



— BUREAU OF —
RECLAMATION

Post-2026 Operations of Lake Powell and Lake Mead – Process Overview & Status Update

The meeting will begin at 1:00 p.m., MDT

La interpretación en vivo será disponible en español. Live interpretation will be available in Spanish.

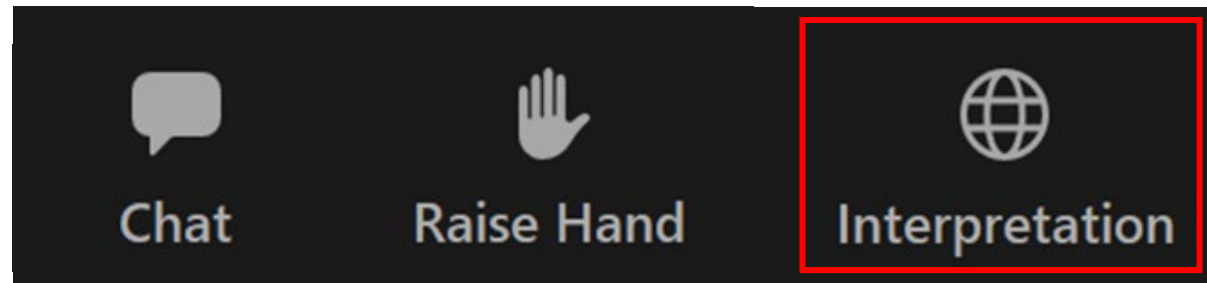
Dial In: (720) 707-2699; Webinar ID: 882 9018 8032

For technical support, please contact Megan Stone: megan.stone@aecom.com

Status Update Webinar

October 10, 2024

La interpretación en vivo esta disponible en español



Live language interpretation is available in Spanish



Zoom Etiquette



Presentation is being recorded



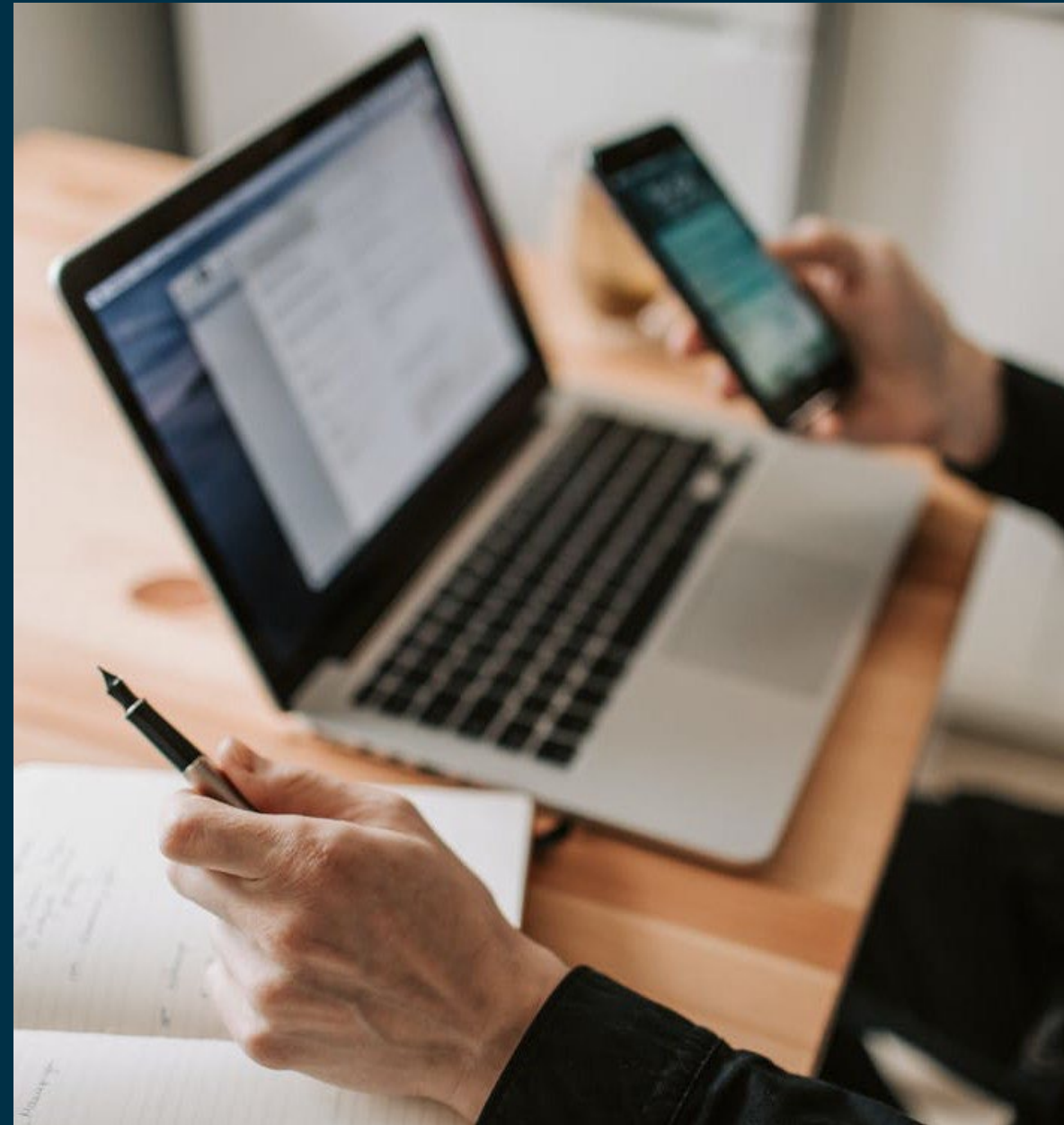
Microphones are muted



Chat feature is turned on



Submit questions after the presentations
via the question and answer feature




Presentation Overview

- Overview
 - Post-2026 NEPA Process
 - Proposed Federal Action and Purpose & Need
- Update on Development of NEPA Alternatives
 - Current Status
 - Alternative Development – Web Tool
 - Summary of Alternatives Input Received
 - Overview of Proposed Alternatives
 - Preliminary Modeling Results of Proposed Alternatives
 - Summary and Closing



Colorado River Operating Agreements



THE SECRETARY OF THE INTERIOR
WASHINGTON

Record of Decision

Colorado River Interim Guidelines for Lower Basin Shortages and the
Coordinated Operations for Lake Powell and Lake Mead

December 2007

Recommending Official:

Robert Johnson December 13, 2007
ROBERT JOHNSON Date
Commissioner, Bureau of Reclamation

Approved:

Dirk Kempthorne December 13, 2007
DIRK KEMPTHORNE Date
Secretary of the Department of the Interior

- Several agreements governing the operation of Lake Powell and Lake Mead expire at the end of 2026
 - 2007 Interim Guidelines (adopted in 2007, amended in 2024)
 - Minute 323 to the 1944 Water Treaty with Mexico (adopted in 2017)
 - 2019 Colorado River Basin Drought Contingency Plans (adopted in 2019)
- Agreements were adopted in sequence in response to changing hydrologic conditions
- The “Post-2026” process is intended to develop successor domestic agreements prior to preparation of the 2027 Annual Operating Plan (anticipated mid-2026)



Post-2026 Process

- June 2022: “Pre-Scoping” Federal Register Notice
- June 2023: Notice of Intent to prepare an EIS formally initiates the Post-2026 process and public scoping period
- October 2023: Scoping Summary Report and Federal Register Notice identifies Proposed Federal Action and Purpose & Need
- Spring 2024: Began Alternatives Development Phase
 - Overall process is currently in this phase
- December 2024: Release Range of Alternatives
- Record of Decision planned for mid-2026



Proposed Federal Action and Purpose & Need

Proposed Federal Action:

- "...to adopt specific guidelines for coordinated reservoir management strategies to address operations of Lake Powell and Lake Mead through their full operating range."
- "...designed to provide for the sustainable management of the Colorado River system and its resources under a wide range of potential future system conditions due to a changing climate."

Purpose and Need:

- Crafted to allow for a broad range of innovative, flexible approaches to be analyzed leading to robust and sustainable future operating guidelines
- Include explicit statements on the importance of addressing tribal concerns and promoting conservation



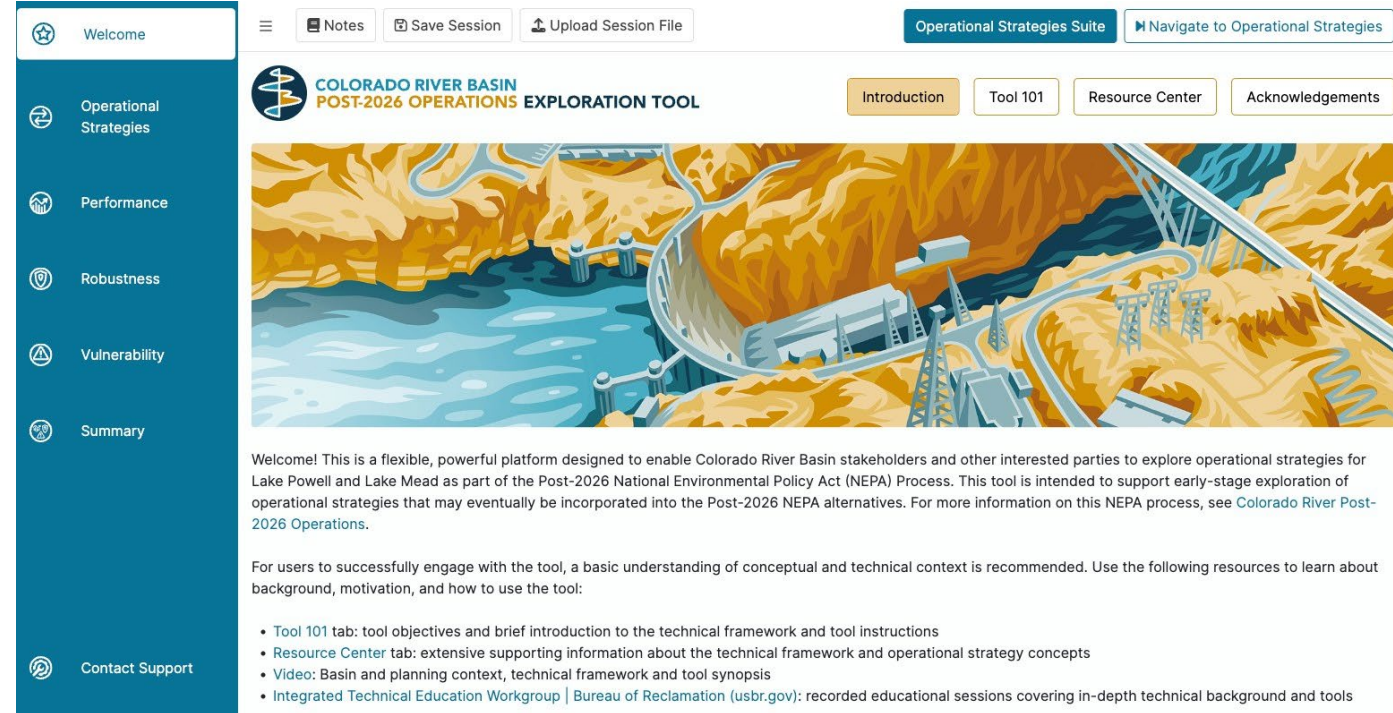
Current Status: Development of NEPA Alternatives

- Goal is to develop a reasonable – and broad – range of alternatives through collaboration with our key partners
- **Since Scoping Report, Reclamation:**
 - Launched public web-based Post-2026 Operations Exploration Web Tool to enhance development of alternatives
 - Since the launch in Nov 2023, have maintained Web Tool that now has 300+ stakeholder-developed strategies
 - Received proposed alternatives and concepts/principles from several entities
 - Have been working closely with entities who submitted proposed alternatives to better understand, refine, analyze submitted proposals and working with entities to turn conceptual ideas into operational concepts
 - Is continuing to work to find areas of overlap between proposals
 - Is designing additional alternative/s as needed to ensure a broad enough range is reflected
- **Have not made a final determination on the NEPA alternatives that will be carried forward for consideration in the Draft EIS**
- **Anticipate releasing the range of alternatives in December 2024**



Post-2026 Alternative Development – Web Tool

- Collaborate with and provide technical assistance to Basin partners as they develop alternative proposals
- The Post-2026 Operations Exploration Web Tool enables the exploration of a wide range of potential operational strategies and provides a common technical platform that is accessible to all Basin stakeholders, partners, and interested parties
- Maintaining public Web Tool with 300+ stakeholder-developed strategies



The screenshot displays the user interface of the Colorado River Basin Post-2026 Operations Exploration Tool. On the left is a dark blue navigation sidebar with icons and text for 'Welcome', 'Operational Strategies', 'Performance', 'Robustness', 'Vulnerability', 'Summary', and 'Contact Support'. The main content area has a white background with a top navigation bar containing 'Notes', 'Save Session', and 'Upload Session File' buttons, and a 'Operational Strategies Suite' dropdown menu. Below this is the tool's title 'COLORADO RIVER BASIN POST-2026 OPERATIONS EXPLORATION TOOL' and four tabs: 'Introduction', 'Tool 101', 'Resource Center', and 'Acknowledgements'. A large illustration of a dam and reservoir is featured. Below the illustration, a welcome message explains the tool's purpose in supporting the NEPA process. A section titled 'For users to successfully engage with the tool...' provides recommended resources, including 'Tool 101', 'Resource Center', 'Video', and 'Integrated Technical Education Workgroup'.

Operations Exploration Web Tool available at
www.crbpost2026dmdmu.org



Summary of Alternatives Input Received

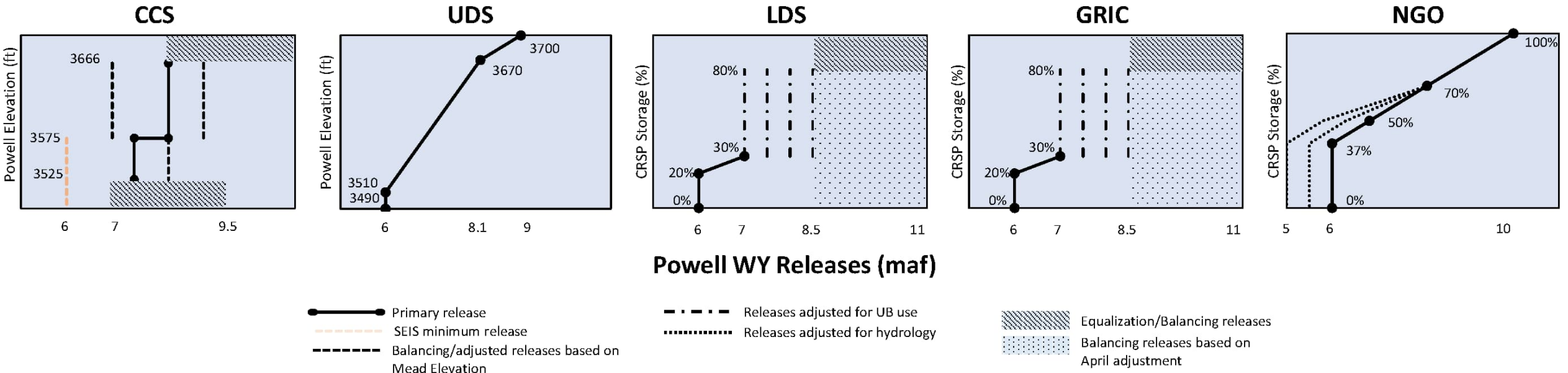
- Received proposed alternatives from: *(details in following slide)*
 - Upper Division States (Colorado, New Mexico, Utah, and Wyoming) - *received March 5, 2024*
 - Lower Division States (Arizona, California, and Nevada) - *received March 6, 2024*
 - Gila River Indian Community - *received March 29, 2024*
 - Group of Conservation Organizations - *received March 29, 2024*
- Received concepts/principles from:
 - Basin Tribes (20 Tribes) - *received May 16, 2024*
 - Protection of tribal water and empowering of Tribes to use their water rights by exploring portfolio of flexible tools
 - U.S. FWS and National Park Service - *received April 29, 2024*
 - Emphasis on protecting Grand Canyon resources by prioritizing higher elevations at Lake Powell and flows that better mimic a more natural hydrograph with some interannual variability.
 - Hydropower interests (Western Area Power Administration, CRSP) - *received June 3, 2024*
 - Incorporate and analyze alternative elements that maintain and improve the federal hydropower resource
 - City of Phoenix - *received May 8, 2024*
 - “Mitigation measures” (via storage & delivery mechanism) enabled through broad range of transactional behaviors among water users and coordinated approach
 - Schmidt-Kuhn-Fleck - *received March 29, 2024*
 - Powell release determined annually by Secretary based on recommendations from stakeholders (AMWG), flexible delivery system with accounting



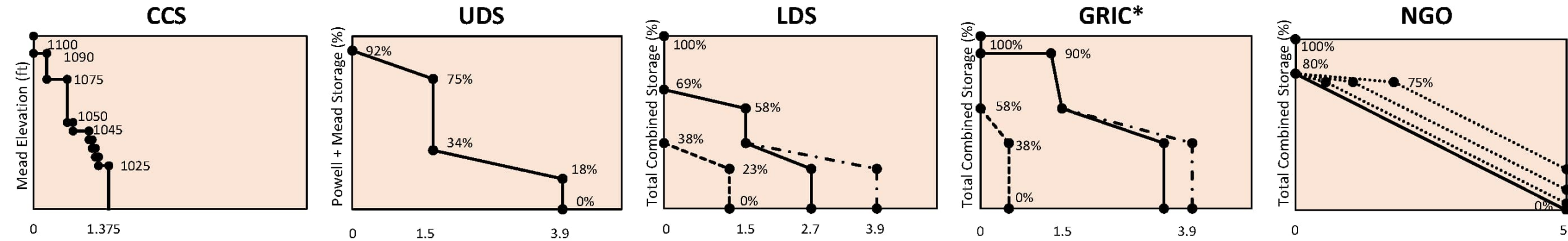
Overview of Proposed Alternatives

Proposed Alternative	Lower Basin Shortage Guidelines	Lake Powell & Lake Mead Coordinated Operations	Storage & Delivery Mechanism for Conserved & Non-System Water	Lower Basin Surplus Guidelines	Activities Above Lake Powell
Upper Division States' Proposed Alternative (UDS)	Lower Basin reductions ramp from 0 maf at 92% (Powell + Mead contents) to 1.5 maf (75%) with a total of 3.9 maf (18%) . Lake Powell and Lake Mead operations are independent. Limits releases from Lake Powell to less than 8.1 MAF except when above 3670' (81% full). Activities above Powell to be part of a parallel process. Proposes conservation mechanism in Lake Mead (Lower Basin water) and Lake Powell (Upper Basin water) that are operationally neutral.				
Lower Division States' Proposed Alternative (LDS)	Lower Basin reductions ramp from 0 maf at 69% (total system contents) to 1.5 maf (58%), with a total of 2.7 maf (23%). Upper Basin reductions begin when the Lower Basin reductions exceed 1.5 maf - ramping from 0 (38%) to 1.2 maf (23%). Lake Powell releases are based on CRSP percent capacity and historical Upper Basin consumptive use and include balancing releases (8.5-11 maf) in certain conditions. Also includes a large (5-10 maf) operationally neutral conservation mechanism in Lake Mead.				
Gila River Indian Community's Proposed Alternative (GRIC)	Modifies LDS Lower Basin reduction strategy to start with 1.3 MAF of reductions at 90% (total system contents) for evaporation and system losses. Reductions above 1.5 maf are proportionally distributed between the Upper and Lower Basins. Maintains the LDS Powell release strategy. Lower Basin evaporation and system losses reductions distributed proportional by reach, and reductions above 1.3 maf distributed both pro-rata and by priority.				
Cooperative Conservation Proposed Alternative (NGO)	Implements an operationally neutral "conservation reserve" that allows storing conserved water in either Lake Powell or Lake Mead for ecological benefits or infrastructure protection. Lake Powell and Lake Mead releases based on combined storage and recent hydrology. Maintains Lake Powell in target zone to benefit Grand Canyon resources. Lower Basin reductions begin at 80% and can reach up to 5 maf under extremely dry hydrology.				
Continued Current Strategies comparative baseline (CCS)	Assumes a continuation of existing agreements (2007 Interim Guidelines as amended by the 2024 SEIS, 2019 DCPs, Minute 323 and the Binational Water Scarcity Contingency Plan)				

Simplified Schematics of Proposed Alternatives



Powell WY Releases (maf)



Policy CY Reductions (maf)

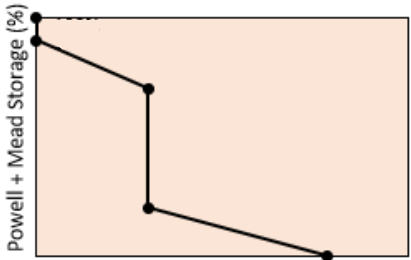
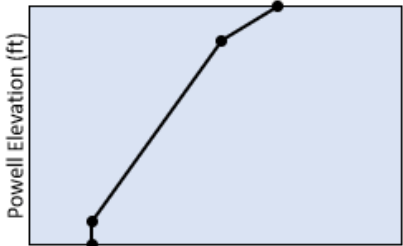
- Lower Basin Policy Reduction
- - -●- - - Upper Basin Policy Reduction
- · - · -●- Upper Basin + Lower Basin Policy Reduction
- Reductions adjusted for hydrology

*Lower Basin/Upper Basin proportion of policy reductions above 1.5 maf are an approximation. Proposal computes split based on 5-year average use.

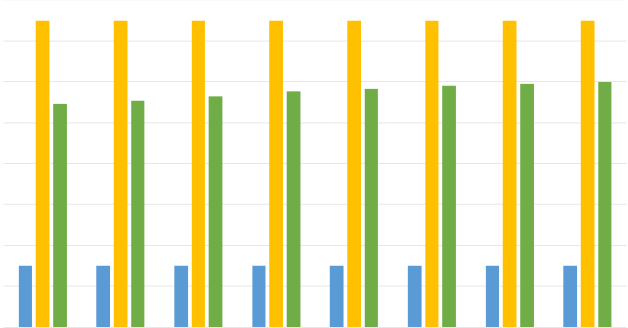


Key Modeling Assumptions

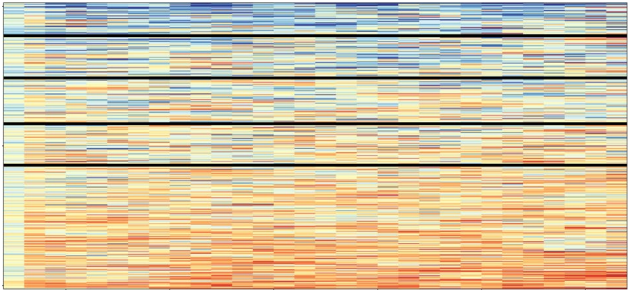
Policy



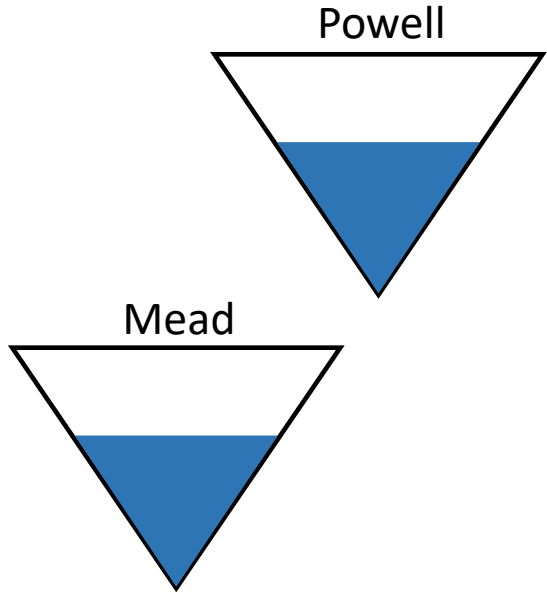
Demands and Losses



Hydrology



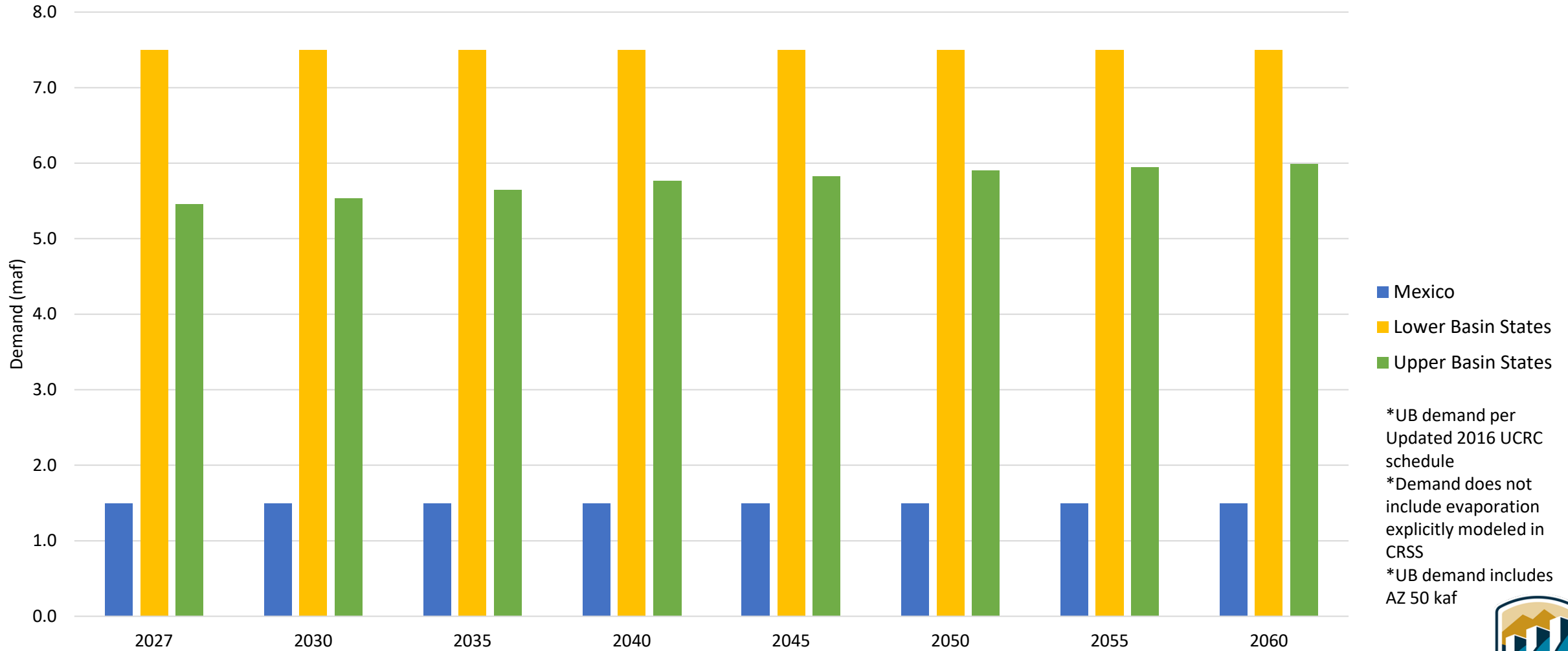
Initial Conditions



Key Modeling Assumptions

Demands

Water Demand Schedules



Key Modeling Assumptions

Reservoir Evaporation & Other Losses

- Reservoir Evaporation
 - CRSS calculates evaporation for the larger Basin reservoirs
 - Powell, Flaming Gorge, Navajo, Blue Mesa, Morrow Point, Crystal, Fontenelle
 - Mead, Mohave, Havasu
 - Other reservoirs estimated from historical losses
- Phreatophyte Losses
 - Losses due to evapotranspiration by riparian vegetation are implicitly included in the water budget through natural flow computations
- Other Losses
 - Flows to Mexico in excess of Treaty requirement
 - Water bypassed pursuant to IBWC Minute 242

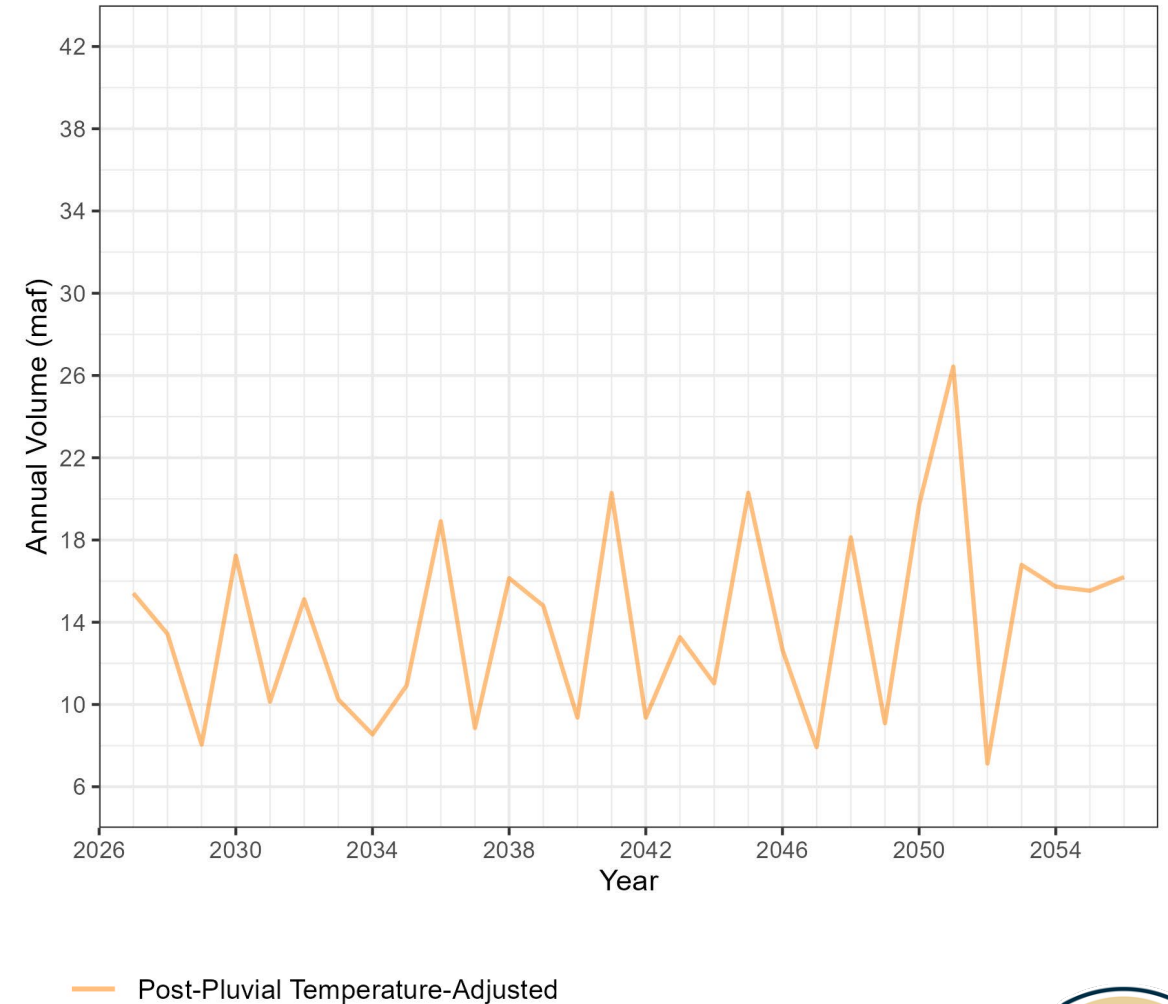


Key Modeling Assumptions

Hydrology

- Future hydrology is deeply uncertain and has the most significant impact on modeling results
- There are many sources of hydrology data and projections that exhibit a wide range of potential futures
- Post-2026 modeling is using five sets (**ensembles**) of hydrology sequences (**traces**) that incorporate multiple valuable data sources; 400 total traces
- Ensembles and data sources
 - **Stress Test**: recent observations
 - **CMIP5 LOCA**: global climate model projections
 - **Post-Pluvial Temperature-Adjusted**: observations, paleo record and projected temperature trend
 - **Paleo Drought Resampled**: paleo record
 - **CMIP3-Paleo**: global climate model projections and paleo record

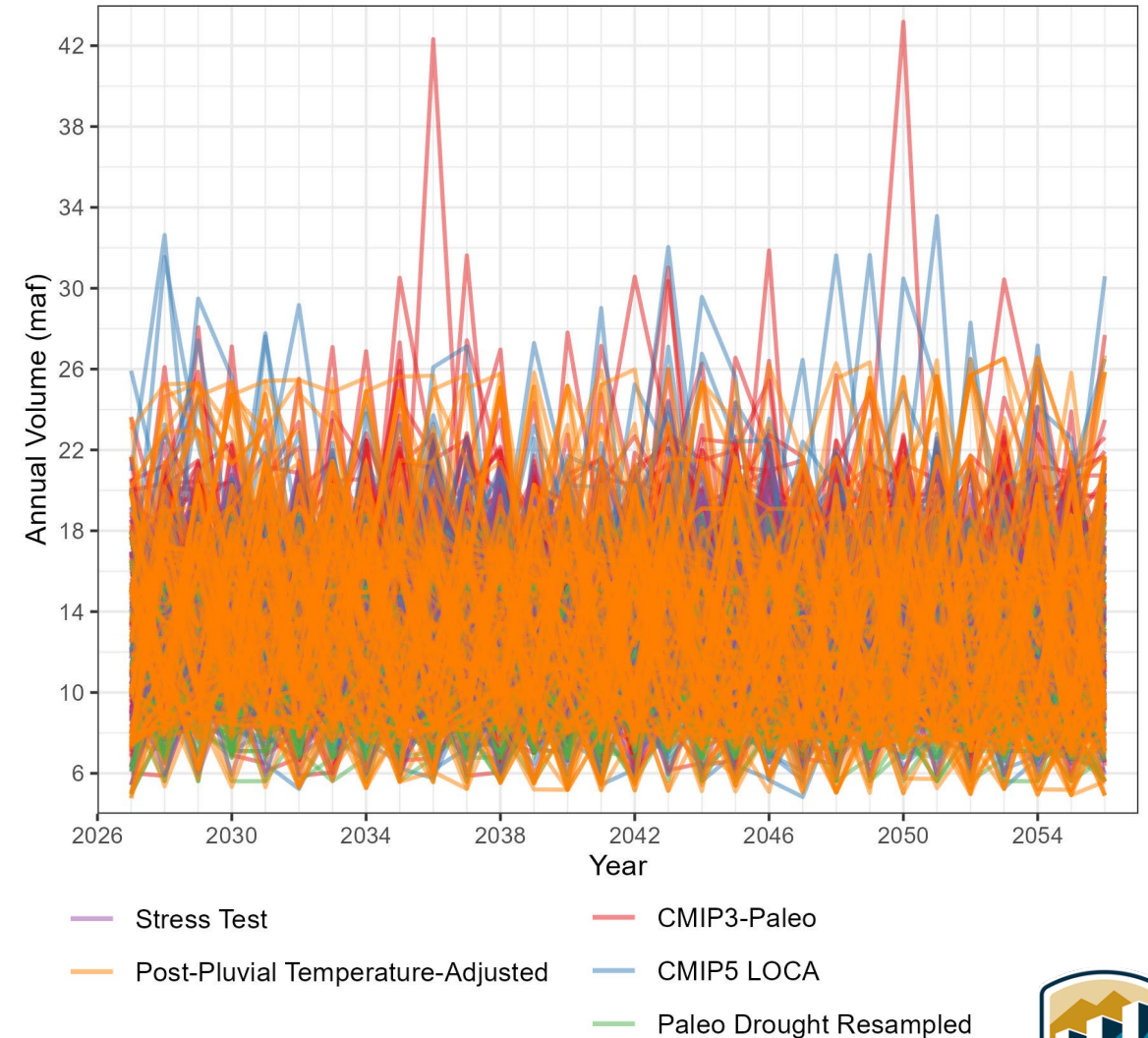
Lees Ferry Natural Flow (Water Year)



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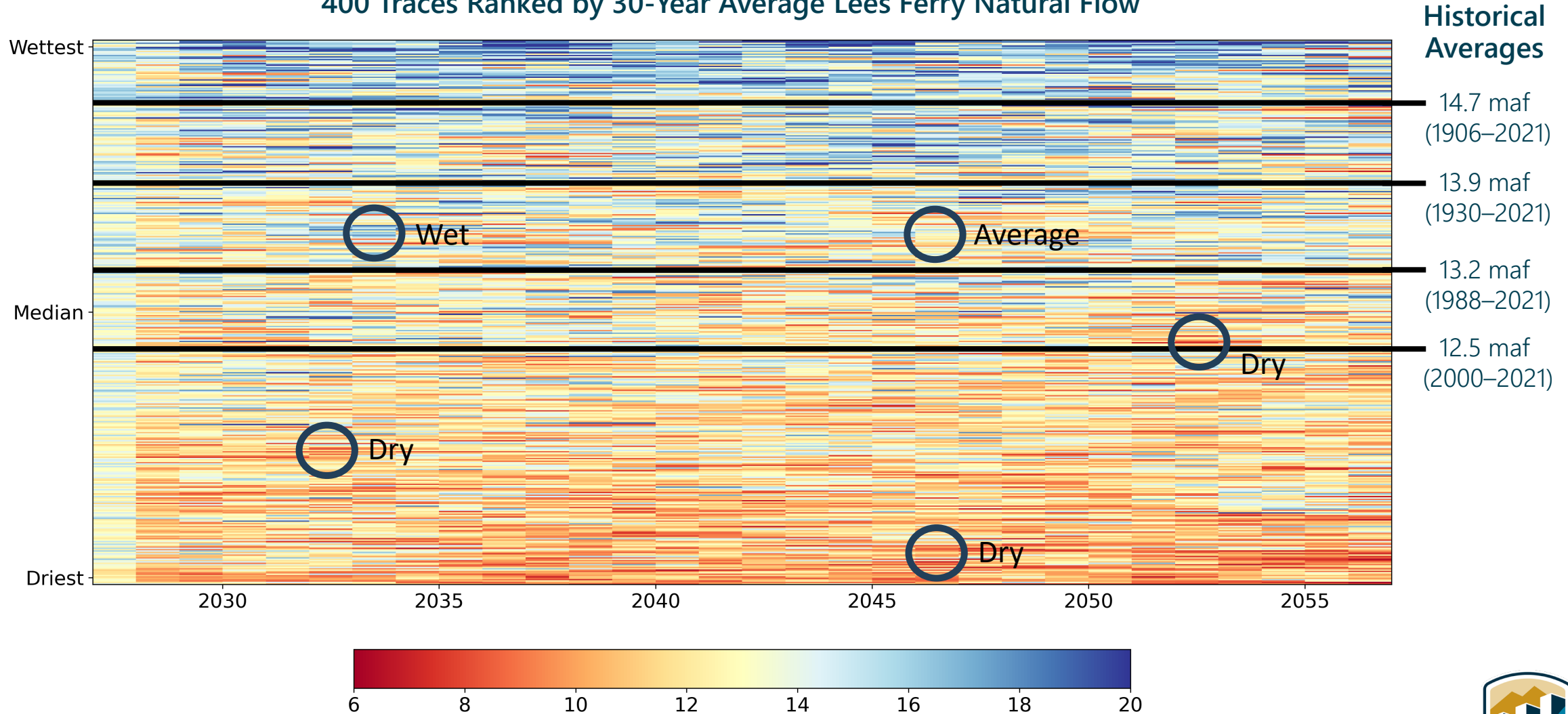
Lees Ferry Natural Flow (Water Year)



Key Modeling Assumptions

Hydrology

400 Traces Ranked by 30-Year Average Lees Ferry Natural Flow

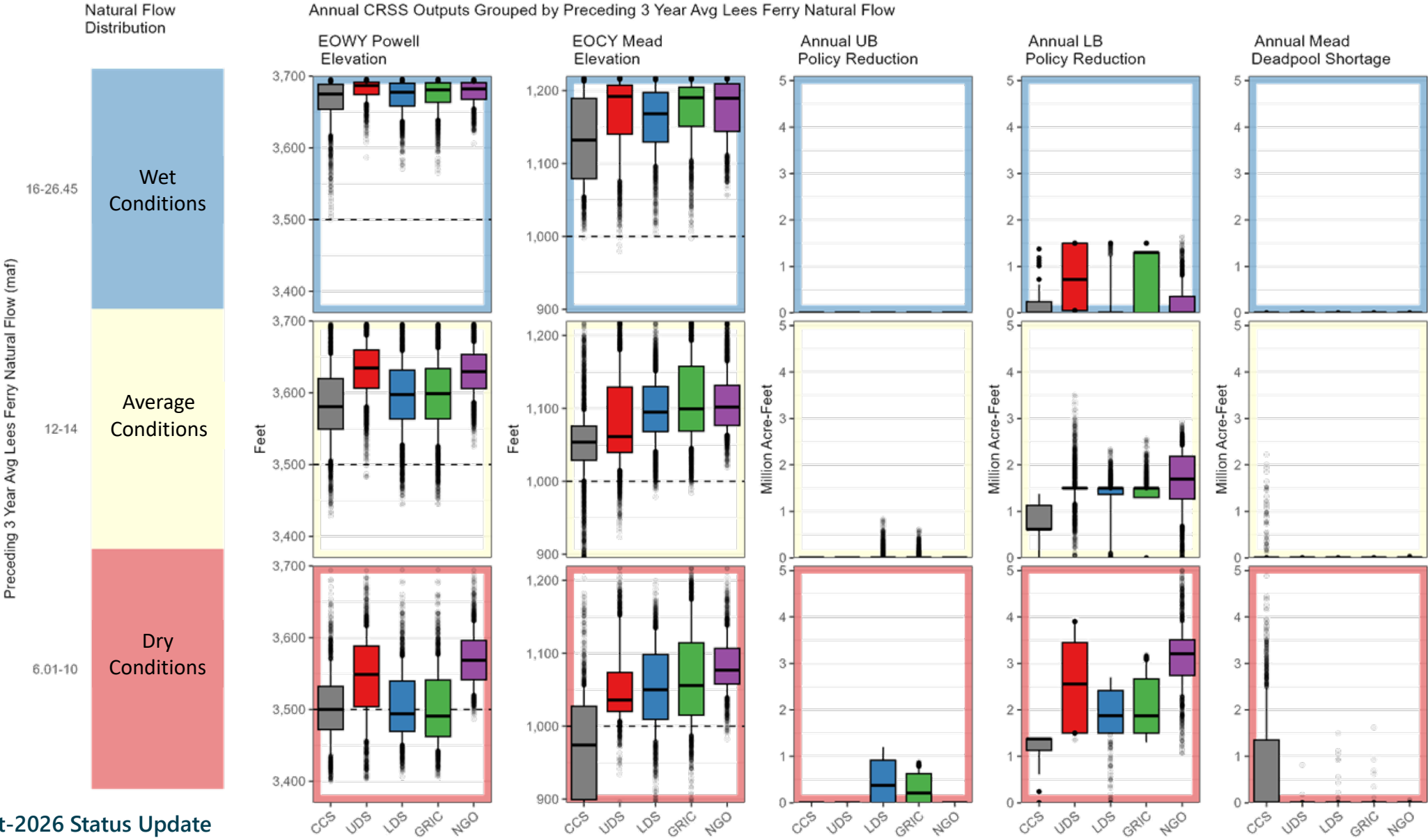


Previous 3-Year Moving Average Lees Ferry Natural Flow



Preliminary Comparison of Proposed Alternatives

(400 traces, flow categories)



Preliminary Proposal Performance Key Takeaway

- **On CCS:** The continuation of current agreements may be unable to stabilize the system, even in average but certainly during dry flow conditions. The primary reason is insufficient volume of reductions.
- **On UDS:** Due to having an overall lower-volume release curve, the UDS proposal keeps Powell higher (sometimes much higher) under all flow conditions. Despite the lowest Powell releases of all scenarios modeled, UDS maintains Mead elevations higher than CCS and almost always above 1,000' by imposing large LB reductions. LB reductions begin in wet flow conditions with a median of around 750 KAF.
- **On LDS:** Under dry flow conditions, Powell is slightly lower than CCS- falling below 3,500' in over 50% of years even while imposing Upper Basin policy reductions (a median reduction around 350 KAF). Mead stays above 1,000' in almost 90% of years, even under the driest conditions.
- **On GRIC:** Performance at Powell is nearly identical to LDS, however Upper Basin policy reductions imposed are less with a median reduction around 200 KAF. Performance at Mead differs from LDS under average and wet flow conditions: Mead tends to stay higher under the GRIC proposal because Lower Basin reductions > 1 MAF occur at higher levels of combined storage.
- **On NGO:** Under dry flow conditions, the NGO proposal keeps Powell above 3,500' and Mead above 1,000' in over 90% of years. This performance is achieved by applying the largest reductions – a median of 3.2 maf in the dry flow conditions.



Summary & Next Steps

- Goal of NEPA alternative development phase is to develop a reasonable – and broad – range of alternatives
- Many operational concepts for alternatives have been submitted by a wide range of Basin partners and stakeholders
- Throughout this phase, Reclamation has invested significant time to work with stakeholders to understand and refine proposals and explore areas of overlap
- Reclamation has not made a final determination on the NEPA alternatives that will be carried forward for consideration in the Draft EIS
- Release of range of NEPA alternatives anticipated in December 2024



Need More Information?

- Project Website: www.usbr.gov/ColoradoRiverBasin/Post2026
- Send questions to: crbpost2026@usbr.gov
- Call the project telephone line: (602) 789-3889

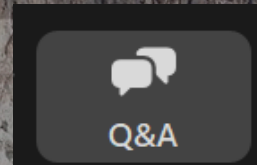




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Questions?

- Please click the Q&A button in Zoom
- Type your question
- Click send
- Question will be responded to live or via Q&A feature



zm Question and Answer

Welcome to Q&A

Questions you ask will show up here. Only host and panelists will be able to see all questions.

Type your question here...

Send anonymously

Who can see your questions?



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Closing Remarks