

Nevada Drought Update - JUNE 2022

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Cool but dry weather in May allowed drought to deepen in southern Nevada, while conditions remained the same in the north.

Current drought conditions in Nevada and across the West

As of late May, almost all of southern Nevada was in Extreme (D3) or Exceptional (D4) drought (Fig. 1). Northern Nevada remained mostly in Severe (D2) drought. Drought was more significant in far northeastern and northwestern Nevada, where conditions are consistent with Extreme (D3) drought. In the last week, conditions improved to Moderate (D1) drought over a small part of northwestern Humboldt county (Fig. 1 & 2).

Nevada is in both better and worse shape than at this time last year (Table 1). There is about half as much Exceptional (D4) drought as there was on June 1, 2021. There is also less Moderate (D1) drought.

Spring storms in the Pacific Northwest improved conditions significantly there. Warm and very dry conditions over the Southwest led to drought deepening and expansion (Fig. 1 & 2).

Date	Jun 2021	3/1	4/26	5/31
None	0.0	0.0	0.0	0.0
Abornmally Dry-D0	0.0	0.0	0.0	0.0
Moderate Drought-D1	5.8	0.0	0.0	0.5
Severe Drought-D2	18.2	64.4	49.3	44.2
Extreme Drought-D3	35.4	28.1	42.5	34.0
Exceptional Drought-D4	40.6	7.5	8.3	21.3

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

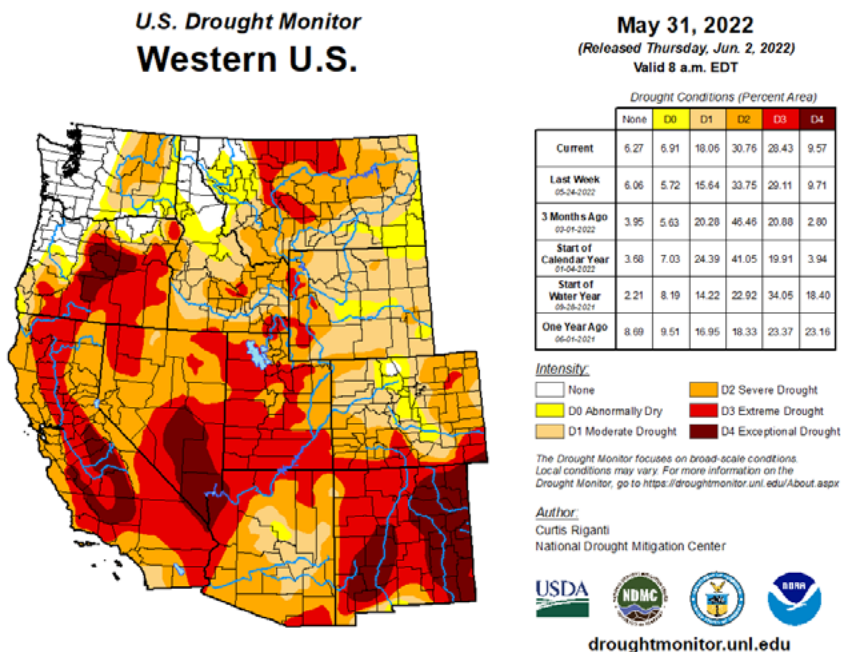


Fig. 1. Drought Monitor map for the western US, released on June, 2022, reflecting conditions as of May 31.

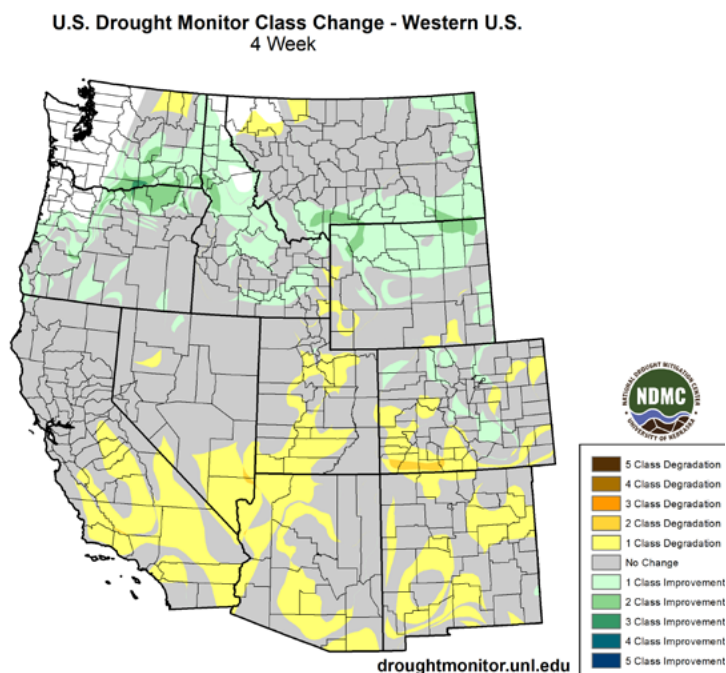


Fig. 2. Drought Monitor change map showing places where drought conditions improved (green) or worsened (yellow to brown) between early and late May 2022.

May Temperature, Precipitation & Snowpack

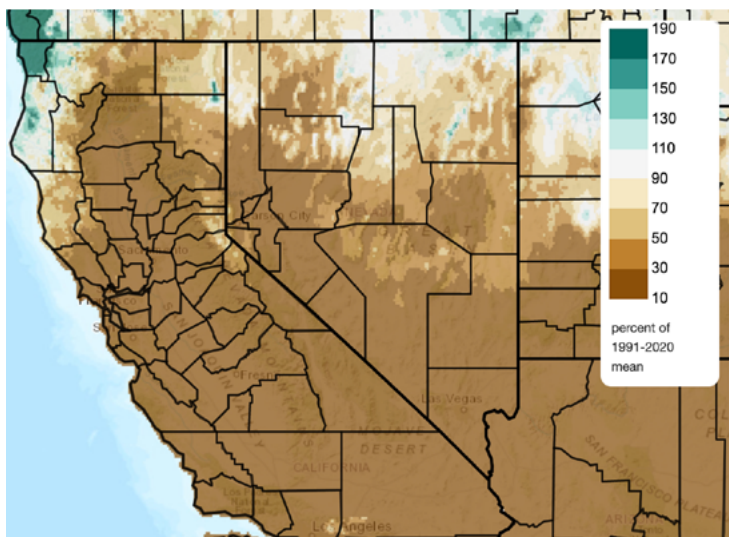


Fig. 3. Percent of average (1991-2020) May precipitation in 2022. gridMET from [Climate Toolbox](#).

There was some rain and even snow in May this year (Fig. 3). Parts of Elko and Humboldt got more than the usual precipitation. The rest of the state, and most of the Sierra were drier than normal. In fact, many areas received no or nearly no precipitation.

Despite dry—in many places very dry—conditions, temperatures were cooler than normal (Fig. 4). The relatively low temperatures kept evaporative demand in check. They may also have helped preserve some of the higher elevation snowpack (though they did a number on my garden).

By late May the snowpack is usually melted out almost entirely in southern Nevada. In northern Nevada and the Sierra Nevada, snowpack is typically pretty scanty at lower elevations by this time of the year, too.

At the broad scale, California has about half its usual snowpack, while the Great Basin is at about 80% of normal, and the Upper Colorado at nearly 90% of normal (Fig. 5, left). At finer scales (Fig. 5, right), it's clear that some basins are melted out entirely, while others are near or even a little snowier than they normally would be around Memorial Day weekend.

Note that because there's often so little snow at this time of year, these numbers can change a lot from day to day.

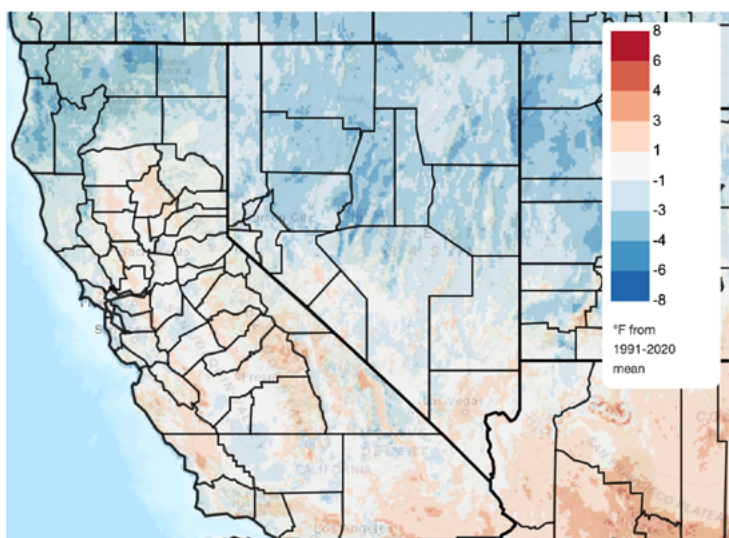


Fig. 4. Difference from average (1991-2020) May temperature (°F). gridMET from [Climate Toolbox](#).

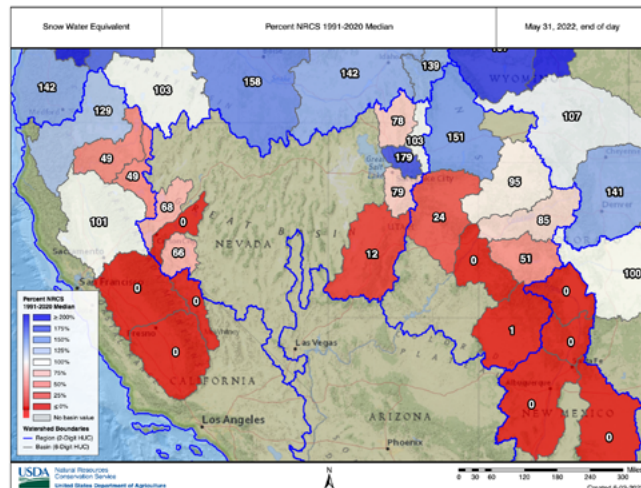
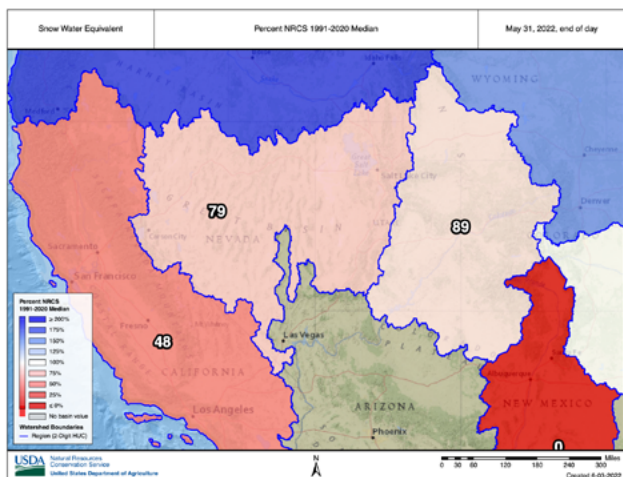


Fig. 5. SNOTEL-based estimates of snowpack at the end of May. Snowpack is shown as percent of the 1991 - 2020 median snow water equivalent (SWE -- the amount of liquid water stored in the snow). Data are shown at the HUC2 (left) and HUC6 (right) scales. Map from the [Natural Resources Conservation Service](#).

Water Resources

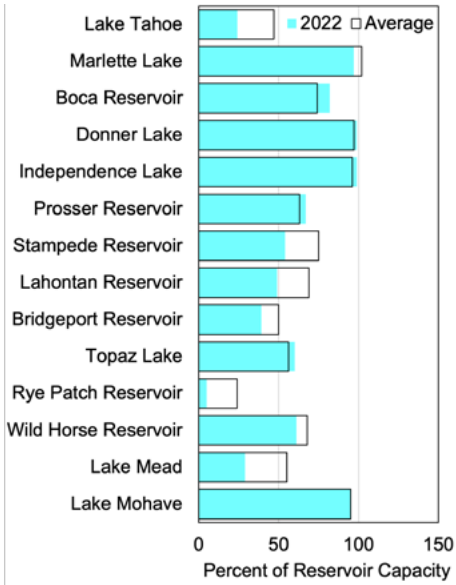
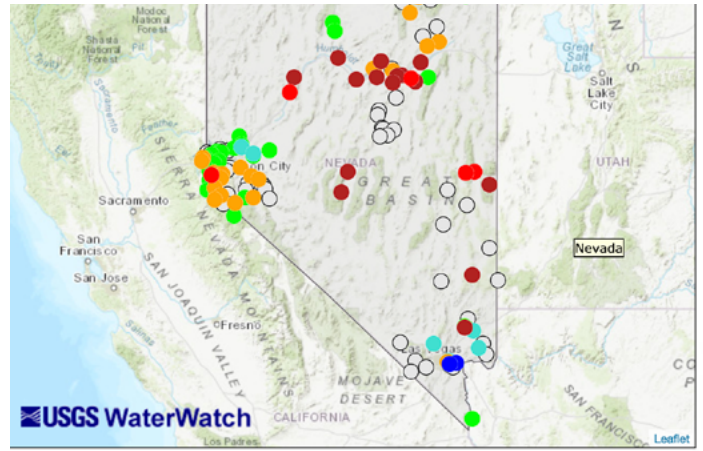


Fig. 6. Current and average percent capacity in Nevada's reservoirs at the end of May 2022. Data from the [Natural Resources Conservation Service](#).



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. 7. May average stream flow relative to usual April conditions. From [USGS Water Watch](#). You can find more information on the [percentile classes from the USGS](#).

By late May, several key reservoirs were near normal capacity or slightly fuller than usual. Most of these reservoirs (Boca, Donner, Independence, Prosser, and Stampede) are in the Truckee Basin (Fig. 6). Lake Tahoe, however, is much lower than normal. Reservoirs in the Walker Basin—Bridgeport and Topaz Lake—are generally in good shape, as is the Wild Horse Reservoir. Rye Patch Reservoir remains at 5% of capacity; it should be about a quarter full in late May. Lake Mead is also quite low at 29% of capacity, and the [water elevation](#) dropped below 1,050 feet. Streamflows in May were below normal, often much below normal in northern and eastern Nevada (Fig. 8). In western Nevada, streamflow was a bit higher. Many stream gages reported normal flow levels. A number of other gages in the area measured below normal flow. In southern Nevada, most stream gages reported above normal stream flow.

At this point in the spring, there is typically some snowpack storage in key water-supply basins. This year, there was essentially no snowpack storage left in the Lake Tahoe Basin (Fig. 8, left). In the Upper Colorado Basin, total storage in the upstream reservoirs is a bit lower than normal, as is snowpack storage. Lake Powell was at 26% of capacity at the end of May, according to [Natural Resources Conservation Service](#) reports. In early May, the [Bureau of Reclamation](#) released drought plans focused on keeping Lake Powell above the "target elevation" so that power can be generated at Glen Canyon Dam.

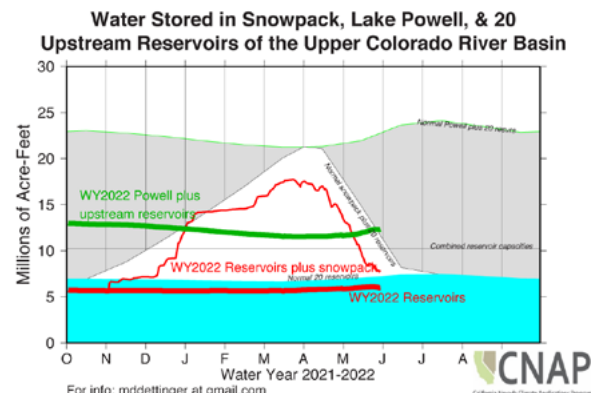
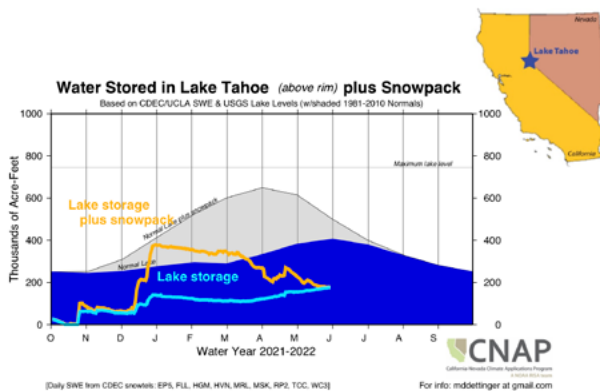


Fig. 8. Combined reservoir and snowpack storage in Lake Tahoe (left) and the Upper Colorado Basin (right). Graphs from [CNAP](#).

Soils, Vegetation & Fire

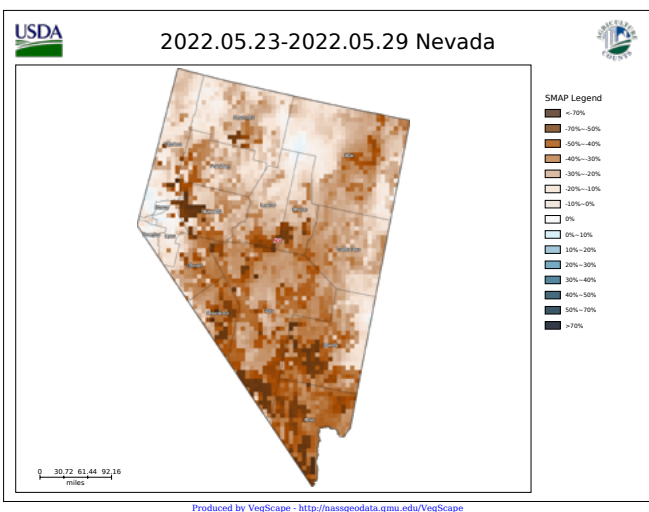
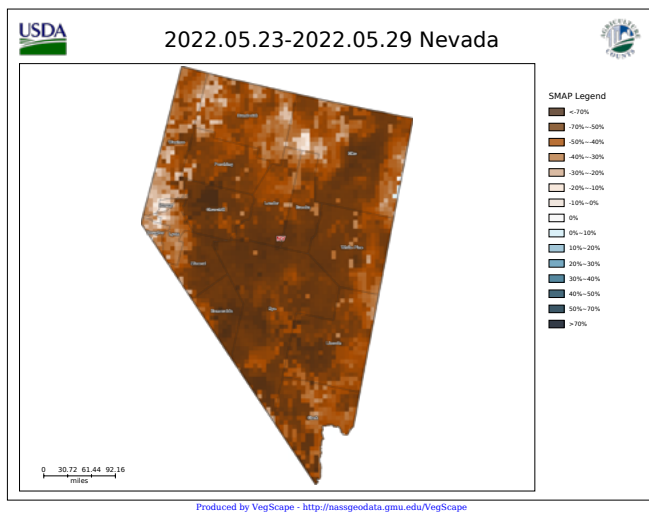


Fig. 9. Remotely sensed topsoil (top) and subsoil (bottom) moisture anomalies for late May 2022. Maps from [Crop-CASMA](#).

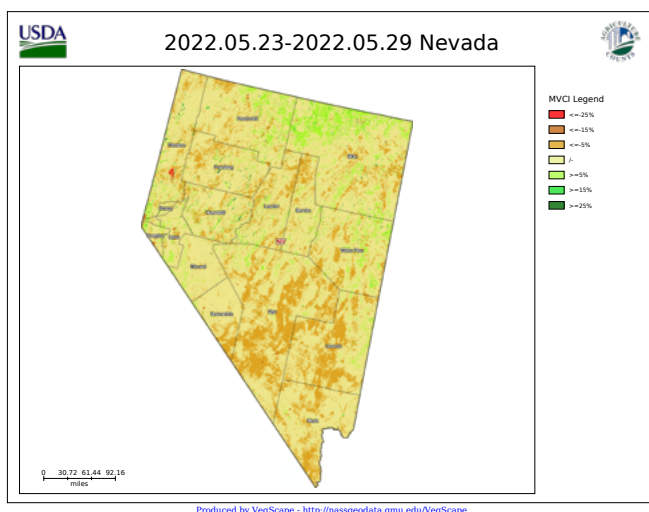


Fig. 10. Mean Vegetation Condition Index for late May. Negative values (brown) indicate places where vegetation is less robust than usual; positive values (green) where vegetation is doing better than usual. From [USDA Crop-CASMA](#).

Scanty rain allowed surface soils to dry out (Fig. 9). Across most of the state, remotely sensed soil moisture estimates are well below normal. Subsoils are slightly wetter than normal in Storey and southern Washoe counties and southwestern Elko—parts of the state where precipitation was highest. Elsewhere, these remotely sensed estimates indicate that deeper soils are also drier than normal (Fig. 9). Vegetation appears to be somewhat less robust than normal in southern Nevada, where drought is worse (Fig. 10). In northern Nevada, especially northeastern Nevada, where May was showery, vegetation appears to be doing a bit better than normal.

Nevada has still not had any major fires in 2022, according to [Nevada Fire Info](#). reports limited fire activity across the state in April. There were a few fires over 100 acres in size, but they are fully controlled. The [Great Basin Coordination Center](#) remains at PL1, with adequate resources for the so-far tractable fire season. Nationally, resources are still at PL2. [InciWeb](#) reports multiple fires across Texas, New Mexico, Arizona, and Colorado.

While we may have been lucky with fire so far this year, it is always a summer concern in Nevada. Learn more at livingwithfire.com.

Drought Outlook

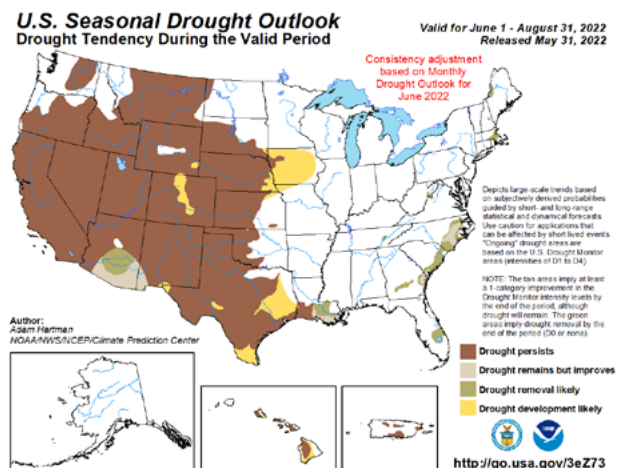


Fig. 11. Drought outlook through August. From the [CPC](#).

Drought is unlikely to improve by the end of summer. It's a dry season in northern Nevada, though a good monsoon could help southern Nevada.