

September 1, 2022

**NOTICE OF REGULAR MEETING OF THE
COLORADO RIVER BOARD**

NOTICE IS HEREBY GIVEN pursuant to the call of the Chairperson, Peter Nelson, by the undersigned Executive Director of the Colorado River Board of California that a regular meeting of the Board Members is to be held as follows:

Date: Wednesday, September 14, 2022
Time: 10:00 a.m.
Place: Sheraton Ontario Airport Hotel
Orchid Room
429 North Vineyard Avenue
Ontario, CA 91764

The Colorado River Board of California welcomes any comments from members of the public pertaining to items included on this agenda and related topics. Members of the public may provide comments in the following ways: (1) Oral comments can be provided at the beginning of each Board meeting; and (2) Public comments may be submitted by electronic mail, addressed to the Board's Chairman, Mr. Peter Nelson, at crb@crb.ca.gov and will be accepted up until 10:00 a.m. on the day of the meeting. Please note, written submissions will be read aloud at the public comment period to the extent they fit within the five-minute time limit.

If accommodations for individuals with disabilities are required, such persons should provide a request at least 24 hours in advance of the meeting by electronic mail to Board staff at crb@crb.ca.gov.

Requests for additional information may be directed to: Mr. Christopher S. Harris, Executive Director, Colorado River Board of California, 770 Fairmont Avenue, Suite 100, Glendale, CA 91203-1068 or (818) 254-1625. A copy of this Notice and Agenda may be found on the Colorado River Board's web page at www.crb.ca.gov.

A copy of the meeting agenda, showing the matters to be considered and transacted, is attached.


Christopher S. Harris
Executive Director

Regular Meeting
COLORADO RIVER BOARD OF CALIFORNIA
Wednesday, September 14, 2022
10:00 a.m.

At the discretion of the Board, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated upon and may be subject to action by the Board. Items may not necessarily be taken up in the order shown.

- 1. Call to Order**
- 2. Opportunity for the Public to Address the Board** (Limited to 5 minutes)
- 3. Administration**
 - a. Consideration and approval of August 10, 2022, Board meeting Minutes (**Action**)
- 4. Colorado River Basin and Local Water Supply and Operations Reports**
- 5. Colorado River Basin Programs Staff Reports**
- 6. Executive Session¹**
- 7. Other Business**
- 8. Future Agenda Items/Announcements**

Next Scheduled Board Meeting:

October 12, 2022
10:00 a.m., Pacific
Sheraton Ontario Airport Hotel, Orchid Room
429 North Vineyard Avenue
Ontario, CA 91764

¹ An Executive Session may be held by the Board pursuant to provisions of Article 9 (commencing with Section 11120) of Chapter 1 of Part 1 of Division 3 of Title 2 of the Government Code and Sections 12516 and 12519 of the Water Code to discuss matters concerning interstate claims to the use of Colorado River System waters in judicial proceedings, administrative proceedings, and/or negotiations with representatives from the other Basin states or federal government.

The first part of the paper discusses the importance of the study of the history of the United States. It is argued that the study of the history of the United States is essential for a full understanding of the country and its people. The second part of the paper discusses the importance of the study of the history of the world. It is argued that the study of the history of the world is essential for a full understanding of the world and its people. The third part of the paper discusses the importance of the study of the history of the United States and the world. It is argued that the study of the history of the United States and the world is essential for a full understanding of the United States and the world.

Minutes of Meeting
COLORADO RIVER BOARD OF CALIFORNIA
Wednesday, August 10, 2022

A meeting of the Colorado River Board of California (Board) was held on Wednesday, August 10, 2022, at the Sheraton Ontario Airport Hotel, 429 North Vineyard Avenue, Ontario, California 91764.

Board Members and Alternates Present:

David De Jesus (MWD Alternate)
Dana B. Fisher, Jr. (PVID)
John B. Hamby (IID)
Jeanine Jones (DWR Designee)
Jim Madaffer (SDCWA)
Peter Nelson, Chairman (CVWD)

Glen D. Peterson (MWD)
David R. Pettijohn, Vice Chairman (LADWP)
Jack Seiler (PVID Alternate)
David Vigil (DFW Alternate)
Gary Croucher (SDCWA Alternate)

Board Members and Alternates Absent:

Castulo Estrada (CVWD Alternate)
James Hanks (IID Alternate)

Christopher Hayes (DFW Designee)
Delon Kwan (LADWP Alternate)

Others Present:

Steve Abbott
Nick Bahr
Robert Cheng
Dennis Davis
JR Echard
Chris Harris
Ned Hyduke
Laura Lamdin
Tom Levy
Aaron Mead
Jessica Neuwerth
G. Patrick O'Dowd

Shana Rapoport
David Rheinheimer
Kelly Rodgers
Shanti Rosset
Tom Ryan
Alexi Schnell
Tina Shields
Gary Tavetian
Petya Vasileva
Margaret Vick
Meena Westford
Jerry Zimmerman

CALL TO ORDER

Chairman Nelson announced the presence of a quorum and called the meeting to order at 10:03 a.m.

OPPORTUNITY FOR THE PUBLIC TO ADDRESS THE BOARD

Chairman Nelson invited members of the audience to address the Board on items on the agenda or matters related to the Board. Hearing none, Chairman Nelson moved to the next item on the agenda.

ADMINISTRATION

Chairman Nelson asked for a motion to approve the May 11, 2022, and June 15, 2022, Board meeting minutes. Mr. Fisher moved that the minutes be approved, seconded by Mr. Madaffer. By roll-call vote, the minutes were unanimously approved.

Application for Water Subcontract from the Lower Colorado Water Supply Project

Mr. Harris presented information on a proposed new subcontract for future water use of Colorado River water under the Lower Colorado River Water Supply Project. Board member Madaffer asked what the proposed project was for. Mr. Harris responded that it was for domestic use. Board member Peterson asked if there were other potential applications with an existing well like the proposed application. Mr. Harris responded that there probably was not a lot of other existing wells that are not already covered by the project because the Board reached out to uncontracted domestic users back in the early 2000s. Chairman Nelson asked how far from the Colorado River can a property be located and still require a contract. Mr. Harris responded that the requirement depends on if the property is located within the United States Geological Survey's water accounting surface for the River. Chairman Nelson asked how unauthorized use is determined. Mr. Harris responded that the Board works with Reclamation to determine which users are not covered by an existing Section 5 contract.

Chairman Nelson asked for a motion to approve Resolution 2022-3 on the application for the Lower Colorado River Water Supply Project in San Bernardino County. Mr. Madaffer moved that the resolution be approved, seconded by Mr. Hamby. By roll-call vote, the resolution was unanimously approved.

COLORADO RIVER BASIN WATER REPORTS

Colorado River Basin Report

Mr. Juricich reported that as of August 8th, the water level at Lake Powell was 3,5335.24 feet with 6.15 million-acre feet (MAF) of storage, or 26% of capacity. The water level at Lake Mead was 1,041.46 feet with 7.08 MAF of storage, or 27% of capacity. The total system storage was 20.07 MAF, or 34% of capacity, which is 3.89 MAF less than system storage at this time last year.

Mr. Juricich reported that as of August 2nd, for Water Year-2022 (WY-2022), the observed July inflow to Lake Powell was 0.49 MAF, or 51% of normal. The August inflow forecast to Lake Powell is 0.25 MAF, or 66% of normal. The forecasted unregulated inflow into Lake Powell for WY-2022 is 5.96 MAF, or 62% of normal and the preliminary observed WY-2022 April to July inflow to Lake Powell is 3.75 MAF, or 59% of normal. Mr. Juricich reported that overall precipitation conditions in the Upper Colorado River Basin were 99% of normal.

Mr. Juricich reported on the current and 2020 southwestern monsoon seasons. He stated that the 2022 monsoon season has been strong, adding that in 2020, the monsoon season was very dry. He noted that there have been some slight increases in side inflows to Lake Mead. He also displayed maps from the Climate Prediction center showing the forecasted precipitation and temperature outlook for August, noting that more precipitation is forecasted for the southwest, which matches the monsoonal pattern.

Mr. Juricich reported that through the end of July, the Brock and Senator Wash regulating reservoirs captured 64,644 AF and 48,916 AF, respectively. He also reported that the excess deliveries to Mexico were 1,887 AF, compared to 17,854 AF this time last year. Finally, the total amount of saline drainage water bypassed to the Cienega de Santa Clara in Mexico was 88,615 AF, through August 2nd. He noted that bypass flow to the La Cienega is higher than normal. Mr. Peterson inquired about whether the recent monsoonal activity contributed to the increase in saline drainage. Mr. Harris stated that it may be a result of Reclamation managing the saline drainage in the Yuma Valley. He stated that normally saline drainage is 125,000 AF per year but is on track to increase to 150,000 AF this year. He stated that it may be related to Welton-Mohawk Irrigation and Drainage District operations in the Gila Project and/or it may be directly related to Yuma Valley pumping of the Drain Pump Outlet Channel (DPOC) wells and managing the Yuma area saline drainage and for some reason Reclamation is putting more into the bypass drain and sending it down to the Cienega.

2023 Colorado Annual Operating Plan, Second Consultation

Mr. Juricich reported that the second consultation for the 2023 AOP was held on August 2nd, via webinar. He stated that the draft AOP is based on information from the July 24-Month Study Report. He stated that the August 24-Month Study projections will be released in mid-August. He stated that based on the July 24-Month Study Report, the Lower Elevation Balancing Tier is the projected operational tier for Lake Powell with a most probable release of 7.0 MAF. Lake Mead will be operated in a shortage condition with Drought Contingency Plan contributions and reduced deliveries to Mexico. Mr. Juricich also confirmed that Reclamation will schedule an additional fourth AOP consultation on October 12th. He explained that Reclamation is hosting another consultation to address the additional comments and concerns expressed by the Upper Basin.

Mr. Juricich described the assumptions that used in the July 24-Month Study. He stated that the assumptions included the 480,000 AF reduction in Glen Canyon Dam release to Lake Mead to 7.0 MAF for WY-2022, noting that the system will be operated as if the volume of water had been delivered to Lake Mead. In addition, the assumptions also included the Upper Basin DROA release of 500,000 AF to Lake Powell from May 2022 to April 2023.

Mr. Juricich reported that the July 24-Month study most probable scenario projects physical elevation of Lake Powell and Lake Mead to be 3,502.25 feet and 1,039.54 feet, respectively, on December 31, 2022. He reiterated that for the purpose of operational tiers, it is assumed that 480,000 AF was delivered to Lake Mead. Mr. Juricich stated a 7.0 MAF release from Glen Canyon Dam is projected for 2023.

Board member Fisher inquired whether, with back-to-back 7.0 MAF releases from Glen Canyon Dam in 2022 and 2023, the Upper Basin would fall in arrears with delivering the required Compact apportionment. Mr. Harris stated that if there is a 7.0 MAF release from Glen Canyon Dam for the remainder of the interim period, the Upper Basin will not meet its compact delivery obligation. He stated that the Lower Basin should consider when it should ask to return the 480,000 AF that is sitting in Lake Powell, and it would benefit the Basin to end the use of operationally neutral operations.

Mr. Harris stated that during the Annual Operating Plan (AOP) consultations, the Lower Basin should begin to engage with Reclamation and the Upper Basin States about returning the 480,000 AF in Water Year 2023. He explained that the Lower Basin needs to review modeling from Reclamation about how to firmly protect elevation 3,525 feet in Lake Powell with the return

of the Lower Basin's water. Mr. Harris also noted that the Lower Basin may need to begin expressing concern about the Upper Basin's Article 3D and 3C obligations.

Mr. Fisher asked about whether the work on Glen Canyon Dam's infrastructure will be completed by the end of 2024. Mr. Harris reported that Reclamation believes that the upgrades to the river outlet works will be complete by the end of 2024. Mr. Fisher asked whether the Lower Basin should insist on normal operations of the system at this time. Mr. Harris stated that the Lower Basin would like to work proactively with Reclamation to protect Lake Powell's 3,525 feet elevation until the upgrades to Glen Canyon Dam are complete. He stated that Lake Mead's condition will continue to need close monitoring and adaptive management.

Mr. Madaffer requested the Board consider holding an executive session during the September 14th Colorado River Board meeting to have a strategic discussion about these issues.

State and Local Report

Board member Jones, representing the California Department of Water Resources (DWR), reported that a small portion of the State is benefiting from the southwest monsoon season, while most of the state is experiencing dry precipitation conditions. She reported that Shasta and Oroville reservoirs remain lower than the statewide average due to this season's storms heading further south, noting that Folsom reservoir benefited from the storm activity.

Ms. Jones reported that DWR will be contracting with Open ET. Open ET is a project that began as a research project for NASA. It is a modeling tool for the western U.S. that allows you to estimate at a real scale, evapotranspiration (ET) for water management purposes. She added that DWR has spent millions of dollars on behalf of the Sustainable Groundwater Management Act (SGMA) program to support ground water sustainability agencies. She added that this tool will be complimented with software to support local groundwater trading. She stated that the ET data will be available statewide, regardless of whether it is a SGMA basin. She stated that the contract for Open ET is expected to be executed within three months. Chairman Nelson asked whether this contract is replacing the DWR's contract with Land IQ. Ms. Jones explained that the Land IQ contract also maps land use, and it is an ongoing contract that supports the State's water plan. Mr. Juricich added that the Land IQ data was used in the salinity program to estimate the economic benefits of the program.

Mr. Peterson, representing The Metropolitan Water District of Southern California (MWD) reported that as of August 1st, MWD's combined reservoir storage is 67% of capacity, noting that Diamond Valley Lake stores State Water Project water and that is being drawn down.

Mr. Peterson stated that the Colorado River aqueduct is on an 8-pump flow through August. He added that MWD's emergency water conservation measures have brought down MWD's water deliveries and some agencies have been required to reduce demand by 72 percent. He reported that MWD is continuing discussion on additional conservation measures with its agencies for next year.

STATUS OF COLORADO RIVER BASIN PROGRAMS

Colorado River Basin States Activities

Mr. Harris reported that the Colorado River Basin States have been meeting regularly over the past several months to discuss operations for 2023. Mr. Harris reported that these discussions were initiated by Reclamation Commissioner Touton's comments before the Senate's Energy & Natural Resources Committee on June 14th, indicating that between 2-4 MAF of water use reductions would be needed to protect critical elevations in Lakes Powell and Mead. The Commissioner reported that if a consensus agreement wasn't in place in a timely fashion, Interior would take necessary steps to protect the reservoir system.

Mr. Harris reported that, concurrent with the Basin States meetings, a series of meetings between the State of California, California's Colorado River water users, and the federal government had taken place regarding Salton Sea management and impacts from proposed water use reductions. Mr. Harris noted that these discussions have been productive and that the federal team has been very committed to working with California on reaching agreement on a Salton Sea package.

Mr. Harris reported that the Basin States have also begun direct outreach and engagement with the Basin's Native American tribes regarding development of the post-2026 guidelines. He noted that the group has discussed shared goals and objectives, mitigation activities associated with the current drought and climate change, the proposed interim period protection volumes effort, and how best to engage with tribes in the development of the post-2026 guidelines. Mr. Harris stated that these meetings have been helpful in building relationships and a shared understanding of issues and perspectives.

Mr. Harris also noted that outreach is underway with Mexico on how they can contribute to the protection volumes effort.

Mr. Harris reported that a Lower Basin deal on protection volumes was not yet complete, but that the expectation was that these agreements can be developed and put together before the end of the year, with conservation beginning in 2023.

In response to a question from Mr. Peterson, Mr. Harris noted that there is no estimate for how much water the Upper Basin's system conservation might yield, which is a cause for concern.

Chairman Nelson reported that negotiations have been challenging, with many water users unwilling to commit until seeing what others have offered. He emphasized the need to focus on what is possible to achieve in 2023. Chairman Nelson noted that the engagement of federal partners on the Salton Sea has been very encouraging, and the process seems headed in the right direction. He also stated that the recent \$4 billion Senate funding plan for Colorado River activities would be helpful moving forward.

Mr. Fisher noted that he had found the process to be frustrating, with inconsistent levels of buy-in across the Basin. He stated that the Upper Basin's plan does not demonstrably generate water for the system, leaving Arizona and California as the only states meaningfully contributing to the protection volumes effort. Within Arizona, areas such as Yuma have premised their participation on unreasonable water prices. In response to a comment from Mr. Fisher, Chairman Nelson noted that the Coachella Valley Water District agreed to contribute under the DCP and was discussing implementing additional activities in 2023.

Mr. Harris reported that stakeholders have been working very hard to reach a deal, especially stakeholders within California and Arizona. He stated that once a deal is secured between these states, it will provide leverage for negotiations with other stakeholders.

Mr. Fisher stated that the timeline and magnitude of the original federal goal made it almost impossible to develop a consensus-based plan and has instead caused stakeholders to retreat into their respective corners. Mr. Harris noted that the California stakeholders have been working together exceptionally well and he was impressed by the effort the agencies have brought to the effort.

Mr. Peterson stated that intentionally created surplus (ICS) stored in Lake Mead constitutes real water savings which has significantly benefited the system and should not be treated as paper water.

Mr. Harris noted that California has lived up to every agreement it has entered into, meeting its obligations and going above and beyond to store water in Lake Mead, delaying the onset of shortage to the benefit of Arizona, Nevada, and Mexico. He stated that California had met its previous obligations in implementing the 2003 Quantification Settlement Agreement, resulting in 800,000 AF of annual water use reductions. California stepped up again in the 2019 Drought Contingency Plan and is now planning to go further.

Colorado River Basin Salinity Control Program Implementation

Colorado River Basin Salinity Control Advisory Council Meeting

Mr. Juricich provided a summary of the Colorado River Salinity Control Advisory Council's July 7, 2022, virtual meeting to discuss program implementation and approve cost-share dollars

for new studies, investigations, and research. The Advisory Council's role is to advise the federal agencies in program administration including the Secretary of the Department of the Interior, the Secretary of the Department of Agriculture, and the Administrator of the EPA. During the meeting, the Advisory Council approved to cost share a study by the U.S. Geological Survey to reassess hydrologic conditions and salinity loading associated with agricultural areas around Green River, Utah. The Advisory Council also approved a study by the U.S. Geological Survey to assess salinity loading to the Colorado River in Spanish Valley, Utah near Moab, Utah.

Paradox Valley Unit

Mr. Juricich provided an update on the status of brine injection at the Paradox Valley Unit. As mentioned at the Board's June 15th meeting, on June 1st, Reclamation restarted injection of brine at the PVU as part of a six-month test injection plan. PVU has not operated since March 2019 in response to a significant seismic event. When fully operational, the PVU removed about 100,000 tons of salt per year that would have otherwise entered the Colorado River. Under the test injection plan, PVU is injecting brine at a rate of 115 gallons per minute, equivalent to approximately 5500 tons of salt control per month (about 66% of the most recent injection capacity). Two months into the test there have been no significant operational issues or seismic events. Information presented on the salt load and flow for the Dolores River during 2022 showed an evident downward trend in the observed salt load since the injection resumed in June.

GENERAL ANNOUNCEMENTS

Reclamation initiates public input on the development of future Colorado River operations

Mr. Harris presented information about Reclamation's June 24, 2022, federal register notice for a "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions". Board staff participated in public webinars on July 12 and July 14, where Reclamation provided additional clarification on the requested input. The Federal Register notice asks for specific suggestions on the process and the substance of how best to analyze future operations and what those operations should include. It also highlights the changing circumstances in the Colorado River Basin since 2007, including declining hydrology, drought and low-runoff conditions impacted by a warmer, changing climate, inclusivity in Colorado River decision-making and the need for continued operational alignment and partnership with the Republic of Mexico. Written comments on the proposed development of Post-2026 Colorado River Operational Strategies can be submitted by September 1, 2022.

Updated Lake Powell Bathymetry

Board Water Resources Engineer David Rheinheimer described the recent work by Reclamation to update its CRMMS and CRSS computer models of the Colorado River system with updated bathymetric data for Lake Powell, which was released by the USGS last year. He noted that Lake Powell is becoming "skinnier", with Lake Powell now 1.833 million acre-feet smaller than in 1963, and that reservoir levels change faster for any given release than previously assumed. Mr. Harris further noted that the updated storage data, about 500,000 acre-feet, is about the same as the 480,000 acre-feet withheld in water year 2022. Chairman Nelson asked about plans to update bathymetry for Lake Mead and Mr. Harris responded that there were no plans to update Lake Mead. Mr. Juricich noted that Lake Mead was updated recently. Mr. Juricich, Mr. Harris, and Mr. Rheinheimer also briefly discussed the lifespans of Lakes Mead and Powell due to sedimentation.

Water Utility Climate Alliance Training

Mr. Rheinheimer reported that in mid-July Board staff participated in a nine-hour training over three days by the Water Utility Climate Alliance (WUCA) about how to consider climate change in water resource planning. He stated that WUCA is a nationwide alliance of urban water utilities working to include climate change into water system planning. He stated that goals of the training were to teach participants about the signs of climate change and how to address it in water system planning.

Washington, DC Updates

Mr. Harris reported that Senator Padilla is working on the Salton Sea Improvements Act, which would broaden federal authorities and authorize \$250 million to address the environmental impacts of decreased water availability to the Salton Sea. Congressman Ruiz is working on companion legislation in the House.

Mr. Harris provided a summary of several potential fiscal benefits to the Colorado River Basin. He stated that Reclamation has \$250 million for Colorado River Basin drought relief activities. In addition, there is the potential that the Basin will receive \$4 billion for drought relief from the Inflation Reduction Act (IRA) that just passed in the Senate and is now moving to the House. Mr. Harris added that the funding will go to parts of the Basin that experience significant drought conditions and provide compensation for water conservation and wastewater recycling and reuse efforts. Mr. Harris stated that House is working on a \$500 million wildfire and drought funding package, noting that some of the funding would go to upgrades for its facilities in the

Basin, including the Glen Canyon Dam. He stated that the package also has a path for the Colorado River Indian Tribes (CRIT) leasing program and addresses the Indian Nonintercourse Act and movement of conserved tribal water supplies off the reservation, which would be very beneficial to the Colorado River Basin. Lastly, Mr. Harris reported that Senator Padilla and Congressman Ruiz's companion legislation would provide funding to the Salton Sea for \$250 million over five years.

ADJOURNMENT

With no further items to be brought before the Board, Chairman Nelson adjourned the meeting at 11:16 a.m.

The first part of the paper discusses the importance of the research and the objectives of the study. It then proceeds to a literature review, followed by a description of the methodology used. The results of the study are presented in the next section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and a list of references.

The research was conducted in a laboratory setting, using a series of experiments to measure the effects of the treatment. The results show that the treatment had a significant effect on the outcome, with the treated group performing better than the control group. This finding is consistent with the hypothesis that the treatment is effective. The implications of this research are discussed in the next section, where it is argued that the treatment should be used in clinical practice.

The methodology used in this study was a randomized controlled trial, which is the gold standard for evaluating the effectiveness of a treatment. The study was conducted in a laboratory setting, using a series of experiments to measure the effects of the treatment. The results show that the treatment had a significant effect on the outcome, with the treated group performing better than the control group. This finding is consistent with the hypothesis that the treatment is effective. The implications of this research are discussed in the next section, where it is argued that the treatment should be used in clinical practice.

The results of the study are presented in the next section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and a list of references.

9/6/2022

LOWER COLORADO WATER SUPPLY REPORT

River Operations
Bureau of Reclamation

Questions: BCOOWaterops@usbr.gov

(702) 293-8373

<http://www.usbr.gov/lc/region/g4000/weekly.pdf>

	PERCENT	Content 1000 ac-ft (kaf)	Elev. (Feet above mean sea level)	7-Day Release (CFS)
CURRENT STORAGE	FULL			
LAKE POWELL	25%	5,900	3,531.05	10,200
* LAKE MEAD	28%	7,272	1,044.23	11,000
LAKE MOHAVE	94%	1,700	643.04	10,100
LAKE HAVASU	94%	583	448.14	8,100
TOTAL SYSTEM CONTENTS **	34%	19,838		
As of 9/5/2022				
SYSTEM CONTENT LAST YEAR	40%	23,527		

*Percent based on capacity of 26,120 kaf or elevation 1,219.6 feet.

**Total System Contents includes Upper & Lower Colorado River Reservoirs, less Lake Mead exclusive flood control space.

Salt/Verde System	65%	1,497		
Painted Rock Dam	0%	0	530.00	0
Alamo Dam	8%	85	1,107.76	25

Forecasted Water Use for Calendar Year 2022 (as of 9/6/2022) (values in kaf)

NEVADA	239	
SOUTHERN NEVADA WATER SYSTEM		214
OTHERS		25
CALIFORNIA	4,490	
METROPOLITAN WATER DISTRICT OF CALIFORNIA		1,114
IRRIGATION DISTRICTS		3,360
OTHERS		16
ARIZONA	2,078	
CENTRAL ARIZONA PROJECT		1,022
OTHERS		1,056
TOTAL LOWER BASIN USE		6,807
DELIVERY TO MEXICO - 2022 (Mexico Scheduled Delivery + Preliminary Yearly Excess ¹)		1,467

OTHER SIGNIFICANT INFORMATION

UNREGULATED INFLOW INTO LAKE POWELL - SEPTEMBER FINAL FORECAST DATED 9/1/2022

	MILLION ACRE-FEET	% of Normal
FORECASTED WATER YEAR 2022	6.079	63%
OBSERVED APRIL-JULY 2022	3.750	59%
AUGUST OBSERVED INFLOW	0.368	98%
SEPTEMBER INFLOW FORECAST	0.240	69%

	Upper Colorado Basin	Salt/Verde Basin
WATER YEAR 2022 PRECIP TO DATE	100% (28.2")	95% (23.6")
CURRENT BASIN SNOWPACK	NA% (NA)	NA% (NA)

¹Delivery to Mexico forecasted yearly excess calculated using year-to-date observed and projected excess.

LOWER COLORADO BASIN REGION
CY 2022

ARIZONA, CALIFORNIA, NEVADA, MEXICO

FORECAST OF END OF YEAR CONSUMPTIVE USE

FORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS¹

(ACRE-FEET)

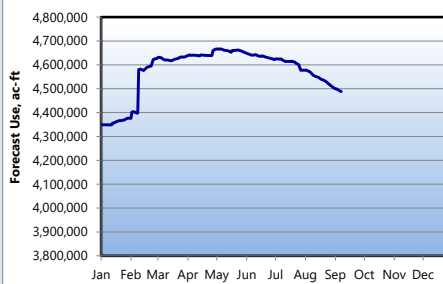
	Use To Date CY 2022	Forecast Use CY 2022	Approved Use ² CY 2022	Excess to Approval CY 2022
WATER USE SUMMARY				
Arizona	1,517,549	2,076,071	2,080,680	(4,609)
California	3,263,714	4,488,422	4,349,055	139,367
Nevada	176,781	239,397	239,397	0
States Total³	4,958,044	6,803,890	6,669,132	134,758
Total Deliveries to Mexico in Satisfaction of Treaty Requirements ⁴	1,156,658	1,453,214	1,453,214	
Creation of Mexico's Recoverable Water Savings ⁵	1,954	30,000	30,000	
Creation of Mexico's Water Reserve ⁶	563	1,763	1,763	
Delivery of Mexico's Water Reserve ⁷	(33,062)	(34,977)	(34,977)	
Total to Mexico in Satisfaction of Treaty Requirements ⁸	1,126,113	1,450,000	1,450,000	
To Mexico in Excess of Treaty ⁹	2,400	13,655	25,039	
Water Bypassed Pursuant to IBWC Minute 242 ¹⁰	97,366	135,151	116,633	
Total Lower Basin & Mexico¹¹	6,214,468	8,405,910	8,264,018	

¹ Incorporates 80 daily reporting stations which may be revised after provisional data reports are distributed by the USGS. Use to date is estimated for users reporting monthly and annually.² These values reflect adjusted apportionments. See Adjusted Apportionment calculation on each state page.³ Includes unmeasured returns based on estimated consumptive use/diversion ratios by user from studies provided by Arizona Department of Water Resources, Colorado River Board of California, and Reclamation.⁴ Includes deliveries to Mexico at the Northerly International Boundary (including delivery from Mexico's Water Reserve), Southerly International Boundary, Limitrophe, and DiversionChannel Discharge; and diversions at Parker Dam for Emergency Delivery to Tijuana; does not include Creation of Mexico's Water Reserve or Creation of Mexico's Recoverable Water Savings.⁵ Water deferred by Mexico pursuant to Section IV of IBWC Minute 323 and the Joint Report of the Principal Engineers with the Implementing Details of the Binational Water Scarcity Contingency Plan in the Colorado River Basin dated July 11, 2019. (Mexico's required Binational Water Scarcity Contingency Plan Contribution).⁶ Water deferred by Mexico pursuant to Section V of IBWC Minute 323.⁷ Delivery from Mexico's Water Reserve pursuant to Section V.E.13 of IBWC Minute 323.⁸ In accordance with Section XI.G.2.D.1.a of the 2007 Interim Guidelines, a Tier 1 Shortage Condition will govern the operation of Lake Mead and the Lower Colorado River in 2022. In accordance with Section III.A of Minute 323, Mexico's scheduled deliveries incorporate the required reduction of 50,000 AF from its 1.5 million AF Colorado River water allotment. "Total Delivery to Mexico in Satisfaction of Treaty Requirements" adds in Mexico's Water Reserve and Mexico's Recoverable Water Savings creation and subtracts out Mexico's Water Reserve and Mexico's Recoverable Water Savings delivery.⁹ Mexico excess forecast is based on the 5-year average for the period 2016-2020.¹⁰ Bypass forecast is based on the average for the period 1990-2020.¹¹ Includes States Total, Deliveries to Mexico in Satisfaction of Treaty, To Mexico in Excess of Treaty, and Water Bypassed Pursuant IBWC Minute 242.

Arizona Forecast



California Forecast



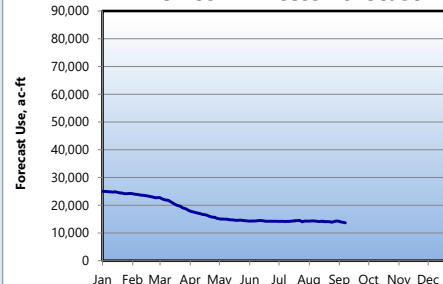
Nevada Forecast



Lower Basin Forecast



Mexico in Excess Forecast



Bypass Forecast



Graph notes: January 1 forecast use is scheduled use in accordance with the Annual Operating Plan's state entitlements, available unused entitlements, and over-run paybacks. A downward sloping line indicates use at a lower rate than scheduled, upward sloping is above schedule, and a flat line indicates a use rate equal to schedule. Lower priority users such as CAP, MWD, and Robt.B.Griffith may adjust use rates to meet state entitlements as higher priority use deviates from schedule. Abrupt changes in the forecast use line may be due to a diversion schedule change or monthly updating of provisional realtime diversions.



LOWER COLORADO BASIN REGION
CY 2022

NOTE:

- Diversions and uses that are pending approval are noted in *red italics*.
- Water users with a consumptive use entitlement - **Excess to Estimated Use** column indicates overrun/underrun of entitlement. Dash in this column indicates water user has a diversion entitlement.
- Water user with a diversion entitlement - **Excess to Approved Diversion** column indicates overrun/underrun of entitlement. Dash in this column indicates water user has a consumptive use entitlement.

ARIZONA WATER USERS

Forecast end of year diversion/consumptive use

Forecast based on use to date and approved annual water orders

[Arizona Schedules and Approvals](#)

[Historic Use Records \(Water Accounting Reports\)](#)

WATER USER	Use To Date CY 2022	Forecast Use CY 2022	Estimated Use CY 2022	Excess to Estimated Use CY 2022	Diversion To Date CY 2022	Forecast Diversion CY 2022	Approved Diversion CY 2022	Excess to Approved Diversion CY 2022
Arizona Pumpers	4,900	6,382	6,382	---	7,538	9,818	9,818	0
Lake Mead NRA, AZ - Diversions from Lake Mead	50	70	77	---	50	70	77	-7
Lake Mead NRA, AZ - Diversions from Lake Mohave	156	224	227	---	156	224	227	-3
Bureau of Reclamation - Davis Dam Project	2	2	2	---	12	16	16	0
Bullhead City	4,707	7,673	8,699	---	7,272	11,940	13,730	-1,790
Mohave Water Conservation District	505	741	692	---	753	1,105	1,030	75
Mohave Valley I.D.D. ¹	8,754	13,098	15,059	---	16,212	24,251	27,879	-3,628
Fort Mojave Indian Reservation, AZ	31,287	39,063	44,550	---	57,939	72,339	82,500	-10,161
Golden Shores Water Conservation District	220	286	286	---	329	429	429	0
Havas National Wildlife Refuge	2,791	3,400	3,564	---	23,255	30,399	41,835	-11,436
EPCOR Water Arizona, Inc. - CSA No. 1	396	560	493	---	638	969	997	-28
Lake Havasu City	5,829	8,768	9,052	---	9,402	14,142	14,600	-458
Central Arizona Water Conservation District	716,570	1,020,584	1,029,059	---	716,570	1,020,584	---	---
Town of Parker	284	397	424	---	606	878	917	-39
EPCOR Water Arizona, Inc. - CSA No. 2 (formerly Brooke Water, LLC)	202	304	324	---	304	457	486	-29
Colorado River Indian Reservation, AZ	210,846	241,429	227,832	---	383,876	497,828	510,510	-12,682
Ehrenberg Improvement District	193	252	252	---	270	352	352	0
Arizona State Land Department	2,467	3,849	4,485	---	3,857	5,984	6,900	-916
Cibola Valley I.D.D.	5,068	6,602	5,868	---	7,088	9,232	8,205	1,027
Red River Land Co.	200	228	214	---	280	319	300	19
Western Water, LLC	107	204	379	---	150	286	530	-244
Hopi Tribe	3,141	3,748	3,061	---	4,393	5,241	4,278	963
GSC Farms, LLC	1,950	2,367	2,084	---	2,728	3,311	2,913	398
Arizona Game & Fish	1,444	1,858	2,031	---	2,019	2,597	2,838	-241
Cibola National Wildlife Refuge	11,388	14,264	14,264	0	18,368	23,005	23,005	0
Imperial National Wildlife Refuge	2,637	3,799	3,799	0	4,253	6,128	6,128	0
BLM Permittees (Parker Dam to Imperial Dam)	957	1,247	1,247	0	1,473	1,919	1,919	0
Cha Cha, LLC	907	1,277	1,365	---	1,396	1,965	2,100	-135
Beattie Farms Southwest	487	722	722	---	749	1,109	1,110	-1
Yuma Proving Ground	323	458	524	---	323	458	524	-66
Gila Monster Farm	3,017	4,138	4,888	---	5,259	7,249	8,500	-1,251
Wellton-Mohawk Irrigation and Drainage District	184,662	249,606	278,000	-28,394	266,831	382,958	424,350	-41,392
BLM Permittees (Below Imperial Dam)	84	109	109	0	129	168	168	0
City of Yuma	10,457	15,266	15,833	-567	17,337	26,203	27,500	-1,297
U.S. Marine Corps Air Station Yuma	809	1,162	1,300	---	809	1,162	1,300	-138
Union Pacific Railroad	18	26	29	---	33	48	48	0
University of Arizona	577	804	852	---	577	804	852	-48
Yuma Union High School District	93	136	150	---	124	182	200	-18
Desert Lawn Memorial	20	26	26	---	28	37	37	0
North Gila Valley Irrigation District	6,870	9,109	10,674	---	29,221	41,721	43,500	-1,779
Yuma Irrigation District	25,960	36,542	39,569	---	46,779	67,199	73,000	-5,801
Yuma Mesa Irrigation and Drainage District	70,667	97,726	110,859	---	149,053	213,055	244,280	-31,225
Unit "B" Irrigation and Drainage District	10,897	13,867	13,129	---	20,095	27,415	29,400	-1,985
Fort Yuma Indian Reservation	1,489	1,939	1,939	---	2,290	2,983	2,983	0
Yuma County Water Users' Association	182,583	260,590	275,560	---	248,434	358,794	367,400	-8,606
Cocopah Indian Reservation	428	974	1,725	---	575	1,413	2,650	-1,237
Reclamation - Yuma Area Office	150	195	195	---	150	195	195	0
Total Arizona	1,517,549	2,076,071	2,141,854		2,059,983	2,878,941	3,021,575	
Central Arizona Project (CAP)	716,570	1,020,584				1,020,584		
All Others	800,979	1,055,487	1,112,795			1,858,357	1,992,516	
Yuma Mesa Division, Gila Project	103,497	143,377	161,102	-17,725		321,975		
Total 242 Well Field Pumping ²	35,688	44,731	56,129					

Footnotes: See next page.

ARIZONA ADJUSTED APPORTIONMENT CALCULATION

Arizona Basic Apportionment	2,800,000
Reduction for Tier 1 Shortage ³	(320,000)
Arizona DCP Contribution ^{4,5}	(192,000)
Creation of Extraordinary Conservation ICS - GRIC (Estimated) ^{5,6}	(78,565)
System Conservation Water - Pilot System Conservation Program ⁷	(500)
System Conservation Water - CRIT ⁸	(50,000)
System Conservation Water - CAP ⁹	(35,506)
System Conservation Water - CRIT ^{10,11}	(4,685)
System Conservation Water - FMYN ^{10,12}	(13,933)
System Conservation Water - GRIC ^{10,13}	(50,937)
System Conservation Water - MVIDD ^{10,14}	(9,592)
System Conservation Water - Reclamation (Estimated) ^{10,15}	(13,602)
Delivery of ICS (CAWCD)	up to 50,000
Total State Adjusted Apportionment	2,080,680
Excess to Total State Adjusted Apportionment	(4,609)

Estimated Allowable Use for CAP

1,026,957

¹ Approved/forecasted values include up to 1,250 AF of diversion for domestic use pursuant to MVIDD's Subcontract No. 09-101 with the Mohave County Water Authority.

² In accordance with the Colorado River Water Conservation Letter Agreement 16-XX-30-W0603, Revision No. 1 (Revised Letter Agreement) between Reclamation and the Central Arizona Water Conservation District (CAWCD), pumping above the Historical Average Baseline (31,129 AF), up to 32,000 AF per year, will remain in Lake Mead as Colorado River System water.

³ In accordance with Section XI.G.2.D.1.a of the 2007 Interim Guidelines, a Tier 1 Shortage Condition will govern the operation of Lake Mead and the Lower Colorado River in 2022, resulting in a 320,000 AF reduction to the state of Arizona's Colorado River basic apportionment.

⁴ In accordance with Sections III.B.1.a and III.E.4 of *Lower Basin Drought Contingency Operations* (LBOs), the state of Arizona is required to make a DCP Contribution of 192,000 AF in 2022. In accordance with the *Agreement Regarding Lower Basin Drought Contingency Plan Obligations*, it is currently anticipated that the required DCP Contribution will be made by CAWCD through the simultaneous creation and conversion of Extraordinary Conservation (EC) ICS to DCP ICS and the creation of Non-ICS Water (reductions in consumptive use). CAWCD has an approved ICS Plan for the creation of up to 100,000 AF of EC ICS in 2022. The actual amount of EC ICS created by CAWCD and credited toward the DCP Contribution will be based on final accounting and verification.

⁵ When combined with the approved EC ICS creation amount for the Gila River Indian Community (GRIC), the total amount of EC ICS approved for creation in the state of Arizona in 2022 is 178,565 AF, which exceeds the state's annual creation limit set forth in Section XI.G.3.B.4 of the 2007 Interim Guidelines. In accordance with Section XI.G.3.B.4 of the 2007 Interim Guidelines and Section IV.B of LBOs, the total amount of EC ICS that may be created by the states of Arizona, California, and Nevada in 2022 will be limited to 625,000 AF. Additionally, the total amount of EC ICS, Binational ICS and DCP ICS accumulated in Arizona's ICS Accounts will be limited in accordance with Section IV.C. of LBOs.

⁶ CAP water being conserved by GRIC in 2022 to create EC ICS. The actual amount of EC ICS created by GRIC will be based on final accounting and verification.

⁷ The estimated amount of System Conservation Water that will be created by the City of Bullhead City pursuant to System Conservation Implementation Agreement (SCIA) No. 15-XX-30-W0587, as amended. This System Conservation Water will remain in Lake Mead to benefit system storage.

⁸ System Conservation Water to be created by CRIT pursuant to the *Agreement Among the United States of America, Through the Department of the Interior, Bureau of Reclamation, the State of Arizona, Through the Arizona Department of Water Resources, the Central Arizona Water Conservation District, and the Colorado River Indian Tribes to Fund the Creation of Colorado River System Water Through*

⁹ CAP water being conserved by certain CAP subcontractors pursuant to executed Compensated Conservation Agreements. Water conserved under these agreements will be left in Lake Mead for the benefit of system storage. In accordance with the Project Funding Agreement No. 1, the Bureau of Reclamation will contribute 15 percent of the funding and intends to apply 15 percent of the water conserved towards addressing the Secretary of the Interior's commitment pursuant to Section 3.b of the *Lower Basin Drought Contingency Plan Agreement* (LB DCP Agreement).

¹⁰ In accordance with the applicable system conservation agreements and Section 3.b of the LB DCP Agreement, the Bureau of Reclamation intends to apply this water towards the Secretary of the Interior's commitment to create or conserve 100,000 AF per annum or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the Lower Basin.

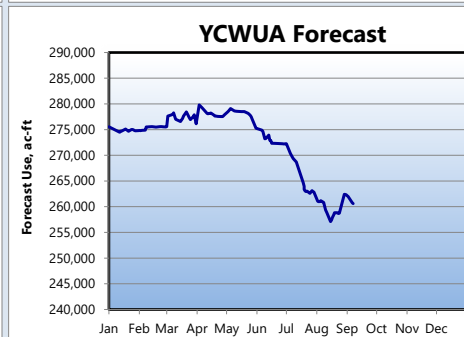
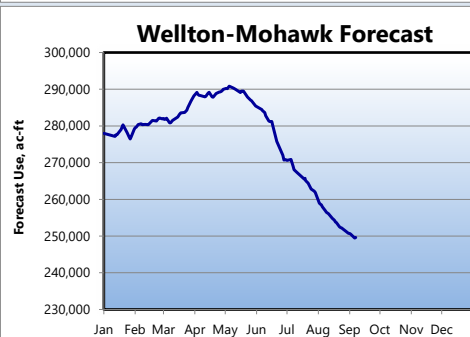
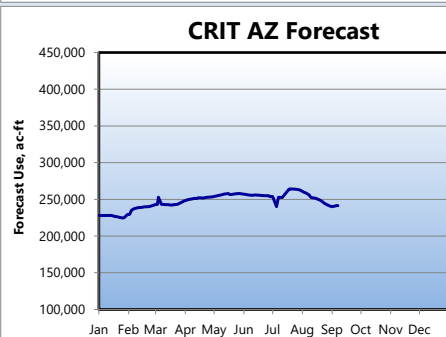
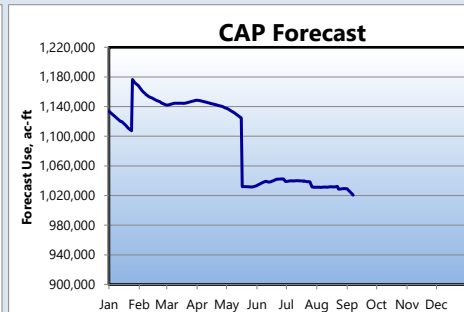
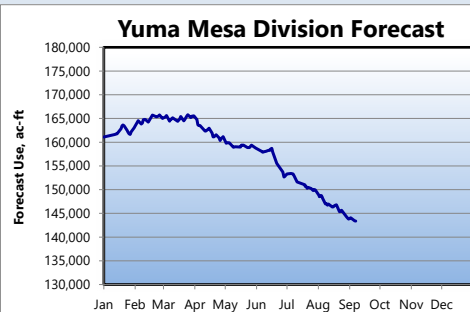
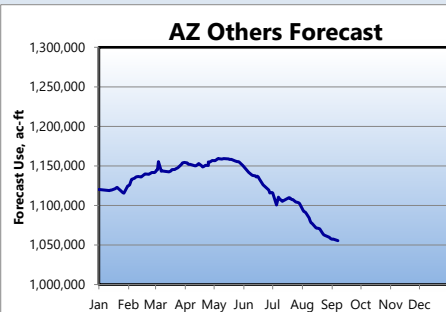
¹¹ System Conservation Water created by CRIT pursuant to SCIA No. 22-XX-30-W0729, which will remain in Lake Mead to benefit system storage.

¹² CAP water being conserved by FMYN pursuant to SCIA No. 20-XX-30-W0688, which will remain in Lake Mead to benefit system storage.

¹³ CAP water being conserved by GRIC pursuant to SCIA No. 22-XX-30-W0724, which will remain in Lake Mead to benefit system storage.

¹⁴ System Conservation Water being created by MVIDD pursuant to SCIA No. 22-XX-30-W0725, which will remain in Lake Mead to benefit system storage.

¹⁵ System Conservation Water being created by additional pumping from the 242 Well Field Expansion pursuant to Letter Agreement No. 16-XX-30-W0603, Revision No. 1, which will remain in Lake Mead to



NOTES: Click on Arizona Schedules and Approvals above for incoming diversion schedules and approvals.



LOWER COLORADO BASIN REGION
CY 2022

NOTE:

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CALIFORNIA WATER USERS

Forecast end of year diversion/consumptive use

Forecast based on use to date and approved annual water orders

[California Schedules and Approvals](#)

[Historic Use Records \(Water Accounting Reports\)](#)

	Use To Date CY 2022	Forecast Use CY 2022	Estimated Use CY 2022	Excess to Estimated Use CY 2022	Diversion To Date CY 2022	Forecast Diversion CY 2022	Excess to Approved Diversion CY 2022	Approved Diversion CY 2022
WATER USER								
Fort Mojave Indian Reservation, CA	5,145	6,662	8,996	---	9,565	12,385	16,720	-4,335
PPR No. 30 (Stephenson)	18	23	23	---	32	42	42	0
PPR No. 38 (Andrade)	18	23	23	---	32	42	42	0
City of Needles (includes LCWSP use)	914	1,385	1,605	-220	1,514	2,176	2,261	-85
Chemehuevi Indian Reservation	140	183	183	---	8,706	11,340	11,340	0
The Metropolitan Water District of Southern California	738,019	1,113,597	1,113,478	---	739,734	1,116,134	---	---
Colorado River Indian Reservation, CA	3849	5,014	5,014	---	6,378	8,307	8,307	0
Palo Verde Irrigation District	283,054	352,758	420,696	---	595,087	798,087	857,000	-58,913
Lake Enterprises	1	1	1	---	1	1	1	0
Yuma Project Reseravtion Division	27,770	40,254	49,577	---	57,258	85,028	98,635	-13,607
Yuma Project Reservation Division - Bard Unit	---	---	---	---	26,070	41,070	51,500	-10,430
Yuma Project Reservation Division - Indian Unit	---	---	---	---	31,188	43,958	47,135	-3,177
Fort Yuma Indian Reservation - Ranch 5 (Surface Delivery)	724	1,132	1,194	---	1,309	2,048	2,160	-112
Fort Yuma Indian Reservation - Other Ranches (Pumpers)	874	1,139	1,139	---	1,581	2,059	2,059	0
Yuma Island Pumpers	1,251	1,629	1,629	---	2,262	2,947	2,947	0
Imperial Irrigation District ¹	1,957,036	2,613,176	2,620,300	-7,124	2,001,137	2,703,623	2,719,536	---
Coachella Valley Water District	244,422	350,822	384,000	-33,178	258,240	372,479	399,950	---
Other LCWSP Contractors	432	563	563	---	696	907	907	0
City of Winterhaven	47	61	61	---	68	88	88	0
Total California	3,263,714	4,488,422	4,608,482		3,683,600	5,117,693	5,238,174	

CALIFORNIA ADJUSTED APPORTIONMENT CALCULATION

California Basic Apportionment	4,400,000
System Conservation Water - Pilot System Conservation Program ²	(145)
System Conservation Water - PVID Following Program ³	(50,800)
Creation of Extraordinary Conservation ICS by IID - Stored in Lake Mead (Estimated) ⁴	0
Creation of Extraordinary Conservation ICS by MWD (Estimated) ⁵	0
Total State Adjusted Apportionment	4,349,055
Excess to Total State Adjusted Apportionment	139,367

Estimated Allowable Use for MWD

974,230

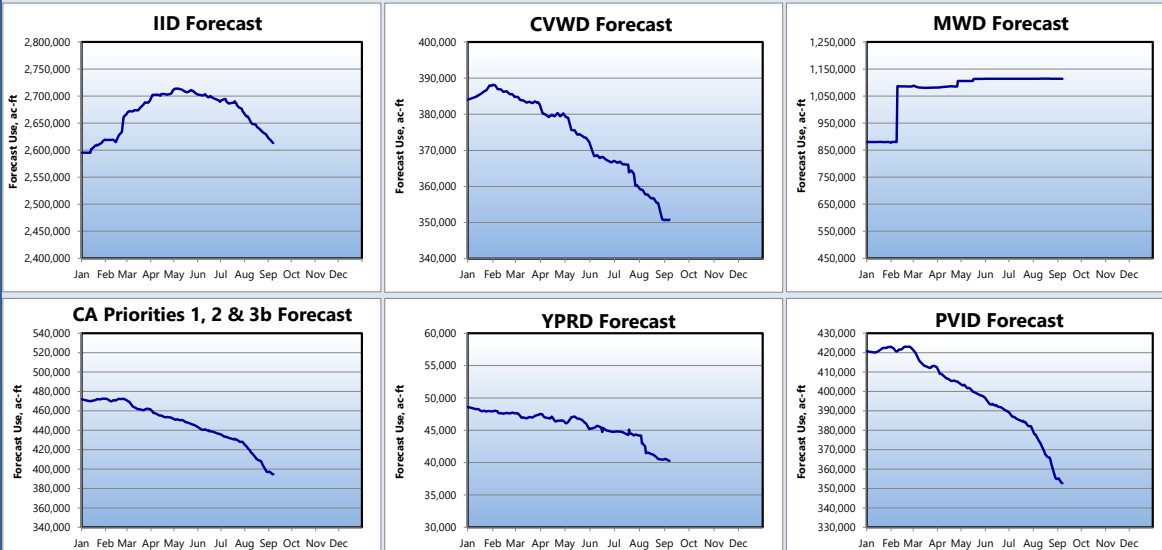
¹ As shown here, IID's Approved Diversion and Estimated Use values reflect the maximum amount of Colorado River water available to IID in 2022. Note: This forecast may be updated to reflect up to 25,000 AF of water conserved and stored by IID pursuant to the IID-MWD Settlement and Release Agreement dated September 16, 2021.

² System Conservation Water to be conserved by the City of Needles pursuant to System Conservation Implementation Agreement No. 15-XX-30-W0596, executed under the Pilot System Conservation Program. This water will remain in Lake Mead to benefit system storage.

³ The estimated amount of System Conservation Water that will be created pursuant to Funding Agreement No. 21-XX-30-W0714 (Funding Agreement). This System Conservation Water will remain in Lake Mead to benefit system storage. In accordance with the Funding Agreement, the Bureau of Reclamation intends to apply 50 percent this water towards the Secretary of the Interior's commitment to create or conserve 100,000 AF or more per annum of System Conservation Water pursuant to Section 3.b of the *Lower Basin Drought Contingency Plan Agreement*.

⁴ IID has an approved ICS Plan for the creation of up to 62,000 AF of Extraordinary Conservation (EC) ICS in 2022; however, pursuant to Section 3 of the *California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus*, as amended, IID may accumulate a maximum of 50,000 AF of EC ICS in its Lake Mead ICS Account, and has reached this limit. The actual amount of EC ICS created by IID in 2022, if any, will be based on final accounting and verification.

⁵ MWD has an approved ICS Plan for the creation of up to 450,000 AF of EC ICS in 2022. The actual amount of EC ICS created by MWD in 2022 will be based on final accounting and verification, and will be limited to the amount that, when combined with the amount of EC ICS created by IID, does not exceed the maximum EC ICS creation capacity available to the state of California. In accordance with Section XI.G.3.B.4 and Section IV.B of *Lower Basin Drought Contingency Operations* (LBOps), the total amount of EC ICS that may be created by the states of Arizona, California, and Nevada in 2022 will be limited to 625,000 AF. Additionally, the total amount of EC ICS, Binational ICS and DCP ICS accumulated in California's ICS Accounts will be limited in accordance with Section IV.C. of LBOps.



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LOWER COLORADO BASIN REGION
CY 2022

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NEVADA WATER USERS

Forecast end of year diversion/consumptive use

Forecast based on use to date and approved annual water orders

[Nevada Schedules and Approvals](#)

[Historic Use Records \(Water Accounting Reports\)](#)

	Use	Forecast	Estimated	Excess to	Diversion	Forecast	Excess to
	To Date	Use	Use	Use	To Date	Diversion	Approved
	CY 2022	CY 2022	CY 2022	CY 2022	CY 2022	CY 2022	Diversion
WATER USER							CY 2022
Robert B. Griffith Water Project (SNWS)	322,340	448,263		---	322,340	448,263	---
Lake Mead NRA, NV - Diversions from Lake Mead	412	909	1,500	---	412	909	1,500
Lake Mead NRA, NV - Diversions from Lake Mohave	156	329	500	---	156	329	500
Basic Management, Inc.	2,945	5,637	8,208	---	2,945	5,637	8,208
City of Henderson (BMI Delivery)	7,494	11,071	15,878	---	7,494	11,071	15,878
Nevada Department of Wildlife	1	5	12	-7	162	472	1,000
Pacific Coast Building Products, Inc.	596	868	928	---	596	868	928
Boulder Canyon Project	134	175	175	---	230	300	300
Big Bend Water District	1,698	3,161	4,765	---	3,130	6,167	10,000
Fort Mojave Indian Tribe	2,042	2,954	4,623	---	3,047	4,407	6,900
Las Vegas Wash Return Flows	-161,037	-233,975	-228,466	---			
Total Nevada	176,781	239,397	260,000	-7	340,512	478,423	497,091
Southern Nevada Water System (SNWS)	161,303	214,288				448,263	
All Others	15,478	25,109				30,160	
Nevada Uses Above Hoover	173,041	233,282				467,849	
Nevada Uses Below Hoover	3,740	6,115				10,574	

Tributary Conservation (TC) Intentionally Created Surplus (ICS)

Southern Nevada Water Authority (SNWA) Creation of TC ICS (Approved) ¹ 43,000

NEVADA ADJUSTED APPORTIONMENT CALCULATION

Nevada Basic Apportionment	300,000
Reduction for Tier 1 Shortage ²	(13,000)
Creation of Extraordinary Conservation ICS - SNWA (Estimated) ³	(47,603)
Total State Adjusted Apportionment	239,397
Excess to Total State Adjusted Apportionment	0

¹ SNWA has an approved ICS Plan for the creation of up to 43,000 AF of TC ICS in 2022. The actual amount of TC ICS created by SNWA in 2022 will be based on final accounting and verification.

² In accordance with Section XI.G.2.D.1.a of the 2007 Interim Guidelines, a Tier 1 Shortage Condition will govern the operation of Lake Mead and the Lower Colorado River in 2022, resulting in a 13,000 AF reduction to the state of Nevada's Colorado River basic apportionment.

³ SNWA has an approved ICS Plan for the creation of up to 100,000 AF of Extraordinary Conservation (EC) ICS in 2022. The actual amount of EC ICS created by SNWA in 2022 will be based on final accounting and verification. In accordance with Section XI.G.3.B.4 of the 2007 Interim Guidelines and Section IV.B of *Lower Basin Drought Contingency Operations* (LBOs), the total amount of EC ICS that may be created by the states of Arizona, California, and Nevada in 2022 will be limited to 625,000 AF. Additionally, the total amount of EC ICS, Binational ICS and DCP ICS accumulated in Nevada's ICS Accounts will be limited in accordance with Section IV.C. of LBOs.

Robert B. Griffith Forecast



LV Wash Return Forecast



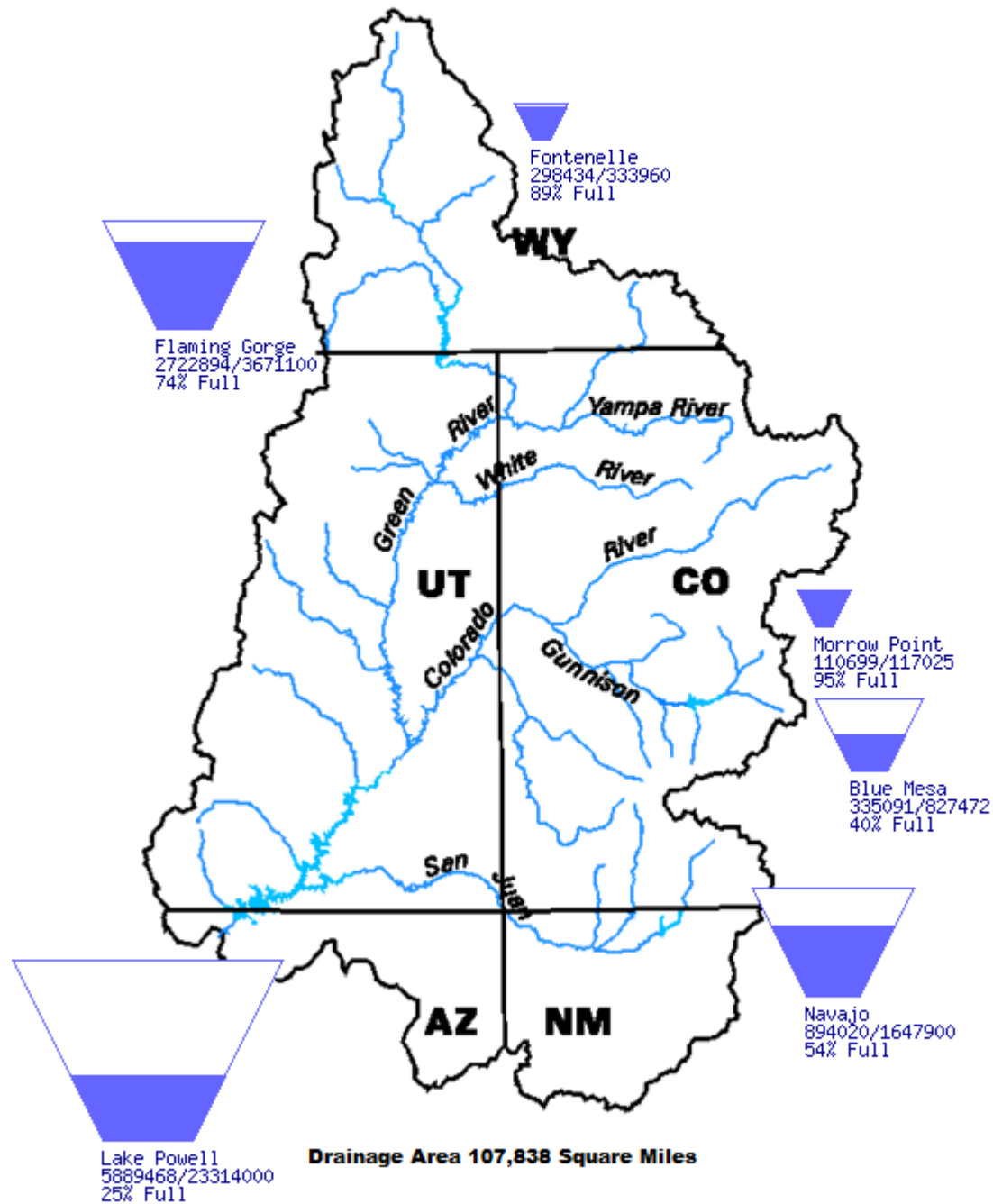
NOTES: Click on Nevada Schedules and Approvals above for incoming diversion schedules and approvals.

Upper Colorado Region Water Resources Group

River Basin Tea-Cup Diagrams

Data Current as of:
09/06/2022

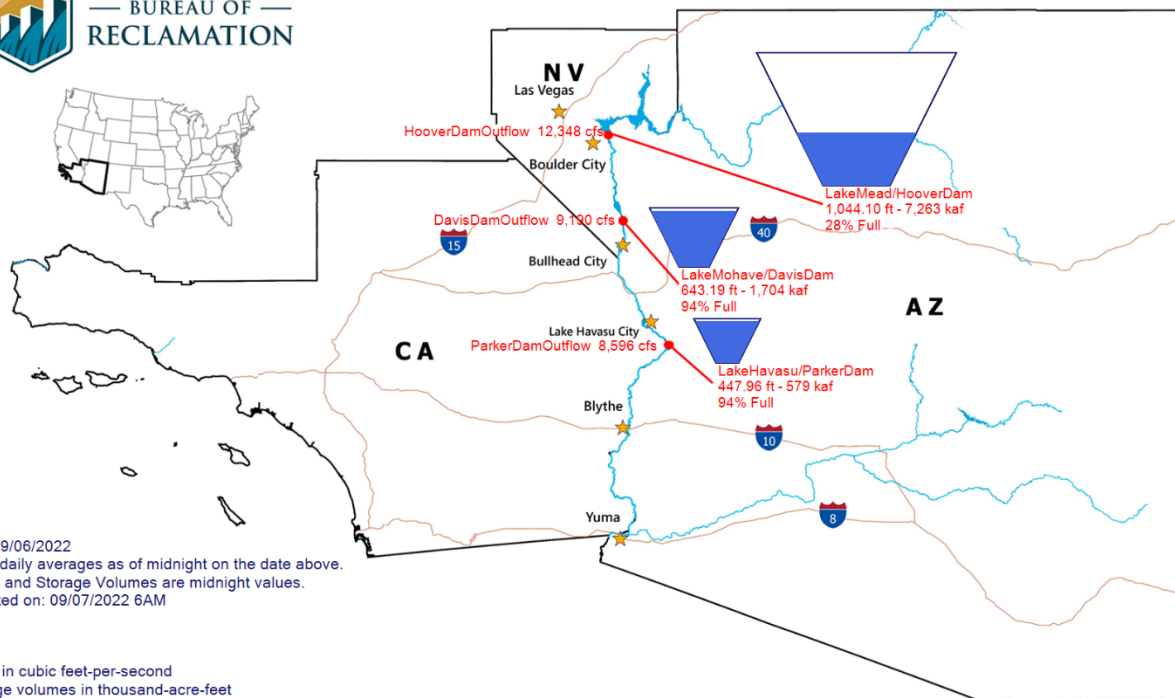
Upper Colorado River Drainage Basin



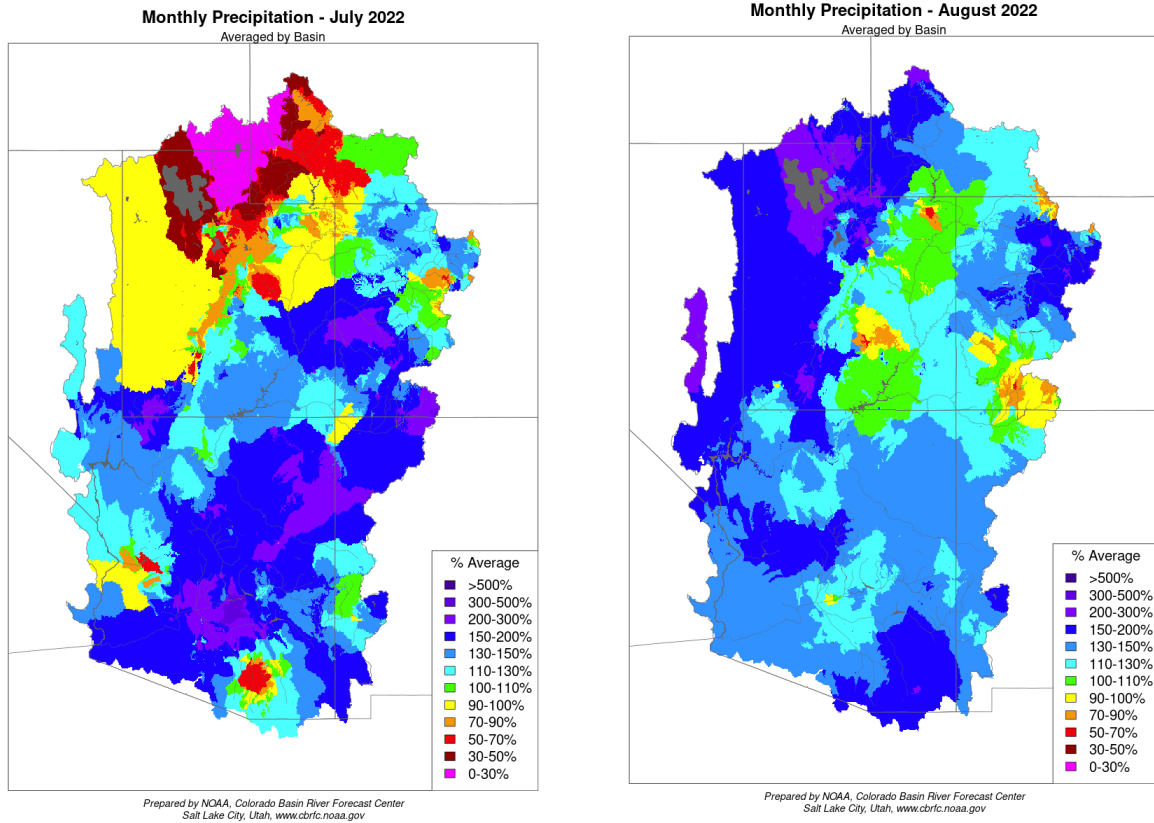
Lower Colorado River Teacup Diagram



BUREAU OF
RECLAMATION



NOAA National Weather Service Monthly Precipitation Map July and August 2022



U.S. Drought Monitor West

August 30, 2022

(Released Thursday, Sep. 1, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.65	88.35	67.89	47.98	19.63	2.66
Last Week 08-23-2022	12.87	87.13	68.23	49.38	20.59	2.67
3 Months Ago 05-31-2022	6.27	93.73	86.82	68.77	38.00	9.57
Start of Calendar Year 01-04-2022	3.68	96.32	89.29	64.90	23.85	3.94
Start of Water Year 09-28-2021	2.21	97.79	89.60	75.38	52.46	18.40
One Year Ago 08-31-2021	5.74	94.26	89.92	76.11	53.74	19.27

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

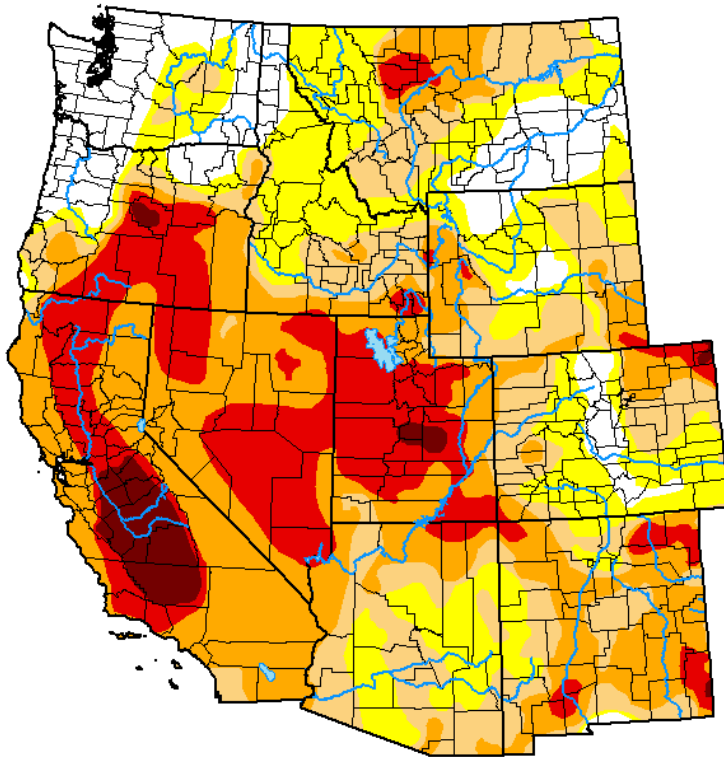
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

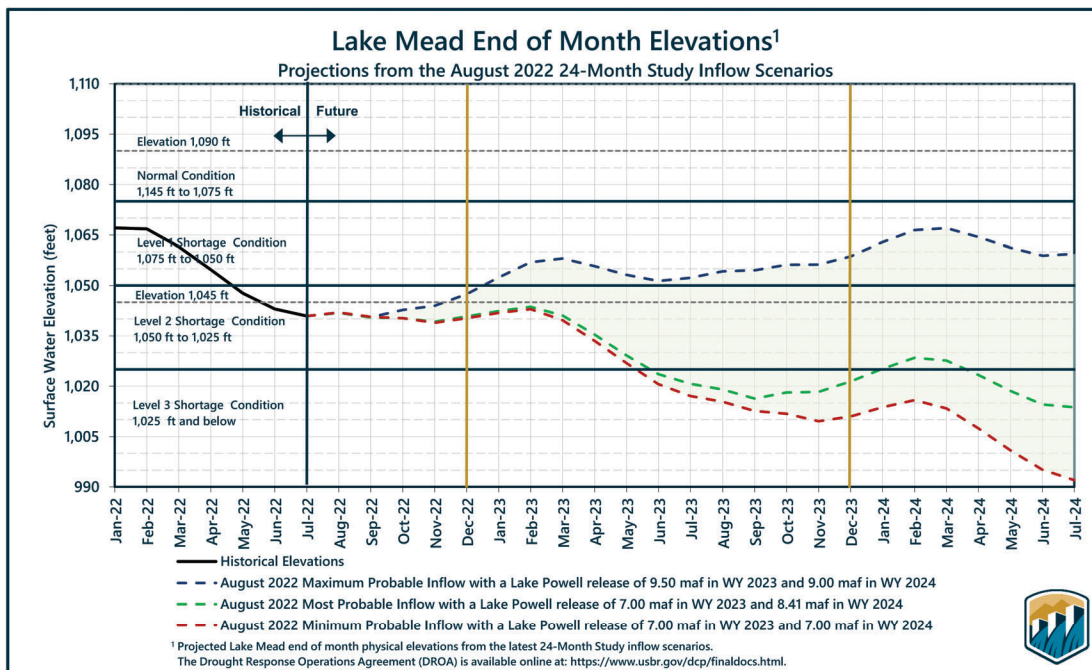
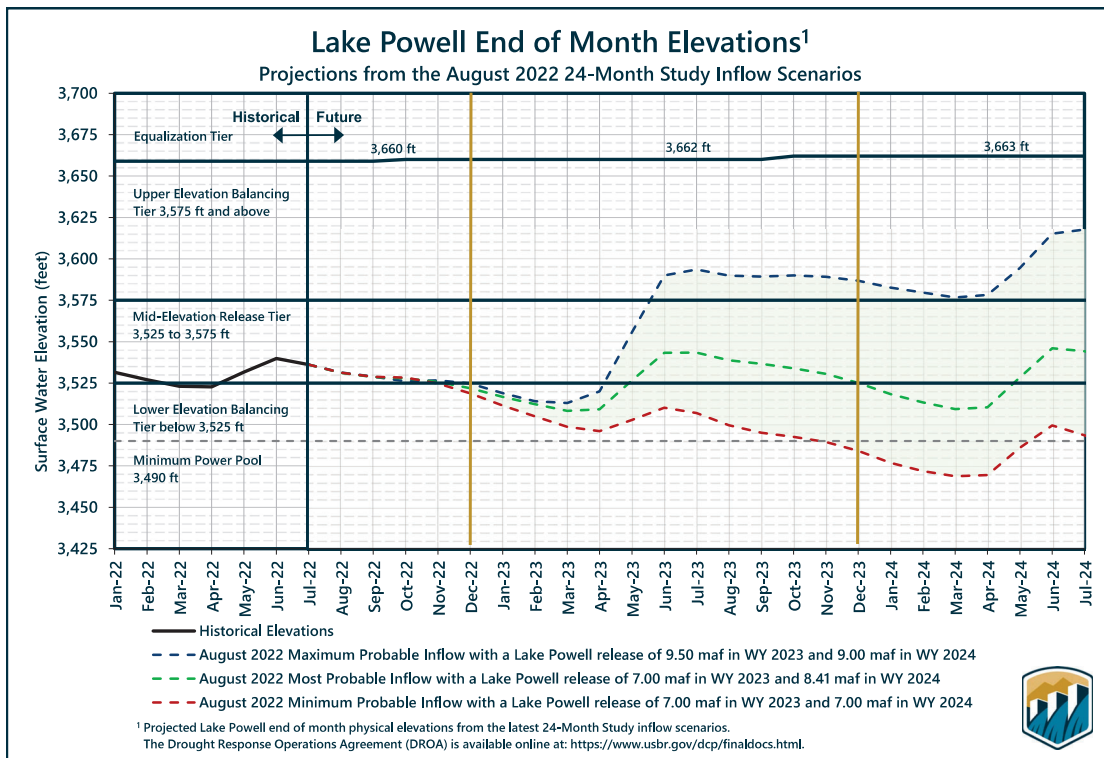
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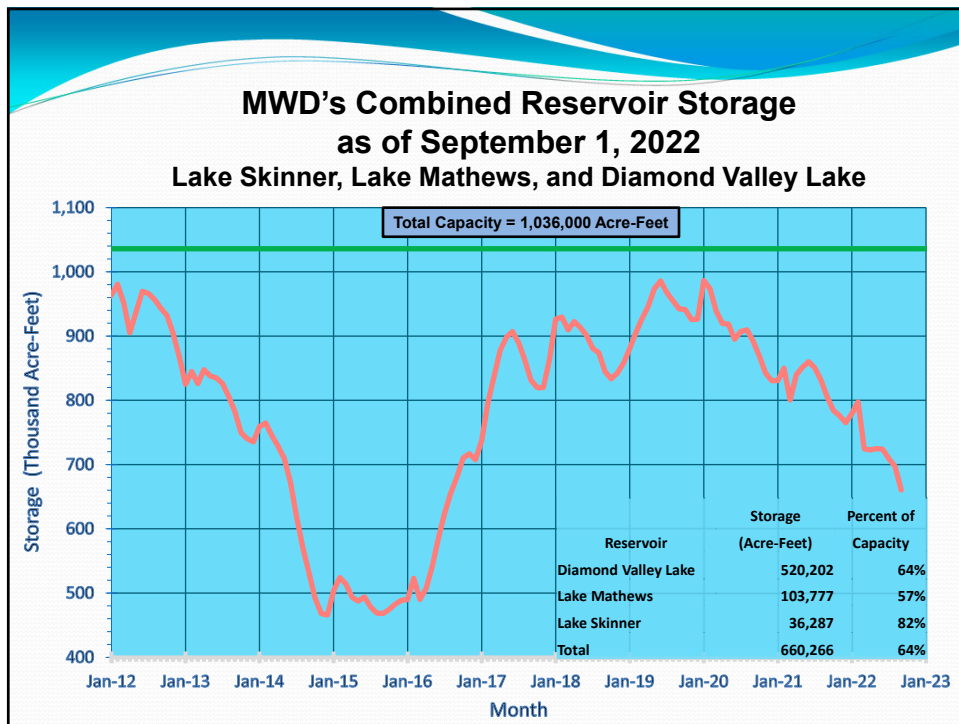
Deborah Bathke
National Drought Mitigation Center



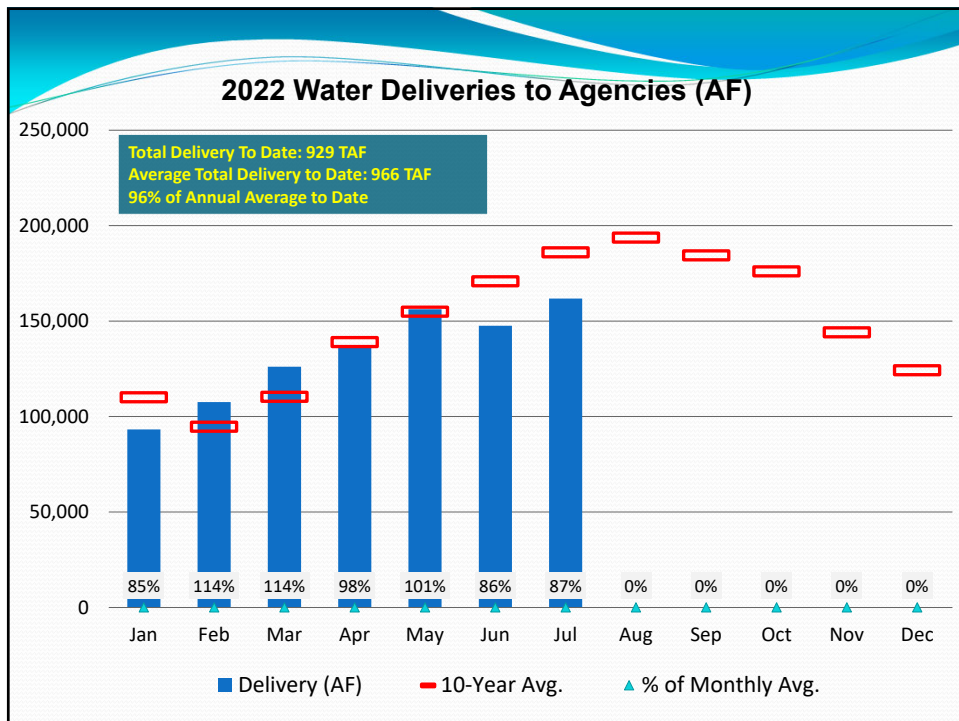
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August 16, 2022

STATEMENT FROM COLORADO RIVER BOARD CHAIRMAN PETER NELSON

The Colorado River Basin is in the 23rd year of a historic drought. Both Lake Powell and Lake Mead – the two largest reservoirs in the United States – are at historically low levels with a combined storage of 27 percent of capacity. The sobering news that the U.S. Bureau of Reclamation delivered today during its release of the August 24 Month Study Report and the projections for 2023 reservoir operations comes as no surprise, and while California is disappointed that a consensus-based agreement among the Colorado River Basin States to conserve additional water supplies in 2023 is not ready to be announced today, California remains ready and willing to finalize an agreement with our partners across the Basin to protect the reservoir system we all rely upon.

California has demonstrated its commitment to water conservation time and again over the decades, but we also recognize that more must be done now as the System reaches critically low water supply levels. Over the past few years, despite its senior priority water rights, water users in California have been taking additional actions to conserve water and reduce the risks to the Basin's reservoirs.

Since the establishment of the 2007 Interim Shortage Guidelines, California has added over 1.5 million acre-feet (MAF) and 20 feet of elevation of conserved water to Lake Mead, without which a formal shortage could have been declared as early as 2015. This was achieved through billions of dollars of investments in urban and agricultural conservation across Southern California, through programs that reach virtually every Colorado River water user in the state. California also agreed to participate in the 2019 Drought Contingency Plan, further bolstering storage in Lake Mead. These actions are on top of the 2003 Quantification Settlement Agreement, a groundbreaking program through which California permanently reduced its lawful water use by nearly 20%, from 5.2 MAF to 4.4 MAF, and demonstrated the feasibility of large-scale water use reductions in the Colorado River Basin.

Although the Basin States have not yet agreed on a consensus-based solution to address declining reservoir elevations, California will continue implementing additional conservation programs in 2023 that result in meaningful water contributions to the system. The Metropolitan Water District of Southern California put an emergency water conservation declaration in place this past June, directing six million residents to limit outdoor watering to one day per week or stay within a limit of 55 gallons per person per day. To date, Metropolitan and its member agencies lead the nation in investments in water recycling, stormwater capture, and brackish groundwater and

seawater desalination. Through its fallowing program with Metropolitan and in partnership with entities across the Lower Basin, the Palo Verde Irrigation District began adding conserved water to Lake Mead in 2021 and will continue to do so through 2024. In addition to existing water efficiency and water recycling programs, the Coachella Valley Water District approved its first-ever agricultural water use reduction program in 2022 to conserve water this year and next. The Imperial Irrigation District currently conserves and transfers on average 500,000 acre-feet per year and has saved more than 7 MAF of water since 2003 as its conservation programs continue to ramp up. Through its rollout of a revised Equitable Distribution Plan, IID has also significantly reduced its demand in 2022.

California appreciates the engagement and initial commitments of our State and Federal partners to address the long-term sustainability of the Salton Sea given its linkage to the Colorado River System. We look forward to continuing these discussions and believe that developing solutions for Salton Sea management is a necessary step that will protect the health of disadvantaged communities and ecosystems and enable new opportunities for conservation in the Imperial and Coachella Valleys, contributing to Basin-wide sustainability. California also appreciates the significant contributions of our Congressional delegation and State officials in securing vital federal authorizations and fiscal resources that will enable both Colorado River Basin drought relief activities and Salton Sea management.

California believes that in the remaining months of 2022, all parties across the Basin must remain engaged with the goal of reaching agreement on substantial water use reductions. Given the monumental challenges before us, inactivity is not an option. California is committed to the process and ready to implement meaningful water use reductions alongside our partners on the river to prevent the reservoirs from falling to critical levels through 2026.

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Interior Department Announces Actions to Protect Colorado River System, Sets 2023 Operating Conditions for Lake Powell and Lake Mead

Media Contact: Bureau of Reclamation press@usbr.gov
Department of the Interior Interior_Press@ios.doi.gov
For Release: Aug 16, 2022



Image of the Colorado River Basin

WASHINGTON — As the worsening drought crisis continues to impact communities across the West, the Department of the Interior today announced urgent action to improve and protect the long-term sustainability of the Colorado River System, including commitments for continued engagement with impacted states and Tribes. The Bureau of Reclamation also released the [Colorado River Basin August 2022 24-Month Study](#), which sets the annual operations for Lake Powell and Lake Mead in 2023 in light of critically low reservoir conditions.

Prolonged drought and low runoff conditions accelerated by climate change have led to historically low water levels in Lakes Powell and Mead. Over the last two decades, Department leaders have engaged with Colorado River Basin partners on various drought

response operations. However, given that water levels continue to decline, additional action is needed to protect the System.

In addition to the actions being announced today, the Biden-Harris administration is making unprecedented investments in drought resilience and water management. President Biden's [Bipartisan Infrastructure Law](#) makes a historic \$8.3 billion investment to address water and drought challenges and invest in our nation's western water and power infrastructure, while rebuilding our existing projects to withstand a changing hydrology. Additionally, the recently passed Inflation Reduction Act includes \$4 billion in funding specifically for water management and conservation efforts in the Colorado River Basin and other areas experiencing similar levels of drought.

"The worsening drought crisis impacting the Colorado River Basin is driven by the effects of climate change, including extreme heat and low precipitation. In turn, severe drought conditions exacerbate wildfire risk and ecosystems disruption, increasing the stress on communities and our landscapes," said **Deputy Secretary Tommy Beaudreau**. "The Biden-Harris administration is taking an all-of-government approach to mitigating the drought, and the Interior Department is committed to using every resource available to conserve water and ensure that irrigators, Tribes and adjoining communities receive adequate assistance and support to build resilient communities and protect our water supplies."

"Every sector in every state has a responsibility to ensure that water is used with maximum efficiency. In order to avoid a catastrophic collapse of the Colorado River System and a future of uncertainty and conflict, water use in the Basin must be reduced," said **Assistant Secretary for Water and Science Tanya Trujillo**. "The Interior Department is employing prompt and responsive actions and investments to ensure the entire Colorado River Basin can function and support all who rely on it. We are grateful for the hardworking public servants who have dedicated their lives to this work, and who are passionate about the long-term sustainability of Basin states, Tribes, and communities."

"The solution to our challenges relies on the bedrock of a century of collaboration and partnership in the Colorado River Basin. But as water stewards, it is our responsibility to protect the system and the millions of Americans who depend on it. Today, Reclamation starts the process on actions we can take to deliver on those responsibilities," said **Bureau of Reclamation Commissioner Camille Calimlim Touton**. "Reclamation remains fully committed to working in a consensus manner across the Upper and Lower Basins, with

Tribes, and with the country of Mexico. I am confident that, by working together, we can achieve meaningful change toward a sustainable future for the river that serves as the lifeblood of the American West.”

2023 Operations of Lake Powell and Lake Mead

Given the 23-year ongoing historic drought and low runoff conditions in the Colorado River Basin, downstream releases from Glen Canyon and Hoover Dams – which created Lakes Powell and Mead – will be reduced again in 2023 due to declining reservoir levels. In the Lower Basin, the reductions represent the second year of additional shortage declarations, demonstrating the severity of the drought and critically low reservoir conditions.

The key determinations from the August 2022 24-Month Study include:

- **Lake Powell** will operate in the Lower Elevation Balancing Tier in water year 2023 (Oct. 1, 2022, through Sept. 30, 2023). The 24-Month Study projects Lake Powell’s Jan. 1, 2023, water surface elevation to be 3,521.84 feet – 178 feet below full pool (3,700 feet) and 32 feet above minimum power pool (3,490 feet). The August 24-Month Study projects that Lake Powell will likely release 7 million acre-feet in water year 2023 with the potential for Powell releases to range between 7 to 9.5 maf during water year 2023, depending on hydrologic conditions, as Lake Powell and Lake Mead balance storage contents under the Lower Elevation Balancing Tier.
 - The Department will evaluate hydrologic conditions in April 2023 and will implement the Interim Guidelines Section 7.D by limiting water year 2023 releases (with a minimum of 7.0 maf) to protect Lake Powell from declining below 3,525 feet at the end of December 2023.
- **Lake Mead** will operate in its first-ever Level 2a Shortage Condition in calendar year 2023 (Jan. 1, 2023, through Dec. 31, 2023). The August 24-Month Study projects Lake Mead’s Jan. 1, 2023, operating determination elevation to be 1,047.61 feet, which is calculated by taking Lake Mead’s projected end of calendar year 2022 physical elevation (1,040.78 feet) and adding the 480,000 acre-feet of water held back in Lake Powell to Lake Mead’s capacity to maintain operational neutrality. The projected elevation of 1,047.61 feet reflects a Level 2a Shortage Condition, within the DCP elevation band of 1,045 and 1,050 feet, with required shortage reductions and water savings contribution for the Lower Basin States and Mexico, pursuant to Minute 323, as follows:

- Arizona: 592,000 acre-feet, which is approximately 21% of the state's annual apportionment
 - Nevada: 25,000 acre-feet, which is 8% of the state's annual apportionment
 - Mexico: 104,000 acre-feet, which is approximately 7% of the country's annual allotment
 - There is no required water savings contribution for California in 2023 under this operating condition.

In May 2022, drought operations to protect Lake Powell were implemented under the Upper Basin Drought Response Operations Agreement, and Glen Canyon Dam releases were reduced under the 2007 Interim Guidelines, which together provided approximately 1 million acre-feet of additional water to help protect water levels at Lake Powell. Building on these important responsive actions, Reclamation will begin efforts to modify low reservoir operations at both Lake Powell and Lake Mead to be prepared to reduce releases from these reservoirs in 2024 to address continued drought and low runoff conditions in the Basin.

Reclamation will continue to implement the applicable provisions of the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and coordinated operations for both reservoirs: Minute 323 to the 1944 U.S. Mexico Water Treaty; and the 2019 Drought Contingency Plans.

Call for Basin-Wide Conservation

In recent months, Reclamation has shared updated information documenting the increasing risks that will continue to impact Lake Powell and Lake Mead. Reclamation's ["Protection Volume Analysis"](#) details that, depending on future snowpack and runoff, a range of actions will be needed to stabilize elevations at Lake Powell and Lake Mead over the next four years (2023-2026). The analysis shows, depending on Lake Powell's inflow, that the additional water or conservation needed ranges from 600,000 acre-feet to 4.2 maf annually.

In June 2022, Commissioner Touton testified before the [U.S. Senate Committee on Energy and Natural Resources](#) and called on water users across the Basin to take actions to prevent the reservoirs from falling to critically low elevations that would threaten water deliveries and power production. Reclamation is using the best available science and

actively collaborating with water users across the Basin to determine the best ways to meet this increased conservation need.

Accordingly, in addition to undertaking preliminary work to develop the post-2026 strategies and operations, as several reservoir and water management decision documents expire at the end of 2026, Reclamation will immediately initiate a number of administrative actions in the Basin.

In the Upper Basin, Reclamation will:

- Take administrative actions needed to authorize a reduction of Glen Canyon Dam releases below 7 million acre-feet per year, if needed, to protect critical infrastructure at Glen Canyon Dam.
- Accelerate ongoing maintenance actions and studies to determine and enhance projected reliability of the use of the river outlet works, commonly referred to as the bypass tubes, at Glen Canyon Dam for extended periods.
- Support technical studies to ascertain if physical modifications can be made to Glen Canyon Dam to allow water to be pumped or released from below currently identified critical and dead pool elevations.
- Continue to work with the Basin states, Basin Tribes, stakeholders and partners to be prepared to implement additional substantial releases from Upper Basin Reservoirs to help enhance reservoir elevations at Lake Powell under the Drought Contingency Plan's Drought Response Operations Agreement.
- Invest in system conservation and voluntary agreements.
- Consider other operational actions to establish flexibility in Upper Basin operations at Reclamation facilities.

In the Lower Basin, Reclamation will:

- Take administrative actions needed to further define reservoir operations at Lake Mead, including shortage operations at elevations below 1,025 feet to reduce the risk of Lake Mead declining to critically low elevations.
- Prioritize and prepare for additional administrative initiatives that would ensure maximum efficient and beneficial use of urban and agricultural water,

and address evaporation, seepage and other system losses in the Lower Basin.

- Support technical studies to ascertain if physical modifications can be made to Hoover Dam to allow water to be pumped/released from elevations below currently identified dead pool elevations.
- Invest in system conservation and voluntary agreements.
- Consider other operational actions to establish flexibility in Lower Basin operations at Reclamation facilities.

The Department's approach will continue to seek consensus support and will be based on a continued commitment to engage with partners across the Basin states, Tribes and the country of Mexico to ensure all communities that rely on the Colorado River will provide contributions toward the solutions.

The first part of the paper discusses the importance of understanding the cultural context of the research. It highlights the need for researchers to be sensitive to the values and beliefs of the communities they are studying. This is particularly important in the field of education, where cultural differences can significantly impact learning outcomes. The paper then moves on to discuss the challenges of conducting research in culturally diverse settings. It notes that researchers often face difficulties in establishing rapport with participants and in interpreting their responses. To address these challenges, the paper suggests several strategies, including the use of local researchers and the development of culturally appropriate research instruments. The final part of the paper discusses the importance of sharing research findings with the community. It argues that research should not be conducted in a vacuum, but should be a collaborative process that involves the community from the beginning to the end. This approach not only ensures that the research is relevant and useful, but also helps to build trust and capacity within the community.



**Colorado River Basin States Representatives of
Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming**

September 1, 2022

Carly Jerla
Senior Water Resources Program Manager
U. S. Bureau of Reclamation
Washington, DC 20240

VIA ELECTRONIC MAIL

CRB-info@usbr.gov

**Re: Notice of Request for Input on Development of Post-2026
Colorado River Reservoir Operational Strategies for Lake
Powell and Lake Mead Under Historically Low Reservoir
Conditions**

Dear Ms. Jerla:

The undersigned Governors' Representatives of the States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming (collectively the "Basin States"), respectfully submit the following comments in response to the Bureau of Reclamation's ("Reclamation") Request for Input on the Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions, Fed. Reg. Vol. 87, No. 121 dated June 24, 2022 ("Post-2026 Operations"). We appreciate your consideration of our comments and request that they be incorporated into the preparation of the Post-2026 Operations NEPA process.

The Basin States understand that Reclamation is employing a pre-scoping process in connection with Post-2026 Operations to collect input prior to formally initiating an environmental review process under the National Environmental Policy Act ("NEPA"). Reclamation is requesting input on: (1) processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin partners, stakeholders, and the general public in the anticipated upcoming NEPA process and (2) potential substantive elements and strategies for Post-2026 Operations to consider in the anticipated upcoming NEPA process.

The seven Colorado River Basin States¹ have a unique interest in the water supplies of their states, including the Colorado River. As parties and beneficiaries to the interstate compacts, laws, and supreme court decrees that govern the management of the Colorado River, the Basin States have a specific interest in river management to protect the economic, health, and welfare interests of their residents who rely on the river. Recognizing the unique status of the States, the Secretary must meet her legal obligation to consult with the Governors' Representatives and collaborate on the Post-2026 Operations. Options for Post-2026 Operations will be significantly limited without the Basin States' participation. The Basin States are committed to working with Reclamation as the formal NEPA process for the Post-2026 Operations develops. Moreover, the Basin States anticipate developing an alternative for consideration and evaluation during the formal NEPA process for Post-2026 Operations, as we did in the NEPA process for the 2007 Interim Guidelines.

The process must allow for consideration of a broad range of interests and perspectives. The unprecedented challenges we face require greater inclusivity and collaboration to achieve sustainable solutions. The Basin States understand that the success of future operations of the Colorado River system depends on working with water users and others invested in the outcomes of effective Post-2026 Operations.

We look forward to continued collaboration with Colorado River Basin Tribes through various interstate and intrastate engagement efforts. Tribal water rights in the Colorado River Basin are substantial. Successful management of the Colorado River will depend on the support and participation of the Tribes. Tribes have taken an increasingly prominent and collaborative role in the development of water management strategies in the Colorado River Basin. It will be important to consult and collaborate with the Tribes in developing the Post-2026 Operations. We recommend that the determination of unresolved Tribal water rights be addressed through different, parallel paths.

Collaboration with Mexico is critical to charting the course of the Colorado River through Post-2026 Operations. In particular, the active and direct participation of the Basin States' representatives in formal meetings with Mexico has been essential to the development and implementation of Minute Nos. 317, 318, 319, and 323. Given the stark projections for the Colorado River, the U.S., Mexico, and the Basin States must work together as full partners in the management of the River through the Binational process.

¹ Pursuant to California law, public agencies that hold contracts with Reclamation pursuant to Section 5 of the Boulder Canyon Project Act have authority to manage California's Colorado River apportionment.

The Basin States also understand the importance of engagement with other stakeholders, including NGOs, interested in the Colorado River. We encourage Reclamation to inform and collaborate with other stakeholders as the development of the Post-2026 Operations moves forward.

The Basin States believe the Law of the River, anchored by the 1922 Colorado River Compact and the 1948 Upper Colorado River Basin Compact (“Compacts”) together with the 1944 Treaty with Mexico, must be the foundation for the Post-2026 Operations. The new operating rules should not interfere with the right of any state to administer and regulate water within its boundaries in relation to the appropriation, use, and control of water. The existing framework provides legal certainty regarding management of the Colorado River System and its infrastructure. It also allows for collaboration and consensus which helps avoid the uncertain outcomes that result from litigation.

The hydrology of the past 20 years has highlighted risks and vulnerabilities in the system. To improve operations at Lake Powell and Lake Mead, the new operating rules should address the risks and opportunities resulting from increased hydrologic variability across the Colorado River Basin, including impacts resulting from climate change, and mechanisms to restore depleted storage. The anticipated NEPA process must consider the possible futures that the Basin could face, considering current hydrologic data, depleted reservoir storage conditions, and the experience gained from the 2007 Interim Guidelines and 2019 Drought Contingency Plans. The scope of the NEPA process should focus only on the topics necessary to sustainably manage water supplies; incorporating every aspect of river operations and future supply development in the NEPA process would be untenable. The potential scope of the Post-2026 Operations should consider water releases for compliance with the Law of the River, including surpluses and shortages, as well as operational flexibility to incentivize storage and conservation and to support augmentation. Other issues should be addressed through different, parallel paths.

The Basin States believe that balancing consumptive uses and depletions with available supply is the foundation for sustainable management under Post-2026 Operations. This should include the advancement of meaningful water conservation programs across all sectors and transparent and accurate accounting of depletions and available supply. Balancing the system is key to preserving its existence for future generations.

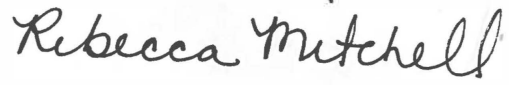
While we reserve our rights to provide comments in the formal scoping process, the Basin States thank you for the opportunity to provide these pre-scoping comments on the development of Post-2026 Operations. We look

forward to continuing our partnership with you, Mexico, Basin Tribes, water users, and stakeholders, as we move forward in managing this critical resource.

Sincerely,



Thomas Buschatzke
Governor's Representative
State of Arizona



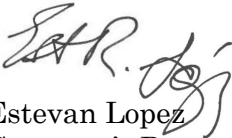
Rebecca Mitchell
Governor's Representative
State of Colorado



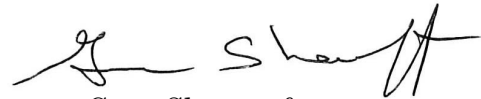
Peter Nelson
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Estevan Lopez
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Gene Shawcroft
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