COLORADO RIVER BASIN STATUS UPDATE

Presented to:

Arizona Drought Interagency Coordinating Group

November 10, 2021

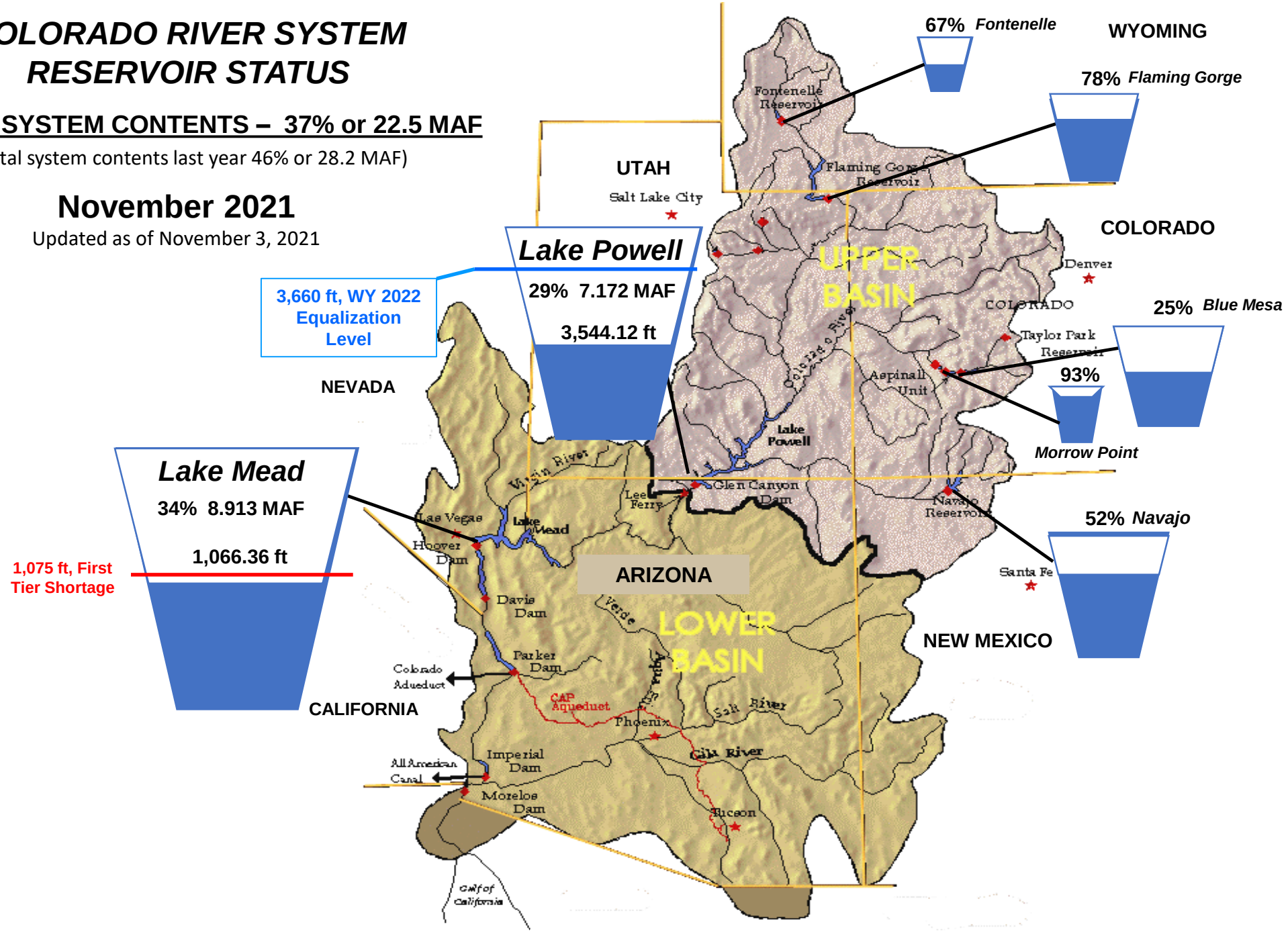
COLORADO RIVER SYSTEM RESERVOIR STATUS

TOTAL SYSTEM CONTENTS – 37% or 22.5 MAF

(Total system contents last year 46% or 28.2 MAF)

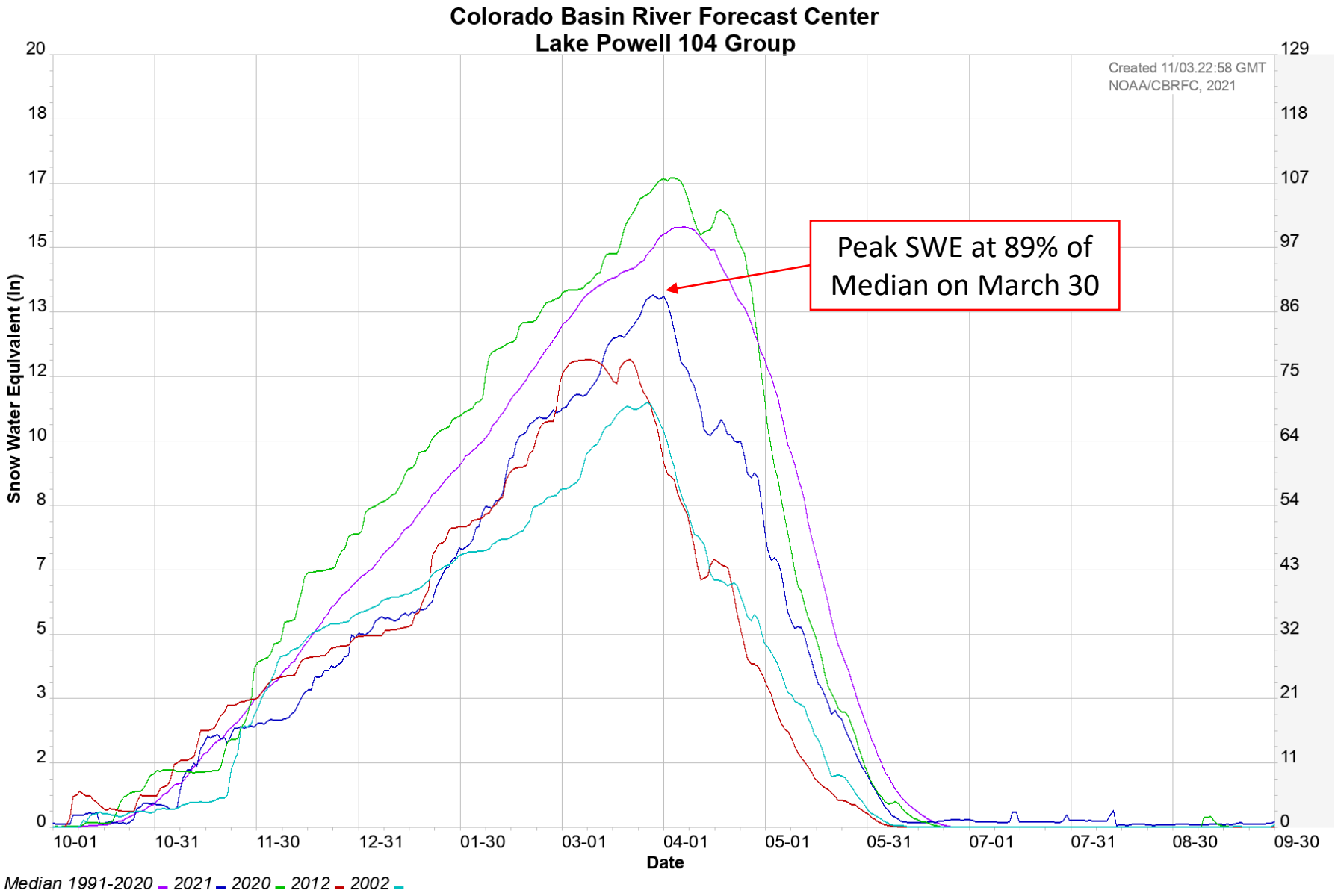
November 2021

Updated as of November 3, 2021



Snow Water Equivalent

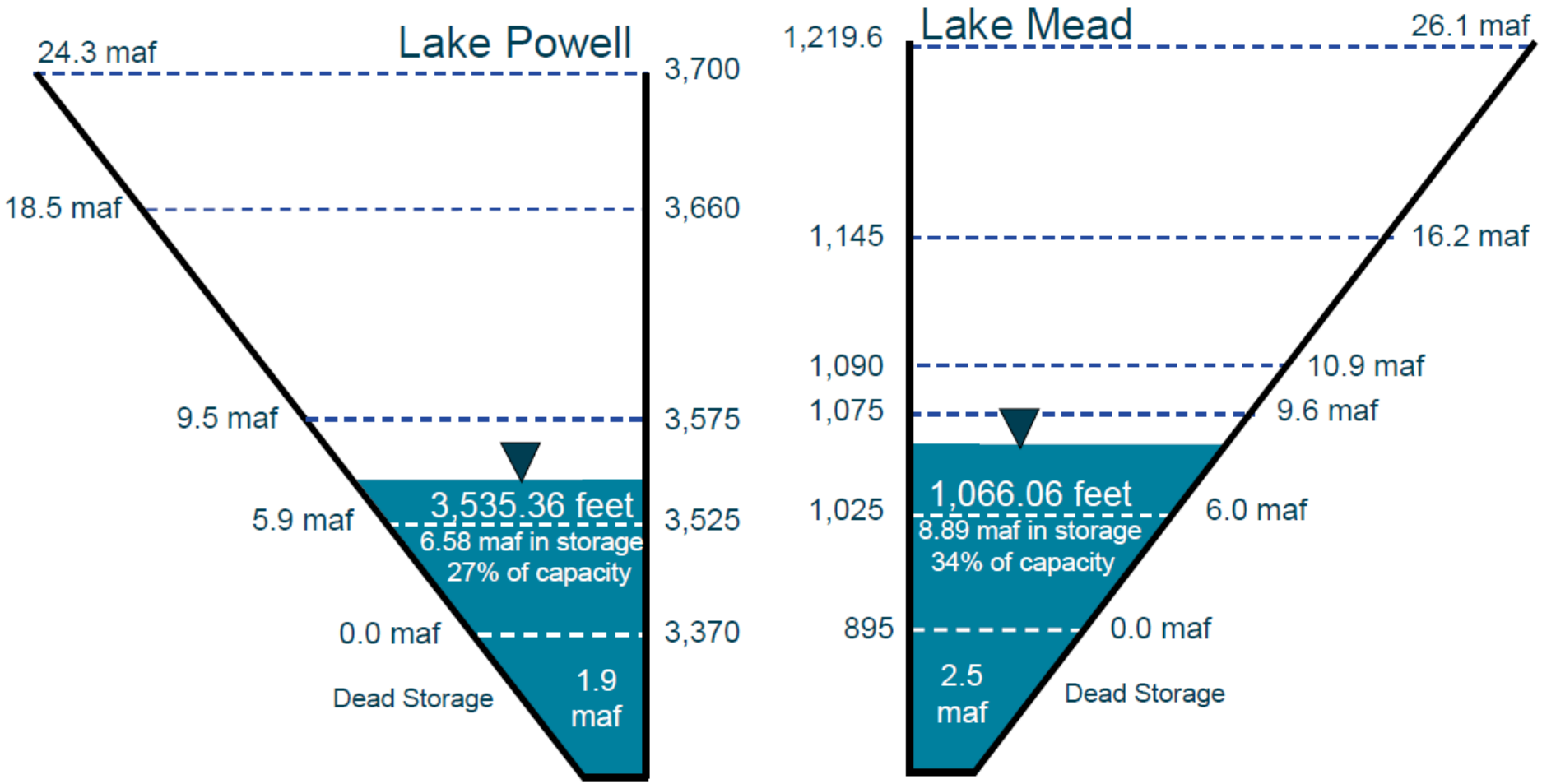
Conditions as of November 3, 2021



End of Calendar Year 2021 Projections

October 2021 24-Month Study Most Probable Inflow Scenario[1]

Based on a Lake Powell release of 8.23 maf in WY 2021 and 7.48 maf in WY 2022



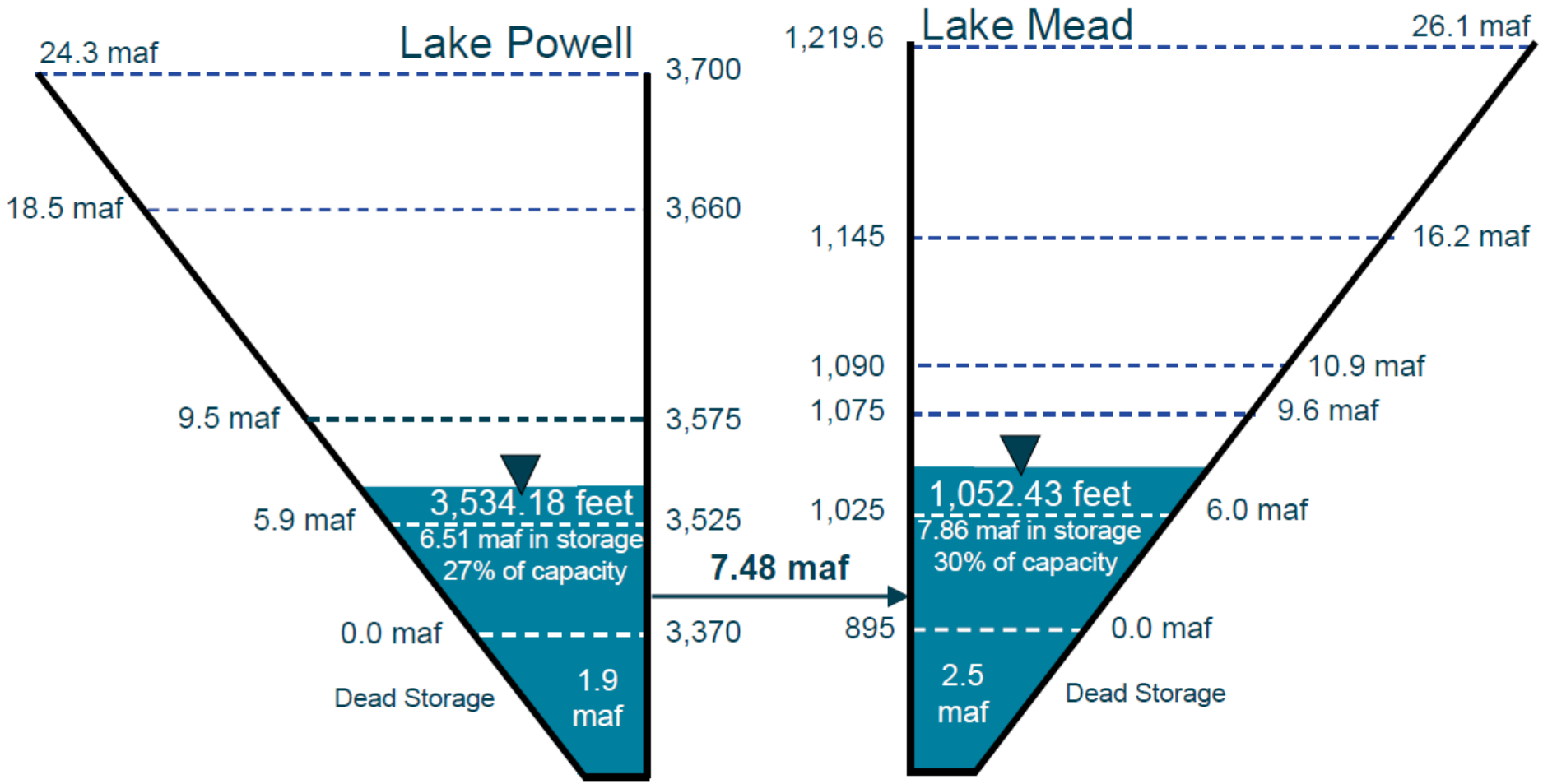
Not to Scale

[1] *WY 2022 unregulated inflow into Lake Powell is based on the CBRFC forecast dated 10/1/21.*

End of Water Year 2022 Projections

October 2021 24-Month Study Most Probable Inflow Scenario[1]

Based on a Lake Powell Unregulated Inflow Forecast of 7.40 maf (77% of average)



Not to Scale

[1] *WY 2022 unregulated inflow into Lake Powell is based on the CBRFC forecast dated 10/1/21.*

Lake Powell & Lake Mead Operational Table

Operating Determinations for Water Year/Calendar Year 2022

Lake Powell

Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf)[1]
3,700	**Equalization Tier** Equalize, avoid spills or release 8.23 maf	24.3
3,636 - 3,666 (2008-2026)		15.5 - 19.3 (2008-2026)
	Upper Elevation Balancing Tier[3] Release 8.23 maf; if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf	
3,575		9.5
	Mid-Elevation Release Tier Release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf	
	3,535.40 ft Jan 1, 2022 Projection	
3,525		5.9
	Lower Elevation Balancing Tier Balance contents with a min/max release of 7.0 and 9.5 maf	
3,490		4.0
3,370		0

Lake Mead

Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf)[1]
1,220	**Flood Control Surplus or Quantified Surplus Condition** Deliver > 7.5 maf	25.9
1,200 (approx.)[2]		22.9 (approx.)[2]
	Domestic Surplus or ICS Surplus Condition Deliver > 7.5 maf	
1,145		15.9
1,105	**Normal or ICS Surplus Condition** Deliver ≥ 7.5 maf	11.9
1,075	~~***1,065.85 ft***~~	9.4
	Shortage Condition Deliver 7.167[4] maf ***Jan 1, 2022 Projection***	
1,050		7.5
	Shortage Condition Deliver 7.083[5] maf	
1,025		5.8
1,000	**Shortage Condition** Deliver 7.0[6] maf Further measures may be undertaken[7]	4.3
895		0

Diagram not to scale

[1] Acronym for million acre-feet

[2] 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.

[3] Subject to April adjustments which may result in a release according to the Equalization Tier

[4] Of which 2.48 maf is apportioned to Arizona, 4.4 maf to California, and 0.287 maf to Nevada

[5] Of which 2.40 maf is apportioned to Arizona, 4.4 maf to California, and 0.283 maf to Nevada

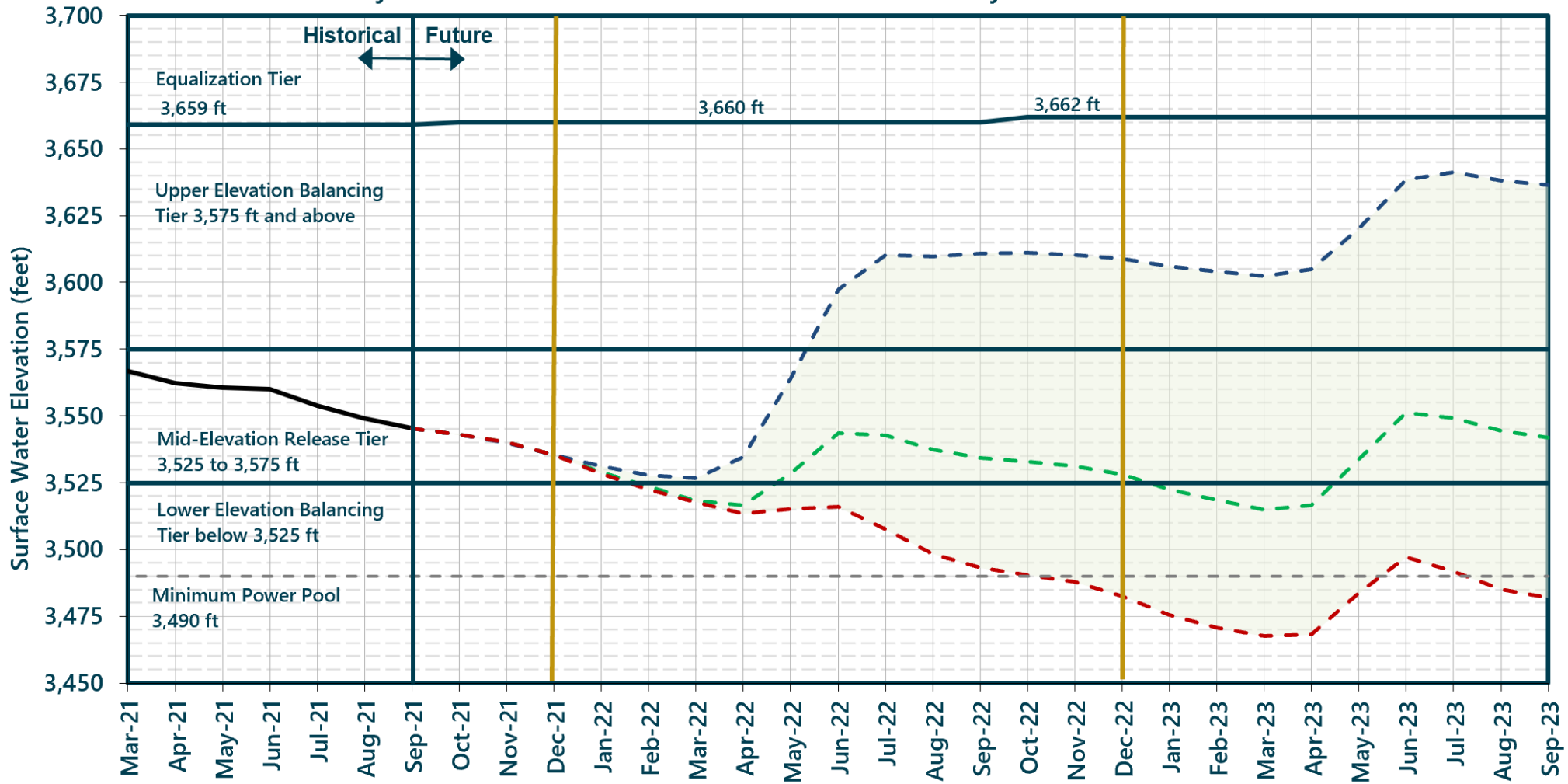
[6] Of which 2.32 maf is apportioned to Arizona, 4.4 maf to California, and 0.280 maf to Nevada

[7] 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.

[1] **Lake Powell and Lake Mead operating determinations are based on August 2021 24-Month Study projections consistent with the 2007 Interim Guidelines and 2019 Drought Contingency Plans. These determinations are documented in the draft 2022 Annual Operating Plan for Colorado River Reservoirs.**

Lake Powell End of Month Elevations

Projections from the October 2021 24-Month Study Inflow Scenarios



Historical Elevations

October 2021 Most Probable Inflow with a Lake Powell release of 7.48 maf in WY 2022 and 7.82 maf in WY 2023

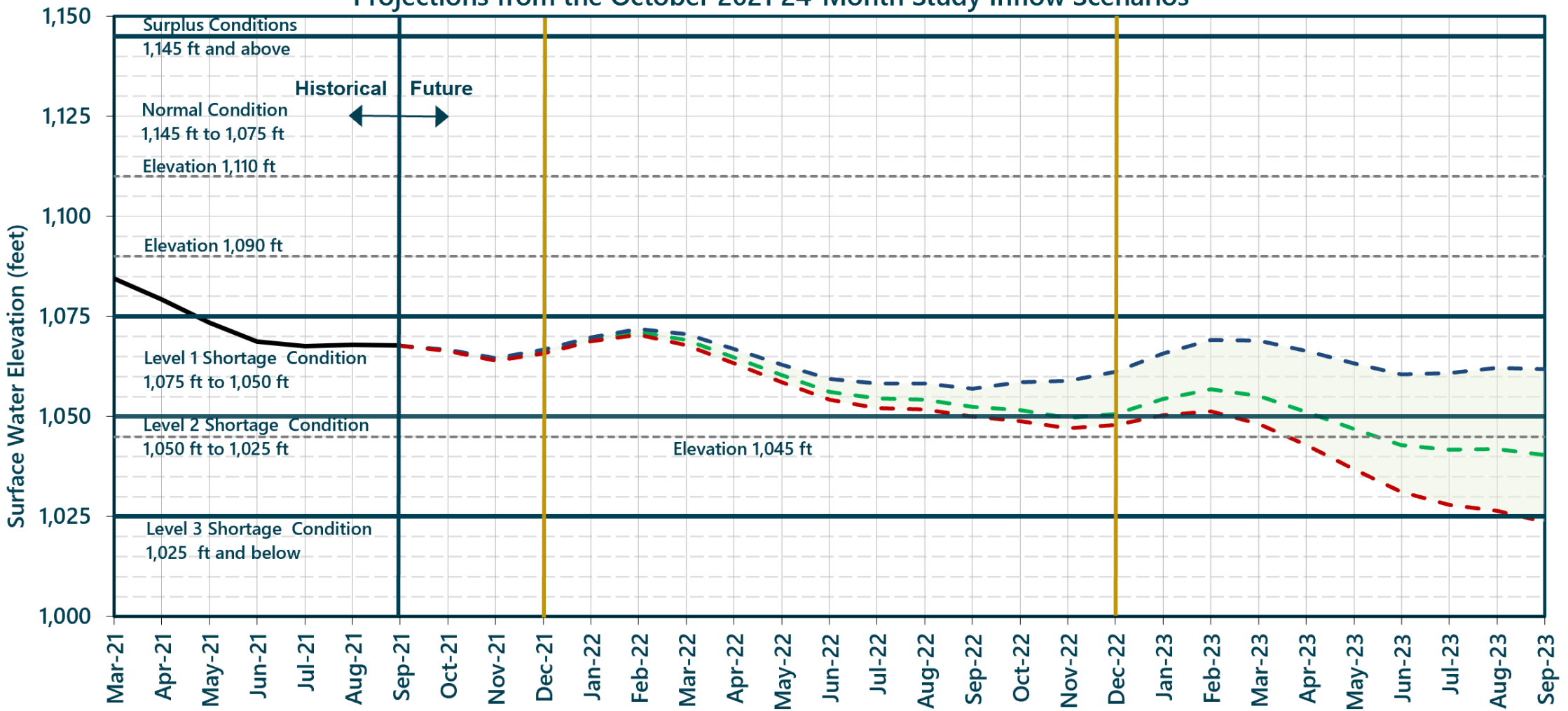
October 2021 Maximum Probable Inflow with a Lake Powell release of 7.48 maf in WY 2022 and 9.00 maf in WY 2023

October 2021 Minimum Probable Inflow with a Lake Powell release of 7.48 maf in WY 2022 and 7.00 maf in WY 2023

The Drought Response Operations Agreement (DROA) is available online at: https://www.usbr.gov/dcp/finaldocs.html.

Lake Mead End of Month Elevations

Projections from the October 2021 24-Month Study Inflow Scenarios



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Lower Basin – Lake Mead
Percent of Traces with Event or System Condition
Results from Corrected August 2021 CRSS without Upper Basin Drought Response Operations (values in percent)

Event or System Condition	2022	2023	2024	2025	2026
Surplus Condition – any amount (Mead ≥ 1,145 ft)	**0**	**0**	**0**	**0**	**0**
Surplus – Flood Control	0	0	0	0	0
Normal or ICS Surplus Condition (Mead < 1,145 and > 1,075 ft)	**0**	**6**	**3**	**0**	**9**
Recovery of DCP ICS / Mexico's Water Savings (Mead >/≥ 1,110 ft)	0	0	0	0	0
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,090 and > 1,075 ft)	0	6	3	0	3
Shortage Condition – any amount (Mead ≤ 1,075 ft)	**100**	**94**	**97**	**100**	**91**
Shortage / Reduction – 1st level (Mead ≤ 1,075 and ≥ 1,050)	*100*	*78*	*28*	*25*	*16*
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,075 and > 1,050 ft)	100	78	28	25	16
Shortage / Reduction – 2nd level (Mead < 1,050 and ≥ 1,025)	*0*	*16*	*63*	*34*	*34*
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,050 and > 1,045 ft)	0	13	3	3	13
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,045 and > 1,040 ft)	0	3	13	9	0
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,040 and > 1,035 ft)	0	0	9	6	0
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,035 and > 1,030 ft)	0	0	25	13	9
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,030 and ≥/> 1,025 ft)	0	0	13	3	13
Shortage / Reduction – 3rd level (Mead < 1,025)	*0*	*0*	*6*	*41*	*41*
DCP Contribution / Mexico's Water Savings (Mead </≤ 1,025 ft)	0	0	6	41	41

Notes:
[1] Modeled operations include the 2007 Interim Guidelines, Lower Basin Drought Contingency Plan, and Minute 323, including the Binational Water Scarcity Contingency Plan.
[2] Reservoir initial conditions on December 31, 2021 were simulated using the August 2021 Most Probable 24 Month Study.
[3] Stress Test Hydrology uses 32 hydrologic inflow sequences that resamples the observed natural flow record from 1988-2019 for 32 traces analyzed..
[4] Percentages shown in this table may not be representative of the full range of future possibilities that could occur with different modeling assumptions.
[5] Percentages shown may not sum to 100% due to rounding to the nearest percent.

BUREAU OF RECLAMATION

Questions?

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Additional Resources

- Arizona Reconsultation Committee: https://new.azwater.gov/arc
- Colorado Basin River Forecast Center: https://www.cbrfc.noaa.gov/
- Lower Colorado Region River Operations: https://www.usbr.gov/lc/riverops.html
- Upper Colorado Region River Operations: https://www.usbr.gov/uc/water/index.html