Colorado River Shortage Facts

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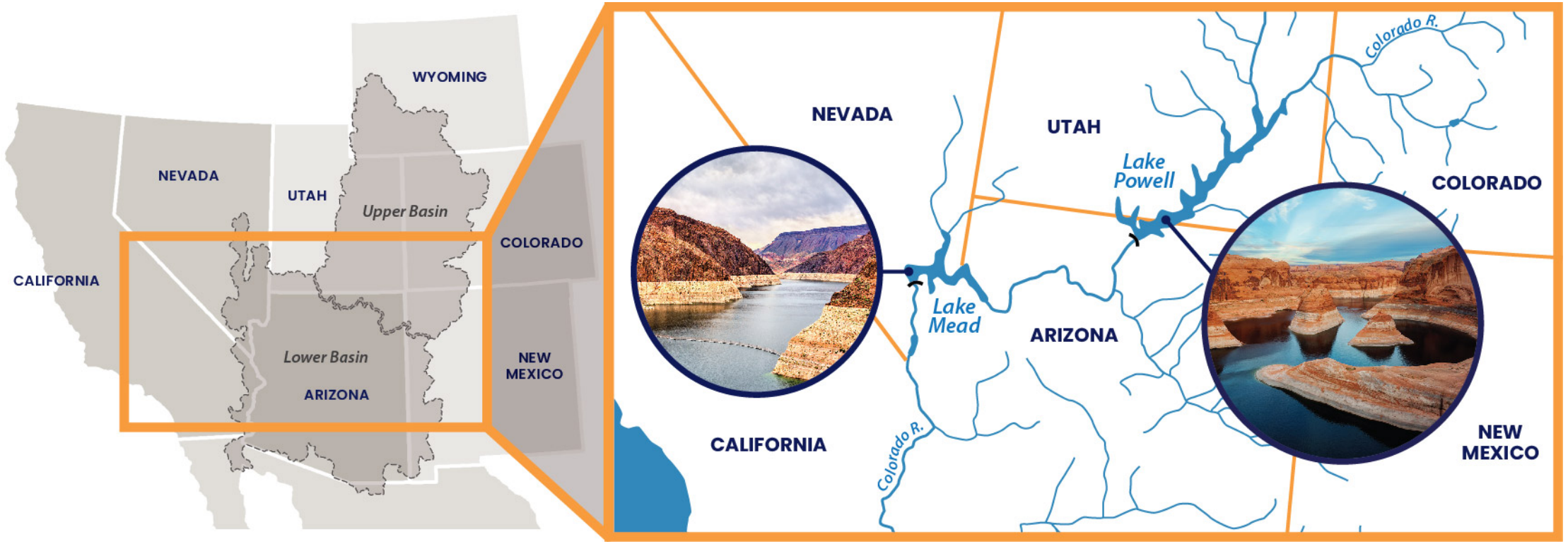
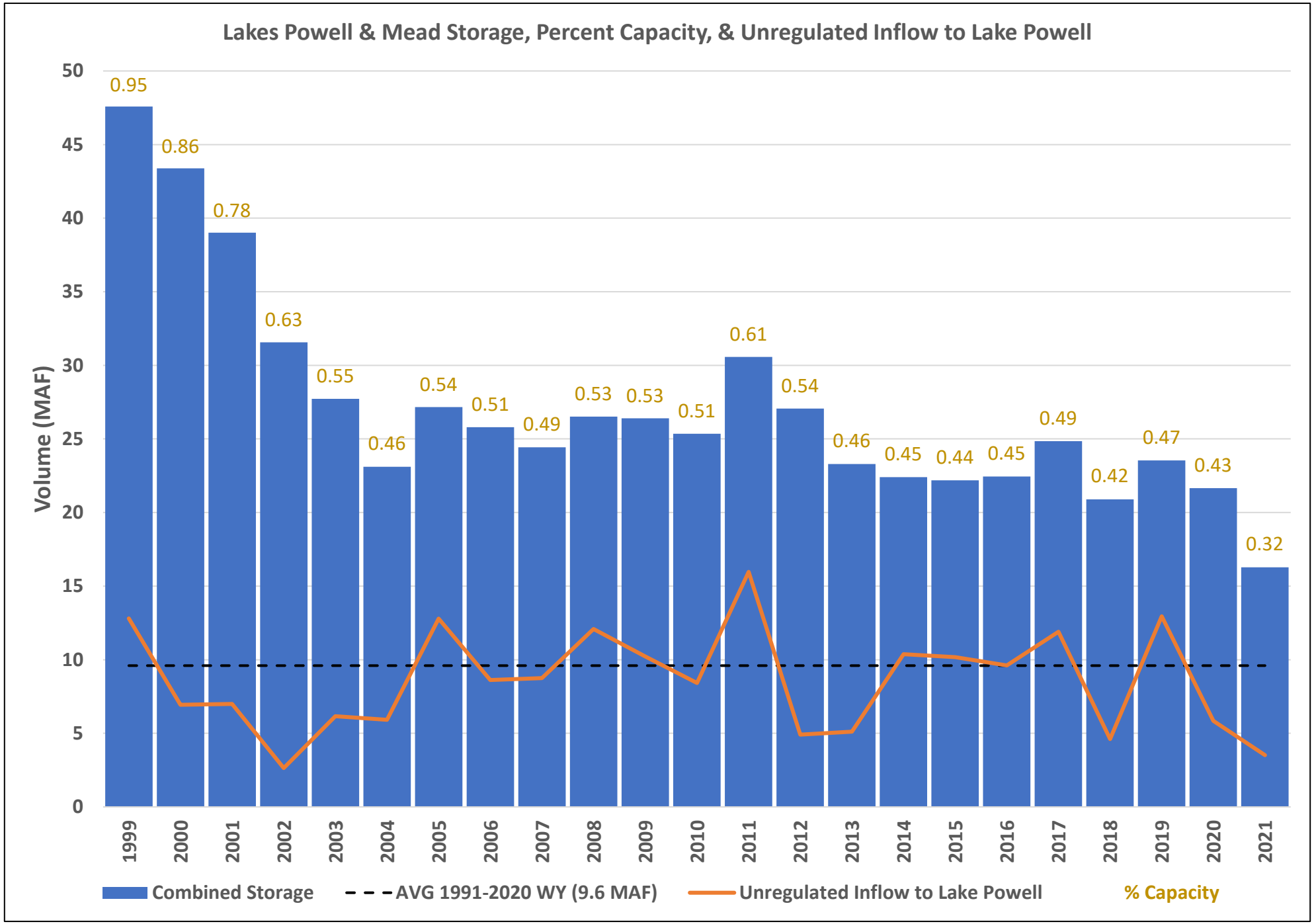
Colorado River Basin

- Upper Basin States: Colorado, New Mexico, Utah, and Wyoming
- Lower Basin States: Arizona, California, and Nevada
- 7.5 million acre-feet (MAF) annual allocation of Colorado River water for the Upper Basin, 7.5 MAF for the Lower Basin and 1.5 MAF for Mexico
- Lower Basin allocations:
  - AZ (2.8 MAF)
  - CA (4.4 MAF)
  - NV (0.3 MAF)

Colorado River Basin and Major Reservoirs




Lakes Powell & Mead Storage, Percent Capacity, & Unregulated Inflow to Lake Powell
Volume (MAF)
50
45
40
35
30
25
20
15
10
5
0
0.95
0.86
0.78
0.63
0.55
0.46
0.54
0.51
0.49
0.53
0.53
0.51
0.61
0.54
0.46
0.45
0.44
0.45
0.49
0.42
0.47
0.43
0.32
1999
2000
2001
2002
2003
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2005
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2013
2014
2015
2016
2017
2018
2019
2020
2021
Combined Storage
AVG 1991-2020 WY (9.6 MAF)
Unregulated Inflow to Lake Powell
% Capacity

Approaches to Operations and Conservation

2007 Guidelines

- Established common commitment for sharing water surplus and shortage
- Created opportunities to conserve water in Lake Mead, including intentionally created surplus (ICS)
- Formalized procedures for coordinated reservoir operations
- Established elevation triggers for reservoir releases and shortage declaration

Drought Contingency Plan

- 7 states agreements to protect the Colorado River system through reductions and conservation

Binational Water Scarcity Contingency Plan

- Mexico agrees to share in DCP Contributions

500+ Plan

- Lower Basin states agreed to target a combined minimum of 1 MAF in Lake Mead to protect against Lake Mead from falling to 1020’

2007 Interim Guidelines

- Created a novel approach to operations and conservation
- Incentivized conservation and augmentation through creation of Intentionally Created Surplus (ICS)
- Implemented closer coordination of Lakes Powell and Mead
- Defined criteria for shortages in the Lower Basin based on elevations in Lake Mead

Lake Mead Jan. 1 Elevation	Shortage Tier	Arizona Reduction	Nevada Reduction	Mexico Reduction
1075’	1	320KAF	13 KAF	50 KAF
1050’	2	400KAF	17 KAF	70 KAF
1025’	3	480KAF	20 KAF	125 KAF

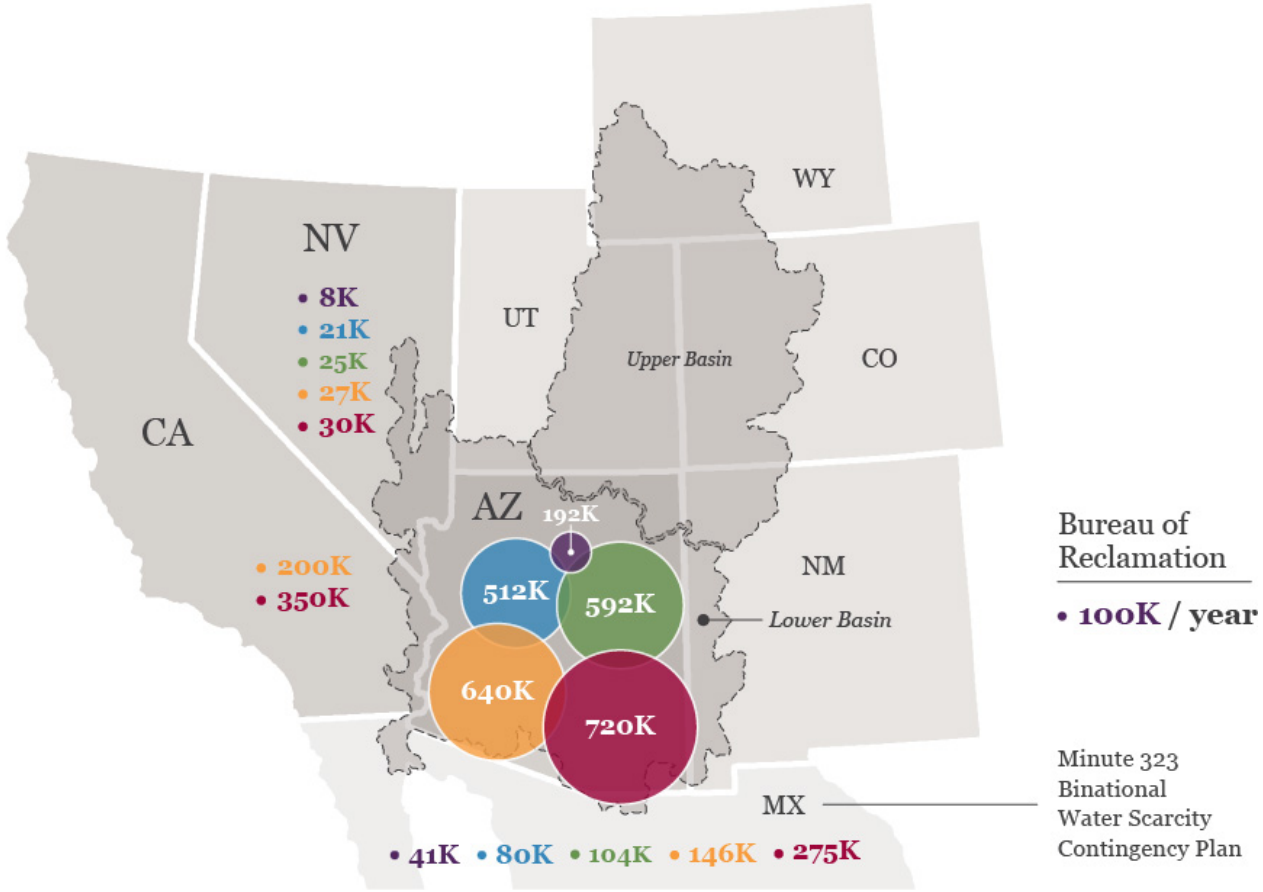
Drought Contingency Plan (DCP)

- DCP is a set of additional actions that are “on top of” the 2007 Guidelines
- The DCP agreements extend across the Basin with components in the Upper and Lower Basin, plus Mexico through Minute 323
- Agreements amongst Arizona water users grew out of the Arizona DCP Steering Committee process

Lower Basin DCP Contributions to Lake Mead

IN ACRE-FEET
PER ELEVATION
PER YEAR

- Less than 1,090' – Tier Zero
- Less than 1,075' – Tier 1
- Less than 1,050' – Tier 2
- Less than 1,045' – Tier 2b
- Less than 1,025' – Tier 3



Bureau of Reclamation

• 100K / year

Minute 323
Binational
Water Scarcity
Contingency Plan

Arizona Contributions to 500+ Plan

- Arizona's target of over 200 KAF in 2022 anticipates participation from both on-river and CAP water users
  - Includes both Tribal and non-tribal participants
  - 30 KAF on-river
  - 184 KAF from CAP water users

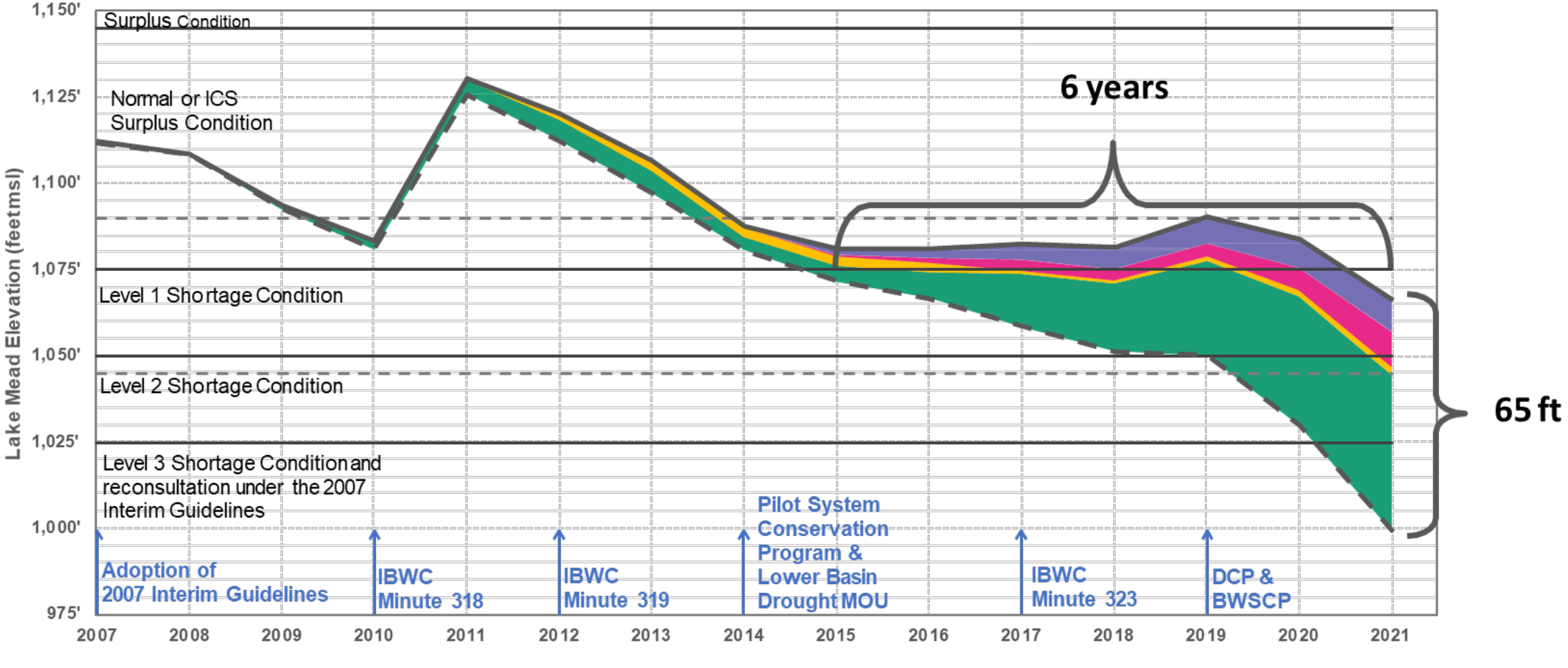
- All contributions will directly benefit Lake Mead, through system water or storage, including reduced release of intentionally created surplus (ICS)

- CAP and ADWR are providing funding, and have established guiding principles for Arizona's contributions

  ▪ Voluntary ▪ Temporary ▪ Compensated

In 2022, Arizona anticipates contributing around 214 KAF to the 500+ Plan

Role of Conservation in protecting Lake Mead



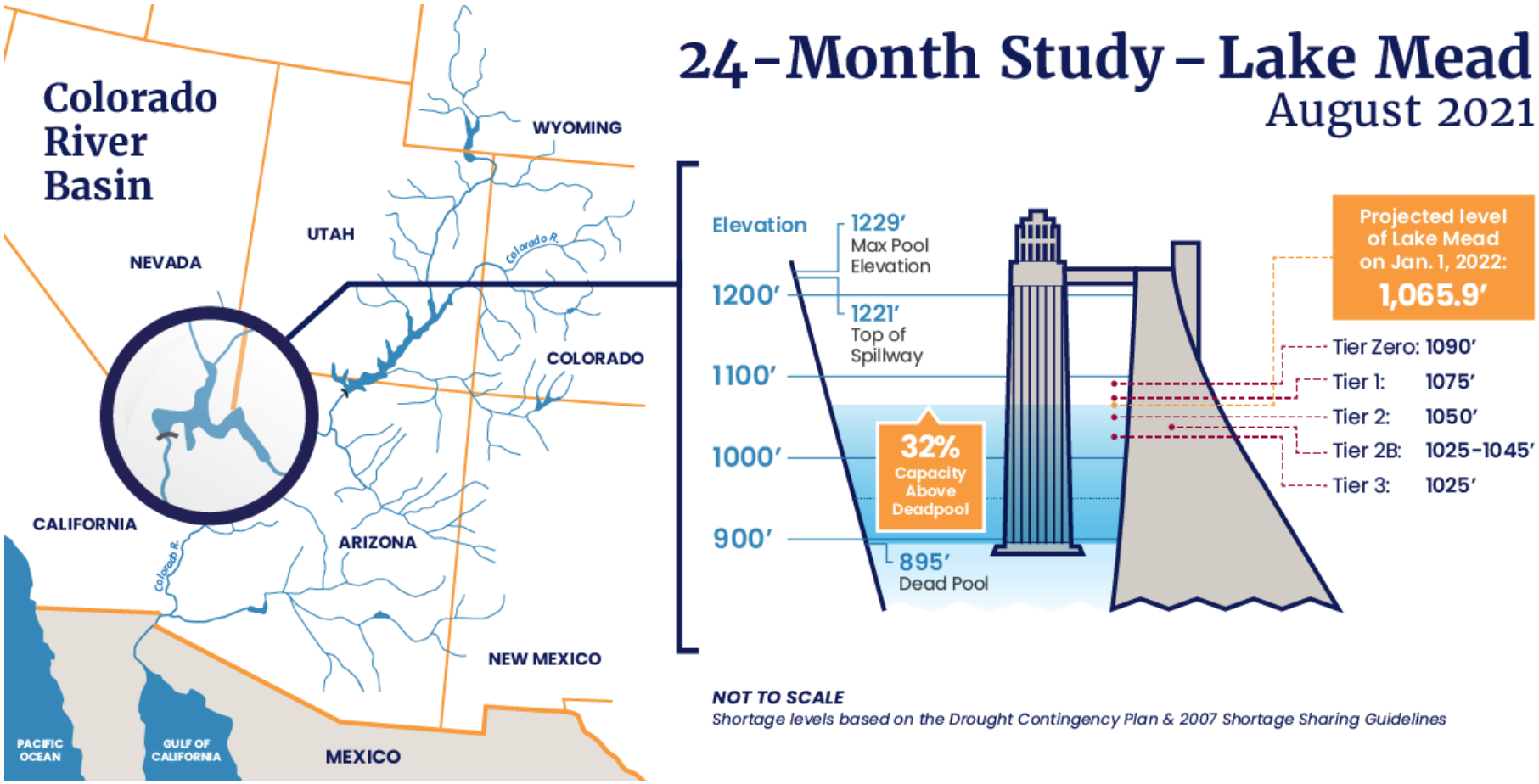
24-Month Study

The 24-Month Study projects out Colorado River system conditions for 2 years using:

- Previous end-of-month reservoir elevations
- Considers three hydrologic scenarios – minimum, most and maximum
- Water demands
- Operating policies

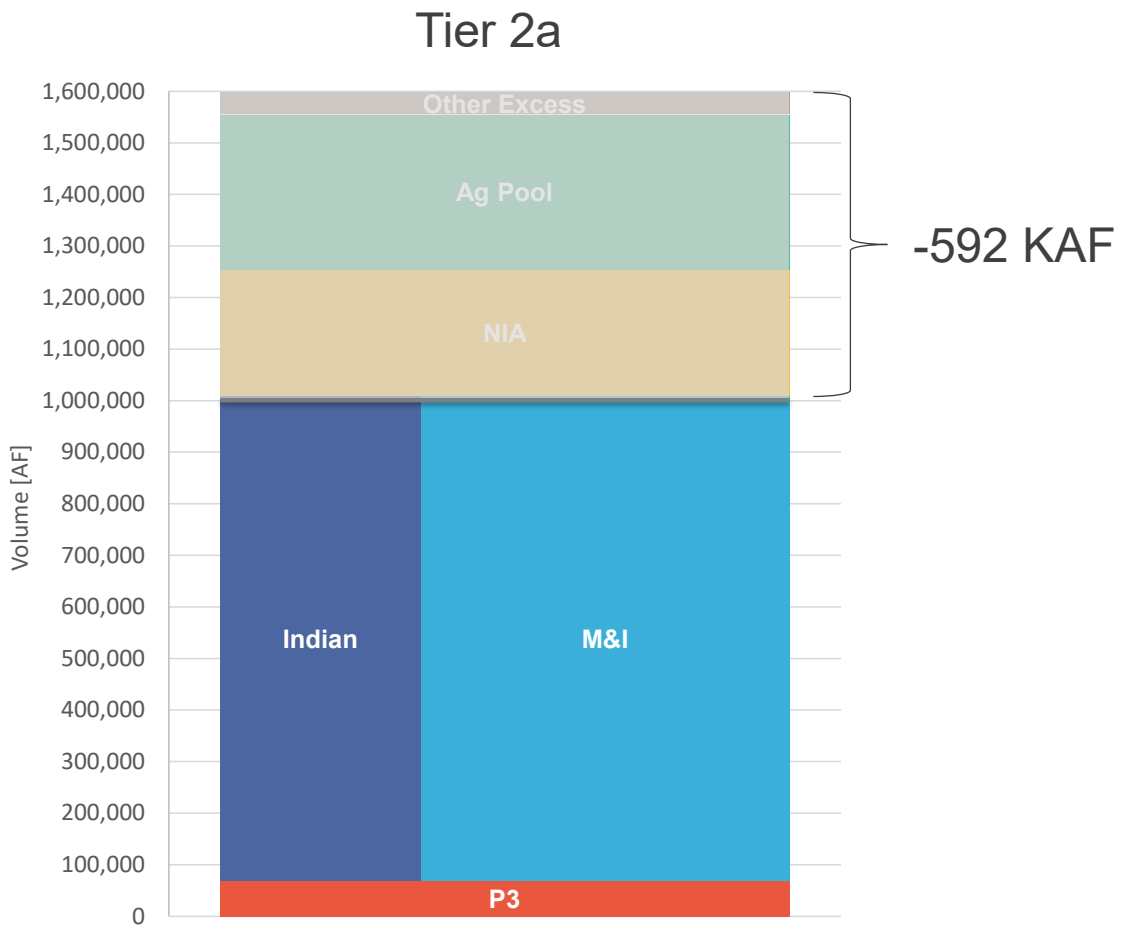
- **Two important months**
  - April - conclusion of the snow accumulation season, when an accurate projection of runoff can be determined
  - August - runoff period has fully concluded and storage contents in the reservoirs are fully known

August 24-Month Study



Estimated Shortage Impact: 2023

- Current projections indicate the likelihood of Tier 2a in 2023
  - 1050’ <= Tier 2a > 1045’
- Shortage volume increases by 80 KAF from Tier 1 to 2a
  - 512 KAF vs. 592 KAF



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Lake Mead Mass Balance

Estimated Calendar Year 2022 Physical Supply Accounting as of April 28, 2022

Supply / Demand			Volume (MAF)		
			Planned	"Normal"	
Powell release			**7.00**	**8.23**	*Data based on Bureau of Reclamation reservoir release data, decree accounting, and 24-Month Study.*
Intervening flows			0.78	0.78	
Lake Mead evaporation			(0.45)	(0.45)	
Delivery Losses & Bypass Flows			(0.74)	(0.74)	
Consumptive uses	*Nevada*	*(0.26)*	(8.38)	(8.38)	Basic apportionment is 0.3 MAF
	Arizona	*(2.11)*			Basic apportionment is 2.8 MAF
	California	*(4.59)*			Basic apportionment is 4.4 MAF (~0.2 MAF withdrawal of previously conserved water)
	Mexico	*(1.42)*			Allocation is 1.5 MAF
Change in Lake Mead Storage			**(1.79)***	**(0.56)****	* Equivalent to a decline of ~23 feet of elevation. ** Equivalent to a decline of ~6 feet of elevation.

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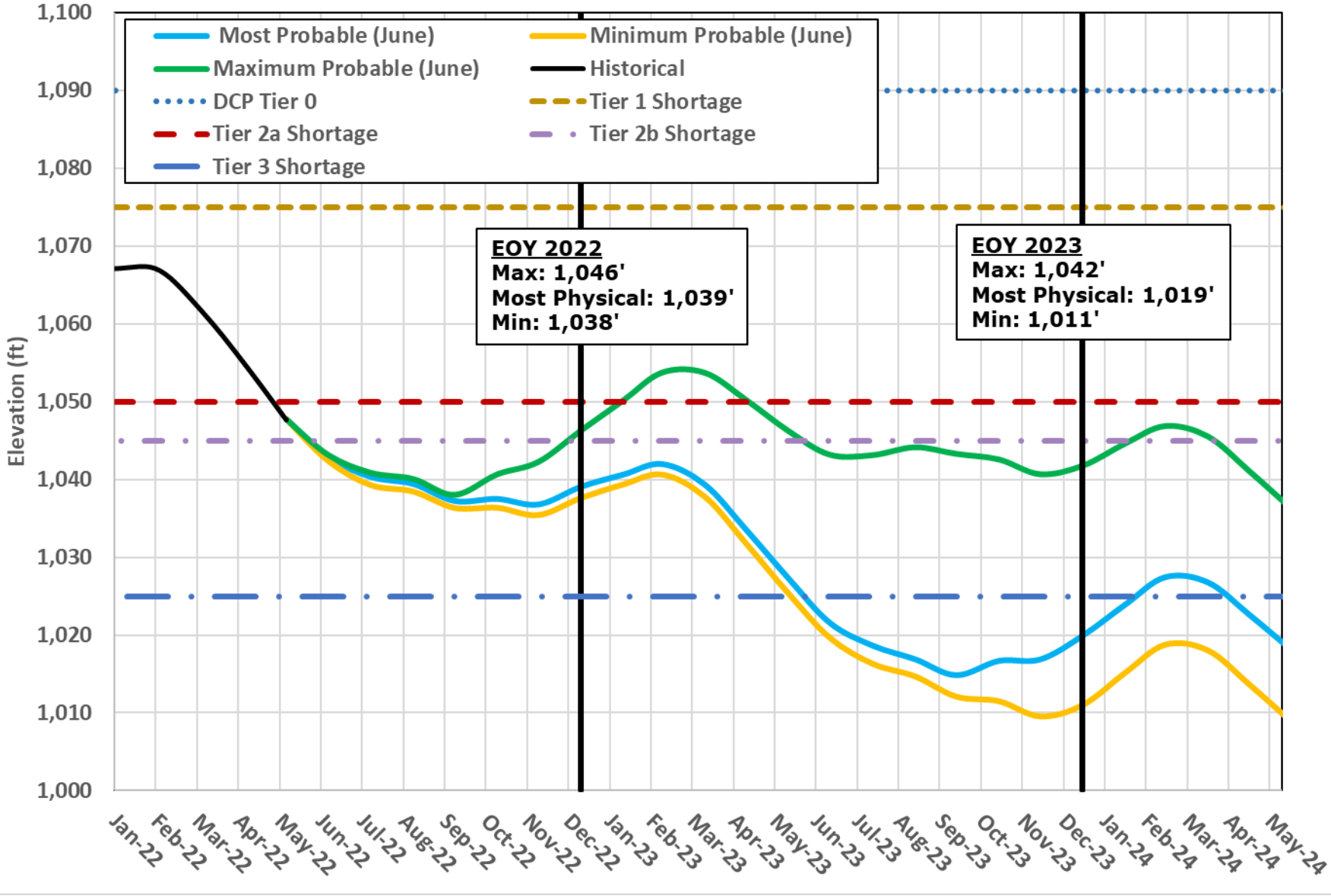
Lake Mead End of Month Elevations
(June 2022 24-Month Study)



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Key Takeaways

- The Upper Basin storage reservoir is Lake Powell and the Lower Basin storage reservoir is Lake Mead – these reservoirs are “linked,” meaning their operations are coordinated.
- The annual flow of the Colorado River has declined, as has the storage in these reservoirs.
- Although we have been storing significant amount of water in Lake Mead, both voluntary and now with mandatory reductions, it has still not been enough in the face of the multidecade drought. We will likely see deeper reductions in the coming years.