



Arizona Reconsultation Committee Meeting #5

July 13, 2022



ARIZONA
RECONSULTATION
COMMITTEE

Meeting Logistics Summary

- Roll Call
 - Members will unmute and acknowledge their attendance when their name is called.
- ARC Delegates
 - If in the room, please raise your hand.
 - If online, use the WebEx “raise hand” feature to request to speak or ask questions.
 - Wait to be recognized before speaking to ensure clear communication and remain muted when not speaking.
- Livestream Attendees
 - Electronic public comment forms are available at cap-az.com/ARC for anyone wishing to submit a comment or question during the meeting.
 - All submissions will be addressed during the Call to the Public at the end of the meeting, unless relevant to a specific topic in the presentation.
- Modeling and Analysis Workgroup and ARC Information
 - Meeting materials have been posted on the ADWR and CAP ARC pages: cap-az.com/ARC or new.azwater.gov/arc.



ARC #5 - Meeting Agenda

- Welcome and Introductions
- Analysis of Protection Volumes
- Arizona Update
- Reconsultation Process Update
- Next Steps
 - Direction to MAWG
- Call to the Public





— BUREAU OF —
RECLAMATION

Colorado River Basin: Hydrology & Protection Volume Analysis

Arizona Reconsultation Committee

July 13, 2022

Colorado River Basin Storage

(as of July 10, 2022)

Reservoir	Percent Full	Storage (maf)	Elevation (feet)
Lake Powell	28%	6.41	3,539.45
Lake Mead	27%	7.12	1,041.99
Total System Storage	35%	20.37	- - -

Total system storage was 41% of capacity, or 24.49 maf in storage, at this time last year.

¹Reclamation implemented the updated Lake Powell live storage capacity of 23.314 maf as of July 1, 2022. This reflects a 4% decrease since the last reservoir survey in 1986.



Water Year Snowpack and Precipitation^{1,2} as of July 11, 2022

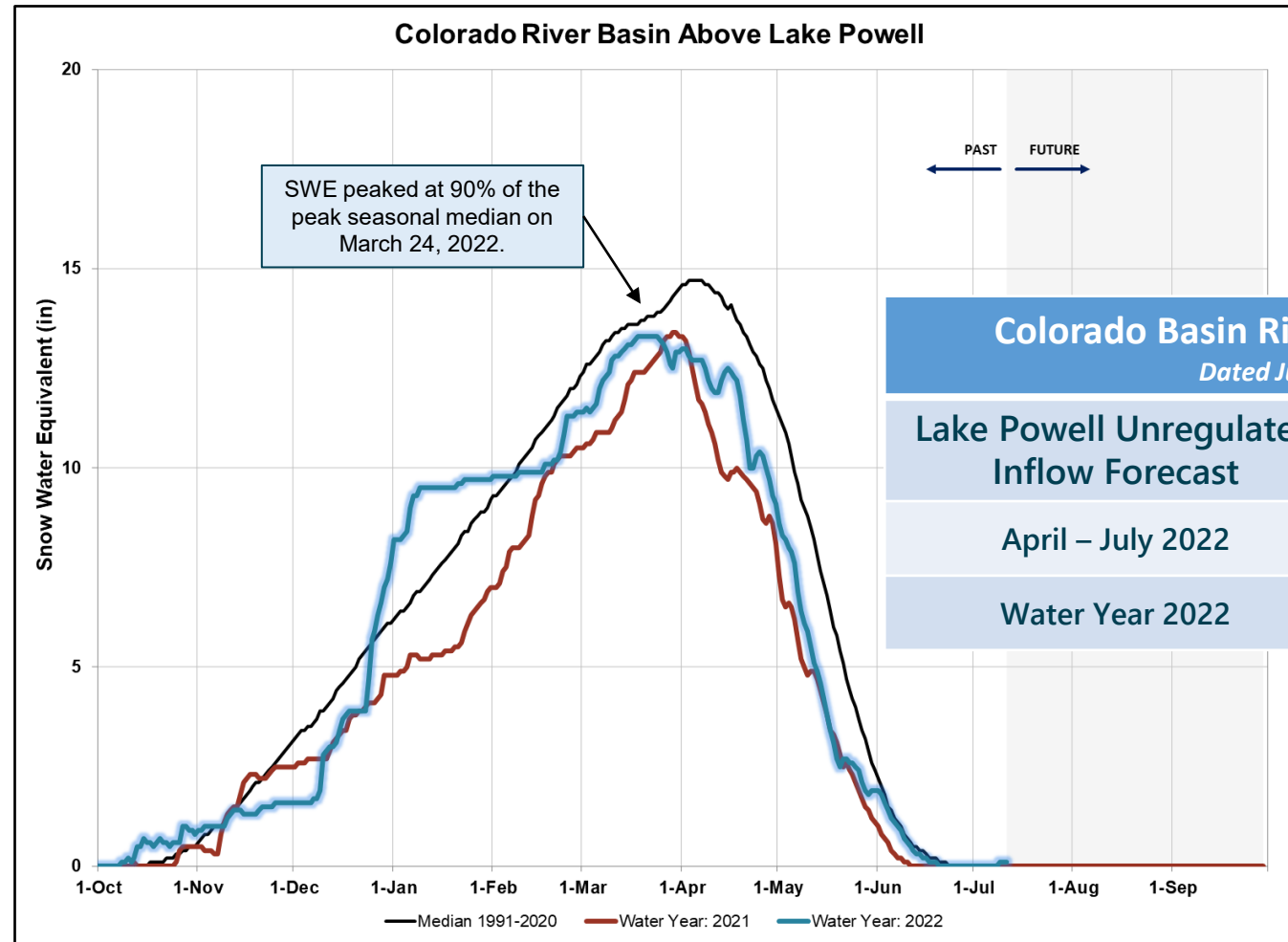
Colorado River Basin above Lake Powell

Water Year 2022
Precipitation
(year-to-date)

96% of average

Current Snowpack

NA% of median



¹Percent of normal precipitation is based on an arithmetic mean, or average; percent of normal snowpack is based on the median value for a given date.

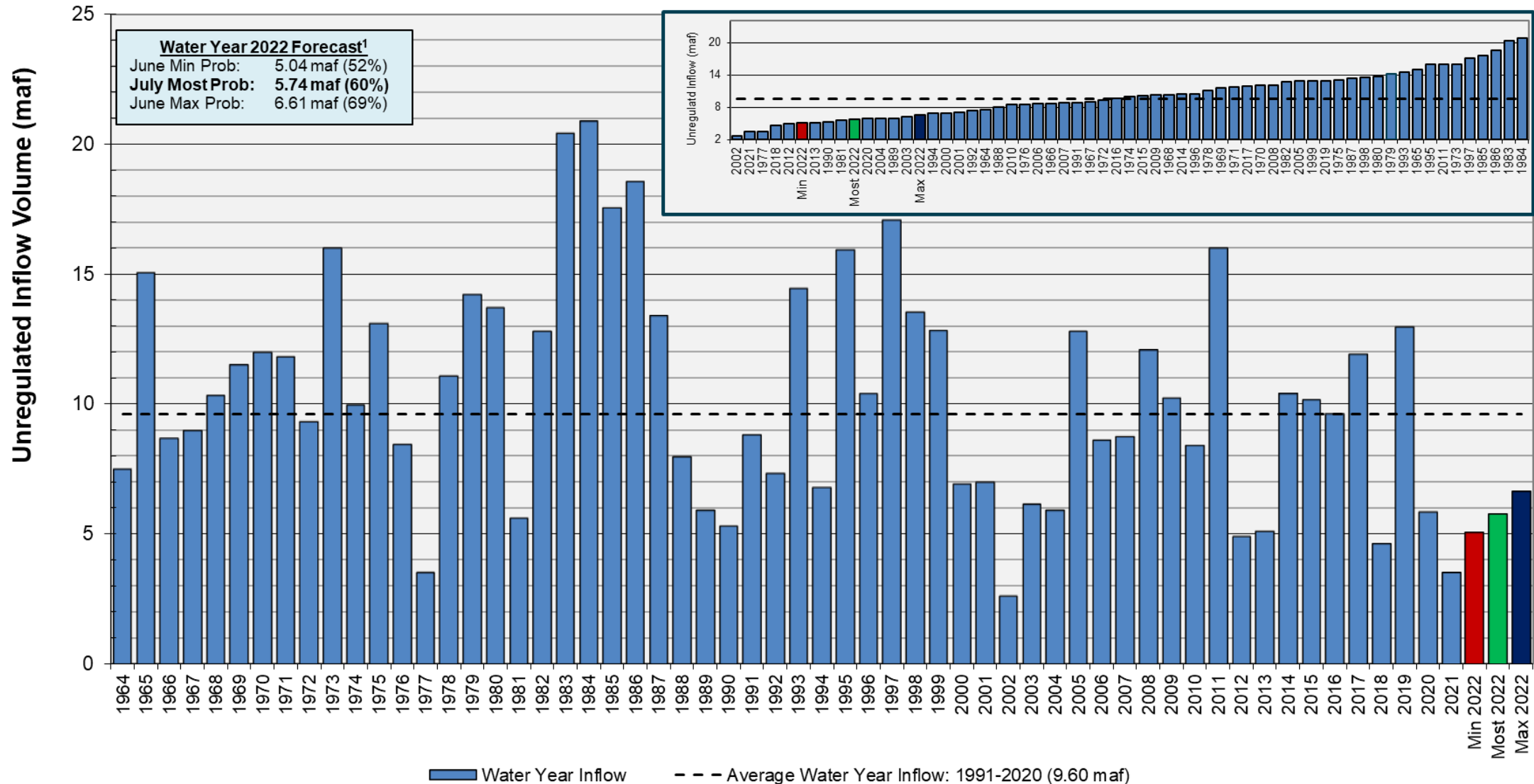
²Statistics are based on the 30-year period of record from 1991-2020.



Lake Powell Water Year Unregulated Inflow¹

Forecast as of July 5, 2022

Comparison with History

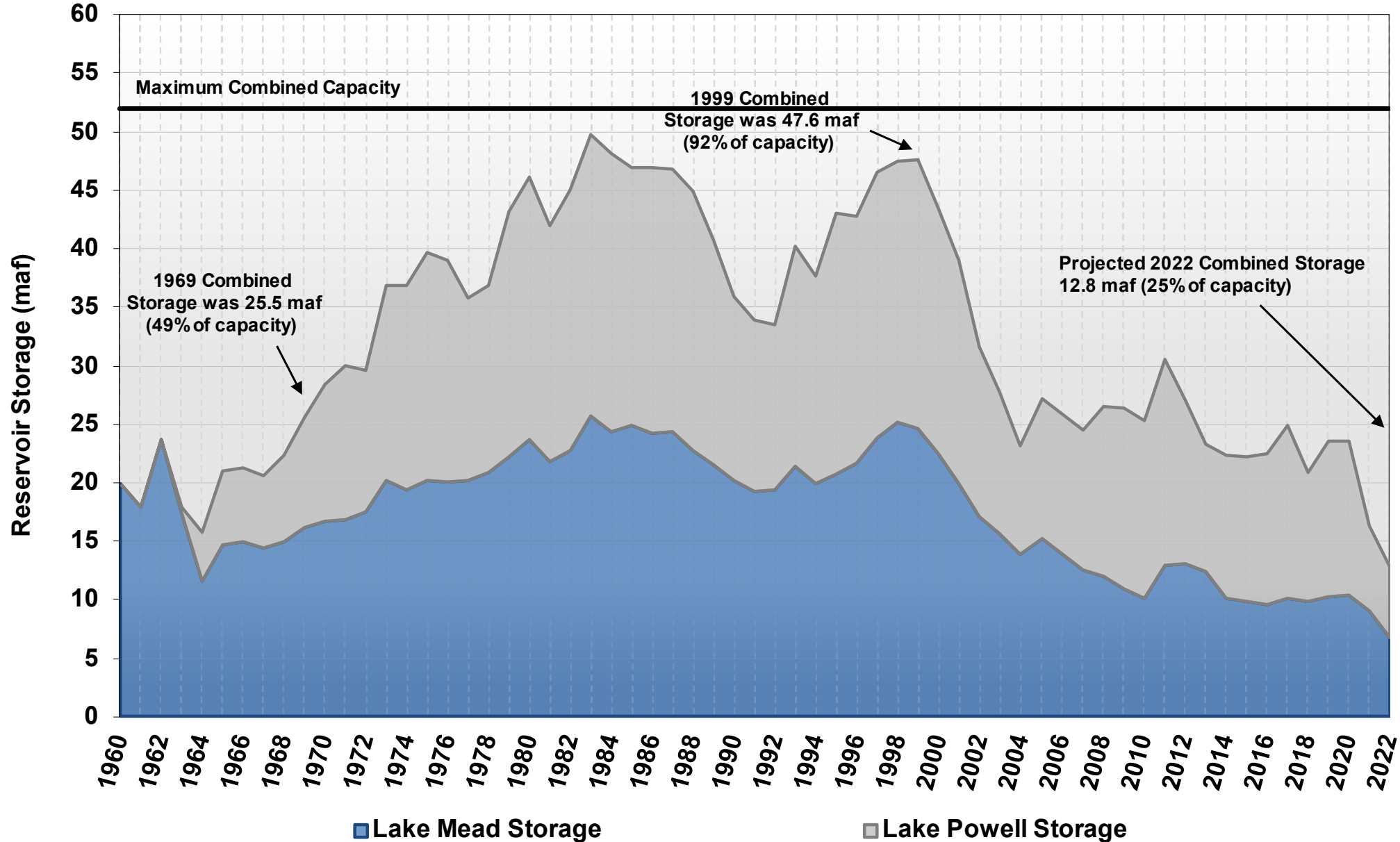


¹Water Year 2022 statistics are based on the 30-year period of record from 1991-2020.



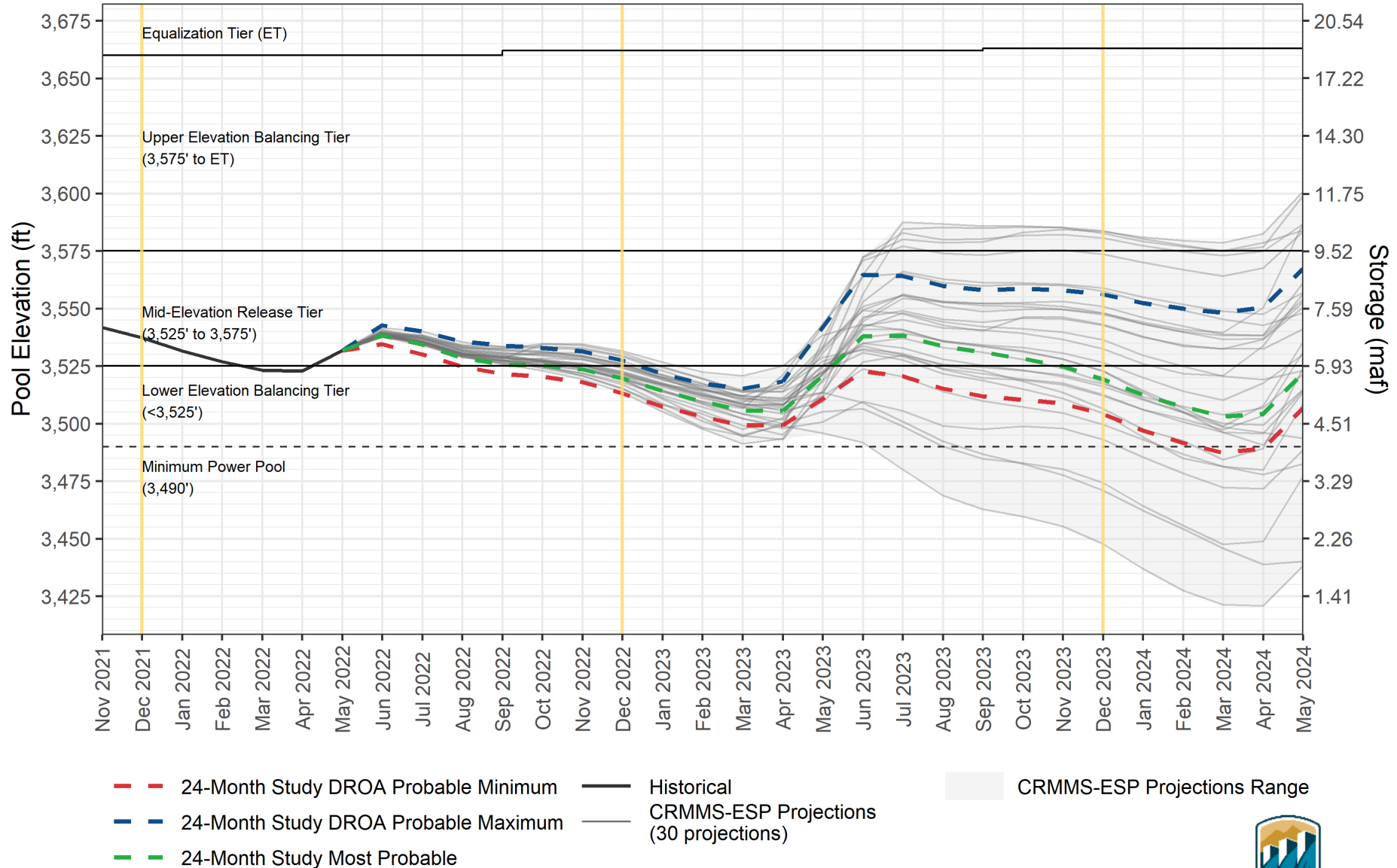
Lake Powell and Lake Mead End of Water Year Storage

Water Years 1960 through 2022



Lake Powell End-of-Month Elevations

CRMMS Projections from June 2022

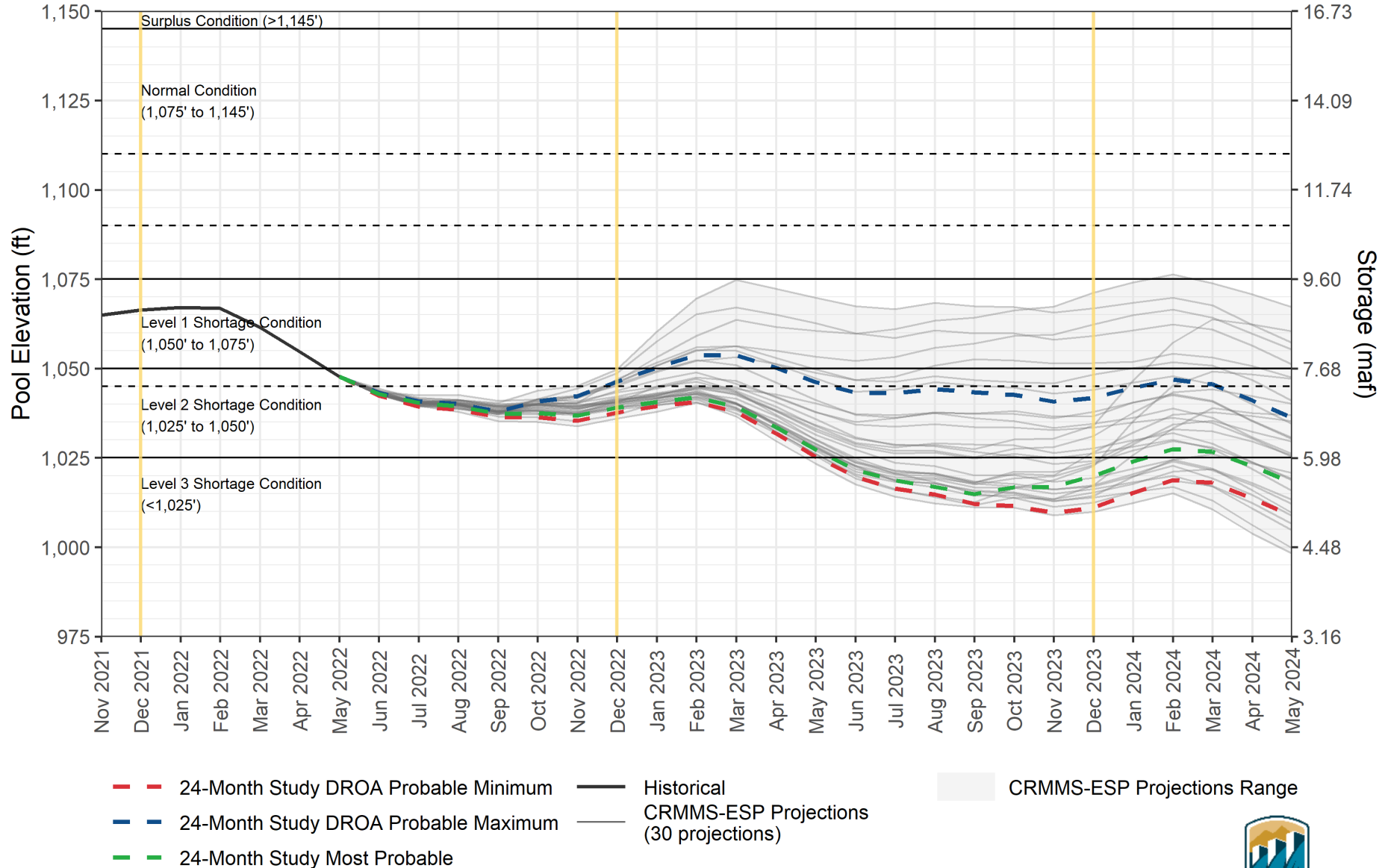


* Projected Lake Powell end-of-month physical elevations from the June CRMMS-ESP and 24-Month Study inflow scenarios.



Lake Mead End-of-Month Elevations

CRMMS Projections from June 2022



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



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	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	
Tier 1 → 1,075 - 1050	320	13	50	383	192	8	0	30	512	21	0	533	80	613	
Tier 2a → 1,050 - 1,045	400	17	70	487	192	8	0	34	592	25	0	617	104	721	
Tier 2b {	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	
Tier 3 → <1,025	480	20	125	625	240	10	350	150	720	30	350	1,100	275	1,375	

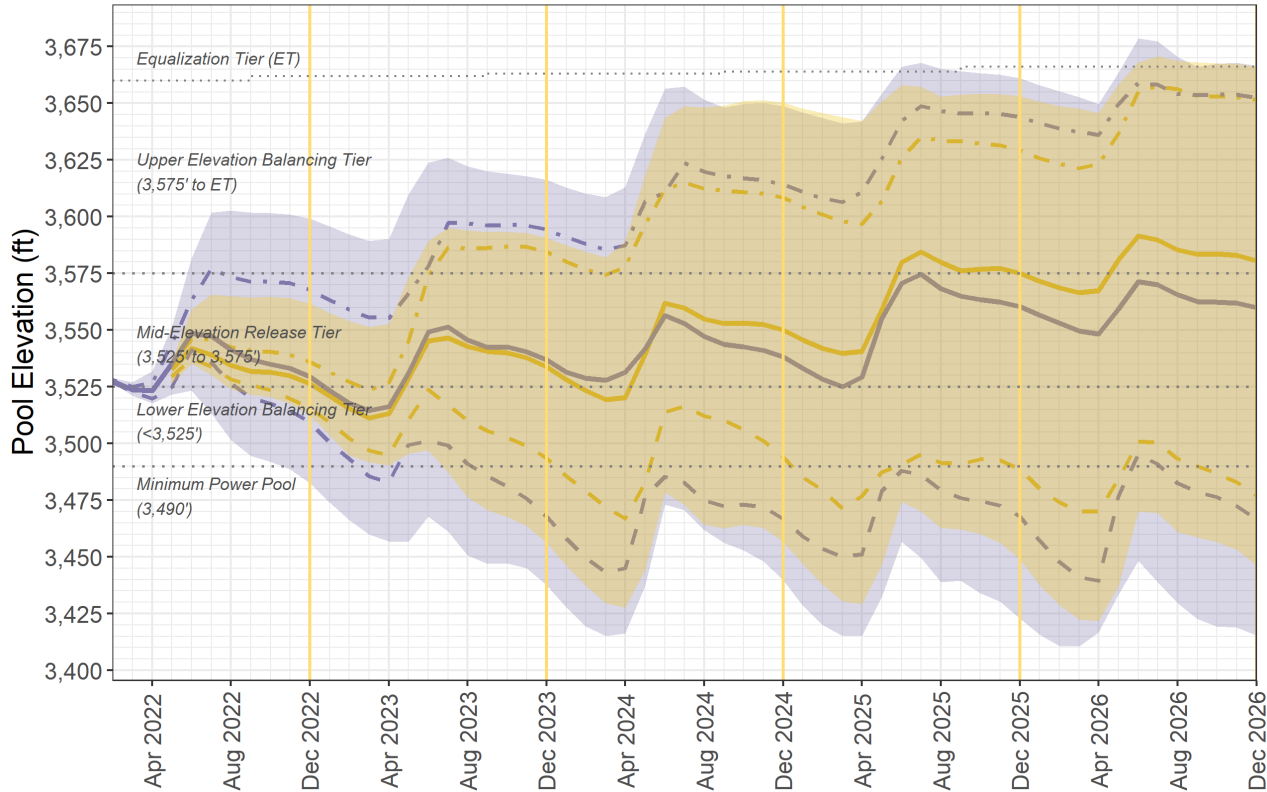
The Secretary of the Interior will take affirmative actions to implement programs designed to create or conserve 100,000 acre-ft per annum or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the lower basin. All actions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



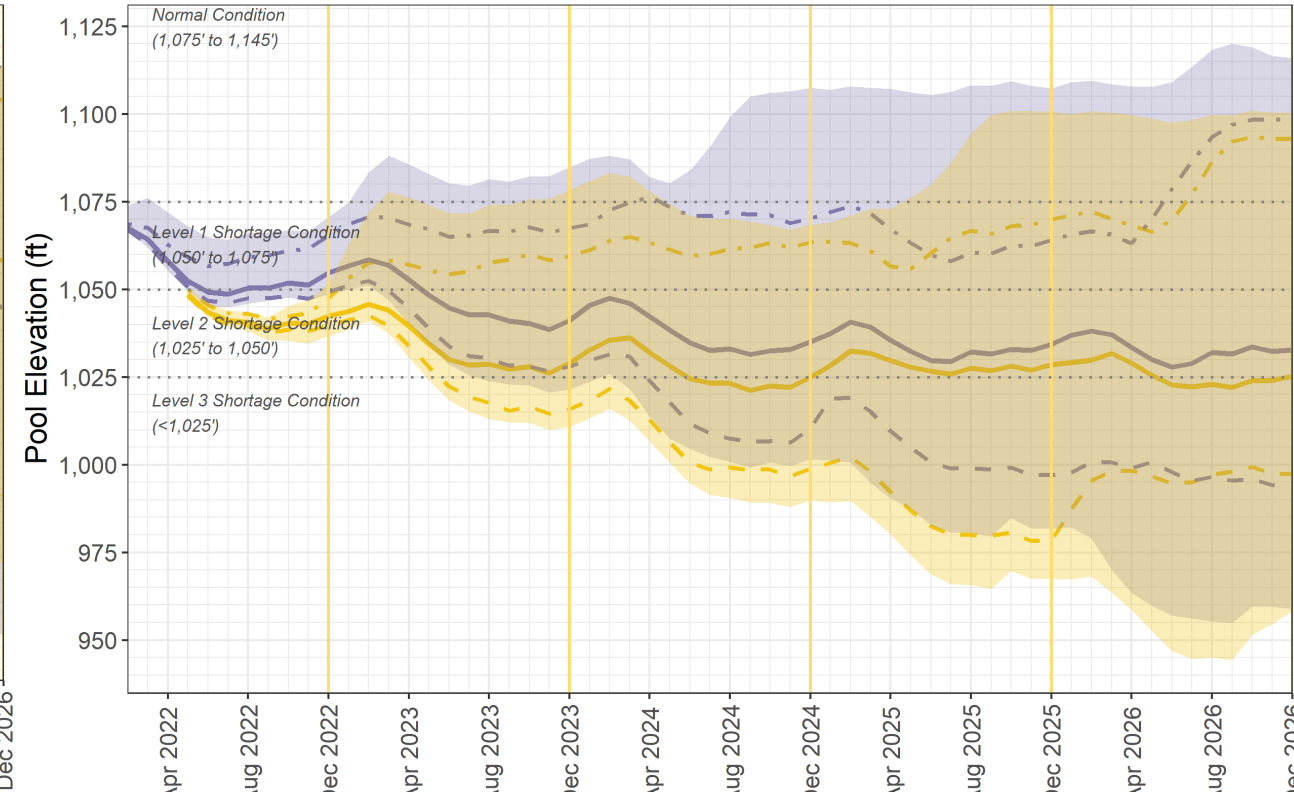
May 2022 vs. February 2022 CRMMS-ESP 5-Year Projections

End-of-Month Pool Elevations

Lake Powell



Lake Mead



— May 2022 — February 2022
 10% May 2022 Range
 50% February 2022 Range
 90%

* 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.



Protection Volume Analysis

Objective: quantify the volume of additional water needed to maintain, i.e., “absolutely protect”, specific elevations at Lake Powell and Lake Mead for the next 4 years (2023-2026)

Preliminary analysis considers two protections levels:

- 3,525 feet at Lake Powell and 1,020 feet at Lake Mead
- 3,500 feet at Lake Powell and 1,000 feet at Lake Mead

Approach

- Quantify the volume of water necessary to keep Powell and Mead at these elevations by injecting this “protection volume” water into the system at Powell and Mead
 - Not assigned to anyone
 - In addition to Lower Basin Shortages, DCP contributions, and Minute 323 Reductions and Savings volumes
- Use three different hydrologic futures to quantify volumes:
 - "Stress Test" - resample historical record from 1988-2019
 - Resample historical record from 2000-2019
 - Climate change-based hydrology
- Initial conditions (December 31, 2022) incorporate this year’s DROA and reduced release from Glen Canyon Dam



Lake Powell Elevations and Necessary Protection Volumes

2023-2026 Average Lake Powell Inflow	Avg Lake Powell End-of-Year Elevation Without Action (ft)				Annual Volumes (maf) Needed to Protect:	
	2023	2024	2025	2026	Powell 3,525' & Mead 1,020' Avg (Min – Max)	Powell 3,500' & Mead 1,000' Avg (Min – Max)
Greater than 95%	3,545	3,571	3,590	3,605	0.6 (0.3 – 2.0)	0.2 (0.0 – 1.4)
80% - 95%	3,509	3,515	3,517	3,513	1.3 (0.3 – 2.8)	0.6 (0.0 – 2.1)
64% - 79%	3,501	3,488	3,464	3,447	2.1 (1.1 – 3.1)	1.3 (0.4 – 2.3)
50% - 63%	3,481	3,431	3,411	3,409	3.5 (2.5 – 4.5)	2.7 (1.7 – 3.7)
Less than 50%	3,441	3,401	3,403	3,404	4.2 (4.2 – 4.2)	3.5 (3.5 – 3.5)

3,500' < Pool Elevation < 3,525'

Pool Elevation < 3,500'

- * 1991-2020 Avg = 9.46 maf
- 2000-2021 Avg = 8.31 maf
- 2018-2021 Avg = 6.86 maf (73% of 1991-2020)
- 2022 = ~6.0 maf (63% of 1991-2020)

Powell Elevation (ft)	Storage (maf)	% Capacity
3,525	5.9	24.4
3,500	4.5	18.5
3,490	4.0	16.4
3,370	0.0	0.0



Lake Mead Elevations and Necessary Protection Volumes

2023-2026 Average Lake Powell Inflow	Avg Lake Mead End-of-Year Elevation Without Action (ft)				Annual Volumes (maf) Needed to Protect:	
	2023	2024	2025	2026	Powell 3,525' & Mead 1,020' Avg (Min – Max)	Powell 3,500' & Mead 1,000' Avg (Min – Max)
Greater than 95%	1,049	1,052	1,059	1,066	0.6 (0.3 – 2.0)	0.2 (0.0 – 1.4)
80% - 95%	1,028	1,025	1,020	1,021	1.3 (0.3 – 2.8)	0.6 (0.0 – 2.1)
64% - 79%	1,028	1,017	998	983	2.1 (1.1 – 3.1)	1.3 (0.4 – 2.3)
50% - 63%	1,018	988	943	914	3.5 (2.5 – 4.5)	2.7 (1.7 – 3.7)
Less than 50%	1,006	917	895	896	4.2 (4.2 – 4.2)	3.5 (3.5 – 3.5)

1,000' < Pool Elevation < 1,020'

Pool Elevation < 1,000'

* 1991-2020 Avg = 9.46 maf
 2000-2021 Avg = 8.31 maf
 2018-2021 Avg = 6.86 maf (73% of 1991-2020)
 2022 = ~6.0 maf (63% of 1991-2020)

Mead Elevation (ft)	Storage (maf)	% Capacity
1,020	5.7	21.7
1,000	4.5	17.1
950	2.0	7.7
895	0.0	0.0



Summary

- We do not know what runoff will be next year, but if it is below average, we are vulnerable to falling below the 3,525'/1,020' combined storage volume if we do not act.
- Even with a good year, we can quickly be back in the same position we are in today, or worse.
- If 2023 inflow is like 2022, Lake Powell and Lake Mead together need an additional 2.5 maf to stay above the 3,525'/1,020' combined storage volume.
- Each year we fall short of protecting whatever elevations we choose to protect, the volumes needed to stabilize the system in future years increase.

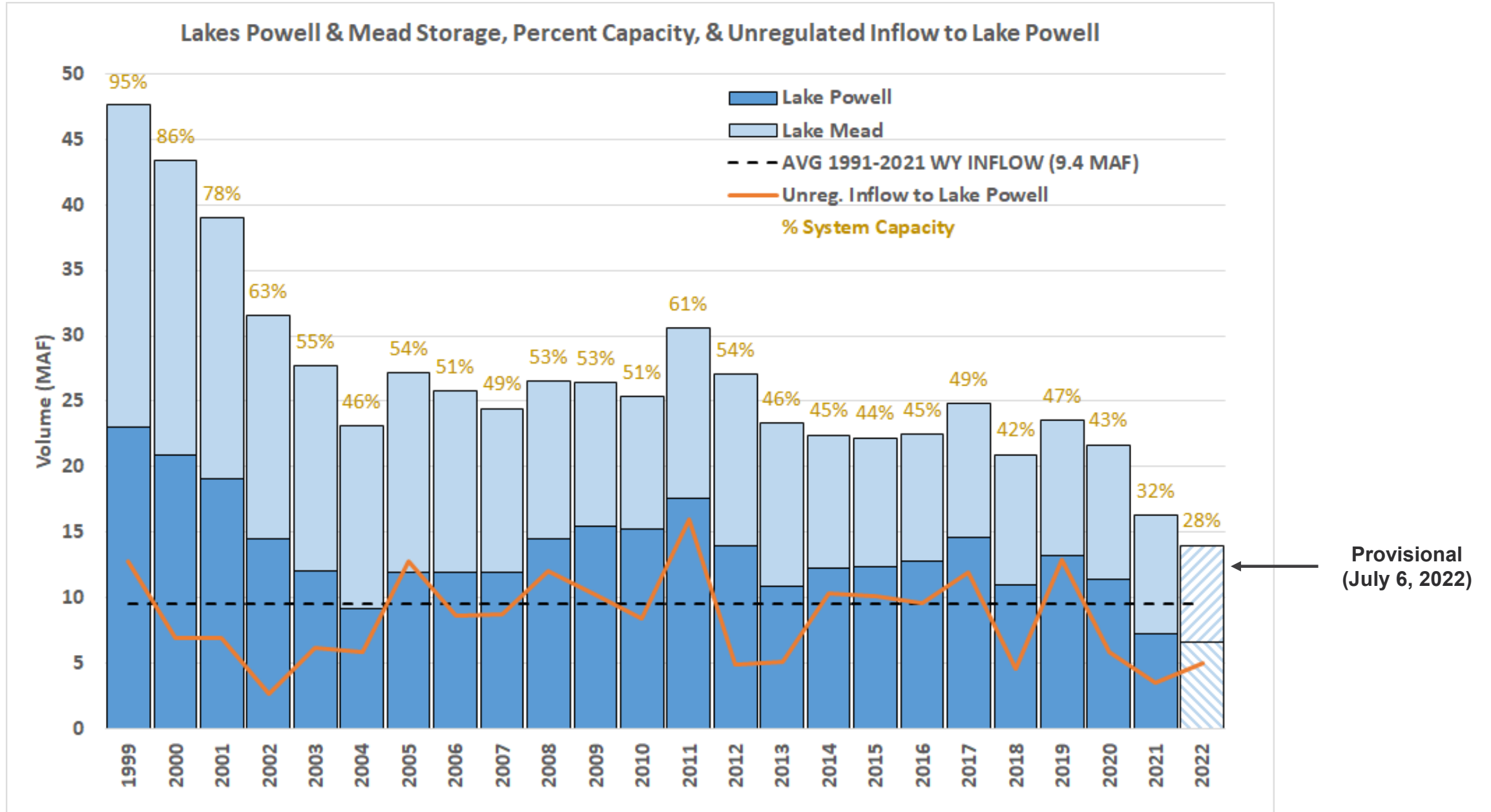


Questions?

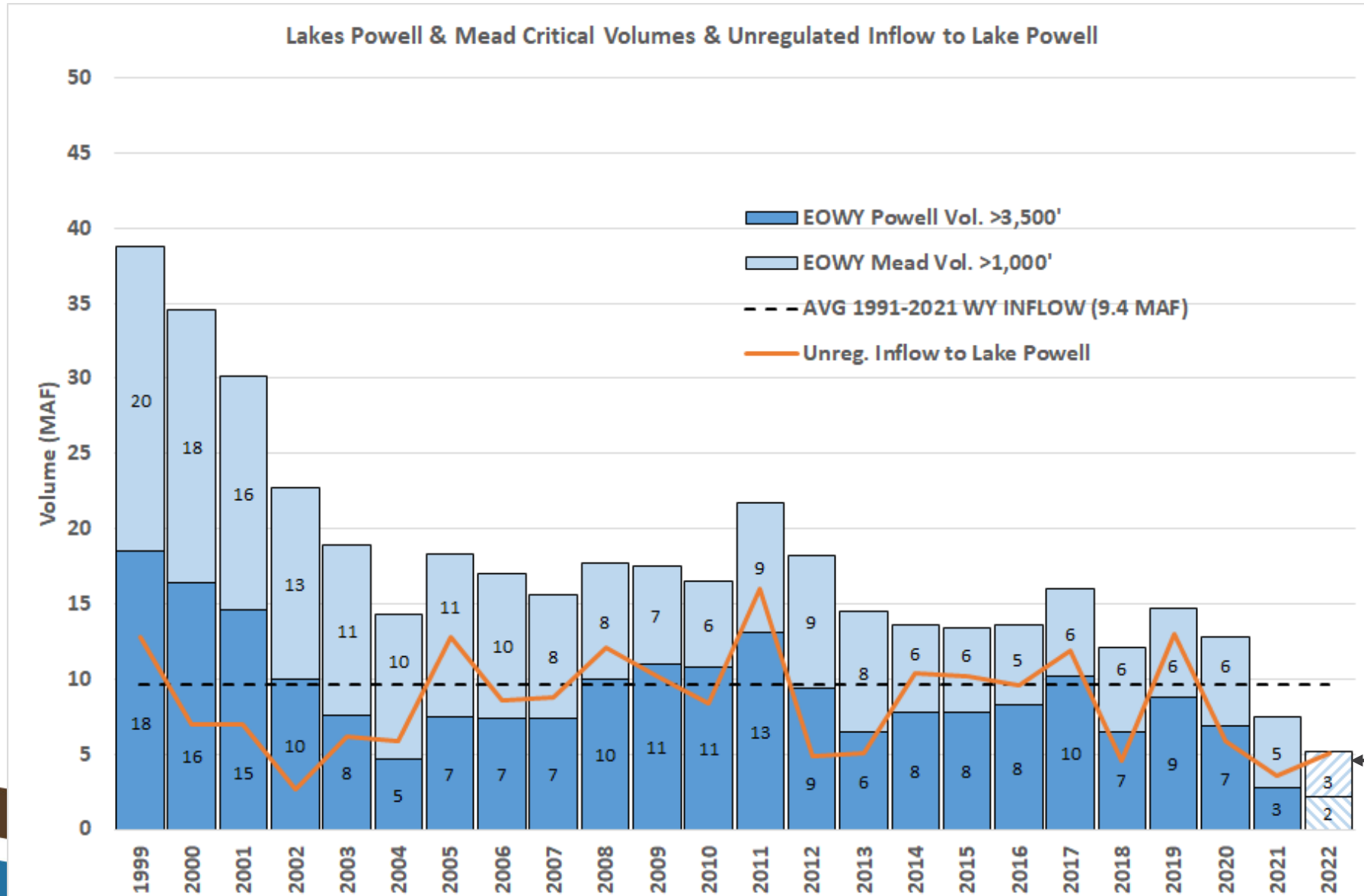


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RECLAMATION

Combined Powell & Mead Contents



Volume Above Critical Elevations



Provisional
(July 6, 2022)



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Unprecedented Actions Necessary to Support the Colorado River System

On Tuesday, June 14, Camille Touton, Commissioner of the Bureau of Reclamation, testified to the U.S. Senate Energy & Natural Resources Committee that “unprecedented actions” are necessary to protect the Colorado River system.

- Between two and four million acre-feet of additional conservation is needed just to protect critical levels in 2023
- Critical levels at Lake Powell (3,500 feet of elevation) and at Lake Mead (1,000 feet of elevation) must be maintained
- Commissioner Touton identified a mid-August goal for an agreement



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Senate Energy and Natural Resources hearing on June 14, 2022



- Arizona’s allocation is 2.8 million acre-feet, but with “junior” water rights
- Senator Kelly asked: “If [the] Basin States cannot reach an agreement, is the Department prepared to take actions to impose restrictions on other states without regard to river priority?”
 - The Commissioner responded: “Yes, we will protect the system.”
- Senator Kelly asked: “Can the federal government move faster in deploying desalination and water recycling projects under the Bipartisan Infrastructure Law?”
 - The Commissioner responded: “Yes, we will.”



Arizona is Engaged

- The Basin States are meeting with the U.S. to address the mid-August deadline set by the Commissioner during her Senate testimony.
- The plan will need to be a balance of considerations under the Law of the River and essential current needs.
- All water users have a stake in the outcome and all need to contribute to the solution.
- The Basin States are discussing ways that additional reductions can be implemented.



Emerging Actions

- Expect deeper reductions than previously anticipated under Tier 2 or Tier 3 in 2023.
- Achieving an additional two million acre-feet in reductions in 2023 will be challenging.
- There will be a need to ramp up to additional reductions in 2024.
- The role of compensation for additional conservation or reductions is not clear.
- Actions need to result in wet water reductions.



Break

- Submit questions or comments using the electronic public comment form at cap-az.com/ARC



Actions in Arizona in 2022

Action	Reduction
Tier 1 Guidelines shortage reduction	320 KAF
Tier 1 DCP Contribution	192 KAF
500+ Plan Conservation	~200 KAF
Other conservation actions	~86 KAF
Total	~800 KAF

- 500+ Plan Funding – US, ADWR, CAWCD, Metropolitan Water District of Southern California, Southern Nevada Water Authority
- 500+ Plan volumes that are not already included in the protection volume analysis may contribute to the additional 2-4 MAF in 2023 and beyond.



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

Total Volumes (kaf)

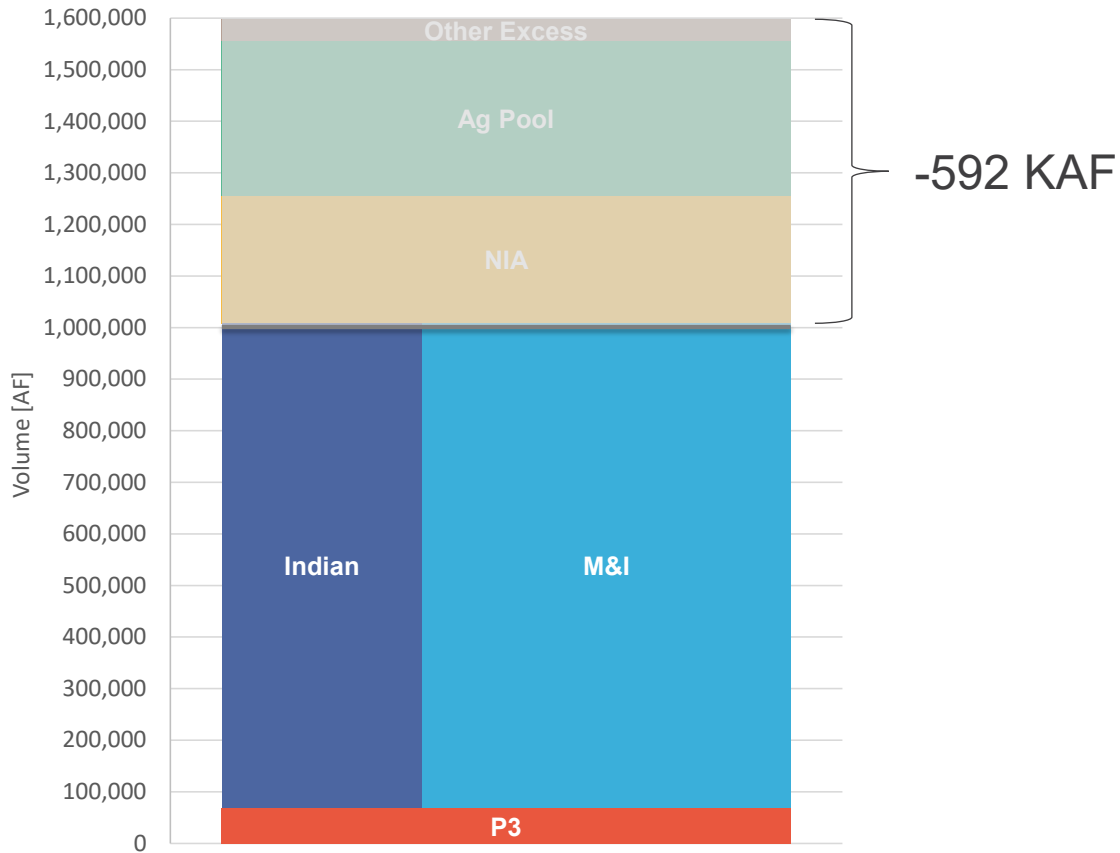
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	AZ	NV	Mexico	<i>Lower Basin States + Mexico</i>	AZ	NV	CA	Mexico	AZ Total	NV Total	CA Total	<i>Lower Basin States Total</i>	<i>Mexico Total</i>	<i>Lower Basin States + Mexico</i>
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1,050 - 1,045	400	17	70	487	192	8	0	34	592	25	0	617	104	721
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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

- Tier 1 →
- Tier 2a →
- Tier 2b →
- Tier 2c →
- Tier 2d →
- Tier 2e →
- Tier 3 →

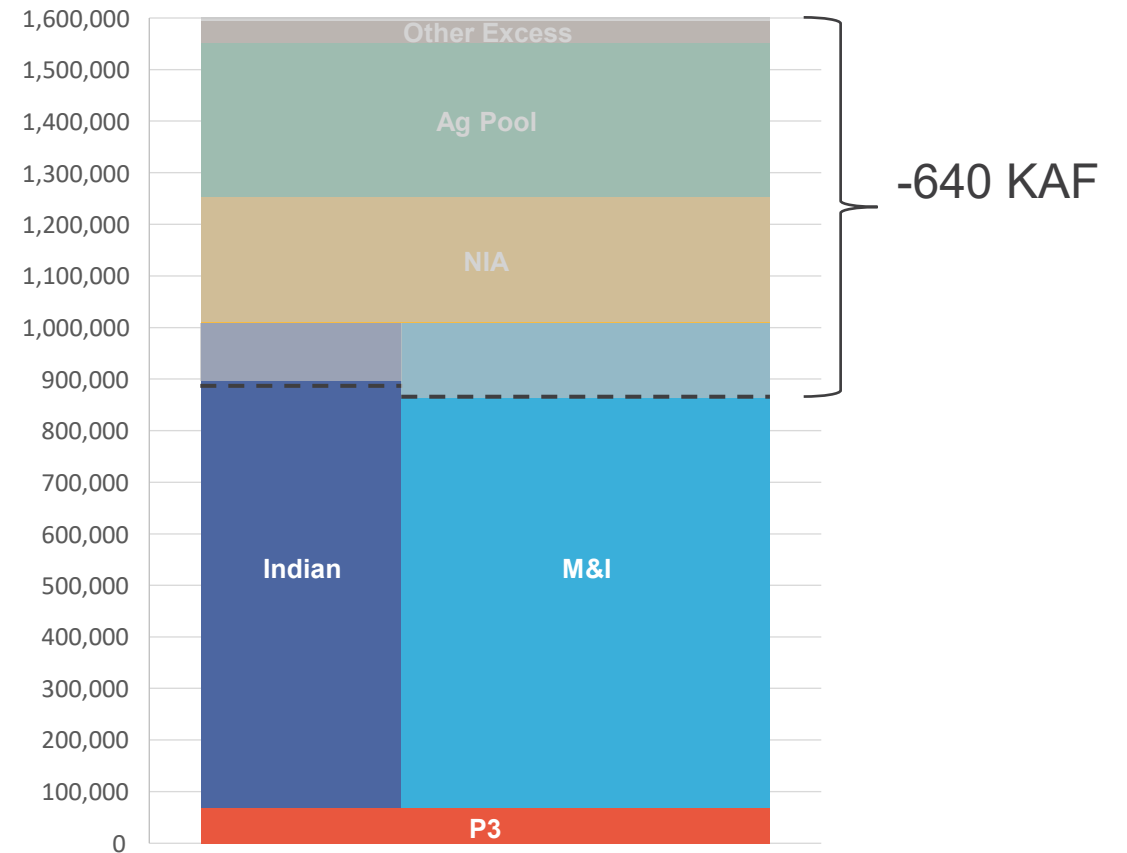
2023 Estimated Shortage Impacts

2007 Guideline Reductions and LBDCP Mandatory Contributions

Tier 2a



Tier 2b/Tier 2c

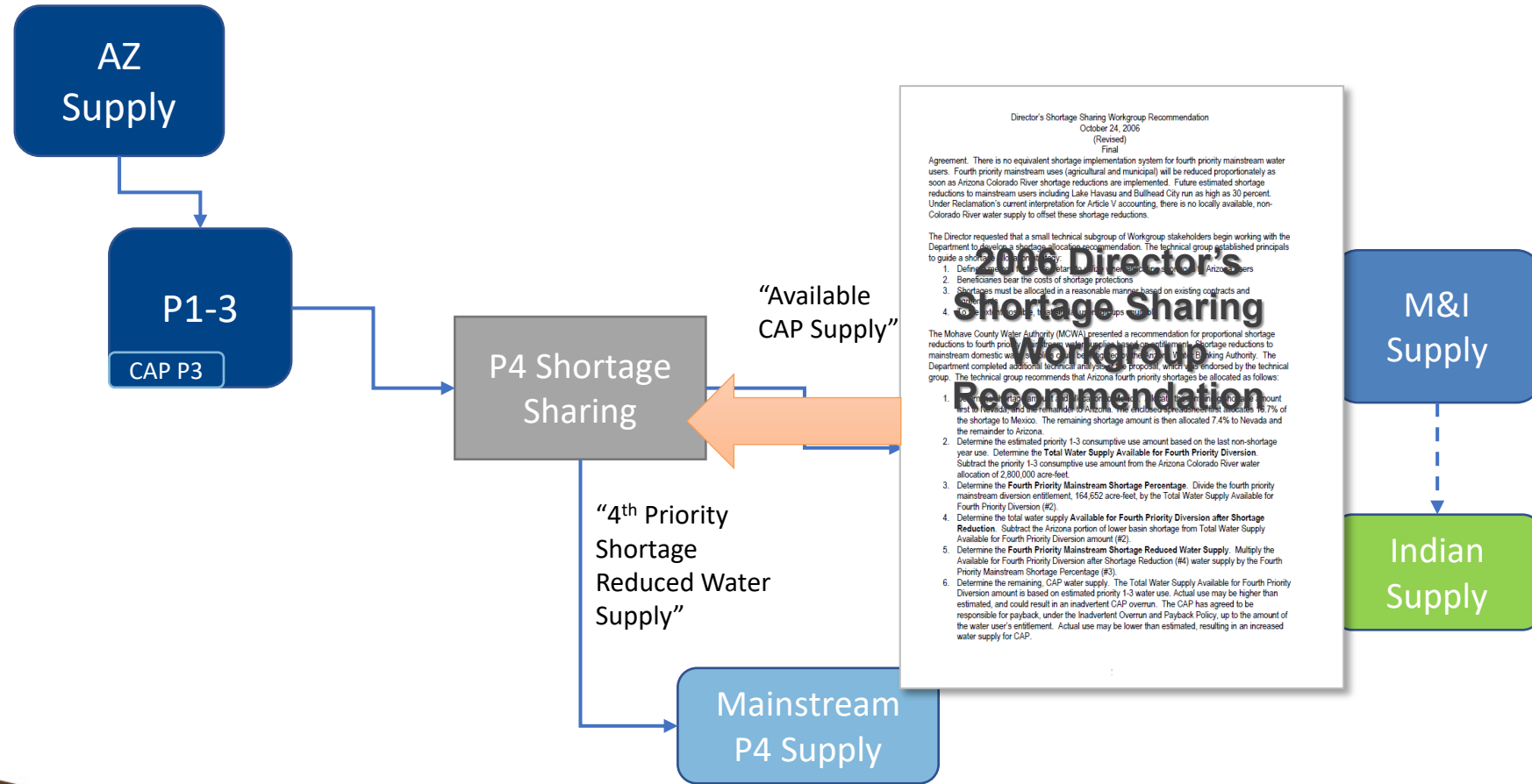


Current official projections still indicate the likelihood of Tier 2a determination in 2023



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Shortage Sharing Within Arizona



Director's Shortage Sharing Workgroup Recommendation
 October 24, 2006
 (Revised)
 Final

Agreement. There is no equivalent shortage implementation system for fourth priority mainstream water users. Fourth priority mainstream uses (agricultural and municipal) will be reduced proportionately as soon as Arizona Colorado River shortage reductions are implemented. Future estimated shortage reductions to mainstream users including Lake Havasu and Bullhead City run as high as 30 percent. Under Reclamation's current interpretation for Article V accounting, there is no locally available, non-Colorado River water supply to offset these shortage reductions.

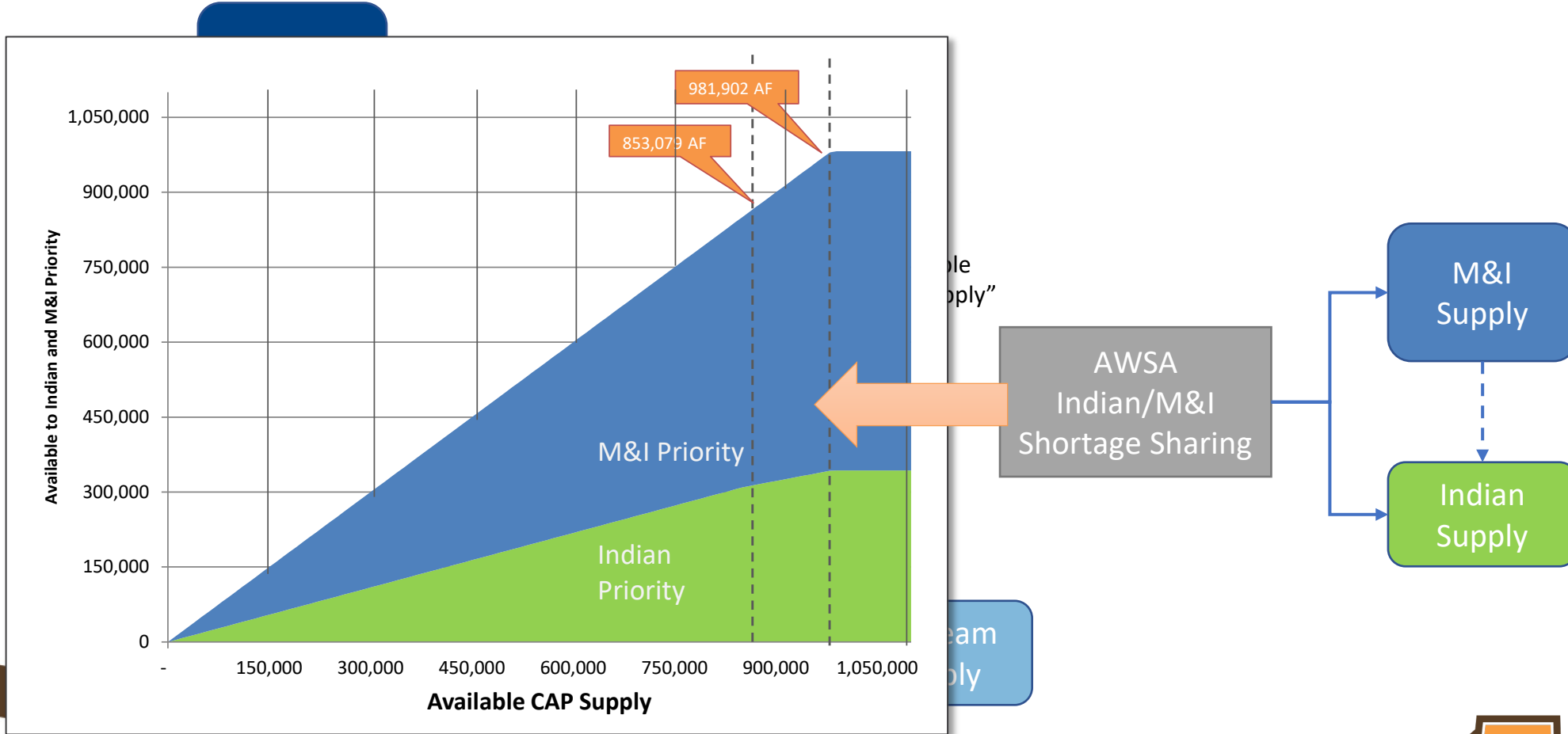
The Director requested that a small technical subgroup of Workgroup stakeholders begin working with the Department to develop a shortage allocation recommendation. The technical group established principals to guide a shortage allocation system:

1. Define the scope of the shortage sharing program to include all Arizona users
2. Beneficiaries bear the costs of shortage protections
3. Shortages must be allocated in a reasonable manner based on existing contracts and
4. The Department will coordinate the implementation of the program

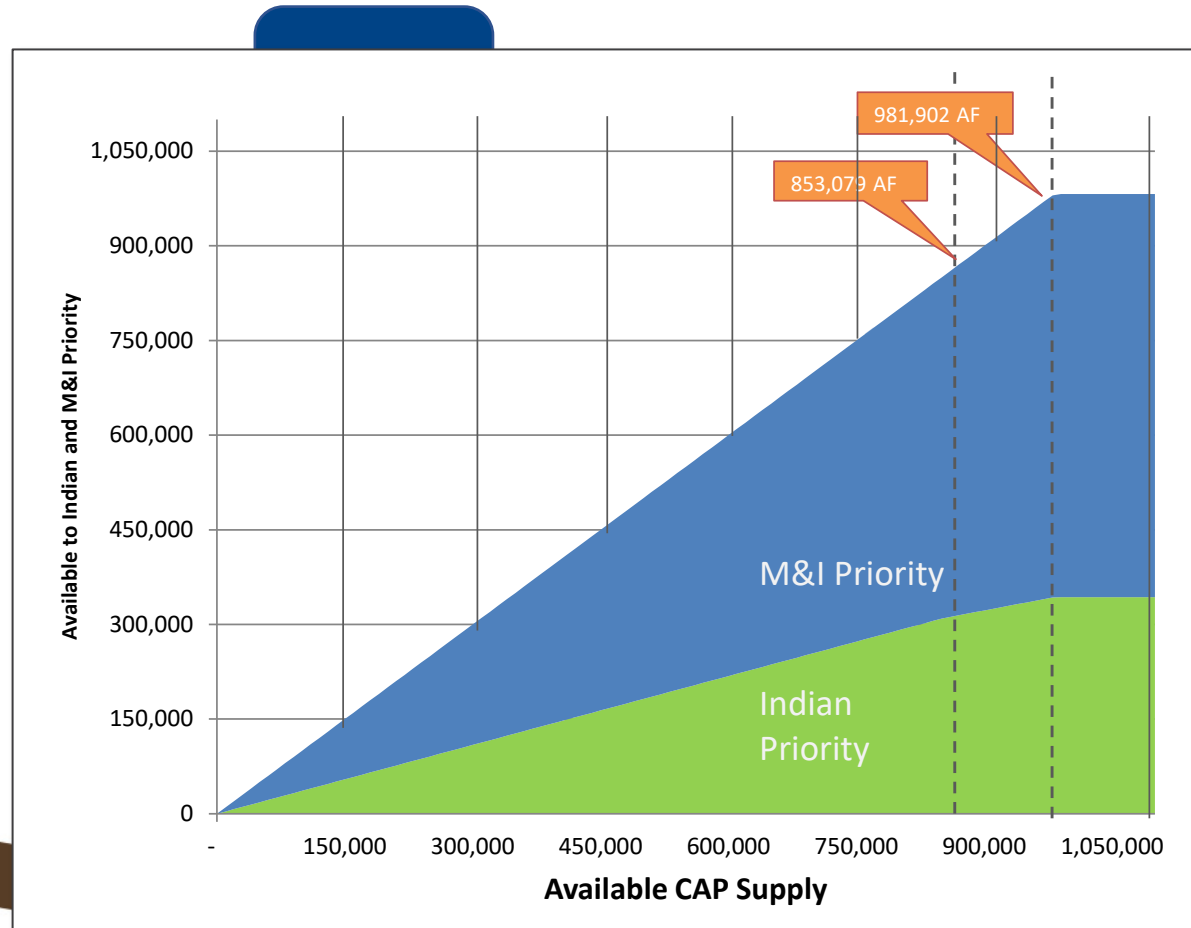
The Mohave County Water Authority (MCWA) presented a recommendation for proportional shortage reductions to fourth priority mainstream users. The Department has identified the problem with shortage reductions to mainstream domestic water users. The Department is currently working with the Mohave County Water Authority. The Department completed additional technical analysis of the proposal, which was endorsed by the technical group. The technical group recommends that Arizona fourth priority shortages be allocated as follows:

1. Determine the total water supply available for fourth priority diversion. Subtract the amount first to Nevada and the remainder to Arizona. The amount of the first allocation is 7.7% of the shortage to Mexico. The remaining shortage amount is then allocated 7.4% to Nevada and the remainder to Arizona.
2. Determine the estimated priority 1-3 consumptive use amount based on the last non-shortage year use. Determine the **Total Water Supply Available for Fourth Priority Diversion**. Subtract the priority 1-3 consumptive use amount from the Arizona Colorado River water allocation of 2,800,000 acre-feet.
3. Determine the **Fourth Priority Mainstream Shortage Percentage**. Divide the fourth priority mainstream diversion entitlement, 164,652 acre-feet, by the Total Water Supply Available for Fourth Priority Diversion (#2).
4. Determine the total water supply Available for Fourth Priority Diversion after **Shortage Reduction**. Subtract the Arizona portion of lower basin shortage from Total Water Supply Available for Fourth Priority Diversion amount (#2).
5. Determine the **Fourth Priority Mainstream Shortage Reduced Water Supply**. Multiply the Available for Fourth Priority Diversion after Shortage Reduction (#4) water supply by the Fourth Priority Mainstream Shortage Percentage (#3).
6. Determine the remaining CAP water supply. The Total Water Supply Available for Fourth Priority Diversion amount is based on estimated priority 1-3 water use. Actual use may be higher than estimated, and could result in an inadvertent CAP overrun. The CAP has agreed to be responsible for payback, under the Inadvertent Overrun and Payback Policy, up to the amount of the water user's entitlement. Actual use may be lower than estimated, resulting in an increased water supply for CAP.

Shortage Sharing Within CAP System



Shortage Sharing Within CAP System



** For illustration purposes only.*

Distribution of 4th Priority CAP Delivery Supply Based on AWSA Formula and Estimated 2023 Water Orders*

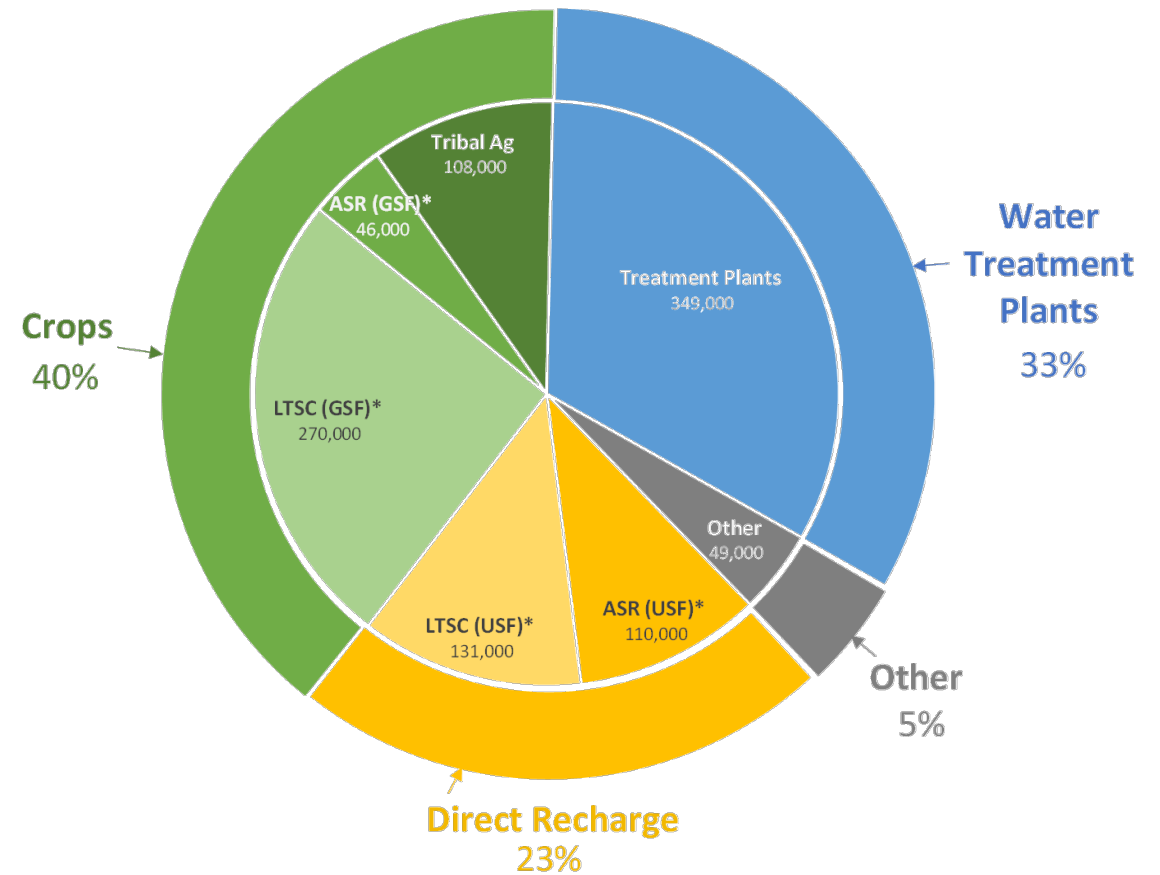
Delivery Supply [AF]	Indian Priority		M&I Priority	
	Pool Availability	Pool Size [AF]	Pool Availability	Pool Size [AF]
500,000	47%	157,000	45%	274,600
400,000	36%	120,600	35%	211,000
300,000	25%	84,200	24%	147,400
200,000	14%	47,900	14%	83,700
100,000	4%	11,500	3%	20,100



CAP Water Use

- There is a diversity of end-uses: water treatment plants, annual storage & recovery, long-term storage credit accrual, mining, and some direct use by turf facilities and cooling towers
 - All uses are beneficial
 - All uses are compliant with contract and subcontract terms
- All users are impacted by shortage, though the specific impacts vary

Estimated 2023 Water Uses, by Destination and Type



*The split between Annual Storage & Recovery versus LTSC accrual is an estimate based on recent history and projections



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Reconsultation Process Update

- Post-2026 “Notice and request for input” published in the Federal Register (“pre-scoping”)
 - Published Friday, June 24, 2022
 - Two informational webinars
 - Tuesday, July 12, 2022, 9 a.m. – 10 a.m. (AZ)
 - Thursday, July 14, 2022, 9 a.m. – 11 a.m. (AZ)
 - Comments and input due by September 1, 2022
- Targeting initiating the formal process in early 2023 with a Notice of Intent to prepare an EIS

[Click here for the Federal Register Notice](#)

37684 Federal Register / Vol. 87, No. 121 / Friday, June 24, 2022 / Notices

the individual turbines to the offshore substations, substation cables linking the substations, offshore export cables, and other offshore export cables. The WTGs and offshore inter-array cables, and interconnector cables on the OCS approximately 15 statute miles Atlantic City, New Jersey area defined by ROW OCS-A 0498 (Lease A export cables would be seabed surface in the C New Jersey owned sub The onshore export cal and grid connections v in Ocean County and C New Jersey.

Alternatives: BOEM alternatives when prep. and carried forward 6: further analysis in the alternatives include five alternatives and the no alternative. Twenty all rejected because they purpose and need for action or did not meet which are presented in C. The screening criterion consistency with law a technical and economic environmental impact considerations.

Availability of the D: Ocean Wind 1 COP, an information are avail website at: <https://www.renewable-energy/statu-wind-1>. BOEM has dist copies of the DEIS to a in DEIS appendix K, w includes the location o requesting a copy, if you drive or paper copy, Bt one upon request, as l available. You may req or paper copy of the DI (703) 787-1520.

Cooperating Agency: nine Federal agencies governmental entities cooperating agencies I) of the DEIS: Bureau of Environmental Enforc Environmental Protect National Marine Fish: Army Corps of Engine Guard; U.S. Fish and V Department of Defense Department of Environ Protection; and New York Department of State. The National Park Service participated as a participating agency.

Information on Submitting Guidelines), among other important nents, both within s well as nents between the Mexico pursuant to Mexico Treaty on rs of the Colorado and of the Rio r Treaty).

ten comments on the tent of Post-2026 rational Strategies ice on or before

host two public rize the content and eral Register notice. ke places on 022, from 10 a.m. to on Thursday, July m. to 11 a.m. (MDT). ritten comments on pment of Post-2026 rational Strategies to ng held on Tuesday, be accessed at <https://www.reginfo.gov/public/do/interactWithRecord?recordID=2022-07-01-0001>

DEPARTMENT OF THE INTERIOR

Bureau of Reclamation

[RR03040000.22XR068080.RX.18786000.5004001]

Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions

AGENCY: Bureau of Reclamation, Interior.

ACTION: Notice and **request for input.**

SUMMARY: The Secretary of the Interior has directed the Bureau of Reclamation (Reclamation) to begin work to develop operating strategies for the continued coordinated operation of Lake Powell and Lake Mead. A number of reservoir and water management decisional documents and agreements that govern operation of Colorado River facilities and management of Colorado River water are currently scheduled to expire at the end of 2026. These include the December 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (2007 Interim

ATION CONTACT: Water Resources Bureau of 3) 517-1160; or by rgov. Individuals in ho are deal rearing, or have a y dial 711 (TTY,) to access relay services. the United States within their country to make international calls to the point-of-contact in the United States.



Reconsultation Process Update – FR Notice

Reclamation is seeking input on the following:

Process:

- “Reclamation seeks specific input on suggested mechanisms for the anticipated NEPA process(es) to ensure that a wide range of Basin partners, stakeholders, and the general public can meaningfully engage and participate in the development of post-2026 operational strategies.”

Substantive elements of post-2026 operations:

- “Reclamation seeks input on potential substantive elements and strategies that should be considered for post-2026 operations and considered in the anticipated upcoming NEPA process(es).”



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ARC Guiding Principles

- Respect the Law of the River
- Seek Basin-wide solutions with burdens shared across the Basin
- Focus on long term sustainability including addressing structural deficit, recognizing that conservation and supply augmentation as part of the long-term solutions
- Arizona tribes are vital component
- Continue to collaborate with Mexico
- No marketing of unused water
- No marketing of Arizona water out of state
- Arizona legislative leaders need to continue to be part of the discussion



Recommended Technical Work & ARC Next Steps

- ARC's Modeling and Analysis Work Group (MAWG) has completed extensive analysis and modeling of key drivers that influence Colorado River supplies
- Recent events have highlighted the need to increase the reliability and predictability of the Colorado River system

ARC directs the MAWG to further refine the sensitivity analysis and explore additional CRSS hydrologies that can increase reliability and predictability of the system

- Convene ARC meetings or distribute communications as additional information becomes available and key decision points occur



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Call to the Public

- Submit questions or comments using the electronic public comment form at cap-az.com/ARC



For continued information
and updates, visit
new.azwater.gov/ARC or
cap-az.com/ARC



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