



— BUREAU OF —  
RECLAMATION

# Colorado River Basin Hydrology & Operations Update

August 16, 2022

# Colorado River – Current Conditions

(as of August 15, 2022)



Lake Powell near Glen Canyon Dam



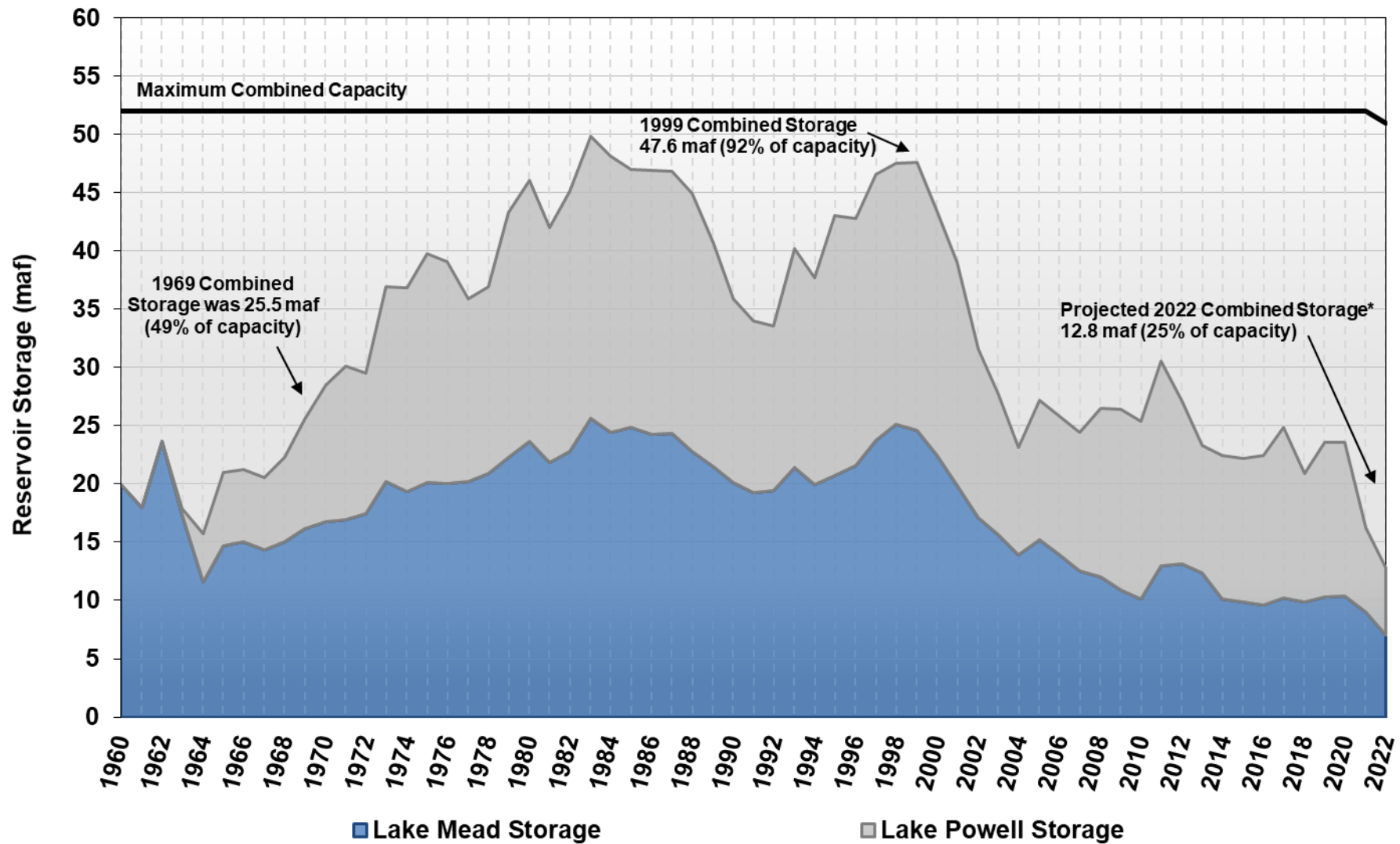
Lake Mead near Hoover Dam

- Driest 23-year period (2000-2022) on record
- Inflow 4 of the past 5 years were 60% of average or less
- Lake Powell and Lake Mead at historically low water levels
  - Lake Powell current elevation is 3,534 feet at 26% of capacity
  - Lake Mead current elevation is 1,042 feet at 27% of capacity



# Lake Powell and Lake Mead End of Water Year Storage

Water Years 1960 through 2022

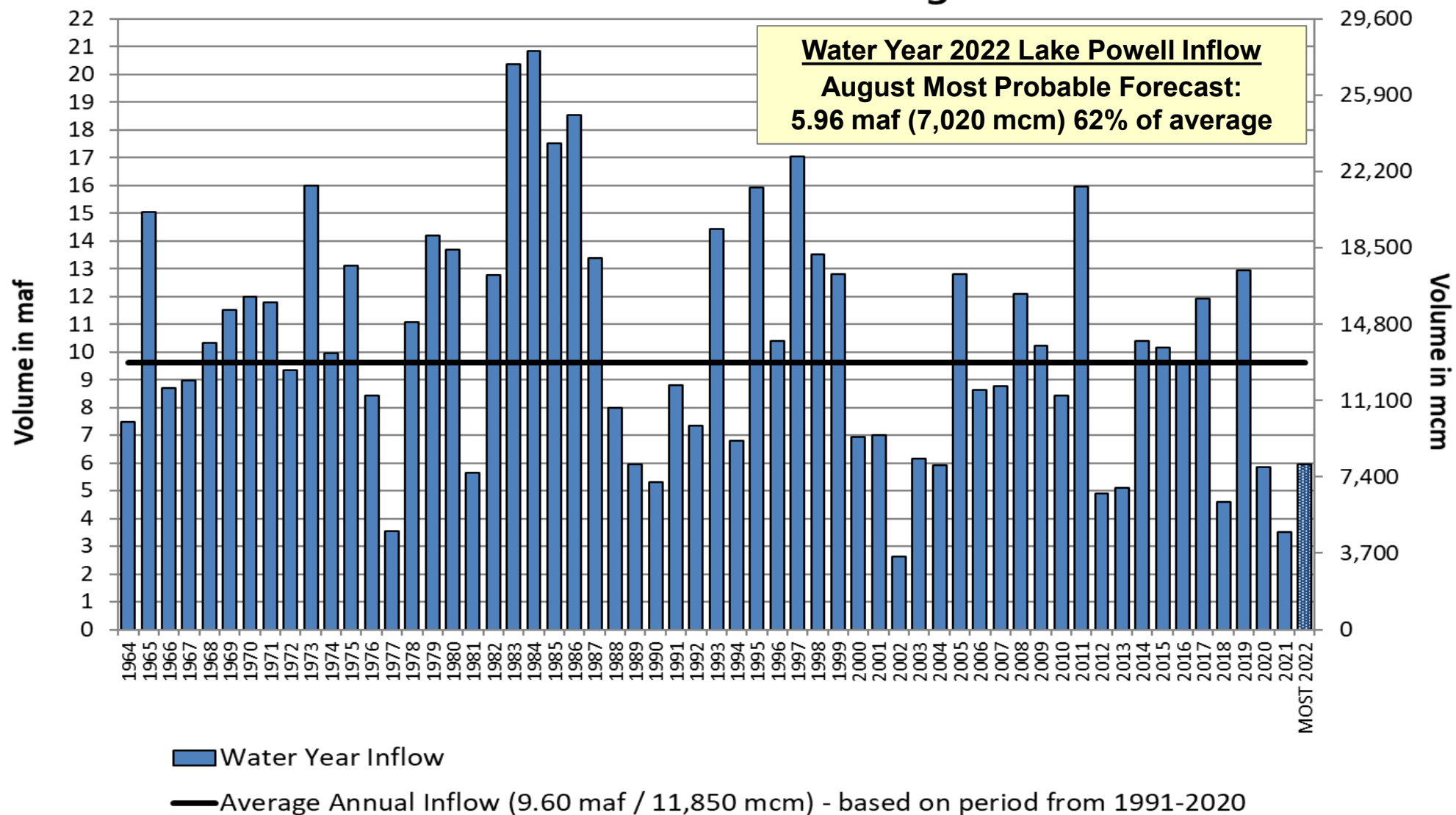


\* Projected system storage based on the August 2022 24-Month Study



# Lake Powell Unregulated Inflow

## Water Years 1964 through 2022





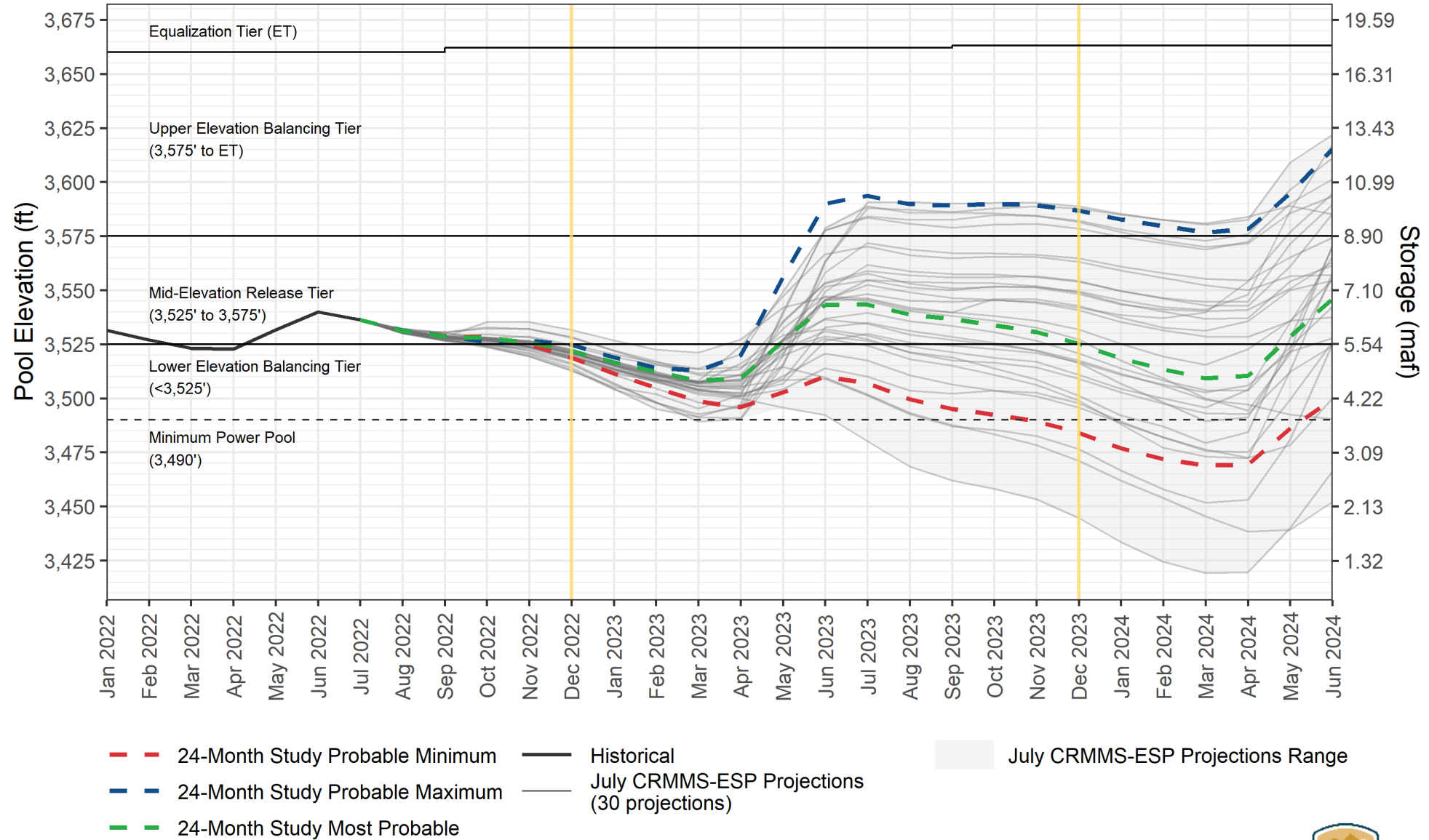
# Lake Powell Drought Response Operations

- In light of the recent drought, the Department of Interior implemented an action to reduce the Glen Canyon Dam release from 7.48 maf to 7.00 maf.
- This action was done in conjunction with the 2022 Drought Response Operations plan actions which are anticipated to add about one million acre-feet of storage in Lake Powell by April 2023.
- The decision to hold back 480 kaf of water in Lake Powell will not impact future operating tier determinations and will be accounted for “as if” the volume of water had been delivered to Lake Mead.



# Lake Powell End-of-Month Elevations<sup>1</sup>

## 24-Month Study Projections from August 2022 and CRMMS-ESP Projections from July 2022

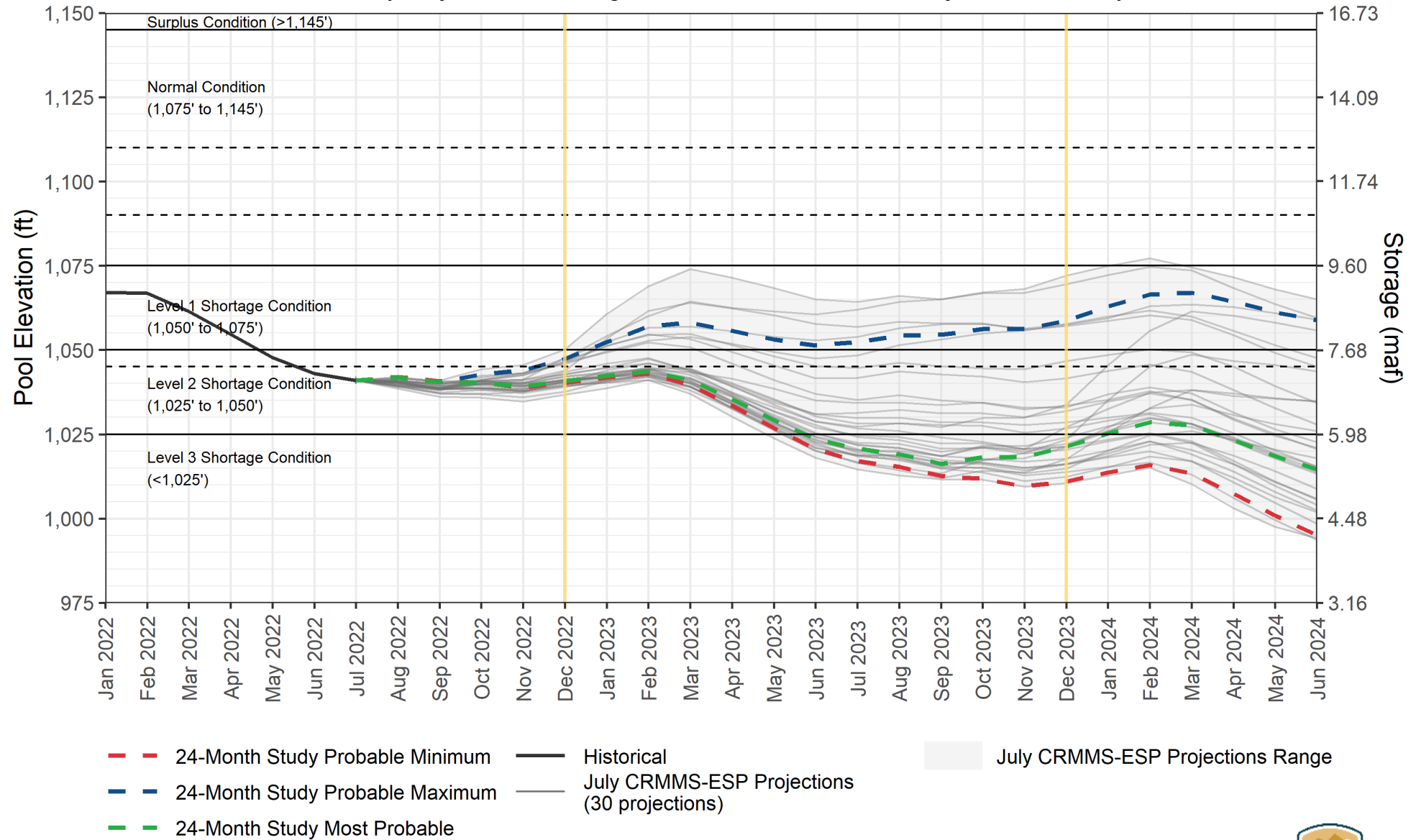


<sup>1</sup> Projected Lake Powell end-of-month physical elevations from August 2022 24-Month Study inflow scenarios and July 2022 CRMMS-ESP.



# Lake Mead End-of-Month Elevations<sup>1</sup>

24-Month Study Projections from August 2022 and CRMMS-ESP Projections from July 2022



<sup>1</sup> Projected Lake Mead end-of-month physical elevations from August 2022 24-Month Study inflow scenarios and July 2022 CRMMS-ESP.





# Lake Powell & Lake Mead Operational Diagrams

## 2023 Operating Determinations (shaded in blue)

Lake Powell			Lake Mead		
Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) <sup>1</sup>	Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) <sup>1</sup>
3,700	<b>Equalization Tier</b> Equalize, avoid spills or release 8.23 maf	24.3	1,220	<b>Flood Control Surplus or Quantified Surplus Condition</b> Deliver > 7.5 maf	25.9
3,636 - 3,666 (2008-2026)	<b>Upper Elevation Balancing Tier<sup>3</sup></b> Release 8.23 maf; if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf	15.5 - 19.3 (2008-2026)	1,200 (approx.) <sup>2</sup>	<b>Domestic Surplus or ICS Surplus Condition</b> Deliver > 7.5 maf	22.9 (approx.) <sup>2</sup>
			1,145	<b>Normal or ICS Surplus Condition</b> Deliver ≥ 7.5 maf	15.9
3,575	<b>Mid-Elevation Release Tier</b> Release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf	9.5	1,105		11.9
			1,075	<b>Shortage Condition</b> Deliver 7.167 <sup>4</sup> maf	9.4
3,525	<b>Lower Elevation Balancing Tier</b> Balance contents with a min/max release of 7.0 and 9.5 maf	5.9	1,050		7.5
				<b>Shortage Condition</b> Deliver 7.083 <sup>5</sup> maf	
3,490			1,025	<b>Shortage Condition</b> Deliver 7.0 <sup>6</sup> maf Further measures may be undertaken <sup>7</sup>	5.8
			1,000		4.3
3,370		0	895		0

Diagram not to scale

<sup>1</sup> Acronym for million acre-feet

<sup>2</sup> This elevation is shown as approximate as it is determined each year by considering several factors including Lake Powell and Lake Mead storage, projected Upper Basin and Lower Basin demands, and an assumed inflow.

<sup>3</sup> Subject to April adjustments which may result in a release according to the Equalization Tier

<sup>4</sup> Of which 2.48 maf is apportioned to Arizona, 4.4 maf to California, and 0.287 maf to Nevada

<sup>5</sup> Of which 2.40 maf is apportioned to Arizona, 4.4 maf to California, and 0.283 maf to Nevada

<sup>6</sup> Of which 2.32 maf is apportioned to Arizona, 4.4 maf to California, and 0.280 maf to Nevada

<sup>7</sup> Whenever Lake Mead is below elevation 1,025 feet, the Secretary shall consider whether hydrologic conditions together with anticipated deliveries to the Lower Division States and Mexico is likely to cause the elevation at Lake Mead to fall below 1,000 feet. Such consideration, in consultation with the Basin States, may result in the undertaking of further measures, consistent with applicable Federal law.





# 2007 Interim Guidelines, Minute 323, Lower Basin Drought Contingency Plan, and Binational Water Scarcity Contingency Plan

## Total Volumes (kaf)

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 <i>US: (2007 Interim Guidelines Shortages + DCP Contributions)</i> <i>Mexico: (Minute 323 Delivery Reductions + Binational Water Scarcity Contingency Plan Savings)</i>					Total Combined Volumes
	AZ	NV	Mexico	<b>Lower Basin States + Mexico</b>	AZ	NV	CA	Mexico	AZ Total	NV Total	CA Total	Lower Basin States Total	Mexico Total	<b>Lower Basin States + Mexico</b>
1,090 - 1,075	0	0	0	0	192	8	0	41	192	8	0	200	41	241
1,075 - 1050	320	13	50	383	192	8	0	30	512	21	0	533	80	613
1,050 - 1,045	<b>400</b>	<b>17</b>	<b>70</b>	<b>487</b>	<b>192</b>	<b>8</b>	<b>0</b>	<b>34</b>	<b>592</b>	<b>25</b>	<b>0</b>	<b>617</b>	<b>104</b>	<b>721</b>
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

Lake Mead

Operating  
Condition for  
2023



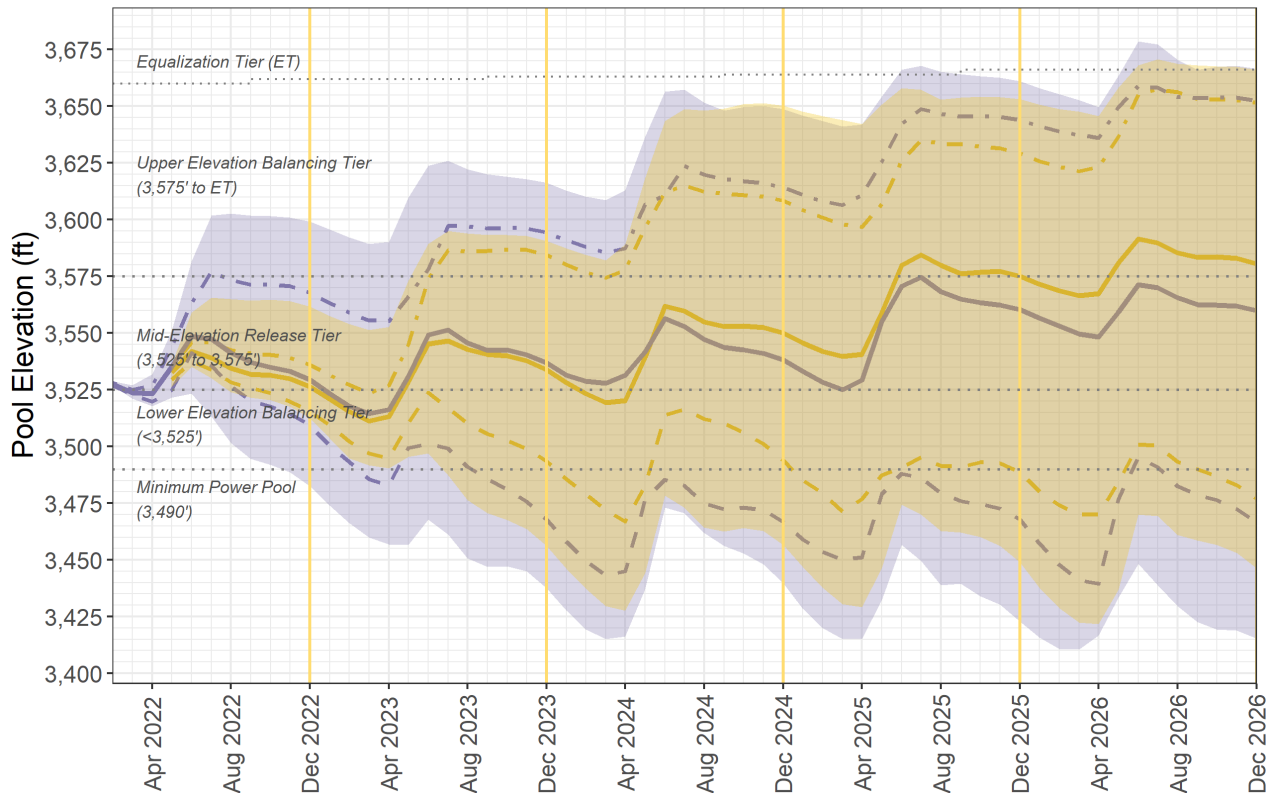
The Secretary of the Interior will take affirmative actions to implement programs designed to create or conserve 100,000 acre-ft per annum or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the lower basin. All actions taken by the United States shall be subject to applicable law, including availability of appropriations.



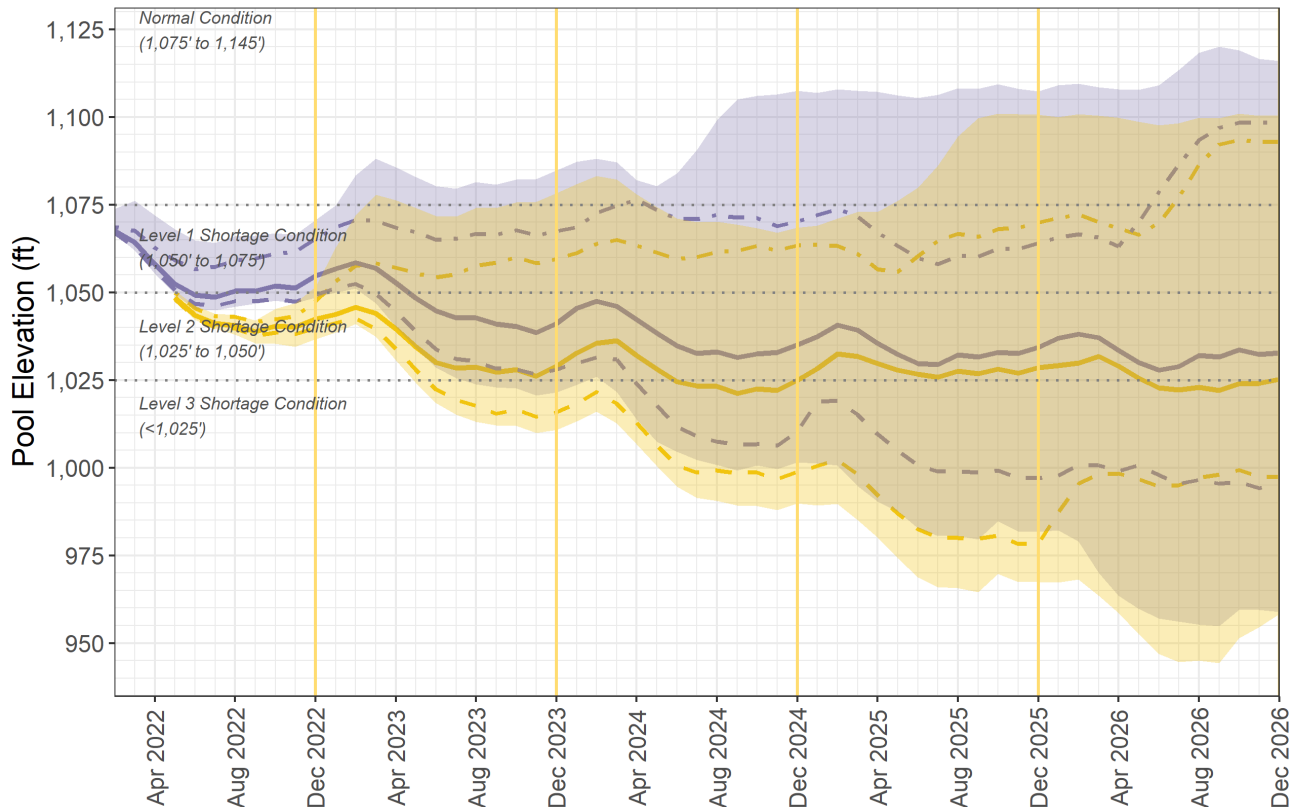
# Lake Powell and Lake Mead 5-Year Projections

## End-of-Month Reservoir Elevations

### Lake Powell



### Lake Mead



Percentile

— —

10<sup>th</sup>

—

50<sup>th</sup>

- - -

90<sup>th</sup>

May 2022

February 2022

May 2022 Range

February 2022 Range

\* These projected elevations may not be representative of the full range of future possibilities that could occur. These projections rely on future hydrology from the CBRFC's ESP method; other methods may result in a wider range of future hydrology and elevations.

\* The chart above displays projected physical elevations.



# Discussion



— BUREAU OF —  
RECLAMATION