

# Nevada Drought Update - FEBRUARY 2022

Drafted February 6 & 8, 2022

Prepared by S. McAfee, State Climatologist

**After a wet—in some places very wet—December, January was dry, increasing the odds that drought will persist into spring. But winter is not over, so it's not time to panic.**

## Current drought conditions in Nevada and across the West

Because of heavy rain and snow in December, drought conditions improved, especially in northwestern Nevada.

The state is still entirely in drought, but the situation is not as dire as in the summer. As of late January, 33.2% of the state was in D1-Moderate Drought, and another 45% was in D2-Severe Drought (Fig. 1-2, Table 1). An area of persistent D3-Extreme Drought and D4-Exceptional Drought remains, primarily in Nye, White Pine and Lincoln Counties.

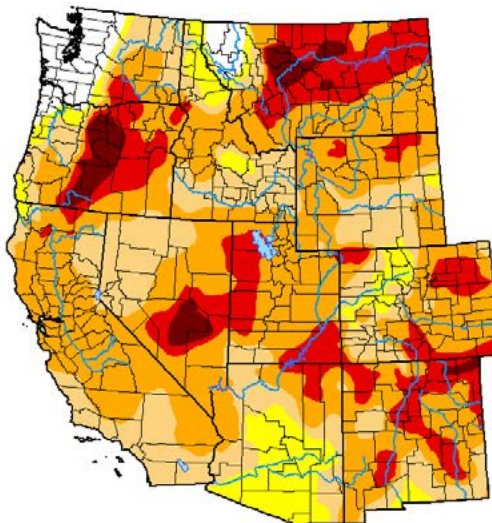
Despite improvements in Nevada, California, Utah and Idaho (Fig. 2), just about 90% of the western US remains in drought. Western Washington and northwestern Montana are drought-free. Much of southern Arizona is abnormally dry (D0) but not technically in drought.

Date	9/28	12/28	1/25
None	0	0	0
Abnormally Dry-D0	0	0	0
Moderate Drought-D1	4.8	10.7	33.2
Severe Drought-D2	27.6	61.1	45.0
Extreme Drought-D3	42.6	20.6	14.3
Exceptional Drought-D4	25.0	7.5	7.5

Table 1. Percent of Nevada in each drought class from the [US Drought Monitor](https://droughtmonitor.unl.edu/).

### U.S. Drought Monitor Western U.S.

January 25, 2022  
(Released Thursday, Jan. 27, 2022)  
Valid 7 a.m. EST



	Drought Conditions (Percent Area)					
	None	D0	D1	D2	D3	D4
Current	3.82	8.11	23.83	44.42	16.67	3.16
Last Week 01-18-2022	3.82	8.15	23.89	45.24	16.00	2.91
3 Months Ago 10-26-2021	2.16	7.11	16.12	27.50	31.80	15.31
Start of Calendar Year 01-04-2022	3.68	7.03	24.39	41.05	19.91	3.94
Start of Water Year 09-28-2021	2.21	8.19	14.22	22.92	34.05	18.40
One Year Ago 01-26-2021	8.98	11.46	13.12	19.29	25.61	21.54

**Intensity:**  
 None (White)      D2 Severe Drought (Orange)  
 D0 Abnormally Dry (Yellow)      D3 Extreme Drought (Red)  
 D1 Moderate Drought (Light Orange)      D4 Exceptional Drought (Dark Red)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

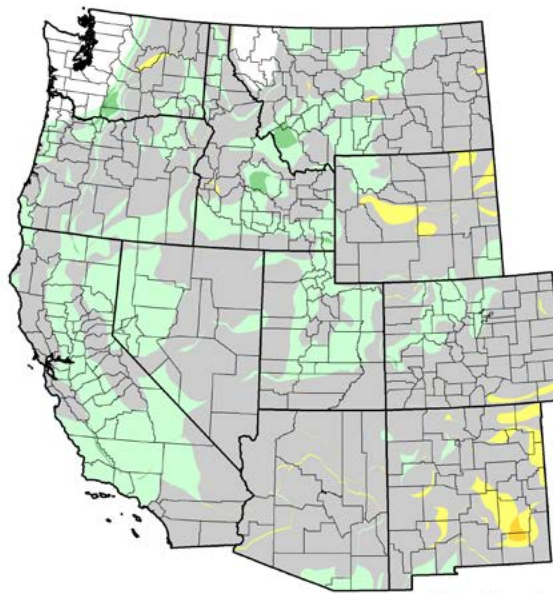
**Author:**  
Brad Rippey  
U.S. Department of Agriculture



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Fig. 1. Drought Monitor map for the western US, released on January 27, 2022, reflecting conditions as of January 25

### U.S. Drought Monitor Class Change - Western U.S. 4 Week



January 25, 2022  
compared to  
December 28, 2021

[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



Fig. 2. Drought Monitor change map showing places where drought conditions improved (green) or worsened (yellow to brown) between early and late January 2021.

# January Temperature, Precipitation & Snowpack

I guess the atmosphere was doing dry January? Large parts of western Nevada received less almost no precipitation in January, which is normally a wet month. Weather stations across reported no or only trace amounts of precipitation in January. Only northeastern Elko County received more than the usual January precipitation (Fig. 3).

Temperatures were near to slightly above normal for January across most of the state (Fig. 4). Owing to the clear, dry weather -- and in many places, snow on the ground -- many locations experienced at least some warmer days followed by cold nights.

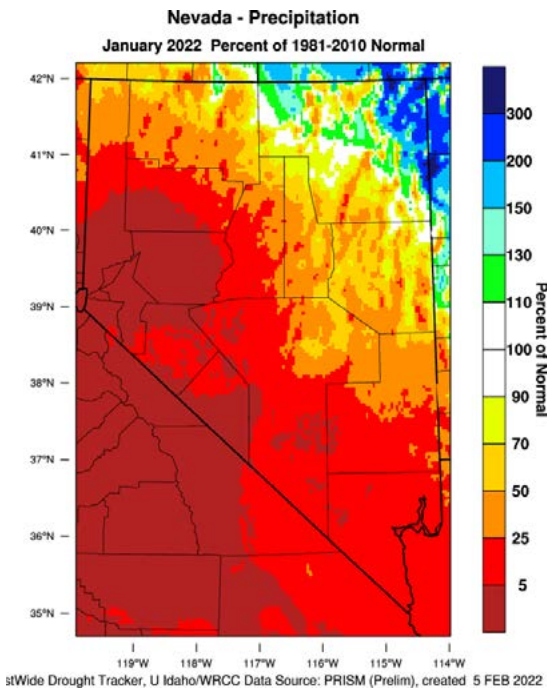


Fig. 3. Percent of average (1981-2010) January precipitation in January 2022. PRISM from WestWide Drought Tracker.

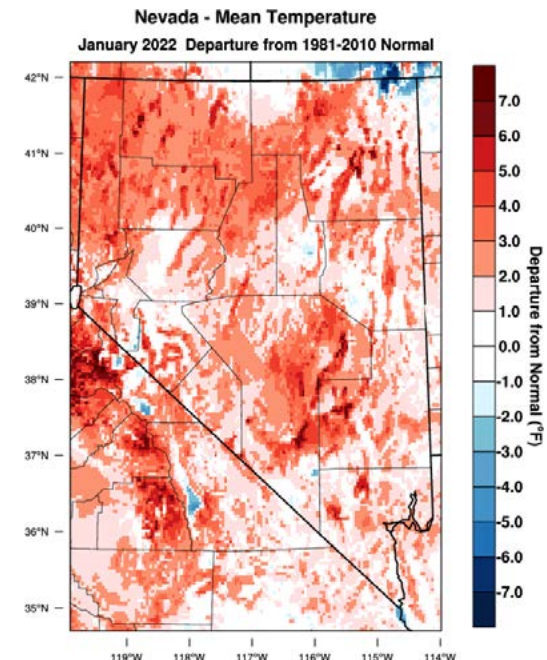


Fig. 4. Difference from average (1981-2010) January temperature (°F) in January 2022. PRISM from WestWide Drought Tracker.

A lot of the low-elevation snow is long gone. In the higher, colder and snowier locations where we measure snowpack, though, there is almost as much snow on the ground as there was at the end of December -- in many basins. Figure 5 shows an example from the eastern Sierra Nevada. Normally, the snowpack would increase during January. Obviously, that did not happen this year because January was so dry.

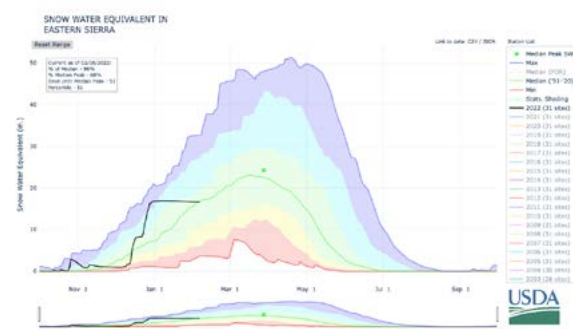


Fig. 5. Snowpack in the eastern Sierra Nevada. The black line shows the current water year. The green line is the median. Shading shows the past ranges of snowpack. Figure from the Natural Resources Conservation Service.

As a result, the snowpack is no longer well over normal. It is just about normal in the Sierra Nevada and the Upper Colorado Basin and a bit below normal in central and eastern Nevada (Fig. 6).

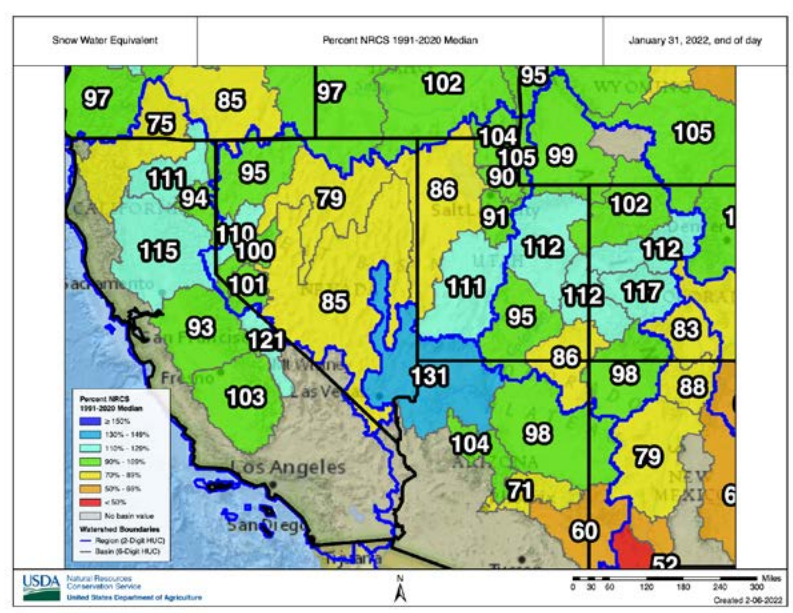


Fig. 6. SNOTEL-based estimates of snowpack across the West at the end January. Snowpack is shown as percent of the 1991 - 2020 median snow water equivalent (SWE -- the amount of liquid water stored in the snow). Map from the Natural Resources Conservation Service.



## Water Resources

Reservoirs are managed, so their levels are influenced by the amount of water available and by management decisions. As of late January, some of Nevada's reservoirs (Fig. 7) were fuller than they usually are in the winter -- like Boca, Wild Horse Reservoir and Topaz Lake. Some have less water than would be expected, notably Lake Mead, Lake Tahoe, Stampede, Lahontan and Rye Patch Reservoir.

Across the state, most streams have near or below-normal flow (Fig. 8). A few gages in the Truckee/Carson/Walker area are at or near the lowest flows recorded for January. As with reservoirs, this may be reflecting management decisions, as well as the recent lack of precipitation. A few stream gages in southern Nevada reported somewhat higher than normal flows

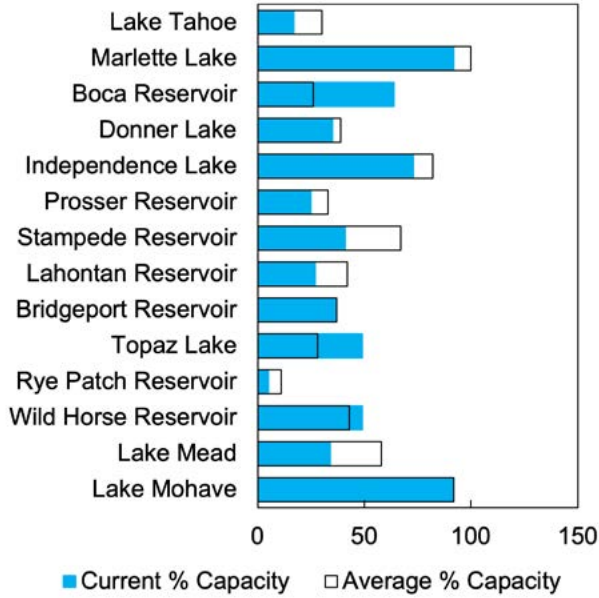
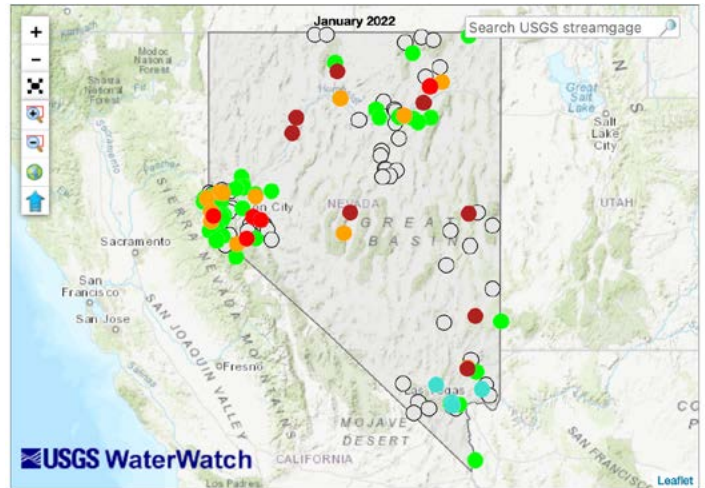


Fig. 7. Current and average percent capacity in Nevada's reservoirs at the end of January 2022. Data from the [Natural Resources Conservation Service](https://www.nrcs.usda.gov/ia/water/).



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Fig. 8. January average stream flow relative to usual January conditions. From [USGS Water Watch](https://waterwatch.usgs.gov/). You can find more information on the [percentile classes from the USGS](https://waterwatch.usgs.gov/percentile-classes/).

It's of no surprise that Lake Mead is low. After years of drought and high temperatures, flow in the Colorado River has been low. In the summer of 2021, the first drought shortage was declared. Lake Mead's elevation is still below the 1,075' shortage level (Fig. 9). During the spring and summer, water levels are expected to drop further. Even the maximum probable inflow is not expected to bring Lake Mead's level above 1,075' within the next two years.

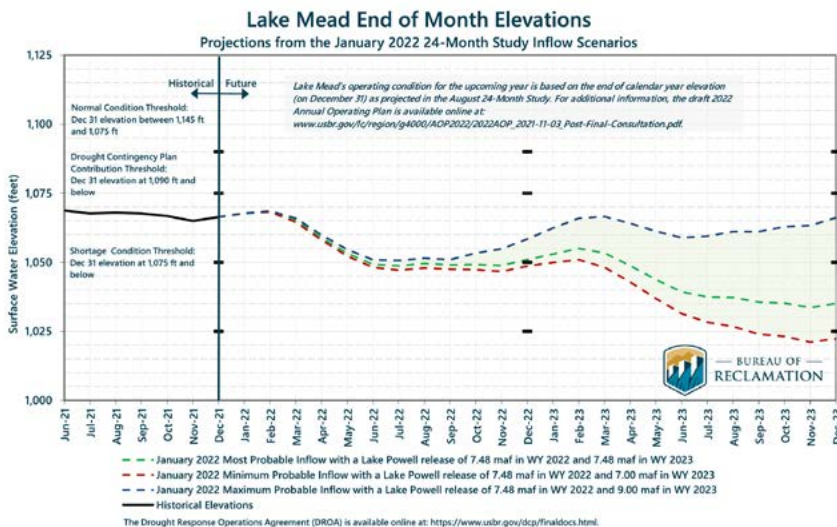


Fig. 9. Lake Mead end-of-month elevations and results from the 24-Month Study. Figure from the [Bureau of Reclamation](https://www.bureauofreclamation.gov/). The Bureau of Reclamation also provides more information about [Drought Contingency Plans](https://www.bureauofreclamation.gov/drought-contingency-plans/) for the Colorado Basin.

## Soils

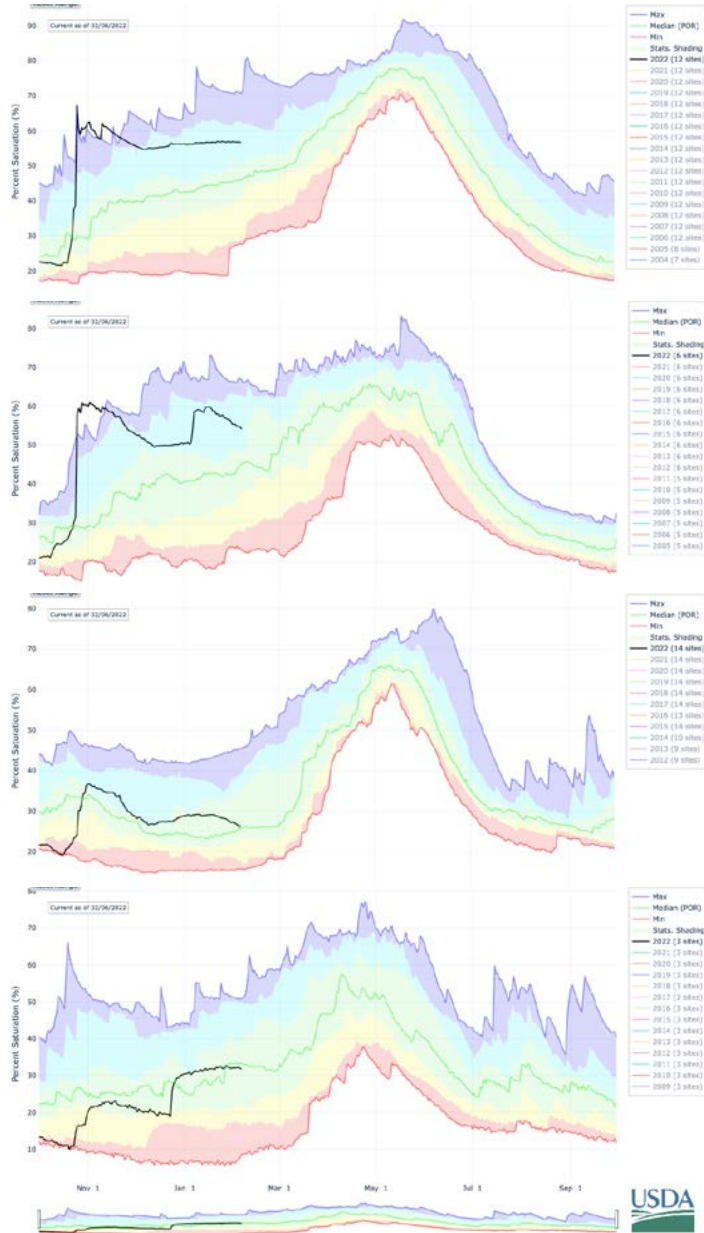


Fig. 10. Soil moisture in (from top to bottom) the Carson Basin, the northern Great Basin, eastern Nevada, and the Spring Mountains. Soil moisture is shown as percent saturation. Shading shows the range of values. The green line shows the median value across all years. Figures from the [Natural Resources Conservation Service](#).

In northern Nevada, soil moisture at SNOTEL stations is above normal, but soils are not as wet as they were in the fall (Fig. 10). Further east and south, soil moisture is just about normal for the time of year. Winter soil moisture changes can be complicated -- whether precipitation comes as rain or snow, whether existing snow is melting, and whether the soil is frozen all play a role. Regardless, soil moisture is better shape than last year when many basins had record low soil moisture.

## Outlooks

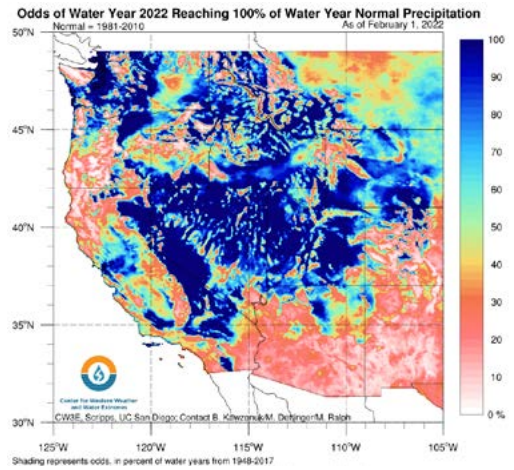


Fig. 11. Odds of getting normal water year (October-September) precipitation given precipitation that's already fallen and how much might fall during the rest of the water year. Image from the [Center for Western Weather and Water Extremes](#).

Because October and December were so wet in much of northern Nevada, it's pretty likely that those areas will end up getting a normal amount of precipitation this water year. Just four months into the water year, Elko has gotten almost half of a normal water year's rain and snow. The Reno Airport has already received over 80% of the average water year total precipitation. Southern Nevada, which was not so lucky with October and December weather is more likely to have another dry year.

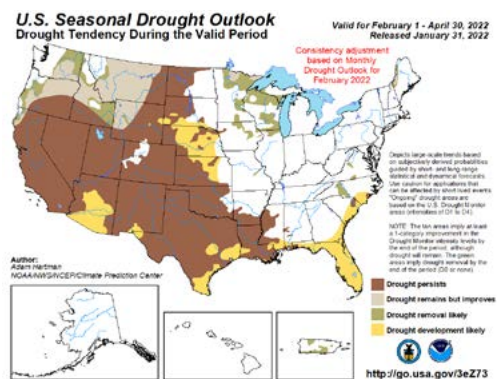


Fig. 12. February - April drought outlook from the [Climate Prediction Center](#).

The Climate Prediction Center expects drought to continue into the spring. In southern Nevada, winter precipitation has been disappointing. In northern Nevada, which is on track for at least a normal water year, one normal year probably won't be enough to make up for two hot dry years in a row.