

Hydrology Report – December 2021

- **Upper Basin precipitation and Temperature**

October had above average precipitation, but in November the weather was warmer with less precipitation. Temperatures in November were 5-7 degrees above average in the Upper Basin and precipitation was only 45% of average.

- **Upper Basin Snowpack and runoff**

November precipitation was below average resulting in very little snowpack accumulation. The current seasonal snowpack is at 71% of average after a large storm at the beginning of December. The soil moisture in the Upper Basin continues to be dry resulting in this year's forecast for runoff to be less than average. The current runoff forecast is 65% of average for the year.

- **Current reservoir status**

As of November 13, 2021, Lake Mead is at an elevation of 1,065.4 feet and has about 8.8 million acre-feet in storage (34% capacity). As of November 13, 2021, Lake Powell is at an elevation of 3,540.2 feet and has about 6.9 million acre-feet in storage (28% capacity). Since this time last year, Lake Mead has decreased about 17 feet and Lake Powell has decreased about 45 feet. Total system storage for the Upper and Lower Basin is around 22.2 million-acre-feet (37% capacity).

- **2022 Reservoir Operations**

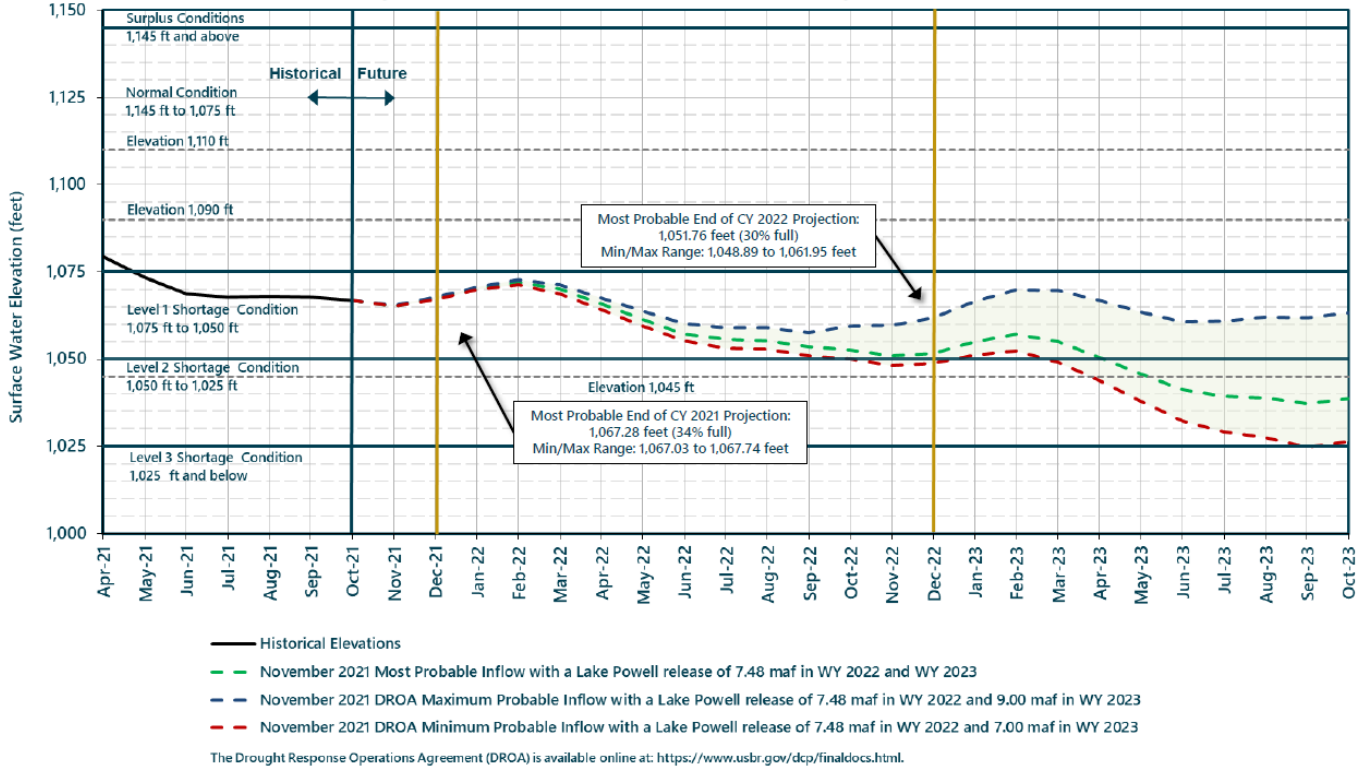
In calendar year 2022, there will be a Tier 1 shortage under the 2007 Guidelines and there will be a required Drought Contingency Plan contribution for Nevada and Arizona. Accordingly, in 2022, Nevada will be required to reduce consumptive use by 13,000 acre-feet under the 2007 Interim Guidelines and have a Drought Contingency Plan contribution of 8,000 acre-feet. Arizona and Mexico are also required to take shortage and make a water savings contribution in 2022. Those amounts are significantly larger than Nevada's obligations. The total combined volumes for Arizona, Nevada, and Mexico are 613,000 acre-feet in calendar year 2022, which will save the equivalent of about 8 feet in elevation in Lake Mead.

- **Reclamation's Lake Mead Projection**

Reclamation uses computer models to forecast reservoir elevations based on planned water use and anticipated runoff. The most current model (November 24 month study) is forecasting Lake Mead to be at an elevation of 1,051.8 feet by the end of calendar year 2022.

Lake Mead End of Month Elevations

Projections from the November 2021 24-Month Study Inflow Scenarios



- Water Use in Southern Nevada**

Southern Nevada’s consumptive use from January through October of 2021 was 221,259 acre-feet, which is 6.4 percent less than last year. In 2020, Southern Nevada consumed less Colorado River water than it is 300,000 acre-feet entitlement: specifically, 44,432 (15%) acre feet less. The Southern Nevada Water Authority stored the unused water in Lake Mead to help maintain water levels. This stored water is accessible to the Southern Nevada in the future if necessary. The Southern Nevada Water Authority aggressively reduced consumptive uses through turf removal and conservation programs allowing over 2.1 million acre-feet in total to be stored for future use.



Colorado River Commission of Nevada

Hydrology and Water Use Update

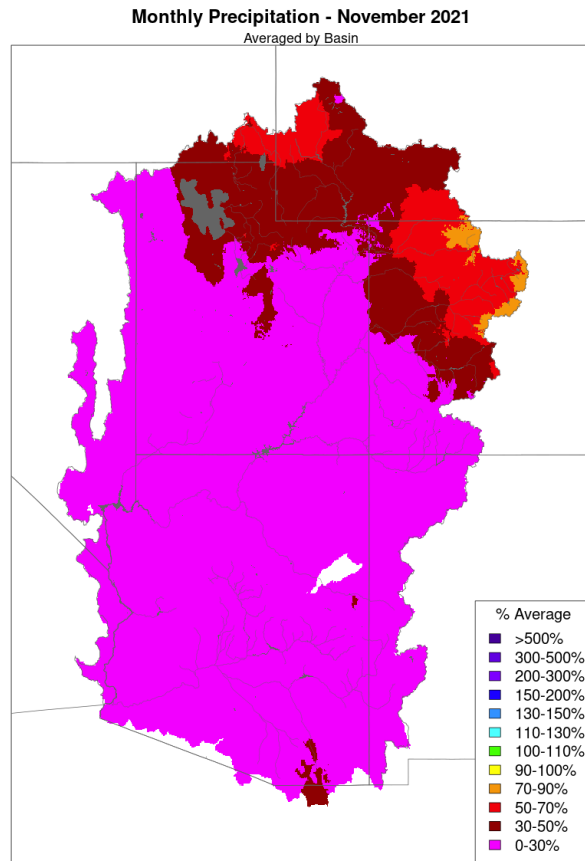
Warren Turkett

December 14, 2021

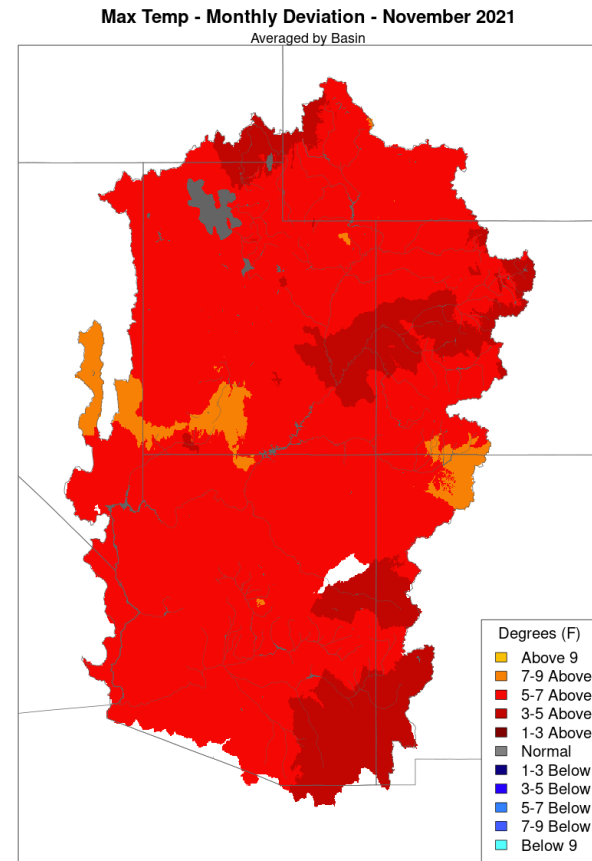




Precipitation and Temperature



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

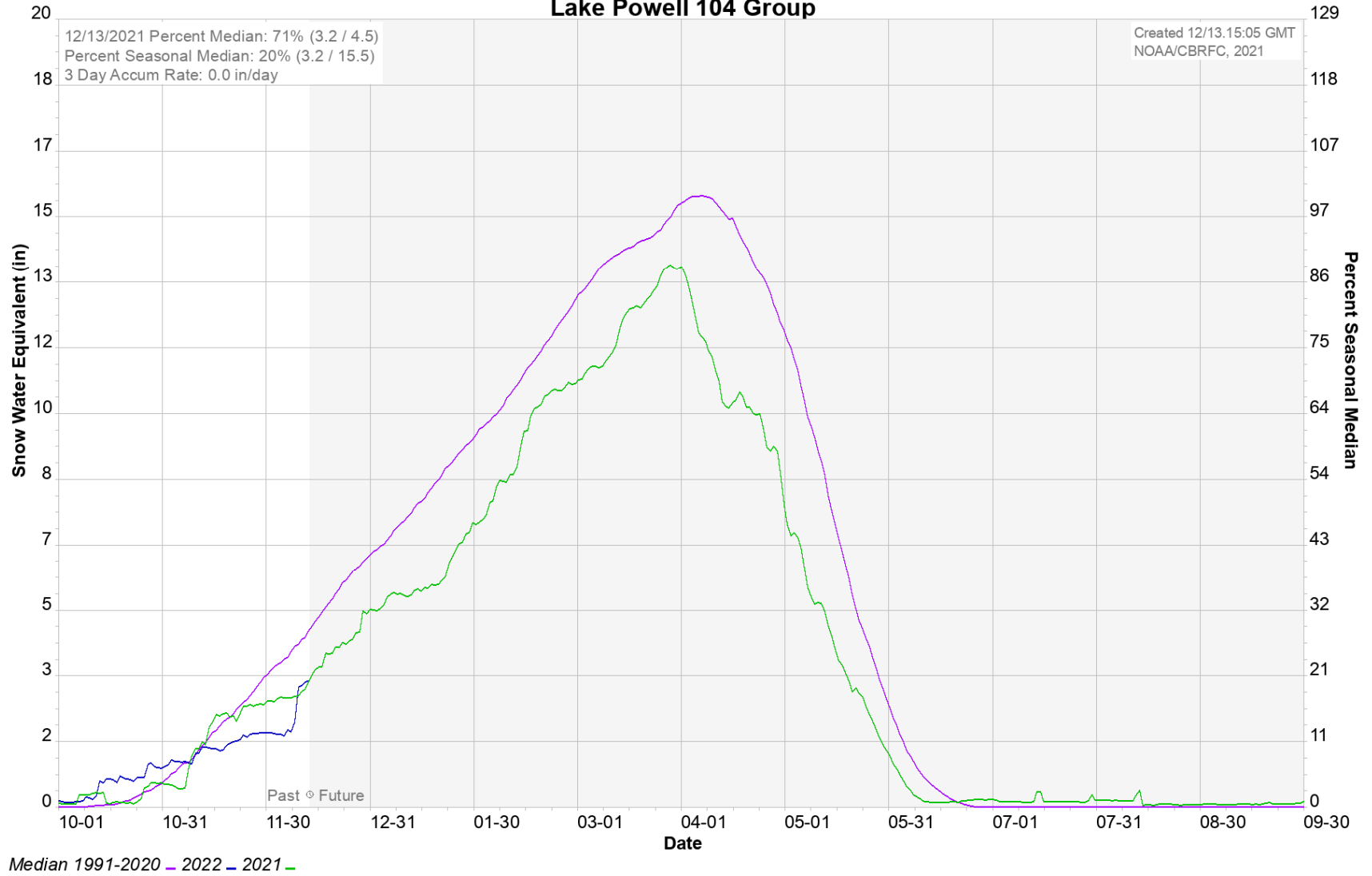


Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Above Lake Powell November precipitation: 45%
Above Lake Powell water year 2022 cumulative precipitation: 84%



Colorado Basin River Forecast Center Lake Powell 104 Group





Unregulated Inflow, Current and Projected Reservoir Status

Projected unregulated inflow to Lake Powell	Acre-Feet	% Average
Water Year 2022	6,272,000	65%
April thru July 2022	4,120,000	58%

Reservoir	Current Elevation	Current Storage Acre-Feet	Current % Capacity	Projected Elevation on 1/1/2023 ¹
Lake Mead	1,065.1	8,813,000	34%	1,051.8
Lake Powell	3,541.1	6,966,000	29%	3,536.4

Data retrieved December 7, 2021

¹ Based on Reclamation's November 2020 24 Month Study Most Probable Inflow.



Water Use In Southern Nevada

Southern Nevada Water Use	2020 Actual Use in Acre-Feet
Nevada Annual Allocation	300,000
Diversion	478,969
Return Flows	223,401
Consumptive Use	255,568
Unused Allocation Available for Banking	44,432 (15%)

Southern Nevada Water Use	Diversions	Return Flows	Consumptive Use
January - October 2021	419,001	197,743	221,259

Banked Water (through end of 2020)	Acre-Feet
Ground Water Recharge in So. Nevada	357,643
Banked in Lake Mead	865,741
Banked in California and Arizona	944,071
Total	2,167,455



Summary

Lake Powell

- Water Year 2022¹ is off to a dry start after very little November precipitation.
- Upper Basin snowpack accumulation is currently 71% of the seasonal median.
- Unregulated inflow for water year 2022 is forecasted to be 65% of average.

Lake Mead

- In calendar year 2022, there will be a Tier 1 shortage under the 2007 Guidelines and required DCP contributions for Nevada and Arizona.
- In August 2021, Reclamations 24 Month Study model projected Lake Mead below elevation 1,030 feet requiring the Lower Division states to consult to determine additional measures to prevent reaching 1,020 feet.

Nevada Water Supply

- Southern Nevada has about 9 years of water supply banked. ²
- **In 2020, Southern Nevada used 44,432 af less than our annual allocation.**

Storage	Elevation (f)	% Capacity	Change since last year
Lake Mead	1,065.1	34%	-16.7 ft
Lake Powell	3,541.1	29%	-45.4 ft

Data retrieved December 7, 2021.

¹ Water year is defined as October through September.

² Based on 2020 consumptive use and storage volumes through 2020.