

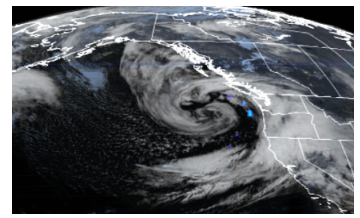


Drought Update Report

NWS Reno

Issued: 10/28/2021

Schedule: Monthly during periods of extreme drought designation



Rain at last!

Synopsis: Late September and October have been cool and wet (Figure 1)! Several minor precipitation events early in October were followed by a strong atmospheric river storm with efficient spillover on October 25th and 26th. The late October storm set several records including the wettest 2 consecutive days in October for Reno, and the 3rd highest 2-day total for any month in the 128 year record. The two day total of 2.92" for Reno Airport was only .09" shy of the entire 2021 water year precipitation at this point. Despite copious precipitation, there is still a large precipitation deficit after two full years of drought as illustrated in Figure 2 for Tahoe City.

October so far has been a great start to the water year and a huge change from the past few Octobers. Water year to date precipitation for the combined Tahoe, Truckee, Carson and Walker basin NRCS SNOTEL is slightly ahead of previous records (Figure 3). October storms are excellent timing to beneficially impact soil moisture before significant snow accumulation. The exceptionally dry soils in the fall of 2020 lead to inefficient snowmelt runoff the subsequent spring of 2021. While way too early to know what this season's snow accumulation will look like, we are starting out with much wetter soils, which will lead to more efficient spring runoff in 2022. Current SNOTEL soil moisture conditions in the combined Tahoe, Truckee, Carson, and Walker basins is also near record highs for late October (Figure 4). Rain transitioned to snow for many areas in the night of October 25th or morning of October 26th with major accumulation at higher elevations, resulting in a well above average early season snowpack (Figure 5).

Evaporative demand has been very high over the past year, but closer to normal over the past 4 weeks (Figure 6). Major river rises from the major atmospheric river storm have led to early water year to date volumes to be above normal, along with slightly elevated water year forecasted water supply thanks to wet soils under the early snowpack (Figure 7 and 8). Drought conditions as summarized by the US Drought monitor have improved somewhat in the central portion of the NWS Reno service area thanks mostly to the October 24-25 storm (Figure 9). Please see an excellent regional drought update and the benefits of the late October atmospheric river storms from our friends at NDIS [here](#).

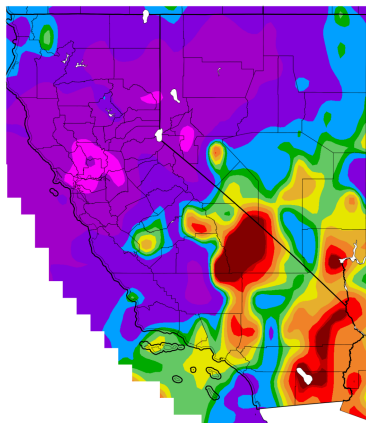
Summary of Impacts: No new impacts reported this month. Previous impacts: Extreme fire behavior on the Dixie, Tamarack, and Caldor fires and persistent degraded to hazardous air quality from smoke. Major impacts to agriculture and ranching. Reports include: Reduced irrigation water, early irrigation shut off, many stock ponds and springs dry, reduced hay crops, reduced forage, animal stress, reduced stock weights, and reduced grazing on public lands. Low flows and elevated water temperatures will impact fisheries and stream ecosystems. Recreational impacts include: August 23rd closure of 9 northern California national forests (reopened 9/16), low streamflows (limited and short whitewater season), low lake levels, boat ramp

closures, campfire bans, and restrictions. Note: Please report any new or missing drought impacts [here](#).

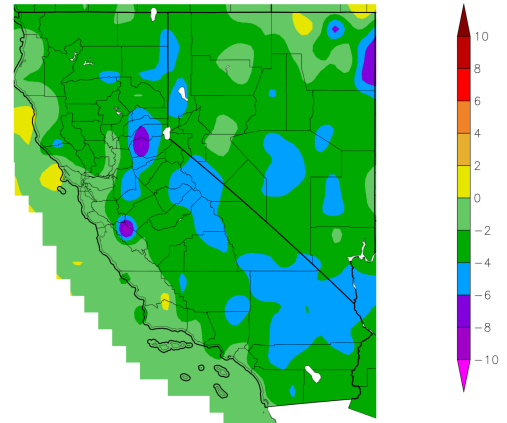
Drought Mitigation Actions: No new mitigation actions reported this month. Previous Actions: Closure of 9 northern California National forests on August 23rd (reopened 9/16). On August 15th, Governors Newsom, Sisolack, and 8 other western governors sent a letter to President Biden requesting a federal disaster declaration for drought. On July 8th Governor Newsom expanded a drought emergency to 50 counties, which was expanded to include all 58 counties on October 19th. This now includes Mono County and the entire NWS Reno Service area. All 16 Nevada counties and 50 California counties in California have previously been designated [USDA primary natural disaster areas due to drought](#). The designation increases access to federal assistance for farm operators. Truckee Meadows Water Authority moved to level 2 drought response on May 20th (of four possible levels). Other previously reported actions include: Hauling water (for livestock and wildlife), moving livestock, selling livestock, supplemental feed, campfire and firework restrictions, Note: Please report any new or missing drought mitigation actions to the email below.

Local Drought Outlook: For the short-term the pattern is active, but with only weaker storms over the next week. The [8-14 day outlook from the CPC](#) favors above normal temperatures, and leans to above average precipitation over northern California and NW Nevada (Figure 10). [CPC seasonal outlooks](#) for November through January favor warmer than normal conditions for much of our area and no clear signal for precipitation for our entire area (Figure 11). As expected from these conditions and outlooks, drought conditions are expected to persist through the winter throughout the area, but with some improvement likely in California roughly north of Highway 50 (Figure 12).

Percent of Normal Precipitation (%)
9/28/2021 – 10/27/2021



Departure from Normal Temperature (F)
9/28/2021 – 10/27/2021



Generated 10/28/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers Generated 10/28/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 1. [30 day Precipitation as percent of average](#) (left) and [30 day temperature departure](#) (right)

Accumulated Precipitation – Tahoe City Area, CA (ThreadEx)

Use navigation tools above and below chart to change displayed range; green/black diamonds represent subsequent/missing values

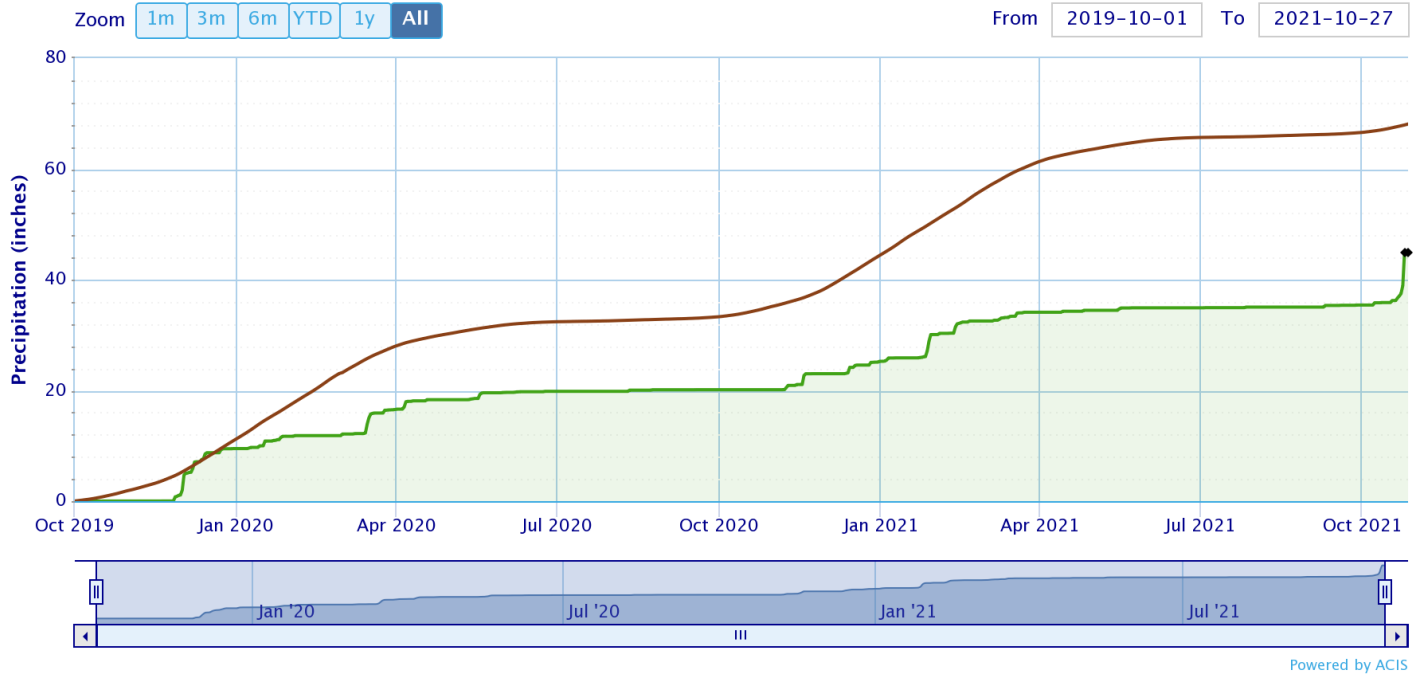


Figure 2. Tahoe City precipitations water year 2020 to date.

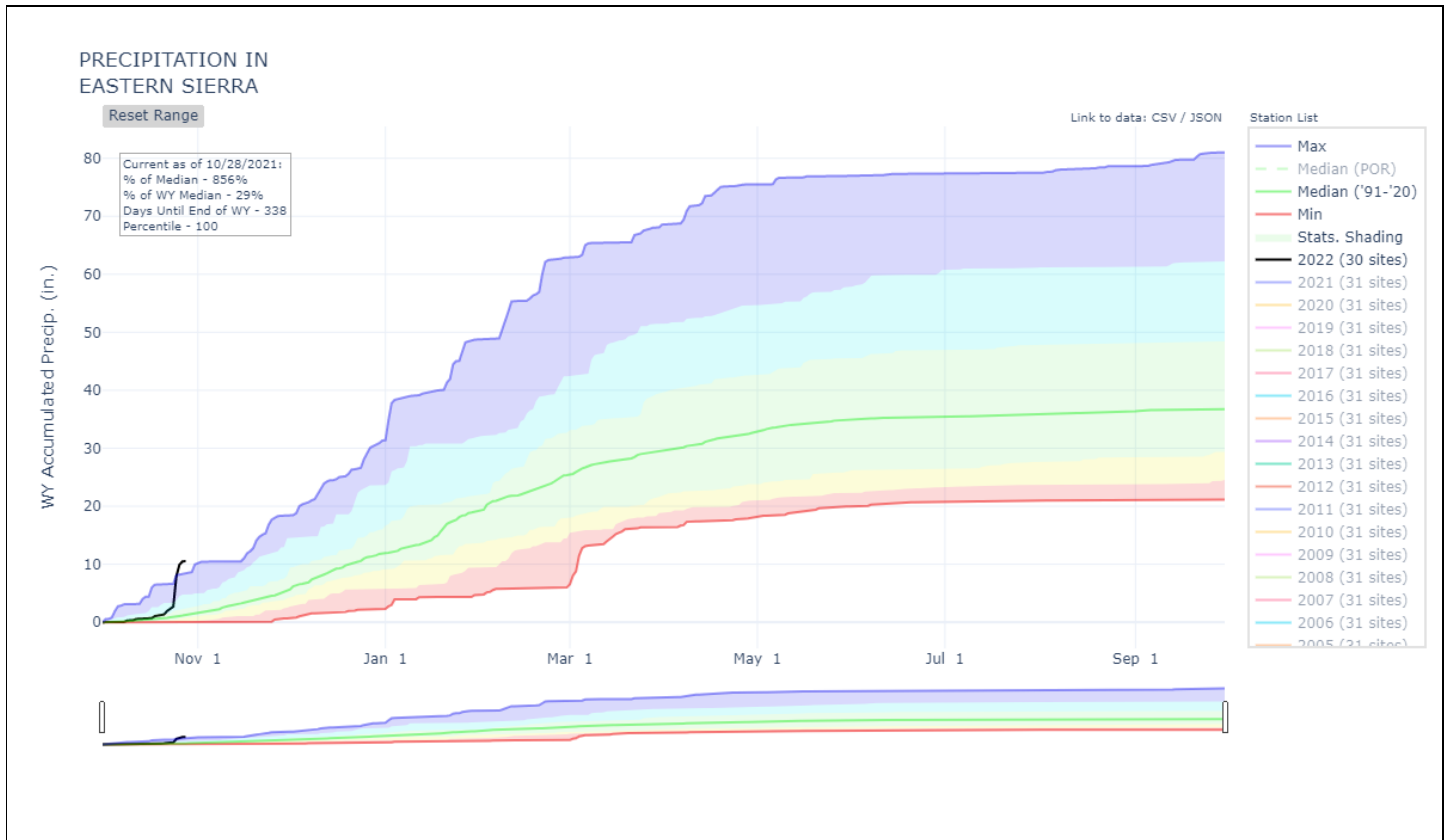


Figure 3. [SNOTEL](#) Water year to date precipitation for Tahoe, Truckee, Carson, and Walker basins.

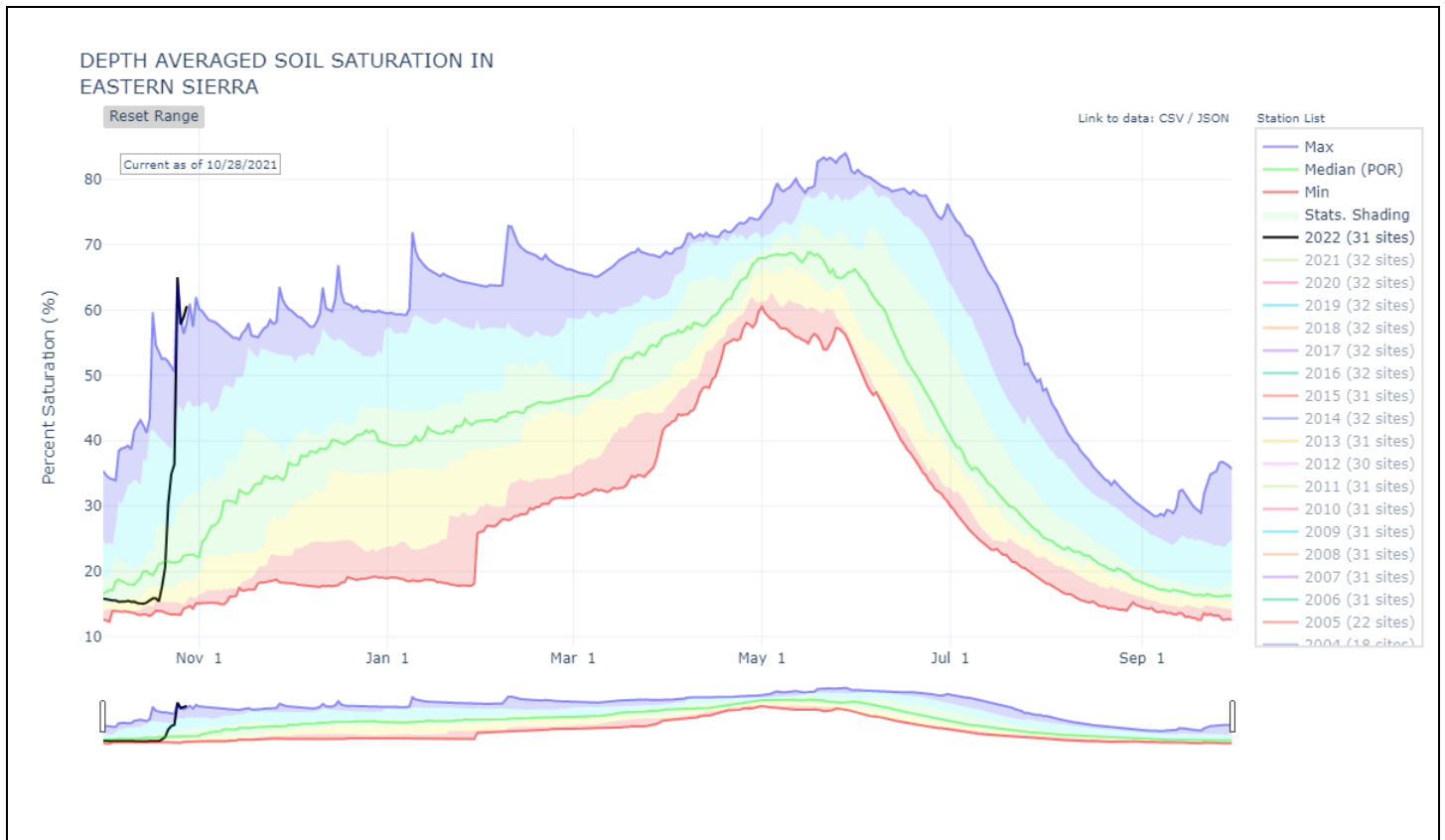


Figure 4. Average [SNOTEL](#) soil moisture for the combined Truckee, Carson, and Walker Basins. Note the relatively short period of record (2004-2021).

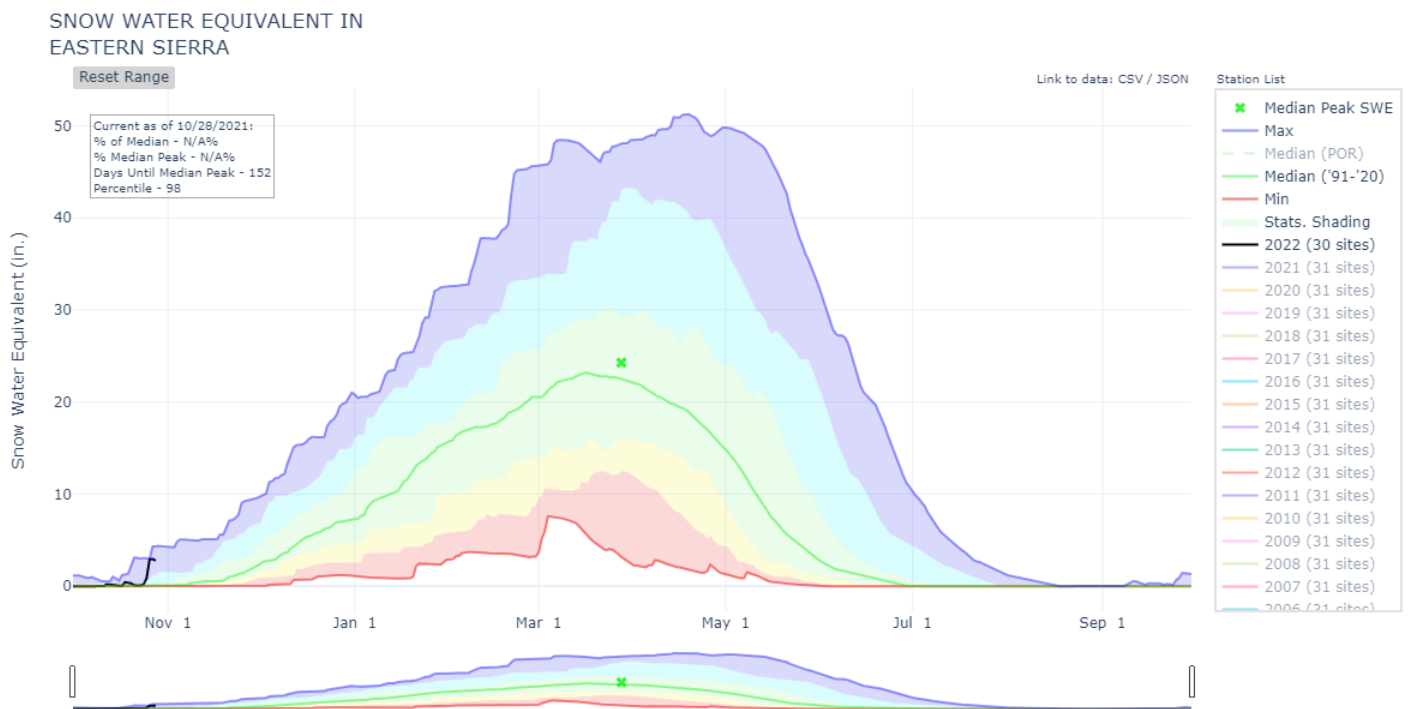


Figure 5. Early Season [SNOTEL](#) snow water equivalent for the combined Tahoe, Truckee, Carson, and Walker

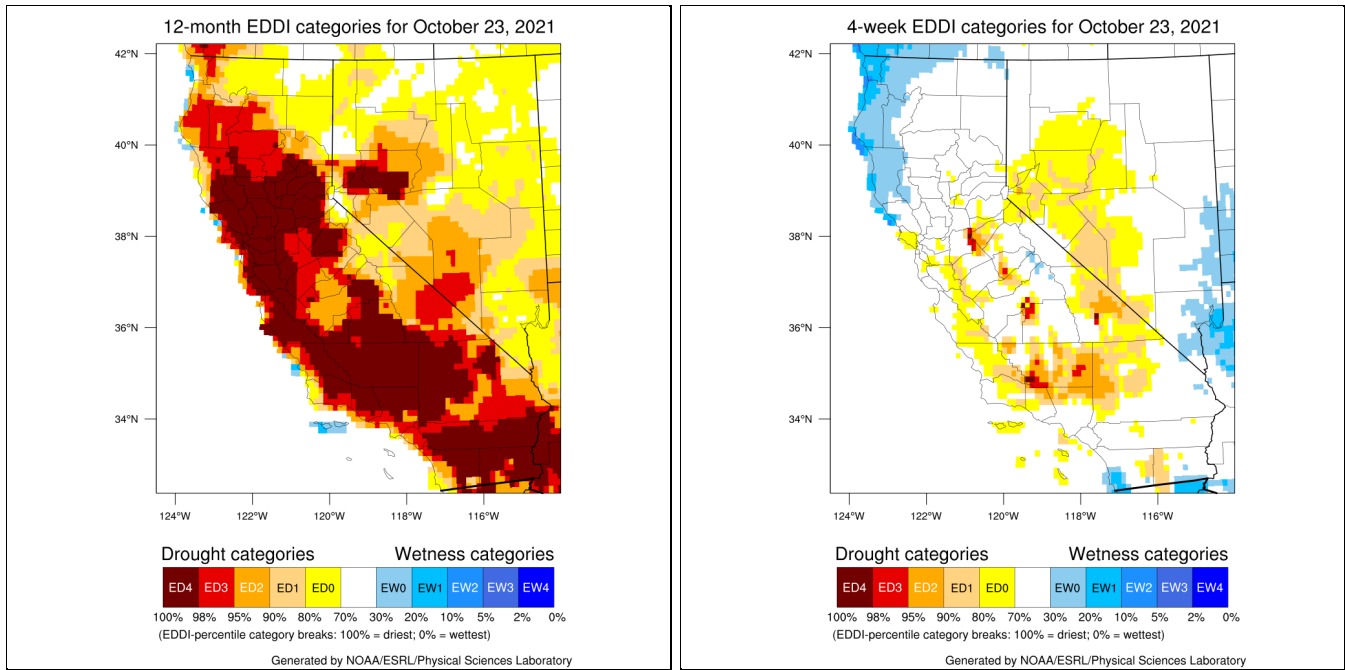


Figure 6. [Evaporative Demand Drought Index](#) for the past year on the left, and last 4 weeks on the right.

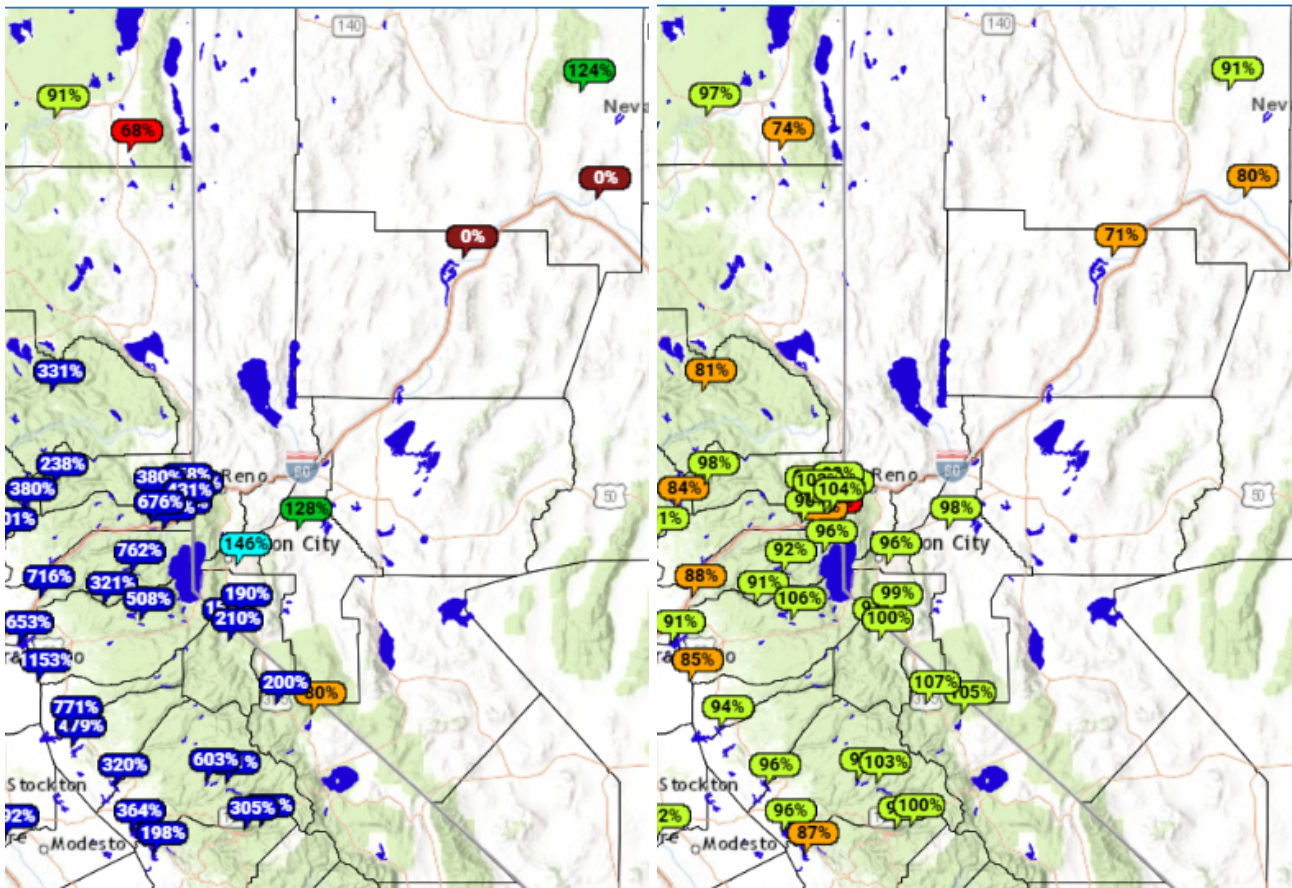


Figure 7. [CNRFC](#) Water Year 2022 Observed Streamflow volume to date and water year forecast volume.

Saturday, October 30, 2021

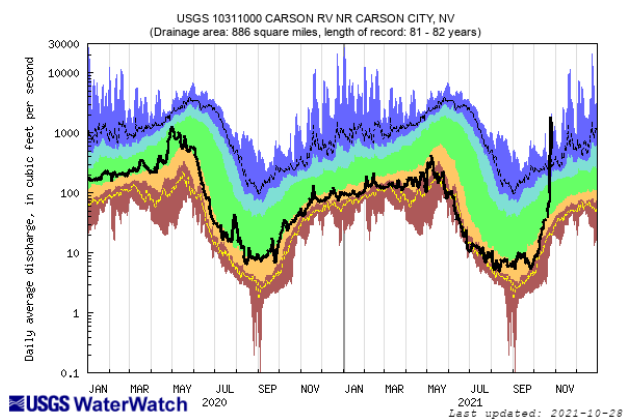
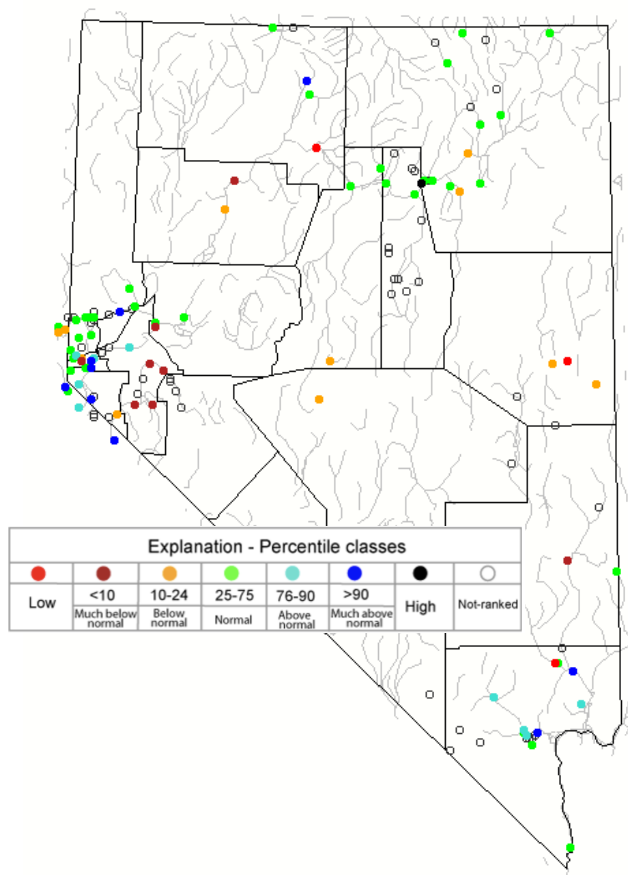
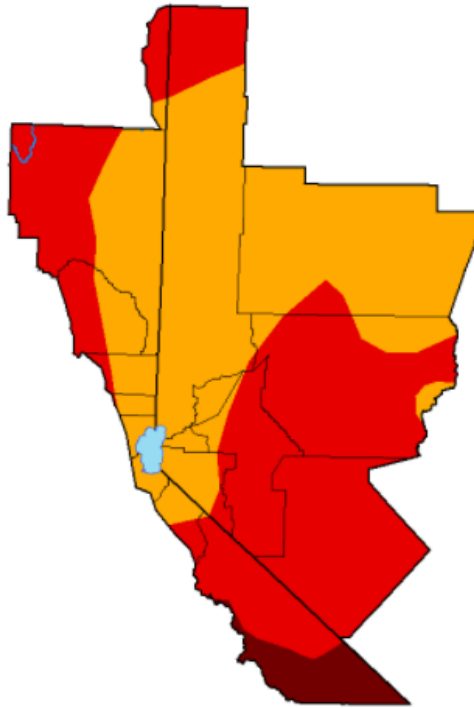
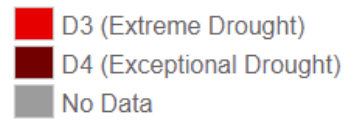
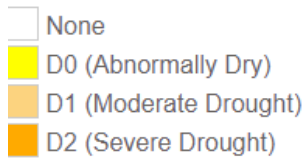
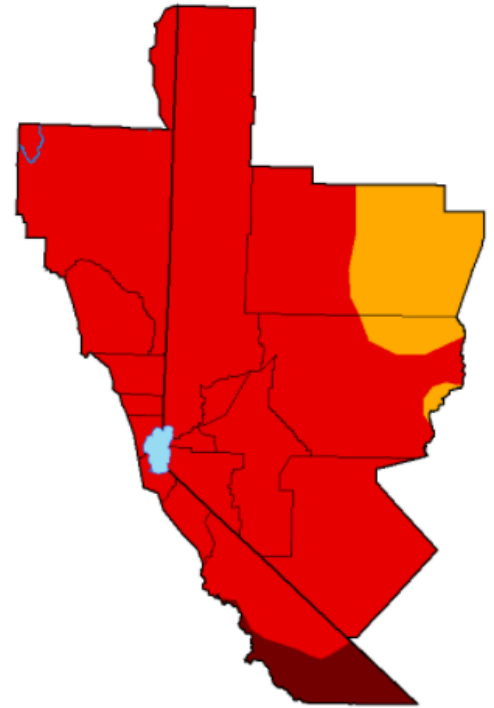


Figure 8. [USGS 28 day streamflow](#) for Nevada and duration hydrograph for Carson River nr Carson City.

Drought Classification



< October 26, 2021 >



< September 28, 2021 >



Figure 9. [USDM comparison](#) of drought most current drought conditions on the left, and Late-September on Right.



8-14 Day Precipitation Outlook



Valid: November 8 - 14, 2021
Issued: October 31, 2021

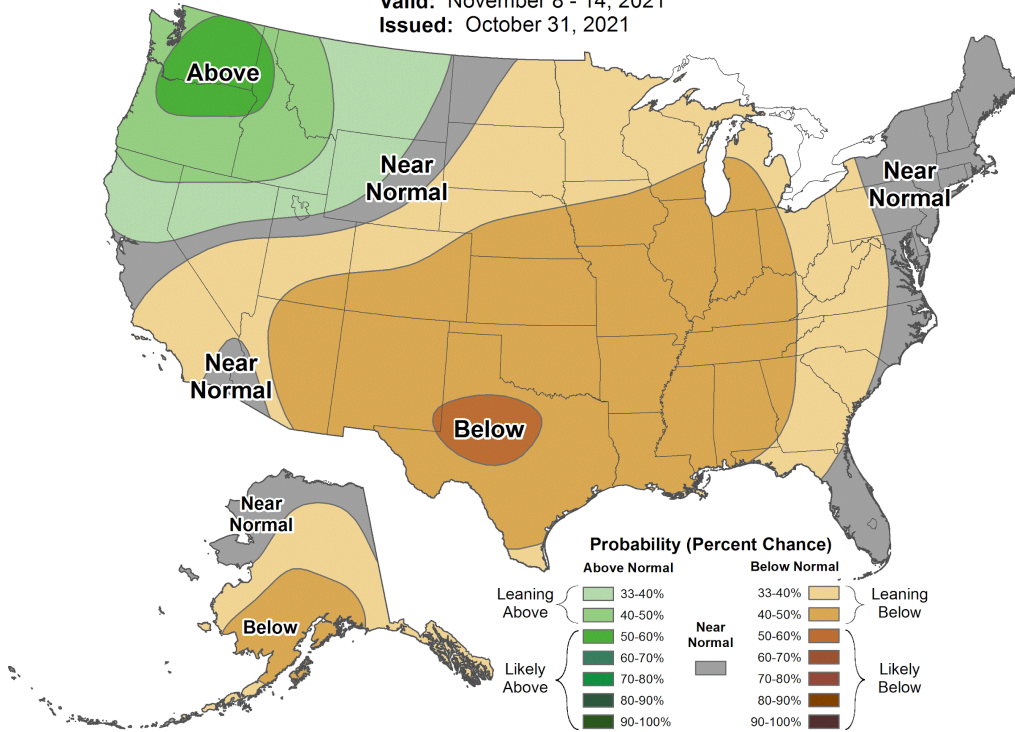
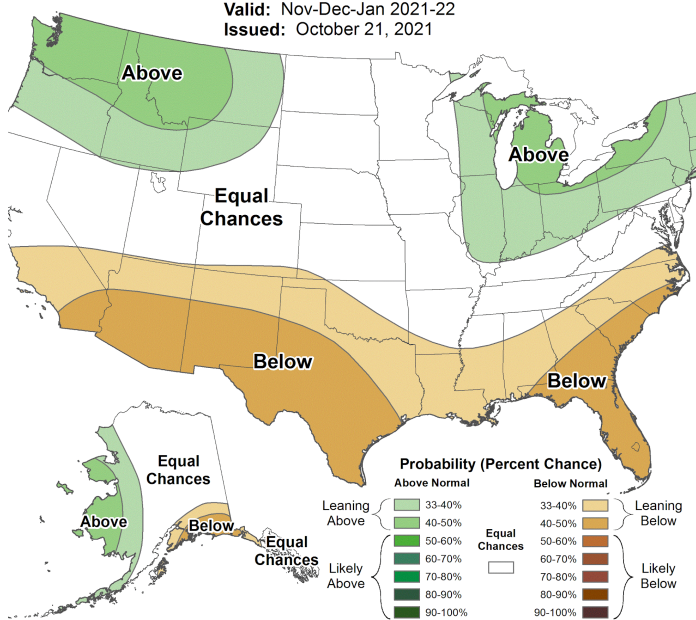


Figure 10. NOAA CPC 8-14 Day Precipitation Outlook issued 10/31/21

Seasonal Precipitation Outlook

Valid: Nov-Dec-Jan 2021-22
Issued: October 21, 2021



Seasonal Temperature Outlook

Valid: Nov-Dec-Jan 2021-22
Issued: October 21, 2021

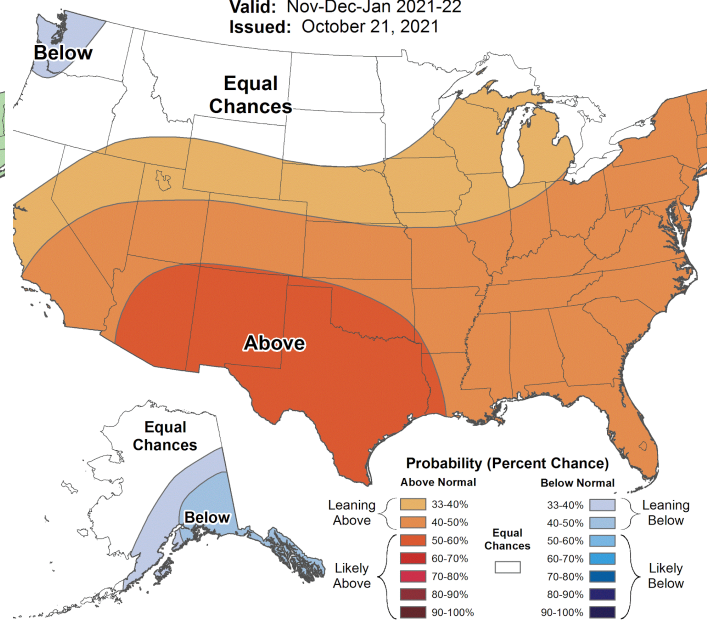


Figure 11. NOAA CPC November through January precipitation (left) and temperature (right) probability forecasts. Issued 10/21/21

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for October 21, 2021 - January 31, 2022
Released October 21, 2021

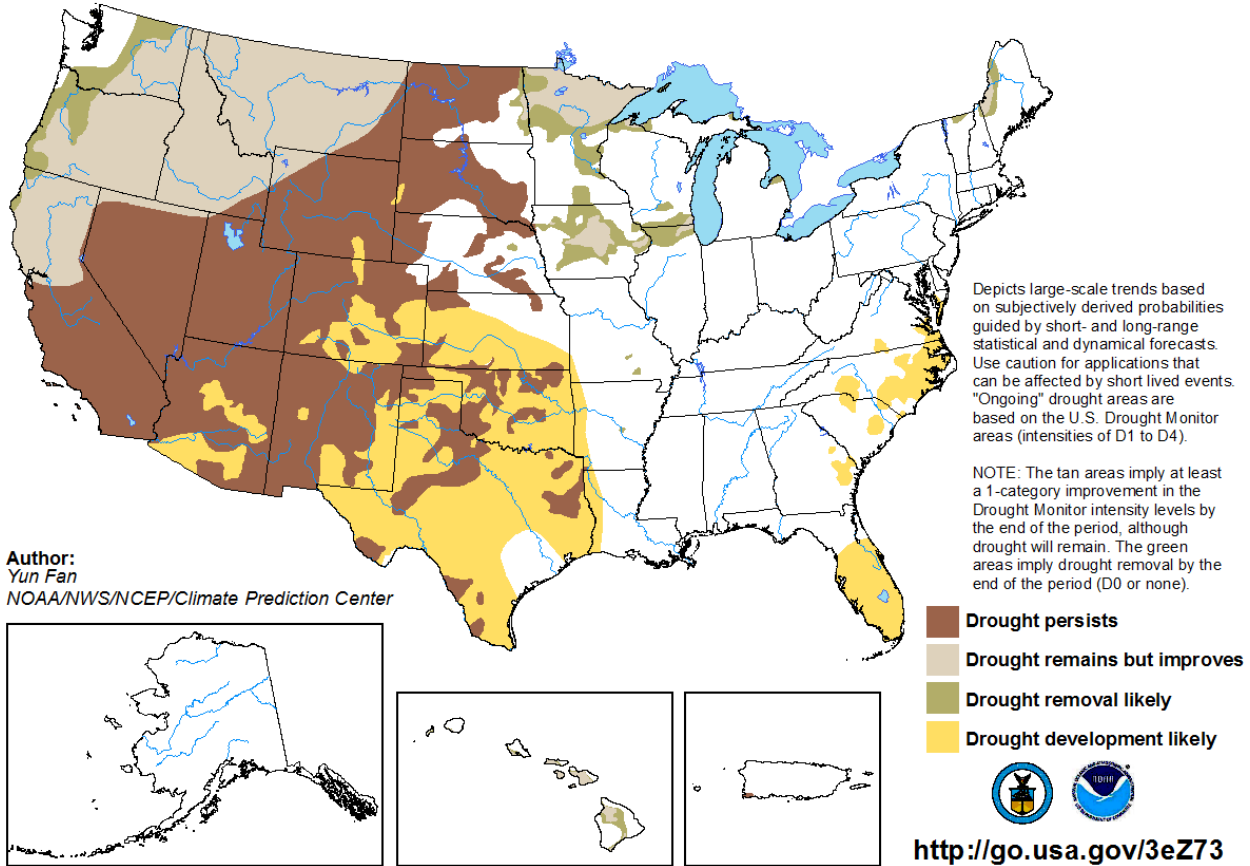


Figure 12. NOAA [CPC Drought Outlook](#) through November issued 6/16/21

Weblinks:

- [NV statewide September Drought update](#)
- [NV Living with Drought](#)
- [Drought Monitor](#)
- [New Drought.gov](#)
- [California Nevada Drought Early Warning System](#)
- [NOAA CPC Drought page](#)
- [CNAP Drought tracker](#)
- [California Nevada River Forecast Center](#)
- [WRCC Drought Tracker](#)
- [WRCC Enso page](#)
- [Evaporative Demand Drought Index](#)
- [US Seasonal Drought Outlook](#)

Contact NWS Reno

2350 Raggio Parkway

Reno, NV 89512

775-673-8100

<https://www.weather.gov/rev/>

tim.bardsley@noaa.gov