







**SHORTAGE
PREPAREDNESS
BRIEFING**

Joint Colorado River Shortage Preparedness Briefing

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May 6, 2022

To submit questions, visit: www.cap-az.com/meetings/briefings-roundtables

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Meeting Logistics

- Electronic public comment forms are available for anyone wishing to submit a comment or question during the meeting
 - www.cap-az.com/meetings/briefings-roundtables
- Submissions will be addressed during the questions period at the end of the meeting
- Meeting material will be posted on the ADWR and CAP pages
 - new.azwater.gov
 - www.cap-az.com

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Agenda

- Introduction
- Current Status of Mead & Powell
- Colorado River Hydrology & Operations
- Activities of the Basin States
- CAP Activities and Water Supply Outlook
- Scottsdale Drought Management Plan
- Questions
- Next Steps and Closing Remarks

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Colorado River System Conditions

- Colorado River Basin drought has lasted more than 22 years
- The driest conditions in the Colorado River Basin in more than 1,200 years
- Dry soil, higher temperatures, and low precipitation have contributed to low runoff conditions
 - Water Year 2021 inflows were the second lowest on record
 - Water Year 2022 is projected to be below average (62%)

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Lake Powell

- Lake Powell is currently at elevation 3,523', which is at 24% of capacity, the lowest since first filling
- Below elevation 3,490' releases would rely on the river outlet works, for which there is little operational experience
- The river outlet works may lack the capacity to meet Lower Basin delivery volumes, and Reclamation has reliability concerns about long-term operations

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Lake Mead

- Lake Mead is currently at elevation 1,054', which is 31% of capacity
 - 3.4 MAF above elevation 1,000'
 - 7.8 MAF above 895' ("dead pool")
- Even with the actions of the 2007 Guidelines, DCP, Minute 323 and the 500+ Plan, the "bank account" of water behind Hoover Dam will be further debited in 2022
- We expect further significant actions to reduce water use will be required in the Lower Basin to protect Lake Mead now and for the future
- Reductions larger than Tier 3 could be required in the near-term

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— BUREAU OF —
RECLAMATION

Colorado River Basin Current Conditions & Operational Update

Daniel Bunk

Chief, Boulder Canyon Operations Office
Bureau of Reclamation, Lower Colorado Basin Region

Colorado River Shortage Preparedness Briefing
May 6, 2022

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Colorado River – Current Conditions (as of May 4, 2022)



Lake Powell near Glen Canyon Dam



Lake Mead near Hoover Dam

- Driest 22-year period (2000–2021) on record
- Water Year 2021 – second lowest inflow into Lake Powell since 1964
- Lake Powell and Lake Mead at historically low water levels
 - Lake Powell current elevation is 3,523 feet or 24% of capacity
 - Lake Mead current elevation is 1,054 feet or 31% of capacity



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Water Year Snowpack and Precipitation^{1,2} as of May 2, 2022

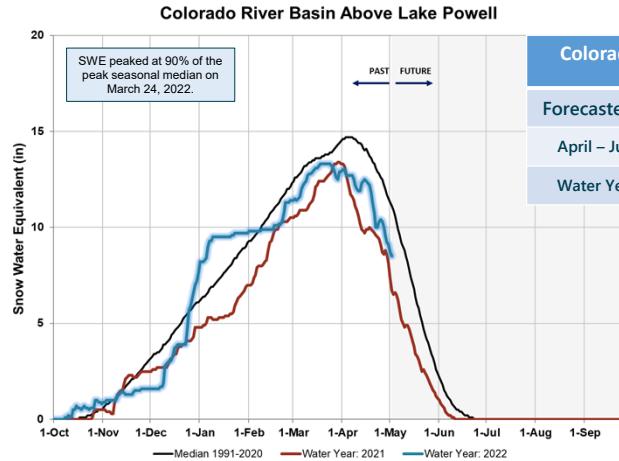
Colorado River Basin
above Lake Powell

Water Year 2022
Precipitation
(year-to-date)

92% of average

Current Snowpack

75% of median



Colorado Basin River Forecast Center

Published May 4, 2022

Forecasted Inflow	kaf	% of Average
April – July 2022	3,800	59%
Water Year 2022	5,980	62%

¹Percent of normal precipitation is based on an arithmetic mean, or average; percent of normal snowpack is based on the median value for a given date.
²Statistics are based on the 30-year period of record from 1991-2020.



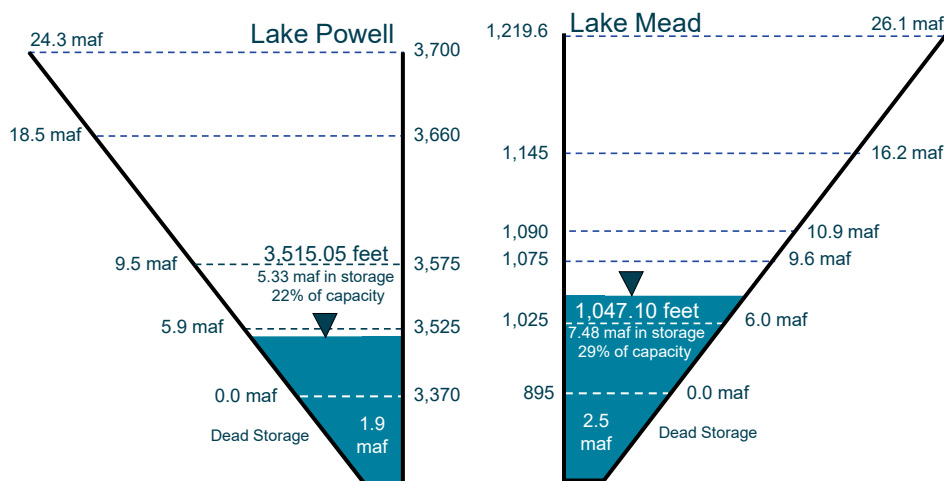
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End of Calendar Year 2022 Projections

April 2022 24-Month Study Most Probable Inflow Scenario¹

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



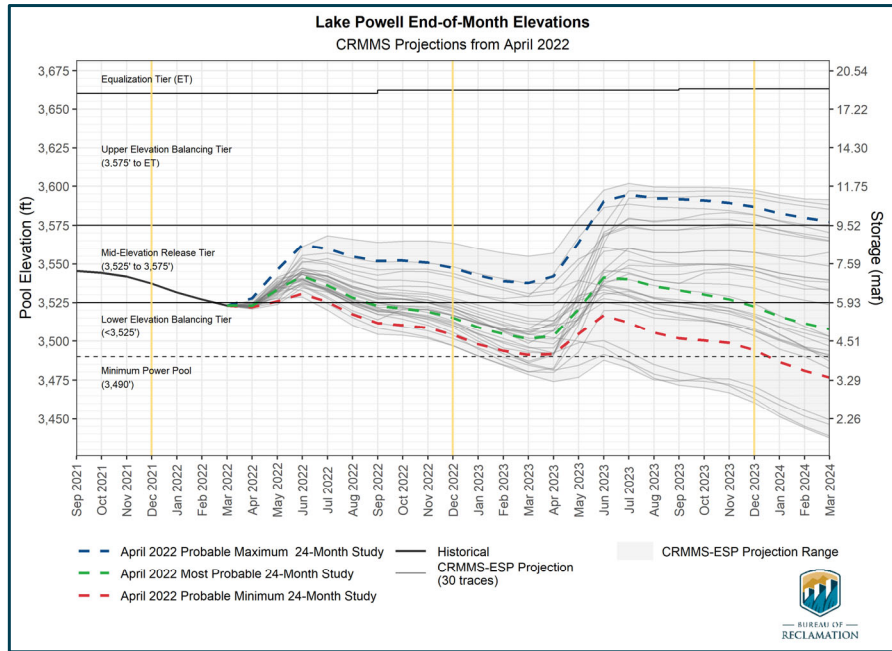
Not to Scale

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¹ WY 2022 unregulated inflow into Lake Powell is based on the CBRFC forecast dated 4/4/22.

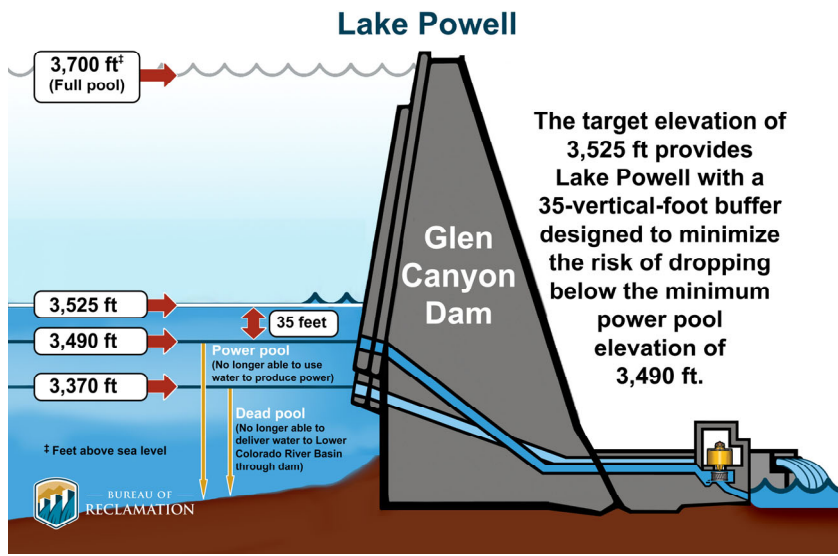


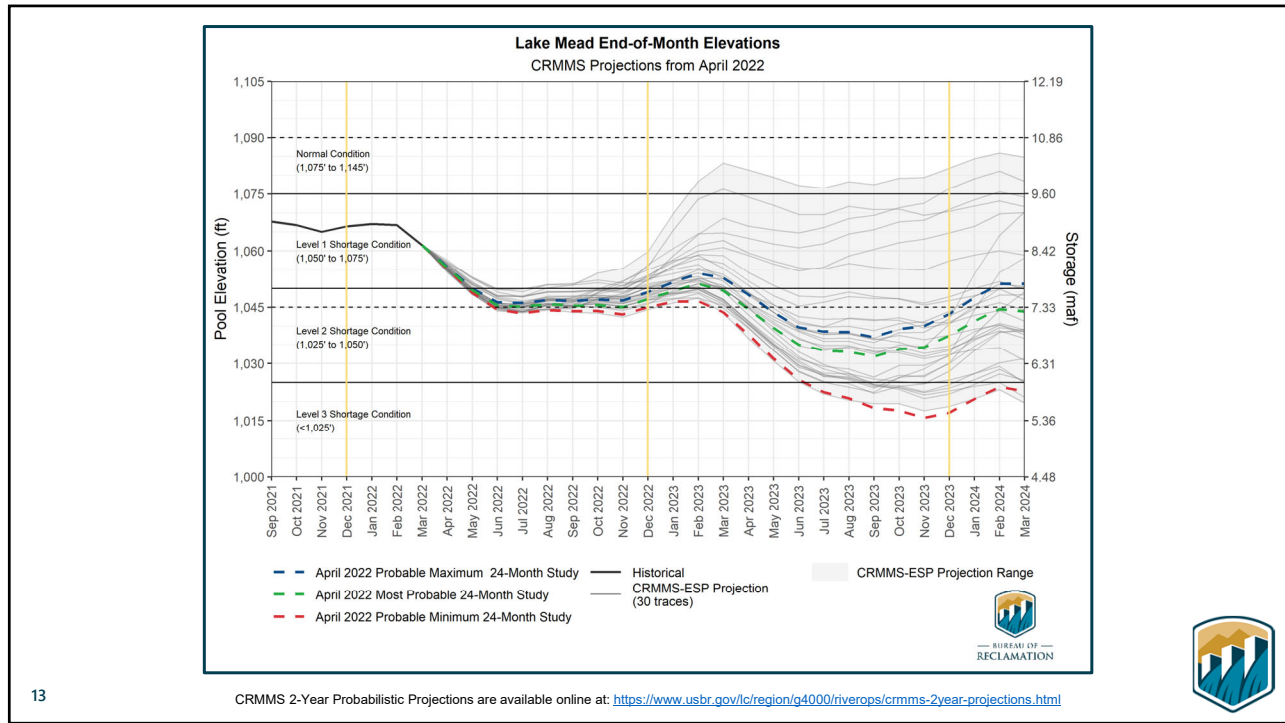
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CRMMS 2-Year Probabilistic Projections are available online at: <https://www.usbr.gov/lc/region/g4000/riverops/crmms-2year-projections.html>

Lake Powell – Key Elevations





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Shortage Reductions and Water Savings Contributions
Under the 2007 Interim Guidelines, Minute 323, Lower Basin Drought Contingency Plan (DCP)*,
and Binational Water Scarcity Contingency Plan
(Volumes in thousand acre-feet)

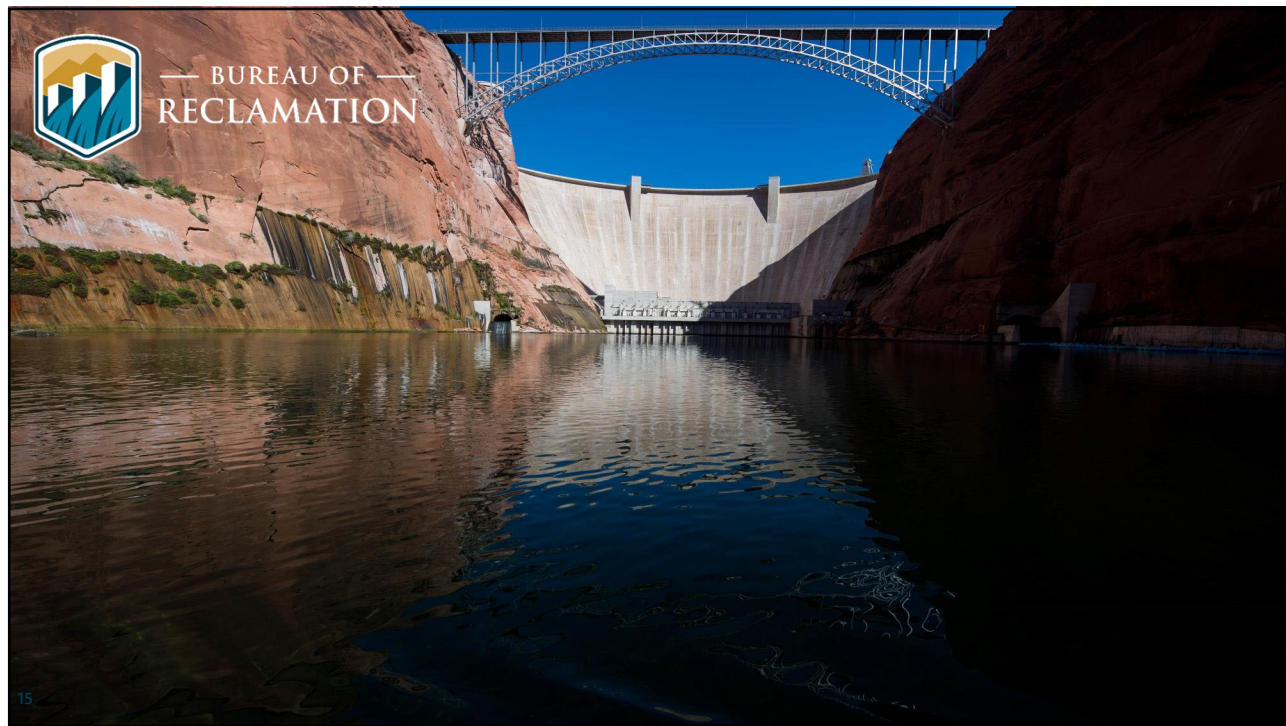
Lake Mead Elevations (in feet)	2007 Interim Guidelines Shortage Reductions (U.S.)		Minute 323 Delivery Reductions (Mexico)	Total Combined Shortage Reductions (U.S. and Mexico)	DCP Water Savings Contributions (U.S.)			Binational Water Scarcity Contingency Plan Water Savings (Mexico)	Combined Volumes of Shortage Reductions and Water Savings Contributions by Lower Basin State and by Country (U.S. and Mexico)					Total Combined Volumes (U.S. and Mexico)
	AZ	NV	Mexico	Lower Basin States + Mexico	AZ	NV	CA	Mexico	AZ Total	NV Total	CA Total	Lower Basin States Total	Mexico Total	Lower Basin States + Mexico
1,090 - >1,075	0	0	0	0	192	8	0	41	192	8	0	200	41	241
1,075 - >1,050	320	13	50	383	192	8	0	30	512	21	0	533	80	613
1,050 - >1,045	400	17	70	487	192	8	0	34	592	25	0	617	104	721
1,045 - >1,040	400	17	70	487	240	10	200	76	640	27	200	867	146	1,013
1,040 - >1,035	400	17	70	487	240	10	250	84	640	27	250	917	154	1,071
1,035 - >1,030	400	17	70	487	240	10	300	92	640	27	300	967	162	1,129
1,030 - 1,025	400	17	70	487	240	10	350	101	640	27	350	1,017	171	1,188
<1,025	480	20	125	625	240	10	350	150	720	30	350	1,100	275	1,375

Tier 1 → 1,075 - >1,050
Tier 2a → 1,050 - >1,045
Tier 2b { 1,045 - >1,040
 1,040 - >1,035
 1,035 - >1,030
 1,030 - 1,025
 <1,025

*Under the Lower Basin DCP, the United States will take affirmative actions to create or conserve 100,000 acre-feet or more of Colorado River system water on an annual basis to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the Lower Basin. All actions taken by the United States shall be subject to applicable federal law, including availability of appropriations.

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Actions to Preserve Delivery Capacity from Lake Powell

The Department of the Interior and the Bureau of Reclamation have consulted with the Basin States on actions to protect the integrity of Glen Canyon Dam infrastructure

- 500 KAF will be released from Flaming Gorge Reservoir to Lake Powell, pursuant to the Drought Response Operations Agreement (“DROA”) over the next 12 months
- Reclamation will hold 480 KAF in Lake Powell, resulting in a release of 7.0 MAF to Lake Mead in Water Year 2022, rather than 7.48 MAF
 - For the determination of shortage tiers, Lake Mead’s elevation will be calculated as if the 480 KAF had been delivered, i.e. “Operational Neutrality”
 - This action alone will not result in a deeper shortage in 2023

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Operational Neutrality

- The volume of shortage to the Lower Basin and Mexico will be made as if the 480 KAF had been released from Glen Canyon Dam in Water Year 2022
- Ensure the temporary release reductions are tracked in future years
- Address future release of the 480 KAF from Lake Powell to Lake Mead in consultation with the Basin States
- Continue to evaluate the risks of Lake Powell and Lake Mead reaching critical elevations and developing strategies to mitigate such risks

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Lower Basin and Mexico Actions to Date

- Mandatory reductions under the 2007 Guidelines and Minute 323
 - Cuts to Arizona, Nevada and Mexico
- Mandatory contributions under the Lower Basin DCP and Minute 323
 - Cuts or contributions of previously conserved volumes from Arizona, California, Nevada and Mexico
 - Additional conservation commitments from the United States
- Voluntary additional conservation actions under the 500+ Plan
 - Goal of conserving at least 1 MAF over two years

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Actions in Arizona in 2022

- Tier 1 Guidelines shortage reduction: 320 KAF
- Tier 1 DCP contribution: 192 KAF
- 500+ Plan conservation: ~214 KAF*
- Other conservation actions: ~86 KAF
- Total: ~812 KAF**

* 500+ Plan Funding – US, ADWR, CAWCD, Metropolitan Water District of Southern California, Southern Nevada Water Authority

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500+ Plan in Arizona

Arizona 500+ Plan Activity Included in the April 24-Month Study (volumes in AF)	2021 (Provisional)	2022 (Projected)
Gila River Indian Community	40,000	129,565
Colorado River Indian Tribes	4,685	
CAP ICS delivery offset	401	19,604
Total Arizona Volume Included in the April 24-Month Study	45,086	149,169
Additional 500+ Plan Activity Planned (volumes in AF) (as of April 26,2022)		2022
Colorado River Indian Tribes		4,685
Mohave Valley Irrigation and Drainage District		9,592
Yuma Mesa Irrigation and Drainage District		~15,000
Phoenix, Scottsdale, Gilbert, Mesa, El Mirage, Tempe, Surprise, Glendale, Metro Water, Queen Creek Irrigation and Drainage District, Harquahala Valley Irrigation and Drainage District		35,506
Total Additional 500+ Plan Activity Planned		64,783
Total Arizona 500+ Plan Activity - Modeled and Planned	45,086	213,952
Total Arizona 500+ Plan Activity - Modeled and Planned (2021 and 2022)	259,038	

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Lower Basin “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)	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)**	<p>* Equivalent to a decline of ~23 feet of elevation.</p> <p>** Equivalent to a decline of ~6 feet of elevation.</p>

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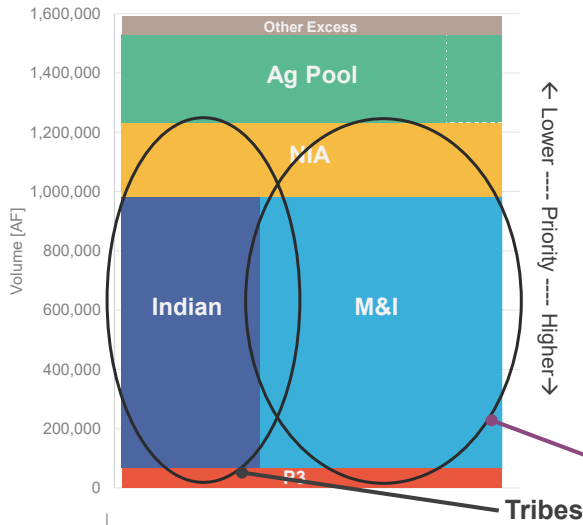
2023 CAP Water Supply Outlook

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CAP Priorities—Full Supply



- “Block Chart” illustrates delivery requests by CAP priority
 - Higher priority entitlements are towards the bottom of the chart
- The names of the “pools” do not neatly align with uses
- Assumptions for 2023:
 - 1.595 MAF delivery supply prior to reductions
 - Water orders similar to 2022
 - Includes NIA Reallocation

Cities & Industry

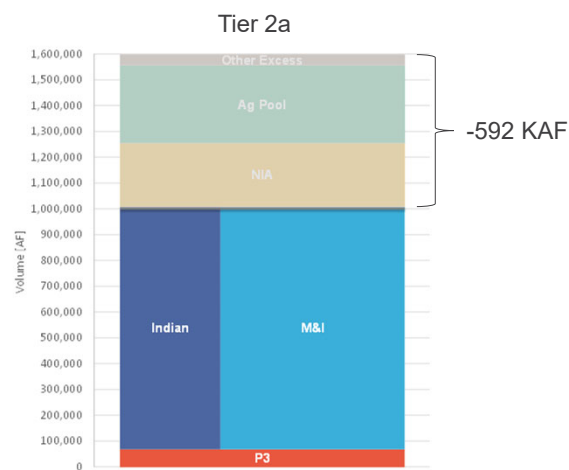


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Estimated Pre-Mitigation Shortage Impact

- 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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AZDCP Mitigation Commitments

	2020	2021	2022	2023	2024	2025	2026
Ag Pool Parties	X	X	105 KAF - Tier 1 70 KAF - Tiers 2a/2b GW 16.5K	No CAP Wet Water Mitigation			
				Groundwater Infrastructure Program 70 KAF / Yr			
NIA Contractors & Subcontractors	X	X	100% Tiers 1/2a/2b	75%* - Tiers 1/2a 50%* - Tier 2b			No Mitigation 2026 or Tier 3

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Anticipated AZDCP Mitigation Resources in 2023

- Firming for Gila River Indian Community (up to 15 KAF of NIA priority by AWBA)
- Firming for Tohono O'odham (up to 28.2 KAF of NIA by USBR)
- SRP Exchange (10 KAF)
- Lake Pleasant supply (5 KAF)
- CAWCD ICS (tbd)
- Compensated Mitigation (tbd)

Credits [Water
Previously Stored]

Water from Pleasant & SRP System

Water from Lake Mead

Money

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500+ Plan for 2023

- We will be soliciting **broad** and **substantial** contributions of water from all eligible water users as part of the 500+ Plan
- We are continuing to work with the United States, the other Lower Basin States, and Arizona water users to build on participation in the 500+ Plan

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Looking Ahead

- There is no imminent threat to water at the tap inside your home and business
- Near-term implementation of water providers' drought plans can provide benefits
- Outdoor water use will likely be the first to be impacted
- Post-2026 firming by the Arizona Water Banking Authority will not fully offset impacts to water suppliers
- Coordination and communication is important between water suppliers and water users
- Additional voluntary conservation is necessary and may delay larger mandatory shortages
- Tier 3 reductions will force difficult decisions

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Drought Management Plan

- Adopted in 2021 with 5 stages
 - Stage 0 – Water Shortage Preparation
 - Stage 1 – Supply reduction up to 6 mgd (Tier 1 & 2a)
 - Stage 2 – Supply reduction up to 13 mgd (Tier 2b)
 - Stage 3 – Supply reduction up to 24 mgd (Tier 3)
 - Stage 4 – Supply reduction greater than 24 mgd (Tier 4/Protect)

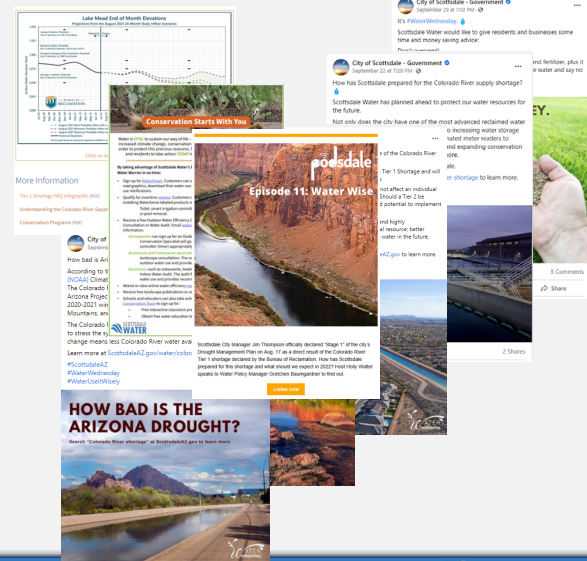


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Drought Management Plan

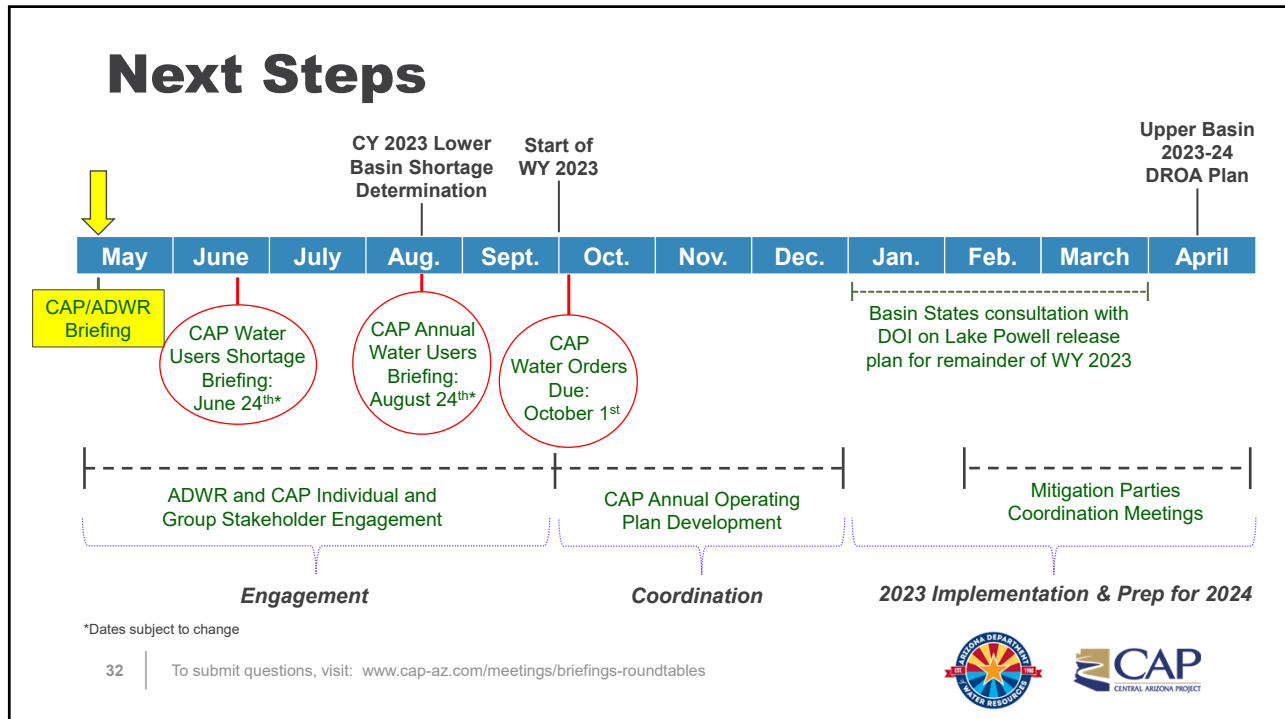
- Plan activated at Stage 1 on August 17, 2021
- City Drought Management Team meets and pledges a 5% reduction for calendar year 2022
- Communications plan activated
- 5% reduction in water use asked of all customers



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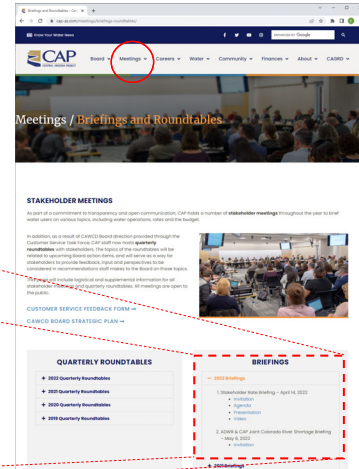
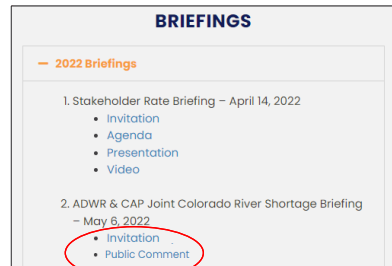


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Questions

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Closing Remarks

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