



# ARIZONA RECONSULTATION COMMITTEE

## Modeling and Analysis Work Group #5

May 13, 2021

# Meeting Logistics Summary

- Roll Call
  - Members will unmute and acknowledge their attendance when their name is called. Roll will be taken again to ensure members have returned from the break.
- Modeling and Analysis Workgroup Members
  - 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](http://cap-az.com/ARC) for anyone wishing to submit a comment during the meeting.
  - Submissions will be held until the Public Comment period at the end of the meeting.
- Modeling and Analysis Workgroup and ARC Information
  - Meeting materials have been posted on the ADWR and CAP ARC pages: [cap-az.com/ARC](http://cap-az.com/ARC) or [new.azwater.gov/ARC](http://new.azwater.gov/ARC).



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# Meeting Agenda

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- Review of current Colorado River hydrology and projections
- Update from MAWG #4
- Review of pre-meeting exercise
- Report out from MAWG Members Session
- Discussion of the initial conditions scenario settings
- Public Comment

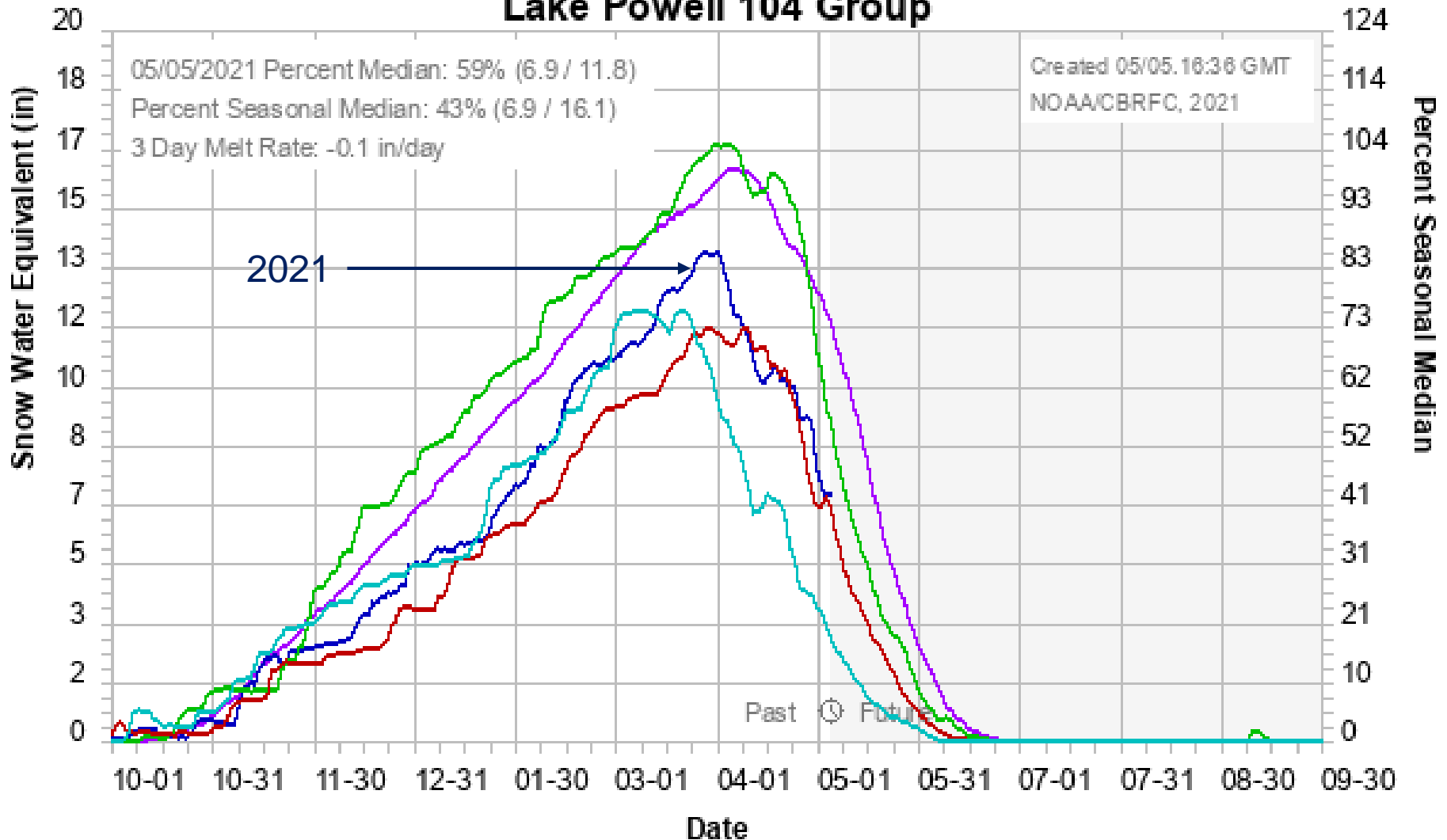


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# Colorado River System Update

Colorado Basin River Forecast Center

## Lake Powell 104 Group

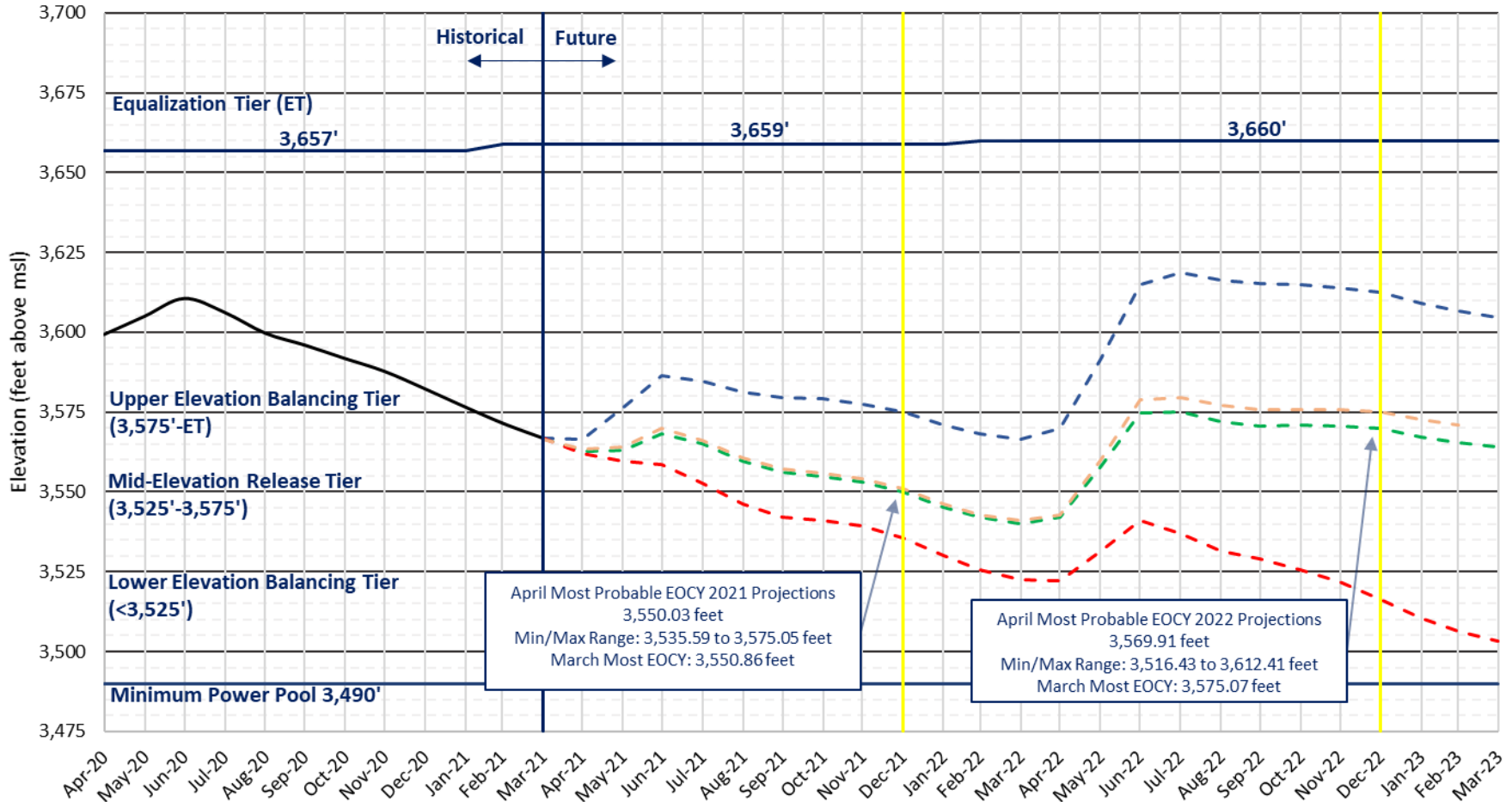


Median 1981-2010 2021 2020 2018 2012

# Colorado River System

## Lake Powell End of Month Elevations

Historic and Projected based on April and March 2021 24-Month Study Inflow Scenarios

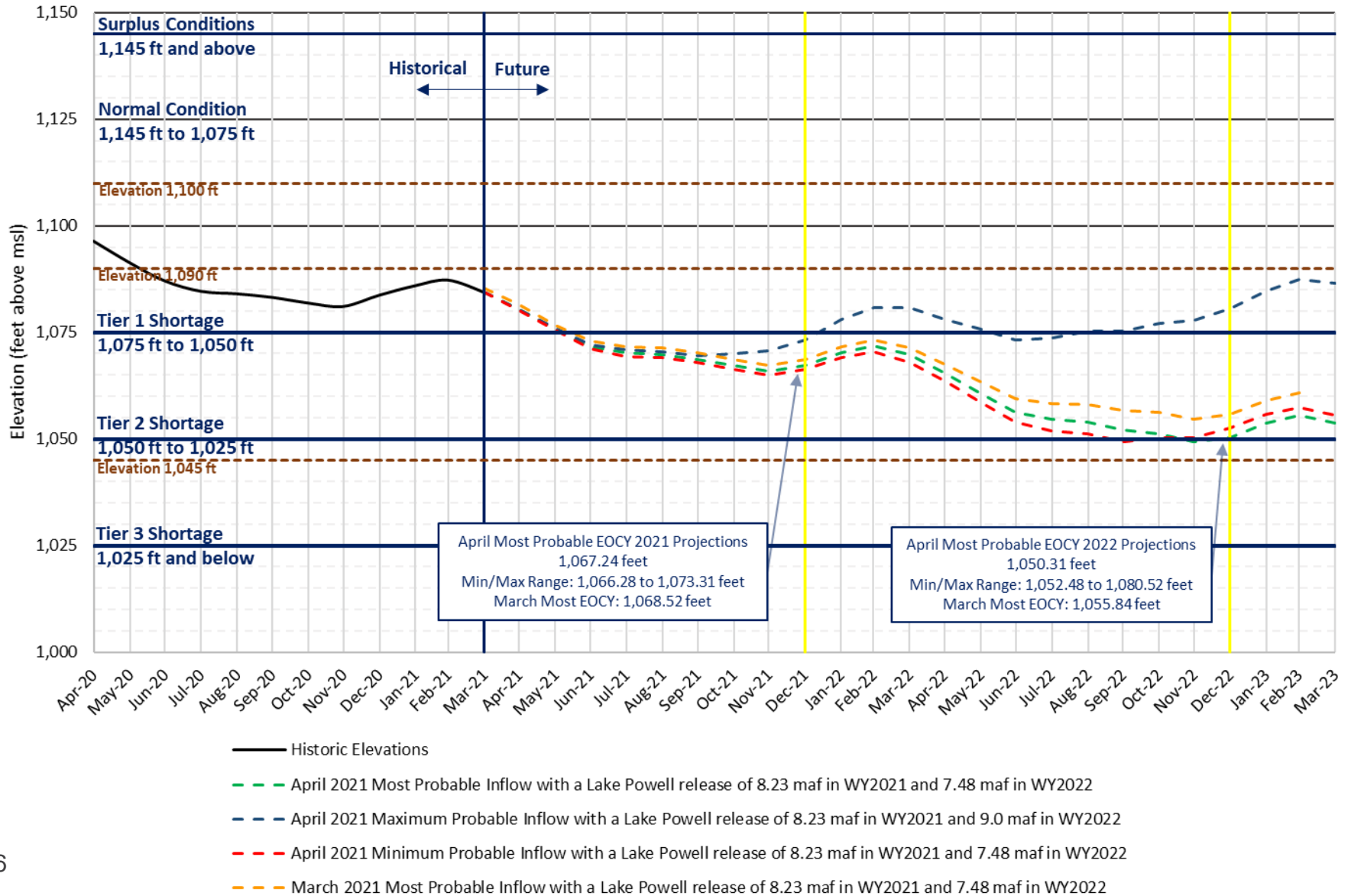


- Historic Elevations
- April 2021 Most Probable Inflow with a Lake Powell release of 8.23 maf in WY2021 and 7.48 maf in WY2022
- April 2021 Maximum Probable Inflow with a Lake Powell release of 8.23 maf in WY2021 and 9.0 maf in WY2022
- April 2021 Minimum Probable Inflow with a Lake Powell release of 8.23 maf in WY2021 and 7.48 maf in WY2022
- March 2021 Most Probable Inflow with a Lake Powell release of 8.23 maf in WY2021 and 7.48 maf in WY2022

# Colorado River System

## Lake Mead End of Month Elevations

Historic and Projected based on April and March 2021 24-Month Study Inflow Scenarios



# Colorado River System Update

## Lower Basin – Lake Mead

### Percent of Traces with Event or System Condition

Results from April 2021 CRMMS MTOM Mode/CRSS using the Full Hydrology and Stress Test Hydrology (values in percent)

Event or System Condition	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
Surplus Condition – any amount (Mead $\geq$ 1,145 ft)	0	0	0	1	4	0	0	0	0	0
Surplus – Flood Control	0	0	0	0	<1	0	0	0	0	0
Normal or ICS Surplus Condition (Mead < 1,145 and > 1,075 ft)	100	3	6	17	19	100	3	8	9	6
Recovery of DCP ICS / Mexico's Water Savings (Mead $>/\geq$ 1,110 ft)	0	0	0	4	9	0	0	0	0	<1
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,090 and > 1,075 ft)	100	3	5	11	10	100	3	7	9	3
Shortage Condition – any amount (Mead $\leq$ 1,075 ft)	0	97	94	82	77	0	97	92	91	94
Shortage / Reduction – 1 <sup>st</sup> level (Mead $\leq$ 1,075 and $\geq$ 1,050)	0	97	81	37	34	0	97	71	31	33
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,075 and > 1,050 ft)	0	97	81	37	34	0	97	71	31	33
Shortage / Reduction – 2 <sup>nd</sup> level (Mead < 1,050 and $\geq$ 1,025)	0	0	13	44	32	0	0	21	60	36
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,050 and > 1,045 ft)	0	0	11	9	6	0	0	17	6	7
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,045 and > 1,040 ft)	0	0	2	9	6	0	0	4	11	6
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,040 and > 1,035 ft)	0	0	<1	11	8	0	0	0	16	6
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,035 and > 1,030 ft)	0	0	0	10	7	0	0	0	17	6
DCP Contribution / Mexico's Water Savings (Mead $\leq$ 1,030 and $\geq$ 1,025 ft)	0	0	0	5	6	0	0	0	9	10
Shortage / Reduction – 3 <sup>rd</sup> level (Mead < 1,025)	0	0	0	1	11	0	0	0	<1	25
DCP Contribution / Mexico's Water Savings (Mead $</\leq$ 1,025 ft)	0	0	0	1	11	0	0	0	<1	25

#### Notes:

<sup>1</sup> Modeled operations include the 2007 Interim Guidelines, Upper Basin Drought Response Operations, Lower Basin Drought Contingency Plan, and Minute 323, including the Binational Water Scarcity Contingency Plan.

<sup>2</sup> Reservoir initial conditions on March 31, 2021 were simulated using the April 2021 MTOM based on the CBRFC unregulated inflow forecast ensemble dated April 2, 2021.

<sup>3</sup> Each of the 35 initial conditions from MTOM were coupled with 114 hydrologic inflow sequences from the Full Hydrology that resamples the observed natural flow record from 1906-2019 for a total of 3,990 traces analyzed and with 32 hydrologic inflow sequences from the Stress Test Hydrology that resamples the observed natural flow record from 1988-2019 for a total of 1,120 traces analyzed.

<sup>4</sup> Percentages shown in this table may not be representative of the full range of future possibilities that could occur with different modeling assumptions.

<sup>5</sup> Percentages shown may not sum to 100% due to rounding to the nearest percent.

# Summary of MAWG #4 Meeting and Updated Information

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- Arizona On-River P4 Uses (updated slide)
- Yuma area operations and salinity management impact available supplies for CAP
- MSCP provides coverage for set reductions in flow and future flows and MSCP impacts will need to be evaluated as part of Reconsultation Process
- CAP supply and impacts evaluated using JSAM Model
  - Updated scenario component (updated slide)
- Introduction to Scenario Development Process

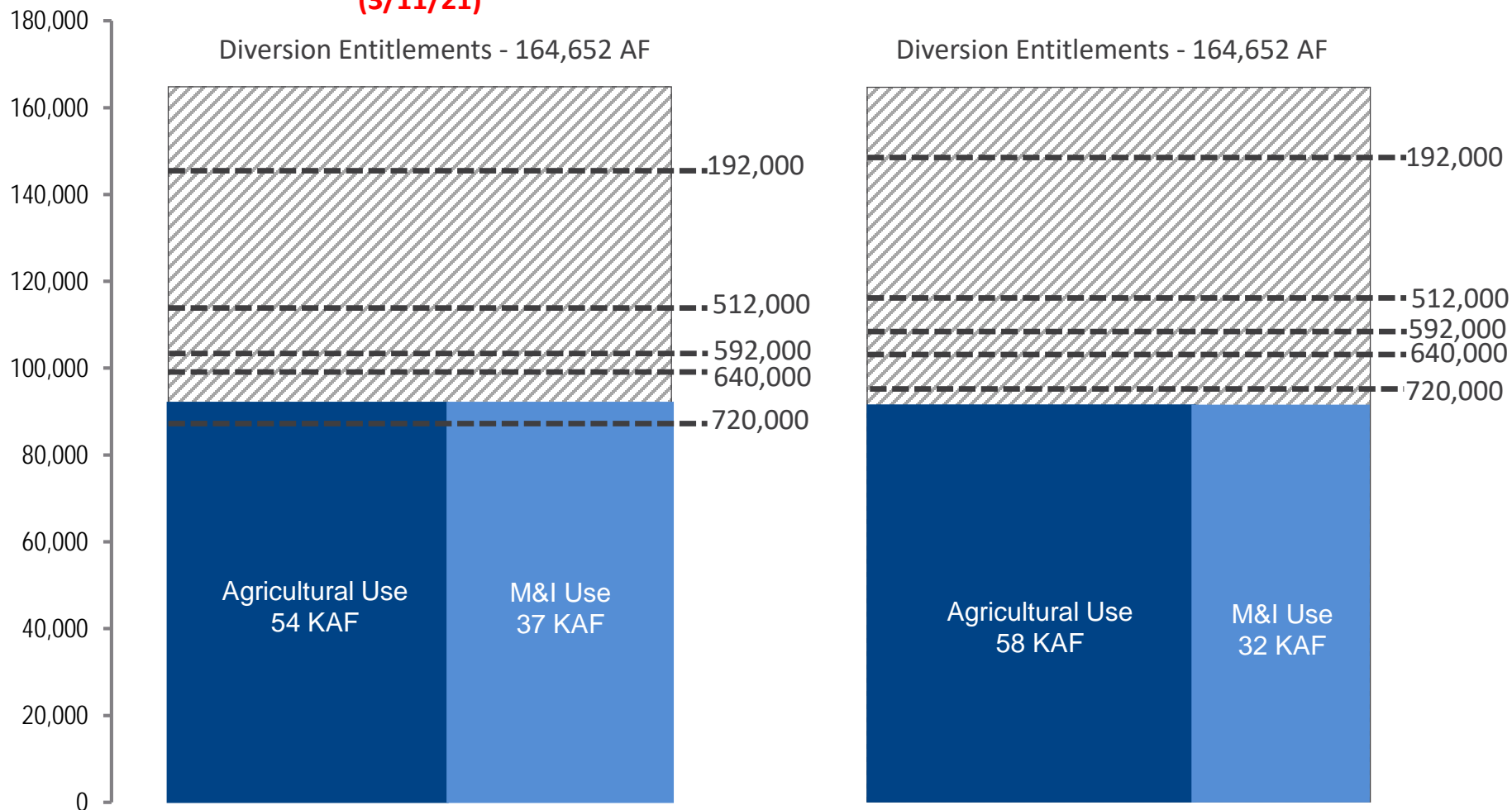




# P4 On-River Reductions Consistent with Arizona Shortage Sharing Recommendation (Current P4 On-River Use)

**ORIGINAL**  
(3/11/21)

**UPDATED**



# CAP Use/Supply Factors

Held constant for initial conditions scenario

Factor 1	Factor 2	Factor 3
Long-Term Contract Full Utilization <sup>1</sup>	Growth in Long-Term Contract Use to Meet Annual Demands <sup>2</sup>	Response to Shortage Condition <sup>3</sup>
Slow (by 2055)	Slow (+0.5%)	No change in annual demand No change in LTSC accrual
Medium (by 2045)	Medium (+1.5%)	Tier 3 Response <ul style="list-style-type: none"> <li>• -5% annual demands</li> <li>• -10% LTSC accrual</li> </ul>
Fast (by 2035)	Fast (+2.5%)	Tier 3 Response <ul style="list-style-type: none"> <li>• -15% annual demands</li> <li>• -25% LTSC accrual</li> </ul>

<sup>1</sup> Includes currently allocated but underutilized long-term contract volumes and NIA reallocation (pending tribal settlements, future tribal settlements and M&I reallocation rounds)

<sup>2</sup> Annual demands include direct deliveries to water treatment plants and annual storage and recovery

<sup>3</sup> Progressive reductions by Tier

# Summary of Pre-meeting Exercise

- MAWG Members provided responses to “framing questions” in advance of today’s meeting
- Responses to those framing questions informed preparation of scenario themes, used to guide development of initial conditions scenarios
  - Summaries of responses to the framing questions will be provided on the ADWR & CAWCD ARC webpages as part of the MAWG 5 meeting materials



# Report from MAWG Members Session

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- Report from 3 Breakout Groups
- Discussion of Initial Conditions Scenarios
- Potential refinements



# MAWG Next Steps

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- ADWR & CAWCD, co-chairs of the MAWG, will present a summary of the MAWG efforts during the ARC #3 Meeting
  - May 26<sup>th</sup> 10:00 – Noon (virtual)



# Public Comments

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Submit questions or comments using the electronic public comment form at [cap-az.com/ARC](http://cap-az.com/ARC).



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and updates, visit  
[new.azwater.gov/ARC](http://new.azwater.gov/ARC) or  
[cap-az.com/ARC](http://cap-az.com/ARC)