

# *Colorado River Lower Basin Drought Contingency Planning Update*

## *Governor's Drought Interagency Coordinating Group*

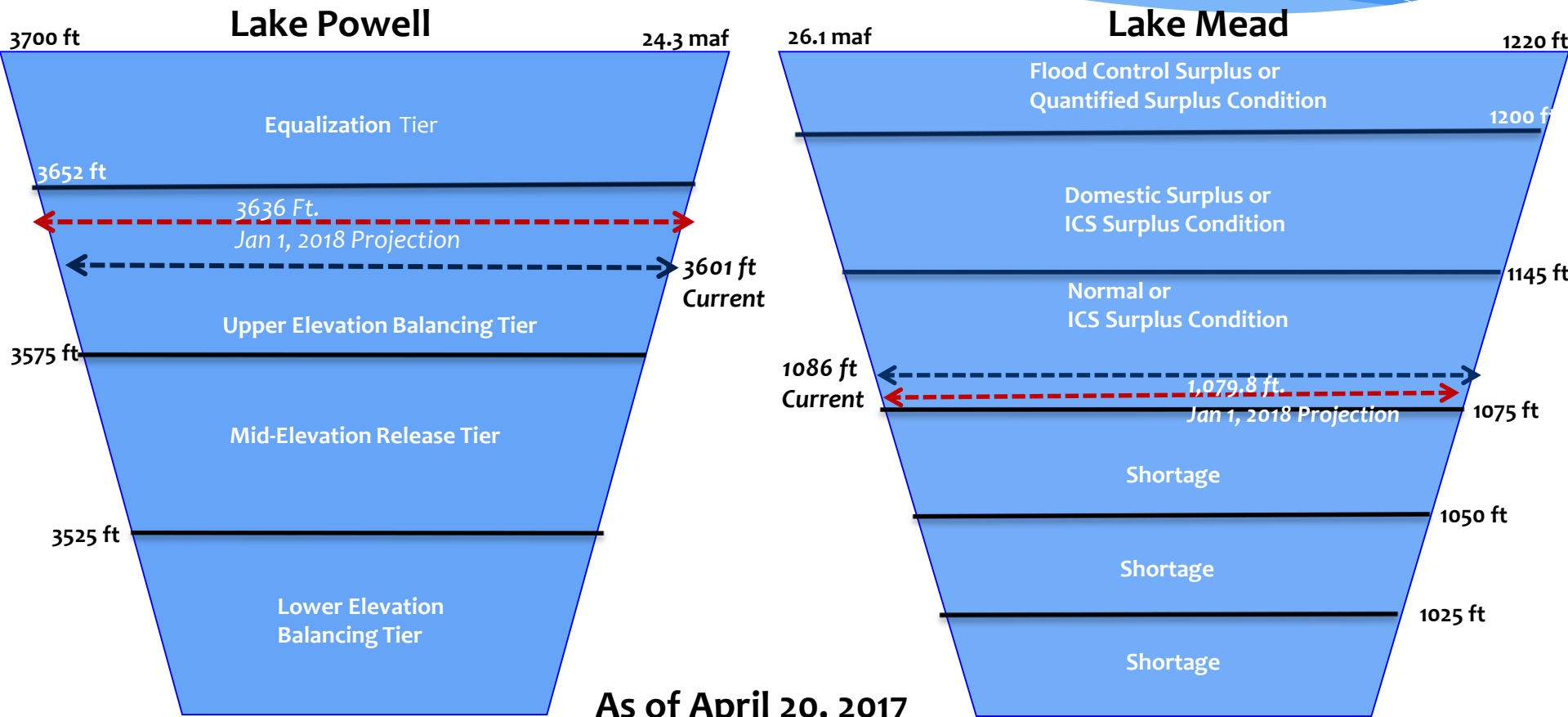


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# Lake Powell and Lake Mead Coordinated Operations



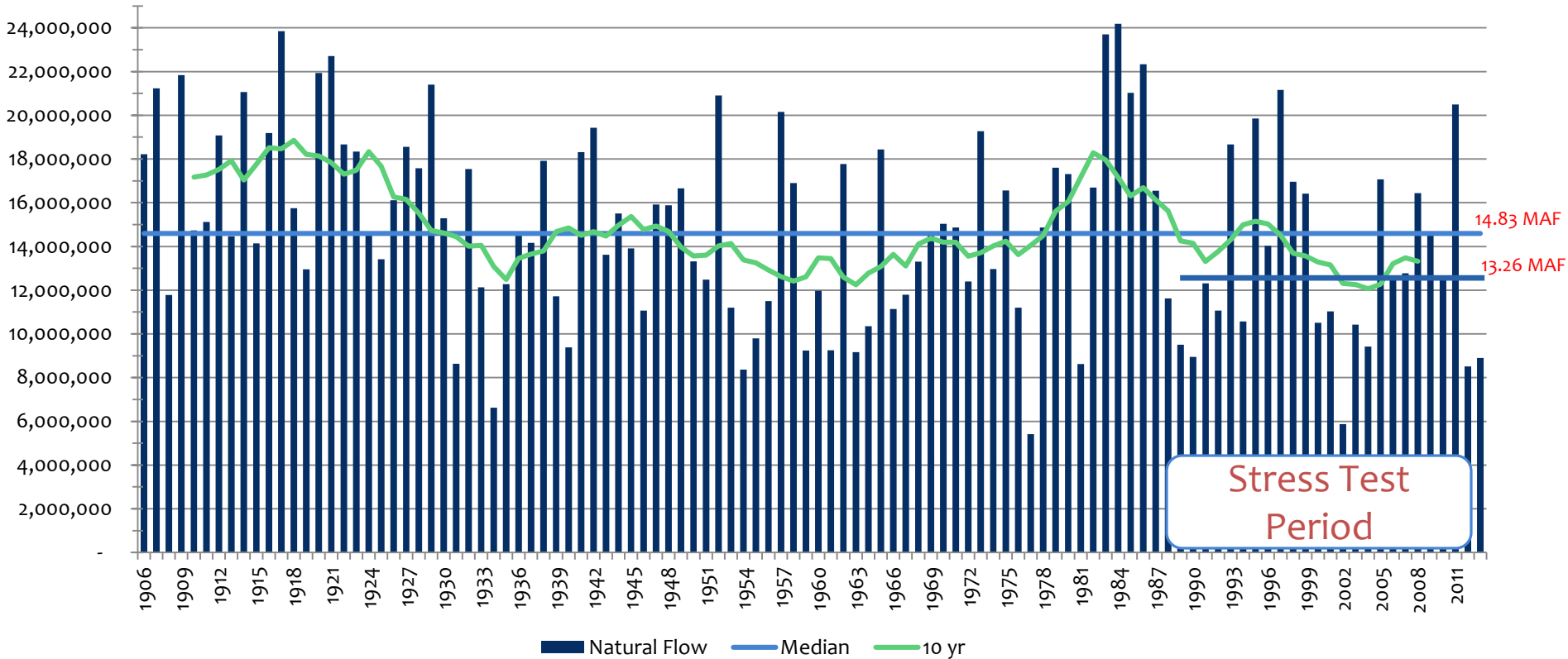
# Water Budget at Lake Mead

- Inflow = 9.0 maf  
(release from Powell + side inflows)
- Outflow = - 9.6 maf  
(AZ, CA, NV, and Mexico delivery  
+ downstream regulation and gains/losses)
- Mead evaporation losses = - 0.6 maf
- Balance = - 1.2 maf

Given basic apportionments in the Lower Basin, the allotment to Mexico, and an 8.23 maf release from Lake Powell, Lake Mead storage declines about 12 feet each year

# Observed Hydrology & “Stress Test”

## Natural Flow at Lee Ferry (1906 - 2013)



# Probabilities of Lower Colorado River Basin Shortage

Source: US Bureau of Reclamation Results from the January 2017 CRSS / MTOM model run

	2017	2018	2019	2020	2021
<b>Probability of any level of shortage (Mead <math>\leq</math> 1,075 ft.)</b>	0	34	30	29	33
1 <sup>st</sup> level shortage (Mead $\leq$ 1,075 and $\geq$ 1,050 ft)	0	34	30	27	25
2 <sup>nd</sup> level shortage (Mead $<$ 1,050 and $\geq$ 1,025 ft)	0	0	<1	1	7
3 <sup>rd</sup> level shortage (Mead $<$ 1,025)	0	0	0	<1	1

U.S. Bureau of Reclamation CRSS Model Run – April 2017

	2018	2019	2020	2021	2022
<b>Probability of any level of shortage (Mead <math>\leq</math> 1,075 ft)</b>	0	31	32	34	39
1 <sup>st</sup> level shortage (Mead $\leq$ 1,075 and $\geq$ 1,050 ft)	0	31	31	26	27
2 <sup>nd</sup> level shortage (Mead $<$ 1,050 and $\geq$ 1,025 ft)	0	0	1	8	9
3 <sup>rd</sup> level shortage (Mead $<$ 1,025)	0	0	0	<1	3

# 2007 Interim Guidelines

## Shortage Impacts to Lower Basin

August 24-Month Study projections of January 1 Lake Mead elevations are used to determine operation of Lake Mead in upcoming year.

Lake Mead Elevation	Arizona Reduction	Nevada Reduction	California Reduction	Mexico Reduction
1075'	320,000 AF	13,000 AF	0	50,000 AF
1050'	400,000 AF	17,000 AF	0	70,000 AF
1025'	480,000 AF	20,000 AF	0	125,000 AF

# Colorado River Lower Basin Drought Contingency Planning

- Discussions between:
  - Lower Basin States
  - Department of the Interior
  - Other contract holders
- Goal of discussions:
  - Restore risks to levels achieved in the 2007 Guidelines
  - Conserve 1.5 – 3.0 MAF in Lake Mead over the next 5 years
  - Reduce the risk of Lake Mead falling below critical elevations as was seen in the 2013 model projections

# Lower Basin Drought Contingency Plan

- Avoid and protect against the potential for the elevation of Lake Mead to decline to elevations below 1,020 feet by collectively taking additional actions
- Includes a commitment by the U.S. to work to create or conserve Colorado River system water
- Recovery of additional reduction volumes would be allowed under certain conditions
- Incentivize ICS creation/storage
  - Agree that ICS may be withdrawn at lower Lake Mead elevations, similar to ICMA arrangements under Minute 319
  - Modification of the evaporative losses currently applied to ICS



# Lower Basin Drought Contingency Plan

Lake Mead Elevation	AZ [2007]	AZ [Plan]	AZ TOTAL	NV [2007]	NV [Plan]	NV TOTAL	CA [2007]	CA [Plan]	CA TOTAL	BOR	TOTAL
1090-1075	0	192K	192K	0	8K	8K	0	0	0	100k	300k
1075-1050	320K	192K	512K	13K	8K	21K	0	0	0	100k	633k
1050-1045	400K	192K	592K	17K	8K	25K	0	0	0	100k	717k
1045-1040	400K	240K	640K	17K	10K	27K	0	200K	200K	100k	967k
1040-1035	400K	240K	640K	17K	10K	27K	0	250K	250K	100k	1,017k
1035-1030	400K	240K	640K	17K	10K	27K	0	300K	300K	100k	1,067k
1030-1025	400K	240K	640K	17K	10K	27K	0	350K	350K	100k	1,117k
<1025	480K	240K	720K	20K	10K	30K	0	350K	350K	100k	1,200k

Revised on 11/18/15 to include US and TOTAL reductions

# Adaptive Conservation Framework

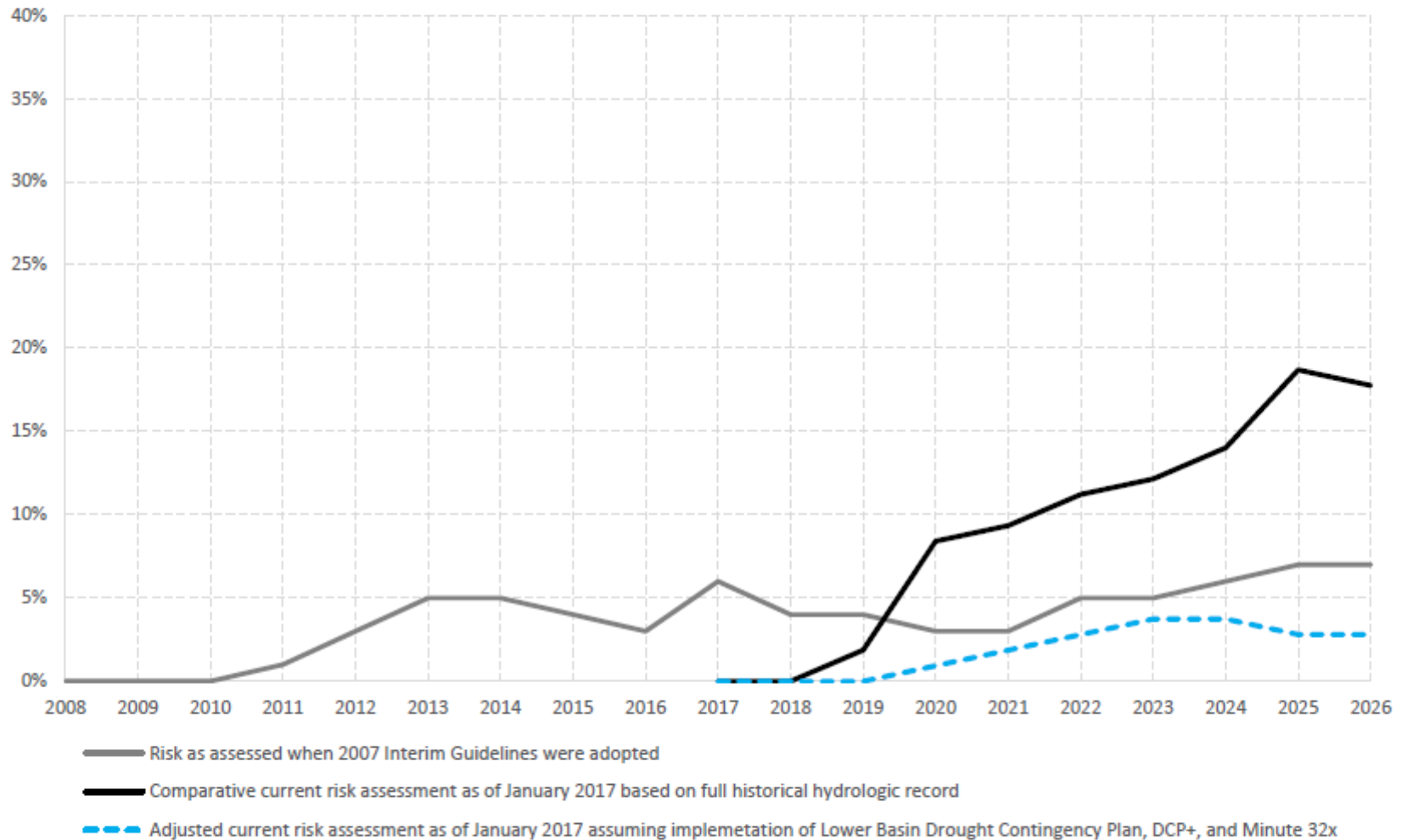
**Goal:** Reduce Probability of First Tier Lake Mead Shortage

## Strategy

- Test buffer levels above 1,075 feet
- Set target elevations to create buffer for conservation measures
- Make projections of Lake Mead's end of year elevations using 24-Month study data
- Determine required conservation
- Develop system conservation program and have funding agreement in place
- Rolling 5-year plan
- Continue to monitor hydrologic conditions
- Adjust as necessary

# Risk of Lake Mead Reaching Critically Low Elevations With LB DCP, DCP+, and Minute 32x

Projected Probability of Lake Mead Elevation Less than 1,025' in December



# Lower Colorado River Basin Drought Contingency Discussions Next Steps

- Discussion regarding the voluntary reductions in Arizona and development of Arizona consensus
  - Reductions mostly impact Agricultural Pool, Arizona Water Banking Authority, other excess water users and NIA Pool
  - Goal to mitigate impacts to Agricultural Pool
- Communication & messaging (ongoing)
- Finalize DCP among Lower Basins States (Arizona, California & Nevada) & Reclamation
  - Include board actions
- Arizona Legislature
- Federal Legislation

# Minute 32x

- Continues collaborative partnership with Mexico
- Creates package of benefits for Arizona
- Allows Mexico's water to be exchanged with United States users
- Allows Mexico to store water in Lake Mead
- H.J.R. 2002 signed by Governor Ducey on March 2<sup>nd</sup>

# Questions?

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ARIZONA'S WATER SUPPLIES  
*for* ITS NEXT CENTURY**