

## Hydrology Report – April 2023

### UPDATE ON DISCUSSIONS

- **General Update on Negotiations for Near Term Actions**

The Basin States are awaiting the release of the Federal draft alternative under the SEIS, which should occur by the end of the week of April 10, 2023. It is unclear as of now to what extent the Bureau of Reclamation will address the 6 -Basin States Consensus Based Modeling Alternative and the California proposal.

The Basin States are also awaiting the announcement of the April 24 month study, which given the anticipated increase in runoff, will likely include a mid-year adjustment to increase the release from Glen Canyon Dam up to 9.5MAF for water year 2023.

### HYDROLOGY UPDATE

- **Upper Basin precipitation and Temperature**

In March, the upper basin received above average precipitation from several large storms traveling from California. Upper basin precipitation in March was 180% of average bringing the cumulative precipitation to 130% of average for the year. Upper basin temperatures in March were more than 5 degrees below normal creating favorable conditions for snow accumulation.

- **Upper Basin Snowpack and runoff**

Current basin snowpack is 154% of the seasonal median. On February 23, snowpack exceeded the peak which normally occurs in April. Storms in March contributed to above average precipitation resulting in one of the best snowpack seasons in the last 40 years. The runoff for the year is forecasted at 151% of average due to above average snowpack conditions.

- **Current reservoir status**

As of April 3, 2023, Lake Mead is at an elevation of 1,046.0 feet and has about 7.4 million acre-feet in storage (28% capacity). As of April 3, 2023, Lake Powell is at an elevation of 3,521.9 feet and has about 5.4 million acre-feet in storage (23% capacity). Since this time last year, Lake Mead has decreased in elevation about 15 feet and Lake Powell has decreased by 1 foot. Total system storage for the upper and lower basin is around 19.0 million acre-feet (32% capacity).

- **2023 Reservoir Operations and Drought Operations**

In calendar year 2023, there is a Level 2a shortage under the 2007 Guidelines and there is a required Drought Contingency Plan contribution for Nevada and Arizona. Accordingly, in 2023, Nevada’s consumptive use will be reduced by 17,000 acre-feet under the 2007 Interim Guidelines and Nevada will make 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 2023. Those amounts are significantly larger than Nevada’s obligations. The total combined volumes for Arizona, Nevada, and Mexico are 721,000 acre-feet in calendar year 2023, which will save the equivalent of about 10 feet in elevation in Lake Mead. The reductions and contributions for calendar year 2023 are highlighted in Figure 1.

Lake Mead Elevation (feet msl)	2007 Interim Guidelines Shortages		Minute 323 Delivery Reductions	Total Combined Reductions	DCP Water Savings Contributions			Binational Water Scarcity Contingency Plan Savings	Combined Volumes by Country US: (2007 Interim Guidelines Shortages + DCP Contributions) Mexico: (Minute 323 Delivery Reductions + Binational Water Scarcity Contingency Plan Savings)					Total Combined Volumes
	AZ	NV	Mexico	Lower Basin States + Mexico	AZ	NV	CA	Mexico	AZ Total	NV Total	CA Total	Lower Basin States Total	Mexico Total	Lower Basin States + Mexico
1,090 - 1,075	0	0	0	0	192	8	0	41	192	8	0	200	41	241
1,075 - 1,050	320	13	50	383	192	8	0	30	512	21	0	533	80	613
1,050 - 1,045	400	17	70	487	192	8	0	34	592	25	0	617	104	721
1,045 - 1,040	400	17	70	487	240	10	200	76	640	27	200	867	146	1,013
1,040 - 1,035	400	17	70	487	240	10	250	84	640	27	250	917	154	1,071
1,035 - 1,030	400	17	70	487	240	10	300	92	640	27	300	967	162	1,129
1,030 - 1,025	400	17	70	487	240	10	350	101	640	27	350	1,017	171	1,188
<1,025	480	20	125	625	240	10	350	150	720	30	350	1,100	275	1,375

Figure 1. The reductions and contributions for calendar year 2023.

- **Water Use in Southern Nevada**

Southern Nevada’s consumptive use in January through February of 2023 was 15,372 acre-feet, which is a 27.6% decrease in water use compared to last year. In 2022, southern Nevada consumed less Colorado River water than its 300,000 acre-feet entitlement: specifically, 55,393 (18%) acre feet less. The Southern Nevada Water Authority stored the unused water in Lake Mead to help maintain critical lake levels. This stored water is accessible to southern Nevada in the future if necessary. The Southern Nevada Water Authority has been aggressively reducing consumptive uses through turf removal and conservation programs allowing thus far over 2.3 million acre-feet in total to be stored for future use.

- **Reclamation's Lake Mead Projection<sup>2</sup>**

Reclamation uses computer models to forecast reservoir elevations based on planned water use and anticipated runoff. Figure 2 shows that the March 24 Month Study is forecasting Lake Mead to end the calendar year between 1,034.6 and 1,022.9 feet in elevation.

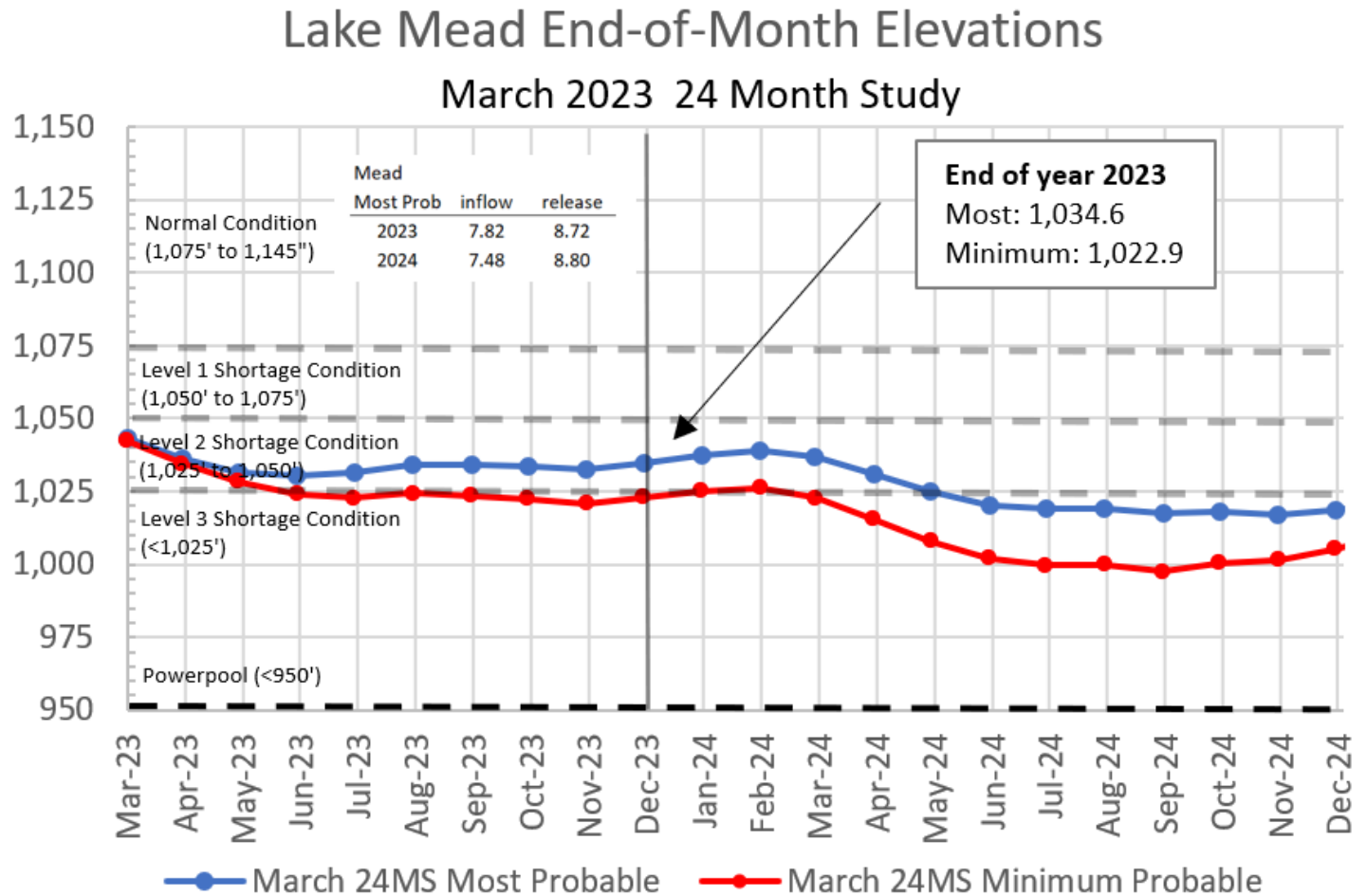


Figure 2. Reclamations March 24 Month Study projections for Lake Mead.

- **Reclamation’s Lake Powell Projection <sup>2</sup>**

Reclamations March 24 Month Study is forecasting Lake Powell’s elevation to be between 3,552.0 and 3,539.4 feet by the end of the year (Figure 3).

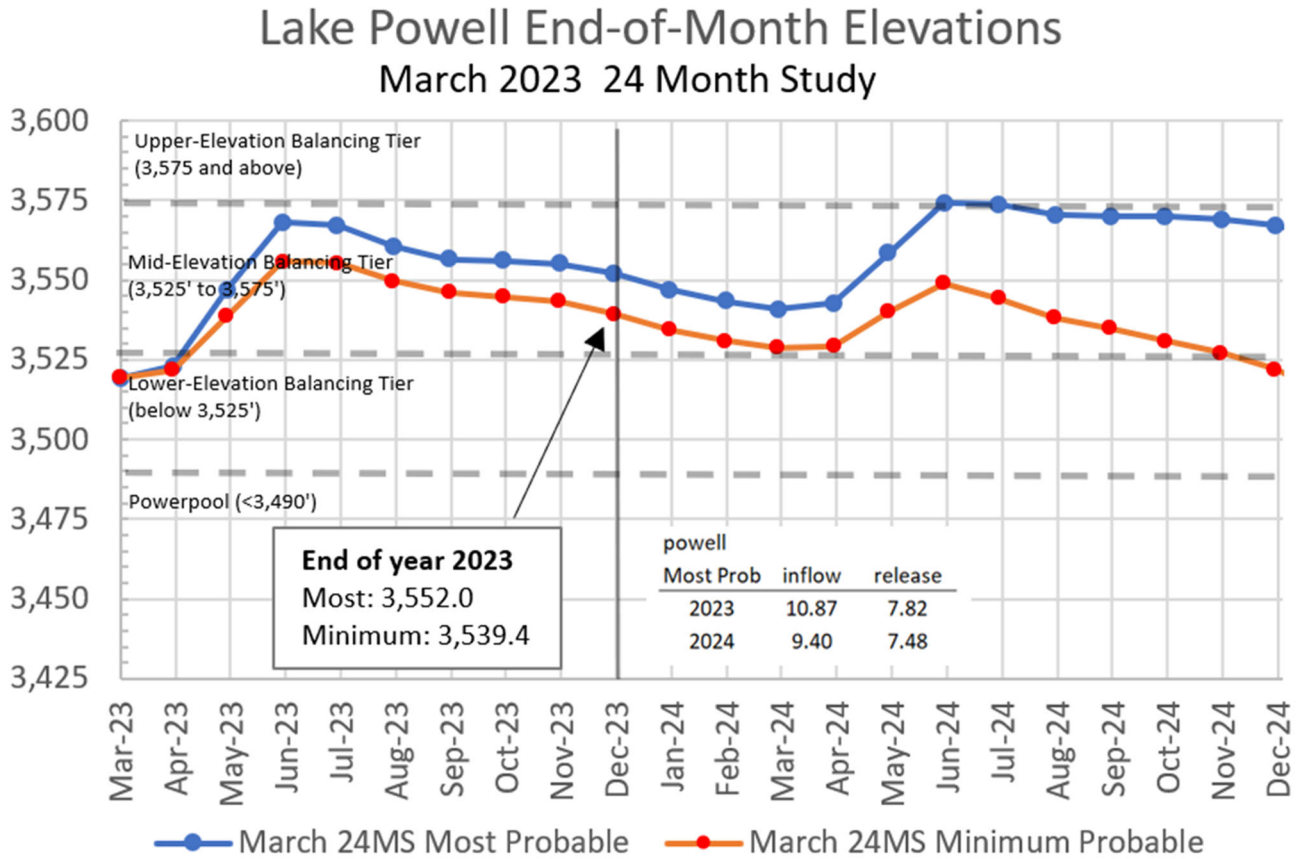


Figure 3. Reclamations March 24 Month Study projections for Lake Powell.

<sup>2</sup> Reclamation modeling assumes the current operational guidelines and planned conservation activities. Forecasts could improve by implementing additional actions.

# Colorado River Commission of Nevada

## Hydrology and River Updates

Warren Turkett

April 11, 2023

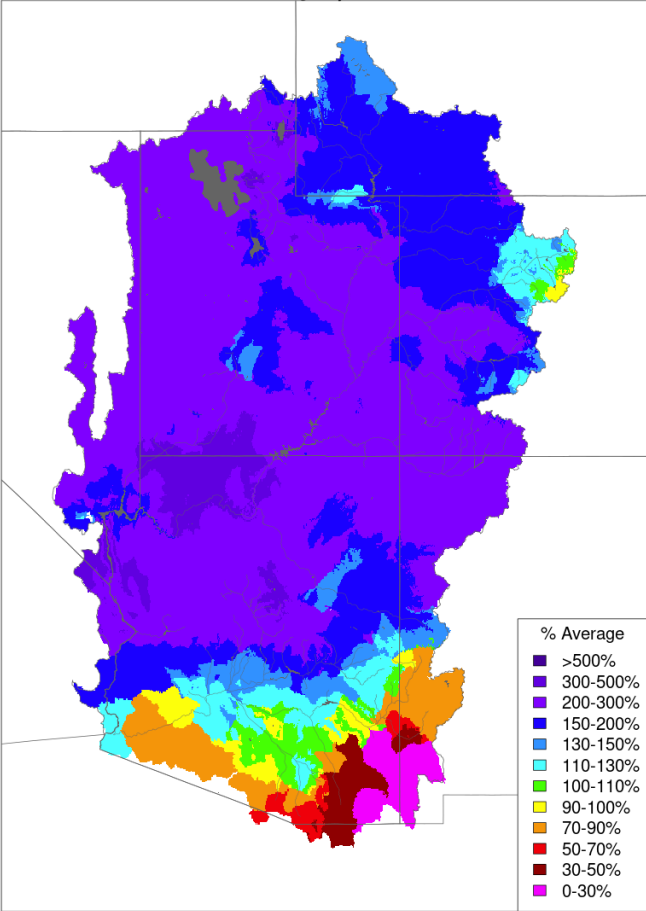


# Precipitation and Temperature



Monthly Precipitation - March 2023

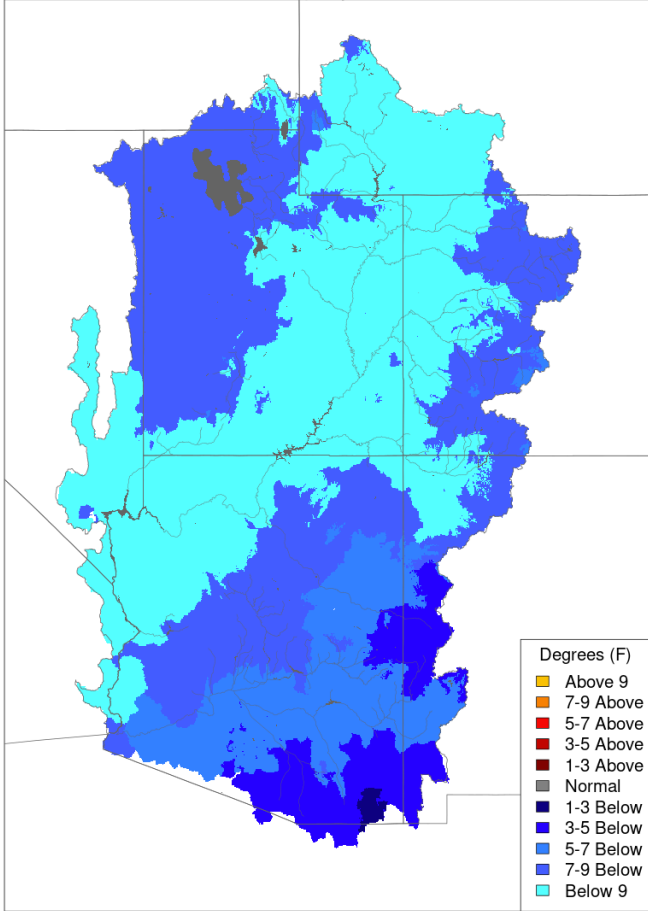
Averaged by Basin



Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

Max Temp - Monthly Deviation - March 2023

Averaged by Basin



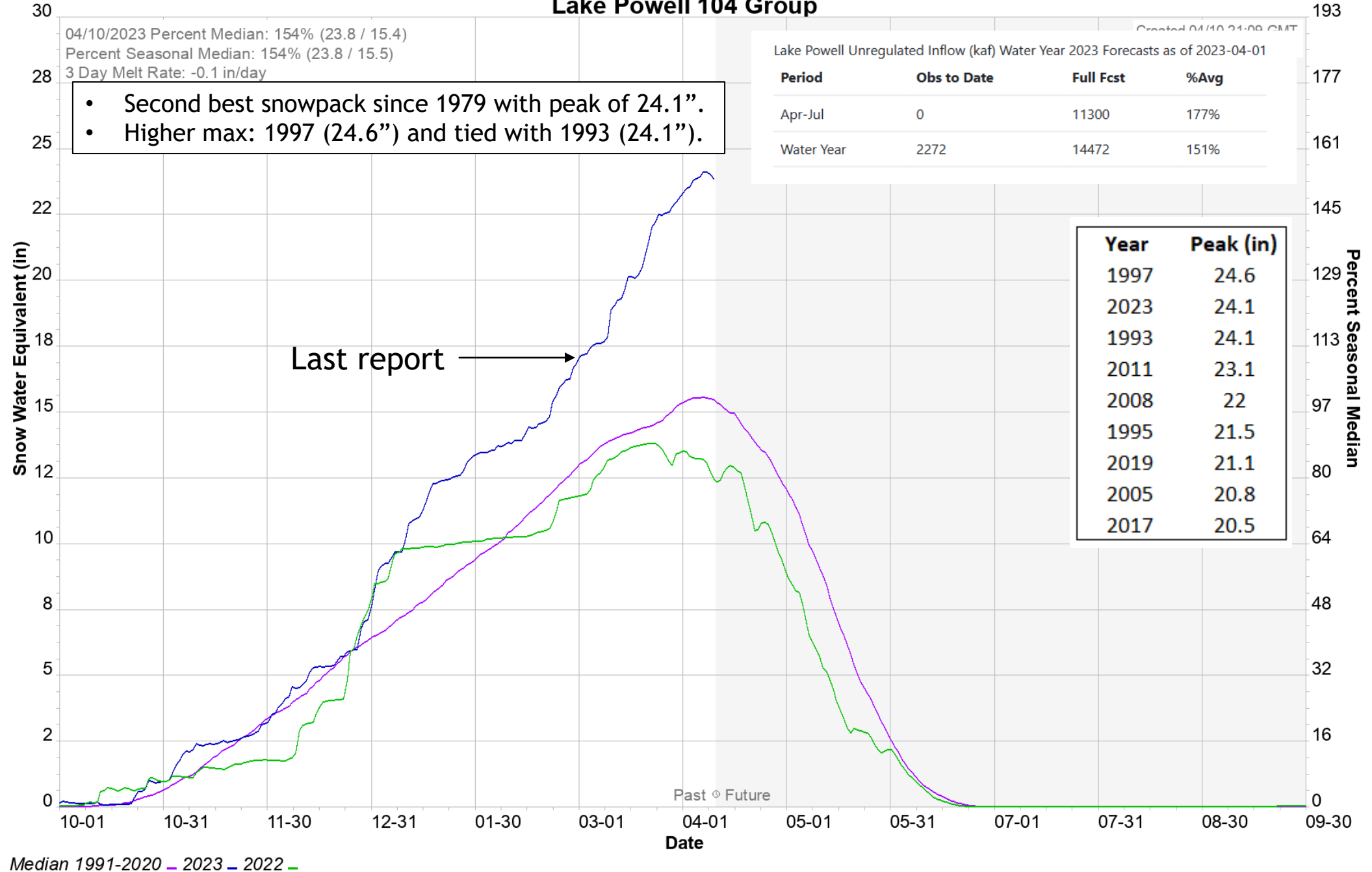
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Lake Powell %Average Precipitation Water Year 2023

Area	Oct	Nov	Dec	Jan	Feb	Mar	Water Year
UC-Powell	84	82	152	170	102	180	130



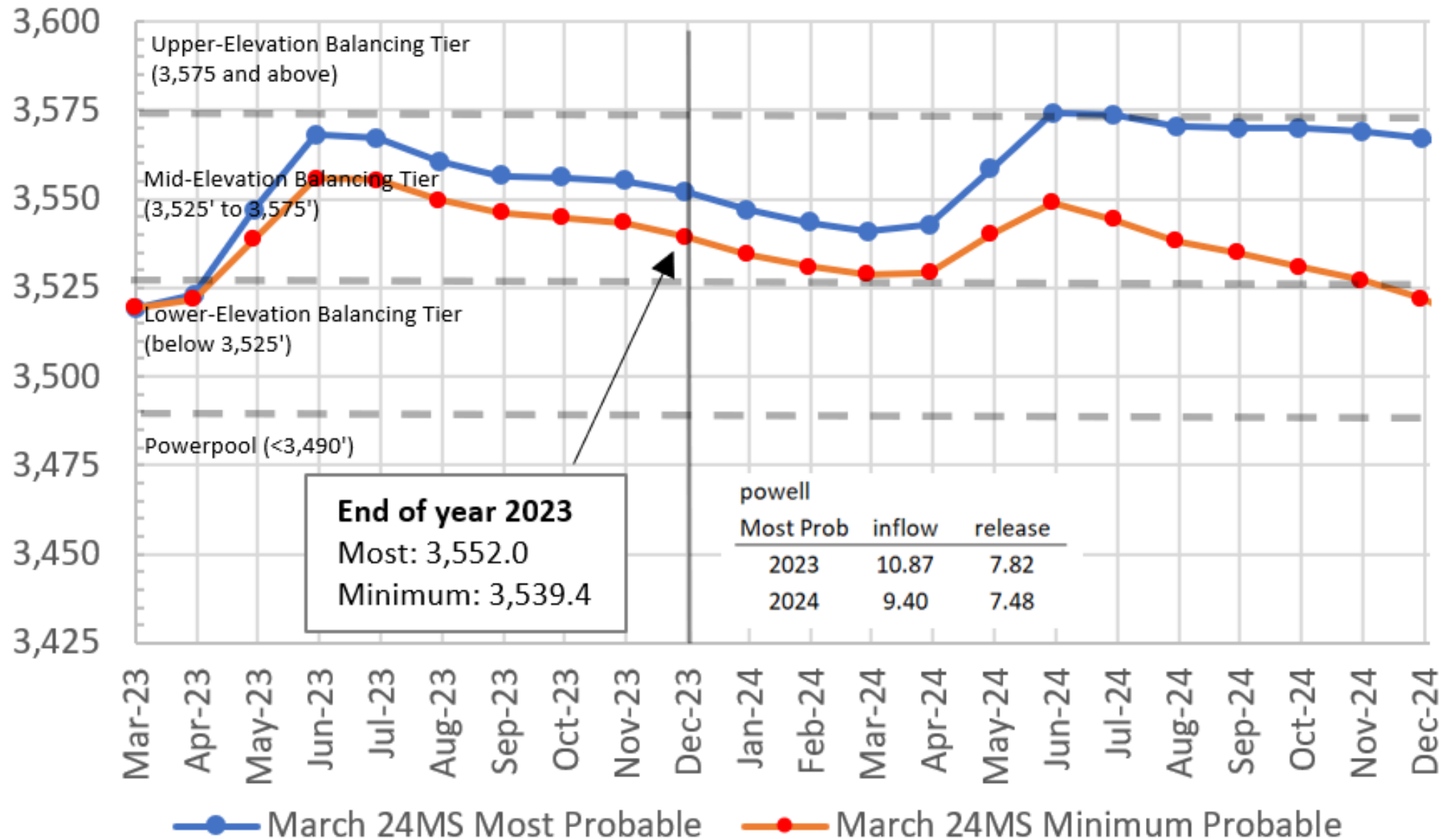
# Colorado Basin River Forecast Center Lake Powell 104 Group





# Lake Powell End-of-Month Elevations

## March 2023 24 Month Study

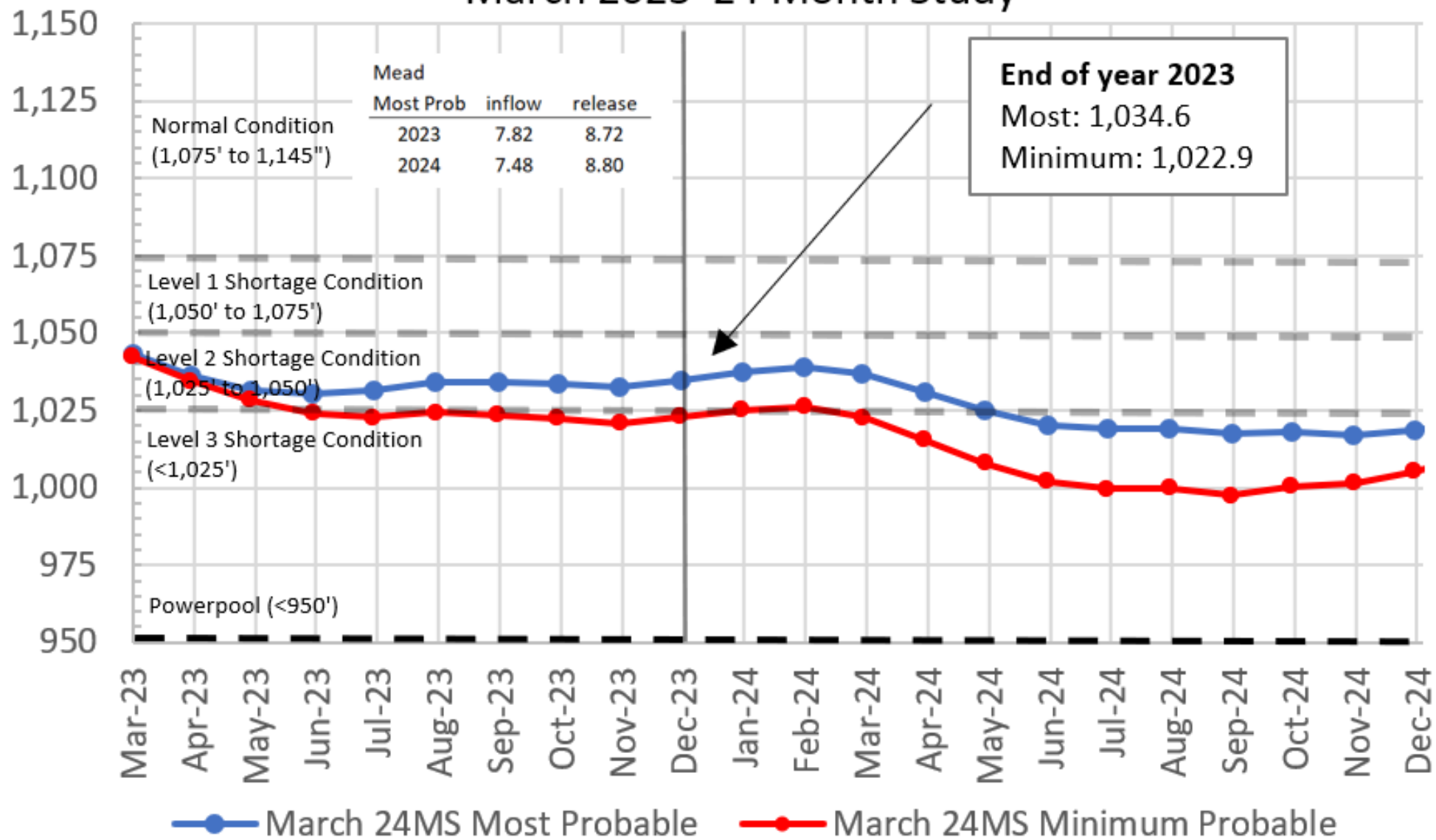






# Lake Mead End-of-Month Elevations

## March 2023 24 Month Study



# Water Use In Southern Nevada

## 2022 Southern Nevada Water Use

Acre-Feet

Nevada Annual Allocation	300,000
2022 Drought Contingency Plan contribution	-8,000
Interim Guidelines Shortages	-13,000
Diversions	465,767
Return Flow Credits	242,124
Consumptive Use	223,643
Water available for Storage	55,357 (18%)

## 2023 January - February Southern Nevada Water Use

Acre-Feet

Nevada Annual Allocation	300,000
2022 Drought Contingency Plan contribution	-8,000
Interim Guidelines Shortages	-13,000
Diversions	55,420
Return Flow Credits	40,048
Consumptive Use	15,372

# Negotiations and Updates

## Supplemental Environmental Impact Statement for 2007 Guidelines

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