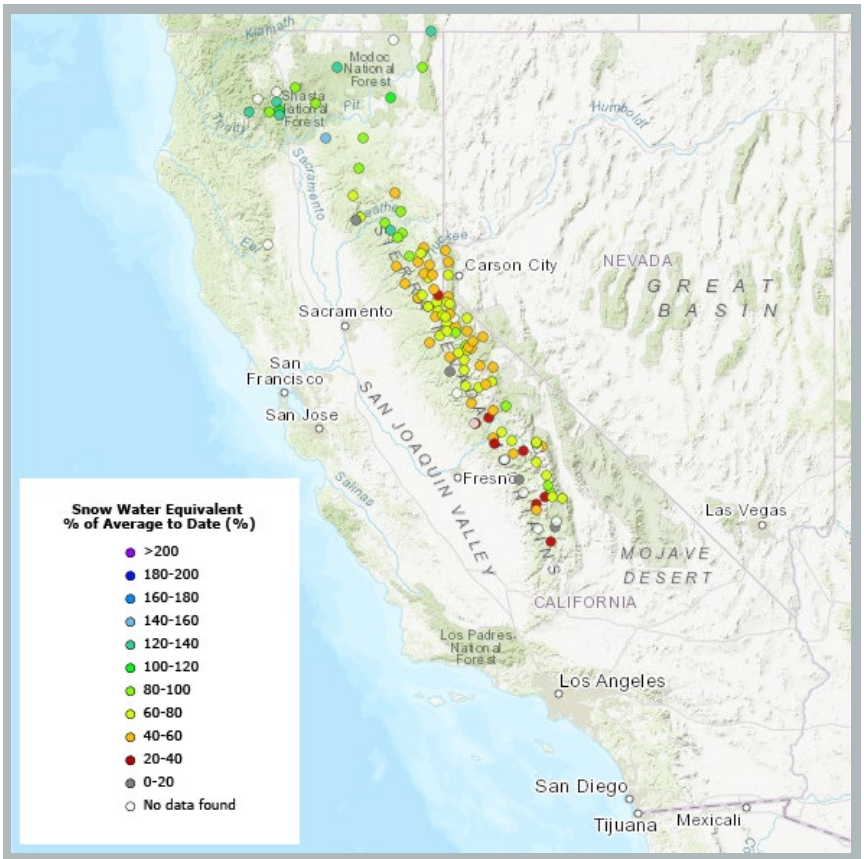


Figure 5. Snow sensor data shown for snow water equivalent (SWE) percent of average for the water year through January 31, 2025.

SNOWPACK

The statewide average snow water equivalent (SWE) was 10.5 inches for January 31, which is 65% percent of normal and 40% of April 1 average. The few storm systems that traveled across California during January resulted in minimal snow accumulation, and the long stretches of clear skies with greater sun exposure resulted in possible minor losses at lower elevations when considering the average SWE for Northern Sierra and Southern Cascades regions together. At the end of January there still was a gradual trend with greater average SWE in the Northern Siera and lower average SWE moving south into the Southern Sierra. As shown in Figure 5, snow sensor readings for SWE percent of average for January 31, 2025 was below average for the Northern Sierra and Southern Cascades (89% of average), the Central Sierra (59% of average), and the Southern Sierra (47% of average). Figure 6 shows regional SWE conditions at the beginning of January 2025 (left) and end of January 2025 (right) to further show the slight increase in percent of April 1 average for the Central and Southern Sierra Nevada during the month of January. This increase only occurred with the late January precipitation.

In general, for the Sierra Nevada, snowpack accumulation begins early December, grows until a peak volume around April 1, and thereafter begins to melt with longer days and longer exposure to solar radiation. Several factors involving the timing, pace, and scale of storms and their temperature characteristics through the end of March can influence the total amount of snowpack and when it will begin to melt.

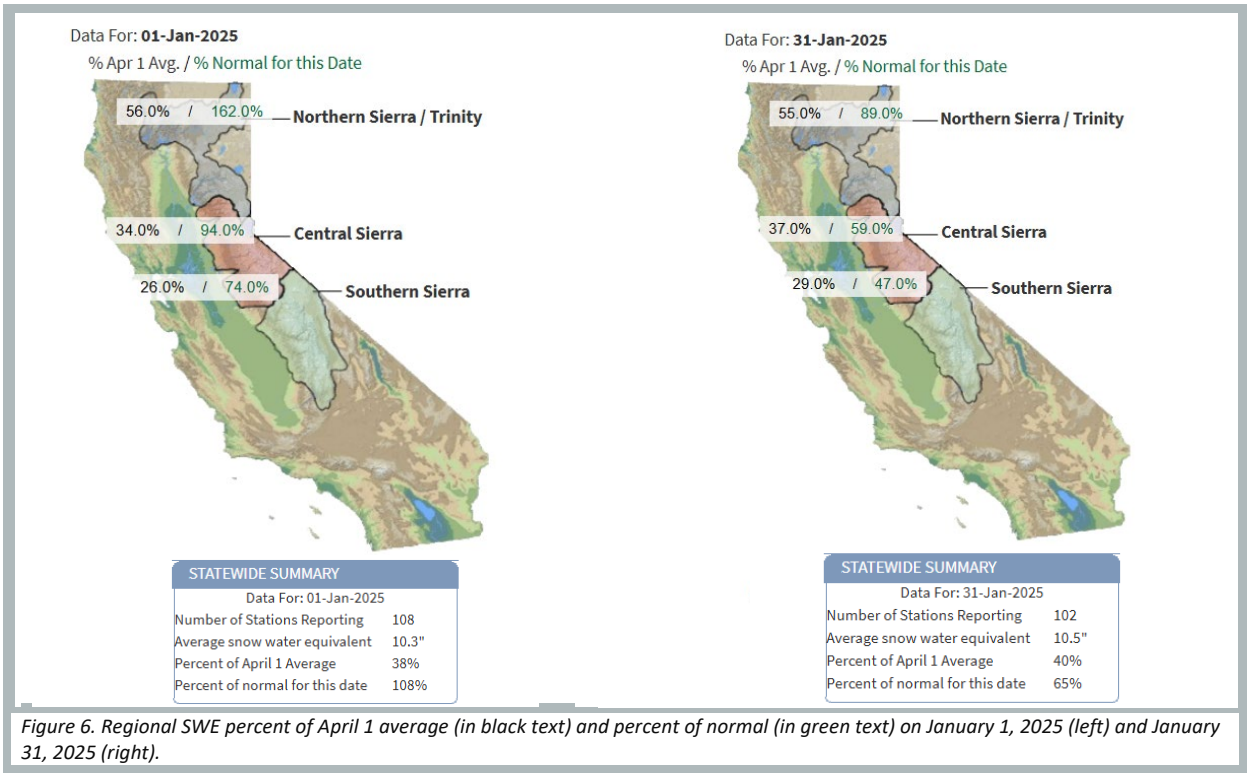


Figure 6. Regional SWE percent of April 1 average (in black text) and percent of normal (in green text) on January 1, 2025 (left) and January 31, 2025 (right).

Sources: California Water Watch, CDEC Snow Water Equivalent Plot

STREAMFLOW

Streamflow for about 58% of locations across California was at a normal flow rate at the end of January according to United States Geologic Survey (USGS) stream gage locations. About 8% of streamflow locations were flowing greater than average for this time of year, while about 34% of streamflow locations were flowing below normal for this time of the year. Rises in flow were mainly for major rivers in Northern California, including along the Sacramento River. During January, the majority of California-Nevada River Forecast Center (CNRFC) forecast locations remained below action/monitor stage with a few exceeding this stage (but not minor flood stage). The higher flow along the Sacramento River at the end of December and additional rain at the beginning of January, resulted in weir flow at Colusa Weir (during January 1 and 4-6) and Tisdale Weir (from January 1-14). Colusa Weir allows overflow to go into the Butte Basin and Tisdale Weir (through the Tisdale Bypass) allows overflow to go into the Sutter Bypass.

Sources: USGS Water Watch, California Nevada River Forecast Center (CNRFC), CDEC Daily Full Natural Flows

GROUNDWATER

Although rainfall increased in 2023 and precipitation was average in 2024, California continues to face a cumulative precipitation deficit from 2000 to 2024. While recent wet years have helped stabilize groundwater levels, California's future will likely see continued fluctuations between wet and dry periods. Recently measured monitoring wells show groundwater levels in 26% of monitoring wells across California are below normal, 36% are normal, and 38% are above normal. These statistics are based on 259 wells where groundwater levels have been collected for at least 10 years and the most recent measurements were collected within the last 60 days. There were two dry domestic wells reported in the last 30 days. Data reported is as of February 12, 2025. Visit DWR's California's Groundwater Live for the latest groundwater conditions across the state.

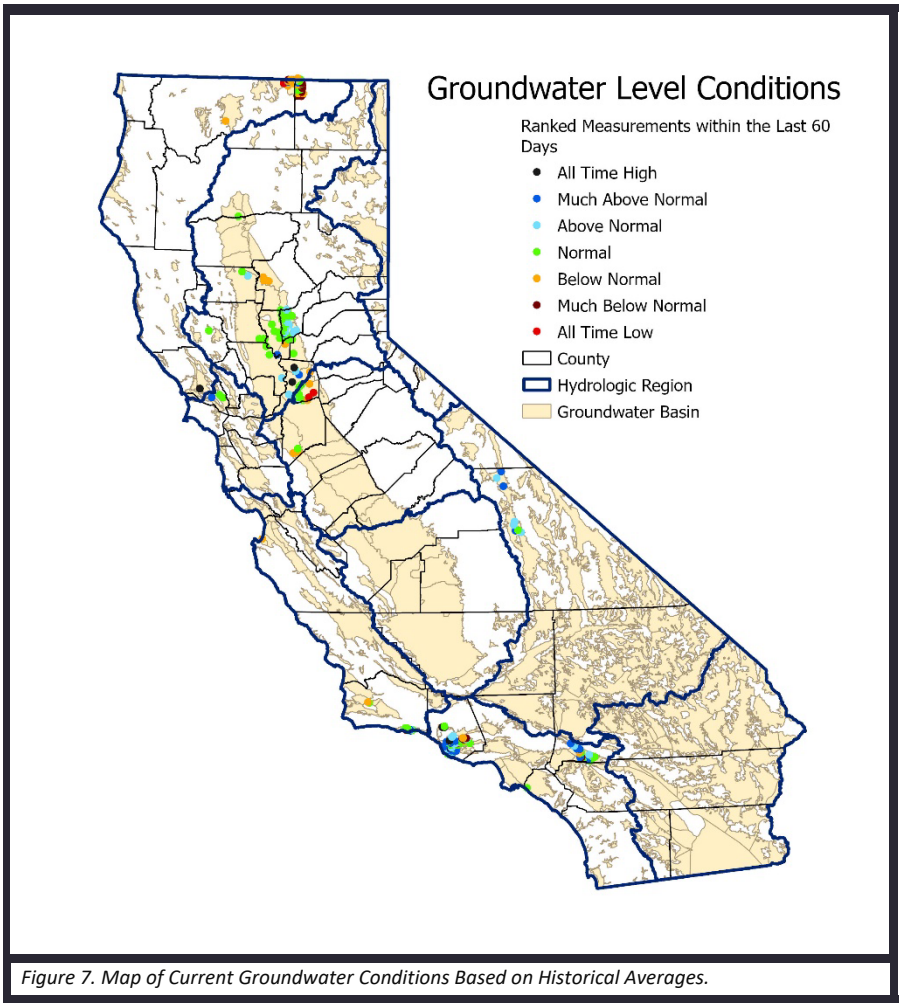


Figure 7. Map of Current Groundwater Conditions Based on Historical Averages.

Source: DWR California's Groundwater Live

Cover page photo: A drone view of the Oroville Dam main spillway at night at Lake Oroville in Butte County, California. On this date, the water storage was 2,497,180 acre-feet (AF), 73 percent of the total capacity. Photo taken January 13, 2025.