

Hydrology Report – December 2022

UPDATE ON DISCUSSIONS

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

The Secretary of the Interior's office issued a Register Notice for the preparation of a Supplemental Environmental Impact Statement (SEIS) to revise the December 2007 Record of Decision for the 2007 Interim Guidelines to create additional operational flexibility over the next few years, including potentially releasing less than 7 million-acre feet from Glen Canyon Dam. Comments are due on December 20, 2022. Reclamation is hopeful to receive a Basin States' consensus alternative as part of that comment process. The Basin States are in negotiations to develop such an alternative, however, at this juncture it is not clear if such an alternative will be ready by the 20th or whether the Basin States will submit individual proposed alternatives/comments on the SEIS. Reclamation is hopeful to have a draft SEIS by spring of 2023.

On November 15, 2022, Basin wide water agencies and municipalities executed a Memorandum of Understanding (MOU) confirming their commitment to develop and implement comprehensive and innovative water conservation programs and actions within their respective communities and to continue the process to both educate and assist their respective communities to acclimate to an existence with less water availability. Seen as an historic commitment, nearly 30 agencies across the Basin signed onto the MOU and a number of agencies have added their names to the MOU since its original execution.

Regarding the development of Post 2026 Colorado River Operational Strategies, Reclamation created an Integrated Technical Work Group comprised of a wide variety of stakeholders as an educational, nonpolicy platform to help educate stakeholders on the technical foundation to be used in developing Post 2026 operations. The first meeting was held on Wednesday, December 7, 2022, and will continue every 4-6 weeks thereafter.

HYDROLOGY UPDATE

- **Upper Basin precipitation and Temperature**

November received 82% average precipitation in the upper basin bringing the cumulative total to 83% of average for the year. Upper basin temperatures in November were 3-7 degrees below normal in the upper basin. The majority of the Colorado River Basin continues to have moderate to extreme drought designations in the U.S. Drought Monitor.

- **Upper Basin Snowpack and runoff**

Current basin snowpack accumulation is 110% of the seasonal median. The forecasted runoff was reduced to 80% of average for the year due to below average precipitation in October and November.

- **Current reservoir status**

As of December 5, 2022, Lake Mead is at a current elevation of 1,043.1 feet and has about 7.2 million acre-feet in storage (28% capacity). As of December 5, 2022, Lake Powell is at a current elevation of 3,527.6 feet and has about 5.7 million acre-feet in storage (24% capacity). Since this time last year, Lake Mead has decreased in

elevation about 22 feet and Lake Powell has decreased about 13 feet. Total system storage for the upper and lower basin is around 19.1 million acre-feet (33% capacity).

- **2022 Reservoir Operations and Drought Operations**

In calendar year 2022, there is a Level 1 shortage under the 2007 Guidelines and there is a required Drought Contingency Plan contribution for Nevada and Arizona. Accordingly, in 2022, Nevada’s consumptive use will be reduced by 13,000 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 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.

On August 16, Reclamation released the results of the August 24 Month Study, which is used to determine the operations of the upcoming water year for both reservoirs. The August 24 Month Study projected the January 1, 2023, elevation for Lake Powell to be below 3,525 feet elevation indicating next year will be operated in the Lower Elevation Balancing Tier with an initial release of 7.0 million acre-feet. Lake Mead was projected to be below 1,050 feet and above 1,045 feet, indicating a Level 2a Shortage Condition for the lower basin. Thus, in 2023 (not including any additional requirements that may be imposed under the SEIS), Nevada will have a 17,000 acre-feet reduction from the 2007 Interim Guidelines and an 8,000 acre-feet Drought Contingency Plan contribution in calendar year 2023. 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 October of 2022 was 206,838 acre-feet. In 2021, southern Nevada consumed less Colorado River water than its 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 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 Projection¹**

Reclamation uses computer models to forecast reservoir elevations based on planned water use and anticipated runoff. Figure 2 shows that the November 24 Month Study Most Probable Inflow scenario is forecasting Lake Mead to be at a projected elevation of 1,021.8 feet by the end of calendar year 2023 (blue line). A dryer but possible scenario is represented in red, which indicates Lake Mead could drop to 991 feet by October of 2024.

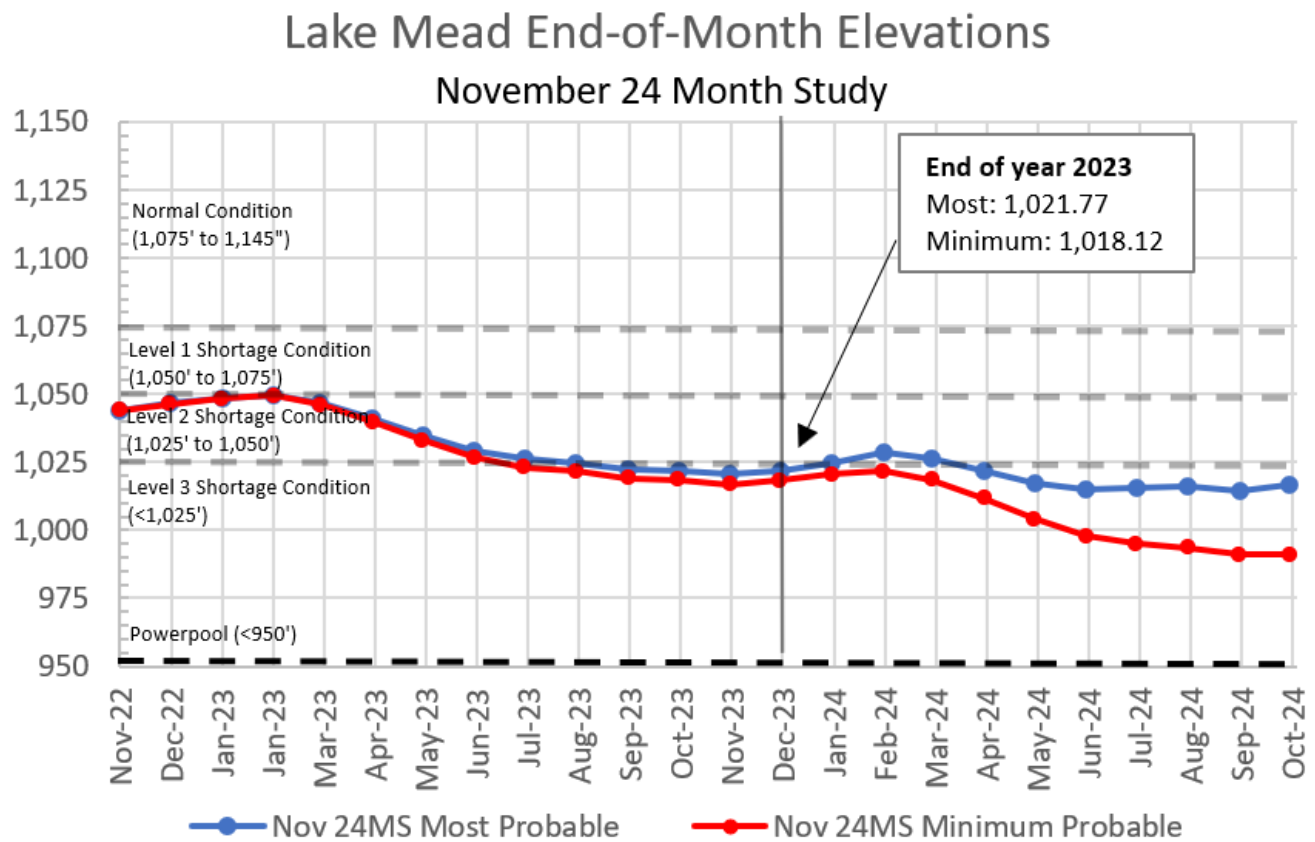


Figure 2. Reclamations November 24 Month Study projections for Lake Mead.

- **Reclamation’s Lake Powell Projection ¹**

Reclamations 24 Month Study is forecasting Lake Powell’s elevation to be between 3,529.4 and 3,489.3 feet by the end of the year (Figure 3). The driest scenario is showing Lake Powell going below power pool between December 2023 and April 2024. Reclamation has recently approved modifying the annual release pattern to protect critical elevations during spring, which will increase Lake Powell’s elevation by 10 feet. The modifications will start in December 2022.

Lake Powell End-of-Month Elevations November 24 Month Study

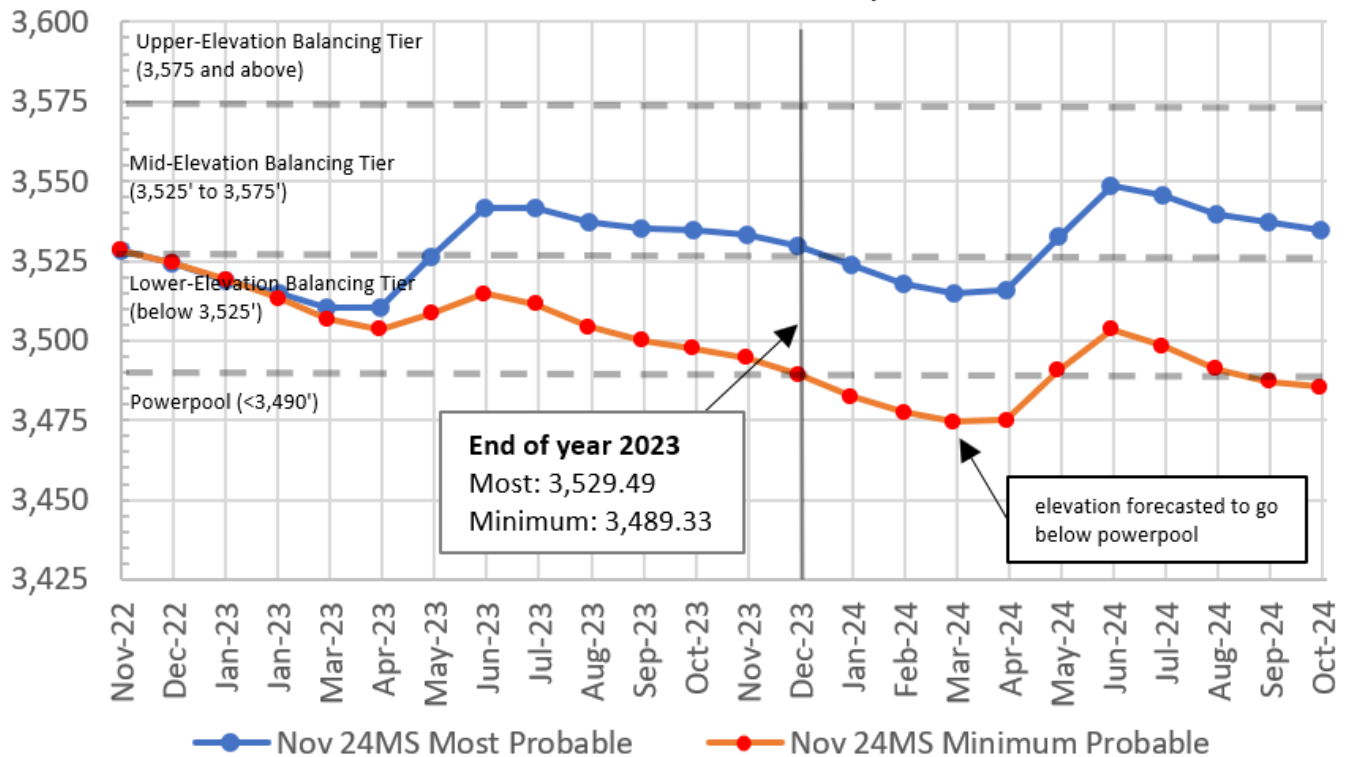


Figure 3. Reclamations November 24 Month Study projections for Lake Powell.

¹ 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

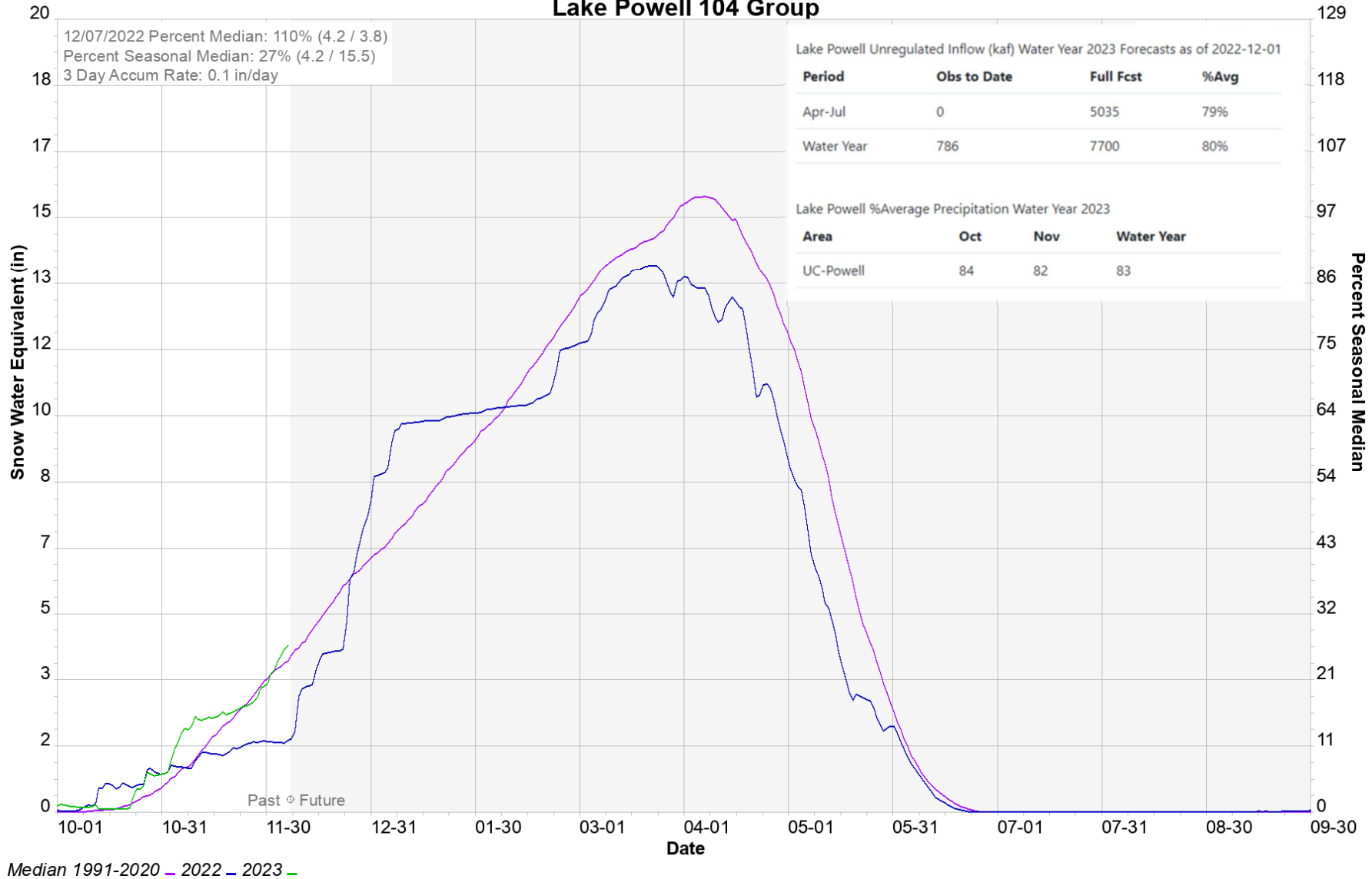
Warren Turkett

December 13, 2022



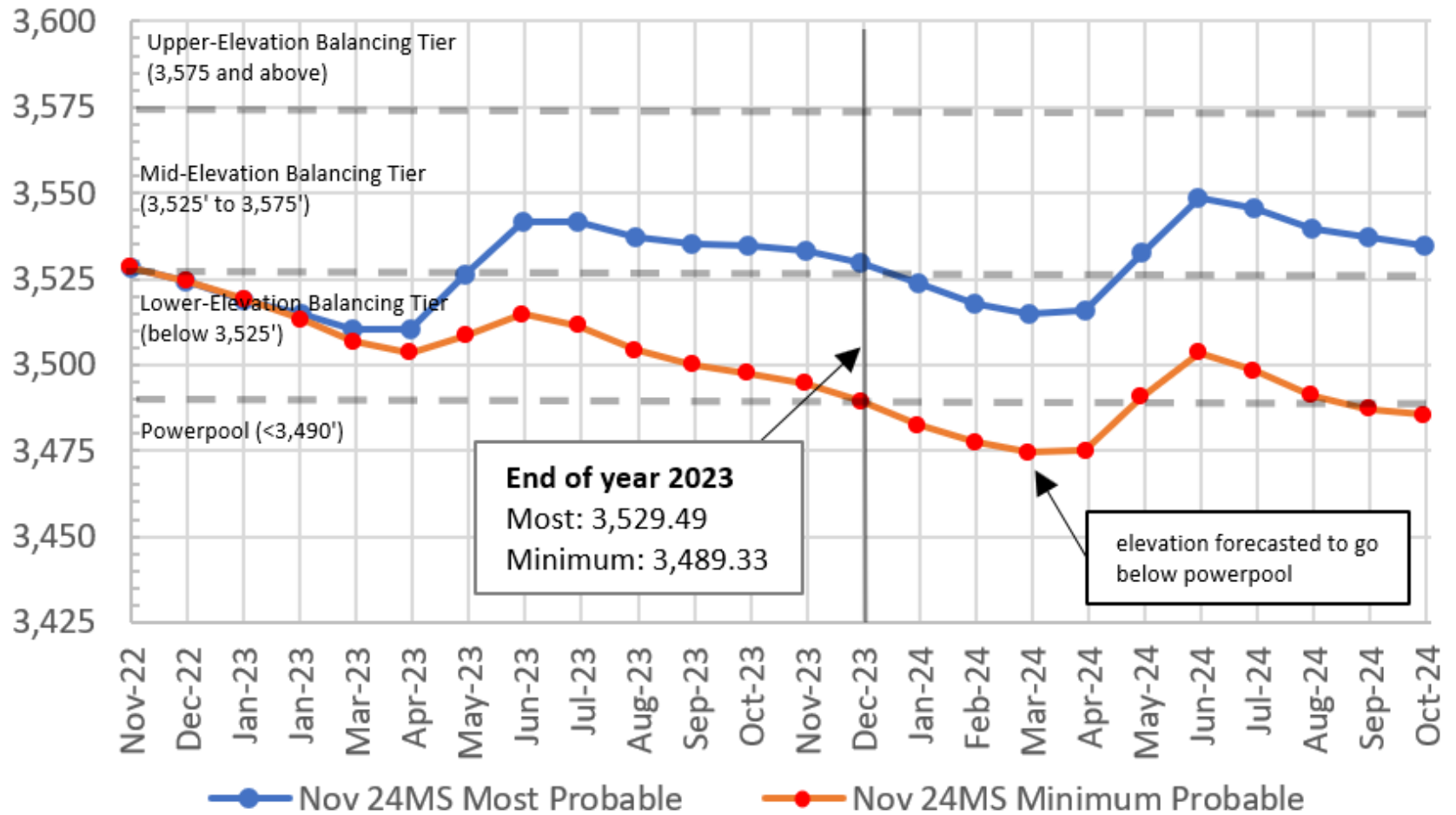


Colorado Basin River Forecast Center Lake Powell 104 Group



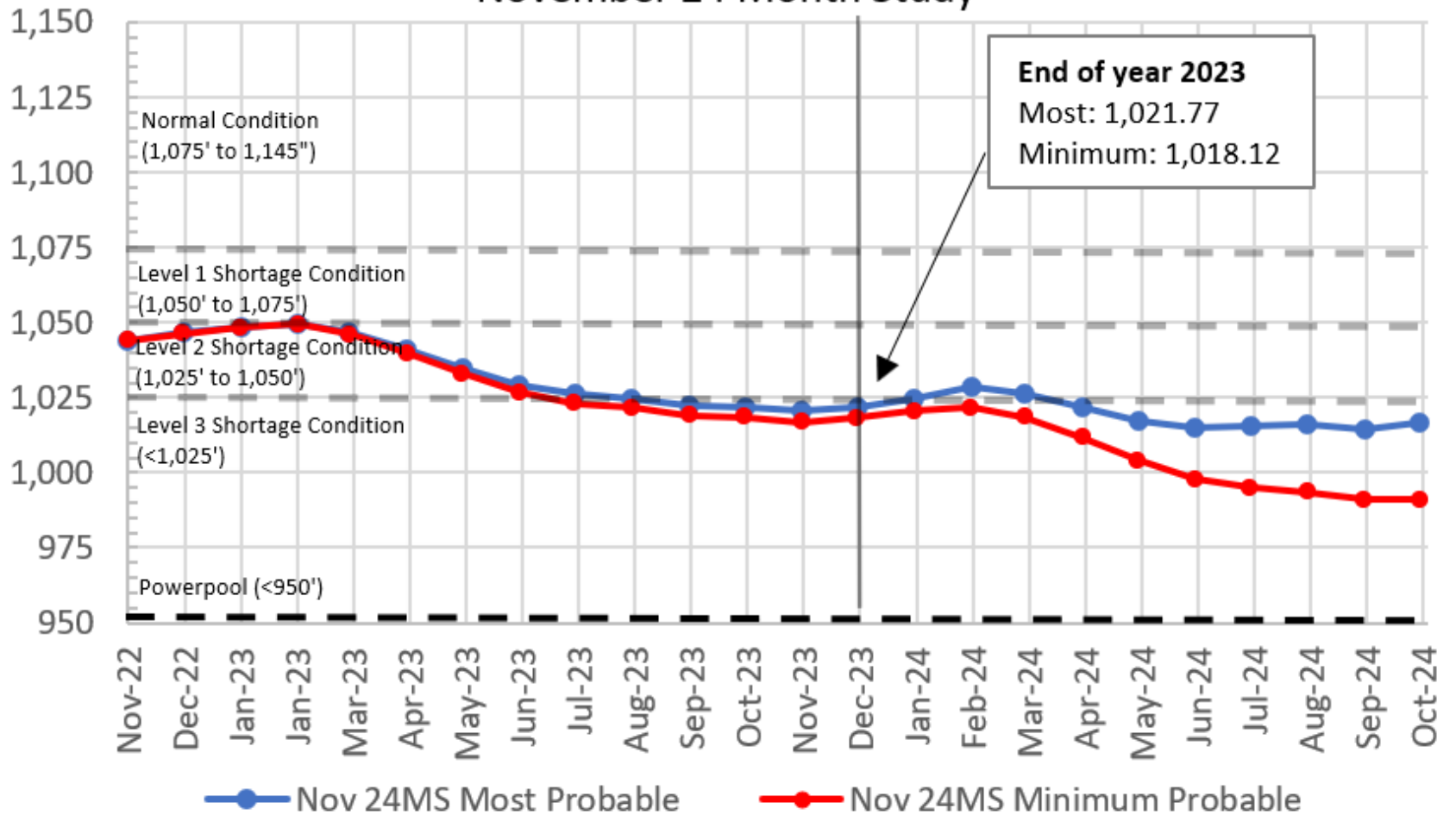


Lake Powell End-of-Month Elevations November 24 Month Study





Lake Mead End-of-Month Elevations November 24 Month Study





Negotiations and Updates

November 24 Month Study

- Below average precipitation has reduced the forecasted runoff for the current year.
- Reclamations Minimum probable model is showing Lake Powell going below power pool in December 2023 through April 2024.

Lake Powell Release adjustments

- Glen Canyon Dam will redistribute releases during the year to reduce risk of going below power pool during spring.
- The actions will add approximately ten feet to critically low elevations in spring and reduce the time that Lake Powell is below 3,525 ft.

Supplemental Environmental Impact Statement for 2007 Guidelines ¹

- Published in the Federal Register on November 17th.
- Reclamation's purpose is to modify operations for 2023-2024 to protect critical elevations in Lake Mead and Powell.
- Could include reducing releases from Glen Canyon below 7 MAF and increasing shortage reductions.
- Anticipated draft for public review in Spring 2023 and final in late Summer 2023.

¹ https://www.usbr.gov/ColoradoRiverBasin/documents/post2026/2007InterimGuidelinesSEIS_ScopingWebinarPresentation.pdf