

Hydrology Report – May 2023

UPDATE ON DISCUSSIONS

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

Reclamation released the draft SEIS on April 11th, which considers three alternatives. One alternative is a No Action Alternative which continues implementation of the current agreements and operations through 2026. The other two alternatives propose modifying the release volumes from Glen Canyon Dam with additional shortages to lower basin states. The basin states are reviewing the draft SEIS while negotiating a preferred alternative. Comments on the draft SEIS are due by May 30th.

HYDROLOGY UPDATE

- **Upper Basin precipitation and Temperature**

April had below average precipitation at 68% of average, but upper basin temperatures remained cooler than average allowing for some additional snowpack accumulation. Cumulative precipitation is currently at 121% of average for the year. Temperatures have warmed up and we are starting to see runoff entering Lake Powell.

- **Upper Basin Snowpack and runoff**

Upper basin snowpack peaked on April 7, 2023, with 24.1 inches of snow water equivalent or 155% of the seasonal median. The current projected runoff from this historic snowpack year is 148% of average.

- **Current reservoir status**

As of May 1, 2023, Lake Mead is at an elevation of 1,049.7 feet and has about 7.7 million acre-feet in storage (29% capacity). As of May 1, 2023, Lake Powell is at an elevation of 3,525.0 feet and has about 5.5 million acre-feet in storage (24% capacity). Since this time last year, Lake Mead has decreased in elevation by about 5 feet and Lake Powell has increased by about 2 feet. Total system storage for the upper and lower basin is around 19.8 million acre-feet (34% 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 March of 2023 was 26,233 acre-feet, which is a 32.1% 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 Projection²**

Reclamation uses computer models to forecast reservoir elevations based on planned water use and anticipated runoff. Figure 2 shows that the April 24 Month Study is forecasting Lake Mead to end the calendar year between 1,068.1 and 1,055.9 feet in elevation.

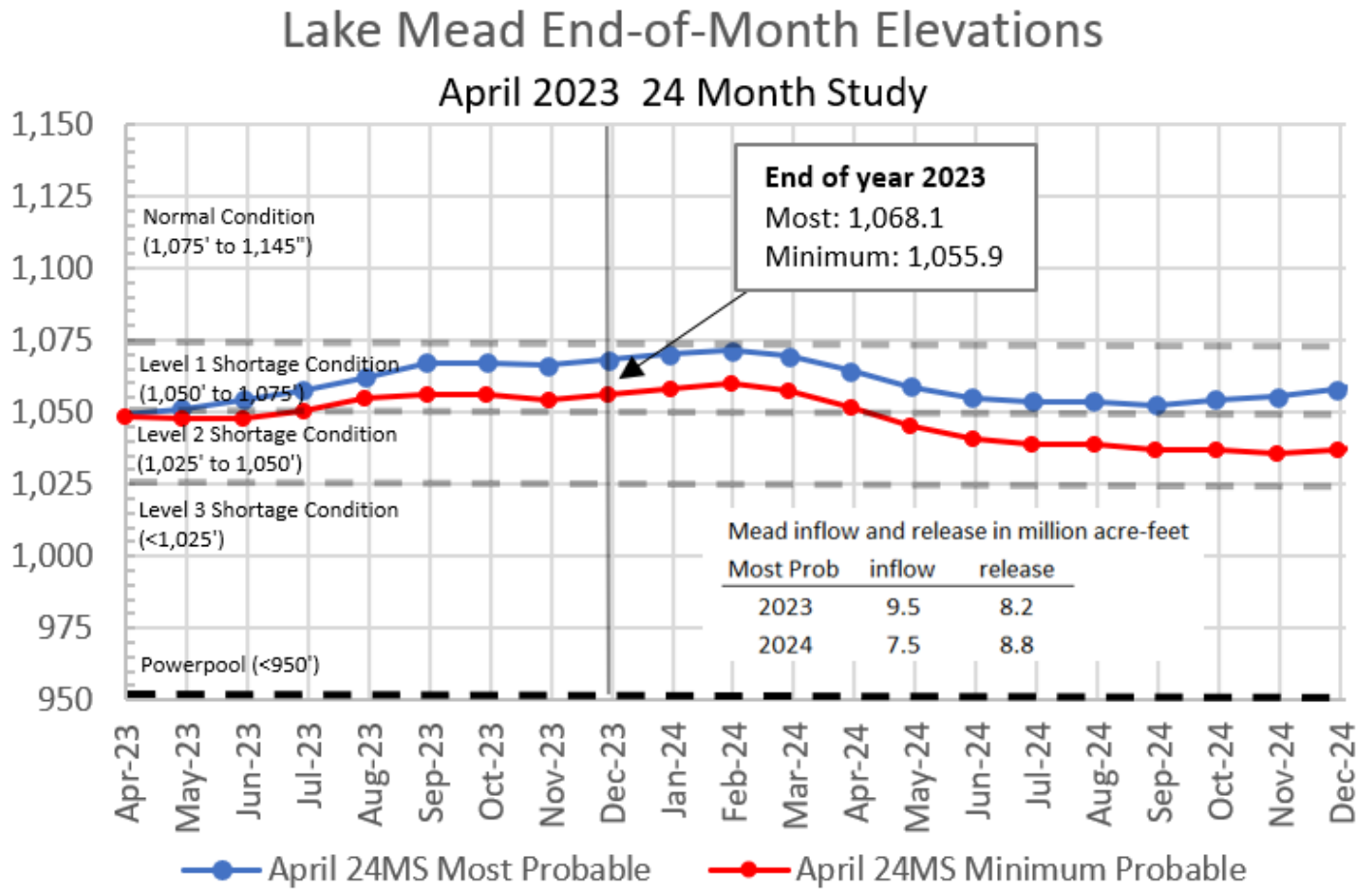


Figure 2. Reclamations April 24 Month Study projections for Lake Mead.

- **Reclamation’s Lake Powell Projection ²**

Reclamations April 24 Month Study is forecasting Lake Powell’s elevation to be between 3,573.5 and 3,559.3 feet by the end of the year (Figure 3).

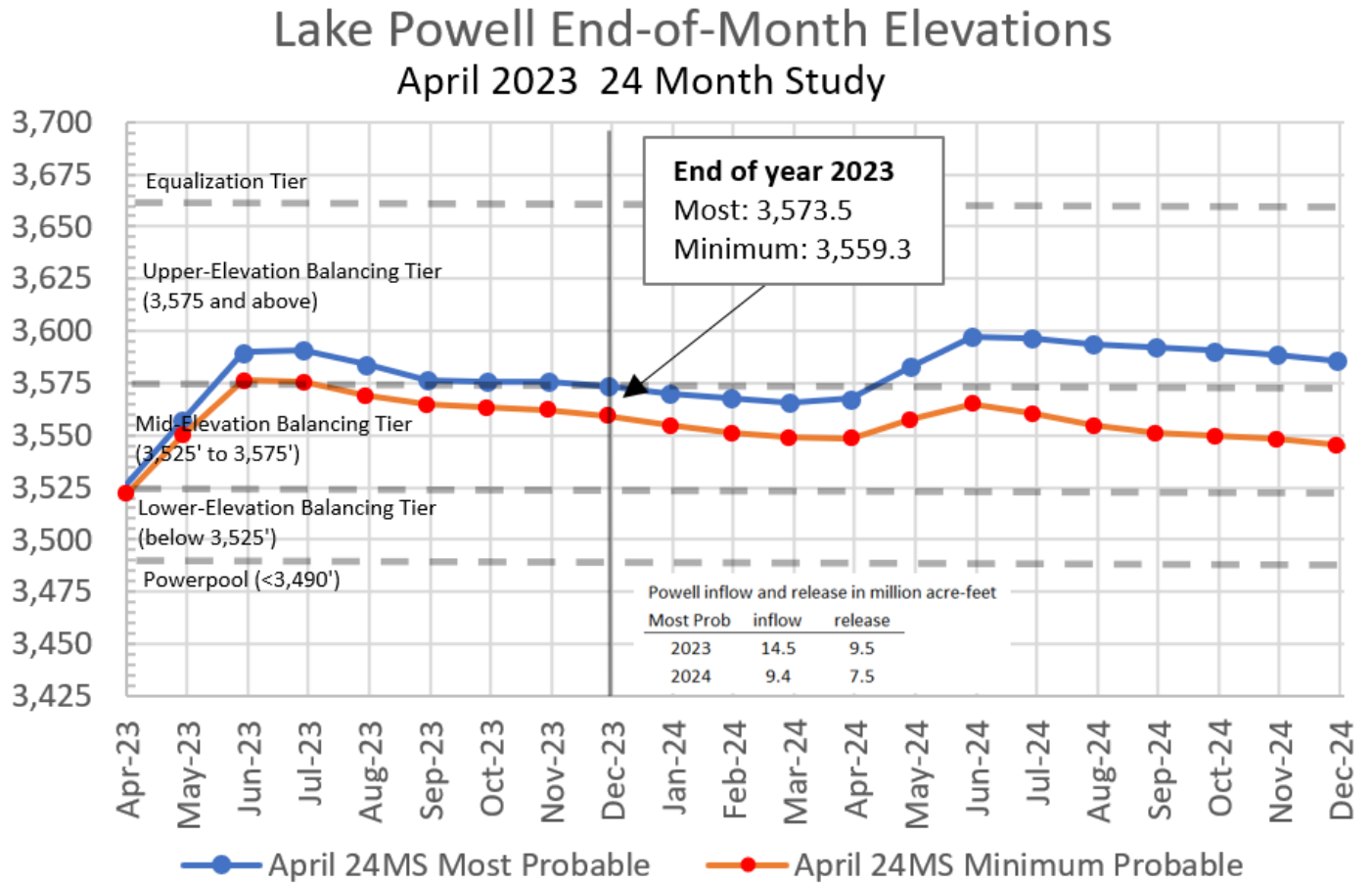


Figure 3. Reclamations April 24 Month Study projections for Lake Powell.

² 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

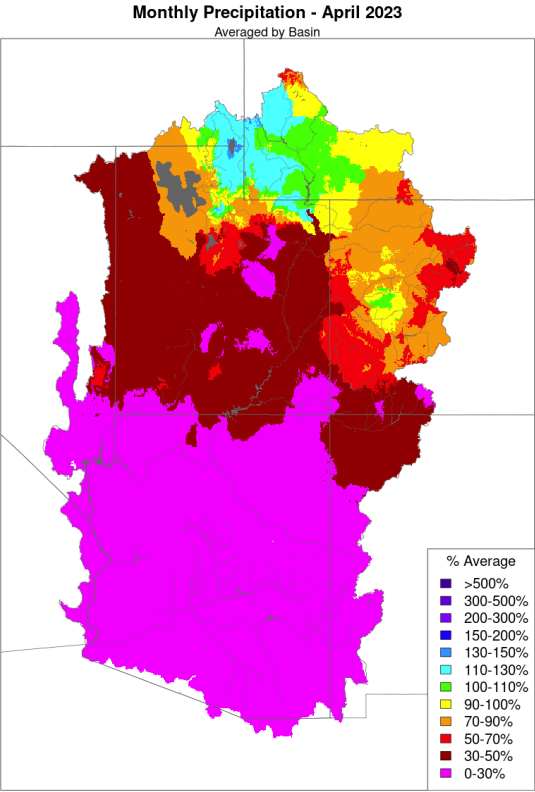
Warren Turkett

May 9, 2023

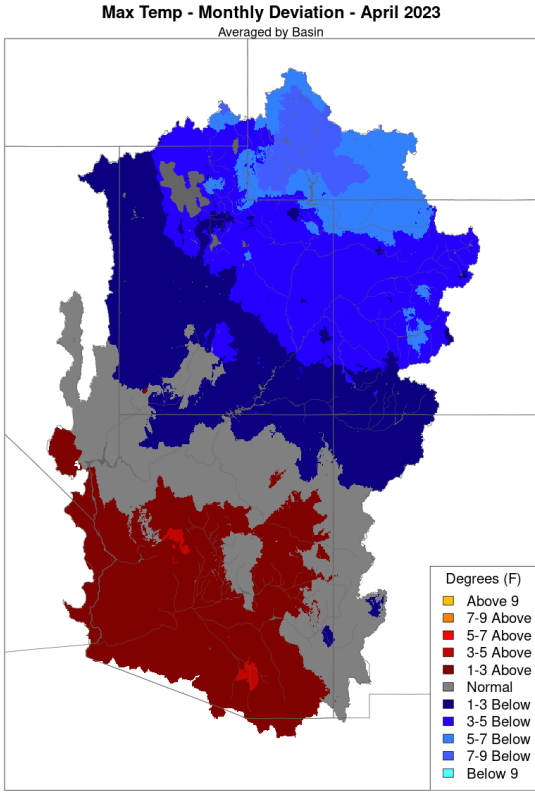




Precipitation and Temperature



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



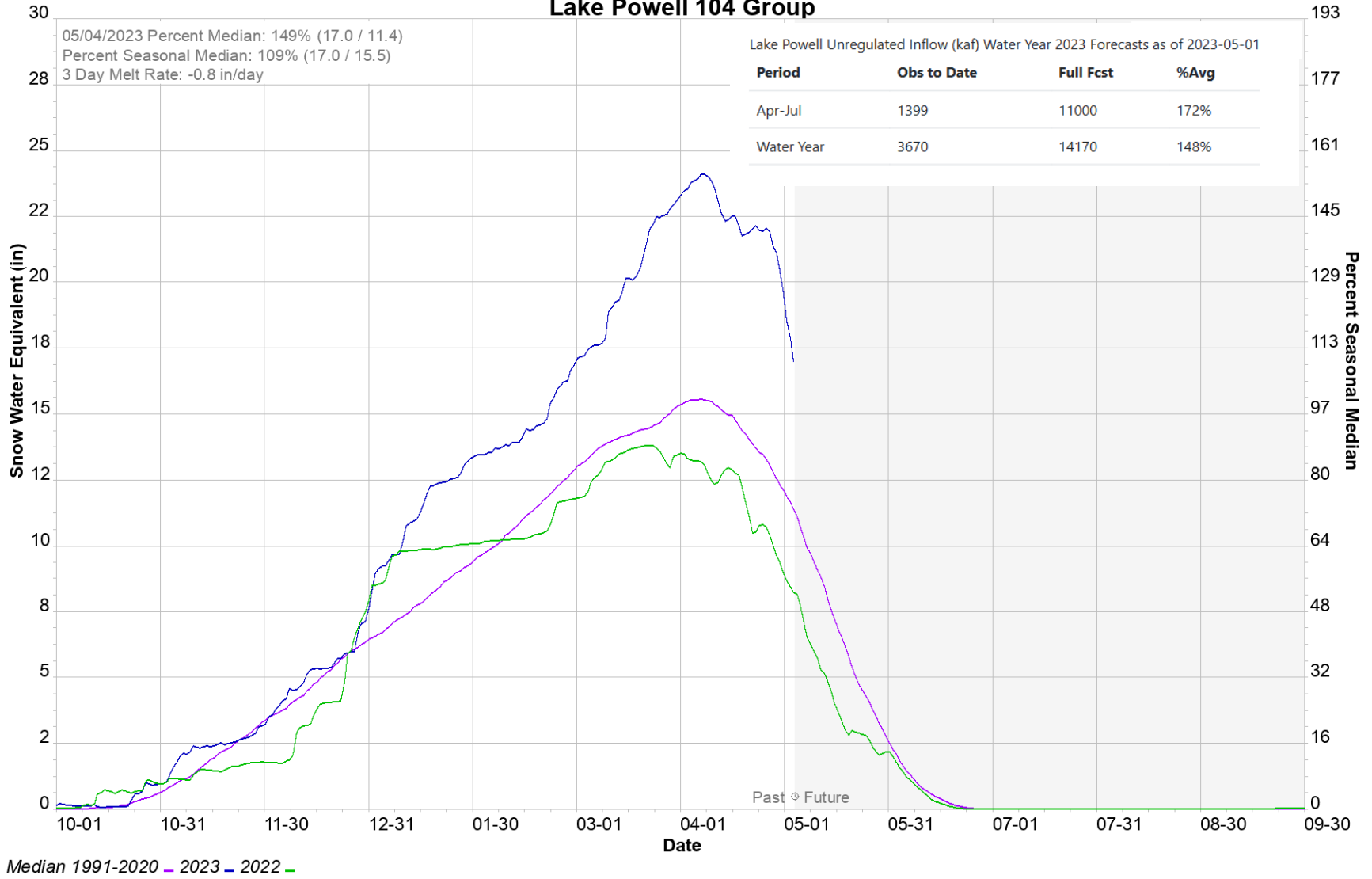
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Lake Powell %Average Precipitation Water Year 2023

Area	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Water Year
UC-Powell	84	82	152	170	102	183	68	121



Colorado Basin River Forecast Center Lake Powell 104 Group



Operations Update

High-Flow Experiment

- Reclamation conducted a High Flow Experiment at Glen Canyon Dam from April 24-27th.
- The high flow releases are being used to mobilize and deposit sediment within the Grand Canyon to build beaches.



Operations Update

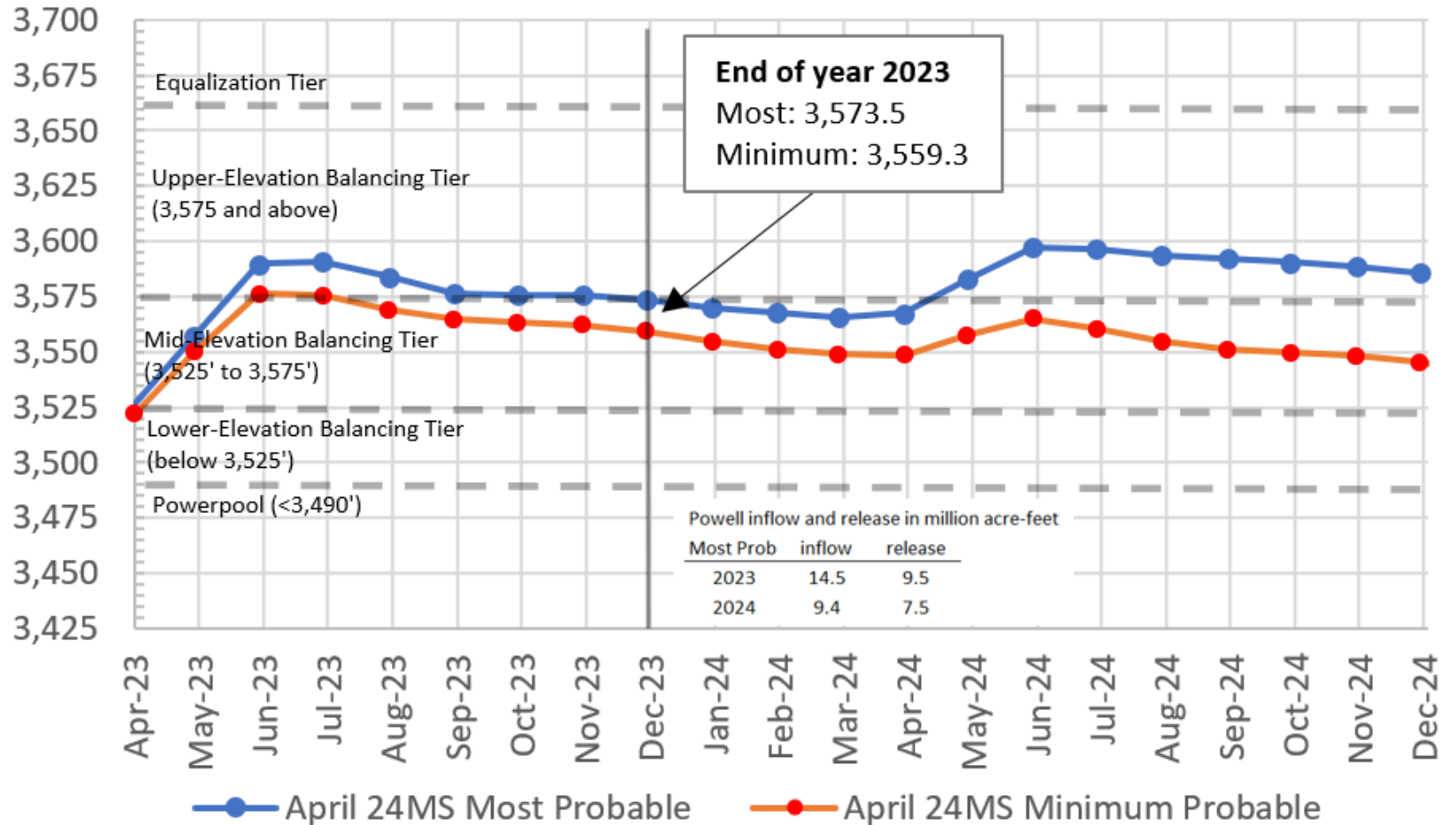
April 24 Month Study

- The forecasted runoff into Lake Powell increased in April due to above average snowpack conditions.
- The April 24-Month Study is projecting a balancing release of 9.50 maf from Lake Powell in WY 2023.
- The actual release will range between 7.00 and 9.50 maf and will depend on actual hydrology and reservoir conditions at Lake Powell and Lake Mead during the remainder of the water year.





Lake Powell End-of-Month Elevations April 2023 24 Month Study





Lake Mead End-of-Month Elevations April 2023 24 Month Study

