

Hydrology Report – November 2021

- **Upper Basin precipitation and Temperature**

October had a great start with precipitation in the Upper Basin at 131% of the seasonal average. Temperatures in October were 3-5 degrees below average in the Upper Basin.

- **Upper Basin Snowpack and runoff**

October is the beginning of a new snowpack season. In the beginning of October there were a few storms that contributed to snowpack accumulation, but the last 2 weeks of the month were dry. The current seasonal snowpack is at 100% of average. The soil moisture in the Upper Basin continues to be dry resulting in this year's forecast for runoff to be reduced by about 1.8 million acre-feet. The current runoff forecast is 81% of average for the year.

- **Current reservoir status**

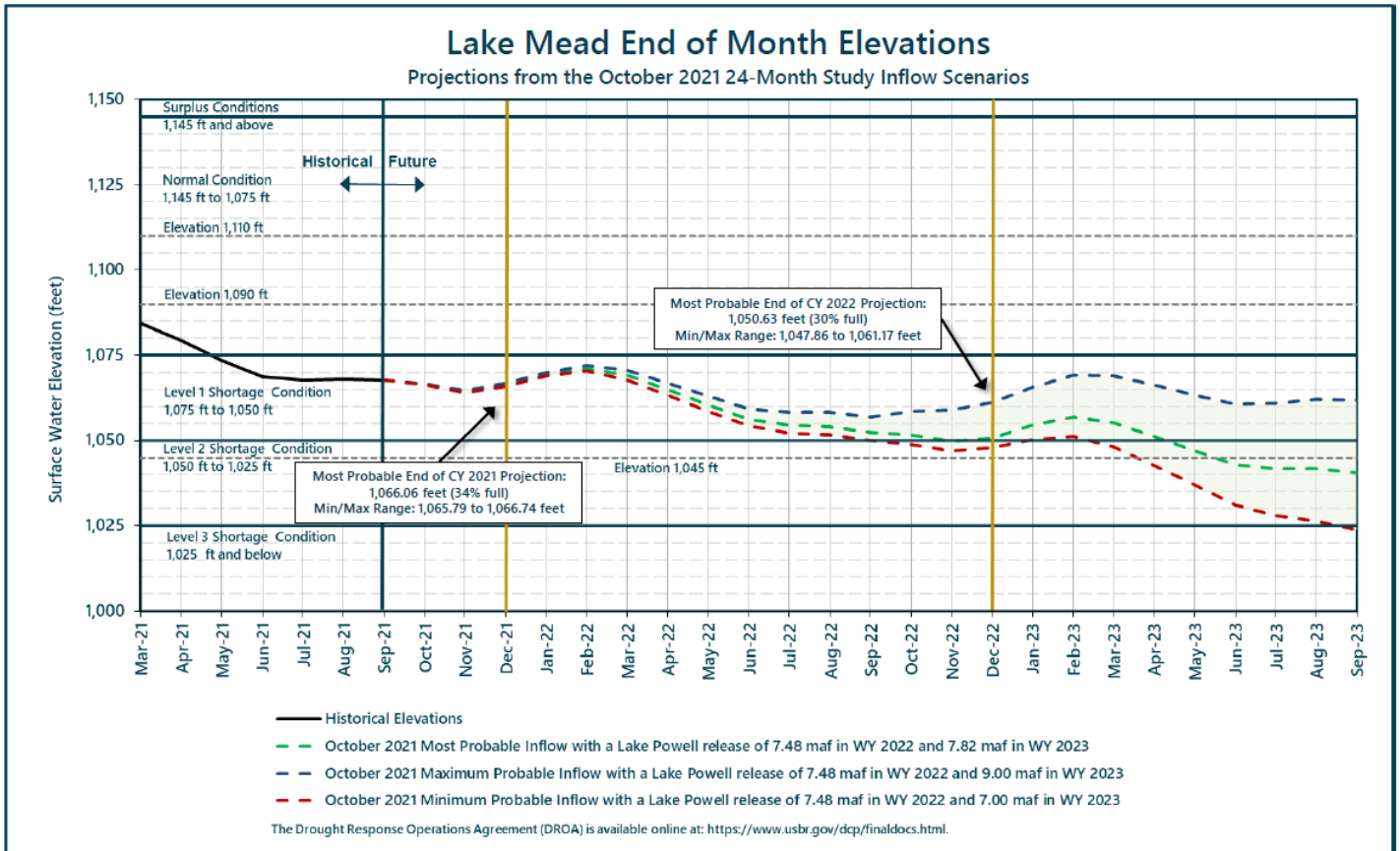
As of November 8, 2021, Lake Mead is at an elevation of 1,066.0 feet and has about 8.8 million acre-feet in storage (34% capacity). As of November 8, 2021, Lake Powell is at an elevation of 3,543.9 feet and has about 7.2 million acre-feet in storage (29% capacity). Since this time last year, Lake Mead has decreased about 16 feet and Lake Powell has decreased about 47 feet. Total system storage for the Upper and Lower Basin is around 22.5 million-acre-feet (38% 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 (October 24 month study) is forecasting Lake Mead to be at an elevation of 1,066.1 feet at the end of the year. Lake Mead elevation is forecasted to be at an elevation of 1,050.6 feet by the end of calendar year 2022.



- Water Use in Southern Nevada**

Southern Nevada’s consumptive use from January through September of 2021 was 204,609 acre-feet, which is 4.7 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

November 9, 2021





Summary

Lake Powell

- Water Year 2022¹ started with above average snowpack accumulation.
- Unregulated inflow for water year 2022 is forecasted to be 81% of average.
- Upper Basin cumulative precipitation is currently 131% of the seasonal average.

Lake Mead

- Lake Mead is forecasted to decrease about 15 feet in elevation by the end of calendar year 2022.
- In calendar year 2022, there will be a Tier 1 shortage under the 2007 Guidelines and required DCP contributions for Nevada and Arizona.

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	1,066.0	34%	-15.6 ft
Lake Powell	3,543.9	29%	-46.7 ft

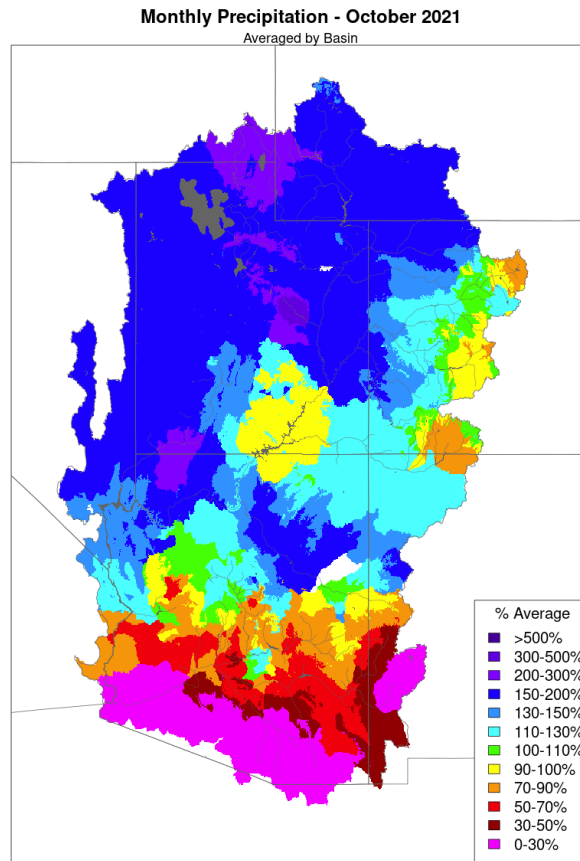
Data retrieved November 8, 2021.

¹ Water year is defined as October through September.

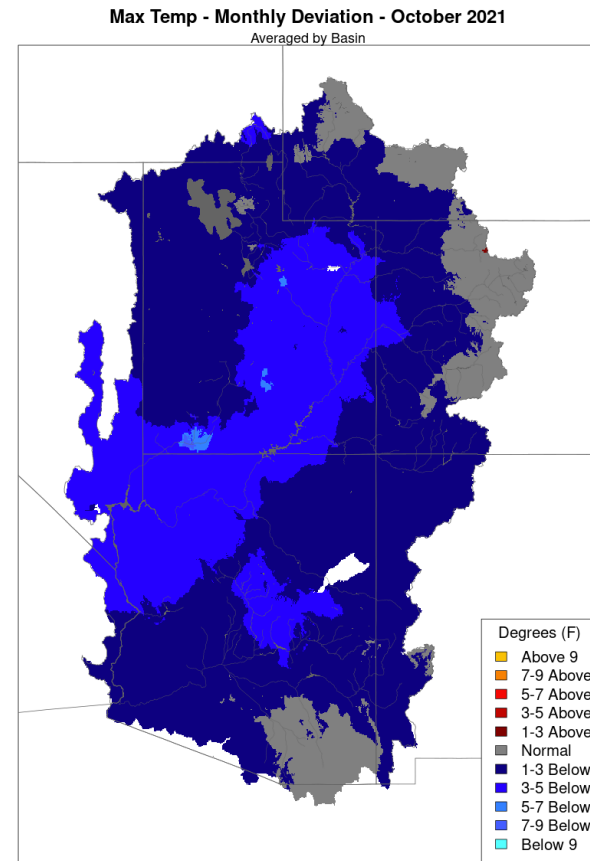
² Based on 2020 consumptive use and storage volumes through 2020.



Precipitation and Temperature



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



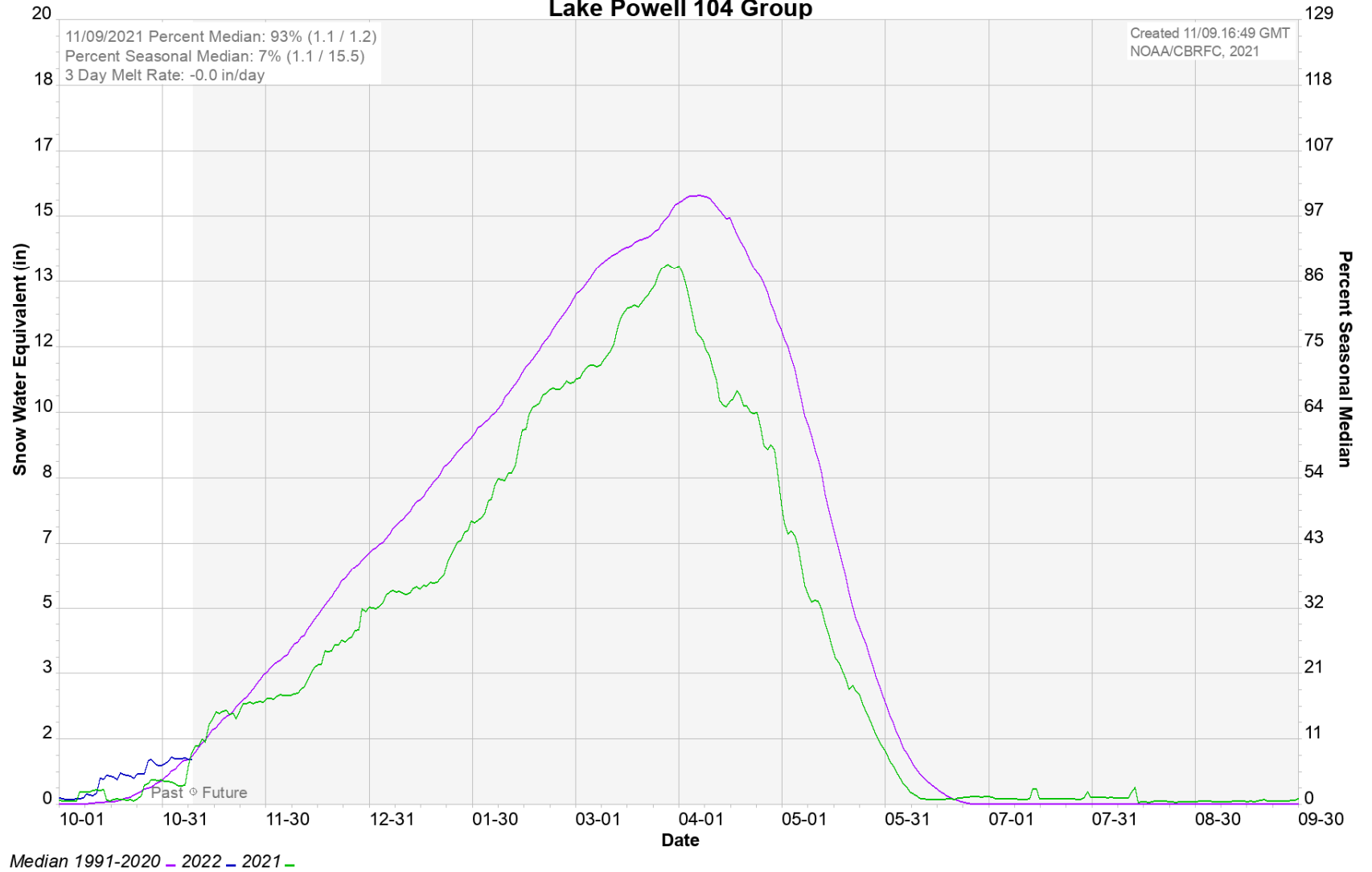
Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Above Lake Powell October precipitation: 131%

Above Lake Powell water year 2022 cumulative precipitation: 131%



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	7,797,000	81%
April thru July 2022	5,270,000	74%

Reservoir	Current Elevation	Current Storage Acre-Feet	Current % Capacity	Projected Elevation on 1/1/2023 ¹
Lake Mead	1,066.0	8,888,000	34%	1,050.6
Lake Powell	3,543.9	7,153,000	29%	3,528.1

Data retrieved November 8, 2021

¹ Based on Reclamation's October 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 - September 2021	381,140	176,531	204,609

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