Hydrology Report – June 2022

- **Upper Basin precipitation and Temperature**

May received 78% average precipitation in the Upper Basin bringing this year's cumulative precipitation to 90% of average. Upper basin temperature in May was below average while the lower basin was several degrees warmer than average.

- **Upper Basin Snowpack and runoff**

This year's snowpack peaked about two weeks earlier than expected. The snowpack peaked on March 23rd with 88% of the seasonal peak. Based on the current conditions the runoff is estimated to be 58% of average for the year.

- **Current reservoir status**

As of June 6, 2022, Lake Mead is at an elevation of 1,046.8 feet and has about 7.5 million acre-feet in storage (29% capacity). As of June 6, 2022, Lake Powell is at an elevation of 3,534.0 feet and has about 6.3 million acre-feet in storage (26% capacity). Since this time last year, Lake Mead has decreased about 25 feet and Lake Powell has decreased about 27 feet. Total system storage for the upper and lower basin is around 20.5 million acre-feet (34% capacity).

- **2022 Reservoir Operations and Drought 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.

In response to declining runoff and lowering lake levels the 500+ plan was recently initiated with the purpose of storing an additional 500,000 acre-feet in Lake Mead during each of the next two years to prevent reaching critical elevations. The additional conservation is on top of the water savings already required in the 2007 Guidelines and Drought Contingency Plan. The Southern Nevada Water Authority, Metropolitan Water District of Southern California, Arizona Department of Water Resources, Central Arizona Project, and The Department of Interior have committed 200 million dollars to fund the 500+ plan over the next two years, which will result in about 16 feet of savings in Lake Mead.

On May 3, Reclamation announced two drought response actions to protect Lake Powell due to the potential risk of falling below power pool. Flaming Gorge Reservoir will release an additional 500 thousand acre-feet and 480 thousand acre-feet will be left in Lake Powell by reducing the releases to Lake Mead. The combined actions will increase Lake Powell's elevation by approximately 16 feet.

- **Water Use in Southern Nevada**

Southern Nevada's consumptive use January through April of 2022 was 56,173 acre-feet. In 2021, Southern Nevada consumed less Colorado River water than the 300,000 acre-feet entitlement: specifically, 49,832 (17%) 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 2.3 million acre-feet in total to be stored for future use.

- **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 (May 24 month study) is forecasting Lake Mead to be at an elevation of 1,039.9 feet by the end of calendar year 2023 (Figure 1).

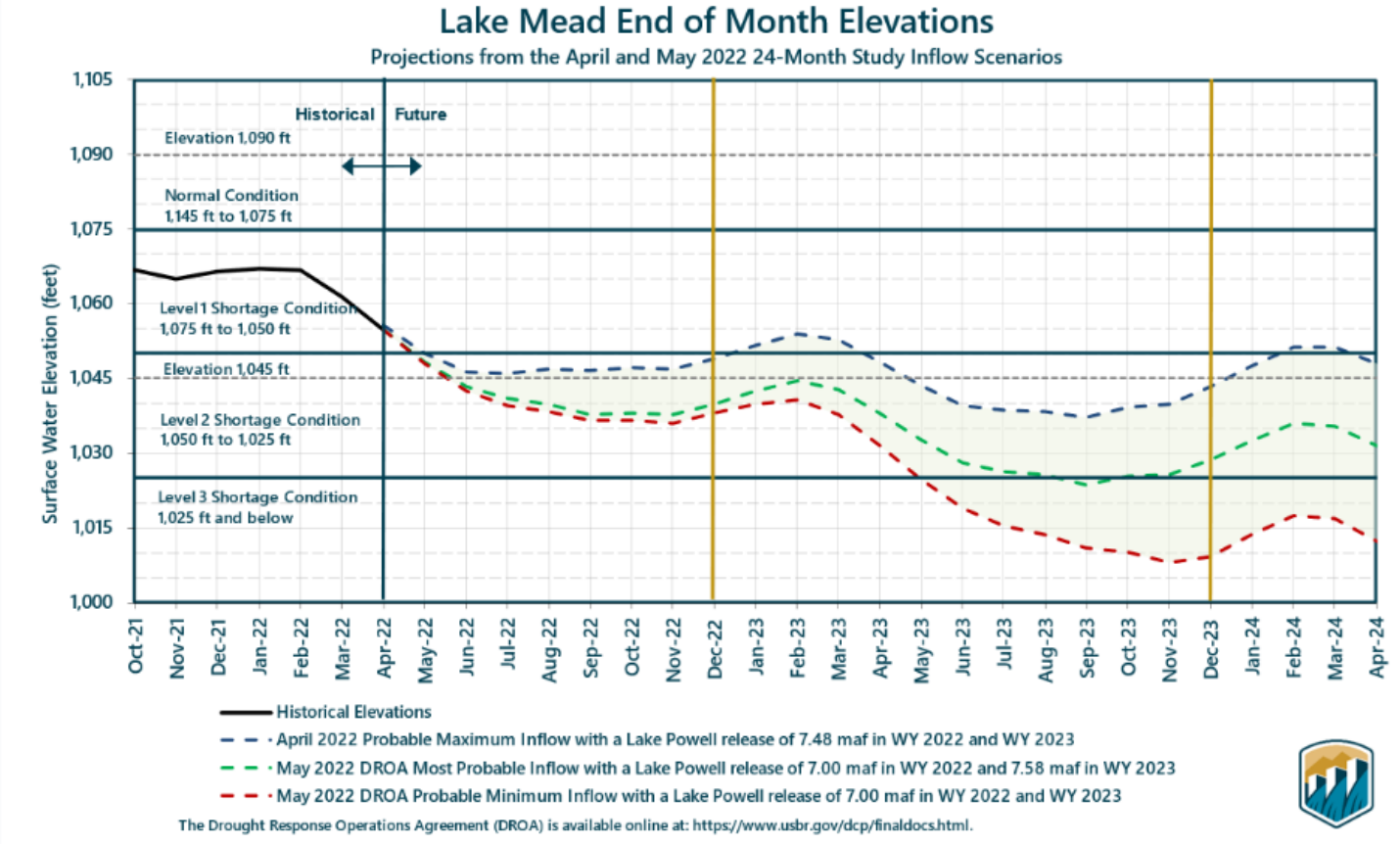


Figure 1. Reclamations May 24 Month Study.

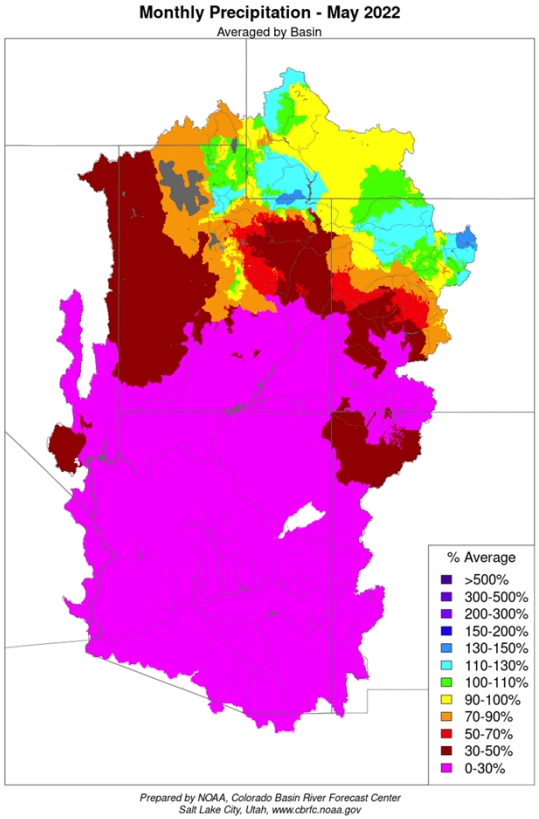
Colorado River Commission of Nevada

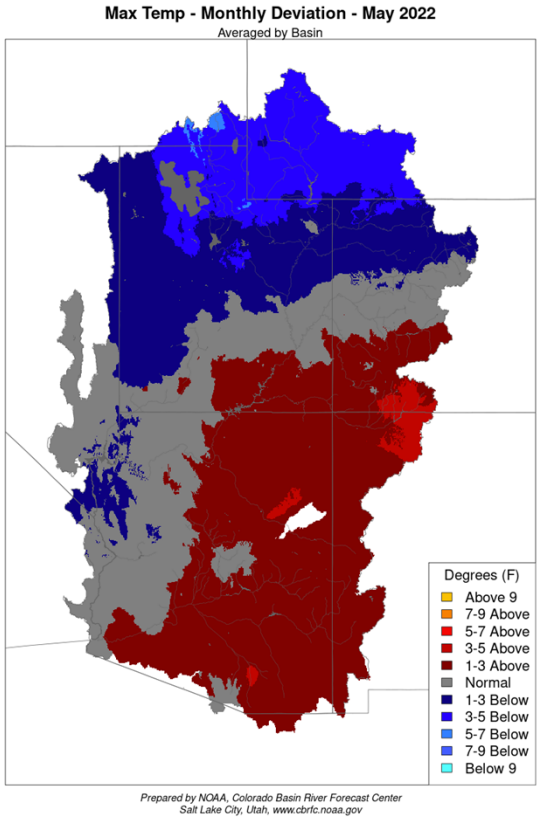
Hydrology and Water Use Update

Laura Dye

June 14, 2022

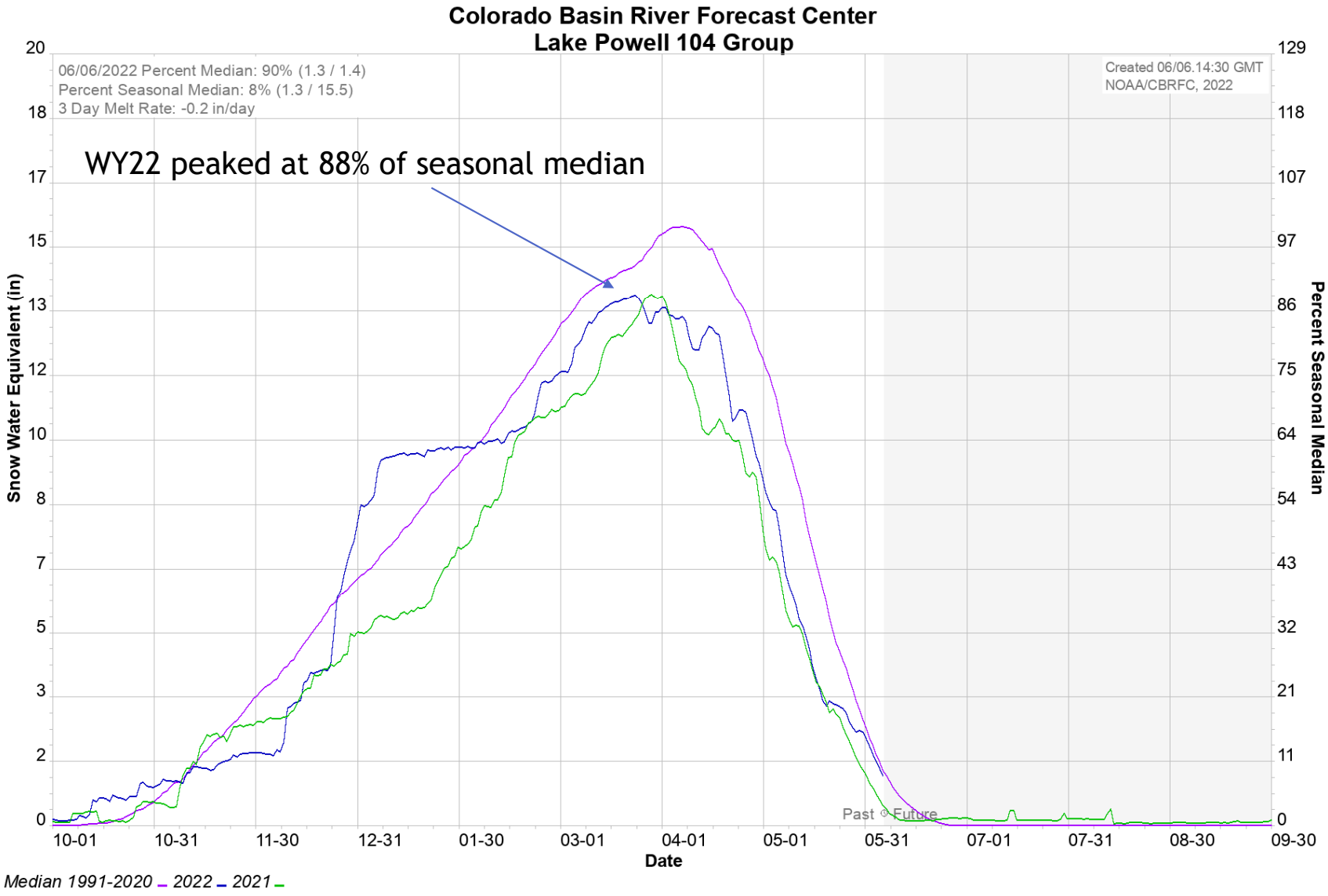
Precipitation and Temperature





Lake Powell %Average Precipitation Water Year 2022

Area	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Water Year
UC-Powell	127	45	206	51	62	84	69	78	90


Colorado Basin River Forecast Center
Lake Powell 104 Group
06/06/2022 Percent Median: 90% (1.3 / 1.4)
Percent Seasonal Median: 8% (1.3 / 15.5)
3 Day Melt Rate: -0.2 in/day
Created 06/06.14:30 GMT
NOAA/CBRFC, 2022
WY22 peaked at 88% of seasonal median
Snow Water Equivalent (in)
Percent Seasonal Median
Date
Past
Future
20
18
17
15
13
12
10
8
7
5
3
2
0
129
118
107
97
86
75
64
54
43
32
21
11
0
10-01
10-31
11-30
12-31
01-30
03-01
04-01
05-01
05-31
07-01
07-31
08-30
09-30
Median 1991-2020
2022
2021

Unregulated Inflow, Current and Projected Reservoir Status

Projected unregulated inflow to Lake Powell	Acre-Feet	% Average
Water Year 2022	5,610,000	58%
April thru July 2022	3,500,000	55%

Reservoir	Current Elevation	Current Storage Acre-Feet	Current % Capacity	Projected Elevation on 1/1/2023[1]
Lake Mead	1,046.8	7,539,000	29%	1,039.9
Lake Powell	3,534.0	6,324,000	26%	3,522.9

Data retrieved June 6, 2022

[1] Based on Reclamation's May 2022 24 Month Study Most Probable Inflow.

Water Use In Southern Nevada

Southern Nevada Water Use	2021 Actual Use in Acre-Feet
Nevada Annual Allocation	300,000
Diversions	481,079
Return Flow Credits	238,911
Consumptive Use	242,168
2021 Drought Contingency Plan contribution	-8,000
Unused Allocation Available for Banking	49,832 (17%)

Southern Nevada Water Use	Diversions	Return Flows	Consumptive Use
January – April 2022	134,178	78,005	56,173

Banked Water (through end of 2021)	Acre-Feet
Ground Water Recharge in So. Nevada	356,955
Banked in Lake Mead	949,658
Banked in California and Arizona	944,071
Total	2,250,684

Summary

Lake Powell

- Water Year 2022[1] has received 90% of average precipitation in the Upper Basin.
- Upper Basin snowpack peaked at 88% of the seasonal median.
- Unregulated inflow for water year 2022 is forecasted to be 58% 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.
- Over the last 6 years, the Lower Basin has conserved enough water to raise Lake Mead by 65 feet.

Nevada Water Supply

- Southern Nevada has about 9 years of water supply banked. [2]
- **In 2021, Southern Nevada used 57,832 af less than our annual allocation.**

Storage	Elevation (f)	% Capacity	Change since last year
Lake Mead	1,046.8	29%	-25.4 ft
Lake Powell	3,534.0	26%	-27.4 ft

Data retrieved June 6, 2022.

[1] Water year is defined as October through September.

[2] Based on 2021 consumptive use and storage volumes through 2021.