



— BUREAU OF —
RECLAMATION

Colorado River Update: Hydrology & Operations

MSSC Conference Panel

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February 23, 2023

Overview of the Colorado River Basin

- Operation is governed by the “Law of the River”
- 16.5 million acre-feet of water use allocated annually
- 60 million acre-feet of storage capacity
- 4,200 Megawatts of installed hydropower capacity
- 70% of all use is for agriculture
- 40% the water is exported outside of the Basin
- Aside from the pulse flow event, the river hasn't made it to the delta in decades



Lower Colorado “Water Master” Role & River Management Objectives

Mission of Boulder Canyon Operations Office:

- *Implement the Water Master role for the Secretary of the Interior*

River Management Objectives:

- *Provide flood control and river regulation while meeting downstream water orders*
- *Generate hydropower*
- *Implement LCR Multi-Species Conservation Program*
- *Support recreational opportunities*



Lower Basin Hydrology & Operations



Colorado River – Current Conditions

(as of February 22, 2023)



Lake Powell near Glen Canyon Dam

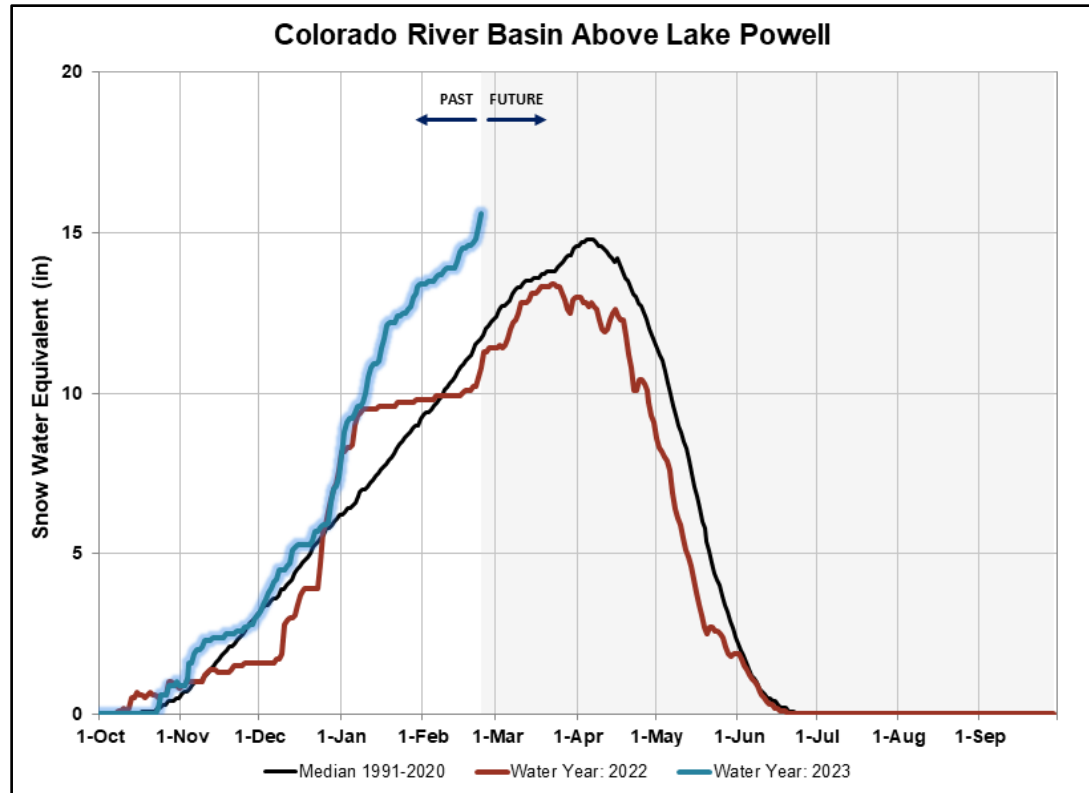


Lake Mead near Hoover Dam

- Driest 23-year period (2000-2022) on record
- Inflow 4 of the past 5 years were 65% of average or less
- Lake Powell and Lake Mead at historically low water levels
 - Lake Powell current elevation is 3,522 feet at 23% of capacity
 - Lake Mead current elevation is just 1,047 feet at 29% of capacity

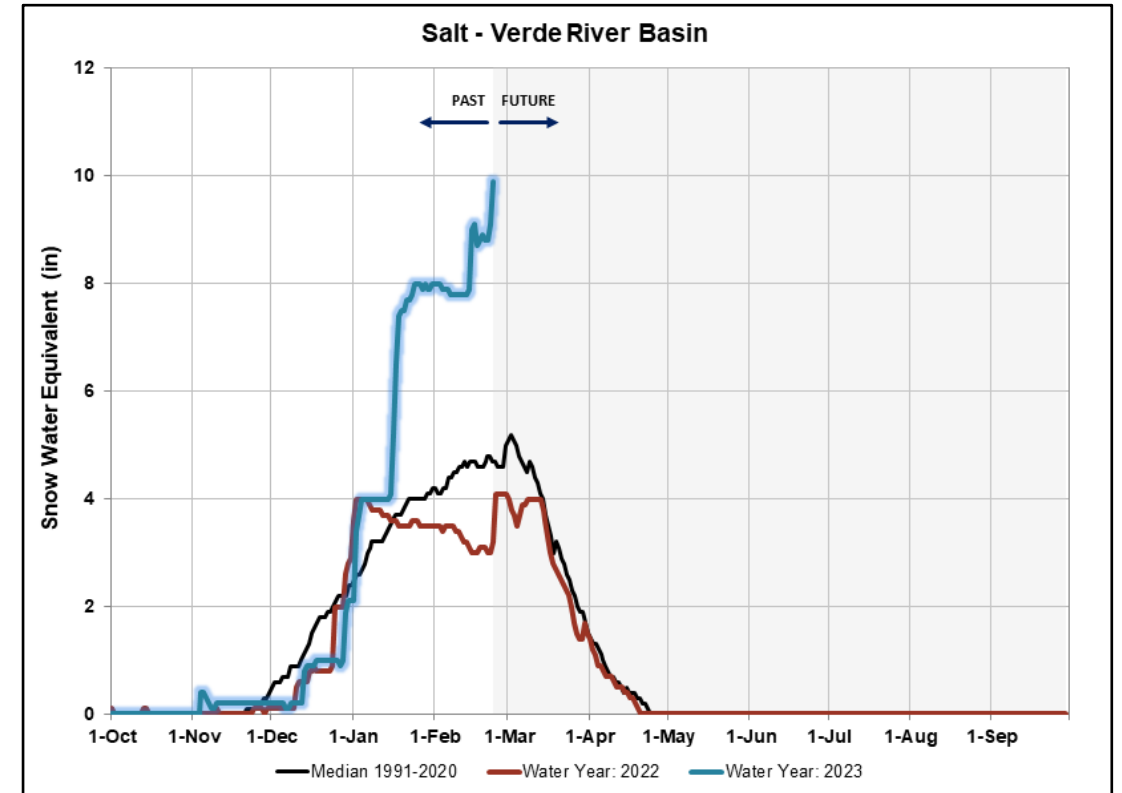
Water Year 2023 Precipitation & Snowpack¹ as of February 23, 2023

Upper Colorado River Basin



Precipitation - 119%
Basin Snowpack - 131%

Salt - Verde River Basin



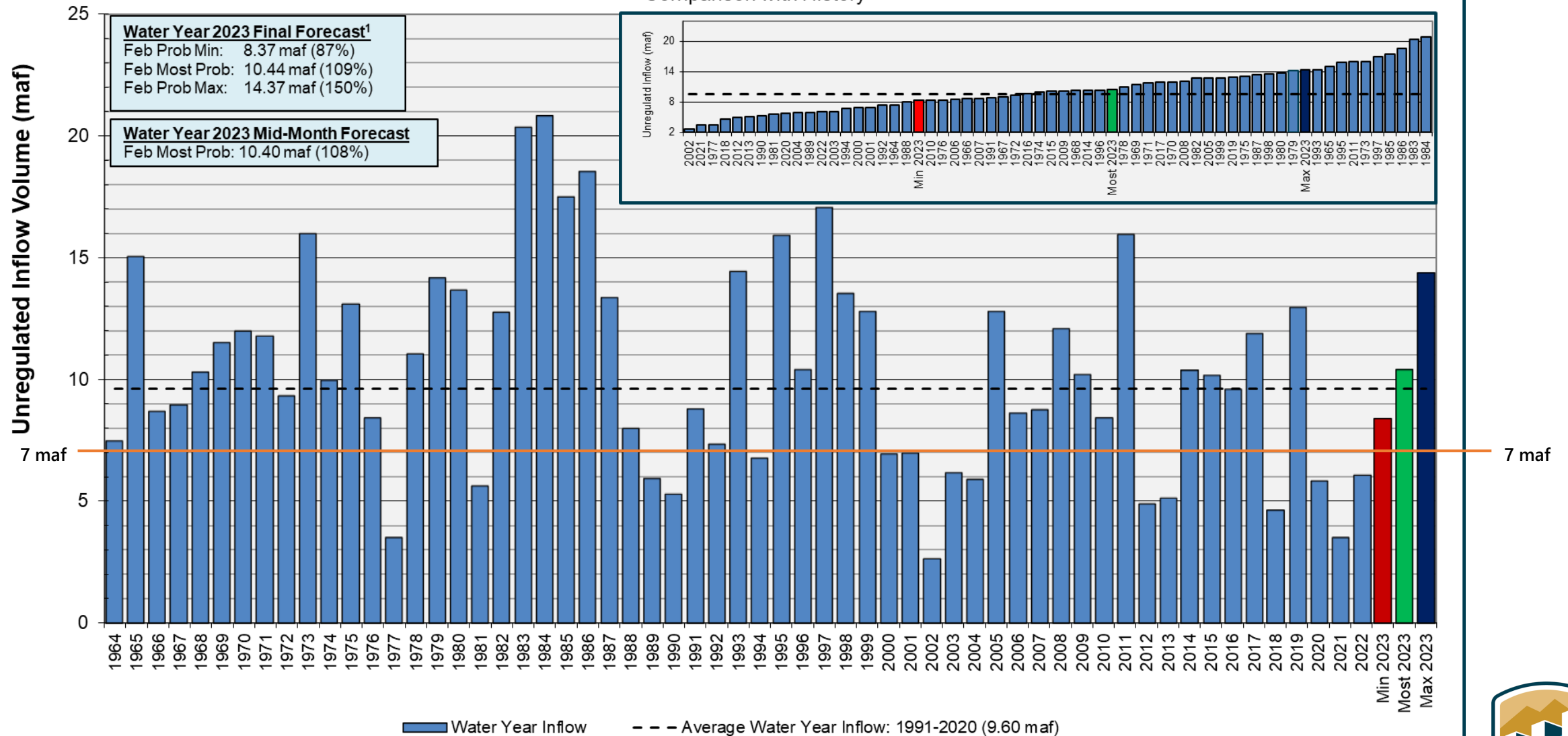
Precipitation - 142%
Basin Snowpack - 226%



Lake Powell Water Year Unregulated Inflow

Forecast as of February 16, 2023

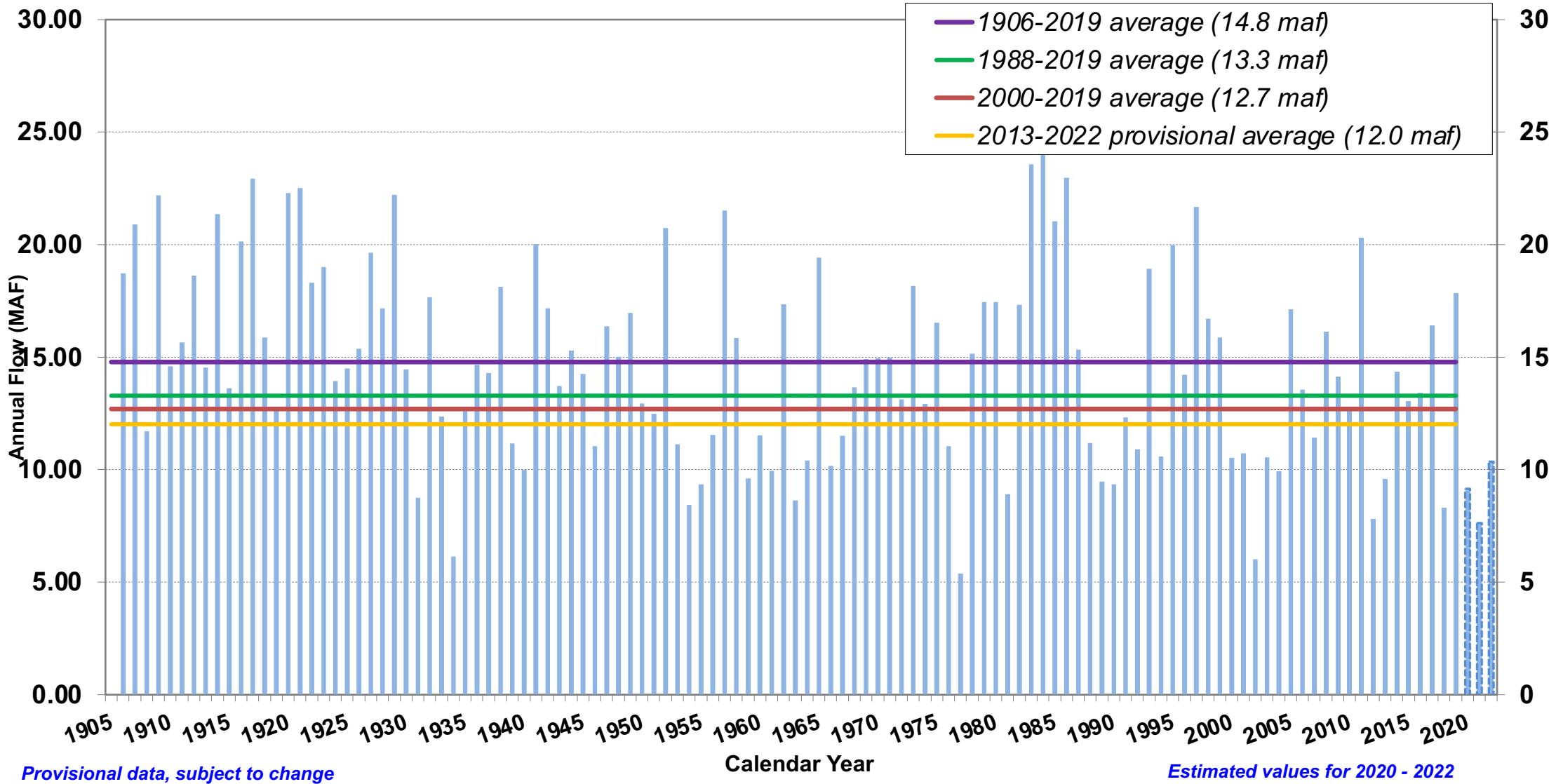
Comparison with History



¹Water Year statistics are based on the 30-year period of record from 1991-2020.

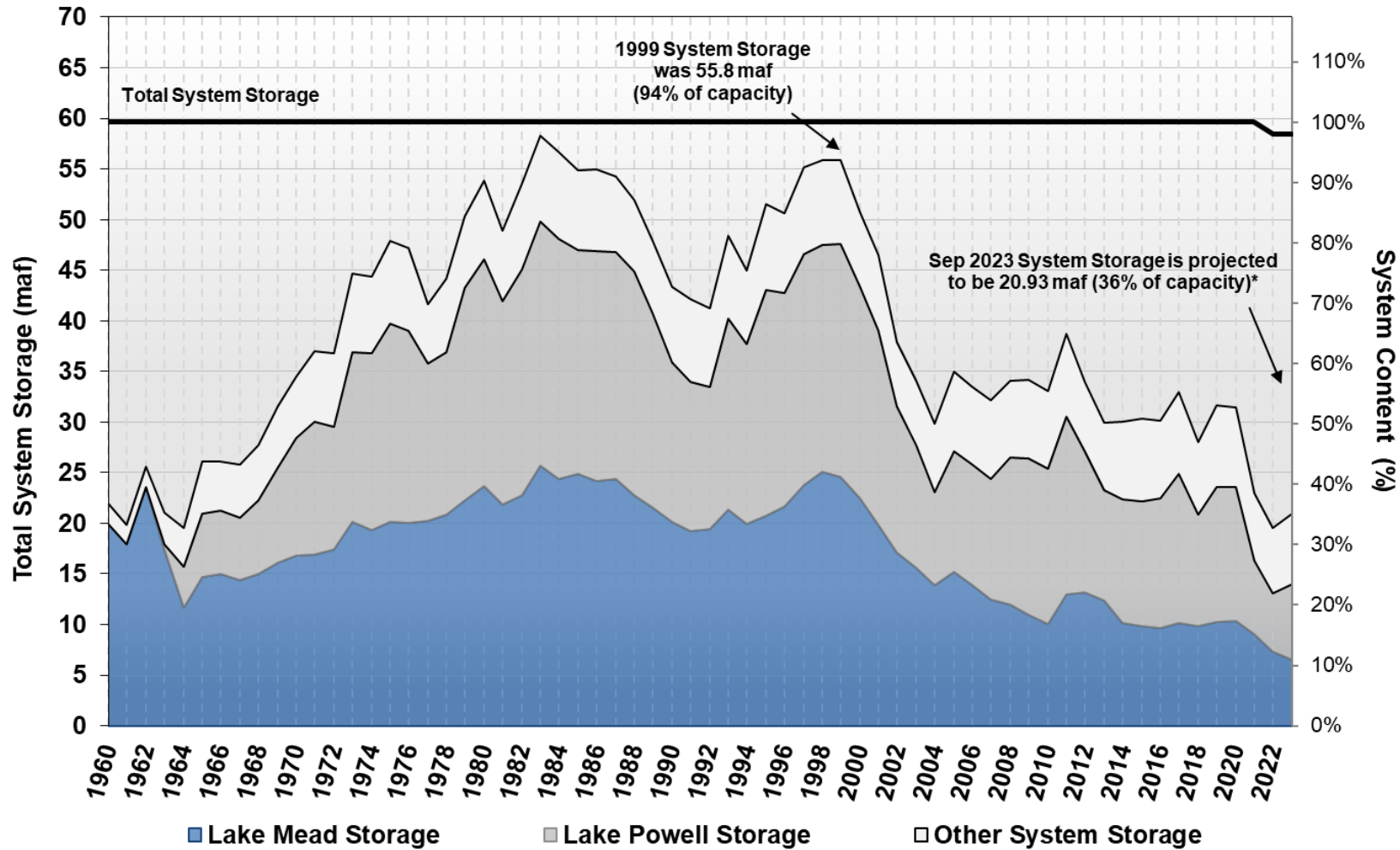


Colorado River at Lees Ferry, AZ - Natural Flow



End of Water Year Colorado River Basin Total System Storage

Water Years 1960 - 2023*

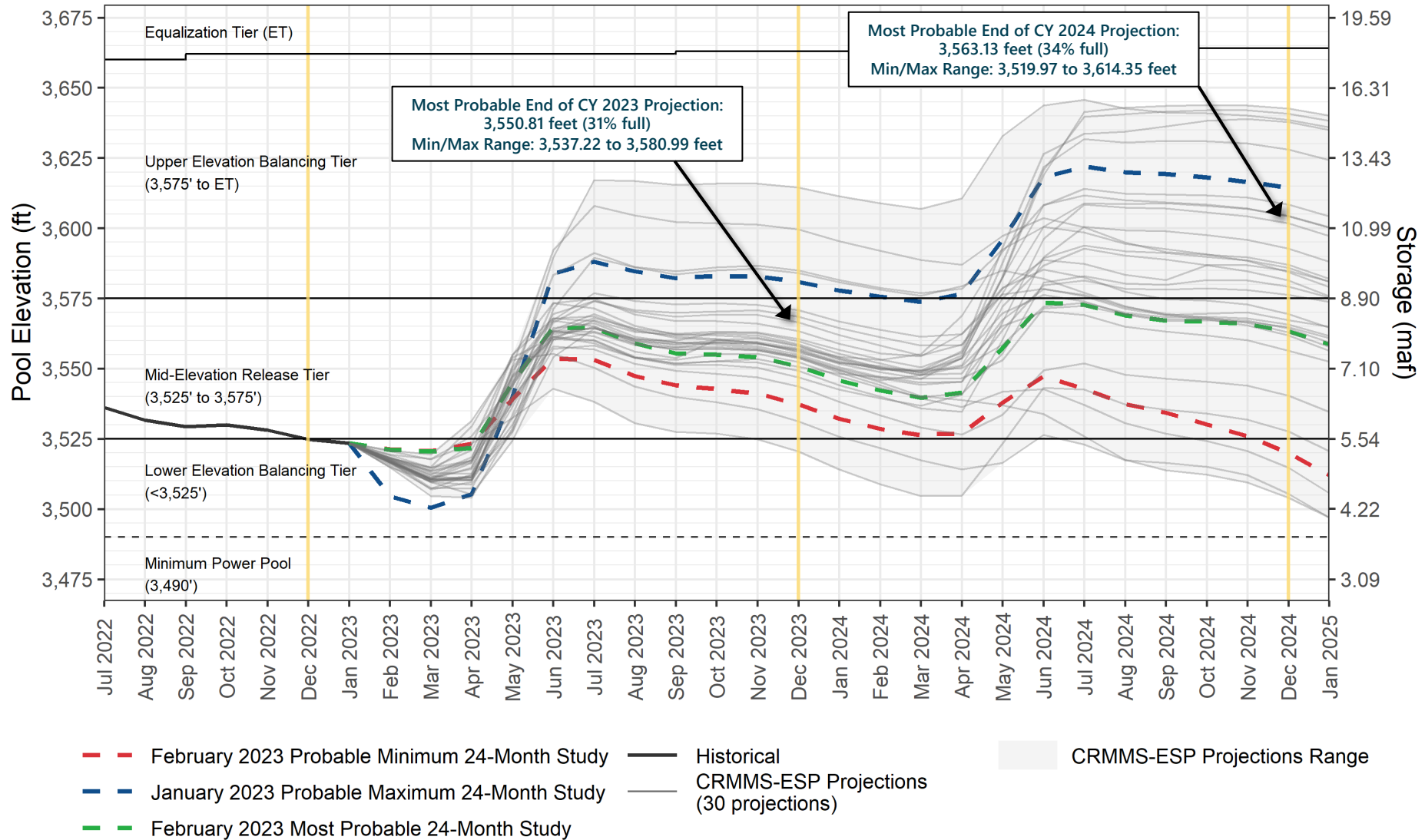


*Storage value for the end of WY 2023 is based on the February 2023 24-Month Study projection.



Lake Powell End-of-Month Elevations¹

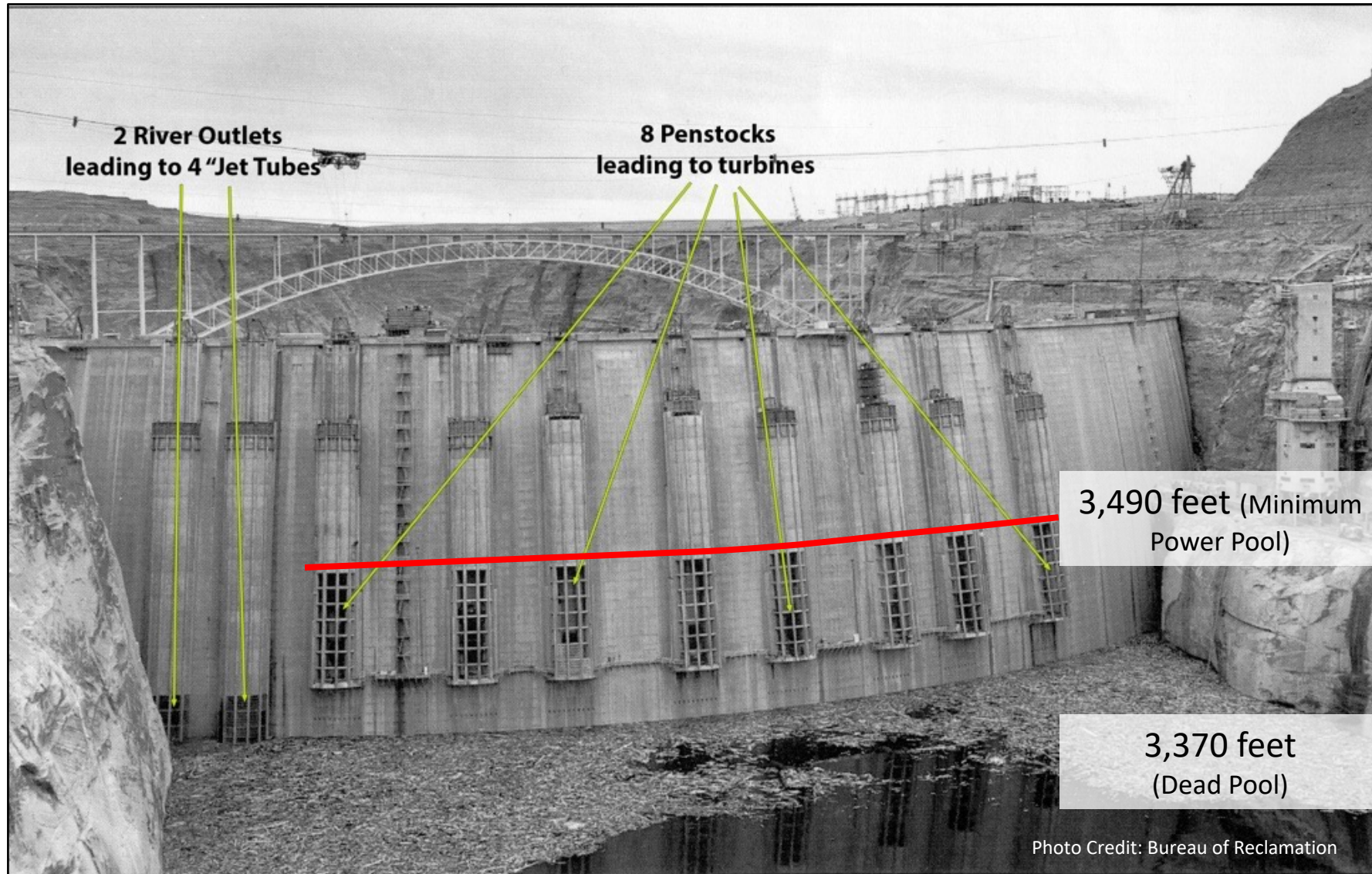
CRMMS Projections from January and February 2023



¹ Projected Lake Powell end-of-month physical elevations from the latest CRMMS-ESP and 24-Month Study inflow scenarios.

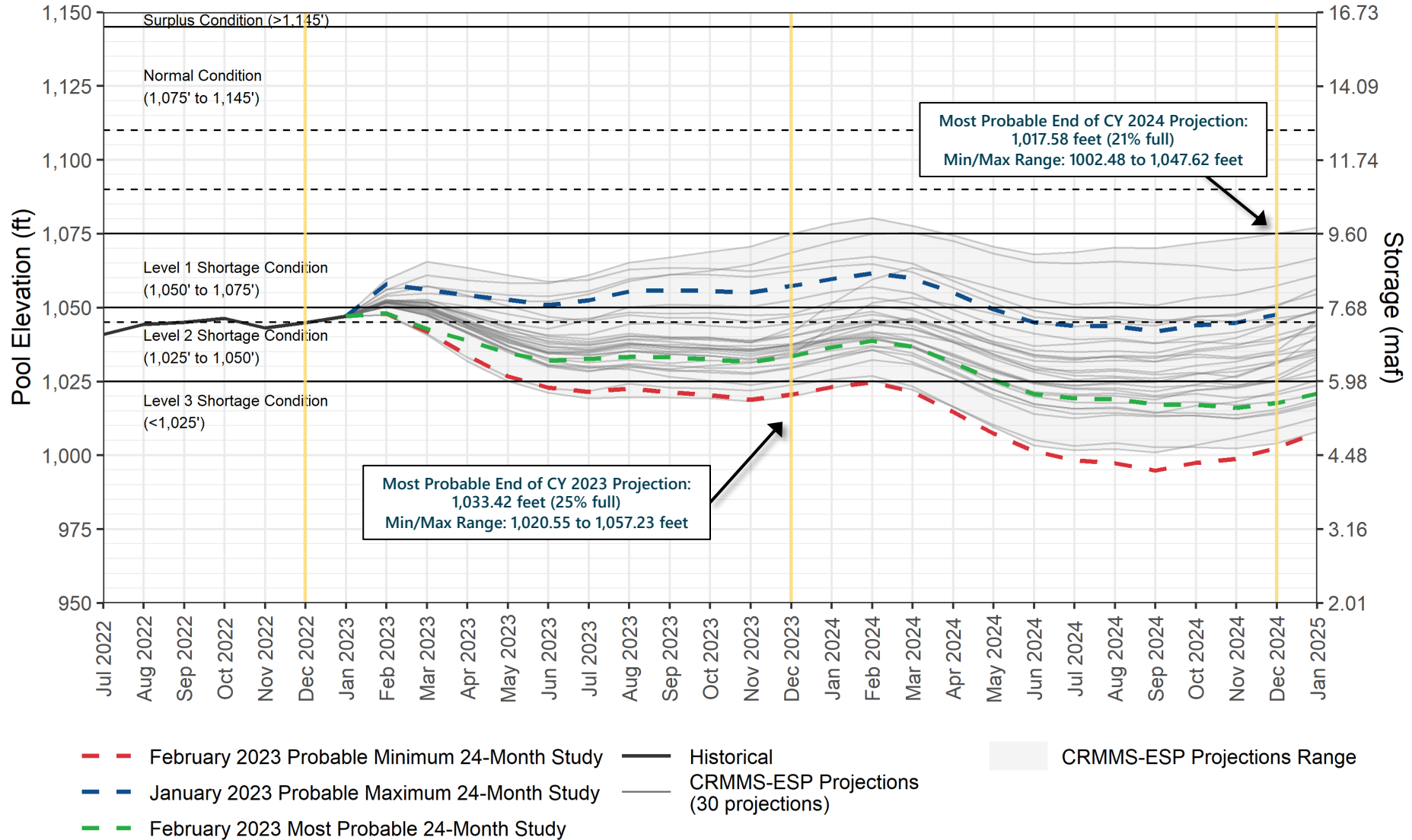


Glen Canyon Dam - November 21, 1963



Lake Mead End-of-Month Elevations¹

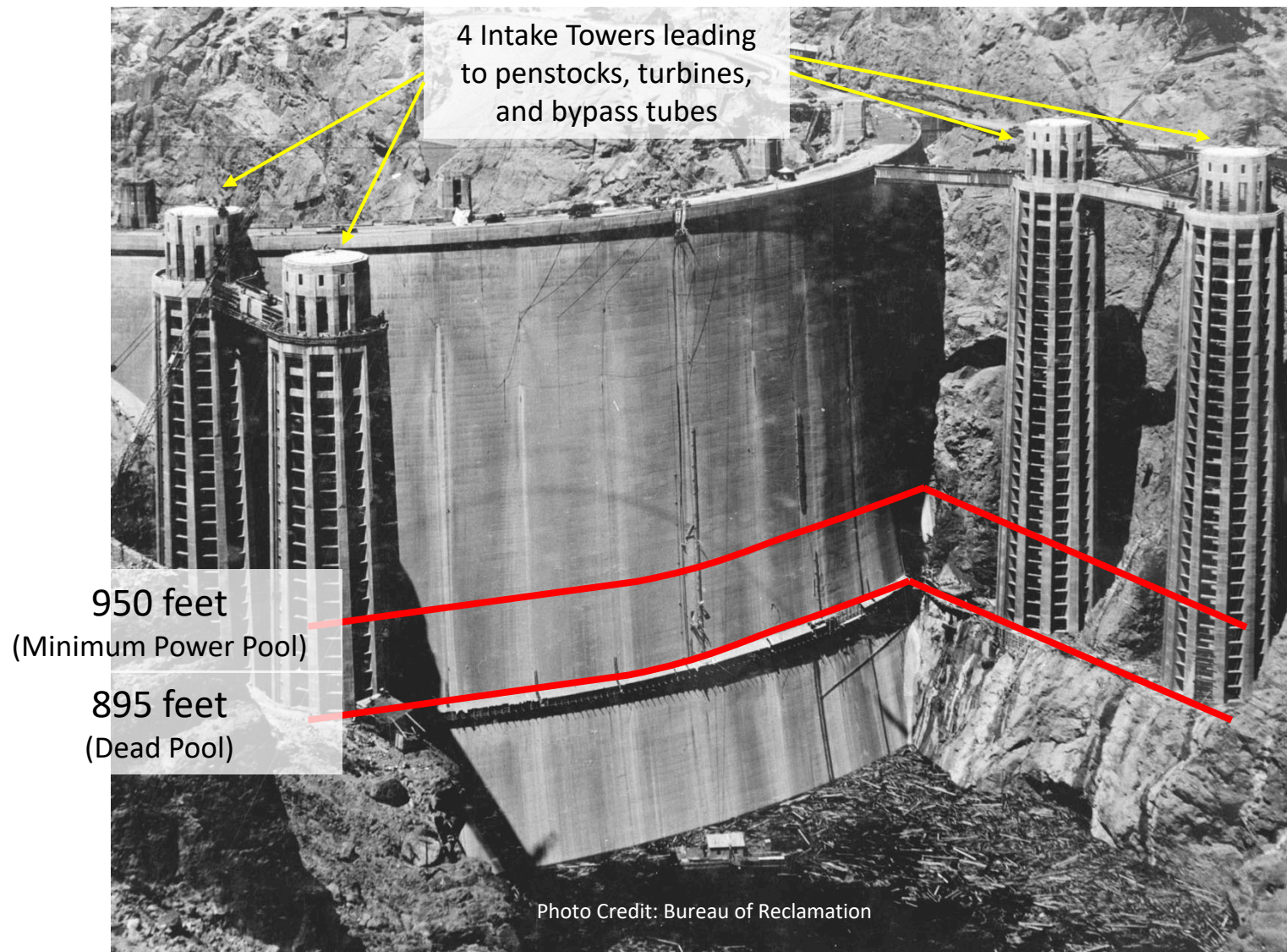
CRMMS Projections from January and February 2023



¹ Projected Lake Mead end-of-month physical elevations from the latest CRMMS-ESP and 24-Month Study inflow scenarios.



Hoover Dam – May 27, 1935



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	<i>Lower Basin States + Mexico</i>	AZ	NV	CA	Mexico	<i>AZ Total</i>	<i>NV Total</i>	<i>CA Total</i>	<i>Lower Basin States Total</i>	<i>Mexico Total</i>	<i>Lower Basin States + Mexico</i>
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	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

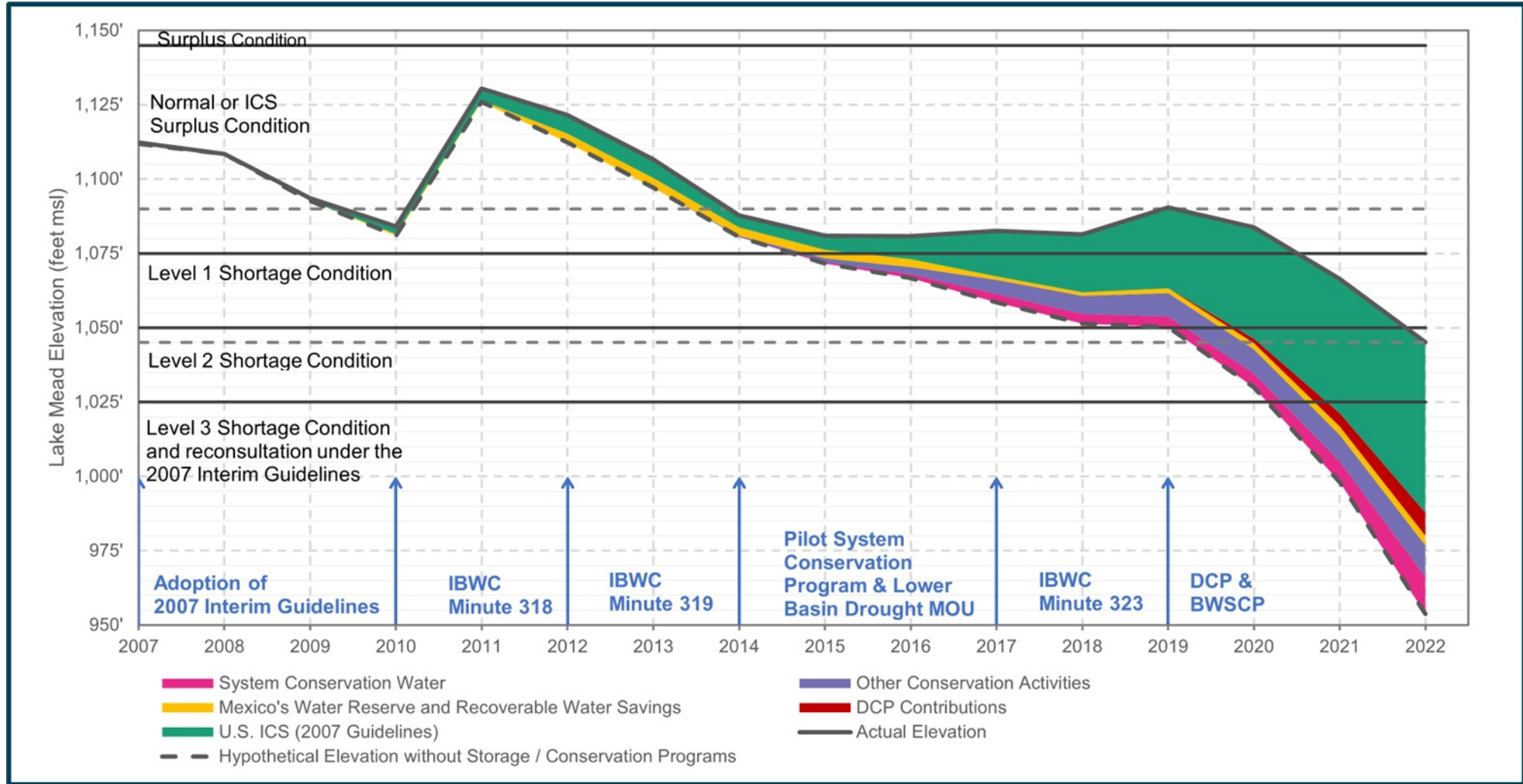
➔
2023 Reductions + Contributions

←
2023 Reductions + Contributions

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 Mead Storage and Conservation¹

Lake Powell WY Release (maf)															
8.23	8.98	8.24	8.23	12.5	9.47	8.23	7.48	9.00	9.00	9.00	9.00	9.00	8.23	8.23	7.00



¹End of calendar year 2022 balances of U.S. ICS and Mexico's Water Reserve, system conservation water, and other voluntary contributions to Lake Mead are provisional and are subject to change.

