



— BUREAU OF —  
RECLAMATION

# 2023 Colorado River Annual Operating Plan

Colorado River Management Work Group

4th Consultation

October 12, 2022

# Upper Colorado Basin

## Water Year 2022 Hydrology

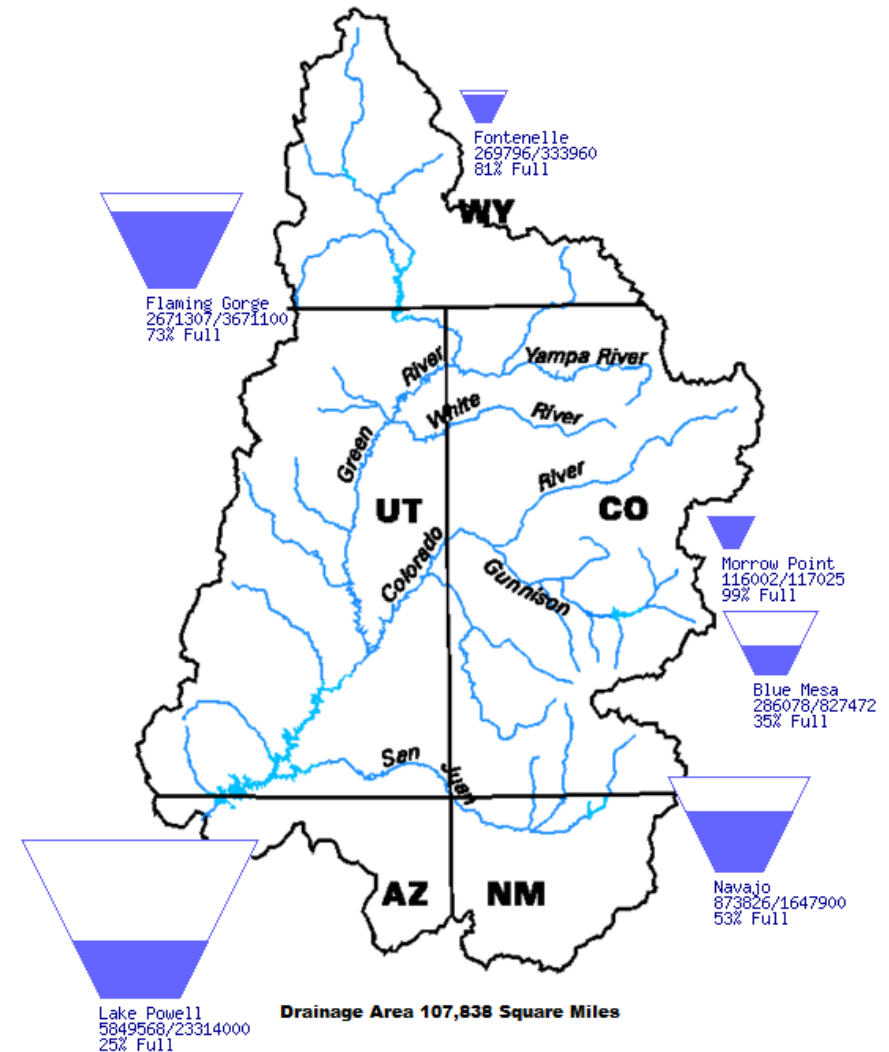


# Upper Basin Storage (as of October 6, 2022)

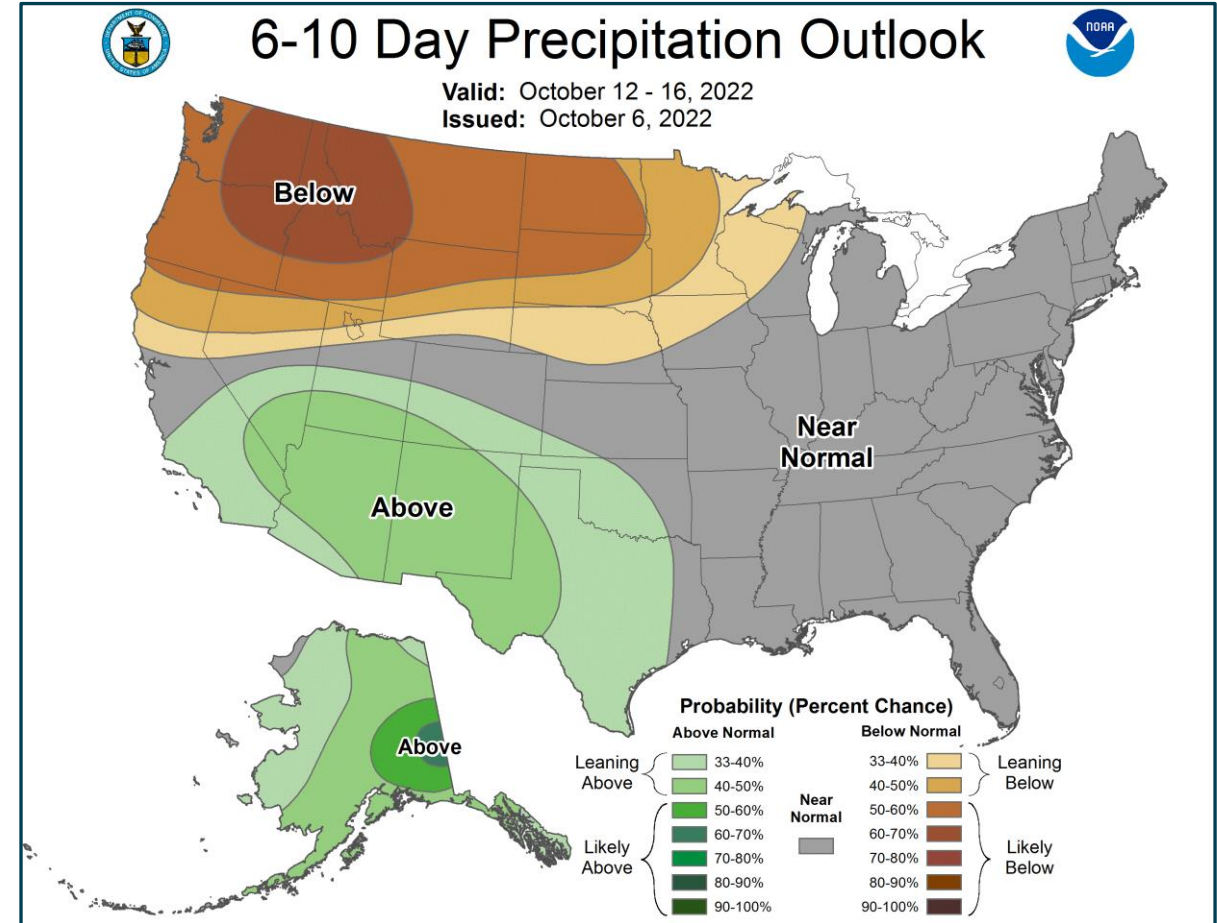
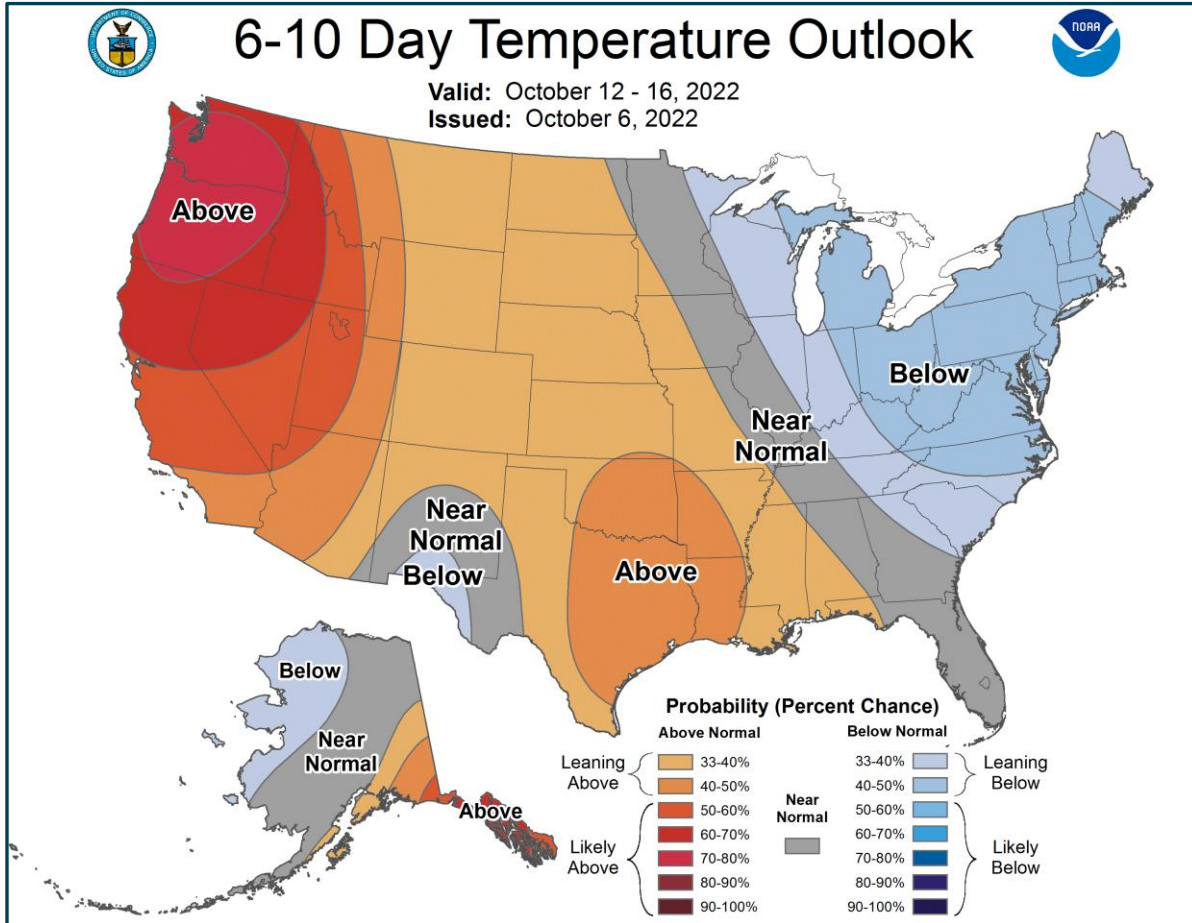
Data Current as of:  
10/06/2022

## Upper Colorado River Drainage Basin

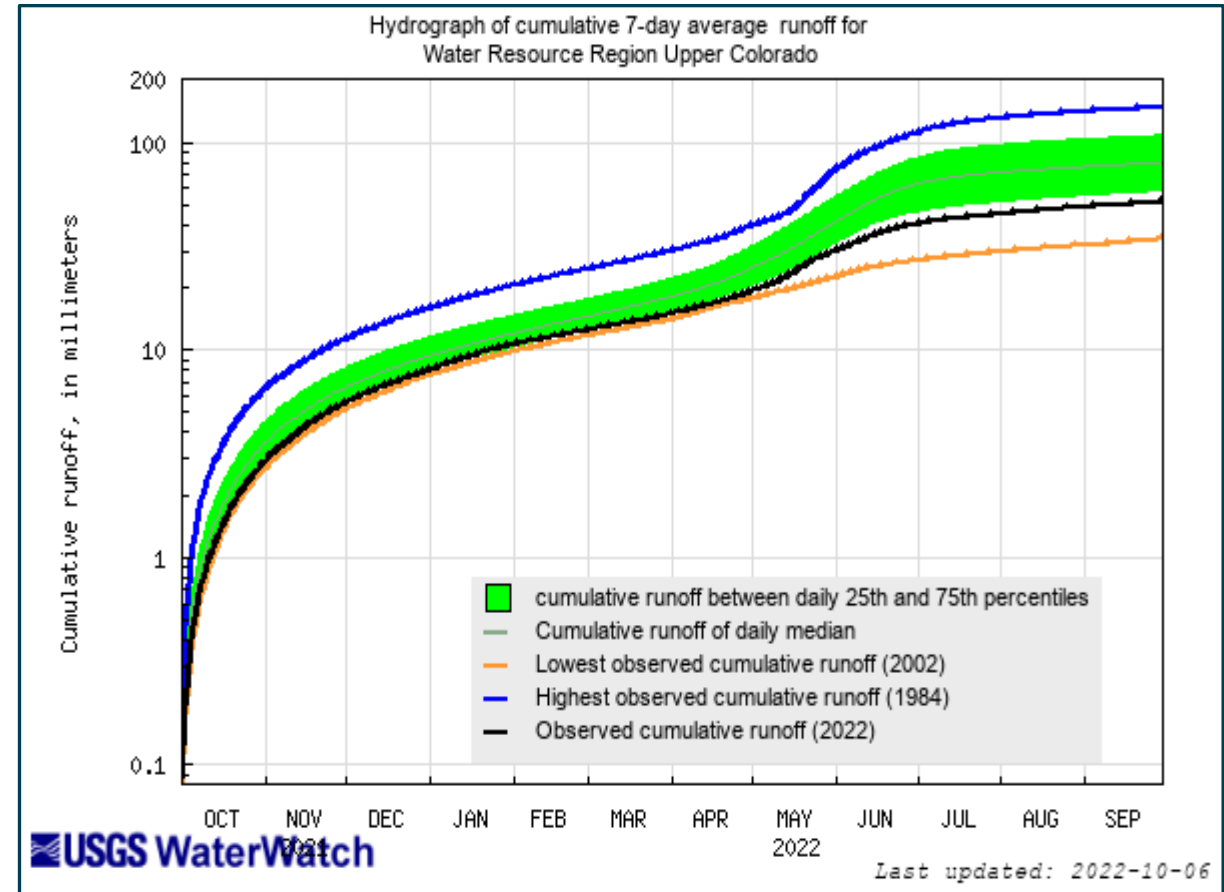
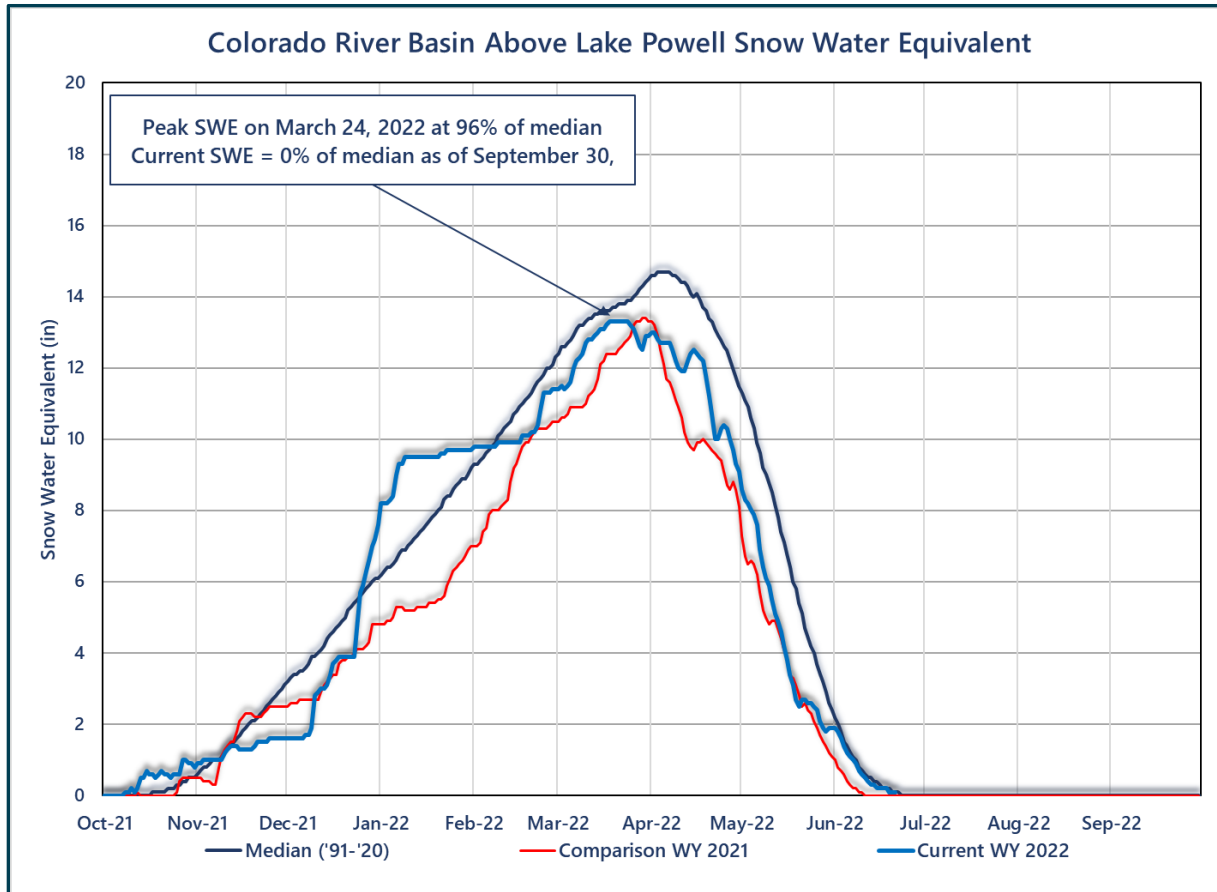
Reservoir	Percent Current Live Storage	Current Live Storage (maf)	Live Storage Capacity (maf)	Elevation (feet)
Fontenelle	81	0.27	0.33	6,497.47
Flaming Gorge	73	2.67	3.67	6,012.75
Blue Mesa	35	0.29	0.83	7,445.66
Navajo	53	0.87	1.65	6,020.85
Lake Powell	25	5.85	23.31	3,530.21
UC System Storage	34	10.08	29.79	
Total System Storage	33	19.57	58.48	



# Precipitation and Temperature Outlook



# Upper Colorado SWE and Observed Inflows



Available online at: [https://waterwatch.usgs.gov/index.php?id=wwdur\\_cumrunoff](https://waterwatch.usgs.gov/index.php?id=wwdur_cumrunoff)



# Most Probable – Observed and October Final Water Years 2022 and 2023

April – July 2022  
Observed Unregulated Inflow

Reservoir	Inflow (kaf)	Percent of Avg <sup>1</sup>
Fontenelle	456	62
Flaming Gorge	552	57
Blue Mesa	431	68
Navajo	381	60
Powell	3,750	59

Water Year 2022  
Observed Unregulated Inflow

Reservoir	Inflow (kaf)	Percent of Avg <sup>1</sup>
Fontenelle	744	69
Flaming Gorge	900	64
Blue Mesa	639	71
Navajo	574	63
Powell	6,079	63

Water Year 2023  
Unregulated Inflow Forecast  
as of October 1, 2022

Reservoir	Inflow (kaf)	Percent of Avg <sup>1</sup>
Fontenelle	930	87
Flaming Gorge	1,215	86
Blue Mesa	820	91
Navajo	790	87
Powell	8,100	84

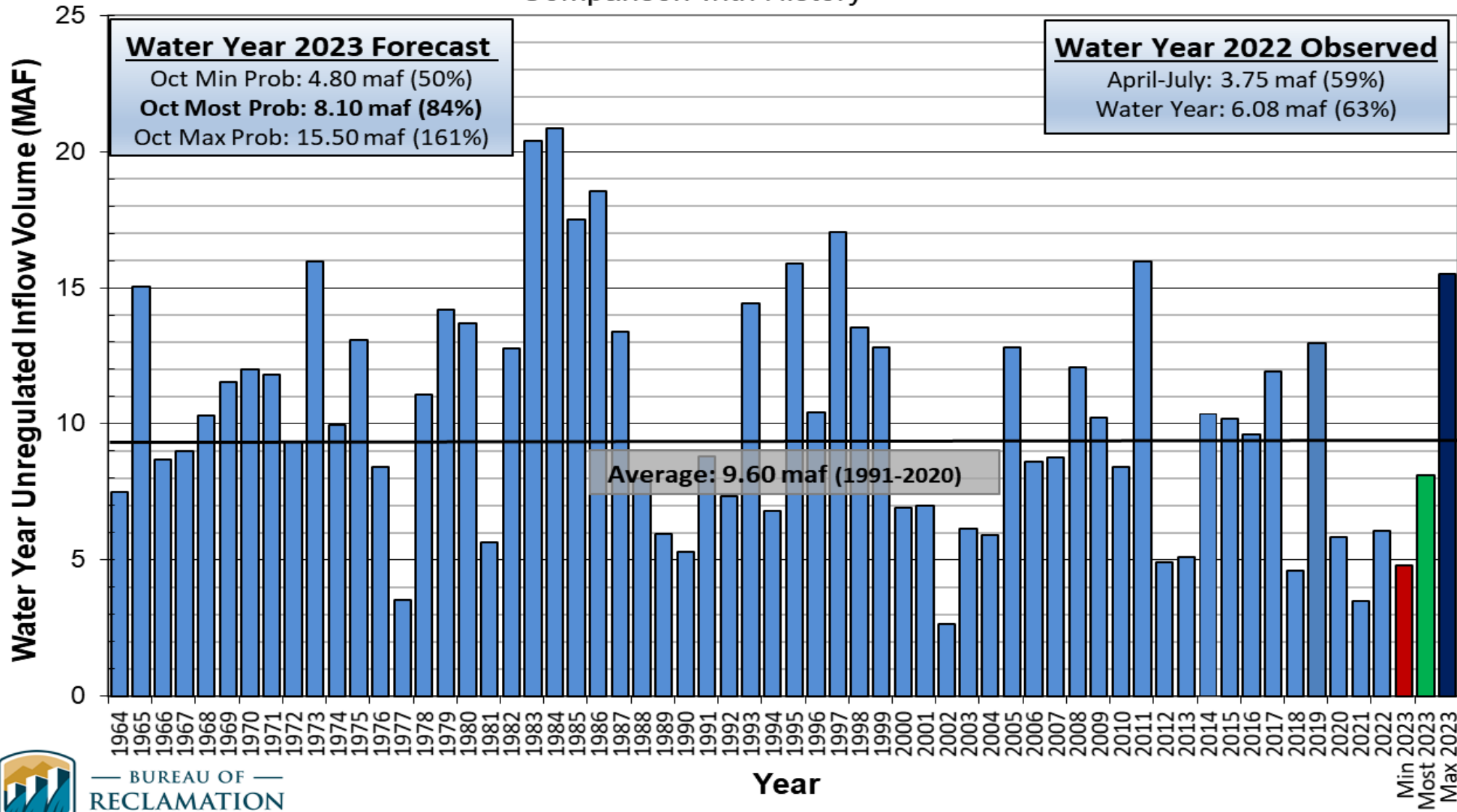
<sup>1</sup>Averages are based on the 1991 through 2020 period of record.



# Lake Powell Unregulated Inflow

## Water Year 2023 Forecast (issued October 4)

### Comparison with History



# Upper Basin Drought Response Actions

- The Bureau of Reclamation announced on May 3, 2022, two separate urgent drought response actions that will help prop up Lake Powell by nearly 1 million acre-feet (maf) of water over the next 12 months (May 2022 through April 2023). To protect Lake Powell, more water will flow into the lake from upstream reservoirs and less water will be released downstream:
  - Under a Drought Contingency Plan adopted in 2022, approximately 500 thousand acre-feet (kaf) of water will come from Flaming Gorge Reservoir, located approximately 455 river miles upstream of Lake Powell (2022 Plan).
    - For more information: <https://www.usbr.gov/uc/DocLibrary/Plans/20220429-2022DroughtResponseOperationsPlan-ApprovalMemo-508-DOI.pdf>.
  - Another 480 kaf will be left in Lake Powell by reducing Glen Canyon Dam's annual release volume from 7.48 maf to 7.00 maf (GC Operational Adjustment), in accordance with Sections 6 and 7.D of the 2007 Interim Guidelines.
    - For more information: <https://www.usbr.gov/uc/DocLibrary/Plans/20220503-2022DROA-GlenCanyonDamOperationsDecisionLetter-508-DOI.pdf>





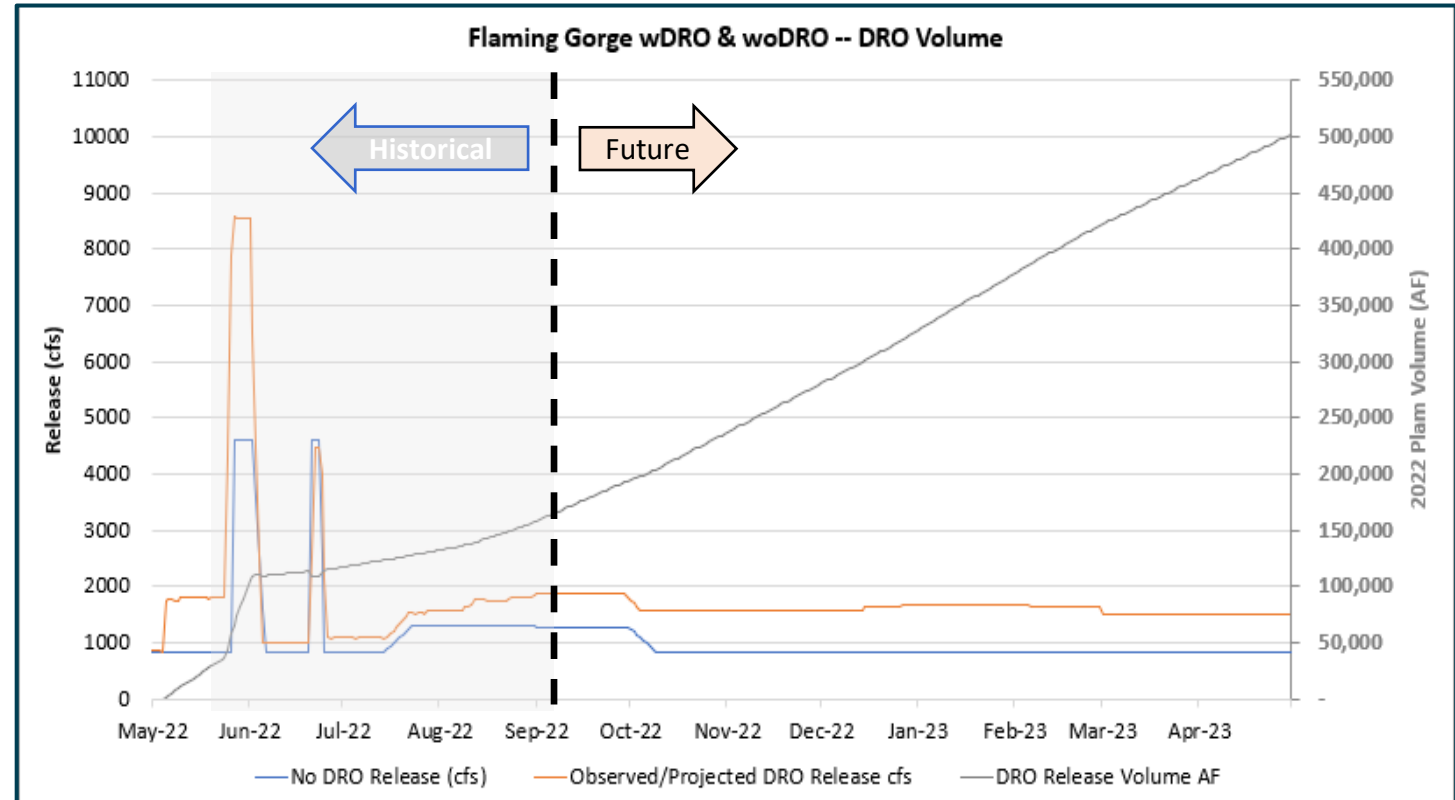
# Drought Response Operations Agreement (DROA)

## DROA Volumes Released<sup>1</sup>

Reservoir	2021 DROA Volume (kaf)	2022 DROA Volume (kaf)	Total DROA Volume (kaf)
Flaming Gorge	125	500	625
Blue Mesa	36	0	36
Navajo	0	0	0
Volume in Powell	161	500	661

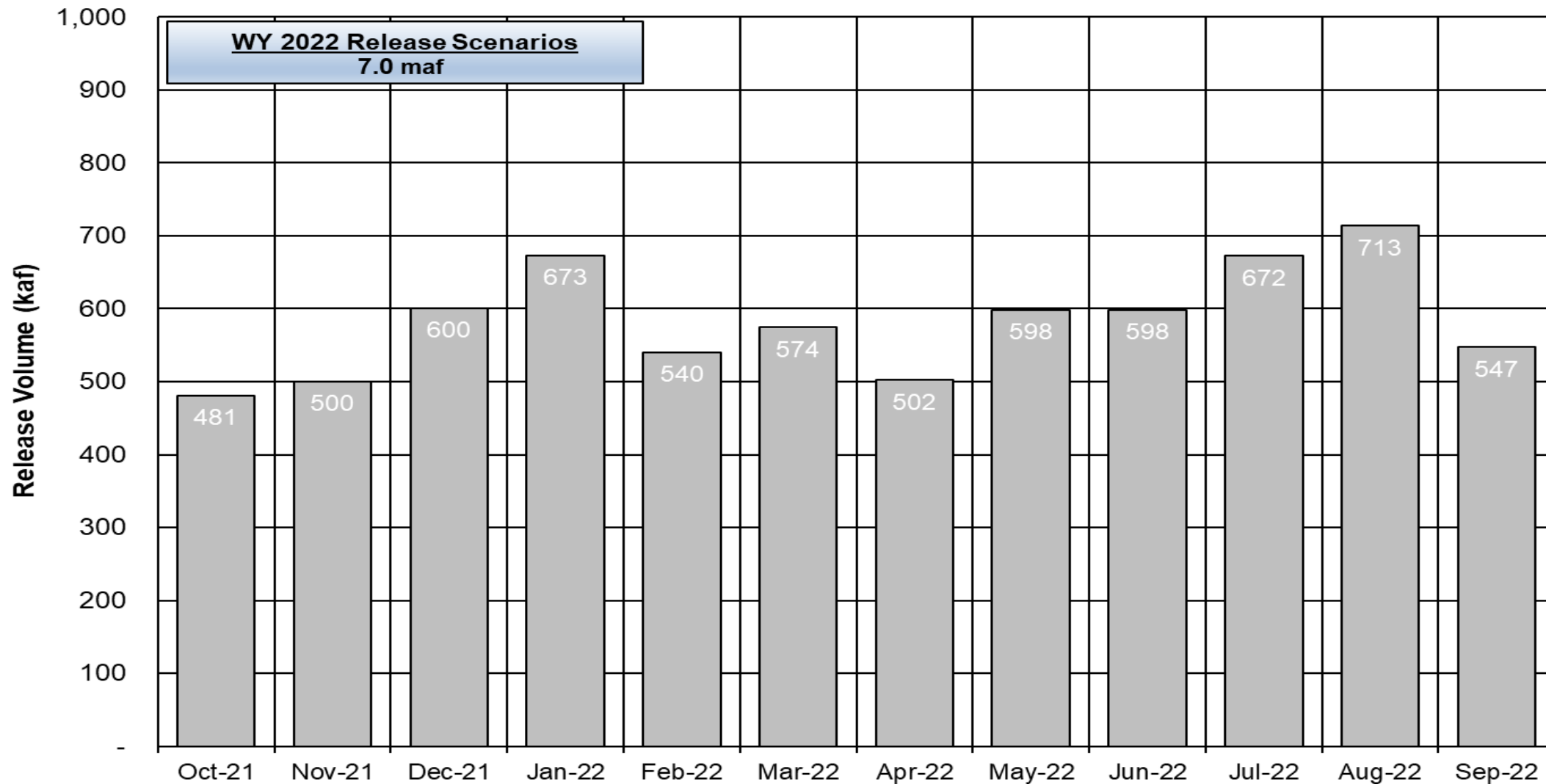
<sup>1</sup>DROA operational year is from May through April.

## Flaming Gorge 2022 Plan



# Potential Lake Powell Monthly Release Volume Distribution

## Release Scenarios for Water Year 2022



BUREAU OF RECLAMATION

The Drought Response Operations Agreement (DROA) can be found here: <https://www.usbr.gov/dcp/finaldocs.html>





# August & September 24-Month Study Projections

## Upper Colorado Basin Region Operations



# Timing of Operational Decisions

- August 24-Month Study projections of January 1 elevations sets the operating tiers for Lake Powell and Lake Mead



# Lake Powell & Lake Mead Operational Table

Lake Powell Operational Tier Determination Run (aka "Exhibit Run") with an 8.23 maf Release<sup>1,2</sup>

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>
3,575			1,145	<b>Normal or ICS Surplus Condition</b> Deliver ≥ 7.5 maf	15.9
3,525	<b>Mid-Elevation Release Tier</b> Release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf	9.5	1,105	<b>Shortage Condition</b> Deliver 7.167 <sup>4</sup> maf	11.9
			1,075		9.4
3,505.66 ft Jan 1, 2023 Projection	<b>Lower Elevation Balancing Tier</b> Balance contents with a min/max release of 7.0 and 9.5 maf	5.9	1,050	<b>Shortage Condition</b> Deliver 7.083 <sup>5</sup> maf	7.5
3,490			1,025		5.8
3,370			4.0	1,000	<b>Shortage Condition</b> Deliver 7.0 <sup>6</sup> maf Further measures may be undertaken <sup>7</sup>
		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.

<sup>1</sup> Lake Powell and Lake Mead operational tier determinations are based on August 2022 24-Month Study projections and are documented in the draft 2023 AOP.

<sup>2</sup> The operating determination for WY 2023 is based on a projected elevation "as if" the 0.48 maf were delivered to Lake Mead with a Glen Canyon Dam release pattern of 8.23 maf.



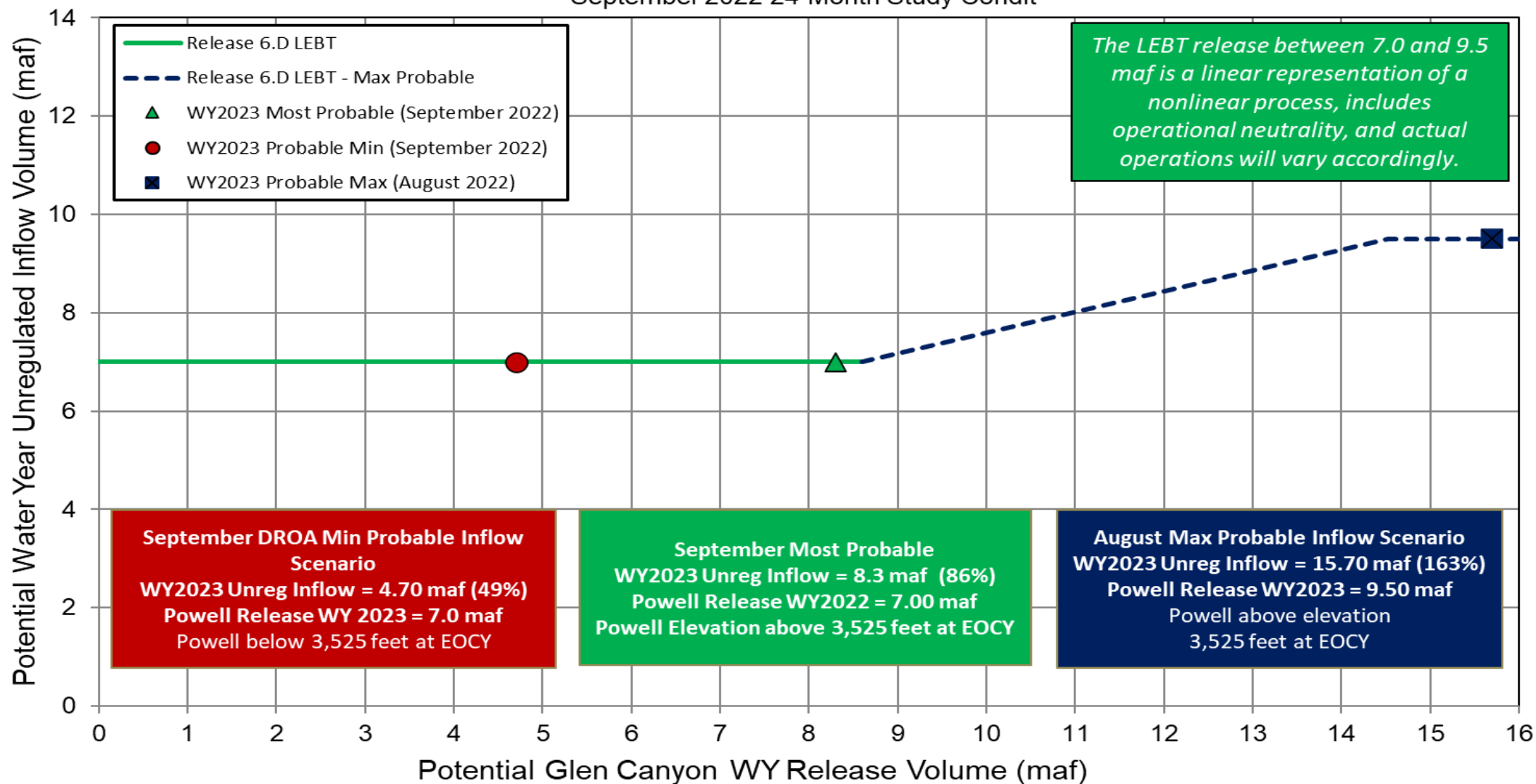
# Upper Basin Reservoir Operations *in Water Year 2023*

- Lake Powell will be operated consistent with the 2007 Interim Guidelines, the Upper Basin Drought Response Operations Agreement and Upper Basin Records of Decision
- Lake Powell's projected end of calendar year (CY) 2022 "tier determination" elevation in the August 2022 24-Month Study determines Lake Powell's operating tier in CY 2023
  - Lake Powell will operate in the Lower Elevation Balancing Tier where Lake Powell and Lake Mead will balance contents with Glen Canyon Dam release volumes no less than 7.0 maf and no more than 9.5 maf
- Consistent with the provisions of the 2007 Interim Guidelines, and to preserve the benefits to Glen Canyon Dam facilities from 2022 Operations into 2023 and 2024, Reclamation will consult with the Basin States on monthly and annual operations. Reclamation will also ensure all appropriate consultation with Basin Tribes, the Republic of Mexico, other federal agencies, water users and non-governmental organizations with respect to implementation of these monthly and annual operations.
  - The Glen Canyon Dam annual release has initially been set to 7.00 maf, and in April 2023 Reclamation will evaluate hydrologic conditions to determine if balancing releases may be appropriate under the conditions established in the 2007 Interim Guidelines;
  - Balancing releases will be limited (with a minimum of 7.00 maf) to protect Lake Powell from declining below elevation 3,525 feet at the end of December 2023;
  - Balancing releases will take into account operational neutrality of the 0.480 maf that was retained in Lake Powell under the May 2022 action<sup>1</sup>. Any Lake Powell balancing release volume will be calculated as if the 0.480 maf had been delivered to Lake Mead in WY 2022; and
  - The modeling approach for WY 2023 will apply to 2024.



# Lake Powell Release Scenarios under Section 6.D, Operational Neutrality and WY2023 Protect Powell Elevation 3,525 ft

Water Year 2023 Release Volume as a Function of the Lower Elevation Balancing Tier based on August and September 2022 24-Month Study Condit



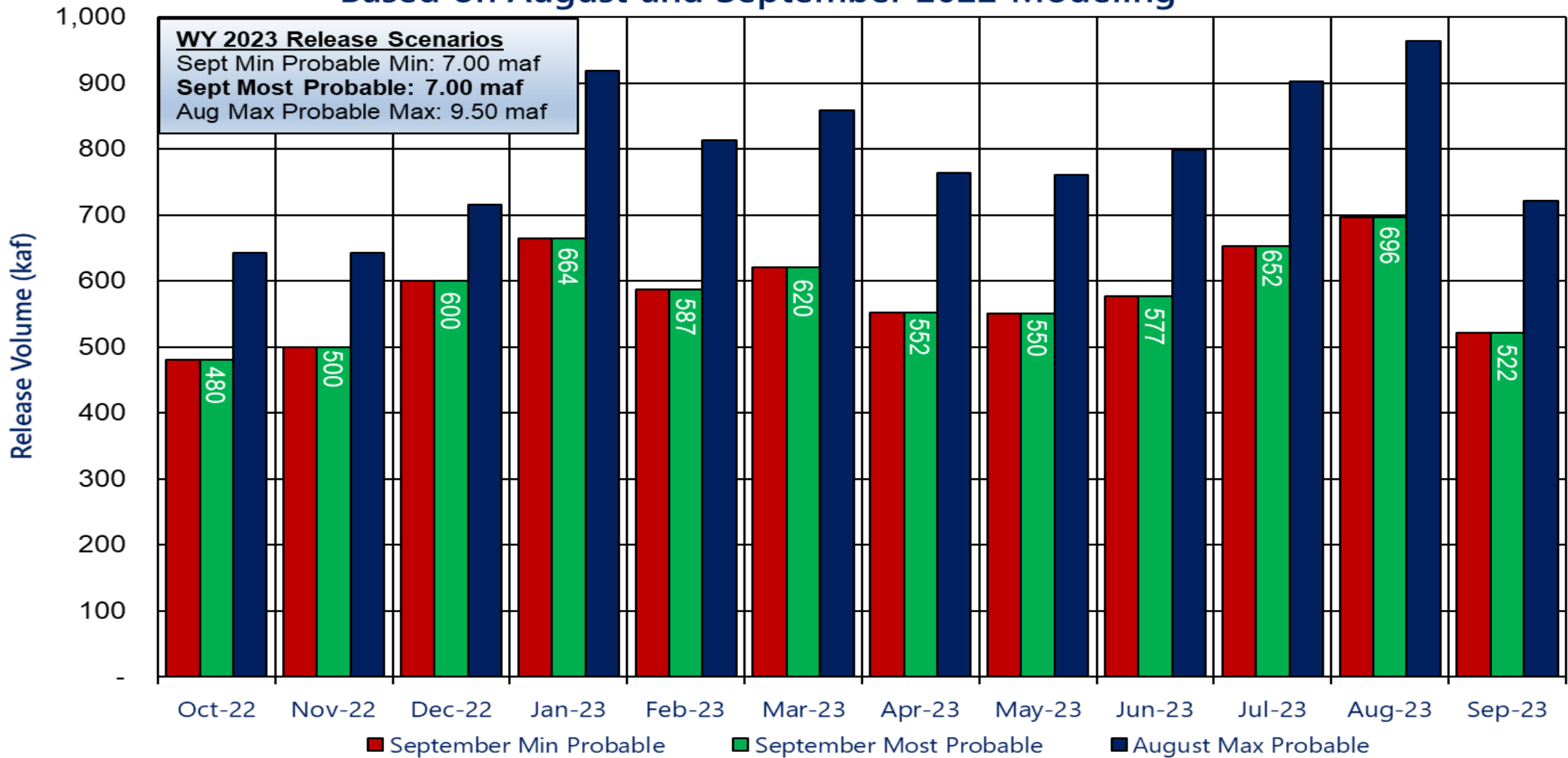
\*The Drought Response Operations Agreement (DROA) can be found here: <https://www.usbr.gov/dcp/finaldocs.html>



# Potential Lake Powell Monthly Release Volume Distribution

## Release Scenarios for Water Year 2023

### Based on August and September 2022 Modeling






Consistent with the provisions of the 2007 Interim Guidelines, and to preserve the benefits to Glen Canyon Dam facilities from 2022 Operations into 2023 and 2024, Reclamation will consult with the Basin States on monthly and annual operations. Reclamation will also ensure all appropriate consultation with Basin Tribes, the Republic of Mexico, other federal agencies, water users and non-governmental organizations with respect to implementation of these monthly and annual operations.





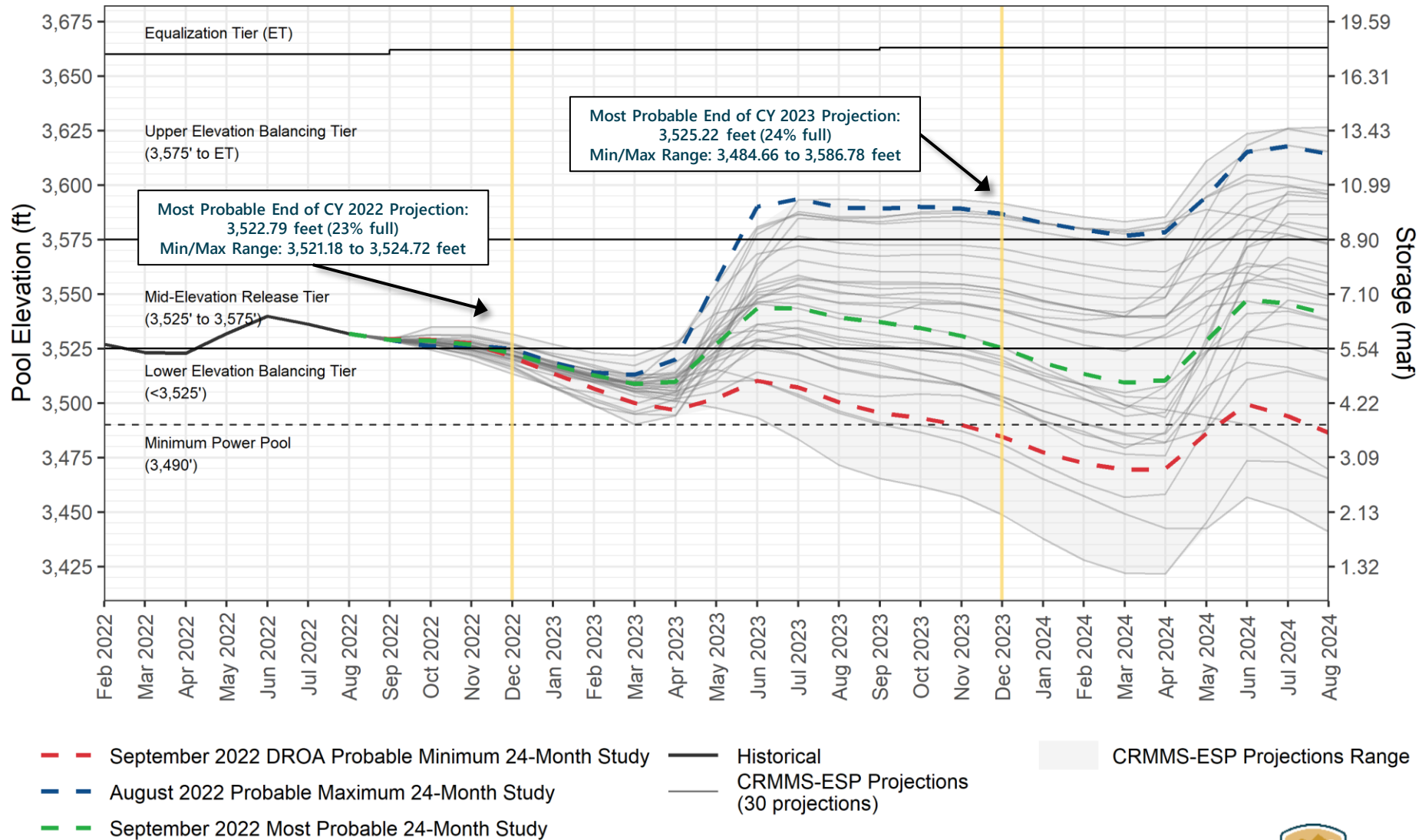
# Reclamation Operational Modeling Model Comparison

	<i>Colorado River Mid-term Modeling System (CRMMS)</i>		CRSS
	<i>24-Month Study Mode (Manual Mode)</i>	<i>Ensemble Mode (Rule-based Mode)</i>	
Primary Use	AOP tier determinations and projections of current conditions	Risk-based operational planning and analysis	Long-term planning, comparison of alternatives
Simulated Reservoir Operations	Operations input manually	Rule-driven operations	
Probabilistic or Deterministic	Deterministic – single hydrologic trace	Deterministic OR Probabilistic 30 (or more) hydrologic traces	Probabilistic – 100+ traces
Time Horizon (years)			
Upper Basin Inflow	Unregulated forecast, 1 trace	Unregulated ESP forecast, 30 traces	Natural flow; historical, paleo, or climate change hydrology
Upper Basin Demands	Implicit, in unregulated inflow forecast		Explicit, 2016 UCRC assumptions
Lower Basin Demands	Official approved or operational		Developed with LB users



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

## CRMMS Projections from August and September 2022



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



# Lake Powell WY 2023 Operating Tier Scenarios

Based on August 2022 24-Month Study Inflow Scenarios

Inflow Scenario	Operating Tier/ Release Volume
August DROA* Minimum Probable	Lower Elevation Balancing 7.00 maf
August Most Probable	Lower Elevation Balancing 7.00 maf
August DROA* Maximum Probable	Lower Elevation Balancing 9.50 maf

\*The Drought Response Operations Agreement (DROA) can be found online at:  
<https://www.usbr.gov/dcp/finaldocs.html>.



# Comparison of Current (August 2022) and Last Published (May 2022) CRMMS-ESP 5-Year Projections

## Chance of Lake Powell Falling Below Critical Reservoir Elevations in any Month of the Water Year (WY)

	Run	WY 2023	WY 2024	WY 2025	WY 2026	WY 2027 <sup>1</sup>
<b>Lake Powell less than 3,525 feet</b>	May 2022	90%	50%	37%	30%	23%
	<b>August 2022</b>	<b>100%</b>	<b>50%</b>	<b>37%</b>	<b>30%</b>	<b>30%</b>
	Difference	10%	0%	0%	0%	7%
<b>Lake Powell less than 3,490 feet (minimum power pool)</b>	May 2022	3%	23%	17%	23%	13%
	<b>August 2022</b>	<b>10%</b>	<b>30%</b>	<b>20%</b>	<b>17%</b>	<b>13%</b>
	Difference	7%	7%	3%	-6%	0%
<b>Lake Powell less than 3,375 feet (dead pool = 3,370 feet)</b>	May 2022	0%	0%	0%	0%	0%
	<b>August 2022</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
	Difference	0%	0%	0%	0%	0%

All results are computed based on projected physical elevations for Lake Powell.

<sup>1</sup> For modeling purposes, simulated years beyond 2026 assume a continuation of the 2007 Interim Guidelines, the 2019 Colorado River Basin Drought Contingency Plans, and Minute 323, including the Binational Water Scarcity Contingency Plan. Except for certain provisions related to ICS recovery and Upper Basin demand management, operations under these agreements are in effect through 2026. Reclamation anticipates beginning a process in early 2023 to develop operations for post-2026, and the modeling assumptions described here are subject to change for the analysis to be used in that process.



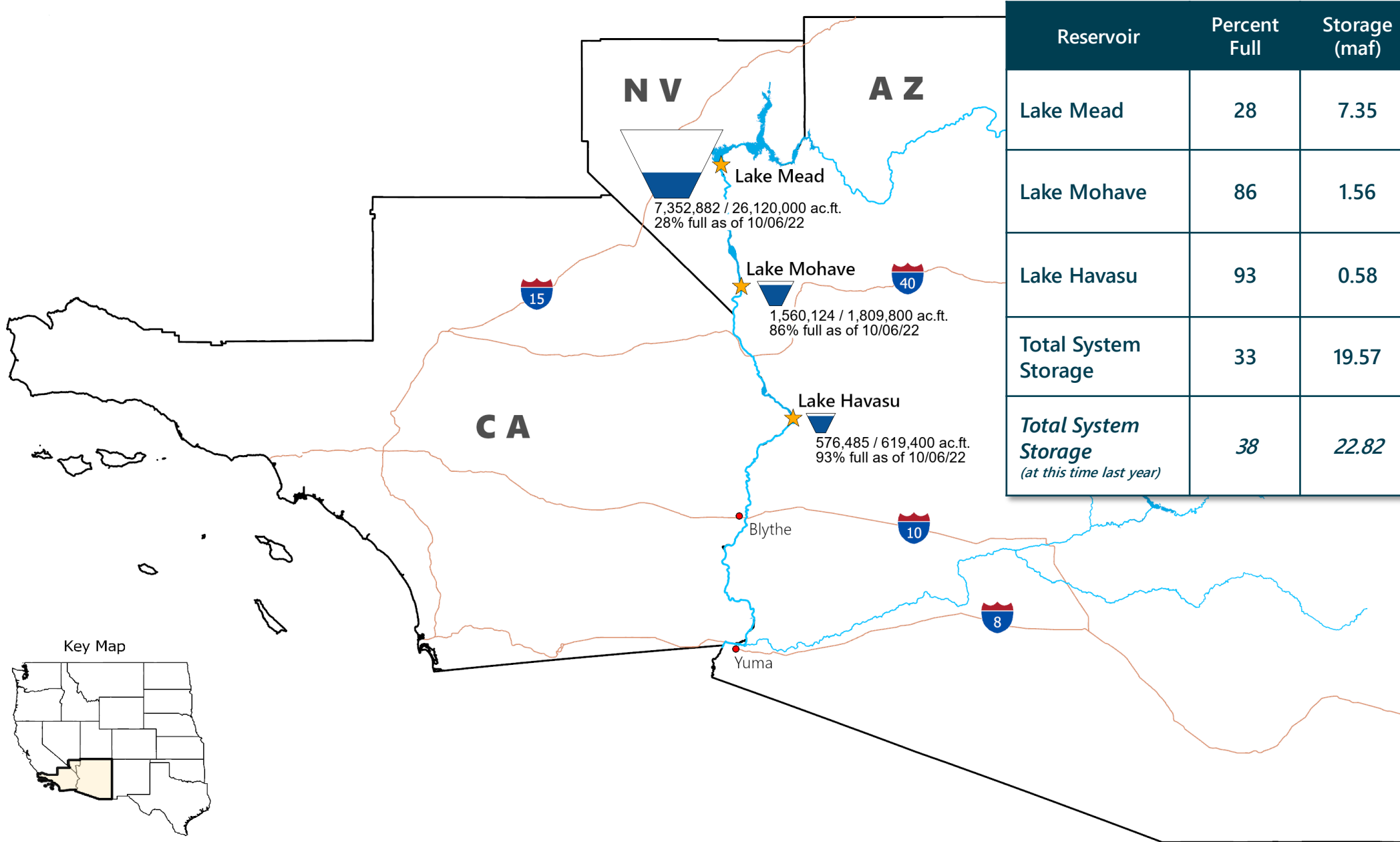


# August & September 24-Month Study Projections

## Lower Colorado Basin Region Operations



# Lower Colorado Basin System Conditions (as of October 6, 2022)



Reservoir	Percent Full	Storage (maf)	Elevation (feet)
Lake Mead	28	7.35	1,045.38
Lake Mohave	86	1.56	637.85
Lake Havasu	93	0.58	447.81
<b>Total System Storage</b>	<b>33</b>	<b>19.57</b>	<b>-</b>
<b>Total System Storage</b> <i>(at this time last year)</i>	<b>38</b>	<b>22.82</b>	<b>-</b>



# Lower Basin Side Inflows – WY/CY 2022<sup>1,2,3</sup>

## Intervening Flow from Glen Canyon to Hoover Dam

	Month in WY/CY 2022	5-Year Average Intervening Flow (kaf)	Observed Intervening Flow (kaf)	Observed Intervening Flow (% of Average)	Difference From 5-Year Average (kaf)
Observed	October 2021	69	80	116%	11
	November 2021	68	42	62%	-26
	December 2021	69	64	94%	-4
	January 2022	87	60	69%	-27
	February 2022	88	58	65%	-31
	March 2022	107	41	39%	-65
	April 2022	72	30	43%	-41
	May 2022	43	8	18%	-35
	June 2022	22	16	72%	-6
	July 2022	56	70	125%	14
	August 2022	66	186	283%	120
September 2022	62	120	193%	58	
Projected	October 2022	69			
	November 2022	68			
	December 2022	69			
	WY 2022 Totals	810	776	96%	-34
	CY 2022 Totals	810	796	98%	-14

<sup>1</sup> Values were computed with the LC’s gain-loss model for the most recent 24-month study.

<sup>2</sup> Percents of average are based on the 5-year mean from 2017-2021.

<sup>3</sup> Lake Mead’s evaporation in the intervening flow mass balance incorporates evaporation coefficients developed by the USGS between 2010-2019. The study report can be found online at: <https://pubs.usgs.gov/of/2021/1022/ofr20211022.pdf>



# Lake Powell & Lake Mead Operational Table

## Lake Mead Operating Condition Determination for CY 2023<sup>1,2</sup>

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		<b>Shortage Condition</b> Deliver 7.167 <sup>4</sup> maf
			1,075	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	<b>Shortage Condition</b> Deliver 7.083 <sup>5</sup> maf	7.5
			1,025		5.8
3,490		4.0	1,000	<b>Shortage Condition</b> Deliver 7.0 <sup>6</sup> maf Further measures may be undertaken <sup>7</sup>	4.3
3,370		0	895		0

**1,047.61 ft**  
**Jan 1, 2023**  
**Projection**

**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.

<sup>1</sup> Lake Powell and Lake Mead operational tier determinations are based on August 2022 24-Month Study projections and are documented in the draft 2023 AOP.

<sup>2</sup> The operating determination for CY 2023 is based on a projected elevation "as if" the 0.48 maf were delivered to Lake Mead with a Glen Canyon Dam release pattern of 7.00 maf in WY 2023.





## 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	<b>0</b>	192	8	0	41	192	8	0	200	41	<b>241</b>
1,075 - 1050	320	13	50	<b>383</b>	192	8	0	30	512	21	0	533	80	<b>613</b>
1,050 - 1,045	400	17	70	<b>487</b>	192	8	0	34	592	25	0	617	104	<b>721</b>
1,045 - 1,040	400	17	70	<b>487</b>	240	10	200	76	640	27	200	867	146	<b>1,013</b>
1,040 - 1,035	400	17	70	<b>487</b>	240	10	250	84	640	27	250	917	154	<b>1,071</b>
1,035 - 1,030	400	17	70	<b>487</b>	240	10	300	92	640	27	300	967	162	<b>1,129</b>
1,030 - 1,025	400	17	70	<b>487</b>	240	10	350	101	640	27	350	1,017	171	<b>1,188</b>
<1,025	480	20	125	<b>625</b>	240	10	350	150	720	30	350	1,100	275	<b>1,375</b>

**2022 Operations**



**2023 Operations**



**2022 Operations**



**2023 Operations**

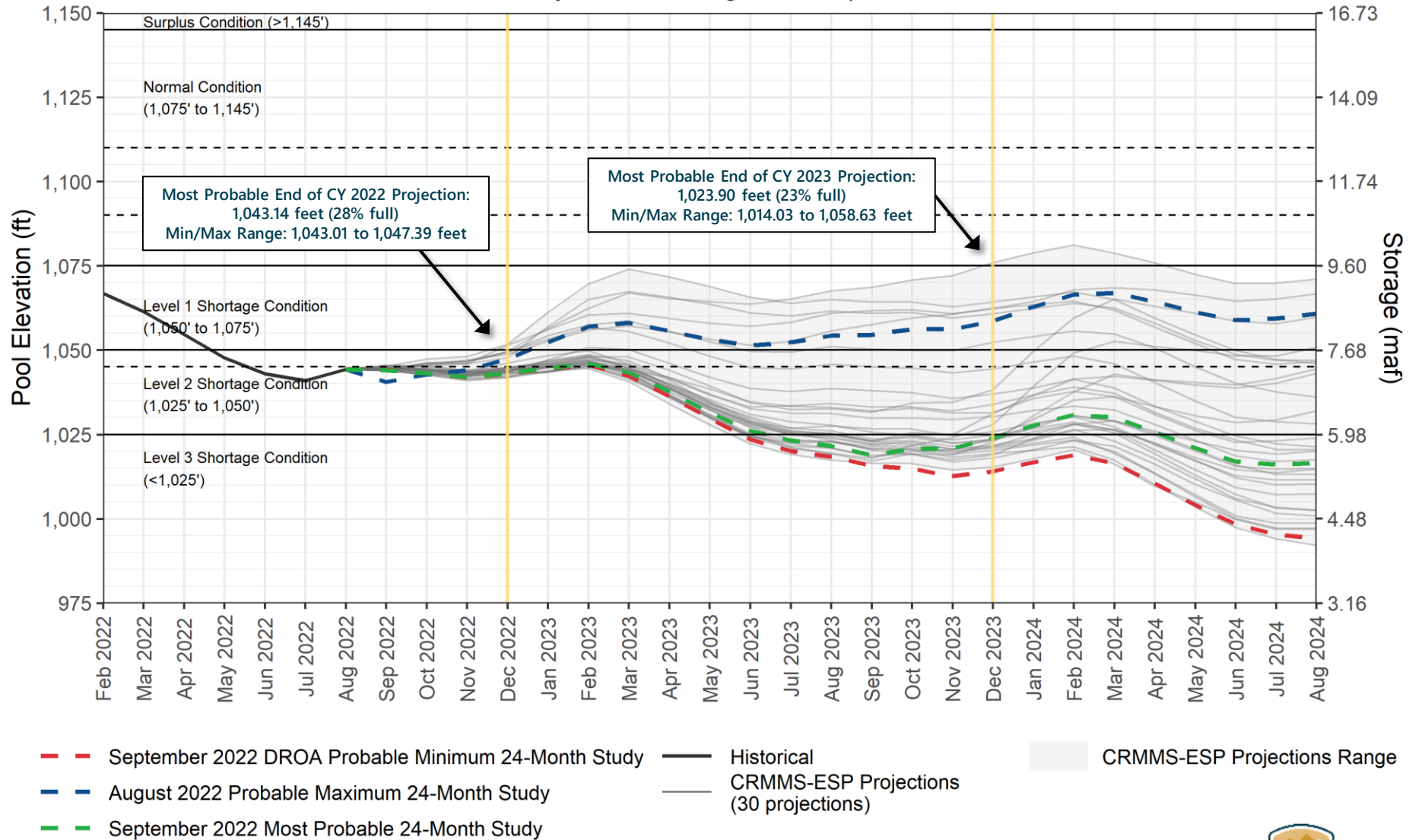


The Secretary of the Interior will take affirmative actions to implement programs designed to create or conserve 100,000 acre-ft per annum or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the lower basin. All actions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



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

## CRMMS Projections from August and September 2022



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



# Projected Lake Mead Operational Tiers

Based on August and September 2022 24-Month Study Inflow Scenarios

Inflow Scenario	CY 2023	CY 2024
	Jan 1, 2023 Projection	Jan 1, 2024 Projections
Probable Maximum	Level 2 Shortage Condition+ Water Savings Contributions <sup>1,2</sup>  Elevation 1,047.61 ft	Level 1 Shortage Condition+ Water Savings Contributions <sup>1,2</sup> Elevation 1,064.91 ft
Most Probable		Level 2 Shortage Condition+ Water Savings Contributions <sup>1,3</sup> Elevation 1,031.30 ft
Probable Minimum		Level 3 Shortage Condition+ Water Savings Contributions <sup>1,3</sup> Elevation 1,021.79 ft

<sup>1</sup>Water savings contributions consistent with the 2019 Colorado River Drought Contingency Plans and Section IV of IBWC Minute No. 323.

<sup>2</sup>Operating condition based on projected tier determination elevation from the August 2022 24-Month Study

<sup>3</sup>Operating condition based on projected tier determination elevation from the September 2022 24-Month Study



# Comparison of Current (August 2022) and Last Published (May 2022) CRMMS-ESP 5-Year Projections

## Chance of Lake Mead Falling Below Critical Reservoir Elevations in any Month of the Calendar Year

	Run	2023	2024	2025	2026	2027 <sup>1</sup>
<b>Lake Mead less than 1,020 feet</b>	May 2022	40%	50%	47%	50%	53%
	<b>August 2022</b>	<b>47%</b>	<b>57%</b>	<b>57%</b>	<b>60%</b>	<b>57%</b>
	Difference	7%	7%	10%	10%	4%
<b>Lake Mead less than 1,000 feet</b>	May 2022	0%	13%	20%	20%	13%
	<b>August 2022</b>	<b>0%</b>	<b>23%</b>	<b>20%</b>	<b>20%</b>	<b>17%</b>
	Difference	0%	10%	0%	0%	4%
<b>Lake Mead less than 950 feet (minimum power pool)</b>	May 2022	0%	0%	0%	3%	3%
	<b>August 2022</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>7%</b>	<b>3%</b>
	Difference	0%	0%	0%	4%	0%
<b>Lake Mead less than 900 feet (dead pool = 895 feet)</b>	May 2022	0%	0%	0%	0%	0%
	<b>August 2022</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
	Difference	0%	0%	0%	0%	0%

All results are computed based on projected physical elevations for Lake Mead.

<sup>1</sup> For modeling purposes, simulated years beyond 2026 assume a continuation of the 2007 Interim Guidelines, the 2019 Colorado River Basin Drought Contingency Plans, and Minute 323, including the Binational Water Scarcity Contingency Plan. Except for certain provisions related to ICS recovery and Upper Basin demand management, operations under these agreements are in effect through 2026. Reclamation anticipates beginning a process in early 2023 to develop operations for post-2026, and the modeling assumptions described here are subject to change for the analysis to be used in that process.



# Additional Water Modeled Under 500 Plus Plan

*(as modeled in the September 2022 Most Probable 24-Month Study)*

Conservation Activity <i>(volumes in AF)</i>	2021	2022 <i>(Projected)</i>	2023 <i>(Projected)</i>
CAP ICS delivery offset	6,147	19,604	-18,400
GRIC System Conservation	40,000	50,937	0
GRIC ICS creation	0	78,565	0
CRIT System Conservation <i>(in lieu of ICS)</i>	4,685	4,685	0
CAWCD System Conservation	0	35,506	0
YMIDD System Conservation	0	8,544	13,670
MVIDD System Conservation	0	9,592	9,592
MWD ICS delivery offset and/or creation	58,134	-9,200	-161,978
PVID System Conservation	12,305	50,800	58,000
SNWA ICS creation	12,832	15,000	15,000
<b>Annual Total</b> <i>(Non-Shortage/DCP)</i>	<b>134,103</b>	<b>264,033</b>	<b>-84,116</b>
<b>Cumulative Total</b>	<b>134,103</b>	<b>398,136</b>	<b>314,020</b>

- 2022 and 2023 volumes reflect executed agreements and/or current operational projections and are subject to change.
- Additional conservation activities are being considered. After new agreements are finalized and executed, these additional activities will be included in Reclamation's operational modeling.



# Additional Operational Data

## Provisional 2022 Year-to-Date Totals

- Mexico Excess Flows
  - 4,294 af (through 10/6)
- Brock Reservoir Total Storage
  - 85,614 af (through 9/30)
- Senator Wash Total Storage
  - 60,333 af (through 9/30)



# YAO Operations Update

- Pumped drainage return flows from the Wellton-Mohawk Irrigation and Drainage District
  - Flow at station 0+00 on the Main Outlet Drain from January through September 2022 was 72,761 ac-ft at 2,630 ppm
- Provisional drainage flows to the Colorado River
  - From the South Gila Drainage Wells January through Sep 2022 was 1,355 ac-ft at 1,663 ppm
  - From the Yuma Mesa Conduit January through Sep 2022 was 25,050 ac-ft at 1,219 ppm



2023 Colorado River Annual Operating Plan  
Colorado River Management Work Group  
Final Consultation  
October 12, 2022



— BUREAU OF —  
RECLAMATION