Federal Register Notice on Post-2026 Colorado River Operational Strategies

Public Informational Webinars per 87 FR 37884

July 12 and 14, 2022

Purpose of Informational Public Webinars

- Purpose of this webinar is to summarize the content and purpose of the Federal Register Notice (87 FR 37884) on Colorado River Operational Strategies for Post-2026 published on June 24, 2022
- Two webinars are being offered (with identical content presented on each):
  - Tuesday, July 12, 2022, at 10:00 AM MDT
  - Thursday, July 14, 2022, at 10:00 AM MDT
- The purpose of these informational webinars is NOT to receive comments or input that is being requested in the Notice
  - Please submit comments and input to CRB-info@usbr.gov
- Please submit your input by September 1, 2022

Purpose of the Federal Register Notice

- Several reservoir and water management decisional documents and agreements that govern the operation of Lake Powell and Lake Mead expire at the end of 2026
- The purpose of the Notice is to receive input on the process and substantive elements for post-2026 operations prior to initiation of a formal process pursuant to the National Environmental Policy Act (NEPA)
  - Reclamation intends to formally initiate the NEPA process through a Notice of Intent to Prepare an Environmental Impact Statement in early 2023
- The Notice is a tool to seek input and encourage brainstorming prior to initiating the NEPA process

Content of the Federal Register Notice

- In addition to asking for input on the process and substance for post-2026 operations, the Notice highlights the changing circumstances in the Colorado River Basin since 2007
  - Declining hydrology and drought impacted by a warming and changing climate
  - Inclusivity in Colorado River decision-making
  - Operational alignment and partnership with the Republic of Mexico
- The Notice also highlights the dire state of the system and recognizes that other processes to develop and implement near-term response actions may need to proceed on parallel timelines

Specific Areas Reclamation is Seeking Input on for Post-2026 Operations

- ***Process:***

  Suggested mechanisms for the anticipated NEPA process(es) to ensure that a wide range of Basin partners, stakeholders, and the general public can meaningfully engage and participate in the development of post-2026 operational strategies

- ***Substantive elements:***

  Potential substantive elements and strategies that should be considered for post-2026 operations and considered in the anticipated upcoming NEPA process(es)

Reclamation is particularly interested in receiving specific recommendations that can be considered and potentially integrated as the initiation of the post-2026 NEPA process is being developed.

QUESTIONS

For more information visit:
https://www.usbr.gov/ColoradoRiverBasin/

Submit comments to:
CRB-info@usbr.gov

BUREAU OF
RECLAMATION

IRRIGATION & ELECTRICAL DISTRICTS'
ASSOCIATION OF ARIZONA

Ms. Camille Touton
Bureau of Reclamation
1849 C Street NW
Washington DC 20240

August 16, 2022

Re: Colorado River Drought Operations – Now & Post-2026

Dear Commissioner Touton:

On behalf of IEDA, I must start by commending you on your bold stance at the June 14th Senate Energy and Natural Resources hearing, calling for an additional 2-4 MAF of conservation on top of the ongoing Drought Contingency Plan and 500+ Plan. Desperate times call for desperate measures!

As we enter our 23rd year of drought, one thing is certain-the current guidelines aren't working. My experience with the operation of the river has been that projections often exceed reality. In power production, energy estimates exceeded actuals so consistently that the Arizona Power Authority reduced forecasted energy by 3% for calculating the base charge. For water deliveries, yearly basin evaporation and losses of nearly 1.2 MAF are not included in the allocations. This discourages conservation at a time where every drop should count.

Arizonans understand the value of water better than most, leading in water management with its 1980 Groundwater Law. Today, Arizona has been the biggest contributor to the DCP and 500+ Plan. While I know that Arizona's recent conservation efforts are due to our "junior" status, I also know that failure on the Bureau's part to take a hard stance with California's overdrafting has put the river on the edge of a system crash. California is going to continue to do nothing until they are forced to, like the QSA in 2004. In fact, if California was made to stay at their allocation from 1990 to 2004, there would be another 9 MAF in the system (before evaporative losses).

As a Nevadan, you understand the issues with California's water appetite, which has been a threat to the other basin states since the formation of the Compact. Therefore, IEDA

encourages you to execute your purview as ***water master*** to protect the Colorado River and distribute amounts that are equitable while protecting the system from crashing.

As ***water master***, the first thing you should do is proportionately allocate yearly evaporation and losses. This alone will address roughly 1.2 MAF of the conservation you are seeking. With this inclusion, infrastructure improvements should rise to the top of the list to reduce system losses.

Second, allocations should factor in system efficiencies. I understand that every state, irrigation district, and farm field are different, but cheap and abundant water gets wasted. Reducing the availability of cheap water will increase efficiency by necessity. While it might be hard to project efficiency savings, it should be easy to tell who is wasting water and who isn't.

Third, California has an elaborate water infrastructure, which allows it to bring water from the north into the southern part of the state. It also benefits from significant wet seasons, but it is unable to capture the runoff due to lack of storage and because it sends a majority of the precipitation to the ocean to protect the environment. While a state issue and likely outside the scope of the Federal Register Notice request, California sends more water to the ocean than the entire Lower Basin Allocation, including Mexico's amount. I encourage you to discuss their water handling practices to offset their river reductions.

Fourth, I would work with the International Boundary & Water Commission to renegotiate the 1944 Water Treaty. Some would claim that the treaty has priority over present perfected rights. Prior to the initial negotiations, Mexico was using only 750,000 AC-FT. If Mexico's treaty amount of 1.5 MAF is protected and prioritized, what once was roughly 10% of the allocation, is now approximately 25% of the runoff of the last three years. At a minimum, I would seek a reduction to 1 MAF until such time as normal hydrology returns.

Fifth, recent activities in the Ukraine have highlighted the importance of food security and agriculture. The Yuma County is responsible for 90% of the winter leafy green vegetables grown in the United States. Any actions taken should balance the food security issue with the efforts to protect the river system. Therefore, we encourage you to give serious consideration to the "Save the River" proposal put forward by Yuma area growers, especially with the inclusion of $4 billion in the Inflation Reduction Act for activities outlined in the proposal.

Finally, protect hydropower to the extent possible given the existing drought. Glen Canyon Dam is at critical levels, and a poor design has limited what can be done in the short run. I know that the Bureau is performing a study to analyze options at Glen, and we look forward to those results. While participating in the Adaptive Management Work Group, I have seen attack after attack on the hydropower system in the supposed name of endangered species. Hundreds of millions of dollars have been spent on trying to protect the fish, but the ultimate end game seems to be just to build beaches for river runners. The benefit to the Western Interconnection is too valuable to continue to reduce the capacity at the dams. The 2020 California Brownouts should be proof of that.

By analyzing the last 1,000 years of tree rings in the Southwest, it appears that the Colorado River Basin experiences a drought every 150 years. These droughts last for 20 to 50 years. Time will tell if we are in the middle of the cycle or nearing the end, but until we are out of it and the reservoirs are at least 40% full, I encourage you to retain the "water master" role until we are in the clear.

Sincerely,

Ed Gerak
IEDA


Dolores River Boating Advocates

Dolores River Boating Advocates
PO Box 1173
Dolores, Colorado 81323

Dear Carly Jerla,

I am submitting the following comments on behalf of the Dolores River Boating Advocates (DRBA) regarding Post-2026 Colorado River Reservoir Operational Strategies. DRBA is a small 501(c)(3) organization based in Dolores, Colorado, whose mission is to protect and enrich the recreational and ecological values of the Dolores River through advocacy, stewardship and education. Our main focus, the Dolores River, is an Upper Basin tributary to the Colorado and therefore an integral part of the overall Colorado River system.

We have organized our comments into the sections: the first addresses procedures or stakeholder process that may best engage diverse interests, particularly in the Upper Basin states. Secondly, we lay out ideas that may help with the substantive aspects of future Colorado River Basin operations and management in the long-term. Third, we consider a few data gaps that should be filled and funding needs for programs to help implement programs and mitigate challenges.

The overarching theme of the 2026 Annual Operating Plan should be adapting to climate change in the long-term, in a manner that is equitable to all human communities and the ecological integrity of the river itself.

I. Processes & Engagement Strategies

a. BoR should be involved with the Upper Basin's Five-Part Plan:

To have the most effective and equitable outcome of reducing water use in the Colorado River Basin, all water users and interests must be consulted via localized scoping meetings. Programs that the Upper Colorado River Basin states outlined in their five-part plan, such as System Conservation Pilot Program (SCPP), and Demand Management are tangible examples of where BOR should participate to provide additional resources, accountability, and consistency in implementation between states, because these programs will need to be significantly scaled up to make a difference (UCRC 2020 Report.)

Putting federal resources into designing and implementing these processes and subsequent programs alongside the states and irrigators could help ensure transparency between local communities and the federal government, implement local solutions with multiple benefits, and better understand the cost of many potential programs moving forward.

For example, agriculture is by far the largest user of water in the Dolores River watershed, and the drought has been immensely challenging on many farmers

(particularly those with junior water rights,) and the river itself, who's ecosystem is dying. In this way, there may be both an economic and ecological benefit to compensated water transfers (temporary or permanent) in the sub-basin, however, any program must be developed with local leadership and input.

Demand Management, SCPP, and other programs that are voluntary, temporary and compensated have been studied at length by the federal government, academics, and NGOs, therefore BOR should ensure those lessons learned are understood before engaging in similar processes.

We recognize these meetings and processes could easily take years to come to tangible solutions, so initial scoping and fine-tuning frameworks should happen as soon as possible. Furthermore, BoR should hire additional staff to help organize, facilitate, and implement these programs.

b. Prioritize engagement with Tribal nations and upholding treaty rights:

Given that the at least 30 unique Tribal Nations in the Basin that collectively hold rights to around 25% of the river, it is imperative that BoR and the Colorado River Basin states engage with Tribes consistently and incorporate their feedback into the new guidelines. Furthermore, installing infrastructure to ensure all Tribal nations have clean running water should be a priority for the federal government.

c. Utilize basin-wide NEPA processes for new 2026 Operational Guidelines:

All major changes that fall outside the scope of current operational plans and decisions should trigger a new NEPA process. Furthermore, any new environmental assessments need to consider the impacts of climate change on streamflow, snowpack, and greenhouse gas emissions. This process should be comprehensive and include both the Upper and Lower Basins, and be well-staffed by federal agencies.

d. Address the underlying over-allocation problem:

It has been argued that the Colorado River was over-allocated as early as the 20th century (Fleck and Castle, 2022.) Since the mega-drought started in 2000, the system has been clearly over-drawn and not sustainable. To this end, it is critical that the processes the BoR leads both before and after 2026 operational discussions include permanent cuts to water use, particularly in the Lower Basin states.

Furthermore, on state and watershed levels, it may be prudent to create frameworks that consider a percentage-based allocation system rather than static amounts based on the available amount of water. In this manner, water may be but to better uses and allow flexibility to water users. In Nevada, the state Supreme Court has allowed a localized plan that supersedes prior appropriation in regards to managing aquifers, which may set a precedent moving forward.

Dolores River Boating Advocates

II. Operational & Management Strategies

a. Maximize ecological health with tributary management:
The health of rivers and streams making up the Colorado and Green River is extremely important, and BoR should consider tributary health more explicitly in the post 2026 operational guidelines. This includes considering the health of aquatic species, as well as habitat and flow management.

b. Increase water quantification technology:
BOR should work with the states to install additional gauges and water quantification instruments on as many streams, diversions, and ditches as possible; and provide funding and labor to ensure they are maintained. This will be critical to understand where and how water is used, as well as address the stewarding problem associated with demand management.

c. Subsidize local food production and discourage sending products overseas:
Given how agriculture is by far the largest use of water in the Colorado River Basin, it will be important to intervene in agricultural markets and international sales of crops. Much of the crops grown in the basin are sold overseas, functionally transporting water and soil out of the Colorado River Basin.

Creating subsidies and incentives to keep food in the United States will be an important component to the sustainability of water use in the Colorado River Basin.

d. Cap water development in the Upper Basin:
BOR and Wheeler et al (2022) have both found that additional Upper Basin development would add continued pressure to the Colorado River System. No additional development should be allowed, unless water savings are made up for elsewhere in the same watershed. In other words, consider the current level of stored water in each state and watershed the maximum allowable amount, and if alternative storage is found to be a better use of water, than previously stored water would be sent downstream.

III. Additional Data & Federal Funding Needs

a. Crop inventory for all Colorado River Basin states:
BOR should work with USDA and other state and federal agencies to create reports that summarize crop type and use associated with the Colorado River.

b. Fund farmland and riparian restoration:
Assuming programs that fund farmers to fallow fields temporarily or permanently will be implemented in the coming years, it will be important to consider funding for restoration. If fields are to come out of production, helping farmers with costs such as seed is critical to help improve the quality of the land in an uncultivated and natural state.

Dolores River Boating Advocates

I. Tributaries – Particularly in the Upper Basin, tributaries are vital in the health of the overall system and contribute significant water, aquatic habitat connectivity, and support diverse rural communities. As part of the 2026 Colorado River Operational Guidelines, tributaries should be addressed.
    - Ensure water quantification technology is installed on as many streams, diversions, and ditches as possible, and provide funding and labor to ensure they are maintained.
    - Prioritize tributary connectivity to the mainstem Colorado and Green Rivers (both in terms barriers and sufficient streamflow.)
    - Reclamation should address each major Upper Basin tributary with a federal nexus (i.e., communities that receive water from a federal project) individually. By addressing each major tributary individually, it would acknowledge their differences and quantify of shortages they are able to contribute. This would help clarify vague expectations on how individual water users and tributaries need to contribute to the 2-4 million-acre-foot cuts.

II. Ensure a natural flow regime is maintained throughout tributaries & increase money for restoration
    - Provide guidance for how to manage reservoir flow regimes (e.g., consider the amount of inflow and % outflow to mimic natural variability albeit reduced proportionally for diversions)
    - Bookmark funding for leasing water for ecological purposes.

[EXTERNAL mments f r 87 FR 37884 - P st-2026 ra Ri er Reser ir Operati nal strategies

Rica Fulton <rica@doloresriverboating.org>

Thu 8/18/2022 8:22 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

1 attachments (628 KB)

CO_River_Operational_Comments_DRBA.pdf;

No comments; see letter attached.

Dear Carly Jerla and Reclamation staff,

Please find comments (attached) associated with 87 FR 37884 regarding the Post-2026 Colorado River Reservoir Operational Strategies from the Dolores River Boating Advocates, a 501c3 located in Dolores, Colorado.

Thank you for the opportunity to submit comments for this important process,

Rica Fulton

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Rica Fulton
Advocacy and Stewardship Director d
Dolores River Boating Advocates d
www.doloresriverboating.org d
970-799-3316

Donate to Dolores River Boating Advocates at: http://doloresriverboating.org/donate/ and visit us on Facebook d

SOUTHERN UTE INDIAN TRIBE

August 16, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation

CRB-infor@usbr.gov

RE: Southern Ute Indian Tribe's written comments for the "*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 Southern Ute Indian Tribe ("Tribe") has reviewed the Federal Register Notice, 87 FR 37884, published on June 24, 2022, titled "*Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead*" ("Pre-Scoping Notice"). The Tribe appreciates the opportunity to provide input on how we can be included as an active and meaningful participant in the upcoming NEPA process to develop post-2026 operations for Lake Powell and Lake Mead as well as to provide input on potential substantive elements and strategies for post-2026 operations.

The Ute people have lived in Colorado and the surrounding areas for time immemorial. The Southern Ute Reservation, located in Southwestern Colorado, is a small portion of our original homeland. The Tribe has a water settlement, enacted through the Colorado Ute Indian Water Rights Settlement Act of 1988, 102 Stat. 2973 and amended in the Colorado Ute Indian Water Rights Settlement Act Amendments of 2000, Pub. L. No. 106-554, 114 Stat. 2763. The Tribe holds a wide variety of surface, storage, and groundwater state-based and federally reserved rights with various priority dates, amounts and beneficial uses. Although the Tribe recognizes that the Colorado River Basin is experiencing a prolonged period of drought, as a sovereign, we must be allowed to develop our water to continue to meet the needs of tribal members and the Reservation in the future. These basic needs include clean drinking water, adequate sanitation, agriculture, wildlife, and economic development.

Tribes have historically been left out of the conversations on the management of the Colorado River system, including Lake Powell and Lake Mead. However, the Tribal Water Study found that the 10 member tribes of the Colorado River Ten Tribes Partnership (of which Southern Ute Indian Tribe is a member) hold rights to approximately 2.8 million acre-feet of water per year from the Colorado River and its tributaries. This is a significant amount of water. When the water rights of the additional 20 Colorado River Basin Tribes are added to that amount, it is clear

that a large portion of the Colorado River Basin water rights are held by tribes. In addition, tribes are not merely water users, members of the public, and stakeholders; tribes are sovereign entities. As a sovereign in the Basin, the Tribe does not want to be updated on the negotiations between the States and the Federal team *after* decisions are made; the Tribe wants to be at the table *during* discussions and negotiations. The Tribe must be involved in discussions in order to protect our water rights as well as the fish, the plants, the land, and the animals that depend on the water. In addition, the Tribe has expertise to share in crafting a solution to this long-term challenge we all face.

The Bureau of Reclamation's trust responsibility to tribes, including the Southern Ute Indian Tribe, requires the Bureau to ensure that tribes are included in the development of the Post-2026 operational guidelines for Lakes Powell and Mead. The Tribe urges Reclamation to take the lead in bringing tribes to the table during negotiations between the state and federal teams, so the tribes can respond to the suggested rules, policies, guidelines, and regulations in real time and so tribes are able to protect their interests. The 2022 Drought Response Operations Plan is a good example of collaboration and inclusion of tribes in Colorado River Basin discussions. That Plan authorized the inclusion of the 6 Upper Basin Tribes, including Southern Ute Indian Tribe, in any working group established by the Drought Response Operating Agreement Parties to assist with drafting, developing, implementing, analyzing proposals, or monitoring any Drought Response Operation. This example allows tribes meaningful participation in the discussions while they are ongoing and to provide any input during those discussions, not after the discussions have concluded. In addition, as trustee to the Tribe, Reclamation has an obligation to ensure that the Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead do not have a detrimental impact on Southern Ute's water rights or the future development of its water rights. Southern Ute urges Reclamation to ensure that the new guidelines are implemented in a manner consistent with Southern Ute's water rights and Reclamation's trust obligation to Southern Ute. Last, the United States must commit to engaging in formal consultation with the Tribe if the Tribe is going to be affected by actions taken to protect Lakes Powell and Mead in the development of the Post-2026 operating guidelines.

In the Pre-Scoping Notice, Reclamation recognizes that the last 23 years have been the driest period in this century as well as in the last 1,200 years. Because of this long-term drought, Colorado River reservoir levels are declining, which threatens water supplies across the Southwestern United States and Mexico. When initiating the NEPA process, the Tribe asks Reclamation to remember its trust responsibility to honor the Tribe's sovereignty, water settlement, and Federal Indian Reserved water rights. Reclamation can do this by pushing to include tribes in negotiation discussions between the states and the United States and to consult with the Tribe if our water rights are going to be impacted.

The Post-2026 Operating Guidelines should not only deal with management of Lake Mead and Lake Powell but should also consider the integrity and health of the Colorado River and its tributaries. The Guidelines should also allow the Tribe to develop its water rights for future domestic and municipal use as well as for future economic development, which would also

benefit its tribal members. Tribes generally look 100 years into the future when making plans for their tribal members so that they account for future generations. The Post-2026 Operating Guidelines must account for future generations as well. The Post-2026 Guidelines must provide water security for the people in the Colorado River Basin; it should be flexible enough to address continuing drought and climate change; and it should allow for a variety of responses so that all sovereigns and water users are not managing a new crisis every few months. The NEPA process should be a comprehensive process used to identify all possible impacts to the Colorado River as a whole, which would include impacts to human uses, wildlife, fish, plants, social, and cultural uses.

The Post-2026 Operating Guidelines are only one step of many to address the impact of drought and climate change on the Colorado River system. The Tribe recommends that Reclamation and other U.S. agencies work on parallel efforts throughout the Colorado River Basin to assist in managing the waters in the Basin including:

1. Start an accounting process for the undeveloped water that is flowing downstream. The Tribe is concerned that downstream users have become reliant on our water and are not paying for that water.
2. Secure funding for the Tribe's federal irrigation project, the Pine River Indian Irrigation Project, which sorely needs funding for repairs. The repairs would allow for better and more efficient use of the Tribe's water rights.
3. Secure funding to build infrastructure to utilize the Tribe's water being stored in Lake Nighthorse once the tribe has determined how best to use that water.
4. Assist the Tribe with funding or technical assistance to provide access to clean drinking water for its tribal members that do not have plumbing to access that clean drinking water.
5. Fund new opportunities for tribes to participate in water conservation programs.
6. Fund the San Juan River Recovery Implementation Program to maintain and enhance the federal Endangered Species Act (ESA) recovery, which would assist the Tribe in maintaining its ESA compliance for its water settlement in Colorado, as well as the other tribal, states, and federal project participants.

The Tribe appreciates Reclamation's initiative to hold the monthly (and now weekly) Tribal Information Exchange webinars that provide up-to-date information to the tribes. We also thank you for the opportunity to provide input on the process for participation and potential elements of the upcoming NEPA process. We look forward to working with you and other stakeholders in the development of the Post-2026 Operating Guidelines to ensure that the current and future needs of the Tribe are met.

Sincerely,

Melvin J. Baker
Chairman, Southern Ute Indian Tribe

cc: Tanya Trujillo, Assistant Secretary for Water and Science, U.S. Dept. of the Interior
Camille Calimlim Touton, Commissioner, U.S. Bureau of Reclamation
Bryan Newland, Assistant Secretary, U.S. Bureau of Indian Affairs
Wayne Pullan, Regional Director, Upper Colorado River, U.S. Bureau of Reclamation
Jaci Gould, Regional Director, Lower Colorado River, U.S. Bureau of Reclamation
Ernie Rheaume, Native American Affairs Program Manager,
U.S. Bureau of Reclamation, Upper Colorado River Basin
Kaylee Nelson, Acting Native American Affairs Program Manager,
U.S. Bureau of Reclamation, Lower Colorado River Basin

SONORAN
INSTITUTE

August 26, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation
CRB-info@usbr.gov

Re: Joint Response of Upper Basin Dialogue Participants to the Bureau of Reclamation's "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,

Sonoran Institute is a 32-year-old conservation organization that works to ensure that the Colorado River is managed in a more holistic, inclusive, and adaptive fashion to benefit communities and wildlife in the US and Mexico. We have a long history of facilitating dialogue in the Colorado River Basin with rural landowners, small towns, water districts, cities, Tribes, and government agencies in developing collaborative approaches to management of land, water, and the species they support. Through our Growing Water Smart Program, we provide training and technical assistance to communities in the Colorado River Basin to address water supply-demand gaps and advocate for policies that promote water conservation and re-use of stormwater, treated wastewater, and agricultural return flows in urban settings. We also have pioneered river restoration efforts in the Basin, including the Colorado River Delta and Santa Cruz watershed, demonstrating the feasibility and benefits of large-scale restoration and policies that allocate water and funding for such efforts.

Building on these efforts, Sonoran Institute prepared these comments to the Bureau of Reclamation's (Bureau) "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions" (a/k/a Pre-Scoping Notice) as published in Federal Register Notice – 87 FR 37884 on June 24, 2022.

We would like to thank the Bureau for acknowledging the seriousness of the problem we all face. As we develop policy that will govern the Colorado River in years to come, it is imperative that we acknowledge that the river has never had the volume originally apportioned under the 1922 Colorado River Compact, that the current volume is declining rapidly, and that we may never return to the flows that we have been accustomed to in previous decades.

We want to thank the Bureau for recognizing the importance of active and meaningful involvement by all sovereigns, including Mexico and the 30 Colorado River Basin Tribes, as well as stakeholder groups, in developing and implementing river management policy from the outset of the development of the Post-2026 Colorado River operational strategies. Sonoran Institute has staff and programs in Mexico who work daily with people that live in the Delta region. We understand their personal relationship with the lower Colorado River and their desire to ensure the river's importance remains a key part of their culture and society.

Sonoran Institute acknowledges that the pre-scoping effort is the first step toward the formal scoping NEPA process that is scheduled to begin in early 2023. This pre-scoping effort is intended to help identify issues that will frame development of the NEPA process both procedurally and substantively. It is with this understanding that we provide the following recommended guiding principles and shared priorities that we believe are important to the development and success of the post-2026 management framework for the Colorado River Basin.

Guiding Principles for Future Colorado River Strategies and Operations

1. *Integrity*. An overarching goal of any management framework involving the Colorado River Basin should be to help ensure the overall physical, social, and ecological integrity of the Colorado River and its tributaries, while providing water for our farmers, ranchers, and growing communities, Tribal nations, and the environment in both the US and Mexico.

2. *Resilience*. The future of the Colorado River and its tributaries depends on whether the Basin can adapt and adjust to the hotter, drier conditions and the increased frequency and severity of drought, wildfire, and flooding confronting the Basin. To be successful, future management strategies and operations will have to incorporate an ethic of resilience that focuses on helping establish the sustainable use of the Colorado River and its tributaries for people and the environment in the US and Mexico for years to come.

3. *Sustainability*. For too long the Colorado River has been treated as a water supply that would sustain the Colorado River Basin forever. Beginning in the early 2000's, the hydrology of the Basin began to shift to one of depletion rather than surplus. Ensuring the sustainability of the river, watershed, and all people who depend on its water supply must involve a commitment to negotiations and balanced outcomes, where current needs are met without compromising the ability to meet those needs in the future.

4. *Equity*. Any future management framework must ensure that Colorado River water is equitably distributed and that the Basin's diverse communities and economic interests are engaged in the development and implementation of a new framework.

Key Themes and Priorities for Colorado River Strategies and Operations

1. *NEPA Process Considerations:* The Pre-Scoping Notice identifies that the Bureau intends to design and implement the next Colorado River management framework using "a stakeholder engagement process that is inclusive, transparent, encourages and supports meaningful engagement." To achieve this goal, it is necessary to commit to inclusivity, consultation, and outreach, and we would emphasize that the NEPA process should, among other things:

    a. Specify the opportunities and timeframes to inform and consider the input from Tribes and stakeholders to comprehensively address Colorado River challenges with state and federal agencies.
    b. Recognize that meaningful engagement of Tribes and stakeholders will be conducted at useful intervals and provide reasonable opportunities for understanding, discussing, and ultimately providing feedback in building the future management framework.
    c. Proactively identify topics or issues that could be the subject of convenings, research, or activities that generate ideas to inform the process, and encourage universities, non-governmental organizations, and other stakeholder groups to lead such complimentary efforts.
    d. Be transparent with respect to process, sharing data, identifying decision-making points, and discussing the assumptions and hypotheses being tested and evaluated.
    e. Develop a sustained public engagement strategy that takes full advantage of Web-based and social media platforms (e.g., webinars, virtual/hybrid/recorded meetings, data hubs, online dashboards, and story maps) to update and educate the public on the process. For an example, see: https://www.epa.gov/sfbay-delta.
    f. Establish advisory groups around particular topics or areas of expertise (e.g., hydrologic data and modelling, environmental and cultural resource preservation, public engagement) that can assist with the development of the new framework and potentially evolve into standing advisory groups that can guide the framework's implementation.

2. *NEPA Analysis Considerations:* The Pre-Scoping Notice explains the need to consider future operations and management strategies under conditions of deep uncertainty and best available science. Pre-scoping is done when issues are complex, there is considerable public interest and/or there are likely to be challenges to the approach and assumptions. To further the substantive development of the next Colorado River management framework, the NEPA process should:

    a. *Clearly define a management goal or set of goals for the new framework.* The purpose of a goal is to clarify the ultimate end(s) to be achieved by

the management framework and to assist with measuring progress in, and impact of the framework's implementation. It should articulate how goals related to storage and allocation are re-defined in a volatile and uncertain operating environment.

b. *Perform a comprehensive analysis*: As the Pre-Scoping Notice identifies, current operations under changed circumstances have produced adverse impacts to society, the environment, and the economy. All indications are that the Basin's hydrology will not improve anytime soon. Accordingly, the next Colorado River management framework cannot simply focus on short-term efforts to stabilize the system. It must also promote the long-term sustainability of the Basin's people and natural environment in the US and Mexico. To achieve this outcome, the NEPA process must:

    i. Identify, assess, and address the possible impacts not only to the operation of Colorado River reservoirs but also to the critical social, cultural, and environmental resources that serve as a foundation for the Basin's integrity.
    ii. Build on a range of modeling scenarios, including driest and wettest conditions, that account for the hydrologic realities of both the Upper and Lower Basins and anticipate a robust range of responses in the face of uncertain future conditions. This will require incorporation of updated and advanced modeling efforts, as well as integration of information from a diverse group of perspectives, including traditional indigenous knowledge.
    iii. Develop and include short-term adaptive actions in response to more immediate changing hydrologic conditions and longer-term mitigative measures that could be implemented to reduce the overall risk exposure and impacts to the public and the environment.
    iv. Identify the ecological and ecosystem critical aspects, specifically ESA driven issues, and ecosystem integrity thresholds that can be brought into the assessment and decision process. This should include all the major ESA focused adaptive management, mitigation and recovery programs that today are spread throughout the Basin.

c. *Work to complement essential parallel efforts:* We recognize the next Colorado River management framework may not encompass every issue plaguing the Basin. Future management strategies and operations, therefore, must be sufficiently complementary to parallel efforts that remain essential to the Basin's integrity and long-term sustainability. Such parallel efforts include, but may not be limited to:

i. Reaching agreement with Mexico on use of Colorado River resources after expiration of Minute 323 and a commitment to continue to have an open dialogue that encourages engagement.
ii. Securing reliable access to clean water for all Tribal members and other Colorado River Basin residents. This includes developing water infrastructure that allows for the delivery of water to Tribal members.
iii. Capitalizing on the Infrastructure Investment and Jobs Act, Inflation Reduction Act, and other funding opportunities, including watershed management, that will allow us to build the efficiency and conservation mechanisms needed to enable us to do more with less.
iv. Identifying other federal water programs that could be utilized to augment water supply for selected areas of the Basin. Expanding the water portfolio for urban, rural, agricultural, and Tribal communities and sectors is necessary. Programs such as stormwater capture, water reuse, recycling, agricultural efficiency technology, evaporation reduction—all can be used to augment water supplies to reduce the strain on the Colorado River.

Because these and similar efforts are of such great importance to the health of the Basin, our support for a future Colorado River management framework will be measured in part by how this framework works in concert and avoids conflict with other related efforts aimed at promoting greater certainty, building more resilient communities, ecosystems, and economies, and reducing potential conflict over water management decisions going forward.

In a constrained water future, communication and coordination between decision makers, stakeholders and the public will be critical. Creating and supporting forums that allow for quick and accessible levels of communication will be essential to maintaining a knowledgeable and supportive public.

d. *Allow for greater flexibility:* A key element of the next Colorado River management framework must also be flexibility—the framework must be able to quickly adjust to and account for changing conditions without requiring complete system overhaul in parts of, or throughout, the Basin. For the framework to provide flexible water management strategies that contribute to Basin-wide water security for all water users, including the environment, it must be based on a range of modeling scenarios.

Flexibility requires real time data and information. The present management of the Colorado River system is based on 24-month studies and restricted shifting from historical protocols. That worked fine when there was excess water in the system. With the structural water deficit that

now exists in the Basin and shifting demands, a real-time approach that allows for daily and hourly fine tuning of water deliveries and reservoir management is required.

e. *Creatively utilize, conserve, and diversify local water portfolios within the Basin.* The future will include a less robust and more variable Colorado River water supply. Achieving water supply resilience requires integrated water resource management, or effective use of all forms of water to augment existing supplies, as well as increases in water conservation and efficiency. Support for rain and stormwater capture, water reuse and recycling, improved efficiency of fixtures, appliances, and urban irrigation are vital to support the new management framework and should be promoted as such.

Sonoran Institute values the opportunity to inform the processes for developing the NEPA efforts related to the next Colorado River management framework. Sonoran Institute is a part of the western landscape and community. We live and work here, and we are committed to being engaged in ensuring that our water future is based on good science, transparent process, equitable apportionment of impacts and benefits, and engaged decision-making. We look forward to working together in the months and years to come to meet the immediate needs in the Colorado River Basin and to ensure long-term sustainability for the people, plants, and other species within the Basin.

Signed,

Mike Zellner
Chief Executive Officer
Sonoran Institute

John Fleck
Writer in Residence, Utton Center
University of New Mexico School of Law
Albuquerque, NM 87131
fleckj@unm.edu

R. Eric Kuhn
224 Meadow Wood Rd
Glenwood Springs, CO 80601

John C. Schmidt
Janet Quinney Lawson Chair in Colorado River Studies
Department of Watershed Sciences
Utah State University
Logan, UT 84322-5210

August 28, 2022

Comments on Proposed Development of Post 2026 Colorado River Operational Strategies

Sent via email to CRB-info@usbr.gov

Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr. Suite 113
421 UCB
Boulder, CO 80301-2628

Dear Ms. Jerla:

Thank you for the opportunity to submit pre-scoping comments concerning guiding principles and strategies for operating the Colorado River system in the future. The Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (hereafter, Interim Guidelines) expire in 2026, and water storage in the reservoirs of the Colorado River are at unprecedented low conditions.[1]

We agree that "Lake Mead and Lake Powell face extraordinary risks" in the near and distant future due to the challenge of matching consumptive uses and losses with long-term supply. We further agree that the entire Colorado River system could see

[1] 87 Fed. Reg. 37,884 (June 24, 2022).

"temporary or prolonged interruptions in water supplies, with associated adverse impacts on the society, environment and economy of the southwestern United States."[2] These are unusually stressful times for water managers, and we appreciate the seriousness with which the Department of the Interior and the states are attempting to address the present shortfall in water supply provided by the Colorado River.

The present water supply crisis has been developing since the onset of the Millennium Drought in 2000, and it is instructive to review the successes and challenges of the Interim Guidelines in meeting the beginning of the present crisis in the early 2000s as well as the deepening crisis of the 2020s. Today, we are more than 20 years into this prolonged period of low watershed runoff that might be the new "normal'' condition, and careful evaluation of lessons learned from implementation of past agreements will help Interior meet the challenges of the future.

In its Final Environmental Impact Statement in support of the Interim Guidelines, Interior identified the purpose and need of these Guidelines as an effort to provide "predictability" - "a greater degree of certainty to United States' Colorado River water users and managers …, thereby allowing water users in the Lower Basin to know when, and by how much, water deliveries will be reduced in drought and other low reservoir conditions."[3]

By summer 2022, any "predictability" or "certainty" we hoped the Interim Guidelines might provide has evaporated. In June 2022, Commissioner Touton stated that

> In the Colorado River Basin, more conservation and demand management are needed in addition to the actions already underway. Between 2 and 4 million acre feet of additional conservation is needed just to protect critical elevations in 2023…. It is in our authorities to act unilaterally to protect the system, and we will protect the system.
> *Commissioner of Reclamation Camille Calimlim Touton, Hearing before the U.S. Senate Committee on Energy and Natural Resources, June 14, 2022*

This kind of a call for immediate and large reductions in consumptive use, while necessary and essential, is evidence that the goal of "predictability" in the Interim Guidelines has not been achieved. The ensuing scramble to respond to Commissioner Touton's call to action has left water agencies and users across the Colorado River Basin

[2] Id.
[3] U.S. Department of the Interior, Final EIS – Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, 2007 (FEIS), p. 1-1.

with sudden and deep uncertainty about the amount of water they might have available in 2023. Uncertainty affects water users in the Upper Basin as well as in the Lower Basin.

Despite shortcomings, one important element of the Interim Guidelines looks, from the vantage point of 2022, to have been prescient. It is the concept embodied in the guidelines' very title: "Interim" - to be in place "for a long - but not permanent - period in order to gain valuable operating experience."[4]

We suggest that the core purposes identified in the 2007 FEIS remain valid 15 years later:

- consideration of tradeoffs between frequency and magnitude of water use reductions
- providing mainstream Colorado River users with a greater degree of predictability about the volume of water available for their use
- providing operational flexibility in the storage and delivery of mainstream Colorado River water.

Clearly, the Interim Guidelines were insufficient to protect the System under the conditions experienced during the past two decades and allowed the reservoirs to be largely drained. This experience suggests that important lessons are to be learned about the success and challenges of the Interim Guidelines. As described further below, those lessons include: (a) the need for a wider range of hydrological scenarios to be considered, (b) the need for a wider range of more flexible triggers for operational responses to declining supplies and reservoir storage; (c) basing operational responses solely on reservoir elevations leads to unsustainable overuse, insufficient incentive for conservation, and unwise draining of reservoir storage; and (d) consideration of multiple interests, while challenging to accomplish, will be essential to achieving long-term sustainability.

How Did We Get to the Present Situation?

It is essential that Interior fully analyze and describe the history of watershed runoff (i.e, the natural water supply that comes from the Rocky Mountains and the streams and springs within the Grand Canyon), as well as the history of basin-wide consumptive uses and losses. The accumulated difference between supply and use led to the present water-supply crisis. There must be a commonly understood history and quantification of basin-wide supply and demand that serves as a foundation for an analysis of the

[4] Department of the Interior, Record of Decision for the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead, December 2007, p. 2.

effectiveness of the Interim Guidelines and our present effort to improve water management. We recognize that Interior will conduct its own careful analysis of the history of 21st century supply and demand, and we offer our preliminary understanding of this history in an effort to encourage comprehensive conversation.

Consumptive water uses and losses have exceeded the natural supply throughout the 21st century. We used Reclamation's various consumptive use reports and estimates of reservoir evaporation to calculate basinwide consumptive uses and losses. We compared those data with the natural water supply, determined by adding together Reclamation's estimates of Lees Ferry natural flow and USGS measurements of inflows within the Grand Canyon (Figure 1). We also calculated the difference between consumptive uses and losses and natural supply for the period between 1988 and 1998 that included a relatively dry period followed by a few wet years and for the entire 21st century (Figure 2).

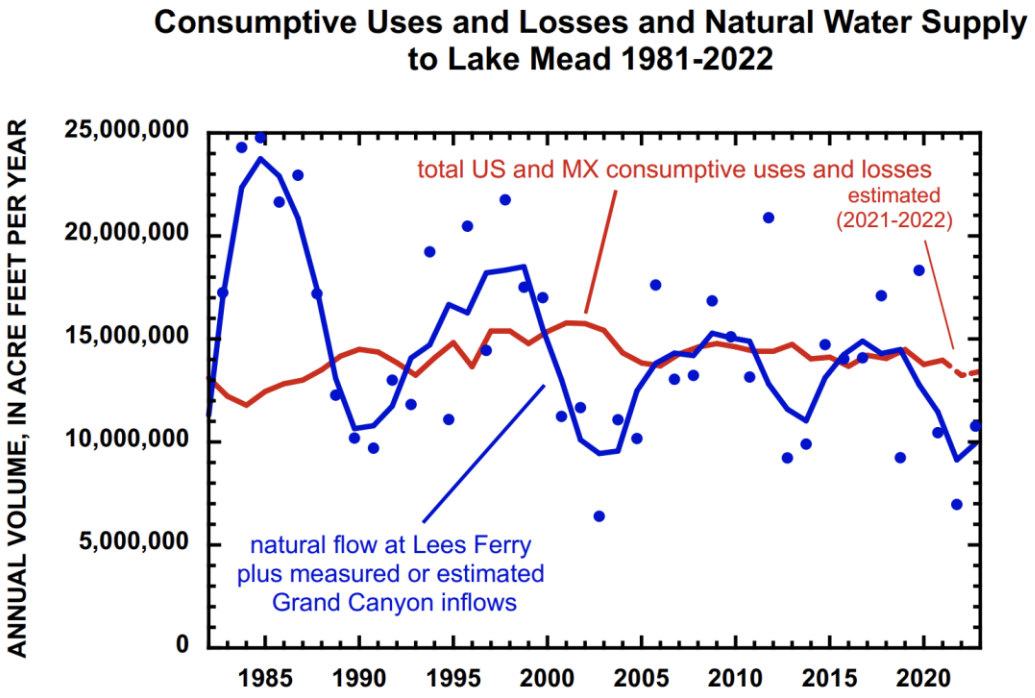

Figure 1 - Graph showing natural water supply and basin-wide consumptive uses and losses[5]

Figure 1 shows that consumptive uses and losses have changed relatively little during the past 40 years and have fluctuated much less than the natural supply. Total basin-wide consumptive uses and losses averaged 14.2 maf/yr between 2003 and 2020 after California reduced its consumptive use from 5.4 maf (2002) to 4.4 maf (2003). Consumptive uses and losses between 2003 and 2020 did not progressively increase or decrease and were within ±4% of the mean for that period. In contrast, there were cycles of somewhat wetter and somewhat drier hydrology. Natural water supply was low between 2000 and 2004, especially in 2002 and 2004, and consumptive uses and losses greatly exceeded supply. Natural runoff exceeded consumptive uses and losses in 2005, but they were less than basinwide uses in 2006 and 2007. This prolonged period when use exceeded supply depleted storage in Lake Mead and Lake Powell by ~50% from conditions in 1999. Subsequently, there were years of small surplus and small deficit, but total storage in Mead and Powell was only 6% greater in 2019 than it had been in 2008 (Fig. 2). The onset of a new succession of very dry years beginning in 2020 plunged the basin into its present water-supply crisis.

[5] Calendar year total consumptive uses and losses were calculated from Colorado River Basin Consumptive Uses and Losses Reports, provisional or revised, Upper Colorado River Basin Consumptive Uses and Losses Reports, and Colorado River Accounting and Water Use Reports: Arizona, California, and Nevada. Mainstem reservoir evaporation in the Lower Basin after 2005 was assumed to be 1.1 maf/yr, which was the average reported between 2001 and 2005 in the Colorado River Basin Consumptive Uses and Losses Report 2001-2005. Water year natural flow at Lees Ferry was as reported by Reclamation in provisional data updated in May 2022, including an estimate of natural flow in 2022. Water year inflows between Lees Ferry and Lake Mead after 1990 were calculated as the difference between the annual volume of flow at Lees Ferry (USGS gage 09380000) and near Peach Springs (USGS gage 09404200). Prior to 1990, these inflows were assumed to be 0.70 maf/yr, which is the long term average. On Figure 1, individual years are plotted as blue circles, and a smoothing line through these data is intended to facilitate observation of cycles of somewhat wetter and drier conditions. The smooth line was calculated using the locally weighted least squares error method in which the curve is a best fit through the center of 10% of the data. This is a robust fitting technique that is nearly insensitive to outliers.

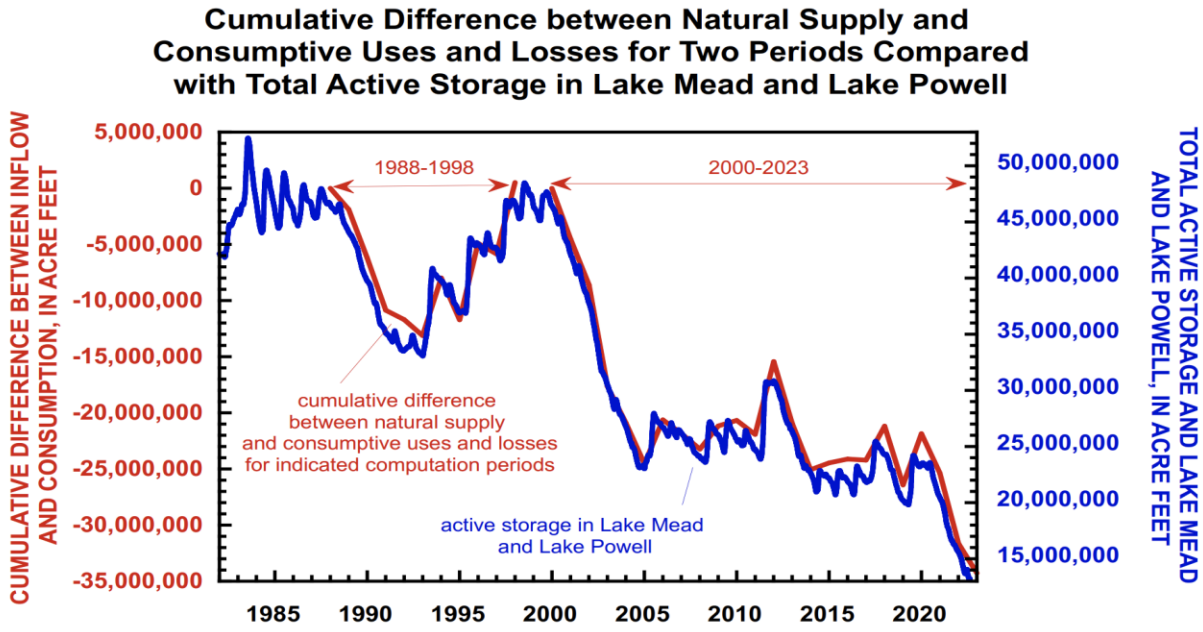

Figure 2. Graph showing cumulative difference between natural water supply and total consumptive uses and losses for two periods (red lines) and cumulative active water storage in Lake Mead and Lake Powell (blue line).[6]

This 21st century history of prolonged and increasing deficit, computed as the difference between supply and use, contrasts with the late 1980s and the 1990s. Basinwide consumption exceeded natural supply between 1988 and 1992, depleting reservoir storage by ~14 maf, but Lake Mead and Lake Powell were refilled during the wet years of 1993, 1995, 1997, and 1998.

The contrast between the history of deficit and surplus in water supply in the late 20th century and during the ongoing Millennium Drought is telling. There were a sufficient number of relatively wet years in the 1990s to recover reservoir storage. Since 2000, the relatively wet years have been fewer in number, and there has been no significant recovery in reservoir storage. Should this pattern persist as the new climatic "normal," we see no alternative but to reduce basin-wide consumptive uses and losses so there is

[6] The two computation periods span 1988 to 1998 and 2000 to 2023. The cumulative deficit for the Millennium Drought was assumed to be zero in 2000, and the first deficit in supply occurred in 2001. Data sources are the same as those in Figure 1. Cumulative active reservoir storage was as reported by Reclamation, https://www.usbr.gov/uc/water/hydrodata/reservoir_data/site_map.html.

adequate opportunity to recover reservoir storage after a few years of deficit and reservoir draining.

Future consideration of water management policy should be based on a refined analysis, potentially with more accurate data than is currently available to the general public, to describe this history of supply and demand and to evaluate why basinwide consumptive uses and losses changed little during sustained dry periods despite the Interim Guidelines.

In our view, the Interim Guidelines failed to ensure that the reservoirs refilled, and the reservoirs remained in a precarious condition between 2008 and 2019, and now risk being fully drained, because consumptive uses greatly exceed natural supply. Our analysis is based on publicly available data, and we encourage Reclamation to undertake its own analysis in search of these simple facts: What is the natural water supply derived from the Upper Basin and from the Grand Canyon? What are the total basinwide uses and losses? What triggering mechanisms must be in place that allow reservoir storage to recover, and what must be the magnitude of consumptive use cutbacks to sustainably manage the system?

Proposed Goals for Post 2026 Guidelines

With a clear understanding of the history of water supply and demand in the 21st century, and a clear understanding of the inadequate performance of the Interim Guidelines, we suggest the following as goals for the post 2026 Guidelines:

- A basin-wide commitment that water supply and use will balance, that is, long-term average consumptive uses and losses will not exceed the average natural water supply provided by the watershed.
    - We recognize that there are multiple devils in the details of this recommendation including the duration of years during which balance is sought and the mechanisms by which reductions in use must be implemented to maintain a balance. Nevertheless, there is no alternative to balancing the system. We estimate that the natural supply for the period 2000-2022, including inflows within Grand Canyon, has been 12.8 maf/yr, and there is no alternative but to at least reduce basinwide water use to that value. Should watershed runoff decline even further, then basin-wide use must be further reduced.
- Reservoirs must be refilled after sustained periods of draining. Refilling of reservoirs only occurred for relatively short periods in the 21st century and the

onset of the most recent very dry conditions led to the present water-supply crisis – consumptive use exceeding natural supply at a time when the reservoirs are mostly drained. Thus, if relatively wetter periods return, consumptive uses must remain low to recover reservoir storage.

- Mechanisms for triggering large magnitude reductions in consumptive uses and significant changes in reservoir operations must be sufficiently adaptive that the rules can be applied to a wide range of future hydrologic conditions
- Incentives for conservation and reduced usage beyond the mandatory requirements of the new Guidelines must be included and demonstrated to be effective
- The Guidelines must include flexibility and specific procedures to deal with even more severe challenges if the policies to reduce use and losses prove insufficient
- Equity in allocating necessary reductions in use will be ensured – equity among different economic sectors (agricultural, municipal, industrial, recreational), different geographic areas, and for Native American Tribes must be evaluated and explored as part of the NEPA analysis
- Specific environmental goals should be established for the river system and environmental impacts considered in developing policy related to balancing supply and demand
- The parameters used to determine operations, including evaporation, consumptive use, and Lower Basin tributary usage, will be accurate and transparent, using agreed-upon data sets
- Tribal water rights, interests and values will be fully recognized and incorporated

We recognize that these goals are broad, extending beyond what some in the basin are advocating - a narrow reconsideration of reservoir operations. We are sympathetic to the burden that the breadth of analysis we are advocating will place on the dedicated and hard-working staff at Reclamation and the Department of the Interior during the next years. But anything less than an expansive view of the task at hand will fall far short of what is needed at this moment in history.

Substantive Elements and Strategies for Post 2026 Operations

Substantive elements and strategies that should be considered in the NEPA process for the proposed Post 2026 Guidelines include:

1. Balancing average water supply with water usage
2. Realistic, accurate, and transparent parameters should be utilized for operation of the system, including Upper Basin consumptive use measurement

3. Upper Basin incentives for conservation, similar to ICS
4. Tribal water rights, values, and access
5. Consideration of the complete spectrum of environmental impacts in determining discretionary operations
6. Shortage and conservation criteria based on the impacts to total system reservoir storage, the response to actual observed hydrology, and the recovery of storage to provide security, reliability, and predictability for the system.

Each of these elements is described in more detail below.

1. Balancing average water supply with water usage

The most essential, and the most difficult, component of managing the Colorado River in the future, including development of the Post 2026 Guidelines, is the need to balance total basin-wide consumptive uses and losses with the variable, but declining, natural runoff. There will be tremendous challenges in identifying policies that can be adapted to the unavoidable uncertainty of predicting the sequence of future wet and dry years and identifying policies that can be quickly implemented in the event of an unusually wet year or of a continued series of unusually dry years. Water users desire certainty in defining their available water supply, yet the uncertainty of the future requires adaptive policies and reservoir operations. There is a clear need to reduce total basin-wide consumptive uses and losses, and the strategies to be used under progressive declining runoff and under the stress of back-to-back years of unusually low runoff must be quantified in operational directives.

We do not presume to prescribe how shortages in the available water supply ought to be divided among the watershed's users. It is clear, however, that policies on shortages and diversions must be grounded in an adaptable framework that recognizes the deep uncertainty in future hydrologic conditions. We believe that a wide range of future runoff conditions ought to be considered that not only include a prolonged natural runoff at Lees Ferry of ~12 maf/yr, but also scenarios in which average runoff is even lower and in which critically low individual years or periods are included. We also suggest that policies be developed concerning how to manage an unusually wet year that occurs in the midst of drought that provides opportunity for recovery of reservoir storage.

Future reservoir operations should also seriously evaluate how to reduce evaporative losses that are approximately 2 maf/yr across the system. Sufficient data are available to analyze the tradeoffs in the location of reservoir storage – in Lake Mead, in Lake Powell, elsewhere – associated with evaporative losses.

However reduced consumptive uses and losses are achieved, components of an equitable and accurate balance between supply and demand should include:

- Equity in distributing the burden of reduced usage must be achieved. Equity is in the eye of the beholder, but consideration must be given to the original Compact goals, allocations, and requirements, sharing the burden of impacts among economic sectors, particularly municipal and agricultural users, commitments to Native American tribes, and existing investment-backed expectations. The impact of climate change on river system flows, not anticipated at the time of the Compact, the Treaty with Mexico, or any of the three major federal authorizing acts, is part of this equity equation.
- Multiple scenarios of potential system-wide supply on a rolling average basis, together with the amount of stored water available to buffer volatility, should be considered, and resulting allocations and reductions provided. The Interim Guidelines did not ensure rebuilding reservoir storage between 2008 and 2019 and left water users in an unacceptably vulnerable position when the latest phase of unusually dry conditions began in 2020. Policies that are adaptable in the future should recognize the uncertainty of anticipating the next year's runoff and of the need to maintain adequate reservoir storage to sustain the challenge of persistent drought. The use of inalterable fixed allocations is inconsistent with wise management of a deeply uncertain future, and there is no option but to develop adaptive policies.
- Upper Basin stream flow should be used as a component in triggering different operating regimes, not solely reservoir elevation levels.
- Utilization of combined reservoir storage as a metric (as depicted in Fig. 2), rather than reservoir elevation of Lake Powell and/or Lake Mead.
- In summer 2022, the basin finds itself in the midst of a profound water crisis. Nevertheless, water users still publicly consider future increases in water use, especially in the Upper Basin where consumptive water uses are less than half those in the Lower Basin. It should be recognized that there is little, if any, opportunity to increase consumptive water use in any state or any economic sector should watershed drying patterns persist. Aspirational demand for continued increase in consumptive use should not dictate future operations. At present, water development in the basin is a zero-sum game, in which any new depletion from the river must be matched with retirement of some existing use elsewhere. We suggest that this kind of a planning approach be used in considering future water development.
- All water supplies and depletions should be accounted for, including, without limitation, seepage around Glen Canyon Dam that produces inflows between the

Dam and the Lees Ferry gage, inflows in the Grand Canyon between the Lees Ferry gage and Lake Mead, evaporation from reservoirs, and the effect of depletions in Lower Basin tributaries, including the Gila River. Best available data on these uses and losses should be utilized, and accurate measurement of actual usage and flows should be transparently maintained and made available to the public in a timely fashion.

- Planning for the future must include significant improvements in measurement of stream flow, evaporation, transmission losses, and evapotranspiration. We suggest that significant investment in improved measurement of water flows and losses be part of any program of managing the Colorado River. The 5-point plan of the Upper Colorado River Commission recognizes this urgent requirement and proposes the use of the DCP funding provided by the Bipartisan Infrastructure Law to accelerate implementation of appropriate measurement tools.[7]
- Annual evaporation from the major system reservoirs (Powell, Flaming Gorge, Aspinall, Mead, Mojave, and Havasu) is a significant basin-wide consumptive use. Depending on reservoir levels, total annual evaporation from these reservoirs can vary from 1.2 to 2 million acre-feet per year. The allocation of evaporative losses to individual states has been a long-standing issue of dispute among the Lower Division States and between the basins. The 1948 Upper Basin Compact allocates net evaporation on the CRSP initial units to the individual Upper Division States in accordance with their basic apportionments. There is no similar allocation of the evaporation to the Lower Division states from Lakes Mead, Mojave, and Havasu, but it is an obvious alternative for reducing the Lower Basin's long-term structural deficit. Given the importance of evaporation in the entire basin, it is important for Reclamation to be more transparent and consistent with how evaporation is measured, reported, and used in the Consumptive Uses and Losses Reports, decree accounting reports, and system models (24-month study and CRSS). Currently there are differences between how evaporation is reported between the Upper Basin and Lower Basin reservoirs, and updated evaporation studies are either in progress or have been completed, but the results and data have not yet been made public and to our knowledge are not yet being used. We recommend that before the different basin stakeholders begin to develop and analyze different post-2026 management strategies, Reclamation issue a clarifying report on system reservoir evaporative losses, including how they are currently handled, what

[7] Upper Division States 5 Point Plan for Additional Actions to Protect Colorado Storage Project Initial Units, Letter of July 18, 2022, Chuck Cullom, Executive Director, Upper Colorado River Commission, http://www.ucrcommission.com/wp-content/uploads/2022/07/2022-July-18-Letter-to-Reclamation.pdf.

changes will be made in the future, and recommend a more consistent basin-wide approach for measuring and reporting system reservoir evaporation.

- All system losses, conveyance losses and evaporation, should be accurately reported. This includes, for example, riparian system losses as water flows from Hoover Dam down to water user diversions. With respect to evaporation, the full extent of gross evaporation from all reservoirs should be reported and accounted for. Although there are legal and administrative rationale for reporting net evaporation [total surface evaporation less the estimated evaporative and evapotranspiration losses had the reservoirs not been built] from Upper Basin reservoirs, this value does not represent the actual evaporation that occurs from Lake Powell and other CRSP facilities. It will not be possible for stakeholders to evaluate the tradeoffs in consumptive uses and losses unless they are accurately reported.

2. Realistic, accurate, and transparent parameters should be used for operation of the system, including Upper Basin consumptive use measurement

To manage a scarce system, it is essential that both river managers and water users have accurate and transparent measurements of water use, based on common methodologies and metrics. The largest consumptive use in the Colorado River Basin is agricultural irrigation, accounting for 70 to 80 percent of the total use by most estimates. But currently and historically, the consumptive use associated with agricultural irrigation is estimated imprecisely, and these estimates are subject to much more uncertainty and argument than are consumptive use estimates for other types of water uses.

In the Upper Basin, consumptive use has been estimated based on broad parameters of acreage irrigated, climate variables, and general county-wide crop mix factors, using decades-old equations and coefficients. Reclamation's Upper Basin consumptive uses and losses reports are usually about two years behind, with more than ten years of data continuing to be labeled "provisional." Reported figures sometimes change significantly after the original publications. The data in the publicly available reports are sometimes not the same as the data used internally by Reclamation. None of the Upper Basin states agrees with the methodology utilized by Reclamation, or the resulting consumptive use estimates. This is unacceptable.

In order to have an adequately managed system, it will be essential for the states, Tribes, major water users, and Reclamation to collectively endorse an appropriate methodology, resulting in an agreed-upon data set. It is not possible to closely control an over-allocated system if the figures representing the largest use in the system are

subject to substantial error or are disputed. In addition, an unbiased measurement of the impact of low runoff years on physical and legal availability of water and resulting usage in the Upper Basin is necessary to a quantification of assertions of reduced usage that can be factored into overall system management.

The determination by the Upper Colorado River Commission to adopt the Automated METRIC (eeMETRIC) method to determine the consumptive use associated with irrigated agriculture in the Upper Basin is a significant step forward.[8] Use of eeMETRIC for the purpose of modeling and compliance with the 1948 Upper Colorado River Basin Compact will provide consistency across the basin and allow for more precise water management. The evaluation of any proposed set of Post 2026 Guidelines should include and be based on this uniform process of determining consumptive use. Steps should be taken to ensure timely availability of data and modeling, transparency in reporting, and recalculation of other estimates dependent on consumptive use parameters.

The transition to the use of eeMETRIC will need to be carefully managed by Reclamation in order to provide consistency in modeling and analysis. The natural flow data base, CRSS parameters, and tree ring hydrology are all based on the older methodology. In order to have consistency in measurement and a good basis for future river management, it is essential that there be a long-term recalculation of annual Upper Basin agricultural consumptive uses, which is critical to the recalculation of natural flows.

3. Upper Basin incentives for conservation, similar to ICS

The inclusion of the provisions in the 2007 Guidelines for an Intentionally Created Surplus (ICS) program has been a successful incentive for innovative conservation projects in the Lower Basin such as Brock Reservoir and the Metropolitan Water District's Regional Recycled Water Program. In the Upper Basin, there are no similar ICS provisions or incentives and consequently, there are no similar conservation projects. The Post 2026 Guidelines should incentivize cooperative conservation projects in the Upper Basin that are in addition to, or in substitution for, any mandatory reductions, through ICS-like provisions or functionally similar arrangements designed specifically for the Upper Basin. An example of such an incentive would be to give individual Upper Division States the opportunity to bank conserved consumptive uses in system storage (all CRSP reservoirs and Lake Mead), then make the water available for either future compact compliance or for transfer to another state in either basin.

[8] Resolution of the Upper Colorado River Commission - Consumptive Use Measurement in the Upper Colorado River Basin, June 14, 2022.

As with the Lower Basin, Upper Basin "ICS" rules should be flexible and voluntary. The Bureau of Reclamation should be given the flexibility to store Upper Basin and Lower Basin ICS pools in any available system storage, without charge, subject to transparent accounting rules. How contributions to the Upper Basin ICS pools would be made and managed within a state would be up to the individual states, but the rules should be flexible enough to allow for multi-state projects.

4. Tribal water rights, values, and access

The status of federal reserved water rights varies considerably among the thirty Tribes in the Colorado River Basin. Some Tribes have rights determined by the decree in Arizona v. California; others have reached settlement on their claims. The Colorado River Water and Tribes Initiative reports that twelve Tribes have unresolved water rights claims. Some Tribes have settled their claims in one or more states but have unresolved claims in others. Many Tribes with settled or adjudicated water rights are not able to put the full amount to use as a result of insufficient or wholly lacking infrastructure or other reasons. Tribes have quantified rights to approximately 3.2 million acre feet of water in the system, approximately one-quarter of the entire average natural flow of the watershed.[9]

We are fully cognizant of the conflict between full development of currently unused or unquantified Tribal water rights and the need to reduce overall water uses in the Basin. We believe, however, that an appropriate balance of water supplies and uses cannot ignore the unquestioned right of Tribal nations to the water necessary to fulfill the purposes of their reservations. There is a significant opportunity to use flexible tools to accommodate both the Tribes' interests in benefitting from their recognized water rights and the interests of non-Tribal water managers to identify reliable sources to balance the Basin's water budget.[10] Both the Basin states and the Department of the Interior are committed to ensuring that Tribal rights are appropriately considered in the development of the Post 2026 Guidelines.

Only Tribal leaders and spokespersons can appropriately convey their interests and desires for the Post 2026 Guidelines, and we do not purport to speak for any Tribe. We

[9] Water and Tribes Initiative | Colorado River Basin, The Status of Tribal Water Rights in the Colorado River Basin, Policy Brief #4, April 9, 2021, available at https://www.waterandtribes.org/_files/ugd/17c3c8_1fa6790c664842249959f156b927d10d.pdf.
[10] Water and Tribes Initiative | Colorado River Basin, Developing the Next Framework to Manage the Colorado River: Flexible Tools to Benefit Tribes and the Basin, Policy Brief #5, August 2022, available at https://www.waterandtribes.org/_files/ugd/1c5bb7_c6557dd8e23c4c5d848590e7d36efe96.pdf.

suggest, however, that impacts on Tribal rights, including those not yet quantified and those not yet put to use, must clearly be considered in the examination of any proposed Post 2026 Guidelines. In modeling the impacts of any proposed alternative, the settlement or other quantification of currently unresolved Tribal water rights should be anticipated, together with full use in some form of currently unused entitlements.

Tribes are also interested in rectifying inconsistent and paternalistic limitations on their ability to market and lease their water rights in the same manner as other water rights holders in the Basin. The impact of such additional flexibility, and support for it, should be considered, including recognition that Tribal water rights can play an important and positive role in balancing the system, as demonstrated in the Lower Basin Drought Contingency Plan. Interested Tribes should have access to ICS or the equivalent future incentive programs in both the Upper and Lower Basins, in the same manner as other major water users. In addition, Tribes must have the necessary technical assistance to allow them to evaluate for themselves the potential for adverse impacts to their water rights.

A traditional injury analysis may not be sufficient, however, to recognize and effectuate Tribal interests in the Basin. Traditional governance and institutional systems have given rise to barriers that have prevented Tribes from resolving outstanding claims, fully utilizing recognized rights, and obtaining full access to clean drinking water. The Post 2026 Guidelines should identify these barriers and include methods for removing them. To the extent that Tribes propose measures to effectuate spiritual and cultural values associated with water, these measures should be examined as part of the scope of the environmental investigation.

Finally, access to clean and safe drinking water is a basic human right, but one that is not universal for Tribal households in the Colorado River Basin. It is an essential component of the federal government's treaty and trust responsibility to Tribes. Ensuring access to clean drinking water for all Tribes in the Basin must be part of the scope of any Post 2026 Guidelines.

5. Consideration of environmental impacts in determining discretionary operations

Since the 2007 Guidelines were established, significant additional data and research have resulted in much better information and knowledge concerning the emerging environmental resources in Lake Powell as reservoir storage declines as well as the impact of reservoir releases from Lake Powell on downstream environmental conditions. The Grand Canyon Protection Act requires that Glen Canyon Dam be

managed “in such a way as to "protect, mitigate adverse impacts to and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use."[11]

Unusually warm reservoir releases in summer 2022 and the discovery of young-of-year smallmouth bass in Glen Canyon Dam’s tailwater place the Grand Canyon river ecosystem at a potential tipping point in which river resources that have been the focus of management for the past 50 years may be in jeopardy. The linkage between storage volumes in Powell and ecosystem conditions in Grand Canyon are well documented, and the impacts of any proposed alternative strategy of reservoir operations must be evaluated. The effects of dam operations on temperature, dissolved oxygen, and nutrients, all part of the “affected environment,” have the potential to affect natural resources and the values for which the Park and Recreation Area were established. Declining reservoir recreation and improving river recreation in the inflow areas of Lake Powell are also issues for consideration under the Grand Canyon Protection Act.

Establishment of appropriate environmental goals for the system should be a component of the Post 2026 Guidelines, and not solely tied to Endangered Species Act requirements. Although the potential for some environmental impacts was recognized in the EIS for the 2007 Guidelines, subsequent analysis and monitoring demonstrates that certain significant impacts were inadequately evaluated at that time. These impacts include:

- The effect of equalization releases on sand resources in Grand Canyon;
- Requirements that affect reservoir elevation of Lake Mead and control the emergence of Pearce Ferry Rapid and other blockages to upstream migration of undesirable nonnative reservoir fish into Grand Canyon;
- The temperature of releases from Lake Powell that have a strong impact on the aquatic ecosystem in Grand Canyon
- The elevation of Lake Powell that affects the emergence of Paiute Falls in the San Juan arm, the potential emergence of a similar falls near Hite, and the mobilization of sediment and nutrients now stored in the deltas of the reservoir; and,
- The emergence of valuable resources in Glen Canyon and lower Cataract Canyon, such as new rapids and scenic wonders.

As a result of the drawdown of Lake Powell during the last decade, areas of Glen Canyon are emerging from inundation that have not been visible since the 1960s. The unique

[11] Grand Canyon Protection Act of 1992, P.L. 102-575, Sec. 1802(a).

and spectacular formations and scenery of Glen Canyon now being revealed again remind us that it is unlikely the Dam would be constructed if it were being considered today. The reemergence of this incomparable and treasured landscape and its importance to national and Tribal heritage and values means that consequences to it from proposed operations must also be considered in the environmental impact analysis.

New agreements about managing the Colorado River in an uncertain future of declining natural supply should also explicitly consider the impacts of new policy decisions on efforts to sustainably create a healthy riparian environment in the delta in Mexico. Since the pulse flow release from Morelos Dam in 2014, the governments of Mexico and the U.S. and many NGOs have worked tirelessly to create new riparian environments that can be sustained by targeted releases. A future that includes declining natural flow, increasing demand for utilitarian water use, and broader access to water supply by the basin's stakeholders may jeopardize the present efforts in the delta. The impacts of new water management policy on the delta must be considered.

6. Shortage and conservation criteria based on the impacts to total system reservoir storage, the response to actual observed hydrology, and the recovery of necessary storage.

Natural flows into Lake Mead in a balanced system should roughly equal the consumptive uses and losses. Available data, however, demonstrates that consumptive uses have exceeded flows since 2000 by an average of 1-2 maf/yr during this period, and 3-7 maf/yr between 2020 and 2022. Reservoir storage has not been significantly replenished, and there has been an inexorable drawdown, as shown at the beginning of our comments.

This imbalance and the resulting current storage crisis at Lake Mead and Lake Powell have exposed basic flaws with the 2007 Guidelines and Lower Basin DCP. First, Lower Basin shortage provisions and DCP "contributions" are based on storage levels in Lake Mead only, ignoring total system storage and recent actual hydrologic conditions. Above average releases from Lake Powell, dictated by Lake Mead elevations, may have subsidized overuse in the Lower Basin and have not allowed for retention of a storage buffer in the two reservoirs. As a result, the USBR was forced to take extraordinary measures in Water Year 2022 to reduce Glen Canyon Dam releases to 7.0 maf, 480,000 acre feet less than what was dictated by the 2007 Guidelines, but necessary to minimize the risk of Lake Powell dropping below minimum power pool elevation. Furthermore, 500,000 acre feet of additional water is being released from Flaming Gorge Reservoir to Lake Powell, again to maintain water-supply security there. Even with those

extraordinary actions, however, Lake Powell might be lower in WY2023 than at any time in its history if the coming winter is dry.[12]

Second, the 2007 Guidelines tiered shortage provisions do not allow for the recovery of a minimum level of acceptable storage in the overall system. For example, after the 2012/13 drought, the annual release from Glen Canyon Dam in 2014 was 7.48 maf. Water Year 2014 was slightly below average with a natural flow at Lee Ferry of 14.0 maf (about 97% of the long-term average), but enough to recover Lake Powell storage above the 3575' level triggering an above average 9.0 maf release in 2015. Hydrologic conditions from 2015-2017 were similar, averaging about 97% of the long-term average. The 9.0 maf annual releases continued through Water Year 2019. The 9.0 MAF releases kept Lake Mead high enough to avoid Tier One shortages, but also limited storage recovery at Lake Powell. From 2015-2017, system storage (Mead plus Powell) only gained 2.4 MAF (Fig. 2), not enough to avoid the current storage level crisis.

The criteria used to turn "on" and "off" shortages need not be the same. The "off" criteria should be based on a combination of hydrologic and system reservoir levels that recovers sufficient storage to survive the next sequence of very dry years.

EIS Contractor

Thoughtful consideration should be given to the potential role of a private contractor in the preparation of the Environmental Impact Statement that is associated with development of Post 2026 Guidelines. We recognize that a contractor provides significant potential value in ensuring completion of this EIS in a timely manner, and we recognize that Reclamation may not have the staff to complete this EIS on its own.

The challenges in preparing the EIS for the Long Term Experimental and Management Plan for Glen Canyon Dam (LTEMP), however, demonstrate that there are limitations in relying on a contractor to conduct the type of high-level water-supply and environmental impact analyses that are necessary here. In the course of completing the LTEMP EIS, the Grand Canyon Monitoring and Research Center of the US Geological Survey (GCMRC) played an essential role in providing modeling support for the prediction of outcomes to the Grand Canyon fishery and other river natural resources. It is clear that similar high-level scientific support will be needed to adequately evaluate alternative reservoir operations proposed for the Post 2026 Guidelines, and Reclamation should not assume that an independent contractor will be able to provide this expertise.

[12] Reclamation, August 2022 24-Month Study, Minimum Probable Inflow Scenario, available at https://www.usbr.gov/lc/region/g4000/24mo/2022/AUG22_MIN.pdf.

We suggest that the new EIS be prepared by an integrated team that might include an independent contractor, but that also accesses federal and state (and perhaps university) scientific and operational expertise so that an appropriate level of understanding and analysis is used to evaluate alternative reservoir operations policy. Relevant expertise can be found in the state administrative agencies, GCMRC, the staff of the Upper Colorado and San Juan endangered species recovery programs and the Lower Basin MSCP, and the faculty and research staffs of some universities. Similarly, analytical support will be needed to evaluate the impacts of reservoir operations on hydropower generation and system-wide water resource operations. Preparation of this EIS cannot be merely delegated to a private contractor with the assumption that the contractor will have the capacity to analyze all relevant scientific and engineering issues.

Conclusion

Balancing supply and demand and ensuring the sustainability of the Colorado River system is Job 1 for the Post 2026 Guidelines. We recognize the complexity of that seemingly simple task. We stand ready to be of assistance in this process and appreciate the opportunity to submit these pre-scoping comments. Any of us is available to discuss them further.

Sincerely,

John Fleck

R. Eric Kuhn

John C. Schmidt

Center for COLORADO RIVER Studies
UtahStateUniversity

The Utton Center
TRANSBOUNDARY RESOURCES

[EXTERNAL] Pre-scoping Comments

John Fleck <fleckj@unm.edu>

Mon 8/29/2022 7:30 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Cc: glenwoodrek@gmail.com <glenwoodrek@gmail.com>;Jack Schmidt <jack.schmidt@usu.edu>

1 attachments (797 KB)

2022-08-28 JS EK JF pre-scoping.pdf;

Carly et al -

On behalf of Eric Kuhn, Jack Schmidt, and myself, I'm grateful for the opportunity to submit the attached comments regarding the proposed development of Post-2026 Colorado River Operational Strategies.

Regards,
John

John Fleck
Writer in Residence, Utton Center, University of New Mexico School of Law
Professor of Practice in Water Policy and Governance, UNM Department of Economics
fleckj@unm.edu
http://www.inkstain.net/fleck/
Science Be Dammed: How Ignoring Inconvenient Science Drained the Colorado River, University of Arizona Press
he/him/his

QUECHAN INDIAN TRIBE
Ft. Yuma Indian Reservation
Office of Tribal Administration
P.O. Box 1899
Yuma, Arizona 85366-1899
Phone (760) 919-3600
Fax (760) 572-2962

August 29, 2022

Ms. Camille Calimlim Touton
Commissioner of Reclamation
U.S. Bureau of Reclamation
1849 C Street NW # 7654
Washington, DC 20240
CRB-info@usbr.gov

Re.: Quechan Indian Tribe Comments to Reclamation's Pre-Scoping Notice

Dear Commissioner Touton:

On behalf of the Quechan Indian Tribe (Tribe), I submit the following comments in response to the Federal Register "Pre-Scoping Notice" the Bureau of Reclamation (Reclamation) published on June 24, 2022. In that Notice, Reclamation requested "input on: (a) processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin (Basin) partners, stakeholders, and the general public in the anticipated upcoming NEPA process(es); as well as (b) potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process(es)." This letter will address those topics in turn.

The Colorado River has been the lifeblood of the Quechan people since time immemorial, and we have a deep and abiding responsibility to be good stewards of the River – for the Tribe and its members, for the species and ecosystems that it sustains, and for the benefit of our fellow tribes and non-Indian neighbors throughout the Basin. The challenges the Basin faces even ahead of 2026 are daunting. And the initial responses to it we have seen leave us even more deeply convinced that, from both a process and a strategic standpoint, the effort to develop and implement a durable and sustainable post-2026 management framework for the Basin will depend heavily on robust federal leadership.

There has been much talk in the Basin for the last several years about the importance of better integrating tribes into Basin governance. Doing so is vital to redress the neglect and exclusion that have been more the rule than the exception during the Colorado River Compact's first century. But these words need to turn into concrete and tangible action. The Tribe is ready and eager to engage at the highest levels of the discussions and negotiations that will be

necessary both to create a sustainable post-2026 future and to address the crisis the Basin is already facing. We will show up wherever we are invited – and will seek to interject ourselves even when we are not – because the health of the River, and our ability to continue to utilize our hard-won water rights for the benefit of our members, are of existential importance to the Tribe. The most effective way we see to ensure appropriate tribal inclusion in the process of developing a post-2026 management framework is for the United States to serve as the convener of the forum in which the substantive negotiations over that framework are to take place. By doing so, the federal government can ensure that both Basin States and Basin Tribes have equal access to the process, and that each individual tribe in the Basin can make its own decisions about the manner and extent of its engagement with that process.

As for substance, the highest priority must be given to keeping the Colorado River flowing as a living river. We are acutely aware of the sobering projections that indicate that a dry channel below Glen Canyon Dam is no longer simply a theoretical possibility but is indeed a future the Basin could be facing even prior to 2026 if we are not blessed with improved hydrology. And without meaningful inflows from the Upper Basin reaching Lake Mead, the ability to run water through Hoover Dam and ultimately the portion of the River that runs through our Reservation will also be severely constrained. Whether it is through coordinated reservoir management, physical infrastructure modifications, meaningful curtailment of existing non-Indian water uses, or some combination of those tools, the Basin needs to arrive at a more realistic alignment between water supply and demand. And that alignment needs to be one that recognizes that Basin tribes have been contributing unused water to other water users for a century. Involuntary cuts should therefore not be imposed on the water rights that our Tribe – and all Basin tribes – need to ensure that our reservations can be true homelands for our people.

Federal leadership will be vital to this transition. That leadership need not take the form of simply dictating solutions. Rather, Reclamation can lead constructively by clearly articulating the potential alternatives it might impose in the event that the Basin States and Tribes cannot come up with a mutually satisfactory and acceptable framework. That role would have the effect of concentrating minds and providing better incentives to make the hard choices, trade offs and compromises that will inevitably be necessary to ensure a durable and sustainable management framework. In the absence of that sort of federal leadership, we are likely to see a repeat of the events of the past two months, where a generalized federal warning was followed by a flurry of activity but no concrete progress.

Thank you for your consideration of these comments. We look forward to remaining actively engaged with the United States, our fellow Tribes, the Basin States, and other key stakeholders in order to find a durable and sustainable path forward for the River upon which we all rely.

Sincerely,

Jordan D. Joaquin, President
Quechan Indian Tribe

Cc: Tanya Trujillo, Assistant Secretary for Water and Science
David Palumbo, Deputy Commission, Bureau of Reclamation
Carly Jerla, Senior Water Resources Program Manager

United States Department of the Interior
NATIONAL PARK SERVICE
Interior Regions 6, 7 & 8
12795 West Alameda Parkway
Lakewood, CO 80228

IN REPLY REFER TO:
IMDO-RSS-EQ (1248)

Memorandum

To: Wayne Pullan, Regional Director, Upper Colorado Basin, Bureau of Reclamation
Jacklynn Gould, Regional Director, Lower Colorado Basin, Bureau of Reclamation
Carly Jerla, Senior Water Resources Program Manager, Bureau of Reclamation

From: Kate Hammond, Acting Regional Director, Interior Regions 6,7,8, NPS
Frank Lands, Regional Director, Interior Regions 8,9,10 and 12, NPS

Subject: NPS Comments in response to July 2022 Federal Register Notice for Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions

Date: August 31, 2022

The National Park Service (NPS) appreciates the opportunity to comment on the Bureau of Reclamation's (Reclamation) "Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions," announced in the Federal Register Notice of June 24, 2022. The following comments represent the views of the National Park Service. We coordinated closely with the US Fish and Wildlife Service (USFWS) at the staff level while preparing these comments.

We believe this is an important and timely process that must address many challenges related to future management and use of Colorado River resources across the western United States and thus look forward to working with you collaboratively.

Potential Impacts to NPS Resources

As mandated by the Organic Act of 1916, the NPS manages and protects resources in nine park units that collectively contain almost one thousand miles of river and shoreline that may be impacted by project alternatives. These park units are Dinosaur National Monument (NM), Curecanti National Recreation Area (NRA), Black Canyon of the Gunnison National Park (NP), Canyonlands NP, Arches NP, Glen Canyon NRA, Rainbow Bridge NM, Grand Canyon NP and Lake Mead NRA. The alternatives to be considered in this planning process may affect resources we are legislatively mandated to protect, including most notably threatened or endangered fish and wildlife, water quality, vegetation, wildlife habitat, geological features, geomorphic processes, cultural, paleontological, and ethnographic resources, among others. Recreational opportunities in these park units draw over 27 million visitors annually to the seven basin states, creating over $2.3 billion dollars of revenue. For these reasons, and given NPS expertise, the NPS requests cooperating agency status for the forthcoming National Environmental Policy Act (NEPA) review pursuant to 40 CFR 1501.8.

One of the most serious resource issues identified in the current low water situation is at Glen Canyon Dam (GCD) where we are documenting an increase of invasive warmwater non-native fish passing through GCD. The Post 2026 alternatives will affect this situation with important differences between alternatives. Currently, dramatically increased release temperatures are creating suitable habitats for reproduction of these warmwater non-natives in the Colorado River below GCD. As of July 2022, there have been monitoring observations supporting the occurrence of breeding smallmouth bass below the GCD. Smallmouth bass is a particularly voracious predator that has impacted native and federally listed fish in the upper basin. If smallmouth bass and additional high-risk, warmwater, non-native predators establish below the dam, this may greatly impact native fish communities, presenting risk to the status of the federally listed humpback chub in the near future. The NPS sees a need for specific modeling of this risk to humpback chub populations (including minimums and maximums) and habitat modeling over time that considers the potential establishment of these non-natives as well as great potential variations in water quality and water quantity in the Grand Canyon with lower Lake Powell elevations. This modeling would allow for comparison between alternatives, possibly showing very different trajectories for between the alternatives that may be important for communicating to decision-makers the risk to humpback chub populations over time. We are concerned that past processes have prioritized annual hydropower costs/revenue over important environmental concerns. We are now in a time of major changes in river temperatures and flow regimes when it is vital to prioritize federally listed fish in alternatives analysis. Modeling should consider annual and multiyear impacts to fish and consider prioritizing those over impacts to hydropower. While hydropower revenue may adjust from year to year the industry has more resilience than federally listed species with regard to major changes in temperature, water quality and predators that could create permanent and irreversible effects to these species. Federal agencies have a legal obligation to protect the environmental and other resource interests on the Colorado River in the Grand Canyon pursuant to the Grand Canyon Protection Act (GCPA), the Endangered Species Act and the NPS Organic Act.

Recent lower levels of Lake Powell have prevented the High Flow Experiments (HFE) from being carried out in the Grand Canyon. HFE's represent the only tool to rebuild sandbars and beaches in the canyon, critical for the protection of cultural resources and for providing recreational access for river rafters through the canyon. The Post 2026 alternatives will affect this issue and may determine how well agencies can protect these resources and comply with the GCPA, the National Historic Preservation Act (NHPA) and the NPS Organic Act for the future. The Hualapai Tribe has expressed significant concern to the NPS that the lack of HFE's is promoting the buildup of sand in the river in Grand Canyon West, which is both creating an increasing safety threat to river visitors and to the Tribe's commercial recreational interests. Grand Canyon National Park has similar concerns.

To further highlight the urgency of the Post 2026 process, we summarize the types of impacts we have experienced within our park units over the last few years as a result of rapid decreases in water level in Lake Powell and Lake Mead. NPS units have experienced dramatic changes to recreational access and patterns at our reservoir parks. Starting in the spring of 2021, Glen Canyon NRA virtually overnight went from having 11 major boat access points on Lake Powell to 2. We have made major investments to maintain these 2 remaining boat ramps. The alternatives in this process will affect Lake Powell elevations and therefore recreational revenue and have regional economic effects to gateway communities around Glen Canyon NRA. Lake Mead NRA has gone from having 8 boat ramp launch locations to only one in just over a decade and is undergoing similar impacts and planning for major infrastructure investments. At both parks, the shoreline recedes several feet horizontally for every vertical foot drop in lake level. This has created issues for our recreational infrastructure and utilities. Reduced lake surface area has led to changes in wakeless areas and changes to traffic patterns and

travel time. Large boat launching and travel through narrower channels has become more time consuming and complicated. Smaller watercraft traffic has increased in some areas. The increasingly exposed shoreline has presented concerns ranging from exposure of cultural and paleontological resources that require survey and protection to increased weed management concerns, while changes to off-road vehicle use in these areas have led to increased erosion, dust and air quality concerns. The dropping water tables have impacted water wells and are altering vegetation that may impact authorized grazing and unwanted access of livestock into closed areas. All of these resource, recreation, and operational issues may be affected by this planning process.

Like all NPS sites along the Colorado River, Lake Mead has also seen dramatic impacts in recent years due to changes in water levels resulting from climate change induced drought. These changes have had a dramatic impact on recreation in the park and on the local businesses that support recreation. Additionally, lower lake levels have had a profound impact on industries that rely on Lake Mead as a water source, and which may be at risk of not being able to draw water directly from the lake in the future. In some locations, park infrastructure, such as campgrounds and marinas, are increasingly at risk of not being able to get access to water in the event of structural fire and for access to drinking water. Of growing concern is the re-emergence of cultural resources that have been protected by the water inundation since the 1930s. These resources include sites of cultural and historic significance to indigenous communities as well as cultural resources that document the early history of the area and even more modern objects such as a WWII-era B-29 bomber. As lake levels drop, these objects will be exposed to looting, as well as damage from environmental conditions. Much of the area now inundated with water was not surveyed in great detail prior to 1936; the NPS thus has a great interest in surveying these lands as they re-emerge and monitoring, mitigating and managing these resources as appropriate for their protection. Accurate modeling of future water levels, socio-economic impacts from declining water, and impacts to tourism will be critical to managing these issues going forward as well as communicating the implications of different alternatives to decision-makers.

Participation in the Process and Need for Close Coordination

The NPS staff notes the need for interagency coordination in this process given the effects throughout the system to different governments, tribal nations and stakeholders. In addition to participating as a cooperating agency pursuant to NEPA, due to the cultural and ethnographic resources that may be impacted, the NPS hopes to participate as a consulting party in any Section 106 Consultation under the NHPA. We urge Reclamation to initiate 106 government-to-government consultation with tribes early in this process so that there is time to resolve any adverse effect in this complex environment. We would also urge coordination with the many environmental organizations and academics that are studying and publishing on this process. We believe their inclusion from the start will lead to more creative solutions and more optimal outcomes.

Urgency of the Timeline for Analysis and Modeling of Resource Impacts

We expect a higher level of resource impacts to all nine park units if reservoir levels continue to fall; these impacts are likely to be either mitigated or worsened with respect to the different alternatives that are developed. Consequently, it is imperative that this planning process start soon, include affected stakeholders, include the data and science that has been collected on many different reaches of the river for difference agencies and scientists, include detailed resource analysis, and consider full adjustment to ongoing and continued climate change conditions in order to recover the system. Analysis of resource impacts that differ between alternatives using resource-impact models that reflect the synthesis of the best available science will be critically important. Given the desire for a Record of Decision (ROD) in 2026, development of these models needs to be started in the fall of 2022 to be ready for use during the relevant time period.

NPS would like to participate as soon as possible in discussions regarding science synthesis and modeling of resource effects. We anticipate the need for specific models for considering water quality (most specifically temperature in rivers and at outlet depths for reservoirs), native, non-native and federally listed fish (including food base, population minimums and maximums, and short- and long-term habitat), vegetation and channel structure/geomorphology and sediment, and cultural and paleontology resource exposure. As was stated in the cumulative impacts section of the 2016 Long Term Experimental and Management Plan (LTEMP) Environmental Impact Statement (EIS) carried out several years ago, alternatives with variation in annual release patterns will affect many resources. We would like to work closely with Reclamation and a small technical group on the development and peer review of models that would be beneficial for establishing the analysis of resource effects needed for the NEPA review. We have learned from past processes the importance of using the best available science in a set of models that aid in evaluating the effects of management and climate scenarios on resources and recreation, providing clear, quantitative results that can be used to compare alternatives. These models will require budget allocation and expenditures starting in October 2022 to be ready for resource impact analysis within the next two years and optimal usefulness in the preparation of the NEPA document and ultimately a decision by 2026. NPS staff have started some projects with USGS to begin building the models related to vegetation and sediment/channel dynamics and would welcome the chance to understand Reclamation's overall approach to this impact analysis and then work closely with Reclamation on the resource impact models needed to fully assess the impacts of alternatives.

Geographic Scope of the Process

NPS suggests Reclamation look beyond the operation of Hoover and Glen Canyon dams for the geographic scope of this process because actions under the Drought Response Operations Agreement (DROA) appear to be affecting resources across the basin and we expect those actions to either continue or similar actions to be considered under this planning process. NPS recommends inclusion of analysis of the Flaming Gorge Dam (FGD) to fully consider multiyear actions. Including FGD in this process may reveal opportunities to optimize basin-wide effects for resources, recreation, and water delivery that would otherwise be missed. We do not recommend the Aspinall Unit operations be reconsidered for this process and the current Record of Decision (ROD) should remain in place. We defer to the US Fish and Wildlife Service (USFWS) at Navajo Dam as to whether consideration of any alterations to Navajo dam operations should or should not be included with the scope of the Post 2026 process. NPS has concerns for the management of the federally-listed fish downstream that extend into Glen Canyon NRA.

Alternative Development Process: Considerations and Alternative Concepts

NPS respectfully asks that these issues be considered in the process:

- Consider working closely on alternative development with all DOI bureaus to optimize the meeting of all bureau mandates.
- Include operations of Flaming Gorge Dam (FGD) that consider multiyear impacts from DROA operations; consider using any DROA operations for maximum environmental benefits by including larger spring peak flows; consider hydrological patterns that conform to the Upper Basin Recovery Program Green River Evaluation and Analysis Team (GREAT) report recommendations.
- Consider alternatives that set a goal of maintaining Lake Powell well above 3525' to minimize non-native fish passthrough at GCD and reduce the warming of the river below the dam. This would also minimize the effects to recreational access and to cultural and paleontological resource exposure on shorelines.
- Include an alternative concept for a combined volume approach of management between Lake Powell and Lake Mead as has been suggested by Dr. Jack Schmidt and the Future of the Colorado River Project. This option that could allow for better management of environmental

flows through the Grand Canyon that could provide more benefits for fish, sediment and cultural resource protection without impacting water storage or delivery if it was framed in this way.

- Include consideration of a temperature control device with both warmer and cooler water release options to better manage river temperatures below GCD within a suitable range to benefit native and federally listed fish and to maintain the recreational rainbow trout fishery.
- Include options to prevent or reduce non-native fish passage through GCD and FGD such as screens, barriers, nets, and bubblers in order to protect native and federally listed fish throughout the system.
- Include an option for adjusting the GCD High Flow Experiment sediment windows and operational timing for spring HFEs to adjust to climate change and lower water levels. This would allow for smaller HFEs to be considered in June when the reservoir level is at its highest, making use of sediment accrued throughout the year, so that agencies may continue to comply with the Grand Canyon Protection Act. This would result in better protection of cultural resources that will be exposed without this sediment redeposition and would protect the recreational camping in the canyon.
- If not already accomplished via other compliance processes, consider flows out of GCD that would disadvantage non-native fish such as smallmouth bass and green sunfish and/or lower river temperatures via bypass use.
- Include the concept of tying annual flow volume out of GCD to multiyear inflows to Powell so there is a better tie to actual water availability rather than just reservoir elevations, which may be a concept similar to what has been suggested by former Assistant Secretary Anne Castle.
- Consider formulas with continuous functions rather than step functions for annual releases so there are not bigger changes on either side of a tier brought about by a few feet of difference in reservoir elevation.

Consideration of Climate Science and Demand Levels

NPS understands that the best available climate science is indicating that there will likely be less water availability in the future and that the total water available in the system may move as low as 10-11 million acre feet (maf) on average by 2050. Given that the average use of water was approximately 14 maf annually from 2000-2020, and that water into the system was significantly less in this time span, it is clear why Lake Powell and Mead went from 95% full in 2000 to ~25% in 2022. As temperatures have risen and monsoonal precipitation has declined, increasingly drier soils soak up more runoff, further reducing river inflows. Drier soils are also more susceptible to erosion, increasing dust deposition that melts snow sooner and faster. Such climate change driven conditions may represent a new normal of aridification, as opposed to a temporary drought. We recognize the excellent work in the 2020, "Colorado River Basin Climate and Hydrology: State of the Science" (Lukas and Payton 2020) and applaud Reclamation for planning to use it as part of the 2026 process. We understand and commend the fact that subsequent work is being performed by Reclamation's University of Colorado Boulder Climate Science staff.

However, recent studies suggest that climate change feedback loops, that are likely operating in the Colorado River Basin, may produce complex interactions that may not be fully captured in current models for estimating water availability. The heat waves and resulting decreases in soil moisture throughout the Colorado River Basin in 2020-2022 demonstrated how new dynamics can suddenly become important environmental factors. New dynamics of this type have been predicted in studies such as Cheng et al. 2019. These recent conditions have also led to scientific questioning of using environmental projections based on the past 30 years (Wang et. al, 2022). Current science is seriously questioning whether or not the past is the best predictor of the future. The potential for feedback loops

is also of concern with dust and ash. While it has been known for many years that dust can impact snowpack and lead to earlier runoff and drier soils (Painter et al. 2010, He et al. 2019), recent studies highlight the relationship between fallowed lands and dust storms and suggest there should be consideration and modeling of how policy changes may impact the acreage of fallowed lands particularly in the lower basin (Joshi 2021). Similarly, the relationship between ash from wildfires in the region and earlier snowpack melt has also been well studied (Gleason et al 2019, Smoot and Gleason 2020). But the feedback loop created as warmer temperatures lead to more wildfire, leading to more ash and charcoal which exacerbates early snowpack melt, are of great concern as they increase to the regional scale with worsening conditions over time. Modeling the scale of fallowed land over time, and modeling increased wildfire and ash and estimating the resulting potential for more rapid snowmelt may be an important consideration for this process. We hope these dynamics can be considered for inclusion in worst case modeling scenarios. In summary, we urge Reclamation to consider the potential for these inter-related climate effects on water availability in the Post-2026 planning process.

Finally, we recommend full consideration and modeling of changes to water demand levels. If supply and demand are not brought into alignment within the next few years, we are concerned we will continue to experience serious resource impacts across the whole system, some of which could be permanent and irreversible. Clearly, it is both supply and demand that affect the entire system. There are additional feedback loops that should be considered and modeled in this process if possible – for example, increased and compounding impacts created as demand/usage for both agriculture and municipal uses increases as heatwaves increase (Brown et al. 2019, IPCC 2021, Vahmani et al. 2021). We suggest that an appendix to the plan, including an overall summary update to the 2011 Basin Study, or some other way to show both supply and demand scenarios together as they are affected by different alternatives, be included in the NEPA document in order to show the projected levels of all the reservoirs in the system per alternative. Because demand levels are a critical part of the management of the system, we commend Reclamation for beginning this difficult and complex planning process, and for spearheading discussions of reducing demand in the basin by 2-4 maf this year. Recent papers about the risk of compact violation (Castle and Fleck 2019) and the broad range of resource impacts beginning to occur in the Colorado River system (Wheeler et al. 2021) suggest there is limited time to avoid major impacts for all of the seven basin states and the whole Southwestern US.

Thank you for the opportunity to comment on this important process. We hope the Post 2026 planning process formal scoping starts soon and that it fully considers the complex effects of climate change and temperature increases, resulting in the establishment of plans and agreements that address these long-term conditions. If near-term actions or plans are developed (as were referred to in the federal register notice), we would also be interested in participating in those processes. We understand the overwhelming nature of this expansive planning process and appreciate the time and close coordination with Reclamation staff that has occurred over the past year. We look forward to many more discussions and closer working groups on these issues over the coming year to ensure all needed resource impact models are developed in a timely way for consideration in the EIS. Please contact Rob Billerbeck, NPS Colorado River Program Coordinator, at 303-987-6789 or rob_p_billerbeck@nps.gov if you have any questions on these comments or wish to discuss them further.

Kate Hammond
Acting Regional Director
National Park Service Interior Regions 6, 7, & 8

Frank Lands
Regional Director
National Park Service Interior Regions 8, 9, 10 &12

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August 31, 2022

The Honorable Tanya Trujillo
Assistant Secretary, Water & Science
U.S. Department of the Interior
Washington, D.C. 20240

Via email to CRB-info@usbr.gov

Re: 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 Assistant Secretary Trujillo,

The Arizona Municipal Water Users Association (AMWUA) appreciates the opportunity to respond to the Department of the Interior and Bureau of Reclamation's solicitation of comments regarding Post-2026 Colorado River operations. AMWUA is comprised of ten municipalities in the Phoenix metropolitan area who collectively provide water to over 3.7 million residents – more than half of Arizona's population. The AMWUA member cities – Avondale, Chandler, Gilbert, Glendale, Goodyear, Mesa, Phoenix, Peoria, Scottsdale, Tempe – each hold a subcontract for Colorado River water delivery through the Central Arizona Project (CAP) system and are the recipients of over 470,000 acre-feet annually, more than 40% of CAP's total deliveries in recent years. The Colorado River is a critical water supply for the communities our providers serve and is key to this metropolitan area's thriving high-tech manufacturing, defense, financial services, health care, higher education institutions, and other services that support the regional and national economy.

The Notice and Request for Input appropriately notes that "absent a change in hydrologic conditions, water use patterns, or both, Colorado River reservoirs will continue to decline to critically low elevations threatening essential water supplies across nine states in the United States and the Republic of Mexico" and, that the 2007 Interim Guidelines and subsequent agreements have proven insufficient to address the climate-driven reductions in Colorado River availability.

These dismal circumstances have worsened in recent years as reflected in Reclamation Commissioner Touton's June 14, 2022 remarks which emphasized that emergency actions are necessary to prevent extraordinary risks and the decline of Lakes Mead and Powell to critical elevations. Since the announcement of a water use reduction target of 2 to 4 million acre-feet (30% of the River's yearly flow), the Colorado River Basin has been thrust into a maelstrom of uncertainty as the Basin States struggle to come to an agreement on additional reductions necessary to protect the system. This degree of uncertainty is unacceptable to municipal water providers who rely on Colorado River supplies to serve their residents and support the major population centers of the American West. Cities cannot fallow neighborhoods. Municipalities must make decisions that impact millions of residents and key industries, and those decisions require stability and predictability of how much water will be available into the future.

As providers of water to over half of Arizona's population, the AMWUA cities have a serious stake in the management of the Colorado River. We offer below our responses to Reclamation's request for feedback in the Notice. We ask that when reviewing our input, Reclamation and Interior keep in mind the importance of urban water users in the Colorado River Basin, and the serious economic consequences that water insecurity in the West presents for our nation.

a) 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(es)

<u>Establish a Basin-wide "Municipal Sector" Committee to Facilitate Meaningful Input and Engagement from Municipal Water Providers</u>

The upcoming National Environmental Policy Act (NEPA) process and Post-2026 operational guidelines would benefit from a mechanism and process to solicit specific input from municipal water providers. AMWUA suggests creation of a Basin-wide Municipal Sector Committee to serve as a forum for municipal water providers to share their unique and critical perspectives to Reclamation during the NEPA process, and when needed during the Post-2026 operational period. Cities are governed by locally-elected officials who are best positioned to represent the interests of the millions of customers they serve. This Committee should be in addition to Reclamation's consultation with the Governor's representatives from each Basin State and is not intended to supplant the input or authority of these representatives.

b) Potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process(es)

Post-2026 Operations Should Focus on Increased Clarity and Reliability for Water Users

We support Reclamation's intent to evaluate policies that "consider a wide range of potential future conditions, including drought sequences that are longer and more severe than those that have been observed." Municipal water providers need increased clarity from Post-2026 operations on the availability of Colorado River water supplies in severe, extended drought conditions. This includes defined reservoir operations at lower elevations as well as more notice regarding supply availability in upcoming years. At the time of this writing, CAP subcontractors are one month away from submitting their water orders, but there is still no clarity about how much water will be available in 2023 if extraordinary demand reductions are imposed in addition to the Tier 2a shortage. This is inadequate time to make the necessary adjustments to water production and delivery operations.

The Colorado River should also be managed for increased reliability (as opposed to maximizing diversions and releases in a given year), in order to provide stability for water users reliant on Colorado River supplies. Achieving this objective will require more conservative reservoir operations and more proactive shortage sharing arrangements. An effort must be made in the Post-2026 operational period to not only slow the decline of Lakes Mead and Powell, but to build the reservoirs back up. Strategies to this end include assessing evaporation and system losses proportionally across the Lower Division States and Mexico, as well as evaluating reservoir operations to ensure that coordination is sufficiently holistic and that storage volumes in both reservoirs are protected. We understand that this may mean contending with greater reductions for a longer period until the system is stabilized, but we believe in the long-run this will provide increased reliability for all users in the Basin.

Continue to Incorporate Climate Change Impacts in Reclamation's Modeling and Decision-making Tools

Reclamation's modeling tools and processes must be updated to incorporate the best available climate science, and to remove biases from past, wetter hydrology. In

acknowledgement of our nonstationary climate, less focus should be given to probabilistic forecasting, which often gives an unrealistic depiction of future possible conditions. Existing tools, like the 24-Month Study, should also be evaluated as to their accuracy and usefulness. For example, the appropriateness of relying on hydrology from the past 30 years to estimate inflow volumes and subsequent reservoir operations should be reexamined. Reclamation should also consider if scenarios such as the "Most Probable" and "Max Probable" scenarios obfuscate the likelihood of drier outcomes to Basin stakeholders.

As part of managing the Colorado River system for increased reliability, estimates of what constitute a "normal" supply need to be brought in line with the new reality of aridification occurring in the Basin. Marginal shortage reductions based on an optimistic annual supply that seek to only withstand cyclical drought conditions has not been and will not be sufficient to ensure a stable system.

Shortage Sharing Must be Equitable and Basin-wide

The impacts of climate change and reduced flows are impacting water users across the Colorado River Basin and Mexico. Water users from all sectors, in both Basins, and in Mexico, should share in the responsibility of shortage and efforts to protect the system. The AMWUA cities have been leaders in implementing aggressive conservation programs since passage of the landmark 1980 Groundwater Management Act; today serving over half of Arizona's population with only 11% of the state's water supply.

Our members have a long history of contributing to efforts on the Colorado River, including as support and involvement on the 2007 Interim Guidelines and DCP. Additionally, many of the AMWUA cities have played a key role in the implementation of Arizona's DCP agreements and contributing to the 500+ Plan. The Post-2026 operations should ensure that all water users in the Basin are doing their part to reduce demand and share in shortage reductions.

Post-2026 Operations Should Provide Flexibility for Shortage Mitigation

As climate change continues to impact the availability of Colorado River supplies, water users will need increased flexibility to mitigate shortages and adapt. The 2007 Interim Guidelines, DCP, and more have demonstrated that there is significant operational flexibility

within the Law of the River. Although it is unfortunate that the 2007 Interim Guidelines and DCP have proven insufficient to curb reservoir declines, more can be done. The Post-2026 operations should continue to evaluate adaptive management strategies that provide flexibility to water users. A framework is needed to implement augmentation of the Colorado River and to facilitate exchanges between individual water users, Basin States, and Mexico.

Continue to Emphasize Collaboration and Consultation

Continued collaboration and consultation with the Basin States, Mexico, Tribes, NGOs, stakeholders, and water users - including municipal water providers - throughout the Basin is crucial for a successful NEPA process and implementation of the Post-2026 operations. The Colorado River Basin has successfully avoided large-scale litigation for decades, and consultation and collaboration should remain a preferred alternative to adversarial judicial approaches to resolving issues on the Colorado River. This will be possible with firm, committed leadership from the Department of the Interior and Reclamation.

Development of the Post-2026 operations is an opportunity to bring the management of the Colorado River into the 21st Century, to confront the reality of our declining supplies, and to secure the sustainability of this crucial lifeblood for communities throughout the American West. On behalf of the ten municipalities that provide water to over half of Arizona's population, AMWUA appreciates the opportunity to provide input, and looks forward to continued engagement with Reclamation and Interior throughout this process.

Sincerely,

Warren Tenney
Executive Director

CREDA
Colorado River Energy Distributors Association

ARIZONA
Arizona Municipal Power Users Association

Arizona Power Authority

Arizona Power Pooling Association

Irrigation and Electrical Districts Association

Navajo Tribal Utility Authority
(also New Mexico, Utah)

Salt River Project

COLORADO
Colorado Springs Utilities

CORE Electric Cooperative

Holy Cross Energy

Platte River Power Authority

Tri-State Generation & Transmission Association, Inc.
(also Nebraska, Wyoming, New Mexico)

Yampa Valley Electric Association, Inc.

NEBRASKA
Municipal Energy Agency of Nebraska
(also Colorado)

NEVADA
Colorado River Commission of Nevada

Silver State Energy Association

NEW MEXICO
Farmington Electric Utility System

Los Alamos County

UTAH
City of Provo

City of St. George

Heber Light & Power

South Utah Valley Electric Service District

Utah Associated Municipal Power Systems

Utah Municipal Power Agency

WYOMING
Wyoming Municipal Power Agency

Leslie James
Executive Director
CREDA
10429 S. 51st St., Suite 230
Phoenix, Arizona 85044

Phone: 480-477-8646
Fax: 480-477-8647
Cellular: 602-469-4046
Email: creda@creda.cc
Website: www.credanet.org

August 31, 2022

Development of Post-2026 Colorado River Reservoir Operational Strategies

Via Email: CRB-info@usbr.gov

Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr. Suite 113
421 UCB
Boulder, CO 80301-2628

Dear Ms. Jerla:

CREDA is a non-profit, regional organization representing 155 consumer-owned, non-profit municipal and rural electric cooperatives, political subdivisions, irrigation and electrical districts and tribal utility authorities that purchase hydropower resources from the Colorado River Storage Project (CRSP). CREDA members serve over four million electric consumers in seven western states: Arizona, Colorado, Nebraska, Nevada, New Mexico, Utah, and Wyoming. CREDA's member utilities purchase more than 85 percent of the power produced by the CRSP.

CREDA offers the following information and recommendations in response to Reclamation's request for input on June 24, 2022 (87 FR 37884). *CREDA is not recommending specific operational changes at this time*.

BACKGROUND – WAPA AND RECLAMATION

Hydropower is a critical element of Reclamation law. Not only does hydropower provide electricity to remote and underserved communities across the western United States, revenues from hydropower sales also fund a multitude of programs to include compliance with the Endangered Species Act, irrigation assistance, and salinity control, among others.

In 1977 Congress created the Department of Energy and transferred the marketing and delivery obligations to the Western Area Power Administration ("WAPA"). That division created an interdependent bond between Reclamation and WAPA. Reclamation remained responsible for generating hydropower and WAPA became responsible for marketing and delivering federal hydropower. As important, WAPA was tasked with ensuring sufficient revenues were collected to fund the program needs of both WAPA and Reclamation.

This was codified in an agreement dated March 26, 1980, which also set out the underlying intent of the division: "The Service and Western wish to operate the power system in the most efficient manner and to avoid duplication of manpower, functions and facilities"; further, "The Service and Western wish to optimize power benefits while preserving other project benefits." As such, Reclamation must closely coordinate with WAPA on how water operations impact power production.

BACKGROUND – CRSP AND HYDROPOWER

The generation of hydropower from the CRSP is one of the fundamental and primary purposes of the project.[1] Section 7 of the CRSP Act of 1956 requires that the "hydroelectric powerplants and transmission lines…be operated…so as to produce the greatest practicable amount of power and energy that can be sold at firm power and energy rates…".[1] Revenues from the hydropower generation produced by the Bureau of Reclamation (Reclamation) are derived through long-term firm electric service contracts administered by the Western Area Power Administration (WAPA). Those revenues are deposited into the Upper Colorado River Basin Fund (Basin Fund). The Basin Fund was authorized by the CRSP Act of 1956 and is the source of funding annual obligations of the CRSP. These obligations include repayment of principal (plus interest), operation and maintenance, irrigation assistance, among others. For example, since 1983, these revenues have funded over $577 million of the environmental program costs of the CRSP. The Basin Fund is replenished by revenues from CRSP power customers through their long-term contracts, all of whom are not-for-profit entities, and many of whom are tribal, rural, and municipal entities residing in some of the most underserved areas of the United States.

When Colorado River management and operational decisions are considered and made, there are always likely impacts to the hydropower resource. These impacts are most often characterized as economic or financial in nature, but also directly impact the Basin Fund, which, as described above, provides benefits to multiple users in the Colorado River Basin. In 2021, WAPA instituted a new rate case (WAPA-199) for CRSP customers, which was necessitated by drought impacts and instability of the Basin Fund. The rate case increased power rates by an effective 46% and placed the risk and responsibility for replacing power not available from the CRSP generators on the customers.

When federal hydropower generation is reduced or eliminated, there are numerous impacts to CRSP customers, as well as to the western interconnection (the "grid"):

- Customers are responsible for repaying all capital (with interest) and operational costs associated with generation and transmission of energy at these facilities, along with environmental and non-power expenses. Decreased power generation means those costs are spread over fewer megawatt hours and results in higher rates per megawatt hour.

- Additionally, replacement power must be secured to make up for unavailable

hydropower generation, an impact compounded by the current high price and reduced availability of electricity on the open market.

- Utilities are challenged to replace that hydropower with more expensive renewables to meet state RPS mandates and clean energy objectives, increasing costs for CRSP customers.

- Glen Canyon Dam provides to the western grid ancillary services which maintain the proper flow of electricity and a reliable electricity system. This includes black start, which allows a plant to restart its own power without support from the electric grid in the event the entire grid has lost power. Reduced hydropower impacts this black start capability.

- As Colorado River reservoir levels continue to drop, customers will be paying twice: once for the ongoing operation and maintenance of a federal project without receiving the full benefit of its hydropower, and again for the costs of replacement power, which in most cases is not carbon-free.

Even without a total loss of power production at some facilities, the reduced generation is resulting in massive and unsustainable rate increases to many customers as they are forced to cover typical power and non-power costs while replacing electricity on the open market.[1]

The Federal Register announcement and solicitation recognizes the federal government's commitment to tribes. That commitment can in part be met by stabilizing cost, rate, and grid stability to maintain CRSP contract commitments to 53 tribes in the Colorado River Basin. Many tribal customers receive the benefit of the federal hydropower through benefit or bill crediting. These customers can use that benefit in a manner determined by the tribe to best suit the community. When that power is not available or reduced, that credit is diminished. This means that tribes may be impacted not only from a financial standpoint, but from a quality-of-life standpoint as well.

CREDA supports and reinforces the 2019 Drought Contingency Plan (DCP) documents that "*Recognize and address the impacts of drought and Colorado River management on Federal hydropower, its customers and related programs, and the resiliency of the power grid."*

BACKGROUND – PRIOR NEPA PROCESSES

Recognizing the singular role played by hydropower and the unique expertise maintained by CREDA member utilities and WAPA, these entities have participated as cooperating agencies and subject matter experts in multiple Colorado River processes, including but not limited to:

Flaming Gorge EIS/ROD (Utah Associated Municipal Power Systems/CREDA and WAPA)

Aspinall EIS/ROD (Platte River Power Authority/CREDA and WAPA)

LTEMP EIS/ROD (Salt River Project/Utah Associated Municipal Power Systems/CREDA and WAPA)

RECOMMENDATIONS

CRSP firm electric service customers, and CREDA as a representative of more than 85 percent of the power produced by the CRSP, enjoy a unique role in the issues associated with operation and management of the Colorado River. For the reasons explained above, CREDA requests it and its members be provided *meaningful participation* in all *NEPA efforts 'or other appropriate processes' to address low-reservoir conditions,* including development and consideration of *near-term actions to stabilize 'the decline in reservoir storage and (to) prevent system collapse'.*[1] Further, as explained above, CREDA requests that WAPA have co-lead responsibility with Reclamation in all associated processes, including being the entity that provides hydropower modeling and impacts assessment expertise, as intended and described in the 1980 Agreement and the June 7, 2019 Interagency Agreement between WAPA and Reclamation.[1]

As Reclamation assesses and makes decisions regarding CRSP operations in the context of extreme drought, proposed experiments and Post-2026 processes, the hydropower resource, and the tribal, rural, and municipal communities that it supports, will incur significant impacts, not just in the short-term, but over extended periods. We understand the role of hydropower within the context of CRSP authorities and wish to be clear we are not asking for a change in how Reclamation operates the system. What we are saying, however, is that considering the fundamental change in anticipated hydropower production due to both drought and operational decisions, there must be a serious discussion about changing the role of hydropower revenues in supporting CRSP programs and activities. It is very clear that we are rapidly approaching the point at which revenue from hydropower sales to tribal, rural and municipal communities will no longer be sufficient to continue providing the economic and financial support for CRSP programs as has historically occurred over the past 65 years. Any discussion about the future of the Colorado River Basin will be incomplete without addressing this reality and the related issue of identifying carbon-free power to replace the anticipated lost hydropower production.

We look forward to working with Reclamation on these important issues.

Sincerely,

Leslie James

Leslie James

Cc: CREDA Board

WESTERN RESOURCE ADVOCATES

PROTECTING THE WEST'S LAND, AIR, AND WATER

August 31, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation

Via email: CRB-info@usbr.gov

Re: Western Resource Advocates' Response to the Bureau of Reclamation's "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,

Western Resource Advocates (WRA) would like to thank the Bureau of Reclamation (Reclamation) for issuing this request for public comment on such an important, timely, and serious issue. WRA has been a long-time advocate for common sense solutions that will keep the Colorado River flowing and improve climate resilience to better manage any future water shortages. Accordingly, this letter is being submitted in response to Reclamation's "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions" (Pre-Scoping Notice) as published in Federal Register Notice – 87 FR 37884 on June 24, 2022.

WRA was pleased that the Pre-Scoping Notice conveyed the sense of urgency and scale of the problem impacting the Colorado River Basin (Basin). As a Basin, we have known for decades that the system is facing a fundamental supply and demand imbalance which will require significant action to rectify, especially as climate change continues to negatively impact water supplies throughout the Basin. As noted in the Pre-Scoping Notice, previous decision-making did not include an adequate range of hydrologic scenarios nor solicit adequate participation, causing the need for additional interim actions and emergency operations well before the expiration of the 2007 Interim Guidelines. The Pre-Scoping Notice further acknowledges that there have been significant changes since those 2007 Interim Guidelines were developed, and that circumstances will continue to change post-2026.

Recognizing these shortcomings in previous decision-making processes, we agree with the Pre-Scoping Notice when it acknowledges that future decision-making will require more flexibility, expanded participation in Basin-wide programs, better understanding of the uncertainty in model projections for reservoir operations, and "more robust measures" (i.e., shortages) to maintain reservoir storage. These principles are essential starting points for developing post-2026 operational strategies, and we are encouraged that Reclamation agrees. Importantly, however, these principles do not explicitly include environmental values that are necessary in Basin management. We strongly urge Reclamation to state that future decision-making requires clearly articulating consideration of environmental values, and how those values are protected in future policy.

Arizona
1429 North First Street
Suite 100
Phoenix, AZ 85004

Colorado - Boulder
2260 Baseline Road
Suite 200
Boulder, CO 80302

Colorado - Denver
1536 Wynkoop Street
Suite 210
Denver, CO 80202

Nevada
550 W. Musser Street
Suite G
Carson City, NV 89703

New Mexico
343 East Alameda
Santa Fe, NM 87501

Utah
307 West 200 South
Suite 2000
Salt Lake City, UT 84101

In addition to these process principles, we also agree with the substantive emphasis in the Pre-Scoping Notice on the need to identify robust policies and outcomes that can adapt to a wide range of future conditions. As noted by the Pre-Scoping Notice, "Reclamation believes that future policies must be tested across a wide range of potential future conditions, including drought sequences that are longer and more severe than those that have been observed. Absent such an approach, policies are likely to be insufficiently robust, adaptable, and successful."

To help better implement these process and outcome principles identified in the Pre-Scoping Notice when the anticipated upcoming NEPA process(es) is initiated in early 2023, WRA is pleased to provide the following comments. We strongly believe that implementing these NEPA process elements and substantive elements into post-2026 operational guidelines will not only help bring the system back into balance, but will also establish a more resilient and proactive system of governance fully respecting and meeting the needs of all sovereigns, states, and sectors, including the environmental needs of the river and its tributaries throughout the Basin.

1. *NEPA process elements*

   The Pre-Scoping Notice specifically requests input for ideas that ensure a "wide range of Basin partners, stakeholders, and the general public can meaningfully engage and participate in the development of post-2026 operational strategies". We agree that broad engagement and participation are essential to the development of new operational guidelines, but want to ensure that this inclusion is indeed meaningful, productive, and respectful. Engagement and participation cannot simply be informing stakeholders about process milestones, as has often been the case. Instead, it must incorporate the values and ideas of a wide range of Basin partners, stakeholders, and the general public. This is not a call for every single idea submitted to be included, but a recognition of the numerous stakeholders and partners who have, in good faith, committed to contributing to the post-2026 guidelines. Absent such inclusion, the post-2026 operational strategies will fall short as previous decision-making processes have done.

   As a top priority, we strongly urge Reclamation to create a process for timely and meaningful participation by the 30 federally recognized tribes or their representatives in the Basin. This includes governance designed to recognize tribal sovereignty, providing opportunity for diverse needs and interests to be developed and considered, and specifying the exact process for tribal participation with demonstrated commitment by Reclamation for meaningful tribal participation in the decision-making process, especially at times when tribal considerations can be included in the policy outcomes.

   Additionally, we strongly urge Reclamation to create a process for timely and meaningful participation by the non-governmental organizations (NGOs), including specific opportunities and timelines for that participation. The Pre-Scoping Notice states that, "Reclamation intends to

prioritize stakeholder technical education, technical outreach, and timely access to relevant technical information. Reclamation intends to support parties in developing strategies and would welcome input on recommended steps to ensure active participation by a wide range of Basin partners, stakeholders, and the general public. Reclamation will continue to seek to prioritize the development of approaches that have broad-based support."

While the above statements are laudable, we believe the NEPA process must move beyond providing just education, outreach, technical information, and support in developing strategies, but also include clear avenues for NGOs to provide input at meaningful and early stages in the process. There needs to be proven commitment that stakeholder input in these stages will be fully considered.

To achieve "broad-based support" for Reclamation's approaches, these avenues must allow for the solicitation of a diverse range of ideas and solutions. This process could be similar to how the 2012 Basin Study solicited and modeled options and solutions from any interested parties, with clear deadlines for submitting comments, modeling runs, or other technical information. These avenues for input should include adequate time from Reclamation to review information, ability for stakeholders to provide input early in the process, and written responses to the input received, including how it was (or was not) addressed.

The Pre-Scoping Notice also states that Reclamation intends to design and implement a process that is transparent, but it would be helpful to identify specifically what a transparent process might look like. We suggest, at a minimum, a parallel process where a representative group of stakeholders are provided with regular check-ins with Reclamation at every stage, beginning with the Notice of Intent in early 2023. Specifically, we suggest the following elements for these stakeholder meetings:

- regular meetings—quarterly if possible—available in virtual format;
- dedicated webpage where meeting schedules can be accessed;
- agendas and materials posted in advance;
- ability to submit questions and documents in advance; and
- minutes / recordings posted afterwards.

Finally, it will be essential for Reclamation to balance short-term operational risk mitigation strategies with the NEPA process to develop post-2026 operational strategies. At a minimum, we request commitment from Reclamation that the development of post-2026 strategies will not be delayed or diminished due to short-term actions, and vice versa. Any delay or diminishment in either short-term actions or post-2026 operational strategy development will lead to further negative impacts to the river's ecological integrity, especially if it is due to the reservoirs reaching critical elevation levels. The Pre-Scoping Notice also states that "Reclamation may utilize multiple NEPA efforts, or other appropriate processes, to address emerging low-reservoir conditions in the Basin." We suggest that Reclamation think critically whether NEPA is

the appropriate venue for addressing short-term low-reservoir conditions, and whether there are administrative actions or modifications that may provide more immediate response and action. Relatedly, we also do not envision the short-term and long-term efforts as mutually exclusive. We suggest for the post-2026 guidelines, Reclamation build upon the research, development, implementation, and lessons learned from any short-term risk mitigation strategies.

2. *Substantive elements of post-2026 operations*

The Pre-Scoping Notice explicitly states that "Future strategies should consider [the recent declines in hydrology] and the likelihood of continued declines in supply", and "a different approach toward addressing risk that employs planning methods that account for deep uncertainty must be taken", and that "robust policies are those that withstand a broad range of future conditions and are not based on a single set of assumptions about water supply and demand". Therefore, "Reclamation believes that future policies must be tested across a wide range of potential future conditions, including drought sequences that are longer and more severe than those that have been observed. Absent such an approach, policies are likely to be insufficiently robust, adaptable, and successful." To that final point, the Pre-Scoping Notice also identifies the shortfalls in the 2007 Interim Guidelines and Drought Contingency Plans, resulting in their failure to prevent Lakes Powell and Mead from dropping to critical elevation levels.

We agree with Reclamation on the need to identify robust, resilient, and adaptive strategies for the post-2026 guidelines, but in doing so, urge Reclamation to move beyond short-term, reactive approaches (e.g., applying significant shortages only once dangerously low reservoir elevation levels are reached) toward a long-term, pro-active framework that is not just focused on system stabilization or equilibrium, but on recovery of the system. Implementation of the 2007 Interim Guidelines made clear that reactive approaches can only stabilize the system at best, and fail to prevent the system crashing at worst.

Focusing solely on reservoir elevation levels does not provide any guidance for system recovery. We suggest Reclamation include reservoir recovery criteria in the post-2026 guidelines. The post-2026 guidelines need to adequately respond to the river's changing hydrology, so that the Basin can begin to manage demands and ecological needs within the true amount of water that the river provides. Additional recommendations for more effective approaches include:

   a. *Adequate consideration of climate realities for operational certainty*
      i. One of the primary goals of the 2007 Interim Guidelines was to provide operational certainty for the Basin states. But because the operational guidelines did not include a robust range of climate change and hydrological scenarios, the system is crashing before the guidelines expire. The post-2026 guidelines need to provide operational certainty around all future scenarios so

the same mistake is not repeated. This includes operational certainty when the river's annual supply is as low as 11, 10, or even 9-million-acre feet (MAF).

ii. Reclamation's modeling efforts should be guided by relying on drier—and more reflective of recent hydrology—climate model runs. This could be achieved by removing runs that skew unusually and unrealistically wet. Specifically, Reclamation's modeling should include not just stress test hydrology, but additional, drier hydrologies that are also plausible. This includes millennium drought (2000-2020) and shorter time periods of significantly drier years (e.g., 2000-2004, 2020-2022).

iii. Similarly, a recognition of these potential drier hydrologies means not just considering what those lower flows mean in terms of reduced supply, but how those hydrologies impact the overall environmental health of the river and the sustainability of the system. In other words, if consideration of climate realities only means addressing supply and demand imbalances as flows decline, other parts of the system will continue to be negatively impacted (e.g., flows to the Delta, other environmental considerations). Operational certainty includes ensuring there is a healthy river ecosystem with connected habitat that protects endangered fish and reduces the overall stress on fish and wildlife.

b. Adapting long-term consumptive use and losses to available supplies

i. One of the most fundamental components of the post-2026 guidelines will be ensuring that demands throughout the Basin do not exceed available supplies, and that demands will continue to be reduced as flows on the river decline, as expected. Bringing the system back into balance will require shared and permanent shortages across the Basin. In the Lower Basin, this will require increased shortage requirements to Arizona, Nevada, California, and Mexico. What has become clear from the 2007 Interim Guidelines is the total quantity of shortages was nowhere near the necessary amount to prevent continued declines in reservoir storage. Reclamation should determine critical thresholds in Lake Mead (e.g., 1,020 or 1,000) and set the total shortages at the levels necessary to truly protect the system. As Reclamation has publicly noted, this could be as high as 3 or 4 MAF. Accordingly, shortages at higher elevations (e.g., 1,090 or 1,075) will need to be much higher than under existing criteria. In the Upper Basin, uses will also need to decline should flows continue to decline, and Reclamation must be prepared to limit uses in those states to 4, 3.5, or 3 MAF as necessary.

ii. Reclamation must also account for evaporative losses in the Lower Basin, providing equity to the Upper Basin which is charged evaporative losses at CRSP units. This alone could reduce uses in the Lower Basin by approximately 0.8-1.2 MAF.

c. *Use of realistic Upper Basin demand forecasts*
    i. For the post-2026 guidelines to truly be effective, Reclamation must use realistic demand forecasts for the Upper Basin. Under the Law of the River, consumptive use allocations total 16.5 MAF/yr and were based on presumed average annual river flow upwards of 17.5 MAF. Yet, the average annual flow in the Colorado River since 2000 is 12.3 MAF. Future consumptive uses in the Basin need to be lowered more to reflect the diminished supply available now. The use of unrealistic demand schedules in previous decision-making has been unproductive and caused operations to deviate from what was planned. For example, the proportional number of 7.48, 8.23, and 9 MAF releases from Lake Powell under the 2007 Interim Guidelines were not as planned because of the difference between the Upper Basin demand schedule and actual Upper Basin consumptive use and losses, leading to more water being released from Powell than was intended.
    ii. It is important to note that realistic demand forecasts do include the recognition that some tribes in the Upper Basin have the right to and will likely increase their uses, helping to rectify substantial historical inequities in water access.
d. *Provide flexibility*
    i. The post-2026 guidelines must be flexible enough to withstand changing conditions, especially when change happens quickly (i.e., changing supply runoff forecasts within the same water year), to prevent reservoirs from reaching critical levels requiring unilateral and emergency action by Reclamation. Similarly, the guidelines must allow for incorporation of new information as it becomes available as we cannot predict all possible conditions.
    ii. The post-2026 guidelines must allow for the incorporation of recent hydrology into operational guideline decision-making, and corresponding adjustments to storage guidance, helping to respond to declining flows and helping the system respond more effectively and proactively than just using elevation levels. WRA recently contracted with Water Balance Consulting to model such an approach, and combining reservoir levels with 5-year average inflows to Lake Powell to determine shortage levels in the Lower Basin helped protect and stabilize the entire Colorado River system. This flexibility is especially helpful should flows continue to decline, as expected.
    iii. Reclamation should also consider additional mid-year reviews of operating guidelines to allow for more intra-annual flexibility.
    iv. Identify flexible water management tools that consider the role of tribal water (developed, undeveloped, and unsettled) in the future framework of the Colorado River.

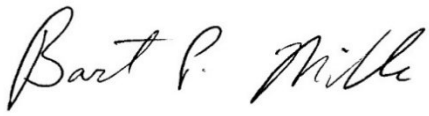
Finally, and just as importantly, we request that Reclamation directly connect the development of post-2026 operations to parallel planning processes. Several current multi-state agreements are set to expire at the end of 2025 while others are ongoing and require a resolution sooner

rather than later. Their re-issuance/resolution will be critical to the “package" of solutions for the Colorado River and thus they should be clearly connected to the post-2026 operations.

- Any programs developed/implemented to address “critical levels” at Powell and Mead. Drought Operations and timing such releases to benefit streams.
- Progress towards a robust demand management program in the Upper Basin, including the Demand Management Storage Agreement, with consideration of how that program may be designed to benefit environmental flows in the Upper Basin.
- Continued progress towards providing all tribes with clean water.
- Continued progress with Mexico on Minutes to the 1944 Water Treaty and mitigating ecological impacts in the Colorado River Delta.
- Continued coordination with relevant federal agencies to identify how post-2026 guidelines and any associated operations (both long-term and short-term/emergency) can be designed to benefit Upper Basin environmental and recreational resources.
- Progress towards efforts to address declining Salton Sea levels, including funding for new habitat and dust suppression projects on exposed lakebed, technical and scientific support on mitigation efforts (including extensive environmental monitoring), and adequate community public health interventions (e.g., air filters).

We greatly value this opportunity to provide our comments on the forthcoming NEPA process and development of the post-2026 operational guidelines. We look forward to working with Reclamation and other Basin partners and stakeholders in the coming years to help identify and implement solutions for a more resilient and sustainable Colorado River.

Sincerely,



Bart Miller
Healthy Rivers Program Director
Western Resource Advocates

ARIZONA POWER AUTHORITY

1810 W. ADAMS STREET
PHOENIX, AZ 85007-2697
(602) 368-4265

WWW.POWERAUTHORITY.ORG

August 31, 2022

Development of Post-2026 Colorado River Reservoir Operational Strategies

Via Email: CRB-info@usbr.gov

Ms. Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr. Suite 113
421 UCB
Boulder, CO 80301-2628

Ms. Jerla,

Please find below, Arizona Power Authority's (APA) comments and feedback in response to Reclamation's request for input dated June 24, 2022 (87 FR 37884). These comments largely mirror those submitted by the Colorado River Energy Distributors Associations, to which we are a member as well.

Introduction

The Arizona Power Authority is a state agency established in 1944 to manage Arizona's allocation of hydroelectric power generated from Hoover Dam (Dam) (approximately 19% of all power generated). The power generated is delivered to several western states, including Arizona. In Arizona, this power is delivered to 63 different electrical districts, irrigation districts, co-ops, tribes, and municipalities serving irrigation, agricultural, commercial, and residential loads. The Boulder Canyon Project Act (BCP) authorized the construction of Hoover Dam to control the Colorado River floods, provide storage and delivery of stored water among western states, and to generate electricity as a means to provide a source of funding for the project.

Hydropower Impacts

The generation of hydropower at Hoover Dam is one of the fundamental and most important purposes of the BCP, because revenues from the hydropower generation produced and sold are used to operate and maintain Hoover Dam and surrounding infrastructure.[1] Revenues are collected through long-term electric service contracts administered by the Western Area Power Administration (WAPA). These revenues are deposited into the Colorado River Dam Fund (Fund), which the Bureau of

[1] Boulder Canyon Project Act of 1928, 43 U.S.C 617.

Reclamation (Reclamation) uses to oversee all facets of Dam operations. Revenues are used for repayment of Dam and Visitor Center capital costs, operation and maintenance, environmental program costs, as well as other necessary expenses. All electric service contract revenues are collected from not-for-profit entities, many of whom are small rural and tribal entities without the resources to overcome the challenges facing hydropower generation in the coming years.

Even with a basic understanding of science, the certain impacts of lower water levels in Lake Mead are easy to be identified. The two available operational strategies of either holding water in the lake or releasing it through the dam will both, at the current water levels, have negative impacts on hydropower generation. Allowing more water to flow through the dam brings lower lake elevations and head pressure resulting in less efficient hydropower generation. While conserving water in the lake results in less water to turn the turbines, therefore, reduced hydropower generation. Under either scenario, management and operational decisions will have significant impacts on hydropower generation. Even more ominous is the prospect that mismanagement and risky operational decisions could drop Lake Mead below the lake elevation where hydropower generation becomes impossible. Such a condition would have dire consequences for the entities, across the region, currently holding contracts for the hydropower generated. Such a situation should be guarded against

Unfortunately, the impact of the lower lake levels at Lake Mead are already being felt by the not-for-profit entities. Some of the ways these entities continue to be affected include 1) rate increases to cover existing capital costs, operation and maintenance, and environmental program costs, 2) replacement power in a highly competitive and resource constrained marketplace to replace the reduced power output, and 3) the loss of clean reliable generation that has been used to meet an RPS or provide for grid ancillary services. The APA welcomes the continued federal recognition of the impacts on many vulnerable and underserved not-for-profit entities because of the lower lake level and its negative impact on hydropower generation.

Federal Response

Federal recognition of hydropower generation's critical role is vital to the continued operation of Hoover Dam. Assembling the right management team with the necessary authority and experience is required to navigate these troubling times. Reclamation, as well as WAPA, because of their unique but essential roles should share responsibilities in the federal response to the issues at Lake Mead. WAPA's expertise and experience in modeling and impact assessments should be part of developing any operational or management strategy or plan.

Additionally, the APA and its customers should play a meaningful role in developing future operation and management plans for the Colorado River. Any future operational or management plan will need to go through the NEPA process. A NEPA process ran well, is built on meaningful participation by those parties with a reasonable interest and relevant experience. The APA and its customers are such parties and should play a role in shaping the future operation and management plans. Similarly, and related, any process undertaken to address low-reservoir conditions, where near-term actions to protect against a complete system failure, should also include meaningful participation by the APA and its customers.

Lastly, the drought impacts described above are likely to persist for years to come. Revenues from hydropower generation are going to be significantly impaired for the foreseeable future. Reclamation, WAPA, and contract holders of hydroelectric generation should immediately undertake a process to address the role of hydropower generation as being the primary source of revenue for

operating and maintaining dam infrastructure. Addressing the issues related to costs and the need for affordable replacement power should quickly become a priority.

Please reach out if I can be of any further assistance.

Sincerely,

Jordy Fuentes

Executive Director
Arizona Power Authority

Eric Balken
Glen Canyon Institute
3090 East 3300 South, Suite 400
Salt Lake City, UT 84109

August 31st, 2022

Comments on Proposed Development of Post-2026 Colorado River Operational Strategies
Sent via email to CRB-info@usbr.gov

Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr. Suite 113
421 UCB
Boulder, CO 80301-2628

Dear Ms. Jerla:

Thank you for the opportunity to comment on the Pre-Scoping of the Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead. This letter is provided by Glen Canyon Institute, the Returning Rapids Project, Utah Rivers Council, Living Rivers, Great Basin Water Network, Save the Colorado, and the National Parks Conservation Association.

The fate of the entire Colorado River system is in a drastic state of uncertainty. While the circumstances we face as a basin are unprecedented, they are not unpredicted. The scientific community has long acknowledged that the Colorado River is over allocated, and that consumption has outstripped supply for most of the past two decades[1]. Furthermore, the deleterious effects of climate change have compounded this supply/demand imbalance, with numerous studies expounding the impacts of a warming basin and modeling future scenarios[2].

[1] http://www.inkstain.net/fleck/2022/08/how-we-got-into-this-mess-on-the-colorado-river/
[2] https://scholar.colorado.edu/concern/parent/8w32r663z/file_sets/ng451j49n

Every climate study that has been done on the Colorado River Basin predicts there will be less runoff in the years to come.

The speed at which climate change is reducing runoff on the Colorado River dictates that overhauls of the river's management will be necessary. Reclamation acknowledged this in its June 2022 announcement asking states to find a path to reducing consumptive use by 2-4 million acre feet by August of 2022. This was in addition to immediate reduction in the amount of water released to Lake Mead and the movement of 480,000 acre-feet of water from Flaming Gorge to Lake Powell. No reduction agreement was made between basin states, and the path to broad reductions of use is unclear.

The development of Post-2026 Colorado River Operational Strategies must be aggressive, forward thinking and embrace a significantly lower water supply. Reclamation should be applauded for taking action in demanding conservation from Basin states — the only path toward a sustainable river system. The framework of the post-2026 EIS should emphasize water conservation at every possible juncture.

The scope of operating criteria to be assessed should include a wide range of alternatives - well beyond anything considered in the 2007 guidelines. The 2022 August 24-month study shows the possibility of Lake Powell falling below minimum power pool by 2024, even with the extensive efforts to prop up the reservoir in 2021 and 2022[3]. An analysis[4] released by Glen Canyon Institute, Utah Rivers Council, and Great Basin Water Network shows that if the Colorado River system experienced a series of water years similar to 2000-2004 or even 2017-2021, Lake Powell could drop within range of dead pool. Managing Lake Powell near dead pool comes with a host of challenges, including structural challenges of operating Glen Canyon Dam solely with the use of the river outlet works, managing recreation and safety at a wildly fluctuating reservoir, and serious impacts to the Grand Canyon downstream. But the most important consideration is that at elevation 3,430 feet above sea level, Glen Canyon Dam cannot release enough water to meet its downstream delivery obligations to the lower basin[5].

For these reasons, it's imperative that the post-2026 operational strategies include an alternative where Glen Canyon dam is re-engineered so that it can function as a "run of river" facility, allowing for the full downstream release capabilities. While this concept is controversial to some, it may prove to be the best option under future circumstances. To not include such an alternative for analysis would be a major flaw in an EIS meant to carry the basin into a drier future.

The "run of river" alternative should include, at a minimum, an in-depth analysis of considerations that type of operational strategy would entail, including but not limited to: engineering costs and timeline, potential for adding hydropower to run-of-river physical components, policy and legal framework options for Upper Basin water storage, potential water

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[3] https://www.kuer.org/health-science-environment/2022-05-03/feds-roll-out-extraordinary-actions-to-prop-up-lake-powell

[4] https://www.glencanyon.org/wp-content/uploads/2022/08/Final-Antique-Plumbing-at-Glen-Canyon-Dam.pdf

[5] https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_1.pdf, Page 10

savings from reduced ground seepage and evaporation, recreational opportunities and impacts in Glen Canyon, environmental impacts and benefits in the Grand Canyon, use of Glen Canyon Dam facilities for flood protection, implications for surrounding tribes, and ecological, recreational, and cultural resources emerging in restoring sections of Glen Canyon that were once inundated by the reservoir.

2. The hydrologic reality of the Colorado River, and the need to use better forecast modeling for management

The impacts of climate change on the Colorado River have been widely studied for decades, with almost every study indicating that warming temperatures in the basin have already and will continue to reduce runoff[6]. The question isn't whether this trend will continue, but by how much. With a wide range of future impacts, scientists have concluded that we have not yet seen the worst, with the potential to see an additional 40% of flow reductions by mid-century[7].

The impacts being experienced in the Colorado River are unlike anything that's been seen in over a thousand years, which is one of the reasons current modeling used by Reclamation, the Colorado River Mid-term Modeling System (CRMMS), informed by Colorado River Forecast Center hydrologic assessments, has been overly optimistic for most of the past decade. A 2021 white paper The Futures of the Colorado Group evaluated these Colorado River projections and found that the agency has consistently underestimated the impacts of climate change and overestimated the amount of water projected to flow in the Colorado River, specifically into Lake Powell.

As described in the Futures of the Colorado River Project's White Paper #7[8], Reclamation's 24-month studies have consistently overestimated runoff of the studies' 2nd year "most probable" projection. The study found that the Reclamation's "most probable projected inflows were higher than what actually occurred by as much as ~7 million acre feet (maf) in some years, and predicted reservoir elevations were also higher than what occurred in some years." This is most aptly demonstrated by White Paper #7's Figure 7, which has been reproduced in below as a single graph.

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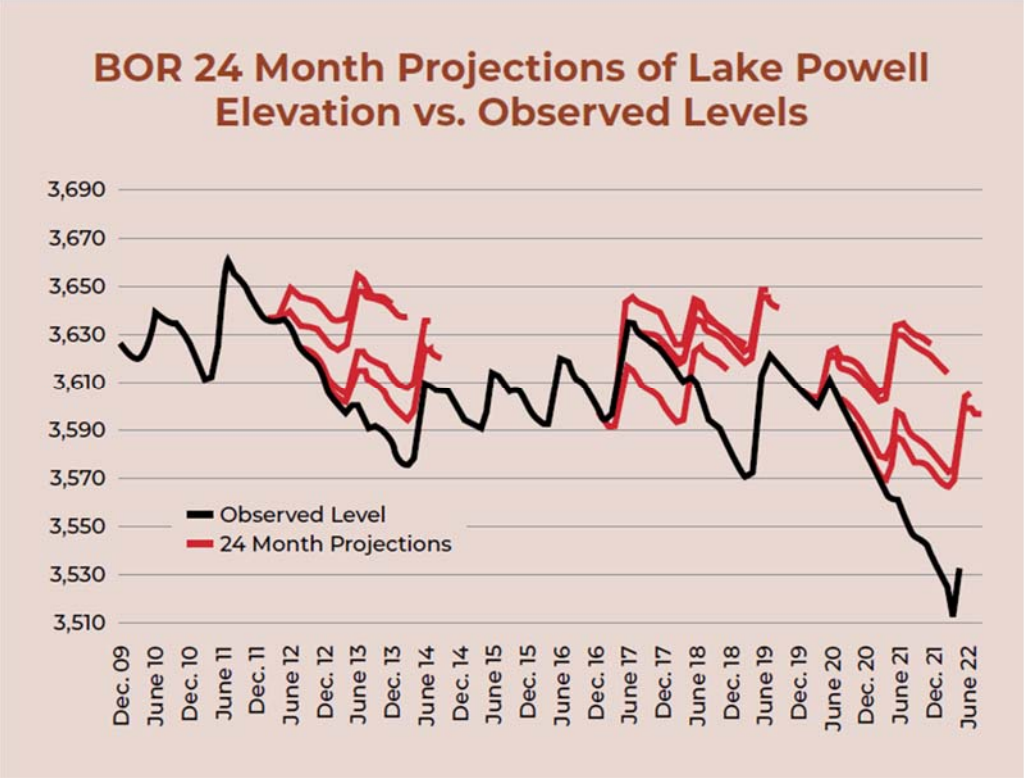
[6] https://www.usu.edu/colorado-river-research-group/files/crrg_reflections_on_two_decades.pdf

[7] Milly, P. C., & Dunne, K. A. (2020). Colorado River flow dwindles as warming-driven loss of reflective snow energizes evaporation. Science, 367(6483), 1252-1255. Bradley Udall & Jonathan Overpeck, The Twenty□first Century Colorado River Hot Drought and Implications for the Future, 53 WATER RESOURCES RES. 2404 (2017)

[8] https://qcnr.usu.edu/coloradoriver/files/WhitePaper_7.pdf



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The above figure, showing levels of Lake Powell between December 2009 and June 2022, demonstrates how far Lake Powell water levels have declined over time, as shown in black. The red lines are Bureau of Reclamation 24 month “most probable” forecasts which demonstrate a bias to overestimate the amount of water that will be in Lake Powell. Reproduced from White Paper #7, Figure 7.

The use of the 30-year statistical modeling is standard for water managers, but in the Colorado River Basin it has been proven to be outdated and leaves water managers and stakeholders unprepared. We recommend that reclamation utilize a more climate-reflective hydrologic input data set, like those used by the Futures of the Colorado Group[9] and Western Water Assessment[10], in 24-month and 60-month projections.

3. The likelihood of future declines at Lake Powell

Hydrologic impacts driven by climate change have reduced the Colorado River’s average annual flow by roughly 20% over the past two decades, compared to the 20th Century average. The result has been dramatic water level declines at Lake Powell[11].

[9] https://www.science.org/doi/10.1126/science.abo4452

[10] https://scholar.colorado.edu/concern/reports/8w32r663z

[11] Bureau of Reclamation. Natural Flow and Salt Data. (2022).

Water Flow Scenario

Flow reduction of the Colorado River at Lee Ferry	Naturalized flow at Lee Ferry
20th Century Average (1906-1999)	15.2
5% Decrease	14.4
21st Century Average 19% Decrease	12.4
20% Decrease	12.2
40% Decrease	9.1

Table 3. From 2000 to 2018, the Colorado River flowed at an average 12.4 million acre-feet per year, a roughly 20% drop in flows from the 15.2 million acre-feet experienced for most of the 20th century.

The table above summarizes the range of Colorado River flow declines projected by peer-reviewed scientific papers. This material is reproduced from A Future on Borrowed Time[12], an analysis of Upper Colorado River Basin water budgets. Flow declines are shown as a percent decrease from the 20th Century Average of 15.2 million acre-feet, and both the 20th and 21st Century. For comparison purposes, the most probable water year 2022 unregulated inflow forecast for Lake Powell made by the Colorado Basin River Forecast Center on August 2, 2022 is 5.96 maf or 62% of average[13].

Reclamation recently took steps to prop up Lake Powell, releasing an additional 500,000 acre feet of water from Flaming Gorge and holding back 480,000 acre feet of water from being released to Lake Mead downstream[14]. Even with these efforts, the Bureau projects that, under the most probable scenario, Lake Powell's elevation will drop to approximately 3,508 fasl by April 2023, 14 feet lower than the reservoir's 2022 low point[15]. Under minimum probable inflow projections, the Bureau estimates that Lake Powell could fall as low as 3,470 by March 2024[16].

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12 https://static1.squarespace.com/static/5a46b200bff2007bcca6fcf4/t/620a935ebcb00a3f5258e71b/1644860263000/Future+on+Borrowed+Time.pdf

13 August 2022 24-Month Study Projections, Lake Powell and Lake Mead: End of Month Elevation Charts. Bureau of Reclamation

14 Trujillo, Tanya. Letter to Colorado River Basin State Managers on Coordinated Actions & DROA. (May 2, 2022)

15 https://www.usbr.gov/lc/region/g4000/24mo.pdf

16 https://www.usbr.gov/lc/region/g4000/riverops/webreports/Powell24MS.png

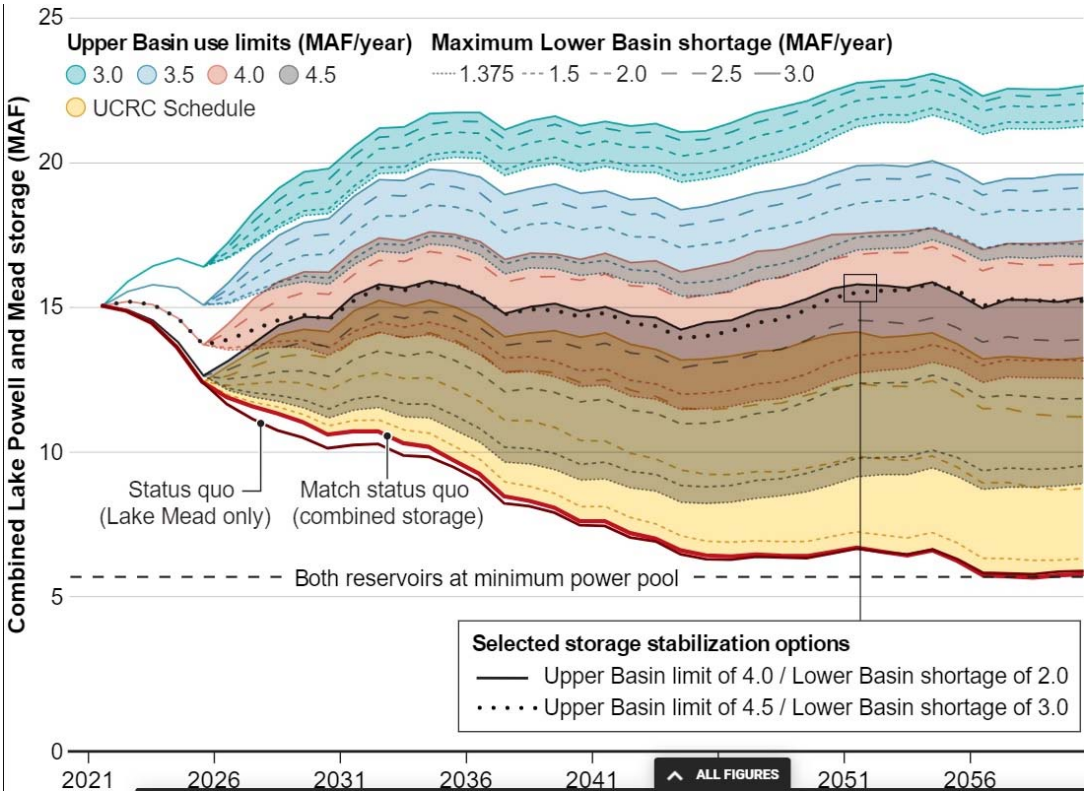


Figure from “What will it take to stabilize the Colorado River”, *Science Magazine*

The figure above, from Wheeler et al. in *Science*[17], shows an array of future possibilities of combined storage totals between Powell and Mead, using existing shortage curtailment schedules and different Upper Basin depletion scenarios. The figure shows that with climate impacts not getting worse, and significant reductions implemented in the Upper and Lower Basin, system storage will still only stabilize, not increase. It’s also worth noting that this graph assumes a starting point of 15 million acre feet of live storage between Powell and Mead. As of August 2022, the reservoirs’ combined storage is 13.2 million acre feet[1819], lower by almost 2 million acre feet.

Based on the Wheeler et al. projections, if Basin states cannot come to an agreement on widespread reductions of consumptive use and/or climate continues to reduce runoff, storage at Powell and Mead will continue to drop precipitously. As stated earlier, climate science suggests runoff will get worse, the fundamental issue of whether the Basin states can agree to widespread cuts remains unclear[20].

For different perspective of what the reservoir’s future could look like and provide a possible prediction of what could happen in the years ahead, an analysis was conducted by Utah Rivers

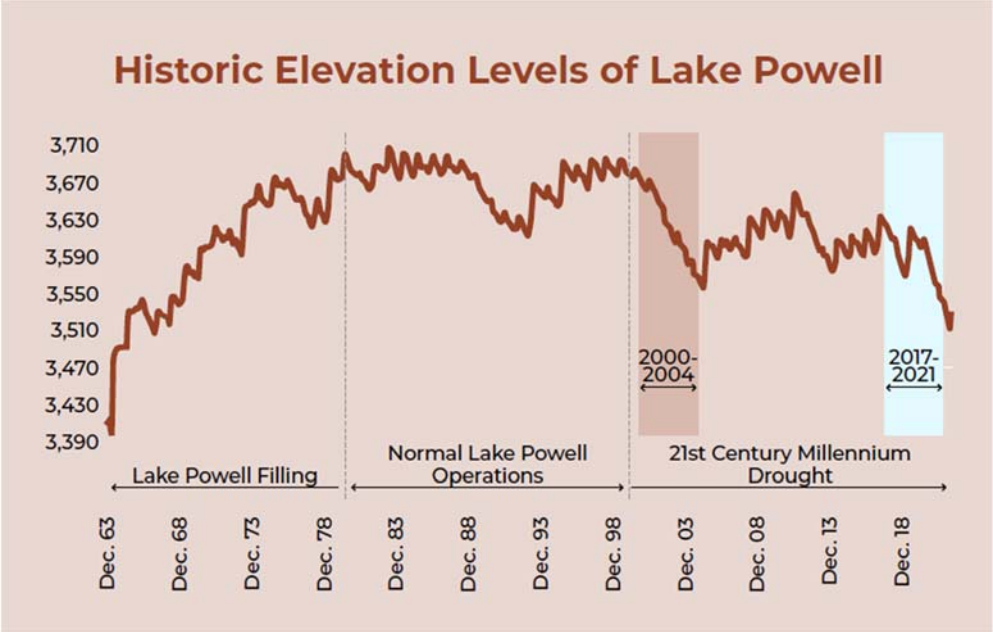
[17] https://www.science.org/doi/10.1126/science.abo4452#

[18] http://lakepowell.water-data.com/

[19] http://lakemead.water-data.com/

[20] https://www.latimes.com/environment/story/2022-08-16/colorado-river-basin-states-fail-to-reach-drought-agreement

Council, Glen Canyon Institute, and the Great Basin Water Network[21]. The analysis projected potential future Lake Powell water levels by simply using observed historical data. Two historical five-year periods were chosen and assessed what Lake Powell's water level would be if future conditions resembled those observed in either of these periods[22]. The figure below shows the entire history of Lake Powell's water levels and illustrates the two color-coded periods used by the report to project future Lake Powell levels, from 2000-2004 and from 2017-2021.



Historic elevations of Lake Powell and the two historic periods chosen to forecast possible future declines

	Average unregulated inflow to Lake Powell	Change in Lake Powell Storage	Change in Lake Powell Storage	Average Natural Flow at Lees Ferry	Decline in Natural flow from 20th Century Average
2000-2004	5.8 million ac-ft	-120 feet	-13.8 million ac-ft	9.4 million ac-ft	38%
2017-2021	7.8 million ac-ft	-65 feet	-5.5 million ac-ft	12.2 million ac-ft	20%

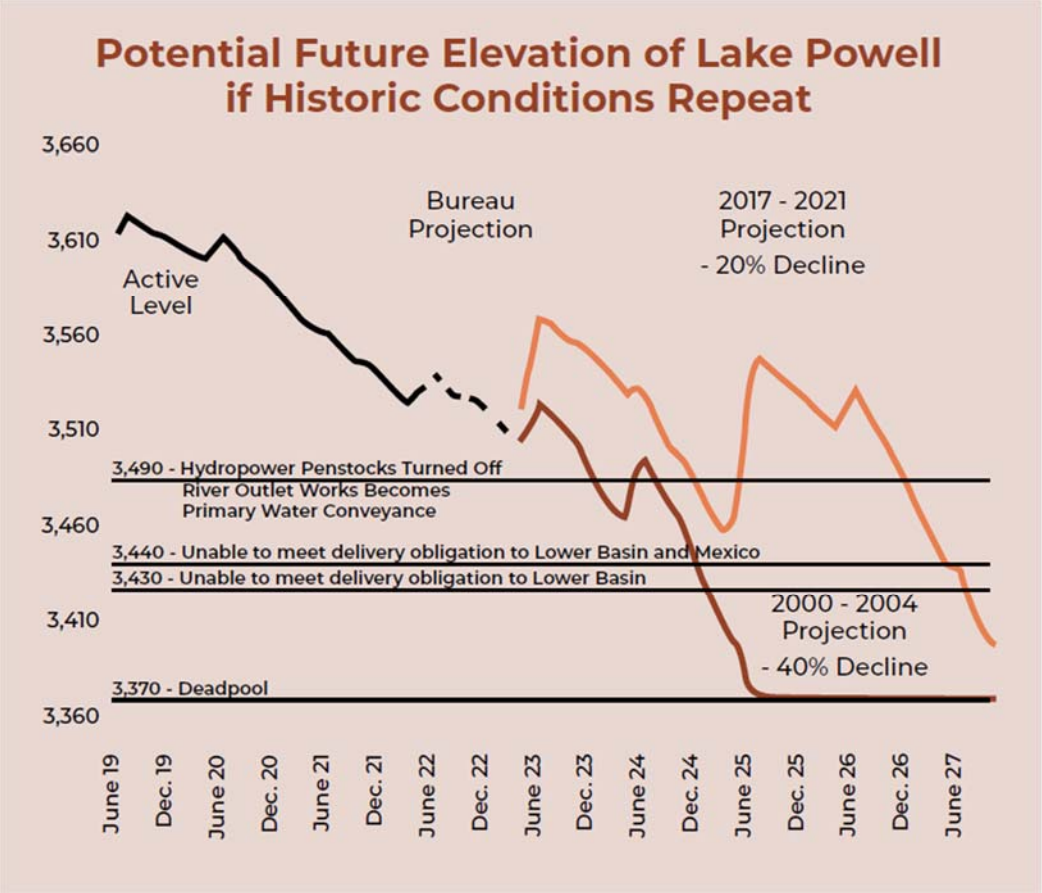
Summary statistics for two historical time periods used in analysis.

[21] https://www.glencanyon.org/wp-content/uploads/2022/08/Final-Antique-Plumbing-at-Glen-Canyon-Dam.pdf

[22] Bureau of Reclamation. Annual Operating Plan. (2021). https://www.usbr.gov/uc/water/rsvrs/ops/aop/AOP21.pdf. Bureau of Reclamation. Natural Flow and Salt Data. (2022). Bureau of Reclamation. 24 Month Study. (June 2022). https://www.usbr.gov/uc/water/crsp/studies/24Month_06.pdf

These two periods were chosen because they represent good ‘new normal’ and ‘low end’ projections for the Colorado River System. The 2000-04 period roughly lines up with the low end projection of a 40% decline in Colorado River flows predicted by the current scientific literature[23]. The 2017-21 period is similar to the 21st century average Colorado River flow of 12.3 million acre-feet and could be thought of as the recent new normal. The figure below shows Lake Powell’s projected elevation level using these two historical periods.

When forecasted into the future using these two historic periods, Lake Powell quickly drops to levels well below the critical elevation thresholds of 3,440 and 3,430 feet above sea level. This exercise is not meant to conclude that Lake Powell will follow either of these paths over this time frame. Projecting Lake Powell’s actual water levels over the next five years with a high degree of certainty is very difficult, especially without incorporating potential future curtailments. This exercise is meant to demonstrate that it is plausible Powell could drop to critical elevation thresholds prior to the completion of the Post-2026 NEPA process.



Projected elevation of Lake Powell reservoir levels into the future from March 2023 forward, given observed historical hydrologic periods of both 2000 – 2004 and 2017 – 2021.

[23] Milly, P. C., & Dunne, K. A. (2020). Colorado River flow dwindles as warming-driven loss of reflective snow energizes evaporation. Science, 367(6483), 1252-1255. Bradley Udall & Jonathan Overpeck, The Twenty□first Century Colorado River Hot Drought and Implications for the Future, 53 WATER RESOURCES RES. 2404 (2017).

4. The need to study modifications at Glen Canyon Dam and model operations with low and no reservoir scenarios

As demonstrated by the assessment above and with Reclamations own 5-year projections[24], there is a significant probability of Powell dropping below power pool elevation and near dead pool, that should stimulate Reclamation to have every tool available to operate the system in lower reservoir elevation scenarios. Currently those operational tools are unavailable, because of plumbing limitations at Glen Canyon Dam, and the lack of modeling done around alternative hydrologic scenarios where Lake Powell is drawn down to low levels or run-of-river level.

In an announcement on August 16th, 2022[25], Reclamation outlined a number of actions it would take to address falling levels at Lake Powell. One of these actions states 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."

This action highlights some of the structural limitations at Glen Canyon Dam, including its ability to operate solely through use of the river outlet works for months or years at a time. Tanya Trujillo, Assistant Secretary for Water and Science, in an April announcement stated, "Glen Canyon Dam was not envisioned to operate solely through the outlet works for an extended period of time and operating at this low lake level increases risks to water delivery and potential adverse impacts to downstream resources and infrastructure." In other words, it's unclear that the physical structure of the river outlet works are structurally capable or safe when operating at full capacity for long periods of time.

Current planning from Reclamation[26] is centered around propping up Lake Powell elevations through increased releases from upstream reservoirs, and reduction of releases downstream. These efforts are short term and don't address the important problem of Glen Canyon Dam's inability to operate at low levels.

Even with the significant efforts to prop up Lake Powell, the Drought Response Operations Agreement (DROA) acknowledges that these efforts may not be enough to avoid dropping below minimum power pool elevation. Line 453[27] of the DROA document states that "if dry conditions persist or worsen, available storage volumes for potential adjustments or releases may be insufficient to protect the Target Elevation at Lake Powell. As such, Drought Response Operations may be ineffective and therefore futile."

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[24] https://www.usbr.gov/lc/region/g4000/riverops/crss-5year-projections.html

[25] https://www.usbr.gov/newsroom/news-release/4294?filterBy=year&year=2022

[26] https://www.usbr.gov/dcp/droa.html

[27] https://www.usbr.gov/uc/DocLibrary/Plans/20220103-Draft-2022DroughtResponseOperationsPlan-508-UCRO.pdf?ct=t(October_Lowdown10_20_2016_COPY_01)

Another action from Reclamation's August announcement[28] is that the agency will "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." Reclamation's decision to include this action is a bold and important step toward updating the infrastructure of the Colorado River for the 21st century. Based on these statements from Reclamation, is it clear that any planning for post-2026 operational strategies and management paradigms must include modifying Glen Canyon Dam to operate at low or run-of-river levels must be a central part of analysis for the post-2026 NEPA analysis.

a. Plumbing limitations of Glen Canyon Dam

When the Reclamation designed and engineered Glen Canyon Dam, it prioritized two things: water storage to help the Upper Basin store its unused apportionment of Colorado River water and meet its delivery requirements, while hydropower generation was intended to be a second priority[29]. The dam was not designed to run at the low levels we face in the era of aridification.

The eight hydropower penstocks located at elevation 3,470 feet above sea level are the primary means of moving water downstream. Once the reservoir drops below minimum power pool, elevation 3,490 feet above sea level, the only way for the dam to release water is through the river outlet works at elevation 3,374. The outlet works have a limited ability to release water, with diminishing capacity as the reservoir drops closer to them, a function of reduced head pressure[30]. The figure below, which the Futures of the Colorado collated from Reclamation data[31] update, breaks down the maximum release capacity of the outlet works, assuming they can be run at full capacity.

Maximum rate of discharge through the river outlets as a function of Lake Powell elevation[30]

Reservoir elevation, in feet above sea level	Maximum discharge through river outlets, in cubic feet per second	Maximum discharge rates through bypass tubes, in acre feet per year
3,500	15,000	10,900,000
3,490	14,650	10,600,000
3,450	12,600	9,090,000
3,440	11,400	8,280,000
3,430	10,200	7,410,000
3,420	8,800	6,370,000
3,400	4,800	3,470,000

Table from White Paper #1 demonstrating limited release capacity of river outlet works

[28] https://www.usbr.gov/newsroom/news-release/4294?filterBy=year&year=2022

[29] Bureau of Reclamation. Technical Record of Design and Construction: Glen Canyon Dam and Powerplant. (1966). http://www.riversimulator.org/Resources/USBR/GCDtechnicalData.pdf

[30] Bureau of Reclamation. Technical Record of Design and Construction: Glen Canyon Dam and Powerplant. (1966). http://www.riversimulator.org/Resources/USBR/GCDtechnicalData.pdf

[31] Bureau of Reclamation. Technical Record of Design and Construction: Glen Canyon Dam and Powerplant. (1966). http://www.riversimulator.org/Resources/USBR/GCDtechnicalData.pdf

b. Glen Canyon Dam is incapable of meeting delivery obligations at low levels

At elevation 3,430, the dam is physically incapable of releasing enough water to meet Upper Basin delivery obligations, based on current interpretations of the Law of the River[32]. Failure to deliver these agreed upon amounts could result in technical, legal, engineering, and environmental problems for all stakeholders of the Basin.

While the Upper Basin Delivery obligation of 7.5 Million acre feet per year (or 75 million acre feet over ten years), is a cornerstone of the Law of the River, it should be noted that ongoing policy discussions around the Law of the River argue that this interpretation should be updated and that it is unrealistic for the "75 in 10" policy to continue as is[33]. Nevertheless, it is unclear what changes the Law of the River may undergo, and it's likely that Glen Canyon Dam's structural limitations reduce the system's ability to adapt to those changes and increases the risk of meeting legal obligations.

c. Additional problems with operation of Lake Powell at or near dead pool

The river outlet works intakes sit nearly 240 feet above the bottom of the dam, meaning that a large pool of approximately 1.7 million acre-feet of water is effectively 'stranded' behind the dam[34]. This large pool of water, commonly referred to as deadpool, could become a common occurrence in future hydrologic conditions at Lake Powell without structural changes at Glen Canyon Dam. In addition to the inability to access the 1.7 million acre-feet of dead pool water, operating Glen Dan at low elevations would create a number of problems for the reservoir's managers, Colorado River Basin water users, and a range of other constituencies. Not the least would be a stagnant body of water sitting in a desert environment that would be conducive to harmful algal blooms, sediment capture, and other water quality problems.

At deadpool, the reservoir is subject to rapid changes in elevation, due to the topographic martini glass-like shape of Lake Powell's vertical cross section. Nearly half of the reservoir's capacity resides above 3,600 fasl[35], meaning that when water levels drop to deadpool elevation ranges, even moderate inflows can cause water levels to rise over 100 feet in one season[36]. This could create numerous problems for both reservoir visitors and the National Park Service – the federal agency responsible for managing the recreational facilities at Lake Powell.

These rapid seasonal elevation changes would require the Park Service to frequently move marinas, extend boat ramps, and modify boat fueling infrastructure, which can be extremely

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[32] Schmidt, John. White Paper #1: Fill Mead First – A Technical Assessment. (2016). https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_1.pdf

[33] http://www.inkstain.net/fleck/2021/07/reverence-or-pragmatism-the-upper-colorado-river-basins-compact-dilemma/

[34] Bureau of Reclamation. Technical Record of Design and Construction: Glen Canyon Dam and Powerplant. (1966). http://www.riversimulator.org/Resources/USBR/GCDtechnicalData.pdf

[35] Root, J. C., & Jones, D. K. (2022). Elevation-area-capacity relationships of Lake Powell in 2018 and estimated loss of storage capacity since 1963 (No. 2022-5017). US Geological Survey

[36] Root, J. C., & Jones, D. K. (2022). Elevation-area-capacity relationships of Lake Powell in 2018 and estimated loss of storage capacity since 1963 (No. 2022-5017). US Geological Survey

costly. Already, the majority of Park Service and Tribal supported launch ramps are unusable. Current plans to adapt to declining reservoir levels include abandoning the current Bullfrog Marina site and moving marina facilities into the main channel at an estimated cost of $25 million dollars[37]. With the significant cost of extending boat ramps, walking ramps and marina utility infrastructure, there will come a point of diminishing returns on increasingly large and frequent taxpayer investments. After such investments are made to adapt to deadpool elevations, a subsequent medium or large water runoff year could lead to significant damage to this new infrastructure. This could create infrastructure challenges for the National Park Service, which is already suffering from a large backlog of maintenance projects.

In a scenario where the reservoir nears deadpool without subsequent engineering modifications to Glen Canyon Dam, its lifespan would dramatically decrease due to its storage volume being displaced with sediment. The Colorado River has the second largest natural sediment load of any large river in North America, moving an estimated 54-60 million metric tons of sediment per year into Lake Powell[38]. When the reservoir is full, this amount of sediment displaces a relatively small portion of the reservoir. But when the reservoir is low, that proportion of sediment displacement will increasingly diminish the reservoir's smaller storage volume as sediment moves closer to the dam. According to the findings of Schmidt et al. (2016), if the reservoir were to remain at levels between power pool and deadpool, sedimentation will eventually affect flow into the River Outlet Works[39].

Sediment has been accumulating in the upper reaches of the reservoir for nearly 60 years, totaling a loss of 6.8% reservoir storage capacity since 1963[40]. As the reservoir and its volume of stored water has declined, the rate of siltation has already increased relative to its overall size and reservoir low elevation storage capacity for water is being displaced by sediment.

As Lake Powell water levels drop down to deadpool, the maximum water flow release capacity out of Glen Canyon Dam river outlet works drops from 15,000 cfs to below 5,000 cfs. The reduction in water release capacity will have adverse effects on the Grand Canyon ecosystem. Below elevation 3,440 fasl, downstream releases would likely need to be maximized to meet delivery obligations, meaning flows in the Grand Canyon would be constant over long periods of time. Once water levels in the reservoir are reduced below the intakes for the generators, there will be no ability to conduct High Flow Experiments downstream and aggravate restoration efforts to improve sediment deficits in Grand Canyon National Park. Under these flow conditions, the fate of the Grand Canyon's ecosystem will be in jeopardy, and would likely violate key provisions of the Grand Canyon Protection Act[41].

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[37] Returning Rapids Project. Field Binder: The River Persists. (2022). https://www.glencanyon.org/product/2022-returning-rapids-field-binder-the-river-persists/

[38] Schmidt, John. White Paper #1: Fill Mead First – A Technical Assessment. (2016). https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_1.pdf

[39] Schmidt, John. White Paper #1: Fill Mead First – A Technical Assessment. (2016). https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_1.pdf

[40] Root, J. C., & Jones, D. K. (2022). Elevation-area-capacity relationships of Lake Powell in 2018 and estimated loss of storage capacity since 1963 (No. 2022-5017). US Geological Survey

[41] Grand Canyon Protection Act of 1992, P.L. 102-575, Sec. 1802(a).

The above scenario of hydrologic impacts are the likely future of Lake Powell. Climate projections for the American Southwest all show a trend to smaller snowpacks and increased loss of water due to evaporation, sublimation and runoff lost to soil infiltration. To believe that somehow snowpacks will rebound to pre-2000 levels or that large influxes of “new” water will appear in the next 20 years is unlikely. To not plan for a future where the landscape of the Colorado River Basin is aridified is a misuse of the science and common sense.

d. The need to model alternative scenarios including Lake Powell operating at low or run-of-river levels

In addition to examining physical modifications at Glen Canyon Dam to allow water releases from low or run-of river levels, there is a need to use CRSS or similar modeling tools to test how the entire Colorado River system would operate under such scenarios. The primary method of modeling Colorado River reservoirs is the Colorado River Simulation System (CRSS) system, which by design, only models federal reservoir storage scenarios conceptualized under existing operating criteria of the 2007 Interim Guidelines, 2019 Drought Contingency Plans, and DROA operations. As stakeholders of the Basin develop operational strategies for Lake Powell and Lake Mead beyond 2026, it’s imperative that Reclamation model a range of scenarios, including ones in which Lake Powell elevation is at low or run-of-river levels.

The Futures of the Colorado Group has taken steps in this direction by modeling an array of scenarios[42] outside the limitations of the federally defined existing operating criteria, but even this selection of scenarios do not represent a wide enough range to explore every storage regime available on the Colorado River. Modeling alternatives outside of the current reservoir operating criteria and using the CRSS tool, White Paper #6 models and analyzed several different scenarios including variations of prioritizing storage in Lake Mead vs Lake Powell and vice versa. These analyses were an important step in the right direction building the data around informed discussions of new alternatives. However, they didn’t go far enough, as they don’t model the full drawdown of Lake Powell - a scenario which was once incomprehensible, but now possible within the next few years as a function of the supply/demand deficit. The focus of White Paper #6 was stabilization of the broader system, not averting the impending problems at Glen Canyon Dam.

In order to have an informed discussion among Basin stakeholders, it’s imperative to understand the assumptions and tradeoffs of potentially phasing out the storage of water in Lake Powell. As such, discussions around post-2026 operating strategies must expand CRSS modeling of increasing the number of scenarios and include Glen Canyon Dam being operated at levels below what the dam is physically capable of currently.

5.The need to include an assessment of emerging ecological, cultural, and recreational resources in Glen Canyon, Cataract Canyon, and Narrow Canyon.

Since the 2007 interim shortage guidelines, new resources have emerged in Glen Canyon that were not accounted for in the previous NEPA analysis. Given the significance of these resources under NPS responsibilities and the mandates of the Grand Canyon Protection Act, the post-2026 Operational Strategies NEPA analysis must recognize and include an analysis of the importance of the emerging recreational resources in the tributary rivers and canyons, including rafting and hiking in Glen Canyon, and recognize the impact that operational strategies will impact environmental resources including vegetation, wildlife, and archeological/cultural sites in Glen Canyon.

a. NPS Mandates, Grand Canyon Protection Act, and Endangered Species Act

Similar to the 2007 Interim Shortage Guidelines, the post-2026 Operational Strategy guidelines will require extensive cooperation with the National Park Service (NPS). With ten national park sites directly affected by Colorado River operations, NPS should be an official cooperating agency in developing operational strategies. The decisions made around how Glen Canyon Dam is operated will have widespread effects on areas and resources that fall under the jurisdiction of NPS. As NPS is responsible for "conservation of natural and cultural resources and administers visitor use"[43], it is essential that decisions around how to manage Lake Powell, Glen Canyon, and Grand Canyon incorporate up-to-date information on changing and emerging resources in those park units.

Public Law 102-575, which includes the Grand Canyon Protection Act requires that Glen Canyon Dam be managed "in such a way as to protect, mitigate adverse impacts to and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use[44]."

Reclamation must also plan and manage for Endangered Species Act compliance not just in Grand Canyon national park, but for Glen Canyon National Recreation Area. With thus far minimal species monitoring in the restoration zone of GCNRA (above reservoir level and below 3,700), the extensive emerging ecosystems could provide habitat for threatened and endangered species. Last year, a Mexican Spotted Owl (threatened species) was seen in a emerged side canyon in GCNRA[45].

b. Emerging Resources in Glen Canyon

Glen Canyon National Recreation Area has experienced large ecological changes over the past 20 years as Lake Powell has receded. More than 100,000 acres of land that were once inundated under Lake Powell have now emerged[46]. Unique geologic and natural features like

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[43] https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf, page 3

[44] Grand Canyon Protection Act of 1992, P.L. 102-575, Sec. 1802(a).

[45] https://www.sltrib.com/news/environment/2022/08/28/glen-canyons-side-canyons-spring/

[46] Root, J. C., & Jones, D. K. (2022). Elevation-area-capacity relationships of Lake Powell in 2018 and estimated loss of storage capacity since 1963 (No. 2022-5017). US Geological Survey.

Cathedral in the Desert, Gregory Bridge, La Gorce arch, and countless waterfalls, grottos, alcoves, and other natural wonders have emerged from the water. These one-of-a-kind features are what inspired former Interior Secretary Harold Ickes to propose making Glen Canyon the central part of a larger Escalante National Monument in the 1930's, and what inspired countless western writers like Wallace Stegner, who said Glen Canyon would have made a "superb national park". The emergence of these emerging treasures have garnered attention from national[47] and international media outlets, and have even been used for tourism promotions by GCNRA concessionaires[48].

There is also large-scale ecological succession taking place in Glen Canyon and its tributary rivers and streams. With over 40 new miles of the Colorado River flowing once again in what used to be the northern reach of Lake Powell, 40 new miles on the San Juan River, 13 new miles flowing on the Escalante River, 10 new miles on the Dirty Devil River, and hundreds of miles of creeks and stream flowing in the 100-plus side canyons of Glen Canyon, the ecosystems surrounding Glen Canyon are rebounding[49].

In many tributary canyons to Glen Canyon, established groves of Goodings Willow, Coyote Willow, and Fremont Cottonwoods are thriving[50]. These riparian forests are of great significance in many places throughout the Colorado River Basin, with resource managers going to great lengths to restore and protect them for native avifauna, reptiles and mammals. Recent research led by GCI has documented the return of plant life in the emerged canyons, which is many places is dominated by native plant species such as globemallow, wirelettuce, scorpion weed, sacred datura, four wing salt bush, matted crinkle mat, wooly plantain, Jone's blue star, woody aster, desert trumpet, milkvetch, sticky brittle bush, purple three awn, common pepperweed, threadleaf sunflower, Indian rice grass, sand sage, and prickly pear cactus[51].

Abundant wildlife has been documented in emerged canyons of Glen Canyon including bighorn sheep, mule deer, coyote, bobcat, beaver, river otter, numerous birds, lizards and snakes[52]. Dozens of invertebrate species such as bees, beetles, and dragonflies have also been documented in the emerged areas[53] These emerging landscapes provide native species the ability to compete with non-native species and to add to the ecological integrity of the Colorado River system.

Glen Canyon is home to thousands of archeological sites that were inundated by the water behind Glen Canyon Dam. Many of these culturally significant archaeological sites, including

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[47] https://www.newyorker.com/magazine/2021/08/16/the-lost-canyon-under-lake-powell

[48] https://marketing.revinate.com/public/promotion/view-in-browser/message-log/97e341cc-9266-4408-9b84-e434c4f437c8

[49] https://www.sltrib.com/news/environment/2022/08/28/glen-canyons-side-canyons-spring/

[50] https://content.jwplatform.com/previews/6H3H1RhH

[51] Babtiz, Kendra, MPP. The Botanical Recovery of 50-Mile Canyon, *Hidden Passage: The Journal of Glen Canyon Institute*, issue XXV, Fall 2019 https://www.glencanyon.org/wp-content/uploads/2020/02/Hidden-Passage-25.pdf

[52] McGivney, Annette, *Resurrection: Glen Canyon and a New Vision for the American West,* 2009, Braided River Publishing

[53] https://www.glencanyon.org/13220-2/

structures and rock art, have emerged along with other resources[54]. The post-2026 Operational Strategies NEPA analysis should recognize impacts of reservoir operations on these social and culturally important resources. The Glen Canyon landscape has cultural and social significance to multiple Colorado River Basin indigenous tribes, early Mormon settlers, and to many early explorers. The future management of these resources should include a different approach than was used in the late 1950's and early 1960's when the Department of the Interior only focused on 'recovery of artifacts". Future operational scenarios need to include indigenous people in the management of reservoir operations to protect all resources, not just the water.

c. Emerging Recreational Resources in Cataract and Narrow Canyons

Cataract Canyon, located below the confluence of the Green and Colorado Rivers, is home to some of the most recreationally significant whitewater in North America. It is known by many river rafters and guide companies as "Utah's Grand Canyon". When Lake Powell was full, the flowing river and whitewater rapids of Cataract Canyon ended below Big Drop 3 Rapid, which is also the boundary between Canyonlands and Glen Canyon National Recreation Area. Since Lake Powell's decline from its most recent peak storage in 1999, the Colorado River in Cataract Canyon has reestablished itself in what used to be a reservoir.

What was left behind from Lake Powell's retreat are massive sediment deposits in the Cataract, Narrow Canyon (just downstream), and upper Glen Canyon. Over the years, much of this sediment has been eroded, and the natural characteristics of the Colorado River have once again reestablished themselves. This transformation has been documented extensively by The Returning Rapids Project[55], which has conducted numerous research trips in the reemergence area with coordination from NPS, USGS, GCMRC, and multiple researchers from the University of Utah and Utah State University.

In Cataract Canyon, the return of the river and its famed whitewater rapids have created a recreational experience that hasn't been available since the reservoir first drowned the canyon. The prospect of a returning river rafting economy to Glen Canyon has been discussed publicly by former GCNRA superintendent Billy Shott[56]. The rapids that have returned in lower Cataract Canyon add a significant value to a Cataract Canyon trip — one of Utah's most popular rafting destinations and an economic driver in southern Utah. Since there is now flowing river current all the way to the Hite area, parties can run Cataract without the use of motors — which reduces the overall carbon footprint of this recreation possibility. This unique and changing resource will be affected by reservoir operations and impacts should be included in the post-2026 NEPA analysis.

6. The need to consult tribes on impacts to Glen Canyon Resources

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[54] https://www.knau.org/knau-and-arizona-news/2022-05-12/archaeological-sites-once-thought-lost-under-lake-powell-reappear-as-water-drops

[55] https://www.returningrapids.com/

[56] https://lakepowellchronicle.com/article/the-future-of-gcnra-lake-powell

According to the Park Service, 19 American Indian (63% of the 30 Colorado River Basin) tribes and bands have a cultural and spiritual association with Glen Canyon — including contemporary descendants of the people who left behind the thousands of archeological sites in the canyon[57]. The Navajo, Hopi, Ute, Southern Paiute, Zuni and Puebloan tribes all have deep connections to Glen Canyon and consider it to be part of their ancestral homelands. When the canyon was flooded, hundreds of tribal members were displaced[58] — their homes, farms and sacred sites drowned[59]. As more ancestral lands emerge from the reservoir, cooperative tribal management with the Federal Government should be a central piece of any management strategy. Recent agreements on the management of Bears Ears National Monument, upstream from Glen Canyon, should be the template for cultural resources management. Additional recreational economic opportunities for guiding, like the Hualapai tribe does in the Grand Canyon, or the Navajo Nation does in Antelope Canyon should be considered and analyzed.

7. The need to manage for sediment accumulating in Glen Canyon

With the combination of Lake Powell's retreat and the massive amounts of sediment accumulating in Glen Canyon every year, sediment deltas are emerging in every tributary and the mainstem Glen Canyon. These sediment deposits deserve careful consideration in operational strategies under the post-2026 NEPA process.

These deltas are moving down through the main stem and tributary canyons. In the coming 20-50 years these mud glaciers[60] will greatly affect the viability of the reservoir's storage capacity. In areas where the reservoir once was, mitigation efforts need to be taken where the sediment is damaging resources.

On the San Juan River, the original river channel has moved (avulsed) causing a waterfall to form at Paiute Farms. This waterfall over hard geologic strata creates challenges for future rafting recreation and ecological challenges. The lack of riverine ecosystem connectivity at the falls has impacts on native fish populations. The waterfall has blocked upstream sediment from the San Juan, impacting not just the newly flowing sections of river below Lake Powell's full pool level, but even causing river sediment to back up farther upstream[61]. A sediment management plan should include monitoring of the Paiute falls waterfall and how it is impacting resources above the 3700 elevation level.

It's believed a similar waterfall could soon develop near Hite at the end of Narrow Canyon[62]. The emergence of such a waterfall would create a significant recreational safety hazard and impact the opportunities for private boaters and outfitters who utilize that section of river. If a

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[57] https://www.nps.gov/glca/learn/management/foundation-document.htm

[58] https://digitalrepository.unm.edu/hist_etds/21/

[59] Graham, Taylor. Oral Histories: Charley Bulletts on Glen and Grand Canyon, *Hidden Passage: The Journal of Glen Canyon Institute*, issue XXVI, Fall 2020 https://www.glencanyon.org/wp-content/uploads/2021/02/Hidden-Passage-Final-Version-2021.pdf

[60] https://www.kunc.org/environment/2022-08-04/a-mud-caked-terra-incognita-emerges-in-glen-canyon-as-lake-powell-declines-to-historic-low

[61] Gene Stevenson, March 2000

[62] https://www.sltrib.com/news/2022/04/03/waterfall-could-soon-form/

reservoir-caused waterfall forms near Hite marina, reclamation should assess the feasibility of dredging channel and forcing the river back ino its original channel.

Any long-term operation plans must include development of a comprehensive sediment plan in Glen Canyon. This plan should address issues related to waterway access (river or reservoir), resource impacts, ongoing monitoring of sediment accumulation and resource remediation above areas exposed as the reservoir has diminished in capacity.

8. The need to assist NPS in planning for a Glen Canyon in the 21st century

With conditions changing so rapidly in Glen Canyon National Recreation Area, it will be vital for the post-2026 NEPA process to assist NPS in planning for adapting to new physical realities at the park. GCNRA develops its facilities planning based on projections and guidance from Reclamation[63]. The recreation landscape at the park is changing at speeds that are almost impossible for the park to keep up with. This year, there was a two month period where nearly every boat ramp at the reservoir was non-operational, with boat ramps being extended and marinas being moved as quickly as possible. Hite and Dangling rope marinas have closed indefinitely. With reservoir levels projected to drop below 3,525 feet over the next 7-8 months, it's likely that most boat ramps will again remain closed for a significant amount of time.

GCNRA has stated recreational use on the emerged Colorado River in Cataract Canyon/North Glen Canyon has increased dramatically, as has land based recreation around the park[64]. Yet the takeout ramp for Cataract Canyon rafting trips near Hite, UT has repeatedly degraded in recent years, creating a safety hazard as well as deterring recreational visitation to the area.

If Lake Powell is to be managed at low levels moving forward, NEPA analyses must include developing plans for a more permanent solution for the Hite boat ramp and the broader park, specifically the upper Glen Canyon portion of the recreation area. Without a more comprehensive approach to the evolving recreation characteristics in the park, GCNRA will be forced to simply react to problems as they come. While the disappearance of Lake Powell creates big challenges for many stakeholders, it has nonetheless created significant recreation opportunities in the park. NEPA analyses and resource planning need to optimize management for this reality, pursuant to the mission of the NPS and Grand Canyon Protection Act.

9. The need to assess Upper Basin Storage in Lake Mead

Many leading scientists and policy experts along the Colorado River have advocated for a management approach where Lake Powell and Mead are viewed as one unit of water storage, rather than two separate storage facilities[65]. Some experts have even made the point that since Upper Basin users don't actually divert from the reservoir, it is effectively a Lower Basin reservoir. Given the reality that Lake Powell will likely drop below minimum power pool in the

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[63] https://www.nps.gov/glca/learn/changing-lake-levels.htm

[64] Glen Canyon Gazzette,volume 2, issue 1, August 5th, 2022

[65] https://qcnr.usu.edu/coloradoriver/files/news/fs-white-paper-6.pdf

next few years, and Reclamation has announced plans to assess re-engineering the dam to operate below deadpool, it is conceivable to imagine a situation where the reservoir is entirely phased out based on its physical limitations.

As such, it's crucial that the post-2026 Operational Strategies NEPA analysis assess options for Upper Basin states to legally store water in Lake Mead. One alternative would be for this stored water to be administratively defined and recognized as an Intentionally Created Surplus (ICS). Similar ICS tools were essential in the 2007 Interim shortage guidelines and provided a framework and incentive for water users to conserve[66]. A 2013 legal analysis by Larry McDonnel explored the concept, stating "There may be opportunities to put in place measures that would reduce the likelihood of a 75/10 shortfall such as using an accounting system to smooth out the annual variability of flows and even a relaxation of the requirement under certain circumstances[67]."

This accounting approach could offer flexibility to the system, encourage new levels of conservation in the Upper Basin, and save some water by avoiding higher ground-seepage rates in Glen Canyon[68]. Though such an idea was considered outside the scope of the 2007 NEPA analyses, it is clearly worthy of exploration in the current hydrology of the Colorado River. Analyzing options for Upper Basin storage in Lake Mead in the post-2026 Operational Strategies NEPA process will provide stakeholders in the Basin the information needed to assess the best approach to water storage in the decades ahead.

The task of completing this EIS will be a herculean effort for the Bureau of Reclamation, with stakeholders from across the basin highlighting a multitude of considerations. For Reclamation to fix every problem on the Colorado would be impossible. We appreciate the consideration of needs identified in this letter, which we feel are central not just to Glen Canyon and Grand Canyon, but the long-term viability of the Colorado River system.

Thank you for taking the time to consider our comments.

Sincerely,

Eric Balken, Glen Canyon Institute
Mike DeHoff, Returning Rapids Project
Kyle Roerink, Great Basin Water Network
John Weisheit, Living Rivers
Zach Frankel, Utah Rivers Council
Gary Wockner, Save the Colorado
Ernie Atencio, National Parks Conservation Association

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66 https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf

67 McDonnell, Larry, Potential Legal Issues under the Law of the River Associated with the Fill Mead First Proposal, *The Water Report*, Issue 112: June 15, 2013

68 https://qcnr.usu.edu/coloradoriver/news/wp1

August 31, 2022

The Honorable Debra Haaland
U.S. Department of the Interior
1849 C. Street, NW
Washington, D.C. 20240

The Honorable Tanya Trujillo
U.S. Department of the Interior
1849 C. Street, NW
Washington, D.C. 20240

The Honorable Camille Calimlim Touton
U.S. Bureau of Reclamation
1849 C. Street, NW
Washington, D.C. 20240

Email: *CRB-info@usbr.gov*.

Dear Secretary Haaland, Assistant Secretary Trujillo, and Commissioner Touton:

The City of Tucson appreciates the opportunity to submit comments regarding Post-2026 Colorado River Operations. We respectfully request that the Department of Interior and the Bureau of Reclamation (BOR) consider the following as you develop operating strategies for the continued, coordinated operation of Lake Powell and Lake Mead:

- Municipal Input: Cities and municipal water providers across the basin face significant challenges. We need to plan for the future and support local economies and quality of life concerns in an uncertain water supply environment. The need for increased clarity on BOR water operations can be advanced with increased outreach to municipal providers along with the current participation by state agencies. Tucson seeks additional opportunities to collaborate and coordinate with other important stakeholders, including the federal government, states, tribes, non-governmental organizations, and Mexico. This includes participating in both the upcoming NEPA process as well as in the development of the Post-2026 operating guidelines.

- Shortage Sharing: Tucson strongly recommends BOR utilize an equitable approach to shortage sharing. This would allow all entities to participate in cuts and treat current users fairly. In addition, an equitable approach will be the easiest to explain to water users across the basin.

Thank you for your consideration. Tucson appreciates your leadership, and we look forward to working with you to protect the Colorado River system and achieve long-term reliability.

Sincerely,

John Kmiec
Director
Tucson Water

City of Tempe
Municipal Utilities Department
PO Box 5002
Tempe, AZ 85280
www.tempe.gov

September 1, 2022

The Honorable Tanya Trujillo

Assistant Secretary, Water & Science

U.S. Department of the Interior

Washington, D.C. 20240

Via email to CRB-info@usbr.gov

Re: 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 Assistant Secretary Trujillo,

The City of Tempe appreciates the opportunity to comment on the Post-2026 Colorado River operations and is submitting this letter to support and reiterate the comments made by the Arizona Municipal Water Users Association (AWMUA), of which we are a member.

Tempe holds subcontracts and leases for Colorado River water delivery through the Central Arizona Project system. The Colorado River is a critical water supply for our community and provides resources to support Tempe's economic contributions to the greater Phoenix economy. The historically low reservoir conditions on the Colorado River have caused a large degree of uncertainty with regard to near-term access to critical water resources, and this is unacceptable.

Water providers like Tempe have worked diligently to provide reliability to our customers and the uncertainty regarding the future of Colorado River supply availability makes it extremely difficult to plan for and invest in the necessary infrastructure, alternative supplies, and conservation programs required to meet the possible reductions in supplies in the timeframe indicated during the June 14, 2022 call to action by Commissioner Touton for calendar year 2023. To ensure our long-term ability to provide water to residents and businesses, and sustain our economy, we need increased clarity and reliability with regards to the future of our Colorado River supplies. The Post-2026 operations along with clarity on any interim steps required of the basin states are critical to that outcome.

Tempe requests Reclamation's serious consideration of the responses submitted by AMWUA to Reclamation's request for feedback in the Notice as summarized below.

- **Post-2026 Operations Must Focus on Increased Clarity and Reliability for Water Users** – Municipal water providers need increased clarity from Post-2026 Operations on water supply availability across a broad range of hydrologic scenarios. The system should be managed for increased reliability (instead of maximizing diversions and releases), to provide more stability for water users reliant on Colorado River supplies. The Post-2026 Operations should seek to restore and build back up the Colorado River system reservoirs and steps must be taken to address the

Lower Basin structural deficit. This should also include defined reservoir operations at lower elevations as well as more notice regarding supply availability in upcoming years.

- **Continue to Incorporate Climate Change Impacts in Reclamation's Modeling and Decision-making Tools–** Reclamation's modeling tools and processes must be updated to incorporate the best available climate science, and to remove biases from past, wetter hydrology. Estimates of what constitutes a "normal" supply need to be consistent with the new reality of the aridification in the Colorado River Basin.

- **Shortage Sharing Must be Equitable and Basin-wide** –Water users throughout the Basin and Mexico should all share in the responsibility of taking shortage reductions and making efforts to protect the system.

- **Post-2026 Operations Should Provide Flexibility for Shortage Mitigation** – In light of decreased Colorado River supply availability, the Post-2026 Operations should continue to add flexibility for water management and facilitate shortage mitigation strategies such as augmentation, exchanges, and conservation.

- **Establish a Basin-wide "Municipal Sector" Committee to Facilitate Meaningful Input and Engagement from Municipal Water Providers–** The upcoming NEPA process(es) and the Post-2026 guidelines would benefit from the creation of a Basin-wide Municipal Sector Committee. This Committee should be in addition to Reclamation's consultation with the Governor's representatives from each Basin State.

- **Continue to Emphasize Collaboration and Consultation–** Continued collaboration and consultation with the Basin States, water users, Mexico, Tribes, NGOs, and stakeholders - including municipal water providers - throughout the Basin is crucial for a successful NEPA process and implementation of the Post-2026 Operations.

CITY OF TEMPE MUNICIPAL UTILITIES/WATER UTILITIES DIVISION

Mark Weber, PE
Interim Deputy Municipal Utilities Director – Water Utilities

Copy: Tara Ford, Municipal Utilities Director
Craig Caggiano, Water Resources Manager

August 31, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager
United States Bureau of Reclamation
CRB-info@usbr.gov

RE: Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions Document No. 2022-13502

Dear Ms. Jerla:

The Southern California Water Coalition has reviewed the Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions published in the Federal Register (FR Doc. 2022-13502) by the United States Bureau of Reclamation (Reclamation) on June 24, 2022.

The Southern California Water Coalition was created in 1983, in response to drought, to coordinate the activities of counties, special districts, and the business community in the stewardship and protection of Southern California's water supplies. Our members come from Kern, Ventura, Los Angeles, Orange, San Bernardino, Riverside, Imperial and San Diego Counties.

California receives the majority of the water supplies from the Lower Basin of the Colorado River—4.4 million acre feet (MAF) of the 7.5 MAF allocated to the Lower Basin. Allocation and delivery of Colorado River was essential to the historic development of Southern California, and is essential to the state's economy, and national agricultural supply and economy.

Prior to formally initiating a National Environmental Policy Act (NEPA) process (or processes) to develop post-2026 operations for Lake Powell and Lake Mead (among other potential actions), Reclamation is requesting input on: (a) processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin (Basin) partners, stakeholders, and the general public in the anticipated upcoming NEPA process(es); as well as (b) potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process(es).

As such, the Southern California Water Coalition has a direct interest in the planning and development of Reclamation's new operating guidelines. This letter contains the Coalition's comments as a potentially affected collection of entities.

1. Processes to encourage meaningful participation of Colorado River Basin (Basin) partners, stakeholders, and the general public in the anticipated upcoming NEPA process

- **Stakeholders.** It is critical that all relevant stakeholders be engaged, including the Basin States, Basin contractors, the Republic of Mexico, Indian tribes, water users, non-governmental organizations, ratepayers, and the affected public. As noted above, the Southern California Water Coalition is a collection of entities within a key region of California with significant interests in the post-2026 operations.

- **Virtual Participation**. It is recommended that opportunities for virtual participation continue, like what was done for this pre-scoping process. Advertising on multiple social media platforms and providing virtual platforms for participation will make the process more accessible to stakeholders and the public.

2. Potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process

- **Law of the River**. The post-2026 operations should be consistent with the Law of the River and other applicable provisions of federal law. In addition, the burdens associated with protecting the Colorado River System from the impacts of poor hydrology and climate change should be shared across all sectors and water users.

- **Improve management and operations of the system under low storage and run-off conditions**. The post-2026 rules need to protect the system from effects of aridification and the persistent drought that is exacerbated by climate change. The Colorado River system is operating out of balance with available supplies and this imbalance has contributed to rapidly depleting storage levels in Lakes Powell and Mead. All water users share risk from these conditions and the post-2026 rules should ensure that the burdens associated with managing that risk are shared by all water users. The post-2026 rules should increase certainty and reliability by providing predictability in a variety of hydrologic and storage conditions across the basin.

- **Framework for augmentation and exchanges.** The need for augmentation in the Colorado River Basin is widely recognized. Several opportunities exist in the Colorado River basin with the potential for augmentation, including ocean desalination, brackish water desalination, reuse and recycling projects, and importation. All relevant stakeholders should be able to partner with one another on regional augmentation projects, and be assured they can access the water generated.

3. Exchanges could be one mechanism to expand the benefits to a broader range of water users. The post-2026 operations should consider the potential for exchanges relating to augmentation projects that could help address the supply and demand imbalance on the Colorado River system.

- **Efficiency measures.** Significant developments have been made in the Colorado River Basin toward developing innovative conservation programs and policies to sustain current and future supplies. With extended drought conditions expected to continue into the foreseeable future, demand management and efficient use of water will play a key role in the Colorado River basin.

We appreciate the opportunity to provide input to your planning process and we look forward to receiving future notices and documentation for this project. Please feel free to contact me at cwilson@socalwater.org or at (949) 632-2074, if you have any questions regarding the Southern California Water Coalition's comments

Sincerely,

Charles Wilson
Executive Director

gilbert

Shaping a new tomorrow, today.

August 31, 2022

The Honorable Tanya Trujillo
Assistant Secretary, Water & Science
U.S. Department of the Interior
Washington, D.C. 20240

Via email to CRB-info@usbr.gov

Re: 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 Assistant Secretary Trujillo,

Gilbert appreciates the opportunity to comment on the Post-2026 Colorado River operations and is submitting this letter to support and reiterate the comments made by the Arizona Municipal Water Users Association (AWMUA), of which we are a member.

Gilbert holds multiple subcontracts and leases for Colorado River water delivery through the Central Arizona Project (CAP) system. The Colorado River is a critical water supply for the community making up approximately 50% of our annual water deliveries. The historically low reservoir conditions on the Colorado River has caused a large degree of uncertainty that is unacceptable to Gilbert given that our existing residents and businesses rely on the Colorado River supply.

We work hard to provide reliability to our customers and the uncertainty regarding the future of Colorado River supply availability makes it difficult to plan for and invest in the necessary infrastructure, alternative supplies, and conservation programs to overcome reductions. These efforts require a great deal of financing, time, and in many instances, Town Council approval. Our infrastructure and community cannot turn on a dime to adjust to drastic shortages and we need advanced notice in order to make the necessary adjustments to system operations and water usage. The June 14, 2022 call to action by Commissioner Touton for calendar year 2023 is much too short of notice for critical and meaningful planning to occur. To ensure our long-term ability to provide water to residents and businesses, and sustain our economy, we need increased clarity and reliability with regards to the future of our Colorado River supplies. The Post-2026 operations and clarity on any interim steps required of the basin states are critical to that outcome.

To that end Gilbert asks for Reclamation's serious consideration of the responses submitted by AMWUA to Reclamation's request for feedback in the Notice as summarized below.

- **Post-2026 Operations Should Focus on Increased Clarity and Reliability for Water Users** – Municipal water providers need increased clarity from Post-2026 Operations on water supply availability across a broad range of hydrologic scenarios. The system should be managed for increased reliability (instead of maximizing diversions and releases), to provide more stability for water users reliant on Colorado River supplies. The Post-2026 Operations should seek to restore and build back up the Colorado River system reservoirs and steps must be taken to address the Lower Basin structural deficit. This should also include defined reservoir operations at lower elevations as well as more notice regarding supply availability in upcoming years.

- **Continue to Incorporate Climate Change Impacts in Reclamation's Modeling and Decision-making Tools–** Reclamation's modeling tools and processes must be updated to incorporate the best available climate science, and to remove biases from past, wetter hydrology. Estimates of what constitutes a "normal" supply need to be consistent with the new reality of the aridification in the Colorado River Basin.

- **Shortage Sharing Must be Equitable and Basin-wide** –Water users throughout the Basin and Mexico should all share in the responsibility of taking shortage reductions and making efforts to protect the system.

- **Post-2026 Operations Should Provide Flexibility for Shortage Mitigation** – In light of decreased Colorado River supply availability, the Post-2026 Operations should continue to add flexibility for water management and facilitate shortage mitigation strategies such as augmentation, exchanges, and conservation.

- **Establish a Basin-wide "Municipal Sector" Committee to Facilitate Meaningful Input and Engagement from Municipal Water Providers–** The upcoming NEPA process(es) and the Post-2026 guidelines would benefit from the creation of a Basin-wide Municipal Sector Committee. This Committee should be in addition to Reclamation's consultation with the Governor's representatives from each Basin State.

- **Continue to Emphasize Collaboration and Consultation–** Continued collaboration and consultation with the Basin States, water users, Mexico, Tribes, NGOs, and stakeholders - including municipal water providers - throughout the Basin is crucial for a successful NEPA process and implementation of the Post-2026 Operations.

Sincerely,

Jessica L Marlow

Jessica Marlow, PE
Public Works Director

50 E. Civic Center Drive
Gilbert, AZ 85296

gilbertaz.gov

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 States[1] 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

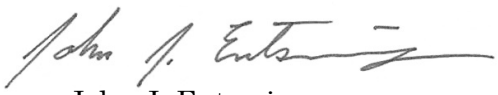
forward to continuing our partnership with you, Mexico, Basin Tribes, water users, and stakeholders, as we move forward in managing this critical resource.

Sincerely,

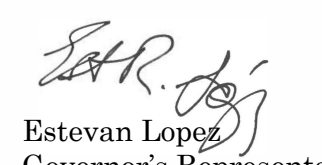
Thomas Buschatzke
Governor's Representative
State of Arizona

Rebecca Mitchell
Governor's Representative
State of Colorado

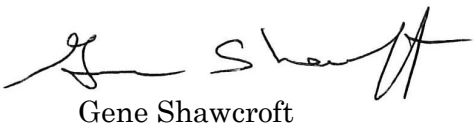
Peter Nelson
Governor's Representative
State of California



John J. Entsminger
Governor's Representative
State of Nevada



Estevan Lopez
Governor's Representative
State of New Mexico



Gene Shawcroft
Governor's Representative
State of Utah

Brandon Gebhart
Governor's Representative
State of Wyoming

TORTOLITA ALLIANCE

12090 N Thornydale Road
Suite 110, #328
Marana, AZ 85658
info@tortolitaalliance.com
www.tortolitaalliance.com

September 1, 2022

Camille Touton
Commissioner
United States Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Subject: Colorado River System-Cut 20

Dear Commissioner Touton:

The Tortolita Alliance (TA) is a local (Marana, AZ) non-profit organization that advocates for land conservancy, ensuring protection of open space, wildlife habitat, watershed, and compatible recreational use.

TA has also been active in area of water education, conservation and ensuring an adequate water supply for the Tucson region and the entire southwest.

Thirty-six percent (36%) of Arizona's water supply comes from the Colorado River. The Colorado River system is in dire straits with Lake Mead and Lake Powell at historic low levels.

We offer the following observations:

- Period 1 (1953-1974)[1]- Average Colorado River flow = 13.1 mafy.
- Period 2 (2000-2021)[1] - Average Colorado River flow = 12.3 mafy.
- Average Colorado River flow for Periods 1 & 2 = 12.7 mafy.
- Colorado River Full Allocation = 16.5 mafy
- Historic Allocation Imbalance = 16.5 – 12.7 = 3.8 mafy.
- Experts[2] predict Average Colorado River flows to be even lower than 12.7 mafy in the future due to aridification.
- In 2012 USBR[3] predicted a future 3.2 mafy imbalance.
- Average Historic and Projected Imbalance = 3.5 mafy [(3.2 + 3.8)/2]

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[1] How Climate Change Is Impacting The Colorado River, Brad Udall, Senior Scientist/Scholar, Colorado State University, Grand Canyon River Virtual River Guides Training Seminar, March 27, 2022.
[2] The Future of the Colorado River Project-Alternative Management Paradigms for the Future of the Colorado and Green Rivers, Whitepaper No. 6, K. Wheeler, B. Udall et al, February 5, 2021.
[3] Colorado River Basin Water Supply and Demand Study, USBR, December 2012.

The data is clear---the Colorado River is over-allocated. There is not enough Colorado River water supply to meet existing or future demands, yet much of the southwest depends on it. The current reservoir capacity (Mead-28% and Powell-26%) is confirmation.

The existing and proposed shortage cuts are not enough and the parties cannot come to consensus or agreement. Therefore, it is time for USBR to take drastic action and permanently cut Colorado River delivery contracts by 20% (3.5/16.5 rounded) across the board (Cut 20). This will be the new Law of the River.

Taking this action will protect our public water supply and the Colorado River ecosystem and force water suppliers and users to conserve and implement sustainable water supply planning.

Regards,

Mark L. Johnson
President

cc: Senator Mark Kelly
Senator Kyrsten Sinema
Congressman Tom O'Halleran
Tom Buschatzke, ADWR

MOHAVE COUNTY WATER AUTHORITY

1355 Ramar Road, Suite 6, Bullhead City, AZ 86442
Telephone No. (480) 415-5283

August 31, 2022

Bureau of Reclamation
Department of the Interior
CRB-info@usbr.gov

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

Mohave County Water Authority appreciates the opportunity to provide input on the development of post-2026 Colorado River Reservoir Operational Strategies. Consistent with the notice and request for input, MCWA's comments will be broken down into two sections addressing a.) processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin ("Basin") partners, stakeholders, and the general public in the anticipated upcoming NEPA process(es); and the b.) potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process(es).

A. 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(ES).

Increasing participation of stakeholders and the general public will be difficult, but not impossible. Efforts to increase participation should be made regardless of the difficulty due to the gravity of the challenges facing the Basin. The topic is complex and not generally well understood, which deters engagement in the material and prevents participation. Specifically, the general public may not understand how the broad concept of the operating criteria, or the priority of water, impacts them individually. People believe that when they turn on the kitchen sink or flush the toilet, water will be available, and that their elected officials and governing entities will represent and protect their interests. These views may be a result of how water management has historically been approached with decisions made and implemented at high levels. Only through recent media coverage has the public become aware of the grave challenges facing the Basin, despite the fact those challenges have been evident for some time. To some extent, people became desensitized to the clips of "conserve water message" often made without further context or information. In fact, historically speaking, the "conserve water message" did not result in reduced consumption but rather extended the use of available supplies.

Broadly disseminating short, digestible informative articles on management of the river system, and how this process of updating and/or modifying the operating criteria for the river affects individual users to the public, perhaps through entitlement holders to distribute to their users, would address these issues. Providing fundamental knowledge will lead to greater awareness of the water realities of the Basin and provide an opportunity for constructive discourse, which is the necessary first step for sustainable changes that are equitable for all stakeholders.

The public, in general, believes their elected officials and applicable governing entity will represent and protect their interests. Governmental entities, especially local entities not included in the broad picture policy setting environment, should be afforded the opportunity of input through a small group process inclusive of similarly situated members. Often, in larger groups, voices of smaller users and stakeholders are lost among the voices of larger users. Additionally, public information meetings, or workshops if you will, should be held for the general public at a local level. Rural residents often lack the financial means to participate in public processes, especially if that process is not located within or near their community. Notice of public meetings should be through multiple media sources, not just a publication or two in the local newspapers.

B. POTENTIAL SUBSTANTIVE ELEMENTS AND STRATEGIES FOR POST-2026 OPERATIONS TO CONSIDER IN THE ANTICIPATED UPCOMING NEPA PROCESS(ES).

MCWA is concerned about potential actions to the management structure of the Colorado River to address climate change, drought, tribal concerns and, in general, the imbalance of the allocations of the Colorado River. The current system is failing the river system itself and the people dependent upon that river system. Any action to address these issues needs to be equitable. Political and economic strength should not win the day in determining equity. Any reduction in entitlements should consider all surrounding factors, including available alternative practical sources of water supplies, and impediments to developing full use of an entitlement under the existing framework governing the Colorado River. MCWA believes the Secretary of the Interior, as the water master, in light of the express language of the Arizona-California decree, needs to be more active in managing Colorado River supplies to ensure equity to all users, small and large alike, especially in light of climate change, a condition not anticipated at the time of the Colorado River Compact or the initial decision of Arizona v. California. That equity may be achieved through the operating guidelines.

MCWA would like the next set of guidelines to provide opportunities/mechanisms to allow on-river users to benefit from their full entitlement and to develop resiliency in their water portfolios. This resiliency could be achieved through opportunities to create ICS, either through deemed conservation or deemed importation of water for effluent discharged into the river system (which might not otherwise be discharged into the system), and to earn storage credits for its unused entitlement and effluent recharged.

It is important to acknowledge the rights of on-river users are limited by virtue of their location upon the Colorado River aquifer and/or accounting surface. Right now, on-river 4th priority water users may only benefit from their entitlements by what portion they actually consume. Unlike 4th priority users in central Arizona, they may not store unused entitlements through delivery to a groundwater savings district or an underground storage facility. Nor may they receive credit for the recharge of effluent.

The effect of the "use or lose it" rule needs to be minimized. Lower priority users, and in particular P-4 on-river municipal users, are harmed by effective conservation. Water use efficiencies have eliminated their ability to absorb shortages through increased conservation. Their water use is already very efficient. Any significant reduction in deliveries will likely result in immediate cuts to taps. They have no farm fields to fallow. They have no large quantity of non-functional turf irrigated with river water. Conservation requirements such as xeriscape, low flush toilets, effluent for outdoor irrigation and turf reduction rebate programs have been effective in minimizing their water use. Water efficiencies achieved by on-river users have accrued to the benefit of central Arizona by making more water available to central Arizona for use or storage with little to no recognition of on-river water users conservation efforts. To the extent adjustments are made to entitlement quantities in this next set of guidelines, adjustment to on-river users should be made to maximum entitlement quantities, not the quantity of water actually put to beneficial use.

Movement of water away from the on-river region should not be seen as a part of any solution for water shortages or deficits in other areas, especially if that water movement will create a water deficit in the area from which it is moved. Entities (irrigation districts, conservation districts, utility companies and private individuals) holding water entitlement contracts servicing county or municipal lands in the on-river region should be required to seek the input of the county or city, as the case may be, on allocation matters which unavoidably impact land use, and consequently the economic development of an area, especially if the lands within the service area are substantially urbanized. In evaluating any transfer of water away from the on-river region, the Secretary should consider the impact on the local area in light of the standard imposed on the Secretary with regards to importing water into the Colorado River set forth in section 203 of the Colorado River Basin Act of 1968. This section requires the Secretary "to make provision for adequate and equitable protection of the interests of the ...areas of origin ...that water supplies may be available for use... in such areas of origin adequate to satisfy their ultimate requirements at prices to users not adversely affected by the exportation of water..."

In addition, states should minimize situations giving rise to the uncontracted use of Colorado River, especially those uses attributable to exempt wells (35 gallons per minute). Entitlement holders should not be required to account for exempt well usage within their service if the state allows exempt wells to be drilled without first requiring evidence of an entitlement for the use of Colorado water. The proliferation of thousands of exempt wells has exacerbated the problem of managing water entitlements along the river.

MCWA believes reduced deliveries should be addressed in greater detail in the operating criteria and that shortages be equitably applied, and that equity is not achieved simply by a mathematical calculation. To achieve equity in administering shortages, especially in Arizona, factors such as the use of on-river users unused entitlements elsewhere in the state, impediments under state law or contract to the full development of an entitlement, and the lack of alternative supplies of water let alone reasonably practical sources of water supplies, should be considered. The Arizona Director's Shortage Sharing Agreement is set to expire with the next set of guidelines. This Shortage Sharing Agreement was intended to afford the P4 on-River users relief from the distribution of shortages in recognition of the use of their unused entitlement in central Arizona and that use by central Arizona should not be imputed to them in distributing shortages.

Although some may take the position concerns articulated in this comment letter are not appropriate issues to be considered and addressed in the operating criteria, MCWA disagrees. We believe the concerns articulated in this letter will be directly impacted by the scope of the next set of operating criteria, which for a river system in great distress, must necessarily address issues other than lake elevations, balancing of storage, and release quantities relative to the operation of the two reservoir systems.

Very truly yours,

Mohave County Water Authority

by: Jamie Kelley
its: general counsel

San Juan Water Commission

7450 East Main Street, Suite B • Farmington • New Mexico • 87402
Ph: 505-564-8969 • Fax: 505-564-3322 • Email: sjwcoffice@sjwc.org

MEMBERS:
City of Aztec
City of Bloomfield
City of Farmington
San Juan County
S.J. County Rural Water Users Association

September 1, 2022

Department of the Interior
Bureau of Reclamation

Via E-mail (*CRB-info@usbr.gov*)

Re: Comments of the San Juan Water Commission on the Proposed Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead

Dear Sir or Madam:

This letter provides the San Juan Water Commission's ("Commission") comments in response to the Bureau of Reclamation's ("Bureau") "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions" published in the *Federal Register* on June 24, 2022 (87 *Fed. Reg.* 37,884). Based on the information provided by the Bureau in the *Federal Register* notice and the two virtual meetings held in July, the Commission understands that the Bureau requests input on (i) mechanisms to ensure that the anticipated NEPA process includes a wide range of Colorado River Basin stakeholders and (ii) the substantive elements or scope of the NEPA process.

The Commission is acutely interested in all Colorado River operations, including the proposed development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions ("Post-2026 Colorado River Reservoir Operations"). The Commission is a political subdivision of the State of New Mexico comprised of twelve other political subdivisions: (i) the cities of Aztec, Bloomfield and Farmington; (ii) San Juan County; and (iii) San Juan Rural Water Users Association, which itself is comprised of eight non-profit mutual domestic community water associations. The Commission's purpose is to acquire and protect untreated water supplies for municipal, industrial and domestic use for almost all water users in San Juan County living outside of tribal lands. Currently, San Juan County has a population of approximately 125,000 residents.

Significantly, to fulfill its mission, the Commission is a participant in the Animas-La Plata Project ("ALP Project"), and it holds a permit for 20,800 acre feet of water diversions from that Project. The Commission also holds permits for water diversions totaling more than 10,000 acre feet per year from the San Juan River Basin

unassociated with the ALP Project. These water rights are separate from, and in addition to, the water rights of the Commission's individual member entities. Clearly, the anticipated NEPA process for Post-2026 Colorado River Reservoir Operations has the potential to impact the surface water supply available to the Commission's member entities, and, in fact, all water users in San Juan County, New Mexico. The Commission thus submits the following comments concerning the design of the NEPA process addressing Post-2026 Colorado River Operations.

Stakeholder Inclusivity

The Commission supports any effort to ensure that the anticipated NEPA process includes a wide range of Colorado River Basin stakeholders in order to develop consensus-based reservoir operations and avoid costly and protracted litigation. In particular, the Commission requests that, in addition to federal and state agencies,[1] the Bureau invite participation by Upper Basin water users, particularly participants in the Animas-La Plata Project, participants in the San Juan-Chama Project, and other Colorado River Basin water users located in the State of New Mexico. Specifically, in addition to the Commission, the following entities, among others, may have an interest in the anticipated NEPA process:

San Juan County, New Mexico
City of Aztec, New Mexico
City of Bloomfield, New Mexico
City of Farmington, New Mexico
San Juan County Rural Water Users Association, New Mexico
San Juan Agricultural Water Users Association, New Mexico
San Juan River Basin Recovery Implementation Program Coordination and Biology Committees
La Plata Conservancy District, New Mexico
Hammond Conservancy District, New Mexico
San Juan-Chama Watershed Partnership, New Mexico
Albuquerque Bernalillo County Water Utility Authority, New Mexico
City of Gallup, New Mexico
Middle Rio Grande Conservancy District, New Mexico
Buckman Direct Diversion, New Mexico
Santa Fe County, New Mexico
City of Santa Fe, New Mexico
Navajo Nation
Navajo Tribal Utility Authority
Jicarilla Apache Nation
Ute Mountain Ute Tribe

[1] At a minimum, the following federal and state agencies should be involved in the NEPA process: U.S. Fish & Wildlife Service, U.S. Bureau of Land Management, U.S. Bureau of Indian Affairs, New Mexico Interstate Stream Commission, New Mexico Office of the State Engineer, New Mexico Department of Game & Fish, Colorado Department of Natural Resources, Colorado Water Conservation Board, and Colorado Parks & Wildlife.

Southern Ute Indian Tribe
Animas-La Plata Project OM&R Association, Colorado
City of Durango, Colorado
Southwestern Water Conservation District, Colorado
Colorado Water Resources and Power Development Authority
Animas-La Plata Water Conservancy District, Colorado
Lake Durango Water Authority, Colorado
Colorado Water Conservation Board
La Plata Archuleta Water Board, Colorado
The Nature Conservancy

In addition to formally inviting the above-listed entities and the Commission to participate in the NEPA process, the Commission urges the Bureau to undertake significant public outreach to inform other potentially interested New Mexico stakeholders (whether individual members of the general public or organizations) about their opportunity to participate. Such outreach should include the following:

1. in addition to online posting, posting paper copies of NEPA-related documentation and notices with (a) the New Mexico Office of the State Engineer's district offices in Aztec, Santa Fe and Albuquerque, New Mexico and (b) the Bureau of Indian Affairs offices in Crownpoint and Shiprock, New Mexico;

2. publishing notice of opportunities to participate in the NEPA process in newspapers such as the *Navajo Times*, the *Gallup Independent*, the *Farmington Daily Times*, the *Rio Rancho Observer*, the *Rio Grande Sun*, and the *Albuquerque Journal*;

3. holding public meetings describing the NEPA process, including in Albuquerque, Farmington, and Santa Fe, New Mexico, and in the Shiprock Chapter and Crownpoint Chapter of the Navajo Nation in New Mexico; and

4. publicizing those public meetings in rural areas, including the Jicarilla Apache Nation and the Navajo Nation in New Mexico, by broadcasting meeting information over radio stations.[2]

These recommended public notice actions are modeled after the public notice ordered by the Eleventh Judicial District Court for the *inter se* litigation of the Navajo Nation's water rights in the San Juan River Basin Adjudication in New Mexico, which worked well.

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[2] In-person meetings should be held in rural areas of the State of New Mexico because the lack of robust internet service prevents attendance at virtual meetings.

Scope of the NEPA Process

With respect to the scope of the NEPA process, the Commission urges the Bureau to limit its work to "develop[ing] operating strategies for the continued coordinated operation of Lake Powell and Lake Mead," as described in the June 24th *Federal Register* notice (Vol. 87 at 37,884). Addressing upstream reservoir operations and/or management of the entire Colorado River Basin will unnecessarily complicate and delay development of an operational plan for Lakes Powell and Mead and may exceed the Secretary's authority in the Upper Basin. As noted in the Bureau's December 2020 "Review of the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead" (at 1), the 2007 Interim Guidelines "provided the opportunity to gain valuable experience for the management of Lake Powell and Lake Mead under modified operations and improve[d] the basis for making future operational decisions . . . ." Because of the experience gained under the 2007 Interim Guidelines, the anticipated NEPA process is appropriately focused on the development of post-2026 operations for Lake Powell and Lake Mead.

Thank you for your consideration of these comments. If the Bureau has any questions about the Commission's position, please do not hesitate to call me.

Sincerely,

Aaron Chavez
Executive Director
San Juan Water Commission

YAVAPAI-APACHE NATION

Executive Office

Chairman Jon Huey ~ Vice-Chairwoman Tanya Lewis

2400 West Datsi Street, Camp Verde, AZ 86322

Phone (928)567-3649 **Fax (928)567-1048**

2400 W. Datsi Street, Camp Verde, AZ 86322

September 1, 2022

Via Email: CRB-info@usbr.gov

Honorable Tanya Trujillo
Assistant Secretary for Water and Science
U.S. DEPARTMENT OF THE INTERIOR
1849 C Street NW
Washington DC 20240-0001

Honorable Camille Touton
Commissioner, Bureau of Reclamation
U.S. DEPARTMENT OF THE INTERIOR
1849 C Street NW
Washington DC 20240-0001

Re: Yavapai-Apache Nation's Comments on Development of the Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions, 87 Fed. Reg. 37884 (June 24, 2022)

Dear Hon. Assistant Secretary Trujillo and Hon. Commissioner Touton:

This letter is submitted by the Yavapai-Apache Nation (Nation) to provide input on the development of the Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead under historically low reservoir conditions pursuant to the Federal Register notice published June 24, 2022.

The Yavapai-Apache Nation is a federally recognized Tribe located in the Verde Valley of central Arizona. Our Nation holds a Central Arizona Project (CAP) contract with the Secretary of the Interior (Secretary) for 1,200 acre-feet of Indian priority CAP water which is delivered from the Colorado River. Currently, our Nation is working directly with the Bureau of Reclamation to develop the use of our CAP water on the Yavapai-Apache Reservation, and this water is also intended to serve as a part of the water supply that would be used to settle our water rights in a federal Indian water rights settlement. As such, ensuring the continued reliability of our CAP water is of paramount importance to the Nation as the Secretary prepares to initiate the process for developing the Post-2026 operational strategies.

The following should be considered by the Secretary in the development of the Post-2026 operational strategies:

1. **DO NOT BREACH OR IMPAIR TRIBAL CAP CONTRACTS.** The Secretary must not take any action in developing the Post-2026 operational strategies that would breach or otherwise impair its contractual obligation to deliver water to the Nation and other CAP tribes. This includes careful consideration of any operational strategies that may be agreed to by the States and other powerful interests which might place an additional or unfair burden on the Nation's and other tribes' CAP contracts.

2. **ENSURE EQUITABLE PARTICIPATION BY TRIBES IN POST-2026 OPERATIONAL STRATEGIES.** The Secretary must ensure that the Nation and other tribes with CAP allocations are able to equitably participate in any operational strategies that may be adopted for Post-2026 operations. This includes not only ensuring that tribes may legally participate, but also ensuring that any practical barriers to participation are addressed given the fact that tribes have a unique legal and jurisdictional status within the Colorado River system. The Secretary should ensure that tribes are not inequitably excluded from benefits or opportunities that might otherwise be provided to non-tribal interests.

3. **ASSIGN A SPECIAL TRIBAL TRUST REPRESENTATIVE.** The Secretary should assign an Interior Department representative who is specifically tasked with representing the trust responsibility and interests of the United States for tribes as the Post-2026 operational strategies are developed. This trust representative would interface with the tribes and tribal coalitions to develop a detailed understanding of the unique tribal interests in the management of the Colorado River system, and the representative would also attend the high-level meetings among the States and other powerful interests where general federal representation is also involved. Because the Secretary "wears more than one hat" in representing the federal interests, the assignment of a specific trust representative will help ensure that the Secretary has fully considered the concerns of the tribes through the process of developing the Post-2026 operational strategies.

4. **PROVIDE TECHNICAL ASSISTANCE TO TRIBES.** Due to the highly technical nature of developing the Post-2026 operational strategies, the Secretary should offer to provide technical assistance to tribes to evaluate proposed operational strategies if requested by a tribe or tribal coalition. Such assistance could be provided directly by federal staff, and/or through grant funding to a tribe or tribal coalition.

5. **PROVIDE OPPORTUNITIES FOR REGULAR TRIBAL CONSULTATION AND UPDATES.** The Secretary should continue to engage with the tribes and tribal coalitions to provide information and opportunities for tribes to provide input throughout the process of developing the Post-2026 operational strategies. Informational meetings as well as individual tribal consultations should be made available.

If you have any questions regarding these comments, and for all future communications regarding the Post-2026 operational strategies, please contact the Nation's Attorney General, Mr. Scott Canty, and the Nation's Special Legal Counsel for Water Rights, Ms. Robyn L. Interpreter and Susan B. Montgomery, at the email addresses listed below. Please add their names and email addresses to the mailing list for this matter. Thank you.

Yours Truly,

YAVAPAI-APACHE NATION

Tanya Lewis, Vice Chairwoman

cc: Scott Canty, Attorney General, Yavapai-Apache Nation (acanty@yan-tribe.org)
Robyn L. Interpreter, Montgomery & Interpreter, PLC (rinterpreter@milawaz.com)
Susan B. Montgomery, Montgomery & Interpreter, PLC (rinterpreter@milawaz.com)

Audubon

September 1, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager, Bureau of Reclamation

Via email: CRB-info@usbr.gov

Dear Ms. Jerla:

With this letter, the National Audubon Society (Audubon) is providing comments for the Bureau of Reclamation's (Reclamation) **pre-scoping for post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions** (as published in Federal Register Notice – 87 FR 37884 on June 24, 2022). Audubon protects birds and the places they need, today and tomorrow, throughout the Americas using science, advocacy, education, and on-the-ground conservation. Audubon has 1.8 million members who care deeply about birds, and these comments are submitted on their behalf. Audubon has joined with partners in two additional comment letters, and this letter is meant to be complementary.

Audubon is deeply concerned about current Colorado River conditions, a product of the combined impacts of an extended drought – exacerbated by climate change – and governance that has failed to reduce water uses fast enough to avoid unacceptable risks to water supply reliability for birds and people. Current Reclamation modeling shows the potential within the next 24 months for a "day zero" on the Colorado River, where reservoir water supplies fall so much that major dams are unable to reliably release water downstream. That risk is wholly unacceptable for people and nature.

Presently, federal and state agencies that collectively manage the Colorado River have not publicly defined plans to avoid that risk. While Reclamation's post-2026 management framework for the Colorado River cannot solve these challenges in the short term (and we understand there are short term management actions under consideration), it must be designed to avoid them in the future. Sound management cannot create water where there is none, but it can provide greater predictability and transparency, and enable greater flexibility to minimize harms to people and economies, as well as all birds and all life that depend on the river.

Freshwater-dependent habitats in the Colorado River Basin support more than 70% of all wildlife during some phase of their life cycle. The riparian forest that lines the waterways of the Colorado River Basin provides critical habitat for birds, including 400 species along the Lower Colorado River alone. Scores of dams and diversions have altered river flows, with the result that native tree species do not thrive and invasive shrubs

grow in their place, diminishing habitat value. With less native habitat available, at least six breeding bird species that rely on the Colorado River Basin, including the Bell's Vireo, Summer Tanager, Yellow-breasted Chat, Yellow Warbler, Southwestern Willow Flycatcher, and Western Yellow-billed Cuckoo, have experienced significant population declines.

As Reclamation defines the scope – in terms of both process and substance – for post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions, Audubon urges consideration of a number of issues described in this letter. Thank you for inviting this input.

1. PROCESS

Be transparent – Reclamation's decision process must provide public access to options under consideration, evaluation criteria, and decisions at every step along the way. The changes in Colorado River hydrology are so large, with such far-reaching consequences for all water uses and potentially for other river basins, that the historic practice of back-room decision-making must be replaced with clear and thorough information-sharing throughout the decision process. For example, Reclamation could host monthly webinars discussing the status of negotiations, emerging reservoir and river management ideas, and updates regarding impacts analysis, and follow these webinars with opportunities for public comment. If the public is informed about these and other relevant issues on a regular cadence, Reclamation will have the opportunity to hear public input on a regular basis, rather than waiting for the infrequent, major milestones of the draft and final Environmental Impact Statements.

Be inclusive – Many historic laws, compacts, and treaties that form the foundation of Colorado River management were adopted when institutionalized exclusion of some peoples and interests, particularly Tribal sovereigns who have lived in the basin since time immemorial, was common. Reclamation's process must reverse those inequities and include representatives of Tribal sovereigns with Colorado River water rights, both settled and unsettled. Audubon cannot speak for the Colorado River Basin's Tribes, but we urge Reclamation to listen to the Tribes' suggestions for inclusion in the decision-making process.

Prioritize Mexico's role in Colorado River management – The benefits of increased collaboration with Mexico in recent treaty agreements (Minutes 316, 319, and 323) are broadly recognized, including increased supply reliability for all water users, increased water conservation, and binational collaboration to protect and restore habitat in the Colorado River Delta. While Reclamation must allow the International Boundary and Water Commission (IBWC) to lead Colorado River negotiations with Mexico, Reclamation should prioritize coordination with, and capacity support for, the IBWC to ensure the United States can prioritize future collaborative management with Mexico. Specific suggestions include:

- provide bilingual specialists dedicated to working with IBWC in the binational process to define management options for evaluation and metrics for impact assessment
- in partnership with Mexico, evaluate the potential for a revised salinity agreement to result in conserved water for Lake Mead, and the potential for revised groundwater agreements to increase supply reliability for water users in both countries
- ask Mexico for an inventory of projects that could conserve water
- ask Mexico for an inventory of needs related to Colorado River Delta habitat restoration including the dollars and water needed to extend and expand the benefits created under Minutes 319 and 323

2. SUBSTANCE

Adopt a broad purpose and need – Reclamation historically used enormous financial subsidies to promote development of the Colorado River and spur economic growth in the Western United States. In retrospect, it has broadly been acknowledged that this development also created significant negative outcomes for the region's Tribes as well as birds and other wildlife. As the agency now necessarily pivots to Colorado River management that is adaptive to climate change impacts, the agency should adopt a purpose and need for management that improves the reliability of supplies for everyone and everything that depends on water, with some emphasis on correcting past inequities.

Use sound science – Reclamation's decision process must be rooted in the best available science and reliable data, both regarding the range of future conditions in consideration of climate change impacts, as well as regarding the impacts of changes in river management.

Evaluate and communicate available reservoir water supplies – Each of Reclamation's Colorado River reservoirs has a total supply – the total volume of water in the reservoir – and an available supply – the volume of water that a reservoir can deliver downstream in consideration of dead pool. Reclamation routinely reports on the total supply (as a percentage of full capacity) at its Colorado River reservoirs and does not routinely report on available supply. Earlier this year Reclamation highlighted this discrepancy while making the emergency decision to reduce the volume of water to be released from Lake Powell in 2022. All of Reclamation's analyses, as well as all public communications about Colorado River reservoirs, should clearly communicate the available supply.

In addition, Reclamation should avoid considerations of "paper water" or "miracle water" – in other words considerations of water as if it exists in a location when it does not in fact exist. This is important for both modeling and rule-making. When water management is based on "paper water" it becomes even more difficult for lay audiences to understand and participate in decision-making. As an alternative, Reclamation should establish new accounting systems (in conjunction with clear and transporting reporting) that allow water users and federal facility managers greater flexibility in managing water supplies.

Enable decision-making under uncertain future conditions – As stated in Reclamation's Federal Register notice, climate change makes future hydrologic conditions on the Colorado River unknowable. Reclamation has long relied on a probabilistic approach to projecting future hydrology, which has proven inadequate to capture the extent and pace of climate change impacts over recent decades. Reclamation's decision process will create more a more sustainable operating framework – and a more sustainable Colorado River – if it considers hydrologic futures far more extreme than could be captured in a data-set premised on a river that provides a mean annual average of 11 million acre-feet, or 9 million acre-feet, or even 7 million acre-feet. The basin needs an operational regime that will stand up to the fullest range of future conditions imaginable.

Aim for management that avoids crises – Failure in this realm will perpetuate a crisis-based decision environment and continued uncertainty for all water users. In a perpetual crisis environment, water shortages – including in some cases potential loss of all surface water supply – will continue to threaten the economies of Western communities. In times of water supply crisis, water leaders at the local, state and federal levels will have less latitude and time to consider impacts to vulnerable communities and environmental resources, as their attention will necessarily be directed to the largest water-shortage-related economic impacts. Rather than deferring decisions about shortage-sharing and reservoir management in the driest of future conditions, as was done in the 2007 Interim Guidelines, Reclamation's post-2026 management framework should provide

certainty so that local, state, and federal water managers can create plans for those future conditions now, while they have more time to consider a full range of options and impacts.

Consider water supply reliability – Reclamation's evaluation of a future Colorado River reservoir management framework should consider the benefits of re-filling reservoirs in the near term as a way to increase the reliability of water supplies for all water users. If Reclamation's impacts analysis emphasizes maximizing volumes of water available for delivery to water users, it may miss the benefit of a more reliable supply.

Evaluate the difference between water shortages and voluntary, compensated reductions in water use – Reclamation and the Colorado River Basin states have gained experience from system conservation pilots that date back at least 15 years. When water users engage in voluntary, compensated reductions in water use, the economic impacts are significantly different than when involuntary, uncompensated shortages are implemented, in terms of both the sectors and geographies that engage. A management framework based in voluntary and compensated reductions in water use can avoid shortages to water users least able to adapt to reduced water supplies, such as endangered species and critical urban water uses. Reclamation's analyses of management options should clearly distinguish these different approaches to reducing water uses in the Colorado River Basin, and evaluate a full range of impacts for both, including how the distribution of reduced water use would differ.

Consider increased flexibility in Colorado River management – One often-recognized challenge of Colorado River management is the sheer number of jurisdictions (irrigation districts, municipal water utilities, counties, states, Tribal sovereigns, countries) that share the water resource. Among these jurisdictions are vast differences in water availability, water prices, and economic productivity of water uses. Because of these differences, there are instances where one jurisdiction has invested in water conservation located in another jurisdiction, where such an investment might not otherwise be economically rational. Because water is not perfectly "liquid" in a market sense, Reclamation should consider developing new and expanded tools to promote this kind of flexibility, such as water banks, with appropriate safeguards for third-party environmental and community economic impacts.

Consider environmental water needs and environmental justice – Reclamation's decision should both include management options that intentionally improve freshwater-dependent habitats and the species that rely on them, and also fully evaluate the impacts of all management options on freshwater-dependent habitats and the species that rely on them. In addition, Reclamation must consider management impacts on vulnerable communities.

Habitats and species that depend on the Colorado River are jeopardized, as evidenced by the numerous endangered species designations in the basin, and climate change is further threatening their viability. Reclamation should create and evaluate at least one option for post-2026 management based on improving outcomes for freshwater-dependent habitats and species.

In addition, Reclamation's analysis should include use of metrics that evaluate how various management options impact freshwater-dependent habitats and vulnerable communities including:

- Upper Basin River habitats, including metrics for spring peak flows and fall base-flows
- Grand Canyon habitats, including metrics for annual, minimum, and maximum flows
- Lower Colorado River habitats by reach, including metrics used to establish "covered" conditions in permits obtained through the Lower Colorado River Multi-Species Conservation Program

- Salton Sea habitats and environmental justice concerns, including inflows, water quality, lake levels, areas of exposed playa and dust emissions

Consider how management options will interact with other responses to conditions on the Colorado River – Congress has made unprecedented appropriations in 2021 and 2022 to address Colorado River and other Western river conditions (I.e., through the Bipartisan Infrastructure Law and the Inflation Reduction Act). While we do not yet know the specifics of how these dollars will be used, the appropriations do come with authorizations and guidance, and some investment details will be known as Reclamation evaluates future management options. Reclamation's analysis would benefit from consideration of these investments (current and future), and Reclamation's post-2026 management decision should aspire to complement them.

Audubon is deeply appreciative of the opportunity to comment. We urge Reclamation to establish a process for developing a post-2026 Colorado River management framework that results in a resilient water supply and healthy rivers for all life – the people, the birds, and all the creatures that rely on this resource.

Sincerely

Jennifer Pitt
Colorado River Program Director
jpitt@audubon.org

cc: Camille Calimlim Touton, Commissioner, US Bureau of Reclamation
David Palumbo, Deputy Commissioner, US Bureau of Reclamation
Wayne Pullan, Regional Director, Upper Colorado River, US Bureau of Reclamation
Jaci Gould, Regional Director, Lower Colorado River, US Bureau of Reclamation
Tanya Trujillo, Assistant Secretary for Water and Science, US Dept. of the Interior

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September 1, 2022

Ms. Carly Jerla
Bureau of Reclamation
Senior Water Resources Program Manager
(303) 517-1160
eMail: cjerla@usbr.gov

Sent via eMail to: CRB-info@usbr.gov

Re: Federal Register; Vol. 87, No. 121; Friday, June 24, 2022.[1] 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

This letter is provided by Living Rivers, Great Basin Water Network, Center for Biological Diversity, Save The Colorado, Las Vegas Water Defender, Glen Canyon Institute, Utah Rivers Council and Colorado Riverkeeper.

1. INTRODUCTION

Thank you for this opportunity to provide pre-scoping comments regarding the strategies for future reservoir operations in the Colorado River Basin (CRB), which will officially begin in Year 2023 under the guidance of the National Environmental Policy Act (NEPA), and specifically to prepare an Environmental Impact Statement (EIS) in compliance with 1970 Criteria for Coordinated Long-Range Operation of Colorado River (LROC), and the reservoirs pursuant to the Colorado River Basin Project Act of September 30, 1968, and with specific attention given to Section 602a Storage.[2]

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[1] http://www.riversimulator.org/2025Guidelines/PreScoping/FRN.Post2026CoRivReservoirOpsPowellMeadUnderLowReservoirConditions2022June23.pdf

[2] Dams constructed under the Colorado River Storage Project Act are Flaming Gorge, Crystal, Morrow Point, Blue Mesa, Navajo, and Glen Canyon Dams. Hoover Dam was constructed under the Boulder Canyon Project Act. Davis Dam was constructed under provisions of the Reclamation Project Act. Construction of Parker Dam was authorized under the River and Harbors Act.

The ideal objective of 602a storage "shall utilize a value of not less than 14.85 million acre-feet (elevation 3,630 feet) for Lake Powell," which has since proven to be unachievable — even with a significant equalization opportunity with Lake Mead that occurred in the high-water year of 2011.[3] [4] That brief trend of abundance was succeeded by a longer trend of hot and dry climate that forced water managers to revise the shortage sharing agreement of 2007 and well before its expiration date of December 31, 2025.[5]

The public must understand that since Year 2005, water managers and water users in the CRB have failed to properly equalize reservoir elevations at Lakes Mead and Powell —despite countless promises. Furthermore, state officials have intentionally abused and politically manipulated this river system for three generations — at the ultimate cost of losing water security for 42 million people in two nations.[6] The inability by the states and the federal government to find consensus on how to cut water use is a step toward collapse, rather than a step toward sustainability.

We also want the public to understand that we will accept the challenge to balance the water budget in this basin, and that we will be persistent about affecting policy changes that begin to prioritize river health over the desires of unsustainable economic interests.

2. FOUNDATIONAL KNOWLEDGE AND SHAPING FUTURE OPERATIONAL STRATEGIES

2.a. Reclamation has already identified the following elements as foundational truths for the CRB:[7]

1. The Basin's reservoir storage system is approaching inactive pool elevations and significant social disruptions are likely to occur.
2. Atmospheric temperatures have increased since 2007, and will continue to increase beyond 2060.
3. Aridity continues to upend the adopted policies of Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (2007 IG), the adopted policies of Drought Contingency Planning Documents

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[3] FRN of September 30, 2003 and 602a Storage DEA. http://www.riversimulator.org/2025Guidelines/PreScoping/68FR56317Reclamation30September2003.pdf

[4] FRN of May 19, 2004 and 602a Storage FONSI. http://www.riversimulator.org/2025Guidelines/PreScoping/69FR28945Reclamation19May2004.pdf

[5] Tony Davis, *Arizona Daily Star*, 2015. *Feds: Fix Colorado River problems or we will*. http://www.livingrivers.org/pdfs/Press/FedsFixColoradoRiverProblemsOrWeWill.pdf

[6] Ian James, *Los Angeles Times*, 2022. *They sounded alarms about a coming Colorado River crisis. But warnings went unheeded*, July 2022. http://www.riversimulator.org/2025Guidelines/News/2022/ScientistsHaveLongWarnedOfColoradoRiverCrisis2022iJamesLATimes.pdf

[7] Reclamation's Webinar of July 2022 - https://www.youtube.com/watch?v=3-aA0CczaMM

(DCP), and the adopted policies of Drought Response Operations Agreement (DROA) for both the Upper and Lower Divisions.
4. Reclamation — with scientific integrity and effective water policies — will generate meaningful solutions.
5. Reclamation will be inclusive about active participation with the tribes, Mexico, and the general public (voters, taxpayers, ratepayers, citizen groups, academic institutions, experts, and etc). However, tribes are presently questioning the commitment from the signatories of 2007 IG.[8]
6. Reclamation, per its mid-term projections, estimates the CRB needs to conserve an additional 2.5 MAF, independent of existing agreements, to stabilize the system in 2023. However, the public is unsure of any other deadlines, aside from December 31, 2025, that will help bring stability to the system and outline immediate approaches for scenario planning, which will help to identify the affected environments of the region and its cumulative impacts.

Please ensure that the above considerations will not be dismissed in the upcoming NEPA analysis of 2023.

2.b. The 2007 Interim Guidelines Problem

The 2007 IG were a minimalist approach that only serviced two federal facilities, namely Glen Canyon Dam (Lake Powell) and Hoover Dam (Lake Mead). The voluntary prescriptions to achieve reservoir storage stability required additional applications, almost immediately, to enhance the original strategies of 2007 IG, and as follows:

1. 2009 - SECURE Water Act
2. 2012 - Colorado River Basin Supply and Demand Study
3. 2013 - Moving Forward Effort
4. 2017 - Treaty Minutes with Mexico
5. 2018 - Colorado River Basin Ten Tribes Partnership Tribal Water Study
6. 2019 - Drought Contingency Planning
7. 2021 - Lower Basin Drought Response Operations Agreement
8. 2022a - Upper Basin Drought Response Operations Agreement
9. 2022b - DROA +

All of these combined strategies and agreements are adversely affecting CRB ecosystems, infrastructure operations, and recreation management — and without receiving the precautionary benefits of a comprehensive basin-wide NEPA review.

[8] Letter from Colorado River Tribes to Deputy Secretary Trujillo. http://www.riversimulator.org/2025Guidelines/PreScoping/LetterFromBTCtoTrujillo22July2022.pdf

2.c. The following items, locations and/or facilities are receiving negative and cumulative impacts because of current management practices:

1. River base water flows fed via groundwater continue to diminish.
2. CRB communities waste their time and resources pursuing federal permits for water projects that are infeasible, resource intensive, and politically controversial.
3. CRB reservoirs like Flaming Gorge Dam, Blue Mesa Dam and Navajo Dam are experiencing unprecedented emergency operations.
4. Ecosystems are imperiled at Grand Canyon, Salton Trough, and the Colorado River below Morelos Dam in Mexico. System degradation and decline also exists on the many dewatered tributaries within the basin, and incidentally includes trans-basin diversion projects such as the Great Salt Lake/Bonneville ecosystem and the imperiled Rio Grande ecosystem.
5. The ecosystem values of our National Parks, National Monuments, Wildlife Refugia, Heritage Areas, and National Recreation Areas are also jeopardized in the CRB.
6. State, local and tribal assets also suffer degradation.

3. SUGGESTED STRATEGIES

3.a. We strongly advocate that the following suggestions be embraced for the upcoming NEPA process:

1. Immediately ask Congress for consistent funding and increased staffing to guarantee a robust and exhaustive public review.
2. Provide multiple in-person and virtual meetings at multiple locations in each basin state of USA and Mexico to ensure a robust review.
3. The analysis must be comprehensive, programmatic and basin-wide in scope, including the counties with trans-basin and intra-basin diversion projects in existence and new proposals.
4. Enlist the National Academy of Sciences to run focus groups.
5. Enlist the Center for Climate Adaptation Science and Solutions (CCASS) at the University of Arizona to partner on the development of strategies that promote sustainability.[9]
6. Consult with the Scripps Institute of Oceanography and Lamont-Doherty Earth Observatory.
7. Collaborate with the US Geological Survey[10] and Surface Atmosphere Integrated Field Laboratory[11] concerning base flow analyses and additional groundwater assessments, including monitoring and isotopic data collection.

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[9] Center for Climate Adaptation Science and Solutions (CCASS). https://ccass.arizona.edu/themes/water-security-planning-and-policy/colorado-river

[10] Colorado River Basin Focus Area Study. https://www.usgs.gov/mission-areas/water-resources/science/colorado-river-basin-focus-area-study

[11] Surface Atmosphere Integrated Field Laboratory (SAIL). https://sail.lbl.gov

8. Reassess evaporation rates for soil moisture, vegetation transpiration, channel and river losses, and reservoir losses.
9. Accept non-stationarity weather and climate patterns.
10. Prepare for weather and climate extremes.
11. Encourage scientific investigations about the North American Monsoon.
12. List the schedule of priority rights in the Upper and Lower Basin to give the public a better understanding of the discrepancy in record keeping between the basins.
13. Reassess all proposed dams and diversions on all tributaries and the main stem for the purpose of reviving the river.
14. Detail the public process and strategy for assessing the feasibility of River Outlet Works at Glen Canyon and Hoover Dams.
15. All mitigation programs financed by hydropower revenues need to be reassessed.
16. Reassess the effect of sediment mobilization at Lake Powell on storage, recreation, wildlife habitat, water quality, water temperature and other such impacts related to Glen Canyon Dam operations.
17. Assess costs and feasibility of abandoned recreational infrastructure.
18. Assess new recreational opportunities at Grand Canyon National Park and the National Recreation Areas of Glen Canyon and Lake Mead.
19. Reevaluate the cumulative impacts of increasing aridity upon habitat for endangered species.
20. Perform CRB vegetation assessments that highlight the status of invasive, non-native and native species.

3.b. Colorado River Simulation System (CRSS) and Colorado River Mid-term Modeling System (CRMMS)

For modeling climate projections and creating scenario planning documents, we suggest the following criteria for base flow and snow melt volumes at Lee's Ferry, Arizona (Compact Point). The framework should be vetted with the community of physical and social scientists who understand all the characteristics of the CRB.

3.b.1. Modeling the natural flow in the 21st century

- Scenario One: The current 30-year average of 9.6 million acre-feet (2021) for inflows into Lake Powell.
- Scenario Two: The projected 30-year average in 2051.
- Scenario Three: The projected 30-year average in 2081.

3.b.2 Modeling the compensations for possible temperature reductions in the 21st century

Present-day monitoring data of carbon molecules hovering in the atmosphere clearly indicates that, since the first Conference of the Parties (COP) held in Germany in Year 1995, absolutely no progress has been made to reduce or sequester global carbon emissions.[12] Therefore, the scenario planning exercises of 2007 IG and 2012 Basin

[12] Carbon dioxide data at Mauna Loa Observatory. https://keelingcurve.ucsd.edu/

Study to demonstrate possible temperature reductions occurring between 2005 and 2060 was not really helpful to practitioners, nor to the public.

Therefore, and choosing to be optimistic about this problem, we propose the following criteria for scenario planning in regards to international policies becoming effective toward reducing temperatures in the atmosphere and the ocean before the end of this century.

- Scenario One: A business-as-usual trend of rising temperatures that continues unabated to Year 2101.
- Scenario Two: The trend begins to stabilize by Year 2051.
- Scenario Three: The trend begins to reverse by Year 2081.

The examples above are a plain language approach, which is necessary because previous narratives and graphics for the public consumption of this information was either too vague or too busy. The writers of this NEPA process should explain to the public that cooling the atmosphere and ocean have lag times that last many centuries. Consider, for example, that the temperature regimes of the Medieval Warm Period and the Little Ice Age were persistent for time periods that lasted three to four centuries.[13]

In other words, we need to accept that the negative impacts of greenhouse gas emissions are unlikely to reverse in this century, i.e., that circulation patterns will continue to disrupt weather and climate, that the ocean will continue to rise and the Arctic tundra will continue to thaw.

4. CONCLUSION

What the public in the CRB learned just recently from Reclamation's press release concerning the 24-month report of August 16, 2022,[14] is that the signatories of 2007 IG in the Upper Basin have committed to apply water efficiency programs, but are not committed to actual reductions in their consumptive uses.[15]

As to the 2007 IG signatories in the Lower Basin, we already know that cuts beyond those outlined in 2007 IG and DCP are not sufficient. We also know that the various parties who agreed to implement the 500+ Plan have not yet been able to secure that sum of water as outlined (500,000 acre-feet for two years).[16]

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[13] Global Average Temperature Change in the last 2000-years. http://www.riversimulator.org/Resources/Graphs/GlobalAverageTemperatureChange2000Years.jpg

[14] Reclamation Press Release. https://www.usbr.gov/newsroom/news-release/4294

[15] Letter from Upper Colorado River Commission, July 2022. http://www.riversimulator.org/2025Guidelines/States/UCRC/UCRCLetter2022July18ToReclamation.pdf

[16] Debra Utacia Krol, Arizona Republic. *'There's simply not enough water': Colorado River cutbacks ripple across Arizona*, http://www.riversimulator.org/2025Guidelines/News/2022/TheresSimplyNotEnoughWaterDebraUtaciaKrol2022AzRep.pdf

The tribes have demonstrated a commitment to share shortages in these troubled times, but should not participate until an equal commitment arrives from the actual signatories of 2007 IG.

Lastly, what we hope never to hear again are exhortations for wet winters that do nothing but steal the time necessary to make actual progress at balancing the water budget.[17]

Therefore, we think this NEPA process will require two approaches: (1) an effort to balance the diminishing water supply with human demands, immediately and sustainably; (2) anticipate inaction or failure and prepare for system collapse.

The Secretary of Interior should petition the Cabinet, CRB state representatives, Mexico, Tribes, congressional committees, and the National Academy of Sciences for assistance and advisement, should a national emergency arrive.

Regardless of the approaches that will be adopted in this round of LROC discussions, or not, what is absolute is that the limits of nature have arrived, and as anticipated, and as affirmed. The future of the CRB depends entirely on reducing our consumption of energy and water resources and in extraordinary amounts. Let's all take this big step forward together, wisely and safely, and without further delays or distractions.

Sincerely yours,

John Weisheit, Living Rivers and Colorado Riverkeeper
Kyle Roerink, Great Basin Water Network
Robin Silver, Center for Biological Diversity
Tick Segerblom, Las Vegas Water Defender
Gary Wockner, Save The Colorado
Eric Balken, Glen Canyon Institute
Zach Frankel, Utah Rivers Council

[17] Sustainable water deliveries from the Colorado River in a changing climate; Barnett and Pierce, 2009. http://www.riversimulator.org/Resources/ClimateDocs/PierceBarnett2009.pdf

Arizona Farm Bureau Federation
325 S. Higley Rd, Suite 210
Gilbert, AZ 85296

September 1, 2022

Commissioner Camille Touton
Bureau of Reclamation
1849 C Street NW
Washington, DC 202040

Submitted electronically via CRB-info@usbr.gov

RE: 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 Commissioner Touton:

The Arizona Farm Bureau Federation represents farmers and ranchers across the state who contribute $23.3 billion to the state's economy. Water is the lifeblood of our thriving agricultural community. Today, the drought that has persisted across the West threatens one of the most productive and diverse agricultural economies in the world. Since 2020, farmers in Central Arizona have already been struggling through the impacts of reduced Central Arizona Project water deliveries. As water levels continue to decline in Lake Powell and Lake Mead, other farming communities throughout the state who depend on the Colorado River will begin to feel the impact. Given the vital importance of water to agriculture, we appreciate the opportunity to provide the following comments in response to the Bureau of Reclamation's (BOR) request for input (ROI) on development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead under historically low reservoir conditions.

Arizona has stepped up consistently over the years as the impacts of the drought has worsened – not only giving up water through agreements like the Drought Contingency Plan and the 500+ Plan, but also by coming to the table with solutions. Our State and our farmers have invested millions of dollars in Central Arizona to develop water-saving technology and infrastructure to alleviate the impacts of Colorado River shortages. In addition, farmers and irrigation districts in the Yuma growing region have come to the table with a reasonable and practical approach, now known as the "Save the River Plan," to temporarily reduce valuable production in order to leave more water in the river. Supporting these efforts formally and financially is imperative considering the level of food production generated by farmers in the Yuma valley. The U.S. and the rest of the world cannot afford to let this agricultural stronghold vanish due to drought. In the near-term, we strongly urge BOR to use funds allocated through the Inflation Reduction Act to support these efforts to create the storage necessary to avoid a crash on the river.

The potential for continued drought and further pressure on the Colorado River system is reflected in data provided in the recent Colorado River Basin August 2022 24-Month Study. Even if the Basin receives higher than expected inflows in the near term, the Colorado River system is overallocated and does not take into account the structural deficit created by system evaporation. It is important that as BOR develop the Post-2026 Operational Strategies, they work with stakeholders to determine river allocations that are consistent with current average system in-flows. It is challenging to make long-term plans in a water system that is over allocated, and even more difficult when the system is faced with drought conditions.

The ROI specifically requested input on the process that can be employed to encourage and facilitate meaningful participation of all Colorado River Basin partners, stakeholders, and the general public. During the planning process to develop the 2007 Interim Guidelines, agricultural stakeholders were not included in a substantiative way. This was largely rectified in the development of the Lower Basin Drought Contingency Plan. Arizona extended this stakeholder engagement with the establishment of the Arizona Reconsultation Committee, which has been proactive in the preparations for discussion regarding post-2026 operations. Arizona has repeatedly proven its willingness to be part of the solution for the entire system, predominantly at the sacrifice of food and fiber production. Today, the BOR has an opportunity to lead in its role as water manager and bring all stakeholders to the table to share equitably in the pain caused by this historic drought. For that reason, all stakeholders must have a seat at the table, including agriculture. As the Post-2026 Operational Strategies are developed, those who use the water must be given a meaningful opportunity to participate in the decision-making process. Furthermore, any decisions about use of the river must recognize the economic significance of agriculture dependent on Colorado River water – it extends beyond the scope of farms and rural communities to include safeguarding our domestic food security.

Other elements that should be considered by BOR in the upcoming NEPA process include further encouraging conservation and efficiency measures by all users, augmenting water supplies where feasible, and evaluating increased storage capacity to capture seasonal precipitation in sub-watersheds likely to be impacted by the reverberating impacts of less water in the Colorado River system. Furthermore, the NEPA process needs to include specific analysis to streamline upper watershed projects, intended to improve forest and rangeland health, across multiple federal agencies. Each of these elements is an important component to the overall health and resilience of the Colorado River Basin.

Water is fundamental to agricultural production, which is fundamental to our domestic food supply, which is fundamental to our way of life and national security. It is incumbent upon BOR to work with all users of the Colorado River in being aggressive, innovative, and sacrificial to protect the river and the people, industries, and communities who rely on it as it begins to develop its Post-2026 Colorado River Operational Strategies.

Thank you for your consideration.

Sincerely,

Stefanie A. Smallhouse

Stefanie Smallhouse, President
Arizona Farm Bureau Federation

Ute Indian Tribe of the Uintah and Ouray Reservation

Comments on the U.S. Department of Interior, Bureau of Reclamation, Request for Input on the Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Mead and Lake Powell August 30, 2022

The Ute Tribal Business Committee of the Ute Indian Tribe of the Uintah & Ouray Reservation ("Ute Indian Tribe" or "Tribe") submits these comments in response to the Bureau of Reclamation's ("Reclamation") pre-scoping Notice for input on the proposed development of Post-2026 Colorado River Operational Strategies, prior to the formal initiation of the National Environmental Policy Act ("NEPA") process in early 2023.[1] Reclamation is specifically requesting input for the anticipated upcoming NEPA process on the following two issues: (a) processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin partners, stake holders, and the general public; and (b) potential substantive elements and strategies for post-2026 operations.

The critical circumstances in the Colorado River Basin are well-known, including the fact that we are in the driest 23-year period on the Colorado River in more than a century, with low runoff conditions and reservoirs within the basin at historic low levels (summarized in the Federal Register pre-scoping Notice). Our comments focus on the process for the Ute Indian Tribe's meaningful participation in the discussions, negotiations, and decisions that will be made for the Post-2026 Colorado River Management and on substantive strategies for addressing the crisis facing millions of people relying on the water supplies of the Colorado River and, in particular, the Tribal members of the Ute Indian Tribe.

INTRODUCTION

The Ute Indian Tribe is located on the Uintah and Ouray Reservation ("Reservation") in northeastern Utah, approximately 150 miles east of Salt Lake City, Utah. All of our Reservation land lies within the drainage of the Colorado River Basin. Our Uintah and Ouray Reservation was first established in 1861, after surrendering millions of acres of land to the United States. Today,

[1] 87 FR 37884 (June 24, 2022).

our Reservation is the second largest Indian reservation in the United States covering more than 4.5 million acres. The Ute Indian Tribe has a Tribal membership of almost four thousand individuals, a majority of whom live within the exterior boundaries of the Reservation.

This is a historical moment for the Biden Administration and, under the discerning eye of Secretary Deb Haaland ("Secretary"), it presents a rare opportunity to create a new chapter in the history of the Federal Government's position on its fiduciary duty and other trust responsibilities to tribes related to supporting tribal efforts to secure, preserve, protect, develop, and use the waters required to establish permanent homelands on our reservations. In the 1800s, tribes lost over 75% of their land base to the colonization of America in the search for the most valuable agricultural lands. Now, history is poised to repeat itself, to the detriment of tribes and Indian people, by the silence and inaction from the federal leadership to recognize, secure, and protect Indian reserved water rights for reservation life. We ask that the Department of Interior ("Department") take action immediately to prevent this from happening.

THE PROCESS TO ENSURE THE UTE INDIAN TRIBE'S PARTICIPATION

We agree with the recent remarks of Raúl Grijalva, Natural Resources Committee Chair of the U.S. House of Representatives, that the Department "needs to act more aggressively" to establish a process "that gives the most impacted communities—like tribes across the Colorado River Basin—a bigger seat at the table…."[2] We strongly request that (1) the Ute Indian Tribe be seated as a participant on the Upper Colorado River Commission; and (2) the Bureau of Indian Affairs have visible and active representation as a federal partner in Reclamation's leadership role in working to develop strategies for the post-2026 management of the Colorado River.

Tribal Participation on the Upper Colorado River Commission

We have one, very specific priority with regard to the Department's process for ensuring our Tribe's participation: Put us in the room and at the table of the Upper Colorado River Commission ("Commission"). The Ute Indian Tribe has a substantial apportionment of federal, Indian reserved water rights ("Indian water rights") in the Upper Colorado River Basin. That is, we are not just another state water user seeking state permits to use Colorado River water. We must be included in the meetings, discussions, and negotiations conducted by the Commission.

Our Uintah and Ouray Reservation was first established in 1861, creating our senior reserved water rights under the *Winters* doctrine. The Ute Indian Tribe owns the most senior priority rights to the natural flows of the tributaries from the Colorado River within the exterior boundaries of our Reservation. We have a binding quantification of our Indian water rights, based on our Reservation's practicably irrigable acreage, in what is known as the 1965 Deferral Agreement in which Utah and the United States agreed to acknowledge and recognize, without resorting to litigation, our agreement to temporarily defer the development and use of a portion of our Indian water rights. Relying on this 1965 Agreement recognizing our Tribe's Indian water rights, Utah has since received billions of federal dollars to construct its Central Utah Project.

[2] Jennifer Yachnin, Ariz. Lawmakers want other states to share Colorado River cuts, Greenwire, Water Rights and Water Quantities.

Because we satisfied our end of this contractual agreement, the 1965 quantification remains a binding agreement between the Tribal, State, and Federal governments of our Tribe's Indian water rights.

In a 1988 Solicitor's memorandum opinion to the Bureau of Indian Affairs ("BIA"), dated September 9, 1988, Lynn R. Collins explained that the Tribe's deferment of its Indian reserved water rights through the 1965 Deferral Agreement was conditioned upon "full and complete recognition of all tribal water rights . . . ." This Solicitor's opinion, as with all such Solicitor Opinions, establishes a binding legal position for the Department. Yet, our experience to date supports our conclusion that the historical bias of the Federal Government in supporting Utah's Colorado River water development over more than a century has resulted in the Department's refusal to acknowledge and enforce our rights articulated in the legal conclusion of Solicitor Collin's opinion.

The 1965 Agreement established our quantified *Winters* reserved water rights at just under 550,000 acre-feet per year by diversion in the Upper Colorado River Basin. Most of the water in the Uinta Basin within our Reservation is used for irrigated agriculture, a primary economic activity and Tribal enterprise. This is consistent with the expectation and purpose of the Federal Government's policy towards Indians in the 1800s, including with our Treaties, that required us to become productive farmers with the creation of our Reservation. This, in turn, was intended to promote our Tribal self-sufficiency and establish our homeland.

A portion of our Tribe's Indian water rights were adjudicated through two federal judicial decisions and decrees in 1923. These decrees affirm our Tribe's Indian water rights for irrigation of close to 60,000 acres on Tribal lands from the Lake Fork and Uinta Rivers, and for other purposes, including domestic, culinary, and livestock raising, for a total annual diversion right of about 180,000 acre-feet per year. These adjudicated, federal, Indian reserved water rights still exist, in spite of a century-long effort by the State to significantly reduce the quantification of our Indian water rights, including the portion of our federally decreed rights, while inhibiting our efforts to develop our water rights.

Our Tribe cannot rely on the Federal Government to protect and preserve our Indian water rights. The historical bias and disparate treatment involving Indian water rights is not an issue of the past. Currently, our Tribe is being actively excluded from water planning efforts, in particular, from the Commission, as a sovereign government with our own water rights. We have a quantified apportionment of the Colorado River; we are not just another state-based water user relying on permits being granted from the state for our water use. Our Tribal apportionment is to be subtracted from the total water apportioned to and established for the State of Utah under the 1948 Upper Colorado River Compact.[3] We must become an equal partner with the states in determining the future of the Colorado River. Through the Commission, the Upper Basin states negotiate with Reclamation and each other on the policies and management of the Upper Basin of the Colorado River, including the obligation to deliver water to the Lower Basin states. Our Tribe's own Colorado River apportionment has not been considered during the discussions and negotiations to

[3] Act of April 6, 1949, P.L. 37, 63 Stat. 31, Consent of the Congress to the Compact, subsequently ratified by the legislatures of each of the States.

date. Utah has used this to their advantage and is rushing to develop and use all of Utah's Colorado River apportionment.

And now, we have the frightening—and unbelievable—prospect that state-based water users could be paid to discontinue some of their water use, which includes the use and reliance on our Indian water rights that have flowed downstream to other users because of the Federal Government's failure to secure these rights for use on our Reservation (discussed further below).

The Department must step up and acknowledge tribal sovereignty and support tribal self-determination, which includes not only the critical issues of ownership and self-governance, but also the critical role of participating in the multi-party discussions that will determine the future management and operation of the Colorado River. The Secretary can actively support our Tribe's participation on the Commission (e.g., establish an "Ex Officio" position), and this is not the first time we have urged this position.[4] We must be able to protect and preserve our Indian water rights for future development and use.

The current exclusion of our Tribe from the Commission is unacceptable. History has shown that neither the state nor federal representatives will protect our Indian water rights. Utah has no authority to negotiate the development, protection, and use of our Tribe's Indian water rights. And we object to the Upper Basin states' and Federal Government's reliance on negotiating solely with Utah in this regard, while sitting passively at the table while Utah is aggressively developing Utah's Colorado River apportionment under the 1948 Upper Colorado River Compact.[5] The failure to acknowledge our quantified rights and deduct them from Utah's Colorado River apportionment, as required under *Arizona v. California* (1963), leaves a cloud over the upcoming review of the 2007 Interim Guidelines for the Operation of Lake Powell and Lake Mead and the pending development of the post-2026 reservoir operational strategies.

Failure to include a representative from our Tribe in the deliberations of the Commission not only continues the cloud that hangs over both the Upper Basin States' negotiations and preservation efforts, but also, in particular, Utah's effort to preserve its own water rights in the Upper Colorado Basin. In a recently published article, U.S. Senator Mitt Romney of Utah is quoted as heralding the settlement of the Navajo Nation's water rights in Utah because it "settle[d] concerns that the Navajo Nation's water rights could affect Utah's own share of the river's dwindling resources."[6] Romney further explained that "the Navajo Nation had claims to the Colorado River that would impair Utah's water rights." It is equally true that without the State and Federal Governments acknowledging the Ute Indian Tribe's Indian water rights, and including our right to develop and use these water rights in the Upper Basin, the future negotiations,

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[4] *See, e.g.,* Colorado River Basin Tribes Partnership, Resolution, "To Secure Tribal Representation on the Upper Colorado River Commission," adopted June 21, 2018 (supporting the Ute Indian Tribe's efforts to secure Tribal Representation on the Upper Colorado River Commission); Shaun Chapoose, Chairman, Ute Indian Tribe, Letter to President Joseph R. Biden, Jr., regarding "Ute Indian Tribe Representation on the Upper Colorado River Commission," dated July 15, 2921.

[5] Act of April 6, 1949, P.L. 37, 63 Stat. 31, Consent of the Congress to the Compact, subsequently ratified by the legislatures of each of the States.

[6] J. Yachnin, Interior, Utah ink water rights settlement with Navajo Nation, Greenwire, Social Equity and Access (05.31.22).

planning, and management of the Colorado River for the junior water users in the Upper Basin states will be impaired.

> Secretary Haaland said, on her first day on the job at the Department of Interior,
>
> I want the era where tribes have been on the back burner to be over, and I want to make sure that they have real opportunities to have a seat at the table.[7]

Now is the time to act. Secretary Haaland, give our Tribe a seat at the Commission and show your commitment to support the tribal exercise of self-determination and self-governance over Indian reserved water rights. This, and only this, will provide our Tribe meaningful engagement and participation in the development of the post-2026 management strategies for the Colorado River.

Participation of the Bureau of Indian Affairs—Trustee of Tribal Trust Lands and Water

Participation must also include representation from the BIA. They have been inexplicitly absent from the Tribal Information Exchange meetings conducted by Reclamation and from other forums developed for tribal information and input. The BIA holds millions of acres of tribal lands in trust for the benefit of tribes and allottees, recognized as the trustee of our reservation trust lands. It must become an active participant in the meetings, discussion, and negotiations now occurring between the Bureau of Reclamation and the states—and tribes.

The BIA operates the Uintah Indian Irrigation Project ("UIIP"), authorized by Congress in 1906, that serves most current Tribal agricultural operations on the Reservation. The UIIP currently serves the lands under the 1923 federally-decreed Indian water rights, as well as lands irrigated from the Duchesne River. These rights are part of the quantified apportionment of our Tribe's Indian water rights in the Upper Colorado River Basin. There are other federal Indian Irrigation Projects in the Colorado River Basin. The BIA has concurrent jurisdiction with us over trust lands and Indian water rights, and issues federal regulations establishing rules related to the use of natural resource issues on reservations, such as land leasing. The BIA is a necessary participant to the pending proceedings led by Reclamation, and must be present as a trustee of the most important trust asset tribes have—water—both as a watchdog and a collaborator with tribes to ensure that tribes can protect and benefit from the development and use of our Indian water rights.

SUBSTANTIVE ELEMENTS AND STRATEGIES FOR POST-2026 OPERATIONS

The development of post-2026 Colorado River strategies must look beyond the operational strategies for Lake Powell and Lake Mead and consider alternative strategies to resolve the future problems of over-reliance on the waters of the Colorado River. There will be no long-term certainty for the Colorado River water users if the current effort does not look beyond simply managing the dwindling water supplies in the reservoirs.

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[7] S.M. Bryan and F. Fonseca (AP), Tribes seek more inclusion, action from US Officials, Washington Post (April 2, 2022).

Evaluate the Impact on Tribal Trust Assets—Water

Reclamation's policy for conducting the NEPA process is articulated in the Department's Reclamation NEPA Handbook. The policy addresses Reclamation's obligation to evaluate the impact of proposed actions on tribal trust assets.

> Indian Trust Assets ("ITA") are legal interests in property held in trust by the United States for Indian tribes or individuals. Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and individual Indians. . . . All impacts to trust assets, even those considered nonsignificant, must be discussed in the trust analyses in NEPA documents and appropriate compensation or mitigation implemented."[8]

While the impact on all tribal trust assets must be analyzed by Reclamation during its NEPA process, we focus our comments on the requirement that the impact on tribal Indian reserved water rights, a tribal trust asset, *must* be analyzed. It is axiomatic that Indian reserved water rights are tribal trust assets titled in the United States for the benefit of the Tribe—in perpetuity, and recognized as present perfected rights under federal law.

Reclamation must take this very seriously. To be clear, Reclamation cannot discuss the impacts on Indian water rights during its upcoming NEPA process unless it (1) acknowledges the binding quantification of our Tribe's Indian water rights as the baseline from which adverse impacts are measured, and (2) analyzes and compares the impacts from proposed actions against the known quantified Tribal water rights. Our Tribe has a binding quantification of 549,686 acre-feet per year by diversion of Indian water rights (explained above) that, to date, has been ignored by Reclamation and the Department. Reclamation's NEPA policy, consistent with 42 U.S.C. § 4332(C), requires Reclamation to recognize our quantified Indian water rights in the Colorado River Basin in order to satisfy federal law to determine any impact on our trust assets under the NEPA process.

Remarkably, Reclamation has chosen to adopt a quantification volume for modeling the impact of our Tribe's Indian water rights that was proposed by the State in 1990, and that we rejected. The State's "proposed Revised 1990 Water Compact" attempted to make significant cuts in our 1965 binding quantification of Indian water rights,[9] with a 7% across the board cut in our quantified water rights, determined by using the practicably irrigable acreage standard adopted by the U.S. Supreme Court in *Arizona v. California*.[10] The Upper Colorado River Commission has relied on this false quantification volume for our Indian water rights, and transmitted depletion schedules to Reclamation for previous NEPA studies since 1999, based on this flawed data.[11]

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[8] Bureau of Reclamation NEPA Handbook, 512 DM 2, chapter 3.15.7, Indian Trust Assets, pgs. 3-29 (February 2012).
[9] Central Utah Project Completion Act of 1992, Title V, Section 503(a) [1992 Act].
[10] 373 U.S. 546 (1963).
[11] Bureau of Reclamation, 2016 UCRC Schedule UD State Tribes Notes (explanation for differences between Tribal schedules in the Tribal Water Study and those included in the updated 2016 Upper Colorado River Commission Depletion Demand Schedule with the revised CRSSv6 model. (Provided by Reclamation to the Upper Basin tribes).

Reclamation has relied on these lower quantification volumes for our Tribe for updating its Colorado River System hydrology projections using its Colorado River Simulation System ("CRSS"),[12] even though we participated for over four years in the development and publication of the Tribal Water Study, conducted in cooperation with Reclamation.[13] We analyzed and reported our Tribal current and future Indian water rights with a demand schedule based on our binding quantification with the United States. Reclamation did not consult with us prior to its decision to use the State's preferred quantification, nor change its reliance on the State's and Upper Colorado River Commission's preferred (i.e., reduced) quantification for our Indian water rights when we discovered and challenged this decision in 2020.

These significant cuts to our Indian water rights that Reclamation is relying on has no legal effect because the State's proposed Revised 1990 Water Compact has not been approved by the Ute Indian Tribe, as required by Congress.[14] It is time to right a wrong: the quantification for our Tribe's Indian water rights that Reclamation is relying on to guide the development of a new post-2026 management framework for the Colorado River Basin is unenforceable—nonexistent. It will underestimate our senior priority, present perfected water rights in this current review and analysis and continue the cloud over the entire proceedings in the Upper Colorado River Basin. And it will repeat a concern raised by tribes when commenting on Reclamation's review of the 2007 Interim Guidelines Record of Decision (Section XI.G.7.D.) (referred to as the "7.D. Review") in October 2020.[15] Reclamation was put on notice two years ago that its "modeling assumptions regarding water deliveries in the Guidelines' Final EIS failed to account for the Tribe's full water rights"; and that "Reclamation should follow through on model development to better account for present and future tribal water use, as discussed in the Tribal Water Study."

Do not make this mistake twice. Take action to correct this error. The Department is obligated to protect and preserve our Indian water rights. Remove the cloud over Reclamation's NEPA process and development of new management guidelines for the Colorado River. Acknowledge our Tribe's quantified Indian water rights, and analyze the impact on these trust assets before selecting the post-2026 management framework for the Colorado River. This is the position the United States Department of Justice took when litigating in the 1950s-60s in *Arizona v. California*, when it intervened on behalf of tribes in the Lower Basin and insisted that Indian water rights must be quantified before the respective rights of the states could be determined.

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[12] *See* https://www.usbr.gov/lc/region/g4000/riverops/model-info.html#:~:text=For%20outlooks%20beyond%20five%20years,comparisons%2C%20and%20supplementary%20resource%20analyses. (Last visited August 19, 2022).

[13] U.S. Department of the Interior, Bureau of Reclamation, and Ten Tribes Partnership, Colorado River Basin Ten Tribes Partnership Tribal Water Study Report (Dec. 2018).

[14] 1992 Act.

[15] U.S. Department of Interior, Bureau of Reclamation, Draft Report, Review of the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, Upper and Lower Colorado Basin Regions (October 2020).

Adopt Strategies to Compensate Tribes for the Use and Conservation of Our Indian Reserved Water Rights

Indian people have been conserving water in the southwest for millenniums, a basic necessity for our survival. We have effectively managed our natural resources to sustain human existence in harmony with the natural environment. But for the past two centuries, we have watched the non-Indians misuse, abuse, and—yes, sometimes—steal our water. Not only were non-Indian people encouraged to and assisted with settling on our Indian lands, but the Federal Government has provided them with billions of dollars for infrastructure to take water from the streams, including those that feed our reservations that were imposed on us by the United States.

The Federal Government now faces the specter of watching state-based water users benefit once again from their expansive use of water, including the unimpeded and uncompensated use of Indian reserved water rights that has continued to flow downstream for others to use because the Federal Government has ignored its trust responsibilities as our trustee and mismanaged Indian water resources. If the Biden Administration does not alter the course of the misappropriation of Indian water rights by the states for the benefit and use of non-Indians, it will, shamefully, see Indian water rights go the way of Indian lands from the prior centuries—only this time Indian people may not survive. After surrendering millions of acres of land to the United States, we cannot accomplish the promise of our treaties—a permanent homeland—without water for our reservations.

The uncompensated downstream use by states and state-water users of the undeveloped and conserved, federal water rights of tribes is well-known, and tribal voices continue to be raised beseeching the United States to action on behalf of tribes to assist us in the development and use of our Indian water rights. And now, there are new, developing methods that are being adopted by states for state water-users to continue to benefit, at least in part, from Indian water. A couple, brief examples will illustrate the importance of federal leadership at this time to adopt policies for the monetary compensation of the non-Indian use of federal, Indian water rights.

In 2003, the Upper Colorado River Commission adopted a resolution that challenged a common understanding between the seven basin states regarding use of the Colorado River and put a crack in the Law of the River.[16] Part of Utah is within the Upper Basin and part is within the Lower Basin of the Colorado River system, and Utah wants to divert water from its Upper Basin apportionment to deliver to Utah communities located within the Lower Basin, including at St George, Utah. This is known as the Lake Powell Pipeline Supply Project and has become a very controversial water supply project diverting water out of the Upper Basin. Because of some uncertainty among the Upper Basin states related to the legality of using Upper Basin state apportionments in the Lower Basin under the 1922 Colorado River Compact and 1948 Upper Colorado River Basin Compact, the Commission adopted a resolution consenting to Utah's use of a portion of its Upper Basin apportionment in the Lower Basin. This opened the door for Utah to move Upper Basin water out of eastern Utah to western Utah, and provided an opportunity for

[16] Resolution of the Upper Colorado River Commission, "Regarding the Use and Accounting of Upper Basin Water Supplied to the Lower Basin in Utah by the Proposed Lake Powell Pipeline Project" (June 19, 2003), *citing* the 1922 Colorado River Compact (45 Stat. 1057), and the 1948 Upper Colorado River Basin Compact.

Utah to continue its water transfers, including out of the Colorado River Basin, in order to fully develop its Colorado River apportionment. Tribal attempts, however, to market and use our Indian water rights through transbasin diversions have not been permitted; in fact, based on our own Tribe's experience (and that of other tribes), they have been prohibited by the Federal Government.

Then, in 2015, the Commission supported pilot programs to inform the development of its demand management program for reducing consumptive uses by serving as the contracting entity for the Colorado River System Conservation Pilot Program in the Upper Basin ("Conservation Pilot Program").[17] Our Tribe spent extensive time and financial resources in an attempt to participate in this Conservation Pilot Program. However, we discovered two significant flaws in the states' program that either prohibited tribes' participation or disincentivized our participation.

First, the Conservation Pilot Programs require that only water that has been previously used, i.e., irrigation water, can be identified for monetary compensation through the conservation of water from fallowed agricultural lands. This immediately prohibited many tribes, including us, from receiving compensation for our current, undeveloped and conserved Indian water rights. Second, the Commission adopted an agreement template that could not be altered and required tribes grant oversight by the state to enter our Reservation lands to confirm that the participant was following the rules in order to receive the promised monetary compensation for conservation of our water. However, our Tribe has federal Indian water rights that are regulated, managed, and administered by the BIA and, as such, our agricultural water use through our BIA Uintah Indian Irrigation Project is under federal jurisdiction. The State has no jurisdictional authority on our Tribal trust lands. This created a significant barrier to our participation in the Conservation Pilot Program because the Commission would not allow the Federal Government to provide the oversight of conserved water on our Reservation under their program. Once again, the Federal Government did not step in to establish a federal program that would benefit tribes by providing monetary compensation for our conserved water.

Now, as a very recent example of the "relaxation" of the Law of the River, governing the seven states of the Colorado River, and state water-use schemes that benefit non-Indian water users, Governor Spencer Cox announced that Utah adopted a new law this year, HB33, that "changed an old 'use it or lose it' law so farmers could leave some of their water in streams without losing their allotted amount."[18] That is, they can participate in conservation programs for compensation and retain the right to use their water rights after any period of non-use due to a contribution to the instream flow.

To put a pin in our key issue to be addressed by the Federal Government at this important point in history, this new law presents the absurdity that non-Indian water users, relying, at least in part, on undeveloped and conserved Indian water rights that continue to flow downstream, can now be compensated for not using our Indian water rights! And yet, we have no federal policies

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[17] *See* Resolution of the Upper Colorado River Commission "Regarding the Emergency Upper Basin Drought Contingency Plan Demand Management" (June 20, 2018).

[18] Utah Governor Spencer J. Cox's Newsletter, "Addressing Drought in the West," dated July 22, 2022, at https://mailchi.mp/utah.gov/updates-on-gas-prices-homelessness-and-more?e=[UNIQID] (last visited Aug. 20, 2022).

and resources that will compensate us for the continued use of our Indian water rights by others, while our water remains undeveloped and conserved because of the failure of the Federal Government to develop policies and provide monetary incentives for tribes.

It is clear that the state-based water users expect compensation for any agreement to conserve, i.e., "not use," their water rights from the Colorado River. For example, the guiding principles articulated by California for the development of the next set of Colorado River operating guidelines.[19] Three principles, in particular, caught our attention:

> (1) *Incentivize* water conservation, storage, recovery, and sharing activities that benefit the Colorado River System and *provide flexibility* for water users;
> (2) Advocate for *increased federal resources*….; and
> (3) *Recognize the interests and priorities* of water right holders, [including] *Tribes*…." (emphasis added).

As the Yuma County Farm Bureau members asserted in their recent proposed "Save the River" policy, commenting on the recent federal announcement that an additional two to four million acre feet of stored Colorado River water is necessary to protect the system, "Farmers will need funds to manage production with less water. To cope with the reduced production impact to our national food supply resulting from less water, farming will need about $1500 per acre foot."[20] Not surprisingly, non-Indian, state water users expect to be fairly compensated for the non-use of their water rights.

We ask that the Federal Government adopt policies for and contribute financial resources to tribes with undeveloped, federal, Indian water rights in order to put our Indian water rights to use for our tribal members and Reservation homelands, to contribute to solutions that address the crisis engulfing the Colorado River, and to financially benefit from the conserved instream flows that our Indian water rights are currently providing. Expand tribal water marketing opportunities and flexibility by recognizing current Congressional authority that authorizes tribes to engage in the development of our natural resources on our trust lands, including through business agreements, such as water leasing and forbearance agreements, and make beneficial and compensated use of Indian trust property.

Develop Alternative Energy and Water Sources

Evidence of the critically-low water elevations and conditions at Lake Powell and Lake Mead are replete in the press, from stakeholder groups, and from Reclamation's own reports; they will not be repeated here. There are currently no reports that can support a conclusion that focusing only on the management of the reservoirs and adaptive management strategies in response to the drought will change the trajectory of the dwindling and receding water supply in the Colorado River Basin. The Federal Government has articulated the priority of preserving hydropower

[19] Proposed California Guiding Principles Associated with Development of the Next Set of Colorado River System Operating Guidelines, Draft (July 8, 2021).
[20] *See* Yuma County Farm Bureau Policy, Drought, Proposed "Save the River"—Colorado River Crash Avoidance, a four-year "save the river" program proposing the reduction of crop production and water orders for monetary compensation.

production at the reservoirs, relied on by millions of people. Although Reclamation has begun to show a commitment to increased transparency and participation, identified as important considerations in the 2020 7.D. Review document,[21] this will not resolve the very real problems facing the diminishing water supply volume in the Colorado River. It is time to reduce the reliance on hydropower production at the two biggest reservoirs and to identify alternative water sources.

The water supply of the Colorado River is producing a tremendous amount of agricultural production, providing food security to the nation, especially during the winter, when fruits, nuts, and vegetables from the area provide more than 70% of the country's needs. It seems the reservoirs are operated to protect hydropower generation at the expense of food production. How is this justified? The government should begin to immediately plan for alternative sources of power, such as solar power and gas-fired power plants, to make up for the power loss due to the low level of storages in Lake Powell and Lake Mead.

Also, the current strategies for responding to the Colorado River water supply crisis, and presumably the future proposals that will guide the post-2026 guidelines for managing the river, seem to be more related to a reduction of water uses primarily from conservation strategies. It is time to take into consideration the need to supply water to the Colorado River Basin from other regions in the United States that have ample water supplies (also suggested in comments solicited during the preparation of Reclamation's 2012 Colorado River Basin Water Supply and Demand Study). And in cities like Los Angeles and San Diego, desalination should be planned.

Even if there were no recorded mega drought, similar to the severe drought that started in 2000, the supply of water in the Colorado River has been surpassed, or nearly surpassed, by the demand of water. In addition, normal flows with wet- and dry-year cycles do not seem to recover as long as climate change continues to take place. It is not clear why Reclamation continues to mitigate with short-term bandage solutions as opposed to sustainable long-term solutions. If the short-term mitigation of the problem continues, chances are that the $1 trillion in economic activity in the region will start to evaporate and businesses will leave the region and transplant themselves in other areas of the country or overseas. The dwindling of water in the Colorado River is the nation's national security issue—and it should be dealt with a sense of urgency.

CONCLUSION

This time, our Tribal input must be taken most seriously as Reclamation prepares to initiate its development of post-2026 Colorado River Reservoir Operational Strategies for Lake Mead and Lake Powell. This Administration has an opportunity to correct past wrongs by supporting tribal authority through self-governance and self-determination over our Indian water rights by sitting in partnership with the States of the Upper Colorado River Commission as they negotiate and deliberate on the future management of the Colorado River system. And the outcome of this impending, important process will only produce future certainty for the water users if the analysis it produces uses the valid, binding quantification of our Tribe's Indian water rights, which, in turn, will support our Tribe's development and use of this trust asset.

[21] Fed. Reg., Vol. 87, No. 121, 37886 (June 24, 2022).

Reclamation's leadership in the impending analysis of the scope of strategies that should be considered in the development of the post-2026 management of the Colorado River must be bold, it must be innovative, and it must be futuristic or its desire to provide some certainty to the water users will fail. We are encouraged by the leadership that Secretary Deb Haaland and Reclamation Commissioner Camille Touton have shown in stepping forward to take direct federal action to save the Colorado River. We now look for bold action from the Department leadership on behalf of tribes—use your federal authority as the trustee of our most valuable trust asset, Indian water rights, and enact policies that will benefit the life and survival of Indian people on our reservation homelands. Do not let the lessons from our history go unnoticed, unattended to—protect Indian people and preserve our Indian water rights.

Over a century ago, "tribal water rights were largely ignored during the basin's early development, [but] *Winters* left an indelible mark on the basin rooted in Supreme Court jurisprudence that we today cannot ignore."[22] We, the Ute Indian Tribe of the Uintah and Ouray Reservation, cannot survive another century of looking the other way, ignoring our most precious natural resource that is needed to establish the homeland we were promised and ensure our survival as a people in the 21st Century and beyond—our water.

[22] Amy Cordalis and Daniel Cordalis, Indian Water Rights: How *Arizona v California* Left an Unwanted Cloud Over the Colorado River Basin, ARIZONA JOURNAL OF ENVIRONMENTAL LAW & POLICY, Vol. 5:333 at 341.

Water & Tribes Initiative
Colorado River Basin

September 1, 2022

Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation
(303) 517–1160
cjerla@usbr.gov.

Dear Ms. Jerla:

The Water & Tribes Initiative (WTI) offers the following comments in response to the *Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions* (Federal Register June 24, 2022). These comments highlight processes for meaningful participation in developing the next management framework, as well as potential substantive elements and strategies for post 2026 operations. They are intended to describe areas that could be included in the scope of one or more NEPA processes undertaken by the Bureau of Reclamation (BOR) to develop post-2026 operating guidelines and to address ongoing low reservoir conditions in the Basin. We appreciate the opportunity to submit these comments.

WTI is a collaborative partnership among Tribal, state, agricultural, conservation, and academic leaders in the Colorado River Basin. It is designed to pursue two objectives: (1) enhance the capacity of Tribes to manage water resources and engage in water policy discussions about the Colorado River; and (2) advance sustainable water use through collaborative problem-solving among Tribes and other water users in the Colorado River Basin. To achieve these objectives, WTI facilitates connections among multiple actors, builds trust and understanding among Tribal and other leaders, and creates opportunities to explore shared interests and options to work together.

The Federal Register notice seeks comment on "meaningful participation ideas and operational strategies to consider when updating key reservoir and water management decisions and agreements." WTI has worked on these two general topics over the past five years with all 30 Tribes in the basin and a diverse array of other basin decision-makers and stakeholders

In 2020, WTI published a report focused on exactly this subject. The report, *Toward a Sense of the Basin: Designing a Collaborative Process to Develop the Next Set of Guidelines for the Colorado River System*. It summarizes the substance of more than 100 interviews conducted

by the WTI co-facilitators with Tribal and other leaders in the basin on options to facilitate meaningful participation by Tribes and others in developing and implementing the next management framework for the Colorado River System. The findings from the interviews were further developed and refined through a series of three workshops conducted in 2019 and 2020 that included representatives from Tribal, federal, and state governments; water utilities; agriculture; conservation groups; universities; and other stakeholders and experts.

In terms of supporting "meaningful participation," Chapter 3 of the report provides specific strategies to enhance public participation and stakeholder collaboration; Chapter 4 describes specific, practical processes to enable Tribal participation in developing and implementing the next set of guidelines; and Chapter 5 presents options to address science, indigenous knowledge, and cultural values, including the importance of translating Tribal spiritual, cultural, and ecological values into terms that can be understood and implemented by water managers.

In terms of identifying "operational strategies" for managing water in the Colorado River Basin, Chapters 1 and 2 present alternative visions for the future of the Colorado River system, as well as identify the most compelling issues that should be addressed in the next management framework.

In addition to *Toward a Sense of the Basin,* WTI has also produced a series of policy briefs to raise awareness and understanding of Tribal needs and interests, as well as options for Colorado River policy and governance.

- *Policy Brief #3, A Common Vision for the Colorado River System: Toward a Framework for Sustainability*, provides a synthesis of values and visions for the Colorado River system as articulated by Tribes and other leaders in the Basin. These concepts could be considered as part of the Purpose and Need for the NEPA processes associated with the next management framework, or shorter-term measures to address the historically dry conditions and low reservoirs.

- *Policy Brief #4, The Status of Tribal Water Rights in the Colorado River Basin*, is a useful supplement to the BOR and Ten Tribes Partnership *Tribal Water Study.* It summarizes recognized and unresolved Tribal rights that need to be considered in modeling the impact of various management scenarios.

- *Policy Brief #5: Developing the Next Framework to Manage the Colorado River: Flexible Tools to Benefit Tribes and the Basin* provides background on how Tribes have entered into voluntary, compensated water sharing agreements and presents a menu of flexible tools to benefit Tribes, other water users, and the basin as a whole both in the short-term as well as the next management framework.

These and other WTI resources -- including research and education on universal access to clean water in Tribal communities and facilitation of several collaborative dialogues among

Tribes, States, conservation groups, and other stakeholders in the basin -- provide several suggested strategies for participation in developing and implementing the next management framework for the Colorado River system, as well as strategies for the operational management of the system. To highlight just few suggestions that emerge from the WTI resource materials:

Strategies for participation (all documented in *Toward a Sense of the Basin*):

1. Four sets of sovereigns in the Basin – the United States, Mexico, States, and Tribes – have unique and complementary roles in managing the Colorado River system; BOR could support one or more forums for the sovereigns to work together and share problem-solving responsibilities;

2. Given the value of working at different spatial scales, BOR could support – financially, technically, and administratively -- a diversity of existing and emerging watershed councils, state-based forums, upper and lower basin-specific dialogues, and basin-wide (including Mexico) assemblies to facilitate meaningful participation by Tribes and other water users, stakeholders, experts, and the public; and

3. Consistent with the Biden Administration's policy to better integrate Indigenous knowledge into federal public land and water policy decision-making, BOR could support a series of experiments to integrate Indigenous knowledge and western science to enhance our understanding of the Colorado River System and strategies to promote and support sustainable water use.

Strategies for operational management:

1. As documented in *Toward a Sense of the Basin*, BOR could move beyond a management framework that focuses exclusively on operating guidelines for the reservoirs to a more comprehensive, integrated management plan that also recognizes the value of the river as a river;

2. As explained in WTI's *Policy Brief 5, Developing the Next Framework to Manage the Colorado River: Flexible Tools to Benefit Tribes and the Basin*, BOR could fully account for Tribal water rights, both currently recognized and unresolved water rights, and consider the testing, development, and use of flexible tools that honor Tribal self-determination, change consumptive use incentives for Tribes, and enhance Basin-wide water security; and

3. BOR could fully account for Tribal treaty rights and the federal obligation to provide universal access to clean drinking water for Tribes by addressing shortcomings in federal programs to provide technical assistance and funding for Tribal water conservation, management, and infrastructure projects.

The strategies for participation summarized above and discussed in detail in the *Toward the Sense of the Basin* report can be adopted and implemented in the NEPA process(es)

associated with the development of the next river management framework and shorter-term efforts to address low reservoir conditions. With respect to the management strategies, recognizing the value of the river as a river and its spiritual, cultural, and ecological significance to Tribes and others can be part of the purpose and need in the NEPA process(es), and accounting for and modeling the full extent of Tribal water rights could be integrated into the NEPA evaluation.

WTI recognizes that issues like flexible tools and universal access to clean drinking water may require legislation and appropriations that are beyond immediate control of BOR and thus, may not be appropriate for inclusion in the scope of the intended NEPA process(es). However, BOR could identify how work in the intended NEPA process(es) and the next management framework could complement these necessary parallel efforts so that the management framework addressed in the NEPA process can enjoy broad support.

WTI stands ready to serve as a resource to Tribes, federal and state officials, and other stakeholders in the basin as we all come together to develop the next management framework for the Colorado River System.

Sincerely,

Daryl Vigil and Matthew McKinney
Co-facilitators, Water & Tribes Initiative

P.S.

This letter was prepared with input from the WTI Leadership Team. However, this letter and its contents does not necessarily represent the official position of any one person or the organizations or entities with which the Leadership Team members are associated.

September 1, 2022

Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation, Interior
Submitted via email to CRB-info@usbr.gov

Dear Ms. Carly Jerla,

American Whitewater appreciates the opportunity to provide comments on the pre-scoping for the Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead.

American Whitewater is a national 501(c)(3) non-profit organization with a mission to protect and restore our nation's whitewater resources and enhance opportunities to enjoy them safely. With over 6,000 individual and 100 affiliate club members, American Whitewater represents the interests of over 80,000 river enthusiasts nationally. As conservation-minded whitewater recreationists, we place a high value on protecting naturally functioning river ecosystems, including their fish and wildlife, geomorphic processes, and potential to provide clean and safe drinking water.

American Whitewater is the primary advocate for the preservation and protection of whitewater rivers throughout the United States, and we have members that live and recreate throughout the Colorado River Basin. American Whitewater and our members are invested in ensuring that management of the Colorado River Basin is informed by science and robust public participation, and that the ecological and recreational values of the Colorado River Basin are adequately included in post-2026 operations.

The Bureau of Reclamation has asked for input on strategies that will lead to robust stakeholder participation in the upcoming NEPA process and on major elements for post-2026 operations. The below comments address those two areas directly.

1) Processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin (Basin) partners, stakeholders, and the general public in the anticipated upcoming NEPA process(es).
    a) *Provide adequate time for public participation, beyond the minimum requirements under NEPA.* Western water law and particularly Colorado River Basin management is more nuanced than many other complicated issues that are reviewed through NEPA. Community citizens, NGOs, Tribes, small businesses, farmers, local governments, and many other stakeholders will need more time than usual to digest the NEPA materials on this critical issue. Under 40 CFR § 1501.10(c), the senior agency official may extend the Environmental Impact Statement (EIS) timeline longer than two years under qualifying circumstances. Operations of Lake Powell and Lake Mead qualify for at least 5 of the 7

qualifying circumstances for a EIS timeline longer than two years.[1] These factors include the potential for environmental harm, the size of the proposed action, state of the art analytical techniques, degree of public need for the proposed action, and the number of persons and agencies affected. While operational plans need to be in effect for 2026, the full amount of time between the Notice of Intent (early 2023) and 2026 should be dedicated to development of the Environmental Impact Statement and robust public input.

b) *Produce succinct educational materials that are digestible to the layperson and made accessible to the broader public.* Colorado River management has the potential to significantly impact people across the country and needs to be communicated successfully. While managed and operated by a large body of laws and precedent too vast for most laypeople to digest, this public NEPA process provides an opportunity to explain clearly how different management scenarios could affect their lives and livelihood. The general public who will arguably be impacted the most by management decisions neither have the time nor the expertise to digest thousands of pages of NEPA reports. While these reports are necessary for professionals, partner organizations, scientists, and other stakeholders, condensed materials need to be developed in concert to be shared with the general public. Meaningful summaries, graphics, story maps, and other tools need to be used to help communicate each phase of the NEPA process and to facilitate public participation from a wide range of people.

c) *Ensure targeted outreach to and partnership with a broad range of stakeholders.* In addition to creating resources for the general public, meaningful engagement with a broad range of stakeholders needs to be prioritized. Stakeholders should include federally recognized tribes and non-federally recognized tribes, historically underserved communities, recreation and conservation interests, outdoor recreation businesses, outdoor recreation industry experts, and other organizations. Stakeholders throughout the basin, including upstream from Lake Powell should be included in meaningful engagement. Water deliveries from upstream reservoirs as part of Colorado River Basin management have the potential to greatly impact environmental and river recreational values on numerous rivers and river-dependent communities, including the Green River, Gunnison River, Dolores River, San Juan, Upper Colorado and many others. Meaningful engagement is more than simply allowing for public comment and meeting minimum requirements for publication in the Federal Registrar. Meaningful engagement with impacted stakeholders needs to include additional communications, such as press releases, targeted social media advertising, and other print or digital advertising. All materials including public outreach and messaging should provide translations into Spanish in local communities throughout the Colorado River Basin. Additionally, Reclamation staff should dedicate time to meet with impacted stakeholders throughout

[1] National Environmental Policy Act 40 C.F.R. § 1501.10(c) (2022).

the NEPA process and these opportunities should be made aware to all potential stakeholders.

d) *Apply NEPA regulations to the current pre-scoping phase, including a summary analysis of public comment, and agency response to public comments. All public comments should also be made available for review electronically.* American Whitewater appreciates that Reclamation has taken extra time to conduct the current pre-scoping phase prior to the formal NEPA process and we strongly encourage Reclamation to treat this process as if it were a formal NEPA phase. The information gained from the pre-scoping phase will only be helpful if it is given full consideration and analysis. A full detailed report of the pre-scoping phase should be included in the initiation of the scoping process. The report should include 1) a summary analysis of all pre-scoping public comments, including themes and places of disagreement, 2) agency response to all public comments, including which strategies will be included in the NEPA process or justification for why not, and 3) an electronic library (i.e., reading room) of all original public comments submitted.

2) Potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process(es).
   a) *Analyze a broad range of management options, including dam renovation and implication of other federal water projects.* Water availability in the Colorado River Basin has such great uncertainty, a wide range of approaches and management tools need to be considered in the post-2026 operations. For this reason, the Environmental Impact Statement and included "alternatives" need to be more comprehensive than a typical EIS and must reflect the complexities of the Colorado River Basin. At a minimum, alternatives should include the following:
      i) Reassessment of dam engineering at Lake Powell and identification of feasible options for renovation or removal. A recent report by Utah Rivers Council, Glen Canyon Institute, and Great Basin Water Network highlighted that the archaic engineering of Glen Canyon Dam could not only curtail hydropower, but could limit or completely halt downstream water deliveries to the Lower Basin States.[2] In addition to the inability to meet water delivery obligations, environmental and recreation resources downstream in Grand Canyon National Park would be severely impacted.
      ii) Complete analysis of other federal water projects not currently included in the Colorado River Basin System. Every federal water project that is connected to the Colorado River Basin should be included in basinwide operations planning. According to the 2019 Drought Contingency Plans, Reclamation committed 100,000 acre-feet in water reductions at Lake Mead elevations of 1090' and

[2]Utah Rivers Council, Great Basin Water Network, and Glen Canyon Institute. (2022 August). *Antique Plumbing and Leadership Postponed.* https://static1.squarespace.com/static/5a46b200bff2007bcca6fcf4/t/62e9d5e66e6ec602d2575e30/1659491822127/Antique+Plumbing+at+Glen+Canyon+Dam.pdf

lower.[3] As of July 18, 2022, Lake Mead's elevation was 1041.30' and is continuing to drop.[4] More drastic federal water reductions need to be fully analyzed in the EIS alternatives, including a cost-benefit analysis that addresses a broad range of federal water projects in the Colorado River Basin.

b) *Extensively analyze the environmental and river recreation impacts of each alternative.* Every alternative in the EIS must fully analyze the impacts that changes in streamflow quantity and timing and water quality will have on river recreation and the environment. The scope of these impacts should include the Colorado River and its tributaries where there are proposed changes in streamflow management. Existing studies defining streamflows that support the environment and river recreation in the Basin should be used and additional research should be completed where there are data gaps. American Whitewater and our partners have completed numerous recreational flow studies on segments of the Colorado River and its tributaries, including through Cataract Canyon.[5] American Whitewater can provide Reclamation with previously completed flow studies and in partnership with Reclamation can help meet existing data gaps.

   Additionally, new and existing tools should be used to identify the overlap of environmental and recreational flows. Where there is overlap in flow needs for the environment and recreation, these flows should be prioritized when determining the quantity and timing of downstream water deliveries. Overlapping environmental and recreational flows should be analyzed in each alternative and an overarching objective of each alternative should be to optimize environmental and recreational flows to the extent possible. Reclamation needs to consult directly with scientists, NGOs, river outfitters, and other river recreation and environmental experts, including American Whitewater, to ensure that the latest science and data is used in this analysis.

c) *Tribal water rights and Indigenous Traditional Ecological Knowledge need to be prioritized in all management decisions.* Tribes have some of the most senior water rights on the Colorado River, yet they have been left out of management decisions since those water rights were established. Any proposed water allocations and reductions in post-2026 operations need to fully analyze impacts to both developed and undeveloped Tribal water rights. Many of these Tribes and other Native American communities in the Colorado River Basin have spent millenia living in symbiosis with the Colorado River despite droughts, floods, and other extreme environmental conditions. Their wealth of experience passed down through generations should be sought out and prioritized in the

[3] United States. (2019, May 20). Lower Basin Drought Contingency Plan Agreement. Colorado River Basin Drought Contingency Plans. https://www.usbr.gov/dcp/docs/final/Attachment-B-LB-DCP-Agreement-Final.pdf
[4]https://earthobservatory.nasa.gov/images/150111/lake-mead-keeps-dropping#:~:text=As%20of%20July%2018%2C%202022%2C%20the%20 water%20 elevation%20at%20the,1199.97%20feet%20(341%20meters).
[5] Stafford, E., Fey, N., and Vaske, J. (2016). Quantifying Whitewater Recreation Opportunities in Cataract Canyon of the Colorado River, Utah: Aggregating Acceptable Flows and Hydrologic Data to Identify Boatable Days. *River Research and Applications, 33(1),* 162-169. https://onlinelibrary.wiley.com/doi/abs/10.1002/rra.3049

development of NEPA alternatives. The use of Indigenous Traditional Ecological Knowledge should be used to inform federal decision making as directed by White House Memorandum dated November 15, 2021, *Indigenous Traditional Ecological Knowledge and Federal Decision Making.*[6]

The Colorado River Basin generates over $25 billion from river related outdoor recreation[7] and supports the quality of life of Americans across the country who travel to the Colorado River Basin to recreate. River recreation needs to be a fundamental component of the NEPA analysis and river recreation stakeholders must be meaningfully engaged in the process.

Thank you for considering American Whitewater's above comments and don't hesitate to reach out to us with questions.

Sincerely,

Kestrel Kunz
Associate Stewardship Director
Southern Rockies Program
American Whitewater
kestrel@americanwhitewater.org

Hattie Johnson
Stewardship Director
Southern Rockies Program
American Whitewater
hattie@americanwhitewater.org

[6] The White House. (2021, November 15). Indigenous Traditional Ecological Knowledge and Federal Decision. https://www.whitehouse.gov/wp-content/uploads/2021/11/111521-OSTP-CEQ-ITEK-Memo.pdf
[7] Southwick Associates. (2012). *Economic Contributions of Outdoor Recreation on the Colorado River & Its Tributaries.* Protect the Flows.

SALMON, LEWIS & WELDON, P.L.C.

Attorneys at Law

Riney B. Salmon II (Retired)
John B. Weldon, Jr.
Mark A. McGinnis
Kristin D. Magin
Blake W. Rebling
Michael K. Foy
Katrina L. Wilkinson

2850 E. Camelback Road, Suite 200
Phoenix, Arizona 85016
Telephone 602-801-9060
Facsimile 602-801-9070

M. Byron Lewis
Lisa M. McKnight
James R. Huntwork
Douglas J. Kunath
Daniel B. Jones
Hannah M. Buchanan

Of Counsel
Paul R. Orme, P.C.
G. Van Velsor Wolf Jr.
George J. Coleman, III

Writer's Direct Line
602-801-9083
Writer's Internet Address
dbj@slwplc.com

September 1, 2022

The Honorable Debra Haaland, Secretary of the Interior
Department of the Interior
1849 C Street, NW
Washington, DC 20240

The Honorable Tanya Trujillo, Assistant Secretary for Water and Science
Department of the Interior
1849 C Street, NW
Washington, DC 20240

The Honorable Camille Calimlim Touton, Commissioner
Bureau of Reclamation
1849 C Street, NW
Washington, DC 20240

Re: Post-2026 Colorado River Operational Strategies, 87 FR 37884

Dear Secretary Haaland, Assistant Secretary Trujillo, and Commissioner Touton:

We are writing on behalf of Central Arizona Irrigation and Drainage District ("CAIDD"), Maricopa-Stanfield Irrigation & Drainage District ("MSIDD"), New Magma Irrigation and Drainage District ("NMIDD"), Queen Creek Irrigation District ("QCID"), and San Carlos Irrigation and Drainage District ("SCIDD") (collectively "Districts") regarding the Bureau of Reclamation's ("Reclamation") request for input on the development of post-2026 Colorado River operational strategies under Federal Register Notice 87 FR 37884.

The Districts are responsible for managing and delivering irrigation water supplies for agriculture on more than 260,000 acres located in central Arizona. The Districts historically have relied on Central Arizona Project ("CAP") water to meet irrigation needs. In connection with the Arizona Water Settlements Act of 2004 and underlying settlement agreements, the Districts relinquished long-term subcontracts and allocations of CAP Non-Indian Agricultural ("NIA") Priority water to help facilitate Indian water rights settlements and resolve CAP repayment issues. In exchange, the Districts received construction debt relief and a dedicated pool of CAP water to be delivered at the cost of pumping energy only through 2030 ("Ag Pool"). The dedicated Ag Pool was key for the Districts' willingness to participate in the settlement of CAP repayment disputes and Indian water rights claims, and it has helped sustain agricultural production that remains a cornerstone of the regional economy.

The Ag Pool is a category of "Excess Water" as defined by the CAP Repayment Stipulation established exclusively for agricultural subcontractors such as the Districts. As a subcategory of Excess Water, the Ag Pool is among the first CAP supplies to suffer shortage under the 2007 Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead ("2007 Guidelines") and Lower Basin Drought Contingency Plan ("DCP"). With the water delivery reductions borne by Arizona under the 2007 Guidelines and DCP, no Ag Pool water is available whatsoever starting at a Tier 1 shortage.

To partially mitigate the harm to central Arizona agriculture resulting from the abrupt elimination of the entire Ag Pool, the Districts were granted access to substitute supplies amounting to approximately one-third of the normal Ag Pool through 2022, and funding intended to expedite the Districts' ability to construct infrastructure to produce a total of 70,000 acre-feet of groundwater starting in 2023. The 70,000 acre-feet of groundwater that the Districts hope to produce is merely a fraction of the annual Ag Pool supply that otherwise would be available through 2030, however.

At the time the Districts agreed to relinquish their NIA allocations, neither the 2007 Guidelines nor DCP shortage tiers existed. Likewise, Excess Water was expected to remain available through 2030 in quantities large enough to provide a buffer protecting the Ag Pool from potential Colorado River shortages. Thus, notwithstanding the Ag Pool's lower priority, the Districts reasonably expected to receive their Ag Pool water each year through 2030 and could not have anticipated the level and persistence of the shortage risk that they now face under the 2007 Guidelines and DCP.

The Districts recognize that the Colorado River Basin faces a real crisis requiring immediate water use reductions to protect the Colorado River system. Nevertheless, during the term of the next set of guidelines that will govern operations after 2026, it is fair to anticipate better conditions at least some of the time. Under the framework established by the 2007 Guidelines and DCP, projecting water elevations mere inches above or below a designated elevation triggers dramatic changes in available water supplies. Simply extending that existing model beyond 2026 to provide for larger reductions to Arizona's water supply starting at higher water elevations could all but ensure that the Districts never have access to Ag Pool water through 2030 or Excess Water in future years. CAP water is a critical resource for agriculture in the Districts, even in quantities less than the Districts have received historically. Adopting operational guidelines that effectively deem CAP agricultural uses as expendable under nearly all conditions would be untenable.

The total loss of CAP water that the Districts currently face will result in significant fallowing and will put the viability of central Arizona's agricultural economy under serious strain. Whether through the Ag Pool or a future program, CAP water can be made available in amounts too small to have an appreciable impact on the Colorado River system, yet sufficient to meaningfully support agricultural production in the Districts. The Districts urge Reclamation to consider expectations and needs regarding the Ag Pool, as well as sustainable amounts that could be delivered by CAP for irrigation uses at higher lake elevations if and when the system recovers from the current emergency.

The Districts appreciate the opportunity to provide input on Reclamation's post-2026 Colorado River operational strategies. Please do not hesitate to contact us if you have any questions.

Very truly yours,

Salmon, Lewis & Weldon, P.L.C.

By

Daniel B. Jones
Paul R. Orme

cc: Senator Kyrsten Sinema
Senator Mark Kelly
Speaker Rusty Bowers
Representative Gail Griffin
Senator Sine Kerr
Director Tom Buschatzke, ADWR
General Manager Ted Cooke, CAWCD

COLORADO RIVER COMMISSION
OF NEVADA

September 1, 2022

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 Colorado River Commission of Nevada (CRCNV) respectfully submits these comments in response to the Bureau of Reclamation's ("Reclamation") Request for Input on 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). Please consider these comments for development of the Post-2026 Operations process.

With respect to Reclamation's request for input on (1) processes that can be employed to encourage and facilitate meaningful participation of Colorado River Basin partners, stakeholders, and the public in the upcoming National Environmental Policy Act (NEPA) process and (2) potential substantive elements and strategies for Post-2026 Operations to consider in the anticipated upcoming NEPA process, the CRCNV offers the following comments.

PARTICIPATION PROCESSES

The CRCNV is the state agency responsible for protecting Nevada's annual 300,000 acre-feet allocation from the Colorado River. Southern Nevada relies on the Colorado River for ninety percent of its drinking water. Additionally, CRCNV's customers rely on the CRCNV's hydroelectric power allocation from the Colorado River Storage Project, Boulder Canyon Project, and the Parker-Davis Projects. The hydropower generated from these projects supports the communities' energy demand in southern Nevada, energy delivery for water pumping and wastewater treatment, and energy for

555 E. Washington Avenue, Suite 3100, Las Vegas, Nevada 89101-1065
Phone: (702) 486-2670
Fax: (702) 486-2695
http://crc.nv.gov

industrial manufacturing for critical elements for the industrial economy and national defense.

The CRCNV is one of the primary state representatives and beneficiaries in the long history of the development of the Law of the River and has been a party to the vast number of collaborative efforts and operational negotiations over the last century. It is important and necessary that the Secretary of the Interior continue to consult and collaborate with the Basin State principals, including the CRCNV, in the development of this NEPA process for post 2026 operational guidelines. The CRCNV anticipates, along with the other Basin States, it will develop an alternative for Reclamation to consider during this NEPA process consistent with the Basin States effort in the 2007 Interim Guidelines' NEPA process.

The CRCNV also recognizes that for the outcome of this NEPA process to be successful, the process must be inclusive of the wide spectrum of stakeholder interest. The process should include direct collaboration with the Tribes, whose interest in the river is significant, and engagement with interested Non-Profit Groups as well as other water users and stakeholders. Any sustainable future mandates this wide spectrum of participation and engagement. The CRCNV agrees with the Governors' representatives that any unresolved Tribal water rights should be addressed through different, parallel paths.

The CRCNV shares the desire with the other Basin States to continue to collaborate directly with Mexico in future Minute negotiations. It is imperative, given the dire state of the river under the persistent megadrought, that Mexico continue to share with the United States in the effort to ensure a sustainable river system capable of supporting both countries' needs into the future.

SUBSTANTIVE ELEMENTS AND STRATEGIES

Despite the concerted effort of addressing and responding to the ensuing drought through the development of the Interim Guidelines and the Drought Contingency Plan, the river system continues to decline in a dangerous and alarming downward trajectory. Increasing temperatures in the basin must be considered and addressed in planning for the next series of operational rules, as well as the lessons learned from these previous operational guidelines. Accordingly, considerations must include hydrological data with an emphasis on climate scenarios with increasing temperature, particularly given the serious impacts of the warming trend over the last 20 years on our water and hydropower resources.

The CRCNV agrees with the Governors' representatives that balancing consumptive uses and depletions with available supply is critical for the future post-2026 management of the river. The CRCNV looks forward to meaningful discussions in developing sustainable post-2026 operational guidelines through this NEPA process with the federal parties, Basin States, and other stakeholders. Thank you for the opportunity to provide these comments.

Sincerely,

Eric Witkoski
Executive Director

Sara Price
Senior Assistant Director

SCOTTSDALE WATER

9379 E San Salvador Drive
Scottsdale, AZ 85258

Phone: 480-312-5685
ScottsdaleAZ.gov/Water

September 1, 2022

The Honorable Tanya Trujillo
Assistant Secretary, Water & Science
U.S. Department of the Interior
Washington, D.C. 20240

Via email to CRB-info@usbr.gov

Re: 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 Assistant Secretary Trujillo,

The City of Scottsdale appreciates the opportunity to comment on the Post-2026 Colorado River operations and is submitting this letter to support and reiterate the comments made by the Arizona Municipal Water Users Association (AWMUA), of which we are a member.

The City of Scottdale holds multiple entitlements and leases for Colorado River water delivery through the Central Arizona Project (CAP) system. The Colorado River is a critical water supply for residents, businesses, and our economy. Colorado River makes up approximately 70% of our annual water deliveries. While the city has been investing in infrastructure projects, additional supplies, and a strong conversation program to build resiliency, uncertainty in the future of the Colorado River is beyond problematic.

The Central Arizona Project was approved with the caveat of a strong governance program around groundwater management. Over the last four decades we have made every effort and invested in hundreds of millions of dollars to reduce our groundwater use to the bare minimum, while utilizing reclaimed water to 100% beneficial use. We have invested millions of dollars in decades worth of conservation programs. Responsibly using our water resources is a part of our desert city. This is why it's disheartening and frustrating that the Federal Government has yet to act, has yet to address what the future of the west needs. Scottsdale asks for Reclamation's serious consideration of the responses submitted by AMWUA to Reclamation's request for feedback in the Notice as summarized below.

"These dismal circumstances have worsened in recent years as reflected in Reclamation Commissioner Touton's June 14, 2022 remarks which emphasized that emergency actions are necessary to prevent extraordinary risks and the decline of Lakes Mead and Powell to critical elevations. This degree of uncertainty is unacceptable to municipal water providers who rely on Colorado River supplies to serve their residents and support the major population centers of the American West. Cities cannot fallow neighborhoods. Municipalities must make decisions that impact millions of residents and key industries, and those decisions require stability and

SCOTTSDALE WATER

9379 E San Salvador Drive
Scottsdale, AZ 85258

Phone: 480-312-5685
ScottsdaleAZ.gov/Water

predictability of how much water will be available into the future." We ask that the following points be address in the Post-2026 Operations:

- Post-2026 Operations should focus on Increased Clarity and reliability for water users – Municipal water providers need increased clarity from Post-2026 Operations on water supply availability across a broad range of hydrologic scenarios. The system should be managed for increased reliability (instead of maximizing diversions and releases), to provide more stability for water users reliant on Colorado River supplies.
- The Post-2026 Operations should seek to address the Lower Basin structural deficit. This should also include defined reservoir operations at lower elevations as well as more notice regarding supply availability in upcoming years.
- Continue to Incorporate climate change impacts in Reclamation's modeling and Decision-making tools. Reclamation's modeling tools and processes must be updated to incorporate the best available climate science, and to remove biases from past, wetter hydrology. Estimates of what constitutes a "normal" supply need to be consistent with the new reality of the aridification in the Colorado River Basin.
- Post-2026 Operations should provide flexibility for Shortage Mitigation. In light of decreased Colorado River supply availability, the Post-2026 Operations should continue to add flexibility for water management and facilitate shortage mitigation strategies such as augmentation, exchanges, and conservation.
- Establish a Basin-wide "Municipal Sector" committee to facilitate meaningful Input and engagement from municipal water providers– The upcoming NEPA process(es) and the Post-2026 guidelines would benefit from the creation of a Basin-wide Municipal Sector Committee. This Committee should be in addition to Reclamation's consultation with the Governor's representatives from each Basin State.

Sincerely,

Gretchen A. Baumgardner

Water Policy Manager | City of Scottsdale

September 1, 2022

Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation

Via email: CRB-info@usbr.gov

RE: 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 Pacific Institute submits these comments in response to the above-referenced notice published in the June 24, 2022, Federal Register. The Institute has been actively engaged in the development of Colorado River policies and strategies for almost 25 years, participated in the development of alternative surplus and shortage guidelines for the river and the 2012 Basin Study, and has published many reports and articles on the sustainable use of Colorado River water. We focus our comments on potential substantive elements and strategies for Colorado River operations to address low-reservoir conditions in the Basin.

Despite the extraordinary conservation and cooperation of Colorado River water users and stakeholders over the past 15 years and the nearly three million acre-feet (MAF) of "Intentionally Created Surplus" (ICS) water stored in Lake Mead, Colorado River system storage continues to plummet. The August 24-month "minimum probable inflow" study projects the elevation of Lake Powell to drop below the minimum power pool elevation by the end of next year, requiring bypass flow releases that could damage pipes not designed for that purpose and threatening the water supply for Page, Arizona and the LeChee Chapter of the Navajo Reservation. Under this minimum probable scenario (based on the past 30 years of Colorado River flows, including the wetter pre-drought 1990s), the elevation of Lake Mead falls every month, dropping almost 50 feet over the next two years. Without significant and meaningful additional water reductions next year, continuing aridification of the basin means that the reality could be even worse than Reclamation's projections.

Time is of the Essence

The Colorado River system lost almost 5.5 MAF of storage in 2021. As of August 28, total system storage was below 20 MAF. Simple math suggests that we cannot wait until 2026 for new operational guidelines. Reclamation must act quickly and decisively to avert the impending crisis. We commend the Commissioner's June 14 call for an additional two to four MAF of water use reductions *next year* and thank her for the initial "administrative actions" announced on August 16. In light of the critical reservoir conditions projected by the most recent 24-month study and the still unmet need to reduce Colorado River water use by an additional two to four MAF, we urge Reclamation to consider our

recommendations, as well as the recommendations and suggestions others submit in response to Reclamation's "Request for Input," for implementation as soon as possible and not wait until 2026. Given the serious, near-term threats declining system storage poses to Colorado River users, we also urge Reclamation to broaden the scope of the proposed action beyond "Colorado River Reservoir Operational Strategies" to include the full spectrum of potential local, state, and federal actions that could decrease Colorado River use (assuming that federal funds could help support local and state actions).

Recommended Actions

We urge Reclamation to incorporate the following substantive elements and strategies for Colorado River operations to address low-reservoir conditions in the Basin as quickly as possible. We recognize that most of these will require additional rulemaking and agreement from the basin states and urge Reclamation to initiate such rulemaking procedures promptly.

- Support state and local water agency efforts to decarbonize their own operations;
- Allocate evaporation from Lower Basin reservoirs to Lower Basin contractors at a rate proportional to their water use;
- Accelerate canal lining projects;
- Fully mitigate environmental and public health impacts of water use reductions;
- Pursue alternatives to drought profiteering;
- Eliminate ICS/DCP ICS storage limits;
- Expand ICS/DCP ICS eligibility; and
- Explore opportunities for private investment in water use reductions.

Decarbonize Operations

During the continuing 23-year drought, Colorado River runoff has been almost 20% lower than it was last century – a loss of about 2.5 MAF annually. Udall and Overpeck, among others, estimate that a third or more of this loss can be attributed to anthropogenic climate change. Yet, discussions about appropriate elements and strategies to address low-reservoir conditions in the Basin ignore the carbon emissions driving aridification. Reclamation should work with other federal agencies to leverage funding available under the Inflation Reduction Act and other sources to support state and local water agency efforts to reduce energy use and decarbonize their own operations. This is especially critical as declining reservoir elevations depress hydropower generation, requiring some water users to purchase fossil fuel-generated electricity to power the pumps conveying Colorado River water to their service areas, as well as to treat and convey water within their service areas.

Reclamation and other federal agencies should do more to support efforts to recapture energy embedded in wastewater and help the water sector become an energy producer. For example, the East Bay Municipal Utility District's wastewater treatment facility in Oakland is now a net energy producer. The facility accepts food waste and fully offsets the energy required for wastewater treatment and for recycling water. Such energy recapture is becoming increasingly common in other parts of the world; federal support can accelerate its adoption in the Basin.

In addition to supporting agency efforts to decarbonize their energy sources for treatment and conveyance, Reclamation should support efforts to decarbonize local and state water agency fleets,

improve energy efficiency in their buildings, and promote end-use municipal water reductions for energy savings - including indoor use, even if indoor return flow credits would otherwise diminish the agency's consumptive use. Reclamation should also lead by example and accelerate its own efforts to implement the President's December 8, 2021, Executive Order, expediting the acquisition of zero-emission vehicles and reducing building emissions by at least 50 percent by 2026 in Regions 7 and 8.

Allocate Lower Basin Reservoir Evaporation

In 2020, the estimated main stem reservoir evaporation allocated to the Upper Basin as a whole was about 0.45 MAF, with an additional 0.24 MAF allocated to individual Upper Division states. In 2021, Lake Mead lost about 0.51 MAF to evaporation (and about 0.54 MAF in 2020), while Lake Mohave and Lake Havasu lost an additional 0.3 MAF, but these losses were borne by the system as a whole and not by the Lower Basin or individual states. This glaring difference between Upper and Lower Basin accounting hinders partnership and cooperation. Allocating evaporation from Lower Basin reservoirs to Lower Basin contractors at a rate proportional to their water use would address this inequity and would reduce total water use by roughly 0.8 MAF annually (at current reservoir elevations). We commend the Commissioner's August 16 announcement that notes a likely federal rulemaking to "address evaporation, seepage and other system losses in the Lower Basin." Agreement among the seven basin states to allocate Lower Basin reservoir evaporation should also include an Upper Division States agreement to limit their consumptive use (in years in which Lake Mead's elevation is projected to be below elevation 1,075 feet on January 1) to the volume reported for 2021, complementing the Upper Division States' July 18 5 Point Plan.

Reclamation could waive Lower Basin reservoir evaporation allocations when total Colorado River system storage is projected to exceed 60% on January 1 and decrease such allocations by 67% and 33% at the 55% and 50% capacity projections, respectively. To reduce the impact of such allocations on contractors, Reclamation should embark on an aggressive, large-scale program to line Lower Basin canals (see below). Protests about the potential impairment of the beneficial use of present perfected rights might be avoided by Interior's proposed prioritization and preparation "for additional administrative initiatives that would ensure maximum efficient and beneficial use of urban and agricultural water." Reconciling contractors' reliance on existing federal infrastructure and management for timely water deliveries in exchange for Lower Basin reservoir evaporation allocations could prove less objectionable and more conducive to long-term system stability than efforts to redefine and monitor efficient and beneficial use of practices such as filling residential swimming pools, watering non-functional turf, or irrigating forage crops for export.

Accelerate Canal Lining Projects

Canal lining and similar water efficiency projects can yield large volumes of water while minimizing or avoiding direct impacts to individual contractors (though, as noted below, such projects can generate significant adverse third-party impacts). For example, a former irrigation district general manager noted that lining the East Highline Canal in Imperial Valley could conserve on the order of 0.1 MAF per year. If Reclamation has not already done so, it should compile an inventory of major unlined conveyances in the Basin and volumes that could be conserved by upgrading this infrastructure. Reclamation should then invest directly in such projects – meeting federal goals to generate system water – or allow other contractors to create extraordinary conservation DCP ICS by investing in such projects.

Fully Mitigate Impacts of Water Use Reductions

Communities and ecosystems should not suffer additional harms in the interests of protecting system storage. Reclamation must fully mitigate the environmental and community impacts of water use reductions. Existing recovery programs, such as the Lower Colorado River MSCP, should be reviewed and likely expanded to ensure that diminished flows do not compromise species and habitat targets. Reclamation and other federal agencies should also commit to the long-term protection of other ecosystems, such as the Salton Sea and the remnant Colorado River delta, that will suffer as contractors reduce their water use to protect Colorado River system storage.

For example, Reclamation and other agencies at the Department of the Interior should increase their support for projects to protect public and environmental health in the Salton Sea region, including the State of California's Salton Sea Management Program (SSMP). This should include:

- Funding for the capital and long-term operations & maintenance costs of new habitat and dust suppression projects atop lakebed exposed due to extraordinary water conservation efforts in the region in response to the Commissioner's June 14 statement;
- Funding for new habitat and dust suppression projects atop the thousands of acres of federal lands currently exposed below the Sea's 2003 shoreline;
- Expedite federal action on land access and permitting for Salton Sea projects;
- Technical support from MSCP staff on SSMP habitat design and construction;
- Scientific support, in the form of a new, fully staffed USGS Salton Sea Science Office to coordinate ongoing and new research and manage air quality, biodiversity, and water quality monitoring;
- Transfer ownership of the former U.S. Naval test base to the state or county, for a SSMP headquarters and a research and visitor center;
- Federal funding support for at-risk and failing community water systems in the Imperial and eastern Coachella valleys;
- Potable water for the Torres-Martinez reservation; and
- Air filters for schools, public health clinics, libraries, and community centers in the Imperial and eastern Coachella valleys.

The Department of the Interior should memorialize the above commitments in a new MOU with California's Natural Resources Agency, to update the 2016/2017 state and federal Salton Sea MOU.

When utilities are faced with financing additional water infrastructure and water supplies, they typically pass down those costs to their consumers. As a result, communities may face problems with their access to safe, reliable, and affordable water bills. Federal funding for utility-level conservation, efficiency, and affordability programs will help low-income and disadvantaged communities maintain access to affordable water, while also ensuring affordable and sustainable water supplies for the community at large.

Drought Profiteering

The Paycheck Protection Program demonstrated that federal efforts to mitigate a crisis will incur some abuse. As others have noted, drought profiteering proposals do not promote cooperation. In reviewing proposals for temporary, compensated water use reductions, Reclamation should cap annual payments

for water in the context of the market price for land in the area. In some cases, it may be more cost effective for Reclamation to simply purchase available land in the area – or offer to purchase land in the area – than to pay exorbitant rates for temporary fallowing. Purchased land could be dedicated to local community uses and habitat mitigation.

Eliminate ICS/DCP ICS Storage Limits

Reclamation should eliminate the existing limits on the total quantity of Extraordinary Conservation ICS and DCP ICS that may be accumulated in ICS and DCP ICS accounts, while maintaining existing limits on delivery of such water.

Expand ICS/DCP ICS Eligibility

Dire conditions in the basin compel us to move beyond intra-state disputes and use every tool available to protect critical reservoir elevations. Reclamation should expand the pool of parties eligible to create ICS beyond existing Colorado River contractors to include water agencies and other entities with existing agreements to use Colorado River water, such as retail water agencies or sub-wholesale agencies. In instances where such entities are not able to reach an agreement to create a sub-account under that of the Colorado River contractor from which they currently purchase water, Reclamation should create such a sub-account directly, following existing rules for ICS/DCP ICS creation, review, and approval. One such water user has expressed an interest in storing 0.05 MAF annually in Lake Mead; presumably, other water users would also participate, benefitting the system as a whole.

Reclamation should also expand ICS/DCP ICS eligibility to enable participation from municipal water agencies for extraordinary conservation efforts, such as turf replacement and fixture retrofits, in their own service areas and investments in other municipalities' water conservation projects. Wealthier communities could then invest in conservation and efficiency projects in less wealthy communities, benefitting both. Reclamation should also explore methods to account for permanent and temporary regulatory actions, such as prohibitions on non-functional turf and emergency water conservation ordinances and declarations. Accounting for such pro-active measures with DCP ICS credits could incentivize water agencies to implement such measures more quickly, reducing demand.

Support Corporate Water Stewardship

Adjusting Basin water use to current and future supply requires an "all-of-the-above" approach, where each sector contributes toward a solution. Leading corporations using Colorado River water are acknowledging and responding to water stress in the Basin. They are engaging in water stewardship activities primarily by funding water replenishment projects. There is great potential to increase the impact of the corporate sector on reducing and replenishing basin-wide water use. Corporations need support from public and NGO actors to help improve water management in corporate facilities and help improve water management in corporate supply chains (especially for supply chains that involve agriculture). Supporting leading corporations in their existing and forthcoming water stewardship efforts can further educate customers, shareholders, and other corporations, which can precipitate large scale behavior changes in water use. Greater alignment between private, public, and philanthropic actors will help drive innovation, scale good practice, and increase corporate investments and engagement, reducing Colorado River water use.

Potential Reductions in Water Use

Lower Basin contractors and water users in Mexico have dramatically reduced their reliance on the Colorado River in recent years. Without these extraordinary efforts – and the domestic and international agreements that made them possible – Colorado River system storage would be millions of acre-feet lower and Reclamation would have already had to take unilateral action, likely leading to years of litigation, paralysis, and little hope for a solution. Yet these extraordinary efforts have not been sufficient to keep pace with the continuing aridification of the basin and the very real threat that reservoir elevations will continue to decline.

Reclamation must act quickly to implement the substantive elements and strategies described above. These elements and strategies would likely need to move forward as a package, to achieve the consensus necessary for implementation. A holistic approach will be needed to overcome opposition from different sectors and different geographies, demonstrating that each is contributing to the stability of the system and improving predictability and reliability.

The following table estimates existing and potential additional reductions to protect reservoir elevations. Actions and rules in black currently exist (2022 Lower Basin contributions are 0.533 MAF, plus 0.08 MAF from Mexico; provisional reports indicate that Upper Basin use in 2021 was 0.5 MAF lower than it was in 2020); *actions in blue* are potential additional reductions, some described above and some that could be generated (at least in part) by the actions recommended above.

Annual Action	**Volume (MAF)**
Assign reservoir evaporation	*0.8*
LB shortage + DCP	1.1
MEX shortage + DCP	0.275
UB reductions (in 2021)	0.5
Additional AZ+CA	*0.6*
Additional Mexico	*0.225*
Annual Total	**3.5**

These potential additional reductions illustrate the magnitude of additional actions and effort required to bring basin water use in line with recent runoff. Total reductions in Mexico shown above are roughly proportional to those in the Lower Basin; we recognize that discussions about Mexico's additional contributions are beyond Reclamation's authority and include them for illustration only.

We urge Reclamation to act quickly and initiate the additional rulemaking necessary to implement the elements and strategies we and others have recommended to address the immediate and worsening conditions in the Colorado River Basin. Thank you for your consideration of these comments.

Sincerely,

Michael Cohen
Senior Associate
mcohen@pacinst.org

AK-CHIN INDIAN COMMUNITY

Community Government

42507 W. Peters & Nall Road • Maricopa, Arizona 85138 • Telephone: (520) 568-1000 • Fax: (520) 568-1001

September 1, 2022

Tanya Trujillo
Assistant Secretary for Water and Science
U.S. Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

Dear Assistant Secretary Trujillo:

I write on behalf of the Ak-Chin Indian Community in response to the June 24, 2022, Federal Register notice *Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead under Historically Low Reservoir Conditions*, 87 F.R. 37884, as well as in response to correspondence that Ak-Chin received in late July from the Bureau of Reclamation's Jacklynn Gould and Wayne Pullan.

To begin, Ak-Chin commends the United States for taking important, early steps to obtain input from potentially affected Tribes and other stakeholders prior to beginning the NEPA process and for its commitment in recent correspondence engage in "open and honest" communications and government-to-government consultation with Tribes such as Ak-Chin and to "directly engage the Tribes and consult on processes that have a direct impact on Basin Tribes' water rights and other resources." These commitments are consistent with and show an appropriate recognition of the United States' trust responsibility and tribal sovereign interests, and Ak-Chin hopes that they will be fully implemented in the form of regular communication as governmental stakeholders develop post-2026 Colorado River operating guidelines and respond to other, pressing issues regarding management of this vital resource. As you know, it is critically important that these communications take place as policies are being developed and decisions are being considered rather than to "check a box" for Tribal consultation after a decision has already effectively been made.

While vital, Tribal engagement and consultation are not themselves a substitute for the United States' basic obligation to fully protect the water rights of Ak-Chin and other Basin Tribes. For Ak-Chin, this obligation includes ensuring that the Community receives both the full quantity and quality of water that it is entitled to receive under its 1984 Settlement Act and its 1985 Water Delivery Contract with the Bureau. As you are likely aware, Ak-Chin makes full use of its Colorado River/CAP water right for a variety of purposes, including as the sole source of potable water for Community members and to support the operation of Ak-Chin Farms, the economic engine that lifted the Community from poverty and continues to serve as one of its primary sources of revenue. While Ak-Chin recognizes the challenges posed by climate change and ongoing drought conditions, it nevertheless expects and demands that its trustee honor its obligations to the Community going forward.

In closing, I repeat my hope that the United States will fully implement its commitment to engage in pre-decisional, government-to-government consultation with Ak-Chin and other Basin Tribes as it works to develop post-2026 Colorado River operating guidelines and to identify and implement interim conservation measures. It is vital that the federal government both hear from Tribes and provide them with information and assistance necessary to understand and evaluate any proposals that will affect tribal rights and interests will in advance of such proposals being adopted.

I appreciate your solicitation and consideration of input from Ak-Chin and look forward to working with the United States to ensure the development and implementation of management policies and procedures that meet the conservation needs of the Basin while remaining protective of Tribal rights and interests.

Sincerely,

Diana Carlyle
COUNCIL MEMBER

for Robert Miguel
Chairman, Ak-Chin Indian Community

September 1, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager, Bureau of Reclamation

CRB-info@usbr.gov

Re: Joint Response of Upper Basin Dialogue Participants to the Bureau of Reclamation's "*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 six Upper Basin Tribes and ten conservation groups with expressly shared interests in the Upper Colorado River Basin have formed a group referred to as the Upper Basin Dialogue ("UBD"). The UBD facilitates sharing of information and resources to help pursue common goals related to water rights and resources in the Upper Colorado River Basin. As part of that effort, we, the undersigned, which comprise a majority of UBD members, have prepared this joint response to the Bureau of Reclamation's (Bureau) "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions" (a/k/a Pre-Scoping Notice) as published in Federal Register Notice – 87 FR 37884 on June 24, 2022.

First, we would like to thank the Bureau for acknowledging the serious problem we all face. As we develop river policy that will govern in years to come, it is imperative that we acknowledge that the river has never had the volume originally apportioned under the 1922 Colorado River Compact, that the current volume is declining rapidly, and that we may never return to the flows that we have been accustomed to experiencing in previous decades. While the Colorado River community as a whole has to learn to live with less, Tribes must also be allowed to develop their Indian reserved rights to water to provide clean drinking water, adequate sanitation and economic development, as has been historically prioritized to the rest of the Basin community.

We also want to thank the Bureau for recognizing the importance of active and meaningful involvement by all sovereigns—including the 30 Colorado River Basin tribes and Mexico—in developing and implementing river management policy from the outset of the development of the Post-2026 Colorado River operational strategies. Basin Tribes hold water rights to millions of acre-feet of Colorado River water (including unresolved claims and senior (or high) priority, reserved rights). Climate change will continue to diminish overall runoff amounts and likely impact lower priority water uses. Given this volume of tribal water, it is imperative tribes be involved in crafting workable solutions, and it is time to correct the historical wrong of tribal exclusion. Indeed, we will need to bring all expertise and interests to bear to meet the challenges we face going forward.

The Pre-Scoping Notice seeks input and recommendations to consider as the Bureau initiates a NEPA process for the next set of Colorado River operating strategies. The Notice recognizes that "circumstances have changed" in the Colorado River Basin since adoption of the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead. Entities relying on the Colorado River face increased individual and collective risk of water supply interruptions that will inevitably impact society, economies, and the environment in the southwestern United States. As such, the Bureau is seeking to develop an updated management framework through an inclusive and transparent process that will allow states, Tribes, and other Basin partners to explore operational strategies under highly variable and uncertain conditions and to address near-term challenges with an eye toward garnering broad-based support.

The Bureau's Notice clarifies that the pre-scoping effort does not replace the formal NEPA process that is anticipated to begin in early 2023. Formal scoping comments will be solicited when the NEPA process starts, but this pre-scoping effort can help frame the development of the NEPA process both procedurally and substantively. It is with these understandings that the undersigned participants outline the following guiding principles and shared priorities that will be important to the development of the next management framework for the Colorado River Basin. Detailed proposals and recommendations specific to each undersigned's interests will be provided at appropriate times throughout the formal NEPA process.

Guiding Principles for Future Colorado River Strategies and Operations

1. *Integrity*: An overarching goal of any management framework involving the Colorado River Basin should be to help ensure the overall integrity of the Colorado River and its tributaries while providing water for Tribal homelands and other human and natural uses.

2. *Ethic toward Resilience*: The future of the Colorado River and its tributaries depends on whether the Basin can adapt and adjust to the hotter, drier conditions confronting the Basin. To be successful, future management strategies and operations will have to incorporate an ethic of resilience that focuses on helping establish the sustainable use of

the Colorado River and its tributaries for people and the natural environment for years to come.

3. *Managing Beyond Crisis Mode*: The next management framework must move beyond managing from crisis to crisis. To provide greater water security for people, communities and the environment, management operations must be nimble enough to anticipate the possible extremes in both hydrology and reservoir storage and implement planned actions that are known and expected to respond in kind.

Key Themes and Priorities for Colorado River Strategies and Operations

1. *NEPA Process Considerations*: The Pre-Scoping Notice identifies that the Bureau intends to design and implement the next Colorado River management framework using "a stakeholder process that is inclusive, transparent, and encourages meaningful engagement." While we are encouraged by this and other expressed references to inclusivity, consultation and outreach provided in the Notice, the NEPA process related to the future Colorado River management framework should, among other things:

    a. Substantively honor the sovereignty of Tribal nations and the unique nature of Indian reserved water rights as mentioned in the Pre-Scoping Notice by identifying and implementing tribal consultation processes that are commensurate with the federal government's trust responsibility for Basin Tribes. Such processes should build upon the recent efforts to improve the sharing of information to invite tribes to participate in federal and state government negotiations and/or concurrently provide forums whereby questions, recommendations and input from tribal nations will be meaningfully considered, integrated, and responded to as part of the overall decision-making processes for Colorado River strategies going forward;

    b. Provide opportunity for development and consideration of the diverse range of contemporary needs, interests, and priorities in the NEPA analyses;

    c. Specify the opportunities and timeframes to inform and consider the input from tribes, Basin partners and stakeholders with a demonstrated commitment and willingness to problem solve Colorado River challenges with state and federal agencies in a comprehensive manner; and

    d. Recognize and incorporate the known fact that useful engagement of tribes, other Basin partners and stakeholders only has meaning to the extent it can be conducted at useful intervals to provide a reasonable opportunity for gaining an understanding, having dialogue, and ultimately providing iterative feedback for consideration in building the future management framework before it is fully finalized.

2. *NEPA Analysis Considerations*: The Pre-Scoping Notice explains the need to consider future operations and management strategies under conditions of deep uncertainty and best available science. To further the substantive development of the next Colorado River management framework, the NEPA process should also:

    a. *Perform a comprehensive analysis*: As the Pre-Scoping Notice identifies, current operations under changed circumstances have produced adverse impacts to society, the environment, and the economy. All indications are that hydrology is not likely to improve anytime soon. The next Colorado River management framework cannot simply focus on short-term efforts to stabilize the system. It must also help to promote the long-term sustainability of the Basin's people and natural environment. To achieve this outcome, the NEPA process must comprehensively identify, assess, and address alternative management paradigms and the possible impacts not only to the plumbing of the Colorado River system but also to the critical social, cultural, and environmental resources in both the Upper and Lower Basins that serve as a foundation for the Basin's integrity overall. This must include the impact on tribal trust assets and communities placed on confined reservations after ceding millions of acres of indigenous lands to the United States.

    b. *Work to complement essential parallel efforts*: We recognize the next Colorado River management framework may not encompass every issue plaguing the Basin. Future management strategies and operations, therefore, must be sufficiently complementary to parallel efforts that remain essential to achieving the Basin's integrity and long-term sustainability. Such parallel efforts include, but may not be limited to:
        i. Securing reliable access to clean drinking water and adequate sanitation for all Tribal members and other Colorado River Basin residents;
        ii. Reaching agreement with Mexico on use of Colorado River resources after expiration of Minute 323; and
        iii. Building on the opportunities provided by the Infrastructure Investment and Jobs Act, Inflation Reduction Act and other funding opportunities that will allow us to build the efficiency and conservation mechanisms needed to enable the Colorado River Community adapt to ongoing conditions in the Colorado River Basin.

    Because these and similar efforts are of such great importance to the health of the Basin, our support for a future Colorado River management framework will be measured in part by how they work in concert and avoid conflict with these and other related efforts aimed at promoting greater certainty, building more resilient communities, ecosystems, and economies, and reducing potential conflict over water management decisions going forward.

c. *Allow for greater flexibility*: A key element of the next Colorado River management framework must also be flexibility—the framework must be able to quickly adjust to and account for changing conditions without requiring complete system overhaul in parts of, or throughout, the Basin. For the framework to provide flexible water management strategies that contribute to basin-wide water security for all water users, including the environment, it must be based on a range of modeling scenarios that account for the hydrologic realities of both the Upper and Lower Basins and anticipate a robust range of responses in the face of uncertain future conditions. This will require assessment of operational strategies that incorporate flexible water management tools and consider the role of tribal water (developed, undeveloped, and unsettled) in the future management framework for the Colorado River. It also includes incorporation of updated and advanced modeling efforts, as well as integration of information from a diverse group of perspectives (including traditional indigenous knowledge) and sources including data from the Tribal Water Study and comments regarding cultural and ecological resources from relevant Records of Decisions, Biological Assessments, and scientific studies regarding the Colorado River and its resources.

We value the opportunity to inform the processes for developing the NEPA efforts related to the next Colorado River management framework. We look forward to working together in the months and years to come to meet the immediate needs in the Colorado River Basin and to ensure long-term sustainability for the people, plants, and other species within the Basin.

// Signatories on Next Page

Melvin J. Baker
Chairman, Southern Ute Indian Tribe

Corina Bow
Chairwoman, Paiute Indian Tribe of Utah

Manuel Heart
Chairman, Ute Mountain Ute Tribe

Edward Velarde
President, Jicarilla Apache Nation

Taylor Hawes
The Nature Conservancy

Bart Miller
Western Resource Advocates

Kevin Moran
Environmental Defense Fund

Jennifer Pitt
National Audubon Society

Alex Funk
Theodore Roosevelt Conservation Partnership

Matt Rice
American Rivers

Sara Porterfield
Trout Unlimited

John Shepard
Sonoran Institute

John Weisheit
Living Rivers

Garrit Voggesser
National Wildlife Federation

cc: Tanya Trujillo, Assistant Secretary for Water and Science, US Dept. of the Interior
Camille Calimlim Touton, Commissioner, US Bureau of Reclamation
David Palumbo, Deputy Commissioner, US Bureau of Reclamation
Bryan Newland, Assistant Secretary, US Bureau of Indian Affairs
Wayne Pullan, Regional Director, Upper Colorado River, US Bureau of Reclamation
Jaci Gould, Regional Director, Lower Colorado River, US Bureau of Reclamation
Ernie Rheaume, Native American Affairs Program Manager,
US Bureau of Reclamation, Upper Colorado River Basin
Kaylee Nelson, Acting Native American Affairs Program Manager,
US Bureau of Reclamation, Lower Colorado River Basin

September 1, 2022

Carly Jerla
Senior Water Resources Program Manager
U.S. Bureau of Reclamation

Electronically submitted to: CRB-info@usbr.gov

RE: Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions

Dear Ms. Jerla:

The Arizona Game and Fish Department (Department) appreciates the opportunity to provide input to the Bureau of Reclamation's (Reclamation) Federal Register notice of June 24, 2022 Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions. The Department is aware of the effects long-term drought has had on fish and wildlife and their habitats in the Southwest and in the broader Colorado River Basin, and continues to manage fish and wildlife resources within the Colorado River watershed and its system of reservoirs, rivers, and canals of Arizona.

Under Title 17 of the Arizona Revised Statutes (ARS), the Department, by and through the Arizona Game and Fish Commission (Commission), has jurisdictional authority and public trust responsibilities to conserve and protect the state fish and wildlife resources. In addition, the Department manages threatened and endangered species through authorities of Section 6 of the Endangered Species Act and the Department's 10(a)(1)(A) permit. It is the mission of the Department to conserve and protect Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations. In addition to ARS Title 17 authorities, the Department has jurisdictional authority under ARS Title 5 Chapter 3 Boating and Water Sports, regulations, and boating opportunities in coordination with partners at water bodies around the state.

For your consideration, the Department provides the following comments based on the agency's statutory authorities, public trust responsibilities, and special expertise related to wildlife resources, wildlife-related recreation, and boating recreation as they relate to the Federal Register notice.

High Risk Non-native Fish

Drought conditions in the Colorado River basin have led to lower available run-off and lower reservoir elevation levels in many system reservoirs, including Lake Powell above Glen Canyon

Dam. As reservoir water elevation drops closer to the dam's penstocks, the quality of water released from the dam continues to change from what the system had experienced since the dam was constructed. The Department has concerns that elevated water temperatures and low dissolved oxygen levels pose a threat to a number of downstream resources, including the establishment of non-native species such as Smallmouth Bass (SMB) and impacts to native fish and the Rainbow Trout fishery at Lee's Ferry below Glen Canyon Dam.

Over recent years as the elevation of Lake Powell has been reduced, water temperatures at Lees Ferry have increased during the summer and fall. Given the critically low elevation of Lake Powell this year, the water temperature at Lees Ferry has been observed above 20℃ (68℉; August 2022), which is 4-5℃ warmer than has been recorded prior to 2021. There have been discussions among stakeholders within the Glen Canyon Dam Adaptive Management Program (GCDAMP) regarding the increased risk of a SMB population establishing in the Colorado River downstream of Glen Canyon Dam and the potential impacts this establishment poses to native fish, especially the Humpback Chub that was recently downlisted. Significant control efforts are currently being implemented in the upper Colorado River basin where high-risk non-native species are impacting conservation of native species. The costs of these control efforts are substantial, thus, preventative measures and changes to operations that can reduce the risk of establishment are critical to minimizing biological and economic impacts.

Higher water temperatures coming through Glen Canyon Dam and the increased risk of fish entrainment due to low reservoir elevations are the driving factors for establishment of SMB and other high risk non-native fish species downstream of the dam. Although these factors are a result of the existing water conditions within the Colorado River basin, both release temperature and entrainment can be influenced and managed by operations at Glen Canyon Dam. The Department requests that Reclamation develop a full suite of alternative operations and infrastructure enhancements that disadvantage high risk non-native species and reduce their establishment potential. This will help protect healthy self-sustaining native fish populations in Marble and Grand Canyons.

Rainbow Trout Fishery

The Department is concerned about impacts to the blue ribbon Rainbow Trout fishery at Lees Ferry below Glen Canyon Dam from higher water temperatures. The Lees Ferry tailwater has hosted a recreational Rainbow Trout fishery that has grown in importance and reputation locally, regionally, nationally, and internationally. Anglers from around the world travel to Lees Ferry to fish for high quality Rainbow Trout. This Blue Ribbon recreational sport fishery has become a financial and economic mainstay for the small community of Marble Canyon, the City of Page to the north, and Coconino County. A 2013 statewide angler survey estimated the contribution of the Lees Ferry fishery to the State's economy in excess of $16.8 million, helping to support 251 jobs in Arizona (Fedler 2014). Anglers support local businesses such as hotels, restaurants and other service providers, in addition to utilizing fishing and outdoor recreation equipment suppliers and guides. The Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP) states the resource goal for the Rainbow Trout fishery is to "Achieve a healthy high-quality recreational Rainbow Trout fishery in Glen Canyon National Recreation Area

(GCNRA) and reduce or eliminate downstream trout migration consistent with NPS fish management and ESA compliance" (Bureau of Reclamation and National Park Service, 2014). Maintaining cold water releases to <16°C (<60.8°F) from Glen Canyon Dam is critical for achieving this resource goal.

The forecasted water conditions in the Colorado River basin will create less favorable conditions for Rainbow Trout in coming years, with maximum release temperature projections to reach critical thermal tolerances for Rainbow Trout. Negative effects are expected even from sub-lethal warm water, as recent models on the bioenergetic response of Rainbow Trout to warmer temperatures at Lees Ferry suggests that the food base at Lees Ferry cannot sustain adequate Rainbow Trout growth rates at these warmer temperatures and a negative response in fish condition is expected (J. Korman, Ecometric, pers. comm.).

In addition to temperature concerns, low dissolved oxygen represents a risk to the Rainbow Trout fishery. Rainbow Trout are susceptible to increased stress, disease and death when dissolved oxygen levels dip below 5 ppm. High runoff events have been shown to lead to low dissolved oxygen plumes developing and traveling through Lake Powell. Similar to how reservoir elevations affect release temperature, lower reservoir elevations mean that these plumes are more likely to come through the Glen Canyon Dam due to their relation to the penstocks. Although oxygen saturation levels stabilize through diffusion and aeration processes in the river, low dissolved oxygen poses a threat to populations below the dam, particularly the first five miles, which represents the most productive sections of the Lees Ferry fishery. Additionally, the negative effects of low dissolved oxygen are exacerbated at higher temperatures.

This fishery has seen two collapses over the past two decades, one in 2006 and another in 2014/15. Recent modeling done on the response of Rainbow Trout to warmer temperatures at Lees Ferry suggests that it is highly probable that another fishery collapse is imminent. The fishery took many years to recover after each of the previous collapses and the current status of the fishery (e.g. lowest relative abundance in 20 years of monitoring) suggests that the next recovery could take longer. Success of a healthy high-quality recreational Rainbow Trout fishery in GCNRA requires maintaining release temperatures <16 °C.

Although 16-18°C is within the range of preferred temperatures for Rainbow Trout, recent analysis presented to the Technical Working Group of the GCDAMP suggests that an increase in basal trout metabolism resulting from the elevated temperature combined with the poor trout food base that exists at Lees Ferry will stress and starve trout (J. Korman, Ecometric, pers. comm.). Rainbow Trout recruitment has been limited since 2018 and the current population is largely composed of older/larger fish. These larger fish are more susceptible to metabolic effects of warmer water and lower dissolved oxygen and the Department is concerned that temperatures in Lees Ferry could exceed those that could sustain any population of Rainbow Trout, let alone meeting the LTEMP goal of a high quality recreational Rainbow Trout fishery. Therefore the Department recommends that Reclamation implement structural modifications to Glen Canyon Dam that allow for release of cooler water when the reservoir is at lower water surface elevations.

Recommendations Re: High Risk Non-native Fish and Rainbow Trout Fishery

Current conditions, and projected future water level will prohibit effective management of the Rainbow Trout fishery and high risk non-native species within the Colorado River. Intermittent use of the bypass tube has been previously proposed through the GCDAMP and the Department recommends this be considered for implementation. Infrastructure changes that facilitate long-term release temperature control while minimizing water storage or power loss could also be explored (e.g., power generation in the bypass tube, temperature control tower feeding penstocks). The Department also recommends Reclamation identify fish deterrents or exclusion mechanisms in the forebay in order to reduce entrainment of warmwater high risk non-native fish through the dam.

The Department acknowledges that there are necessary tradeoffs and competing values of water levels and releases between the two subject reservoirs. Infrastructure changes that would facilitate better control of water quality represent initial installation costs that, over time, would likely be significantly less expensive than non-native control costs to protect the threatened Humpback Chub population. Realistically, non-native control methods would not be effective without being combined with water temperature reduction as well, and thus funds spent on preventative measures now would reduce costs later. Due to the ability to control high risk non-native fish, solutions for maintaining cold water releases (<16°C) are mutually beneficial to multiple downstream resources listed in LTEMP, including the Rainbow Trout fishery and native fish such as the listed Humpback Chub. The Department recommends Reclamation identify and design infrastructure options and implement water release actions that maintain release temperatures below 16°C (<60.8°F) and dissolved oxygen above 5 ppm, while minimizing impacts to power production and water storage.

Boating and Recreation Access

The Department has concerns regarding impacts to boating recreation as water levels decline at Lake Mead and Lake Powell. Several boat ramps at these two large and very popular reservoirs have become unusable. The Department requests that NPS Glen Canyon Dam National Recreational Area at Lake Powell and Lake Mead National Recreation Area, in coordination with the Department and Reclamation, identify, design, and construct improved low-water boating access facilities at each of these lakes for the benefit of the boating and angling public.

In addition to reservoir based boating recreation, Lee's Ferry below Glen Canyon Dam is a popular place for motorized riverine trout fishing opportunities, one of the few such places in Arizona. Reductions in flow releases, as well as daily fluctuations in flows, can affect the ability of anglers to access the trout fishery upstream from Lees Ferry by motorboat. The Department recommends that Reclamation design flow release scenarios that allow for year round motorboat access to the entire reach of Lee's Ferry below Glen Canyon Dam.

Thank you for the opportunity to provide input on the post 2026 reservoir operational strategies for Lake Powell and Lake Mead. For further coordination, please contact David A. Weedman at dweedman@azgfd.gov or by phone call to 623-236-7607.

Sincerely,

Luke Thompson
Habitat, Evaluation, and Lands Branch Chief

AGFD # M22-06245328

Bureau of Reclamation and National Park Service, 2014. Alternatives for consideration in the Glen Canyon Dam Long-term Experimental and Management Plan Environmental Impact Statement: Salt Lake City, Utah, Bureau of Reclamation, Upper Colorado Region; Denver, Colorado, National Park Service, Intermountain Region.

Fedler, Anthony. 2014. 2013 Economic Impact of Fishing in Arizona. Responsive Management Harrisonburg Virginia.

WASHINGTON COUNTY WATER CONSERVANCY DISTRICT

September 1, 2022

Secretary Deb Haaland
U.S. Department of Interior
1849 C Street, N.W.
Washington DC 20240

Re: 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 Secretary Haaland,

Thank you for the opportunity to comment on the proposed development of Post-2026 Colorado River Operational Strategies.

The Washington County Water Conservancy District (District) is a political subdivision of the State of Utah. The District is charged with conserving, developing, managing, and stabilizing water supplies for the citizens of Washington County.

The U.S. Census has identified Washington County as the fastest-growing metro area in America.[1] The county's population is projected to more than double by 2050.[2] Washington County is Utah's hottest, driest region. All major population centers are currently dependent on a single water source, the Virgin River Basin, which is reaching its full development capacity. The basin has been in drought conditions 16 of the last 20 years and water supply levels at local reservoirs are decreasing.

The county's long-term water supply plan includes additional water conservation and reuse, local source optimization, and new resource development. Washington County has already reduced its per capita water use more than 30% since 2000—the greatest reduction in water use in Utah—and is planning for an additional 14% reduction by 2030, using 2015 as the baseline year.

The District has a strong interest in the post-2026 Colorado River operations. The District supports the Basin States' efforts to develop an alternative and hereby incorporates the Colorado River Basin States comment.

Respectfully,

Zachary Renstrom
General Manager
zach@wcwcd.org

[1] Hemmersmeier, S. (2022, April 2). *Census: St. George is Fastest-Growing in U.S. Again*. AP News. https://apnews.com/article/utah-st-george-census-2020-19c02de8f8a6d0de0528c422eb84f15a
[2] *Utah Long-Term Planning Projection Summary*, (2022, January 31). Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/Washington-Proj-Feb2022.pdf?x71849

Input for pre-scoping for National Environmental Protection Act effort to update operations for Lake Powell and Lake Mead by 2026

Submit by email to CRB-info@usbr.gov by September 1, 2026.

September 1, 2022

This email responds to a request by Reclamation in the Federal Register for input on the process and substance of a forthcoming National Environmental Protection Act (NEPA) effort to update operations for Lake Powell and Lake Mead (https://public-inspection.federalregister.gov/2022-13502.pdf). I commend Reclamation for requesting this input because seeking input early is a best practice of participatory management to build trust and operations that are actionable (Bourget et al., 2013; Langsdale et al., 2013).

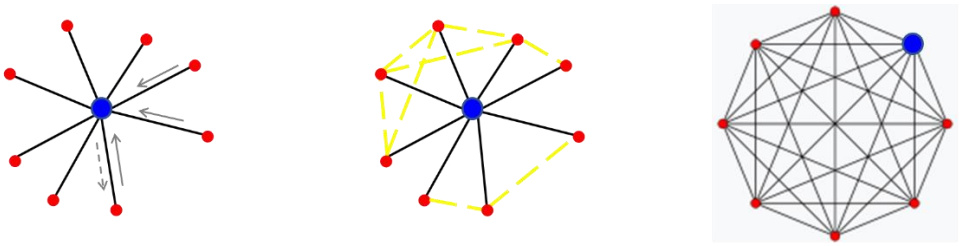
Suggestions to Improve Process

1. Publicly share responses to this request because that is an efficient and transparent way for people to see what others are saying and encourage conversations through the entire NEPA process. There are pros and cons to various methods to share. In my experience there is benefit to follow the Chatham House Rule where facilitators share information separate from the people who contributed the information (http://www.chathamhouse.org). This approach helps people focus on the substance of information, build trust, and is also common in social science research to help protect the identities of participants so participants can share information more freely. See recent applications of the Chatham House Rule in Colorado River basin work (Koebele, 2021; Rosenberg, 2022).

2. Review the list of people/entities that submit comments, identify gaps in participation, and reach out to groups that did not respond. Learn why these groups/individuals did not respond, help them overcome obstacles, and encourage them to participate. I submit these comments because a person from Reclamation asked for input.

3. Transition from a hub-spoke communication structure with Reclamation at the center (Figure 1a) to a structure where there is more interconnected communication and collaboration along the edges (Figure 1b). In the hub-spoke communication structure, Reclamation (Figure 1a, larger blue circle) pulls information in from participants (i.e., Figure 1a, red circles and solid inward grey arrows) such as this request for pre-scoping input. Additionally, Reclamation possibly pushes information back out to participants should Reclamation follow process suggestion #1 (Figure 1a, dashed outward grey arrows). Build relationships along the edges to build more subsets of interconnected parties that can better work together, improve communication, step wise build trust, and strengthen the substance of proposals (Figure 1b, dashed orange lines). In the global ideal case, every party communicates with every other party

(Figure 1c, adapted from https://en.wikipedia.org/wiki/Simplex). The global ideal is likely impossible and undesired because every party does not have the bandwidth nor willingness to be best friends with every other party. However, agent-based computer modeling of household water conservation behaviors showed a network of interconnected parties with more edge linkages communicated information among parties nearly as efficiently as the global ideal network (James and Rosenberg, 2022). Avoid what I understood happened for the 2007 Interim Guidelines where there were separate camps and separate proposals from the different camps that were all routed through Reclamation (Figure 1a). That approach exacerbated rather than reduced conflict.



(A) Hub (blue circle) and Spoke (black line and red circles)

(B) Subsets of Interconnected Parties with more Edge Linkages (dashed orange)

(C) Global Ideal

Figure 1. Potential communication structures for a NEPA process.

4. Provide free RiverWare licenses, training, and Colorado River Simulation System (CRSS) model support to all participants that request it. If the CRSS will be central to the NEPA process, remove the barrier of the 3-year, $12,150 cost for the first license, $3,150 cost for each additional seat, and $1,600 per person Riverware training that will disproportionally affect parties that were excluded from prior NEPA processes.

5. Encourage subsets of parties to work together because proposals from groups will be stronger and address a broader set of needs than proposals from individuals or individual groups (e.g., Figure 1b). Sharing input provided in this pre-scoping (Process suggestion #1) may be a first step to encourage parties to work together.

6. Offer regular opportunities like this pre-scoping for public input on what is going well and what to improve because today it is hard to see or comment on a NEPA process that is not yet defined past Winter 2023.

Suggestions on Substance

Make the scoping and NEPA process broad enough to consider these options:

1. Adapt operations to inflow and reservoir levels, not just reservoir levels as in the Interim Guidelines and Drought Contingency Plans did. See Rosenberg (2022) for three example

exploratory exercises that adapted operations to inflow and storage and caveats. There are already guidelines for surplus and ordinary flow conditions.

2. Develop operations for the worst case scenario that may be Lake Powell and Lake Mead at or near their Dead Pools or minimum power pools and continuing natural flow at Lee Ferry of 5 million acre-feet per year or less as reconstructed from tree rings going back to 1416 AD (Meko et al., 2017; Salehabadi et al., 2021, Figure 14). Develop operations for the worst case because if parties can agree on operations for the worst case scenario, then parties will find it easier to agree on operations for larger flows and more storage.

3. Consider operations that work from the combined storage of Lake Powell and Lake Mead rather than individual storage because combined storage offers more flexibility, reduces Lower Basin/Upper Basin reservoir mentality, and provides a way to release colder water from Lake Powell that helps the young of endangered, native fish of the Grand Canyon against being eaten by non-native fish such as small-mouth bass.

4. Define metrics of system crash to avoid. These metrics could be

- **a.** Lake Powell storage at minimum power pool.
- **b.** Expatriation of native, endangered fish from the Grand Canyon.
- **c.** Reclamation loses control of Lake Powell releases such as river outlets freeze in open position or Lake Powell storage below minimum power or dead pools.
- **d.** Others?

Define these metrics because once the system crashes or fails, there is potential for cascading effects such as reduced power delivery to rural communities of the western U.S., reduced water availability and deliveries to Lower Basin users, lawsuits, among others. All of these cascading effects will reduce collaboration and ability of managers to adapt to continuing – or worsening – conditions.

5. Transition to a mindset of reduce water use rather than conserve water or manage demands to use in another place and/or at a future point in time. In a basin facing declining flows and ongoing aridity with historical water delivery obligations, there is no extra water to save. Parties reduce use from historical operations to use within the available water.

6. Link scarce water to more abundant resources such as money and energy by allowing trades among users and compensation for water use reduction. Link these resources to gain access to the $1 trillion bipartisan infrastructure or other forthcoming Federal legislation. Give parties more operational flexibility without having to negotiate new agreements at every new seasonal or annual crisis.

7. Define a new expiration date for new operations. The Interim Guidelines and Drought Contingency plans defined 2026 as an expiration date. That expiration date motivates the

current pre-scoping and conservations about how to adapt operations to evolving basin aridity. In the upcoming NEPA process, again set an expiration date for new operations to force parties to continue to adapt operations as basin conditions change.

Contributor

- **David Rosenberg**. Department of Civil & Environmental Engineering and Utah Water Research Laboratory, Utah State University, Logan, UT, USA.

  david.rosenberg@usu.edu | 435-797-8689 | http://rosenberg.usu.edu. | @WaterModeler

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SIERRA CLUB COLORADO RIVER TASK FORCE

September 1, 2022

Carly Jerla
Senior Water Resources Program Manager
US Department of the Interior
Bureau of Reclamation

BY EMAIL TO CRB-info@usbr.gov

Re: Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead under Historically Low Reservoir Conditions

Dear Carly Jerla:

The following comments are submitted on behalf of the Colorado River Task Force of the Sierra Club regarding post-2026 operational strategies for Lakes Powell and Mead. The Colorado River Task Force is part of the Western Water Sub-Team of the National Water Sentinels Grassroots Network Team of the Sierra Club and has as a goal to coordinate public comments among the nine Sierra Club Chapters in the Colorado River Basin.

Process

The Bureau of Reclamation ("Bureau") commitment to an open and inclusive process for developing future operational strategies is very laudable. Indeed, it is those who are most vulnerable who will be the most impacted by future changes in response to ongoing and future

drought – Tribal Nations and underserved communities such as farmworkers, many of whom are Latino/a/x, and rural residents in general.

Judging from experience in the Salton Sea region, governmental outreach to such stakeholders has been too little too late. It's imperative to engage with communities and nonprofits at the outset to design a program that meets the needs of historically disenfranchised stakeholders, utilizes Latinx/a/o, Native American, and non-traditional media, and conducts workshops and hearings at the outset with interpretation at hours and in locations that are very accessible.

With regard to engaging the public, underserved and ignored communities, Tribes, and non-governmental organizations (NGOs), the 2019 Drought Contingency Plan ("DCP") was anything but open and transparent. The water districts' negotiations were privy only to a few insiders. To the dismay of many, including a pivotal California water district, the draft DCP legislation even attempted to waive all laws. Fortunately, Congress amended this out before passage. So, while the Bureau's process in 2007 was to some degree open and collaborative, this was not replicated in the 2019 DCP, nor is it being followed in the current interstate meetings to arrive at a reduction of two to four million acre-feet of water use in the Colorado River Basin ("Basin"). While we applaud the Bureau's commitment to emphasize inclusivity going forward, we note that the current two to four million acre-feet reduction process has been criticized by no less than fourteen Southwestern Native American Nations, Tribes, Communities, and Bands in a July 22, 2022, letter to the Interior Department's Tanya Trujillo, Assistant Secretary for Water and Science.[1]

Native American groups with a multi-millenial presence in the Basin should not only be included and consulted, but their proposals for Colorado River water management should be treated at least at the level of state governments. This includes not only concerns about culturally significant locations and features on- and off-reservation, such as in the reemerging Glen Canyon, but also Native American epistemological and spiritual concepts of the Colorado River and its tributaries.

Recommendations: At the earliest stage, enlist community organizations, Native American Nations, Tribes, Communities, and Bands, and NGOs to design an outreach framework that will engage historically disadvantaged stakeholders throughout the operational program development process. Notices should include using non-traditional media and outreach should be conducted in languages, in locales and at times that are easily accessible to the underserved. Meetings of any group established by the Bureau in connection with the water management process should be open to the public and media, publicly noticed, have an agenda published in advance, and follow the open meeting laws and regulations of the federal government and the

[1] "Tribes: "We're 'left in the dark' about Colorado River negotiations," August 9, 2022, https://tucson.com/news/local/subscriber/tribes-were-left-in-the-dark-about-colorado-river-negotiations/article_8d878e86-1761-11ed-9873-772bf078ea9a.html

state where the meeting occurs. Negotiations among the states over current and post-2026 operations should at the least include public notice of location, time, and agenda and should occur in closed or executive session only under specific legal authority.

Substantive elements of post-2026 operations

As the notice acknowledges, post-2026 planning involves extreme hydrological uncertainty. The trajectory of the current drought is unlikely to substantially change for the foreseeable future and may well accelerate. Climate change will drive not only hotter average temperatures, but also will result in less snowfall, more rainfall, and earlier snowmelt. This mandates consideration of a very wide range of conditions from exceptionally low reservoir levels to intermittent extreme flooding. In order to meet ecosystem, municipal-industrial and agricultural needs, water allocation will necessarily be constrained. In the agricultural sector, curtailing water deliveries in turn will affect farmworkers directly and farm communities and counties indirectly. It will also affect the health of communities and ecosystems dependent on farming and runoff such as the Salton Sea.

Managing dams is not an isolated process, and analysis and recommended actions should reflect this. Dams are managed in specific ways for specific reasons. The most effective action that can be taken in the near-term is conservation. Conservation should be the preferred means of protecting water supply of the river and management of dams and reservoirs.

Alternatives presented and analyses should be based on a realistic view of how much water is in the system and should consider the health of the river as well as focus on wet water, not paper water, although effects on paper water rights should be included. Paper water is like paper money: if too much is issued there is inflation, and in a worst-case scenario, the money becomes worthless.

Colorado River management and decision-making should be informed by (1) an ensemble of vetted physico-hydrological-ecological models from both government and academia; (2) both current weather/climate conditions as well as climate change scenarios driven by CO_2, and (3) Native American cultural knowledge. As human change and climate change impact the boundary and initial conditions of such physico-hydrological-ecological models, models should be updated accordingly. If the Bureau plans to rely on the Colorado River Simulation System (CRSS), Colorado River Mid-Range Modeling System (CRMMS), or the RiverWare Modeling Platform, these models should be expanded and modified to include assessment of effects of different water management models on the fluvial and riparian environment, including biodiversity and threatened and endangered species. Utah State University's The Future of the Colorado River Project has issued a series of white papers since 2019 recommending changes in CRSS in this direction and we urge the Bureau to adopt the Utah State White Paper recommendations for revising the CRSS model or seek assistance from Utah State University's

Center for Colorado River Studies in runs of the model expanded to include effects on the natural environment.[2]

Recommendations: The strategies and environmental review should include the following elements.

- *A range of alternatives, including the following:*
    - *A conservation-only alternative that will determine how the dams can be managed for sustainability under conservation alone*
    - *A worst-case scenario alternative that analyzes the worst-case prediction for future river flows*
    - *A one-dam alternative that through the use of sub-alternatives would analyze storing water in either Lake Mead or Lake Powell, with or without draining one of the reservoirs or decommissioning or removing one of the dams and which would also include structural modifications to the dams, including new low-level tunnel construction at Glen Canyon Dam which would allow water to flow unimpeded through the dam without having to remove the dam*
- *Inclusion of effects on the natural environment, including hydrology and biodiversity, in all alternatives*
- *Fully analyzing, minimizing, and mitigating for impacts to natural resources that are part of the Colorado River Basin (either directly or indirectly) including the river mainstem (which includes the Grand Canyon), Salton Sea, Colorado River delta, and Gulf of California*
- *Utilizing environmental flows with pulses of flooding to refresh ecosystems either directly or indirectly dependent on Colorado River flows, including, but not limited to the Grand Canyon*
- *Intentionally engineering to ensure that Glen Canyon Dam and Hoover Dam can release adequate flows downstream at exceptionally low water levels*
- *Prioritizing ecosystem needs over water recreation*
- *Prioritizing the needs of native species over those of invasive species, including non-native fish invading areas of native fish populations in the Grand Canyon as an effect of water management alternatives and what solutions can be found*
- *Considering not only switching to low water intensity crops, but also seasonal restrictions to avoid the water intensive summer growing season, especially in the lower basin, and the use of water-conserving irrigation methods, such as micro drip irrigation instead of flood irrigation*
- *Addressing through budgeted drought aid (or future legislation if necessary) a sustainable path forward not only for affected farmers, but also for the communities and farm laborers dependent on agriculture*

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[2] Kevin G. Wheeler, David E. Rosenberg and John C. Schmidt, Water Resource Modeling of the Colorado River: Present and Future Strategies, The Future of the Colorado River Project Center for Colorado River Studies Quinney

Thank you for the opportunity to comment during this pre-scoping phase. We look forward to working with you to craft a plan that will not only ensure the welfare of the human occupants of the Colorado River Basin, but also ensure a healthier Colorado River and its too often forgotten biological communities, which historically have been seen as an afterthought in these processes.

Sincerely,
Cary W. Meister, Ph.D.
Coordinator
Sierra Club Colorado River Task Force

College of Natural Resources, Utah State University White Paper No. 2, 2019, pp. 2-3; Kevin Wheeler, Eric Kuhn, Lindsey Bruckerhoff et al., Alternative Management Paradigms for the Future of the Colorado and Green Rivers, The Future of the Colorado River Project Center for Colorado River Studies Quinney College of Natural Resources, Utah State University White Paper No. 6, 2021, p. 21 specifically, pp. 17-23 generally; *inter alia*

CHANDLER
arizona
Community of Innovation

September 1, 2022

The Honorable Tanya Trujillo
Assistant Secretary, Water & Science
Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

Via email to CRB-info@usbr.gov

RE: Response of the City of Chandler to the Bureau of Reclamation's "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"

Dear Assistant Secretary Trujillo:

The City of Chandler appreciates the opportunity to respond to the Bureau of Reclamation's request for input on the development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead. Thank you for soliciting input and providing an opportunity to comment on both the process of stakeholder engagement and the substantive elements being considered in the upcoming NEPA process.

Chandler is the fourth largest city in Arizona and widely known as a Community of Innovation. Chandler businesses are global industry leaders in high-tech manufacturing, business and financial services, aviation and aerospace, healthcare and bioscience and information technology. The economic impact of our business community represents a significant portion of Arizona's total GDP, and an important contribution to the national GDP. Last year, Intel announced a $20 billion expansion of its Chandler Ocotillo campus. The Ocotillo campus is Intel's largest, most advanced manufacturing site in the world and the largest private investment in Arizona history. Companies like Intel choose to locate in Chandler because we have a long history of smart water management, proactive infrastructure investments and a demonstrated commitment to water reuse and conservation.

Public Works & Utilities
Utilities Administration
480-782-3800
480-782-3805 Fax
chandleraz.gov

Mailing Address
Mail Stop 905
P.O. Box 4008
Chandler, AZ 85244-4008

Location
975 E. Armstrong Way
Building L
Chandler, AZ 85286

The City of Chandler has played an important role in conserving Colorado River water. Chandler has invested roughly $1.75 billion in our water and wastewater treatment and distribution systems. We own and operate three water reclamation facilities and reuse 100% of our treated wastewater. Chandler and its partners have invested in water efficiency improvements and developed conservation programs to encourage long-term reductions in water use. We offer incentive programs to replace grass with desert adapted landscaping and provide extensive conservation education opportunities for our community. Over the past 25 years, Chandler's average residential water use has decreased by 20%.

The City of Chandler depends on the Colorado River for approximately 37% of our annual water supply. Recent Colorado River conditions pose extreme challenges for all municipal water providers who rely on the River, both now and into the future. While the Basin States struggle to reach consensus on how to manage the future reductions necessary to protect the system, water users are left with an unacceptable degree of uncertainty. Municipal water providers are responsible for ensuring a sustainable water supply for our residents and businesses, and our long-term planning decisions require stability and predictability of supply into the future.

Chandler believes that the next set of guiding principles and future operating strategies must improve the stability of the entire Colorado River system. In considering Post-2026 operating strategies, we should prioritize system reliability over maximizing annual releases.

We recommend the following actions:

1. Establish a Basin-wide "Municipal Sector" Committee to facilitate meaningful input and engagement from municipal water providers who depend on the Colorado River. We respect the existing Basin States negotiating framework and the importance of Reclamation's consultation with the Governor's representatives. However, there is currently no mechanism or process in place to solicit input specifically from municipal water providers. Municipal water providers offer a unique and critical perspective and should be included in the conversation.
2. Establish a transparent process to meaningfully engage all stakeholders. Collaboration and consultation with all water users, including Mexico, Tribes, NGOs, municipal providers and agriculture, is critical to ensure the success of the Post-2026 Operating Strategies.
3. Establish equitable shortage sharing criteria. All water users, from all sectors and across the Basin, should share in the responsibility to protect the system.
4. Invest in water reuse programs and agricultural efficiency improvements.
5. Incentivize conversion to lower water-use crops.
6. Charge each contractor for evaporation and losses in the Lower Basin.

7. Implement the necessary Glen Canyon Dam modifications that will increase reliability of releases under low reservoir conditions.
8. Maximize the effectiveness of the drought mitigation efforts included in the Inflation Reduction Act by prioritizing funding for projects that demonstrate long-term and permanent reductions in consumptive use. These funds should not be used to provide an annual subsidy to compensate water users who temporarily leave water in the system.

Arizona's municipalities have been key partners in the management of supply reductions in the past, and we stand ready to engage at that level once again. When reviewing our recommendations, please keep in mind the importance of municipal water providers, the need for reliability and stability of municipal supplies, and the serious economic consequences that water insecurity in the West presents for our nation.

Sincerely,

Simone Kjolsrud

Simone Kjolsrud
Water Resource Advisor
Public Works & Utilities Department
City of Chandler

cc: Joshua Wright, City Manager, City of Chandler
Andy Bass, Deputy City Manager, City of Chandler
John Knudson, Public Works and Utilities Director

City of Peoria

WATER SERVICES DEPARTMENT

9875 North 85th Avenue
P.O. Box 4038
Peoria, Arizona 85345
T 623.773.5150
F 623.773.7291

September 1, 2022

Ms. Carly Jerla
Senior Water Resources Program Manager
United States Bureau of Reclamation

Sent via e-mail to CRB-info@usbr.gov

Re: City of Peoria, Arizona Comments to the U.S. Bureau of Reclamation on the Proposed Development of Post-2026 Colorado River Operational Strategies

Dear Ms. Jerla:

The City of Peoria, Arizona ("Peoria" or "City") appreciates the opportunity to submit these written comments on the proposed development of Post-2026 Colorado River Operational Strategies pursuant to the June 24, 2022 Federal Register Notice and Request for Input [87 FR 37884].

Peoria is a growing community with 195,000 residents in the northwest of the Phoenix metropolitan area. The City's Water Services Department serves approximately 180,000 of Peoria's residents. Through investing hundreds of millions of dollars in Colorado River water from the Central Arizona Project ("CAP") and the infrastructure necessary to treat and deliver, Peoria transitioned from being primarily dependent on non-renewable groundwater to renewable surface water. Today, Colorado River water satisfies just over fifty percent of Peoria's water demand. Access to 34,121 acre-feet of renewable Colorado River water annually is a pillar of Peoria's current prosperity. In recognition of and required by its place in the Sonoran Desert, Peoria has implemented and invested in developing a strong water conservation ethic. Being a desert city reliant on the Colorado River, Peoria is intrinsically interested in maintaining the health of the river and reliability of the systems that distribute its waters.

With the benefit of hindsight, it is now clear that actions taken since 2000, such as the 2007 Interim Guidelines and 2019 Drought Contingency Plan, have been inadequate to produce the reliability and predictability Peoria and all that relies on the Colorado River need. The development of post-2026 operating guidelines offers the rare opportunity to apply lessons learned from the past twenty-two years by implementing a new operating regime that achieves the shared goal of a sustainable Colorado River system.

Addressing Reclamation's request for input on, "…potential substantive elements and strategies for post-2026 operations to consider in the anticipated upcoming NEPA process(es)…" we have outlined strategies that incorporate what we believe to be a number of the lessons learned since 2000. These suggested strategies are grouped into two categories, those improving information sharing and understanding and those improving system reliability and adaptation options.

Strategies to Improve Information Sharing and Understanding

A council of seven publicly elected representatives governs Peoria's Water Services Department. The Department is charged with managing the utility and its water supply on behalf of the public. Providing information, advice, and recommendations to its council to make sound decisions are central to the Department's ability to responsibly manage the public trust. With respect to Peoria's allocation of water from the Colorado River, this means having clear, complete, accurate, timely, and understandable information on the status and future risk of the Colorado River system. We offer the following strategies to improve information sharing and understanding so that Peoria and its fellow Colorado River users can better prepare for and respond to ever changing Colorado River conditions.

- Ensure descriptions match commonly understood definitions. For example, the 10th and 90th percentile forecasts are often labeled *minimum* and *maximum* probable for public consumption. This approach leads to an inaccurate and inadequate sense of the true scale of potential outcomes hampering the ability of utility managers to generate sufficient public support for implementing adequate preparations.

- Publicly communicate the full range of possibilities modeled by subject matter experts. Not knowing the true level of risk reduces the urgency and necessity for the public to invest in mitigating the impacts of worst-case scenarios.

- Include all consumptive uses of water e.g., evaporation and system losses when reporting total annual Colorado River water use. Excluding or not explicitly addressing system losses provides an inaccurate picture of total demand on the system and alters the perception of the scale of changes needed to balance supply and demand long-term.

- Avoid solutions that rely on inconsistency between actual water levels and water levels used for shortage declarations. Understanding and communicating complex Colorado River issues is challenging. Having decision-making frameworks that do not align with physical reality greatly increases this challenge.

- Shift focus away from highlighting probabilities of certain outcomes to highlighting specific scenarios. In addition to hindering public comprehension, focusing on probabilities masks risks and reduces preparations. Recent communication of one hydrologic scenario, a repeat of early 2000s runoff, has driven real action and understanding of the risk even though this scenario has been hiding within the five-year probability tables all along. We suggest focusing on communicating a few distinct scenarios e.g., worst, mid, best to better enable decision makers to take appropriate action.

- Improve modeling to incorporate the latest science and enhanced data availability. For example, the Lake Powell April – July Water Supply Forecast does not appear to adequately consider soil moisture or ambient temperature and routinely overestimates final runoff based on historical snowpack-runoff relationships. This overestimate results in sub-optimal operations and inadequate and delayed preparations.

- Quantify and communicate the effects of Lower Basin over-allocation compared to drought and aridification since 2000 before discussing solutions to stabilize the system. Over-allocation, particularly the "structural deficit" provides constant downward pressure on reservoir levels regardless of drought or aridification. Communication efforts that focus on whether future hydrology will be dry or very dry distracts from addressing the primary cause of today's record low reservoir levels, a structural deficit that existed well before the current drought began.

Strategies to Improve System Stability and Adaptation Options

The City of Peoria Water Services Department plans for a wide array of potential water supply futures to develop a more robust water delivery system. However, it is not financially feasible or physically practical to implement plans for every possible outcome. Therefore, Peoria believes one of the most important outcomes of post-2026 operational guidelines must be to greatly increase supply predictability and certainty. Peoria acknowledges increased supply certainty will likely require reductions to its current water allocation. Water utilities cannot meaningfully or responsibly plan based on a long-term water supply outlook that varies between zero – 100 percent. With increased climate variability, a secondary goal should be to provide as much lead-time as necessary to facilitate the development and implementation of adaptation strategies e.g., alternative sources, new infrastructure, demand reduction. Funding, agreements, and infrastructure necessary to adapt to significantly reduced Colorado River supplies requires at least five to ten years. The prospect of mandatory reductions four, twelve, or even twenty-four months in advance is not sufficient or practicable for any utility. With the dual goals of increased supply reliability and enhanced lead times to implement adaptations, Peoria suggests the following strategies for consideration.

- Proportionally distribute Lower Basin reservoir evaporation and other system losses to Arizona, California, and Nevada's apportionments before considering any climate related reductions.

- Distribute the Lower Basin's share of the United States' 1944 Mexico Treaty responsibility equally to Arizona and California's apportionments as contemplated in the 1928 Boulder Canyon Project Act before considering any climate related reductions.

- Assess the effects of aridification proportionally on all Colorado River users, including the Republic of Mexico, after the Lower Basin structural deficit has been adequately addressed.

- Assess actual annual evaporation losses from any water conserved in any reservoir in the Colorado River system to ensure the water available on paper matches actual wet water.

- Shift away from reliance on temporary, compensated conservation programs that create uncertainty with respect to water availability and water cost. Public water utilities cannot hold financial reserves sufficient to address the current level of uncertainty.

- If continued, set shortage tier elevation thresholds at higher water levels in Lake Mead. Higher elevation thresholds leave more water in the reservoir to provide more time to adapt to abrupt, multi-year declines in hydrology.

- Consider more strictly limiting the diversion of additional water above a state's apportionment unless Lake Mead and Lake Powell are near capacity or current year hydrology is significantly above average.

- Provide a greater buffer above minimum environmental flows to provide more operational flexibility when necessary without risking permanent environmental degradation.

- Avoid operating rules that allow a supply-demand imbalance in one major reservoir to continue at the cost of draining another major reservoir, effectively putting the entire system at risk.

- Enable different users, including tribal communities, to more easily temporarily or permanently transfer or exchange Colorado River supplies in voluntary arrangements. Balancing supply and demand long-term will require reductions to all users and additional flexibility is necessary to successfully adapt.

The City of Peoria Water Services Department recognizes the extreme complexity of the Colorado River situation and the incredible number and diversity of stakeholders. In the absence of silver bullet solutions, it is necessary that all parties reject binary propositions and embrace the often abundant area for compromise. With so much at stake, Peoria remains optimistic about the future of the Colorado River because the current situation requires us all to make real, lasting change to achieve a more sustainable river system.

Thank you for the opportunity to provide input. We look forward to participating in this historic process.

Sincerely,

Brett Fleck
Water Resources Advisor

Cape Powers, P.E.
Water Services Director

COLORADO RIVER DISTRICT
PROTECTING WESTERN COLORADO WATER SINCE 1937

September 1, 2022

Via E-mail: CRB-info@usbr.gov
Carly Jerla
Senior Water Resources Program Manager
Bureau of Reclamation

RE: Comments Regarding Proposed Development of Post-2026 Colorado River Operational Strategies

Dear Ms. Jerla:

Thank you for inviting public comment on the proposed development of post 2026 Colorado River Operational Strategies. We offer the following comments and thoughts for your consideration.

By way of background, the Colorado River District is a political subdivision of the State of Colorado formed by the Colorado Legislature (*see*, C.R.S. § 37-46-101, *et seq.*) in 1937 for the purpose of safeguarding that portion of the waters of the Colorado River apportioned to the state by interstate compact and for promoting the welfare of the inhabitants of the River District. Geographically, the River District encompasses an area of approximately 29,000 square miles, including all of twelve and parts of three western Colorado counties. Included in that area are the headwaters and tributaries of the Colorado River mainstem and its principal tributaries, the Gunnison, the White and the Yampa Rivers.

Our water users in our District include municipalities, industry, agricultural and recreational water users. All of these users depend upon the wise and proper development and implementation of policies to assure the continued availability of reliable water resources in the Colorado River Basin. All 40 million people who rely upon the Colorado River, the significant recreational economy, our nation's food security and the abundant wildlife and ecosystems up and down the river rely upon the proper development and management of the shared resource that is the Colorado River. The Colorado River District understands that the Colorado River is in fact the resource that binds us together.

The largely empty Colorado River system reservoirs are at testament to the failure of the current operating guidelines. We do not provide this statement to ascribe blame or fault on any party or agency, but the operating guidelines developed in 2007 as well as the adaptive management strategies developed and implemented since that time have failed to keep pace with the speed of change in the climate and resultant dwindling water supply in the Colorado River Basin. While it is human nature, and historic practice in the water management of the Colorado River to pursue

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incremental policy and operational change, it is essential for the environment and economic and water security of all who depend upon the Colorado River Basin, for radical and rapid departure from our current and past operating guidelines and politically influenced policies and regulations. To be clear, we believe that such policy and operational change can and should be developed and implemented in a manner that is consistent with the 1922 Colorado River Compact, the 1944 bi-national treaty with Mexico and the 1948 Upper Basin Compact. Such change will require risk by those of us who are in leadership positions within the Basin. Such change will require forceful and clear leadership and speedy collaboration. Below please find a short list of the areas which we believe the post 2026 operational guidelines should address and which we see as most important and worthy of study and modelling by the Bureau of Reclamation:

- **Hydrology, not reservoir levels must drive post 2026 operations.** Operating guidelines based upon comparative reservoir elevations which do not factor in real time hydrology have been proven to be disastrous for protecting water supply certainty in the Colorado River. Post 2026 guidelines must not be solely or largely based upon reservoir levels, rather the operating guidelines going forward should be based on real time hydrology, especially when any of the major system reservoirs are at anything less than full capacity.
- **Depletion accounting must replace delivery accounting in the Lower Basin.** If not addressed prior to 2026, any operational guidelines should unilaterally institute proper accounting procedures in the Lower Basin resulting in the proportional assessment of system losses, (i.e., transit losses, ordered but not delivered and reservoir evaporation) against all entities holding contracts pursuant to the Boulder Canyon Project Act. No contractor, state or basin should be allowed to deplete or cause to be depleted more water from the system than the bare minimum they are legally allotted unless the system reservoirs are fully recharged, and the Colorado River has re-established its connection with the Sea of Cortez.
- **Operational Guidelines must address a wide range of hydrologic futures.**Post 2026 guidelines must consider the potential reality of living with a river system that produces significantly less water and is potentially more variable than anticipated by the 2007 interim guidelines. Specifically, the guidelines should cover a range of potential futures which sets forth the operations of the river under a range of long-term average annual flows between 9 million acre feet and 17 million acre feet. A set of guidelines that addresses this potential range of futures should be politically palatable for most stakeholders and more importantly, if done right, it should provide as much certainty as possible for all of those who depend upon the Colorado River for sustenance.
- **Tiers that can be gamed must be done away with.** Post 2026 guidelines should not have black line tiers that can be gamed by contractors in such a way as to dictate large volumetric swings in the release volumes from Lake Powell and/or the triggering of Lower Basin shortage declarations. We would recommend the development of a rule curve which allows for Powell releases and Lower Basin shortage declarations that grow and/or reduce in size in small gradual increments.
- **Changes in releases should be incremental.** Post 2026 guidelines should do away with large swings in releases from Powell due to balancing and/or equalization releases.

- **DROA water must remain in Lake Powell.** Post 2026 operational guidelines should unambiguously protect all water released from any initial Colorado River Storage Project Act (CRSP) reservoirs for the purposes of protecting infrastructure in Lake Powell, (i.e., DROA or other future releases for similar purposes) such that the water stays in Lake Powell and is operationally neutral in such a manner that it is not subject to balancing and/or equalization releases. Water released to protect the infrastructure at Lake Powell needs to stay in Lake Powell until Lake Powell and the other initial CRSP reservoirs have sufficiently recharged.
- **Demand Management water must remain in Lake Powell.** Should Demand Management and/or a similar programmatic Upper Basin wide program be incorporated into the post 2026 operational guidelines, the guidelines should provide for that water to be operationally neutral with respect to balancing and/or equalization and should only be released from Lake Powell at the direction of the UCRC for the sole purpose of protecting the Upper Basin's obligations under the 1922 Compact or when Lake Powell and the other initial CRSP units are sufficiently recharged to a point where flood control is a real, predictable, tangible reality.
- **Section 602(a) of the 1968 Act must be honored by the guidelines.** Post 2026 operational guidelines should be more consistent with the wording and intent of Section 602(a) of the 1968 Colorado River Basin Projects Act with respect to adherence to principles set forth therein regarding non impairment of annual consumptive uses in the Upper Basin.

Thank you very much for your efforts and consideration. Please feel free to contact me should you have any questions or concerns about our suggestions contained herein.

Sincerely,

Andrew Mueller
General Manager

IRA A. FULTON SCHOOLS OF engineering
ARIZONA STATE UNIVERSITY

Comments on Proposed Development of Post 2026 Colorado River Operational Strategies

Sent via email to CRB-info@usbr.gov September 1, 2022

Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr. Suite 113
421 UCB
Boulder, CO 80301-2628

Dear Ms. Jerla:

Thank you for the opportunity to submit pre-scoping comments on the development of guiding principles and strategies for operating the Colorado River. The Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (hereafter, Interim Guidelines) will expire in 2026. The unprecedentedly low reservoir storage and the failure (to date) of states to voluntarily distribute the recommended 2-4 MAF water use reductions, reinforce the historic importance of the current deliberations.

The U.S. Bureau of Reclamation and the Colorado River Basins States (hereafter, Basins States) are facing the compound challenge of a long overallocated river, aridification and growth. The resulting supply-demand imbalance is the principle reason reservoir storage in the Colorado River is at a historic low. However, there are other important, albeit subtler factors at play: 1) a system designed for variability is now experiencing change; 2) a focus on lagging indicators of change as policy triggers; 3) prioritization of local flexibility over system stability; and 4) inattention to reservoir recovery. Below I detail each of these factors and present ideas to shape new strategies that address these factors. Then, I conclude with two final recommendations on anticipating the unintended consequences of conservation and planning for the unexpected.

Policy Designed for Change

The Colorado River Basin is in drought; however, the basin is also aridifying. Specifically, one-sixth to one-half of the reduction in streamflow is attributed to rising temperatures and temperatures are highly likely to continue to rise.[1] A sustainable revision to the Colorado River Operating Strategy will require not just reduction in use across the basin consistent with the current supply-demand imbalance, but clear guidelines for equitable sharing of further reductions in use if and when they are needed. A clear process detailed when further reductions are warranted and how they are distributed would further the Interim Guidelines goal of providing greater predictability. The development such a process should

[1] Udall, Bradley and Jonathan Overpeck. 2017. "The Twenty-First Century Colorado River Hot Drought and Implications for the Future." *Water Resources Research* 2404–18.

balance the need for timely adjustment and the risk of overreacting to temporary conditions through the careful selection of an indicator(s). One candidate indicator is the 10-yr naturalized streamflow, but thorough study would be needed to assess how the choice of averaging window impacts tradeoffs.

Even in light of current challenges, the hydraulic infrastructure of the Colorado River, has been highly successful achieving the early twentieth century goals of controlling variability and facilitating development. This infrastructure has insulated the general public and many agricultural water users from the cycles of hydrological variability for decades and is now insulating them from the early signals of climate change. On one hand, this is the system performing as intended. On the other, by working a bit too well, the system has delayed response to changing conditions by reducing the salience of decreasing streamflow. The salience of this information is as important the availability of information because adaptive responses to drought are observed when not only is the system in water stress but information on water stress is highly salient[2]. A similar phenomenon is observed in ecosystems where tight control of variability creates fragility by reducing the information needed for adaptation[3]. In ecological systems increased variability, and the resulting impacts, are needed to facilitate adaptation. However, in engineered systems the salient information required for timely adaption can be retained through careful policy design[4].

The Interim Guidelines used reservoir levels to trigger a shift from one operating mode to another. In a stationary system the use of reservoir levels could effectively achieve the stated goals of balancing "trade-offs between the frequency and magnitude of reductions of water deliveries" and providing predictability.[5] However, in a system with trends in both streamflow and water use, the focus on reservoir levels instead of streamflow, inevitably delays response. Just as reservoir storage delays and dampens the peak of a flood wave, storage delays and dampens the signal of declining streamflow. I recommend that revised operating strategies consider streamflow, or streamflow in conjunction with storage, to trigger a shift from one operating condition to another.

Incentivizing Collaboration while Sustaining the River

A key puzzle is how – beyond the existential threat of system collapse – to incentivize the Basin States to sign on for reduced water allocations and proactively implement measures that reduce water use. The Interim Guidelines created two mechanisms to incentivize proactive implementation: Intentionally Created Surplus (ICS) and Developed Shortage Supply (DSS). These mechanisms encouraged creativity in water conservation, piloting of new ideas and techniques, and resulted in real water savings that helped maintain water levels in Lake Mead. The incentive for participation is the ability of the water user to withdrawal additional water from the system, beyond their allocation. These withdrawals are subject to constraints based on the water level in Lake Mead, though the 2019 Drought Contingency Plan loosened these constraints.[6] The flexibility granted, particularly by the loosening of these constraints, benefits

[2] Garcia, Margaret, et al. 2019. "Towards Urban Water Sustainability: Analyzing Management Transitions in Miami, Las Vegas, and Los Angeles." *Global Environmental Change* 58:101967.
[3] Carpenter, Stephen R., et al. 2015. "Allowing Variance May Enlarge the Safe Operating Space for Exploited Ecosystems." *Proceedings of the National Academy of Sciences* 112(46):14384–89.
[4] Garcia, Margaret, Elena Ridolfi, and Giuliano Di Baldassarre. 2020. "The Interplay between Reservoir Storage and Operating Rules under Evolving Conditions." *Journal of Hydrology* 590:125270.
[5] Department of the Interior. 2007. Record of Decision: Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations of Lake Powell and Lake Mead.
[6] US Bureau of Reclamation. 2018. Upper and Lower Basin Drought Contingency Plans.

local reliability. An illustrative example is the Metropolitan Water District of California, which is withdrawing ICS water this year during a Tier 1 Shortage to help the District weather drought on instate water projects. However, this locally beneficial flexibility is contributing to additional drawdown at a time when Lake's Mead and Powell have a real risk of reaching dead pool in the next few years.

Further, the ICS credits issued but not yet called on remain on the books. Similar to gauging your financial health by reading your bank account statement while ignoring your credit card bills, it is now not fully accurate to gauge the health of the river considering only water in storage and not the IUOs created by ICS. Paired with the Interim Guidelines provision for additional allowable water use during surplus operations, the ICS reduces the probability of recovering reservoir storage. The development of guidelines should simultaneously consider the benefits to local water users and what types of actions those benefits will enable or incentivize. Further, new operating strategies should explicitly target reservoir recovery in all but extreme drought years to prevent a repeat of the slow draw down experienced over the last two decades.

Anticipating the Unintended Consequences of Adaptation

Cities and states across the Western U.S. have demonstrated the potential of water conservation during intense drought. However, increased water use following a period of sustained low water use, or rebounding water use, is common[7]. Understanding why this rebound occurs and how policy choices influence the durable amount drought induced water conservation is important to achieve the large scale and long-lasting water use reduction needed in the Colorado River Basin. Reductions in water use can be attributed to behavior change (i.e., choosing to do less with water) and investments in infrastructure efficiency (i.e., changing how much water it takes to achieve a goal). Maintaining behavior change requires attention and effort, and this effort is linked to the salience of water stress; as the salience decreases, rebound begins[8,9]. In contrast, water use reductions attributed to more efficient infrastructure are likely to endure for, at least for municipal water use[10]. This underscores the potential benefits of investing in efficiency, however, there is an important caveat. Where water is a key input to production (e.g., agriculture), increasing efficiency can lead to expanding production or shifting to more water intensive production due the declining costs brought by efficiency. This phenomena, termed Jevon's Paradox, has been documented with agricultural water efficiency investments. For example, Jevon's Paradox frustrated efforts to reduce groundwater pumping in the High Plains Aquifer[11]. In the context of the Colorado River basin this means that while there is great potential for water savings in the agricultural sector, realizing these savings requires careful policy design that anticipates and constraints the use of saved water.

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[7] Beal, C. D., A. Makki, and R. A. Stewart. 2014. "What Does Rebounding Water Use Look like? An Examination of Post-Drought and Post-Flood Water End-Use Demand in Queensland, Australia." *Water Supply* 14(4):561–68.
[8] Gonzales, Patricia and Newsha Ajami. 2017. "Social and Structural Patterns of Drought-Related Water Conservation and Rebound." *Water Resources Research* 1–38.
[9] Quesnel, Kimberly J. and Newsha K. Ajami. 2017. "Changes in Water Consumption Linked to Heavy News Media Coverage of Extreme Climatic Events." *Science Advances* (October):1–10.
[10] Garcia, Margaret and Shafiqul Islam. 2019. "The Role of External and Emergent Drivers of Water Use Change in Las Vegas." *Urban Water Journal* 15(9):888–98.
[11] Pfeiffer, Lisa and C. Y. Cynthia Lin. 2014. "Does Efficient Irrigation Technology Lead to Reduced Groundwater Extraction? Empirical Evidence." *Journal of Environmental Economics and Management* 67(2):189–208.

Planning for the Unexpected

The Colorado River basin is aridifying but that does not preclude future flooding. New operational strategies should retain flood preparedness protocols. Further, new strategies should consider the fact that the current generation of reservoir operators in the basin have little experience with floods. Operational strategies and protocols guide and constrain operators. However, they also allow for professional judgement; in fast paced and high-pressure situations many professionals default to heuristics to guide decisions. These heuristics are shaped by prior experience, and the prior experience of the current generation of operators has been defined by drought which may lead operators to make decisions which are conservative with respect to drought but risky with respect to floods[12]. Strategies and training protocols should seek to minimize this potential.

I thank you again for the opportunity to provide comments. I hope these comments stimulate productive conversation and wish you all luck on the hard work ahead.

Sincerely,

Margaret Garcia, Assistant Professor
School of Sustainable Engineering & The Built Environment
Arizona State University | Ira A. Fulton Schools of Engineering
WCPH 414 | Office 480.965.8838 | M.Garcia@asu.edu

[12] Garcia, Margaret, et al. 2022. "Weathering Water Extremes and Cognitive Biases in a Changing Climate." *Water Security* (January):100110.

BlueRibbon Coalition
P.O. Box 5449
Pocatello, ID 83202
208.237.1008
brc@sharetrails.org

Ben Burr, Executive Director
BlueRibbon Coalition
P.O. Box 5449
Pocatello, ID 83202

August 1, 2022

Commissioner Camille Touton
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Commissioner Camille Touton,

BlueRibbon Coalition is a national non-profit organization that promotes responsible recreation and encourages a strong ethical dialogue and individual stewardship of our natural resources. We champion responsible use of public lands and waters by all recreationists through education of their responsibilities and the empowerment of our members to secure, protect, and expand shared outdoor recreation access. We are proud to work collaboratively with governments, natural resource managers and other recreationist groups.

We represent tens of thousands of Lake Powell recreation users. Glen Canyon National Recreation Area is a significant national treasure as well as a spectacular producer of revenue. GCNRA averages $250 million to $450 million in annual revenue. It gives rise to over 5000 jobs. Its economic multiplier is 10, giving rise to somewhere between $2 - $4 billion in direct economic value to its surrounding and regional areas. In order to keep water flowing to the Lower Basin users Lake Powell has depleted its storage of water and the level of the lake has dropped to the point that it has at times precluded any recreational (economic) activity on its north end. This began December 2, 2021 and continues to this point in time with only limited operational capabilities. During periods of 2021, its south end was compromised to the point that recreational utilization, and its attendant revenue, almost vanished. The present low levels of Lake Powell have ruined an extensive part of its infrastructure and rendered those

improvements unavailable to recreationists. While we recognize the importance of water deliveries and hydroelectric power generation, it is important to recognize the economic benefits of recreation use of these waters is comparable to the economic benefits of the other uses and vitally important to the communities that rely on these benefits. The negative impacts of lost recreation access disproportionately impact Navajo Nation tribal communities on the southern border of the GCNRA, as well as Page, Arizona and should be recognized in the deliberations involving the Drought Response Operations Plan.

It is our view that present policy be modified to produce a minimal water level for Lake Powell that will accommodate the preservation of the needed infrastructure. Most of this infrastructure will need to be rebuilt and it should be with the intention of being permanent. There is no need for fluctuating water levels to destroy newly completed facilities. We recommend developing a recreation alternative that builds a Lake Powell operational tier that will adjust the Mid-Elevation release tier and Lower-Elevation balancing tier to be triggered when lake elevation drops below 3588. An elevation of 3588 at Lake Powell is the elevation that allows for all major recreation amenities to be maintained and open. Managing operational tiers around this level will also position the agency to have more operational flexibility when dealing with changed circumstances since the adoption of the 2007 Interim Guidelines. The agency recognizes that "Hydrologic uncertainty combined with uncertain future growth and water use compound to mean that it is impossible to assign probabilities to any given future and the basin is experiencing conditions of deep uncertainty." While our approach is focused on recreation, we also believe it provides a meaningful framework for analyzing risk and employing planning methods that account for deep uncertainty. We have attached our *Path to 3588' Plan,* as part of our formal comment, and we request the agency develop an alternative that includes the analysis and recommendations laid out in the attached plan. Our plan has received an enthusiastic response from the recreation users across the basin. We hope you will see this expression of the interests of the recreation community of users as an important voice that should be balanced with the other important voices in this discussion.

As non-consumptive users, our rights will not interfere with any of the other users of Colorado River water. For 60 years Lake Powell has stood as the guardian and fulfilled its role as a management tool for adequate Basin State water allocation. It is now time to rethink those original policies and include other stakeholders in future policy considerations. For this reason, any analysis of our plan that distinguishes it as a "recreation alternative" will only be complete if the analysis also recognizes the environmental benefits of our plan along with our plan's ability to meet the needs and demands of the law and other stakeholders.

We feel that recreationists have a right to access and use stored water. So do the states of Colorado, Utah, and Arizona. As a natural resource, water is to be used for the benefit of all of us. It is in the public interest to allow recreational use of our natural resources that leads to no adverse effect or depletion of those assets. Colorado River water belongs to us all and we encourage any move in a direction that enables the benefits of this water to be enjoyed by the greatest number of users.

We believe that the current trigger for drought response at 3525' at Lake Powell is inadequate, and doesn't allow the necessary flexibility to BOR decision makers to adjust to lowering lake levels. That the 2007 Interim Guidelines didn't allow for greater flexibility for the lower elevation balancing tier is a glaring flaw in the guidelines in hindsight. This oversight must be corrected in the current planning process.

The key challenge that faces future planning is that there will likely be declining water supply because of climate change in a watershed that was already over allocated to begin with. The seven states have recognized this, but the specific challenge will be to modify existing agreements to reduce water demand within the lower basin states while allowing the upper basin states to exercise their water rights so that all seven states and Mexico can sustainably use this resource while preserving other key values related to recreation and the environment.

2007 Interim Guidelines

The first component of the 2007 Interim Guidelines is,

> "improve Reclamation's management of the Colorado River by considering trade-offs between the frequency and magnitude of reductions of water deliveries, and considering the effects on water storage in Lake Powell and Lake Mead, and on water supply, power production, recreation, and other environmental resources;

The 2020 review of the 2007 plan found that the BOR was "largely effective". BlueRibbon believes that in the case of recreation, BOR was not effective as we have seen recreational resources such as marinas and ramps closed due to water levels. There have been "experimental releases" that should not be implemented during times of drought.

2016 Glen Canyon Dam Long Term Experimental and Management Plan

In the 2016 Glen Canyon Dam Long Term Experimental and Management Plan, Alternative D was selected as the "Environmentally Friendly" alternative. This alternative claimed it would sustain or improve conditions for reservoir and river recreation. However, we have not seen this be the case as marinas and ramps that provide recreational opportunities on reservoirs have been shut down since 2016. As a result of recreational opportunities being lost, there has been

a severe impact on economic opportunities in surrounding communities. One of the 11 specific goals to improve resources on the Colorado River was recreational experience. Alternative D had too much emphasis on downstream resources.

Experimental releases in the LTEMP would be implemented unless they proved to be "ineffective or result in unacceptable adverse impacts on other resources"[1]. Recreation is listed as one of these resources and it is blatantly apparent that these experimental flows have negatively impacted recreation which also negatively impacts local communities and tribes.

We have attached this policy brief to this letter, and we hope you will give it careful consideration.

BRC appreciates that BOR recognizes that this process needs to be more inclusive of a wide range of stakeholders compared to the process in 2007. We have had thousands of our members and supporters engage in this planning effort, because they recognize that the 2007 Interim Guidelines didn't adequately account for the impact to recreation that would result from low water levels. As a collective voice of 10,000s of recreation users of these reservoirs that is a growing every week, BRC would like to be considered an interested public for any administrative processes related to changing water use in the Colorado River Basin, and we would like to be added to any mailing lists, email lists, or other information distribution channels where we can learn more about BOR plans to address use of water in the system. Information can be sent to the following address and email address:

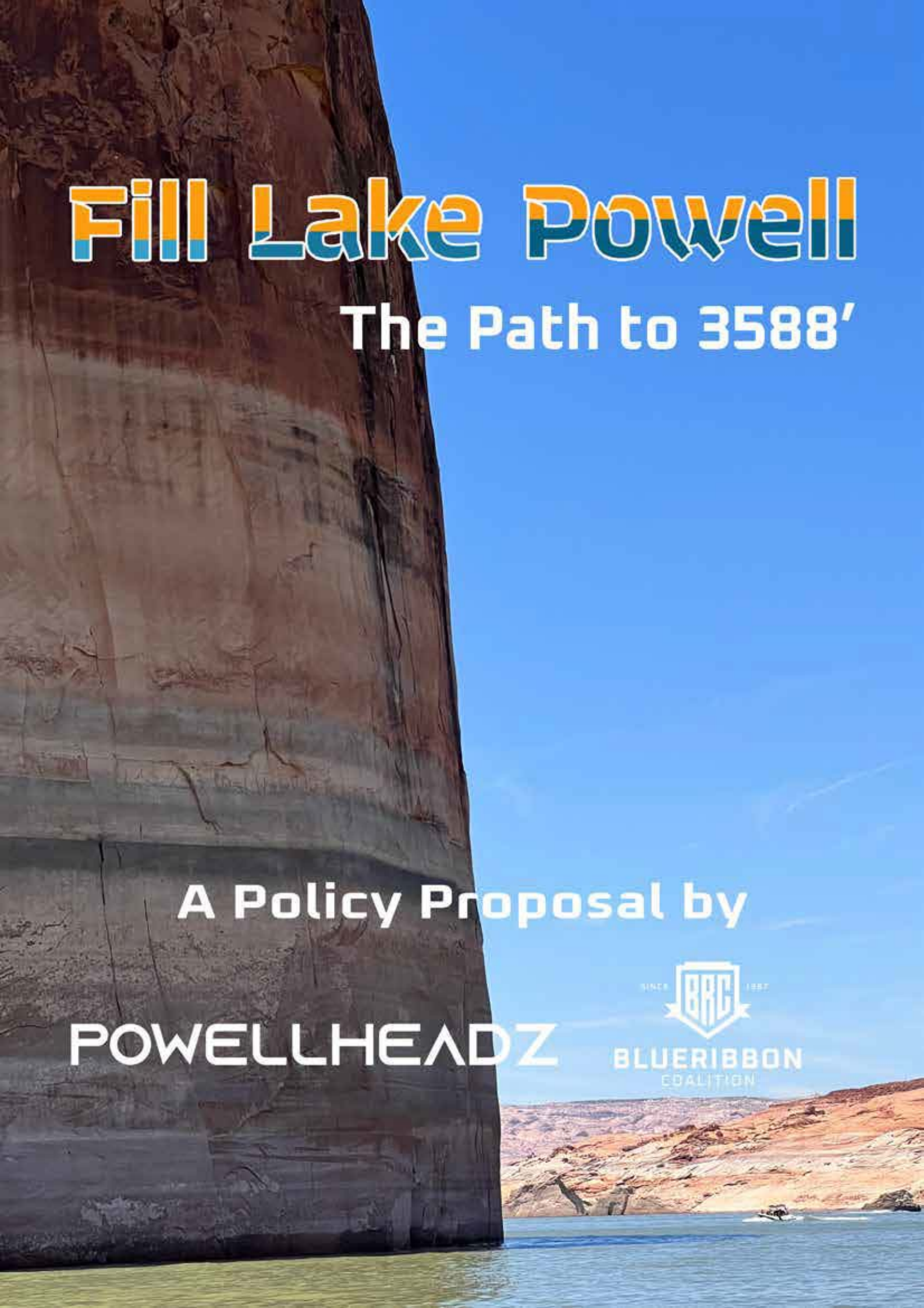
Ben Burr
BlueRibbon Coalition
P.O. Box 5449
Pocatello, ID 83202
brmedia@sharetrails.org

Sincerely,

Ben Burr
Executive Director
BlueRibbon Coalition

Simone Griffin
Policy Director
BlueRibbon Coalition

[1] https://ltempeis.anl.gov/documents/docs/LTEMP_ROD.pdf


Fill Lake Powell
The Path to 3588'
A Policy Proposal by
POWELLHEADZ
BRC
BLUERIBBON
COALITION

Fill Lake Powell

Glen Canyon Dam created an opportunity. At the time of its construction, this opportunity was sometimes viewed in terms of water storage, power generation and flood control. Recreation on newly-formed Lake Powell, while clearly envisioned as a planned benefit, was perceived by some as a by-product of the other reasons the dam was built, rather than as a primary purpose. That perception must change to align with current realities.

Lake Powell, which was once a remote but breathtaking recreational outpost with little supporting infrastructure, had by 2019 become a $420 million economic engine each year, and that's just from direct revenue generated, not even counting any multiplier effect in the region. Annual visitation, which in 1967 was under 500,000, had increased eight-fold by the end of the second decade of the 21st century. By 2019, recreation on Lake Powell was producing more revenue than the power generated through the dam, a trend that will likely continue as other new energy options present themselves, but only if—and this is the crucial part—Lake Powell and its supporting infrastructure continue to exist and be maintained.

Water supply issues are evolving as well. Water rights have been well-established, and the seven states in the Upper and Lower Basin, along with Mexico, work closely with the Bureau of Reclamation to manage water supply based on a series of laws and protocols first established a century ago. But the legal framework they operate under no longer works as intended, especially as long-term drought has gripped the region, especially in the 21st century. As water supply from the Colorado River has become less reliable, water managers in those states will become more creative with conservation practices while working to develop new supplies through recycled water, desalination opportunities, and engineered solutions.

Path to 3588'

As the need to focus on water and power from the Colorado River system continues to diminish, the importance of recreational opportunities only increases. Lake Powell is a unique resource not just in the country, but in the entire world: a desert oasis providing unlikely access to some of the most beautiful canyons on the planet, while providing a haven for anglers, campers, hikers and anybody with a camera. It's an international treasure.

As times have changed, so must the focus of those who manage the lake. Priorities change. The purpose of the dam and the lake it created have evolved. While there are loud and persistent voices who see draining the lake as the only reasonable path forward, we offer an alternative vision.

The following policy proposal is our plan to raise the level of Lake Powell to 3588' - a level which allows for the full use of all major recreation amenities on the Lake. Our plan also recognizes the importance of maintaining Lake Mead at viable levels.

Recreation users are uniting to support our vision, and agency leaders in the Department of Interior are starting to take notice of our growing movement.

Our **Path to 3588'** plan was prepared by John Rickenbach. Mr. Rickenbach is an environmental and planning consultant with 30 years of experience. Mr. Rickenbach is an expert in issues related to the management of the Colorado River watershed. He has an intimate knowledge and understanding of the Colorado River Compact of 1922 and subsequent laws that guide water resource use in the seven affected states and Mexico.

With a strong and reasonable plan before us, we believe now is the time to Fill Lake Powell.

Our Guiding

1. Glen Canyon National Recreational Area, established by Congress in 1972, will continue to offer unparalleled recreational land and water based recreation opportunities for the public as a premier destination.

2. Establish lake recreationists (represented by Fill Lake Powell, a project associated with the Blue Ribbon Coalition, a non-profit organization whose goal is to maintain public access to public lands and waters) as an entity with a seat at the table as any components of the existing legal framework for managing the Colorado River are renegotiated. Fill Lake Powell represents the broad coalition of lake-oriented recreational interests, which go far beyond the seven states within the basin. Fill Lake Powell would be an active participant in strategic discussions and planning involving water management issues.

3. Recognize non-consumptive recreational rights to use stored water in Lake Powell as a key aspect of a renegotiated agreement among the interested parties as the 1922 Compact is updated, a concept already firmly and legally established in several of states within the Colorado River watershed. Fill Lake Powell will work to ensure that non-consumptive recreational rights are protected at all levels of the law and in the execution of public policy.

4. Maintain a target elevation on Lake Powell of at least 3588 feet above sea level, which would allow all existing marinas, boat ramps and related facilities to operate and maximize revenue generation. These facilities include, but are not necessarily limited to: Wahweap Marina and related boat ramps, Antelope Point Marina and related boat ramps, Castle Rock Cut, Dangling Rope Marina (or another mid-lake marina if Dangling Rope is relocated), Bullfrog Marina and related boat ramps, Halls Crossing Marina and related boat ramps, Lone Rock Beach, Stanton Canyon campground, Hite outpost, and various floating bathrooms and pumpout facilities. BOR shall plan releases through Glen Canyon Dam in such a way to achieve this target elevation by the beginning of Water Year 2025-26 (October 1, 2025), which may require incremental increases in releases up until that date.

5. If the target elevation of 3588 cannot be maintained in a given year because of poor snowpack or other competing demands on the system related to water supply or power, establish protocols that meet minimum water supply and power requirements while maintaining economically viable recreational opportunities on the lake. Currently these measures are being deployed when the lake drops below 3525, which doesn't adequately take into account the impact to recreation.

Principles

6. When there are water shortages such that all competing management goals may not be attainable, prioritize recreational interests, water supply, and power generation related to Lake Powell as a function of the relative economic importance of these activities. Recognize and work within the confines of existing environmental laws while also exploring ways to improve these laws to balance resource utilization with environmental preservation.

7. Minimize fluctuating lake levels to the extent possible within the framework of a renegotiated agreement with BOR and other interested parties, in order to reduce maintenance and operational costs associated with established and permanent lake recreational facilities.

8. Work with the Tribal Nations, as well as state and local governments to establish and maintain appropriate lake-oriented recreational facilities to enhance the economic viability of the region, while respecting and mitigating for the environmental and cultural resources that could otherwise be affected by such facilities.

9. The NPS shall produce a 10-year management plan for GCNRA and publish it in a convenient format, updating the plan as appropriate. The plan should include revenue and use projections as well as planned improvements, identifying timing and potential revenue sources for planned facilities. The plan should emphasize ways to maximize GCNRA access for all forms of watercraft, beach users, hikers, off-road users, aircraft, anglers, commercial tour operators, campers, and any other outdoor recreation users who love GCNRA as much as we do. The plan should also include actions to facilitate access, visitation and recreation in a manner consistent with existing law, current management plans, and agency regulations – including the Department of Interior's Equity Access Plan.

10. Work collaboratively in a spirit of cooperation with competing regional interests, seeking common ground rather than confrontation in an effort to achieve common goals.

Fill Lake Powell Mission Statement

Fill Lake Powell is committed to maintaining an economically viable Lake Powell, protecting and defending the public's recreational rights within Glen Canyon National Recreation Area, and adding the voice of recreation users to the dicussion surrounding the allocation of water resources in the West.

The Path to 3588: A Plan for Lake Powell and Lake Mead

By John Rickenbach
July 2022

In June 2022, the Bureau of Reclamation (BOR) called for an immediate 2-4 million acre-foot (maf) reduction in water use among the seven states served by the Colorado River watershed in order to avert catastrophic consequences to water and power supply within the system. Based on the recent average annual water use among the states, this call to action represents a 16-32% reduction in use from this fragile water supply. If that sounds like a dramatic call to action, it is.

In an era of unprecedented drought, old assumptions and protocols for managing water supply in the Colorado River watershed no longer work. Creative, collaborative solutions are needed to ensure that the major reservoirs in the system can store sufficient water, generate power, and provide economically important recreational opportunities into the future. As recognized by the BOR, the current rate of water consumption within the system is unsustainable, at least as long as water supplies and snowpack remain generally below historic averages, a trend likely to continue into the future.

The following describes a way forward to meet this historic challenge. It involves a combination of equitably reducing water use among the affected states and Mexico, reimagining the volume and timing of water releases through the major dams, and having enough flexibility built in so that if the reservoirs begin to fill sufficiently, restrictions on water use can ease.

The key principles of this plan are these:

1. Power supply, water supply, and recreational opportunities associated with the major reservoirs in the system must be maintained in a sustainable manner, since those resources are crucial to the health, safety and economy of the West.

2. Given the current drought and extremely low levels of Lake Powell and Lake Mead, any action under this plan needs to occur immediately for the plan to be most effective.

3. Any needed water use reductions to implement this plan must be shared fairly and equitably among the states that use the water, as well as Mexico.

4. Because the entire Colorado River water supply and power system does not work unless both Lake Powell and Lake Mead are viable—actions to increase storage in both reservoirs need to be addressed simultaneously. One reservoir should not be prioritized over the other.

5. The plan must be flexible, and recognize changing conditions over time. The magnitude and duration of water use reductions are linked to the volume of water in Lake Powell and Lake Mead. If water volume in the reservoirs rises, water use reductions can ease.

Key Assumptions Under the Plan

Inflow to Lake Powell

BOR reports that the average annual inflow to Lake Powell from 1991-2020 is 9.6 million acre feet (maf). Over time, that number has been generally decreasing, but with considerable variation up and down from year to year. In 2021, unregulated inflow to Lake Powell was only 3.5 maf, the lowest amount since the reservoir came into existence.

For modelling purposes underlying this plan, the 5-year period that includes water years 2016-20 (WY 2016-20) was used to calculate a more recent realistic "average" to form the baseline for future projections. This period captured Lake Powell inflows ranging from 5.4 to 11.7 maf, encompassing relatively "good" and "bad" years. The average annual inflow during that time was 8.99 maf, slightly less than the 1991-2020 average, and thus a reasonable and conservative basis for future projections.

Inflow to Lake Mead

Inflow to Lake Mead is a function of three factors: releases through Glen Canyon Dam, inflow from the tributaries that feed the Colorado River below the dam (notably the Little Colorado and Virgin rivers), minus any evaporation between Glen Canyon Dam and Hoover Dam.

Releases through Glen Canyon Dam are highly variable, and vary based on protocols established by the BOR, depending on the surface elevation of Lake Powell and Lake Mead. This typically varies from 7.0 to 9.0 maf/year. For modeling purposes, this plan creates modified delivery protocols, depending on the surface elevation of the two reservoirs at the end of a given water year.

The average annual input from tributaries below Glen Canyon Dam from WY 2016-20 was 0.89 maf. This is also factored into calculating volume and surface elevation of Lake Mead.

Water Use

For the purpose of this plan, the baseline for calculating water use is the collective average of the seven states use in the 5-year period that encompasses Water Years (WY) 2016-20.

Upper Basin Water Use is reported in the February 2022 report entitled Upper Colorado River Basin Consumptive Uses and Losses 2016-2020. Upper Basin use as reported by BOR not only includes consumptive use, but evaporation from smaller reservoirs other than the large mainstem reservoirs such as Lake Powell or Flaming Gorge, which are accounted for separately. The average annual water use in the Upper Basin from WY2016-20 was 4.15 maf.

Lower Basin Water Use is reported in the annual reports issued by BOR entitled Colorado River Accounting and Water Use Report: Arizona, California and Nevada. The reports also include data about deliveries to Mexico, as well as releases through the smaller dams downstream of Hoover Dam. The average annual water use in the Lower Basin from 2016-20 was 6.90 maf.

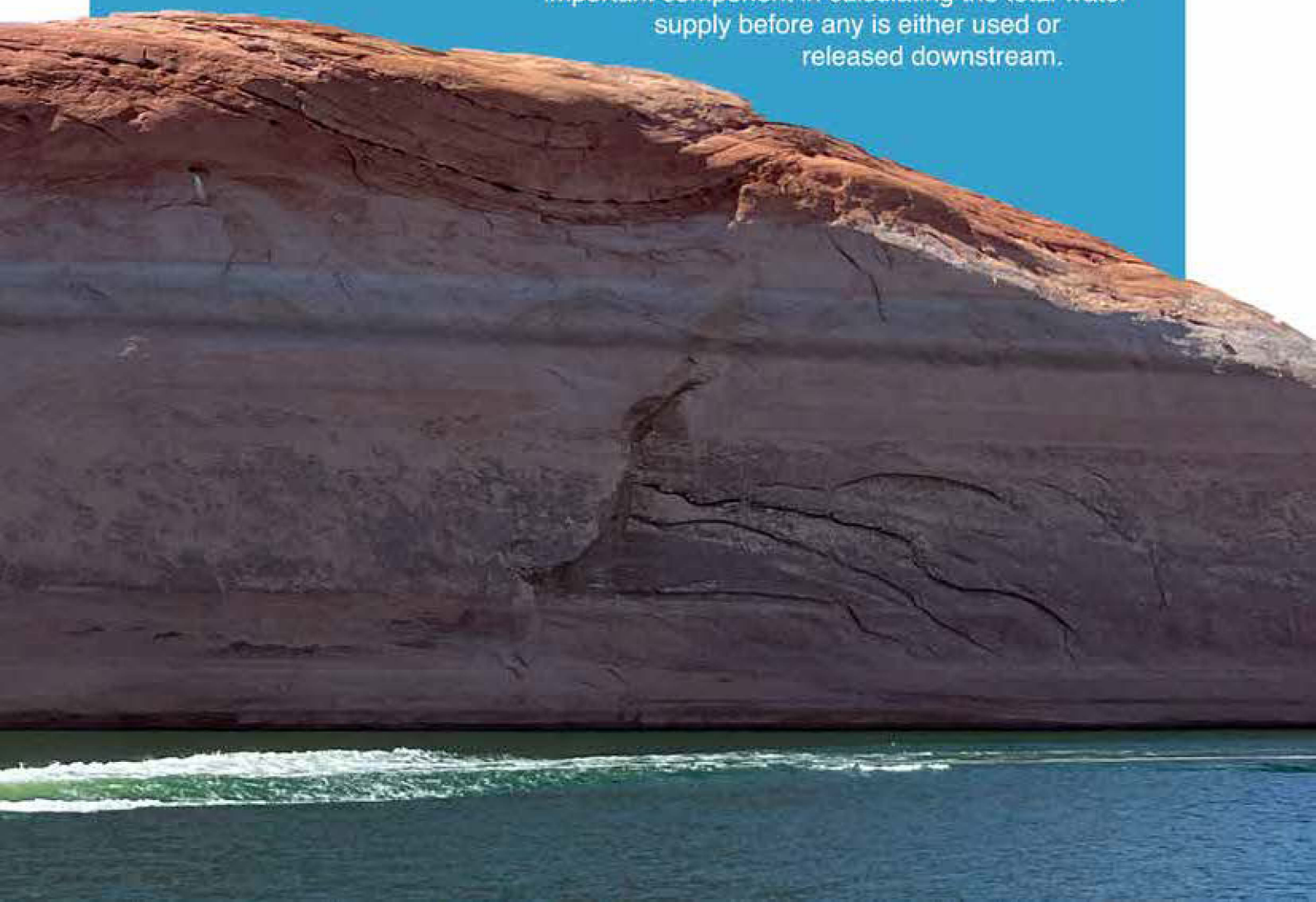
Each year annual deliveries to Mexico have been consistently at or very slightly above 1.5 maf in accordance with treaty requirements between that country and the USA.

Upper Basin Reservoir Additional Storage

There are several mainstem storage reservoirs above Lake Powell, the largest of which is Flaming Gorge Reservoir. Other significant reservoirs include Lake Navajo and Blue Mesa Reservoir. These essentially function as a "bank" for water in the Upper Basin that can be later used downstream, should the need arise. Collectively, these reservoirs have a potential capacity of about 6.4 maf, nearly 60% of which is within Flaming Gorge. The reservoir levels fluctuate as downstream need or flood control dictates, but in general, these reservoirs hold about 65-90% of their collective capacity at any given time. The 5-year average from 2016-20 is 81.4%. In May 2022, these reservoirs held only about 65% of their capacity.

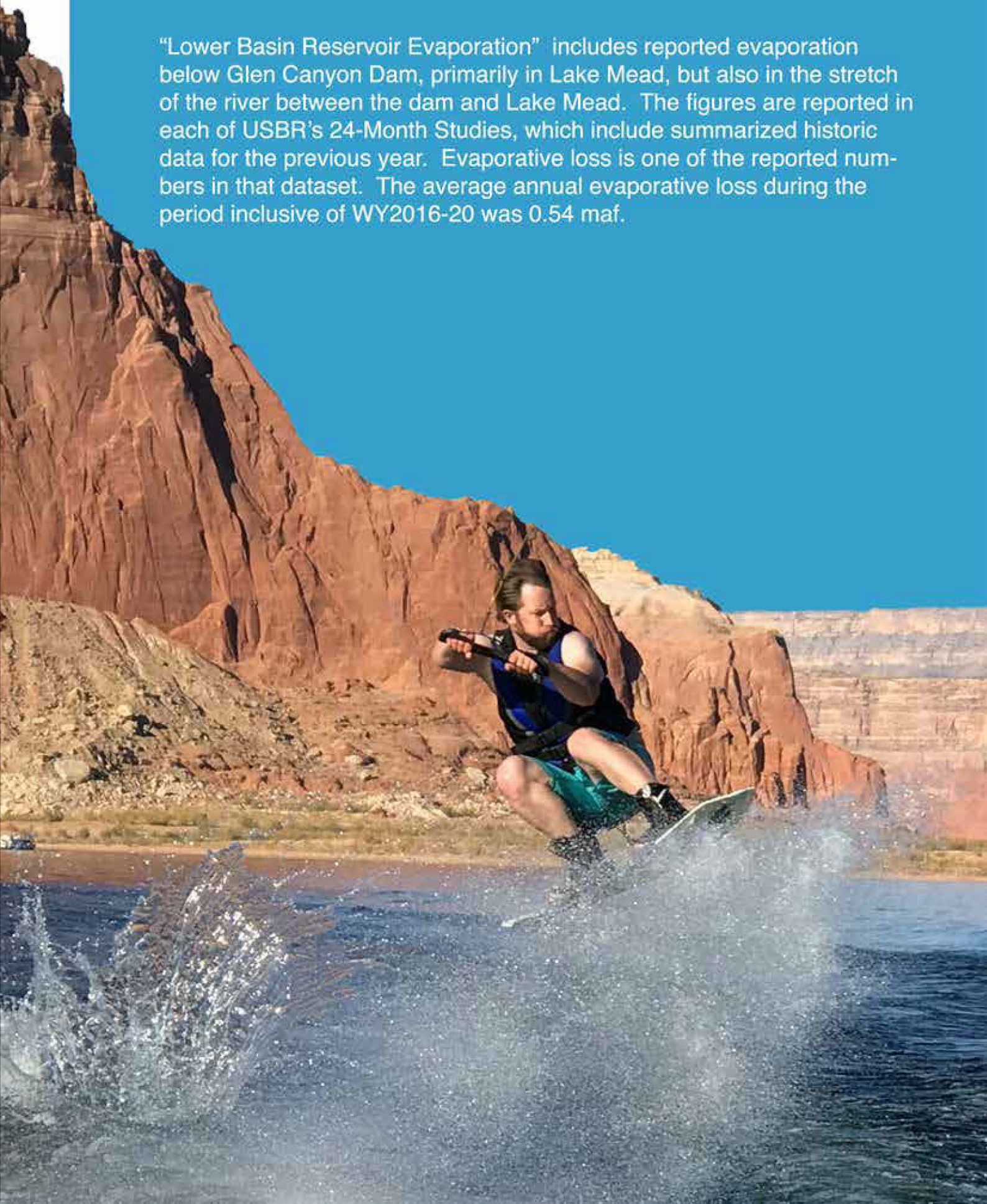
Upper Basin Reservoir Evaporation

"Upper Basin Reservoir Evaporation" includes reported evaporation in the mainstem reservoirs in the Upper Basin along the Colorado or Green Rivers, most notably Lake Powell itself. Of the average annual 0.47 maf evaporative loss in those reservoirs (based on WY2016-20), about 80% comes from Lake Powell, and 17% from Flaming Gorge. The remaining 3% comes from all other smaller reservoirs such as Blue Mesa and Morrow Point. Lake Navajo evaporation is not included in this dataset in the February 2022 USBR report (see Table UC-1 of that report). Although evaporated water is not technically "available" for later use, it is an important component in calculating the total water supply before any is either used or released downstream.



Lower Basin Reservoir Evaporation

"Lower Basin Reservoir Evaporation" includes reported evaporation below Glen Canyon Dam, primarily in Lake Mead, but also in the stretch of the river between the dam and Lake Mead. The figures are reported in each of USBR's 24-Month Studies, which include summarized historic data for the previous year. Evaporative loss is one of the reported numbers in that dataset. The average annual evaporative loss during the period inclusive of WY2016-20 was 0.54 maf.



Total Water Availability

In order to project future lake levels, it is first necessary to calculate the total water available in the Upper Basin watershed prior to considering any diversions, use, or evaporation. Based on existing BOR documentation, it is possible to calculate water availability in any past year using this equation:

Total Water Availability in the Upper Basin = Inflow to Lake Powell + Upper Basin Water Use + Upper Basin Additional Storage + Upper Basin Reservoir Evaporation

Based on the assumptions described above, the Total Water Availability in the Upper Basin on average in the period WY2016-20 was 13.59 maf annually. This forms the "baseline" for calculations for future years, and allows for modeling hypothetical reductions or increases in precipitation for future years, if "total water availability" is used as a proxy for "total precipitation".

Baseline Surface Elevations

In June 2022 the BOR issued its latest 24-Month Study, which forecasts inflows and outflows for all reservoirs affecting the entire Colorado River watershed. The forecast is based in part on projected long-range precipitation forecasts, historic trends, and projected releases from each reservoir. The forecast extends through June 2024, or roughly midway through Water Year 2024 (WY 2024). BOR also forecasts the projected surface elevation for Lake Powell and Lake Mead during this period. For the purpose of this plan, BOR's assumption for surface elevations at the end of WY2022 (September 30) are used as the baseline for projecting future lake levels modeled under the plan. For Lake Powell, the projected elevation is 3525.79, while Lake Mead is 1037.23.

Table 1 summarizes key baseline assumptions related to the two reservoirs, water availability, and water use in the Upper Basin, Lower Basin, and Mexico.

Table 1. Key Baseline Assumptions Related to Water Availability and Use	
	WY2016-20 Annual Average
Upper Basin Water Availability (prior to diversion or use)	13.59 maf
Inflow from rivers between Glen Canyon and Hoover Dam	0.89 maf
Upper Basin Water Use [1]	4.15 maf
Lower Basin Water Use	6.90 maf
Water Delivered to Mexico	1.50 maf
Upper Basin Mainstem Evaporation	0.47 maf
Lower Basin Mainstem Evaporation	0.54 maf
Sources: USBR 24-Month Studies (2010-2022); Colorado River Accounting and Water Use Report: Arizona, California and Nevada (various years); Upper Colorado River Basin Consumptive Uses and Losses 2016-2020; http://lakepowell.water-data.com; http://lakemead.water-data.com.	
1. *Upper Basin Water Use also includes 0.24 maf of evaporation on non-mainstem reservoirs*	

Action Plan

The following tables summarize the key aspects of the action plan for water use reductions and releases through Glen Canyon Dam to implement the key principles described at the outset of the plan, based on the previously-described assumptions. In general, required actions are based on surface elevations of Lake Powell and Lake Mead at the end of a particular water year (September 30) as reported by BOR, with water use reductions and dam releases applied to the following water year. These actions supersede any potentially conflicting protocols previously established under the 1922 Colorado River Compact and subsequent related laws, collectively known as the "Law of the River".

Table 2 shows key elevations within Lake Powell and Lake Mead that provide guidance in developing this plan, particularly regarding water use and the magnitude of releases from Glen Canyon Dam in a given year.

Table 2. Key Elevations in Lake Powell and Lake Mead

Elevation Condition	Lake Powell	Lake Mead
Full Pool	3700	1225
Minimum elevation for all recreational facilities to be operational [1]	3588	-
Buffer elevation (35 feet above minimum power pool) [2]	3525	985
Minimum Power Pool	3490	950
Dead Pool	3370	895

1. Includes all marinas, launch ramps, access points, campgrounds, and the Castle Rock Cut
2. Provides a sufficient buffer to ensure continued power production, allowing for water levels to drop over the winter season.

Required water use reductions from the baseline 2016-20 average could range up to 30%, depending on the surface elevations of Lake Mead and Lake Powell at the end of the previous water year. Notably, water use reductions would be proportional, with an equal percentage applied to all seven states and deliveries to Mexico. Tables 3 and 4 show the required reductions by basin and by state for a water year, based on criteria related to the surface elevation of Lake Powell and/or Lake Mead at the end of the previous water year (September 30).

Table 3. Required Annual Water Use Reductions

Annual Water Use Reduction					When Applicable [2, 3]	
Percentage Reduction from Baseline [1]	Total Volume that may be used annually [4] *(million acre feet)*				Lake Powell	Lake Mead
	Upper Basin	*Lower Basin*	*Mexico*	***Total***		
30%	2.904	4.831	1.050	**8.784**	< 3540, OR	< 1025
25%	3.111	5.176	1.125	**9.412**	> 3540 and < 3575, OR	> 1025 and < 1050
20%	3.318	5.521	1.200	**10.039**	> 3575 and < 3600, OR	> 1050 and < 1075
10%	3.733	6.211	1.350	**11.294**	> 3600 and < 3625, OR	> 1075 and < 1100
0%	4.148	6.901	1.500	**12.549**	> 3625, AND	> 1100

1. Based on average annual water use from WY2016-20, as reported by BOR.
2. Surface elevation at the end of a given Water Year (September 30). If no reduction is required, then pre-2022 usage protocols apply.
3. If the condition of one reservoir is more restrictive than the other, the higher percentage reduction of the two is required to be applied to all users in the system.
4. Reductions within each basin are allocated by State as shown in Table 4.

Table 4 shows the baseline water use for each state (average annual usage from WY2016-20), and the maximum allocation for each state depending on the percentage reduction in use required in a given year as shown in Table 3. Note that if no reduction is required in a particular year, pre-2022 water use protocols under the Law of the River would apply for that year.

Table 4. Colorado River Annual Water Use Reductions by State
(based on WY2016-20 Average, in million acre feet)

Location	Average Usage (WY2016-20)	Percentage Reduction			
		10%	20%	25%	30%
Lower Basin					
California	4.115	3.703	3.292	3.086	2.880
Arizona	2.543	2.289	2.035	1.907	1.780
Nevada	0.243	0.219	0.194	0.182	0.170
Subtotal	***6.901***	***6.211***	***5.521***	***5.176***	***4.831***
Upper Basin					
Arizona *	0.026	0.023	0.021	0.019	0.018
Colorado	2.275	2.047	1.820	1.706	1.592
Utah	1.006	0.905	0.805	0.754	0.704
New Mexico	0.420	0.378	0.336	0.315	0.294
Wyoming	0.421	0.379	0.337	0.316	0.295
Subtotal	***4.148***	***3.733***	***3.318***	***3.111***	***2.904***
Mexico	1.500	1.350	1.200	1.125	1.050
Total	**12.549**	**11.294**	**10.039**	**9.412**	**8.784**
Reduction from Baseline (maf)	*0*	*1.255*	*2.510*	*3.137*	*3.765*

Sources: Colorado River Accounting and Water Use Report: Arizona, California and Nevada (various reports); Upper Colorado River Basin Consumptive Uses and Losses 2016-2020. Both publications by BOR.

** A small portion of Arizona is included in the Upper Basin for the purpose of calculating water consumption under the Law of the River.*

If no reduction is required, then pre-2022 usage protocols apply.

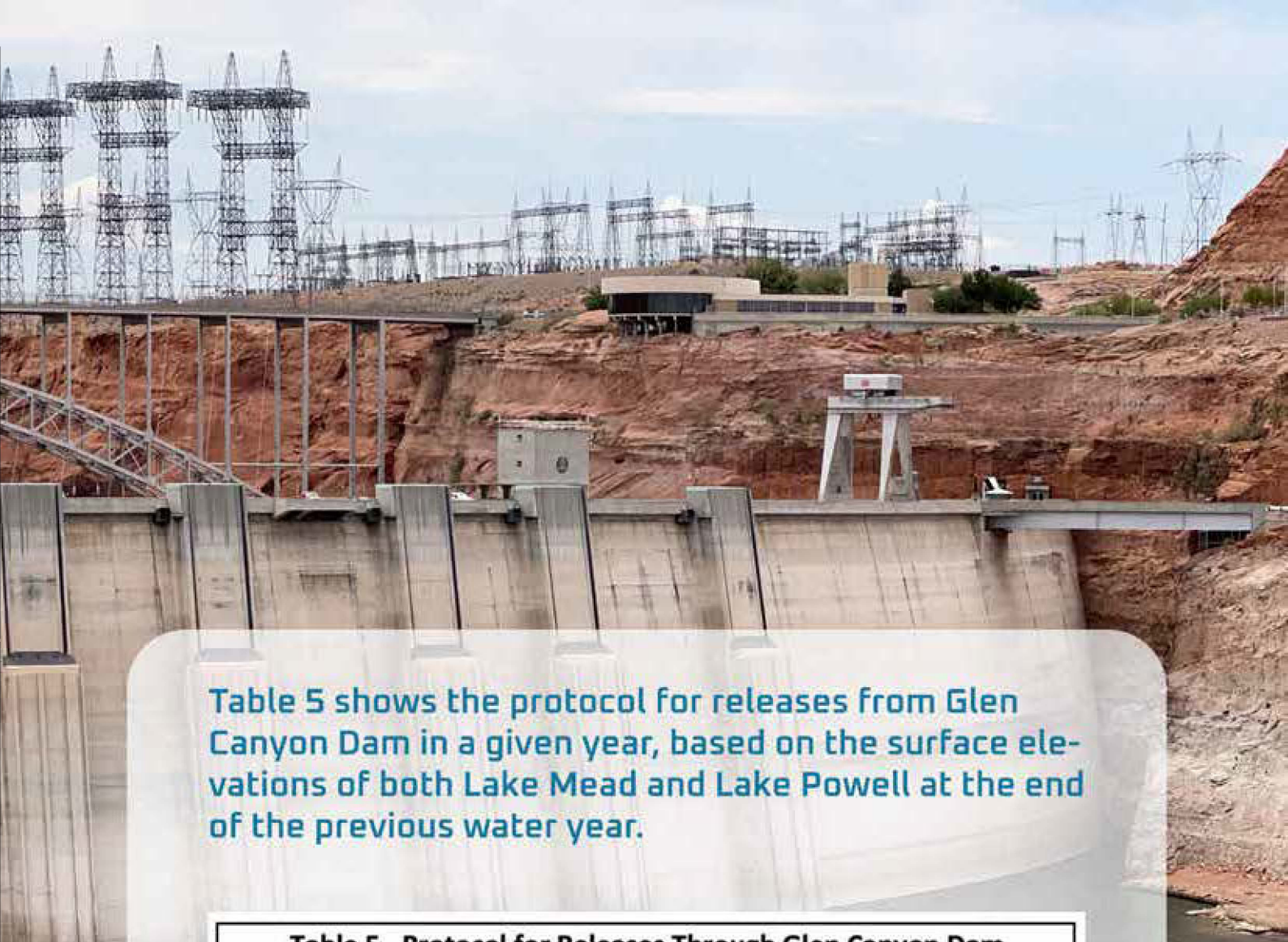


Table 5 shows the protocol for releases from Glen Canyon Dam in a given year, based on the surface elevations of both Lake Mead and Lake Powell at the end of the previous water year.

Table 5. Protocol for Releases Through Glen Canyon Dam

Required Release Through Glen Canyon Dam *(million acre feet)*	Applicable Condition [1]	
	Lake Powell	Lake Mead
5.0	< 3540 AND	> 1000
5.5	< 3540 AND	< 1000
6.0	3540-3575 AND	> 1025
6.5	3540-3575 AND	< 1025
7.0	3575-3600 AND	> 1050
7.5	3575-3600 AND	< 1050
8.0	3600-3625 AND	> 1075
8.23 minimum, or more as needed to balance the reservoirs	3600-3625 AND	< 1075
8.23 minimum, or more as needed to balance the reservoirs	> 3625	-

1. Surface elevation at the end of a given Water Year (September 30).

Possible Outcomes

Outcomes if Action is Taken Starting in WY2023

Table 6 illustrates possible 5-year outcomes of applying this plan, depending on the water availability in a given year. These tables show a range of possibilities, from 40% less than baseline average precipitation, to 20% greater than baseline average. In all cases, power generation though each dam would continue uninterrupted through this period under this plan. With the exception of an extended drought period similar in magnitude to what was experienced from 2000-04, or perhaps an extension of the historically dry year that occurred in 2021, both reservoirs would steadily recover (Lake Powell to over 3600, Lake Mead to over 1100), and in average conditions, water use reductions could be removed by 2027. However, continued water use reductions in the range 10-30% would still be required if water availability remains below average.

Crucially, this plan assumes that the seven states (and Mexico) are able to implement a 30% reduction from their current average use starting in WY 2023, and that BOR is willing to reduce flows through Glen Canyon Dam to 5.0 maf during that year. Once the reservoirs recover above critically low levels, these restrictions could be potentially eased back consistent with proposed protocols. These are challenging but necessary steps to protect the viability of the entire system, particularly if extreme drought continues, or even if WY 2023 is similarly dry as WY 2021.

A Range of Possibilities

Table 6. Possible Outcomes of Plan Implementation

Water Availability scenarios (WY 2023-27) [1]	Water Year	Water Use Reduction[2]	Release through Glen Canyon Dam[2] *(maf)*	Lake Powell level (Sept 30)	Lake Mead level (Sept 30)
	2022	0%	7.0	3525	1037
40% less than average (8.1 maf/yr) [3] *(similar to 2000-04)*	2023	30%	5.0	3530	1024
	2024	30%	5.0	3534	1010
	2025	30%	5.0	3531	996
	2026	30%	5.0	3528	989
	2027	30%	5.0	3525	982
20% less than average (10.9 maf/yr) *(similar to 1988-92)*	2023	30%	5.0	3565	1026
	2024	30%	6.0	3585	1031
	2025	25%	7.0	3589	1043
	2026	25%	7.0	3592	1056
	2027	20%	7.0	3593	1062
10% less than average (12.2 maf/yr) *(similar to 2003-07)*	2023	30%	5.0	3587	1028
	2024	25%	7.0	3606	1042
	2025	25%	8.0	3613	1069
	2026	20%	8.23	3615	1091
	2027	10%	8.0	3615	1100
Average (13.6 maf/yr) *(average defined as 2016-20)*	2023	30%	5.0	3609	1029
	2024	25%	8.23	3627	1063
	2025	10%	8.75	3633	1084
	2026	10%	8.75	3639	1102
	2027	0%	8.23	3645	1104
10% above average (14.9 maf/yr) *(similar to 2005-09)*	2023	30%	5.0	3631	1031
	2024	25%	9.0	3652	1077
	2025	10%	9.0	3667	1101
	2026	0%	8.23	3682	1104
	2027	0%	9.5	3688	1121
20% above average (16.3 maf/yr) *(similar to 1996-2000)*	2023	30%	5.0	3652	1032
	2024	25%	9.0	3681	1080
	2025	10%	12.0	3682	1139
	2026	0%	11.0	3687	1169
	2027	0%	11.0	3691	1194

1. Assumes a consistent level of water availability from year to year, and does not account for likely variations. Total water availability shown in parentheses is water available in the upper basin prior to its use, diversion, evaporation. The amount available for inflow to Lake Powell is considerably less, and is the remainder after Upper Basin water use, diversions, or evaporation is considered.
2. Follows protocols established in this plan.
3. Assumes that 500,000 AF is released to Lake Powell from upper basin reservoirs beyond typical release patterns in 4 of the 5 years.

What if The States and BOR Don't Take Meaningful Steps in 2023?

In June 2022, the BOR called on the seven states to find a way to reduce their collective water use by 2-4 maf, and gave them 60 days to come up with a plan. This was a sensible and necessary step to take. But even if they come to an agreement, it may be difficult to fully implement those steps in 2023. Table 7 shows what would happen if the states and BOR are not able to implement the necessary water use measures in WY 2023, and instead defer these actions until 2024. That table assumes only a modest 10% reduction in water use in 2023, and that releases through Glen Canyon Dam would be 7.048 maf as currently planned (based on the June 2022 24-Month Study published by BOR).

In general, the recovery of the reservoirs would be substantially slower than if stronger conservation measures were implemented in 2023. More importantly, power generation at Glen Canyon Dam would end in WY2023 if water availability via precipitation is 40% below normal, or a condition similar to what occurred in either 2002 or 2021. This could be avoided if releases through the dam were slowed considerably, but this would have a substantial adverse effect on Lake Mead, especially if water use reduction is only 10%, not 30% as advocated in this plan.

On the other hand, if snowpack conditions improve in the coming years, some of the most severe outcomes could be avoided, but that still assumes substantial water use reductions would be implemented starting in 2024.

Deferring immediate and decisive action is a huge gamble. It's a bet that the drought will break in 2023, or that it will at least not be as severe as it has been in years past, even as recently as 2021. Absent a significant break in the ongoing drought, and without immediate action to address its consequences, the power produced, water supplied and recreational opportunities offered by both Lake Mead and Lake Powell will eventually cease.

We Can't Afford to Wait

Table 7. Possible Outcomes of Plan Implementation (if "business as usual" in WY 2023)

Water Availability scenarios (WY 2023-27) [1]	Water Year	Water Use Reduction[2]	Release through Glen Canyon Dam[3] *(maf)*	Lake Powell level (Sept 30)	Lake Mead level (Sept 30)
	2022	0%	7.0	3525	1037
40% less than average (8.1 maf/yr) [4] *(similar to 2000-04)*	2023	10%	7.048	3484	1029
	2024	30%	5.0	3490	1016
	2025	30%	5.0	3486	1001
	2026	30%	5.0	3491	985
	2027	30%	5.0	3487	978
20% less than average (10.9 maf/yr) *(similar to 1988-92)*	2023	10%	7.048	3520	1032
	2024	30%	5.0	3570	1021
	2025	30%	6.5	3583	1034
	2026	25%	7.0	3586	1047
	2027	25%	7.0	3589	1059
10% less than average (12.2 maf/yr) *(similar to 2003-07)*	2023	10%	7.048	3541	1033
	2024	25%	6.0	3582	1032
	2025	25%	7.0	3601	1047
	2026	20%	8.23	3606	1078
	2027	10%	8.0	3606	1086
Average (13.6 maf/yr) *(average defined as 2016-20)*	2023	10%	7.048	3563	1034
	2024	25%	6.0	3616	1035
	2025	25%	8.75	3628	1077
	2026	10%	8.75	3634	1096
	2027	0%	8.23	3641	1098
10% above average (14.9 maf/yr) *(similar to 2005-09)*	2023	10%	7.048	3585	1036
	2024	25%	7.5	3629	1060
	2025	10%	9.0	3645	1085
	2026	10%	9.0	3660	1108
	2027	0%	9.5	3666	1124
20% above average (16.3 maf/yr) *(similar to 1996-2000)*	2023	10%	7.048	3606	1037
	2024	25%	9.0	3645	1085
	2025	10%	9.0	3671	1109
	2026	0%	11.0	3676	1143
	2027	0%	11.0	3681	1172

1. Assumes a consistent level of water availability from year to year, and does not account for likely variations. Total water availability shown in parentheses is water available in the upper basin prior to its use, diversion, evaporation. The amount available for inflow to Lake Powell is considerably less, and is the remainder after Upper Basin water use, diversions, or evaporation is considered.
2. Follows protocols established in this plan, except for WY 2023, where only a 10% reduction in water use is implemented (instead of 30%).
3. Follows protocols established in this plan, except for WY 2023, where BOR releases 7.0 maf through Glen Canyon Dam as previously planned (instead of 5.0 maf per updated protocol).
4. Assumes that 500,000 AF is released to Lake Powell from upper basin reservoirs beyond typical release patterns in 4 of the 5 years.


Fill Lake Powell
POWELLHEADZ
BLUERIBBON
COALITION
Sign the Petition
to Support the
Path to 3588' Plan

September 1, 2022

Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr, suite 113
421 UCB
Boulder, CO 80301-2628

RE: Comments on 87 FR 37884: Proposed Development of Post-2026 Colorado River Operational Strategies

Dear Ms. Jerla:

I am grateful for the opportunity to provide comments on the *Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions*. This correspondence contains information on natural and cultural resources at Lake Powell that are based on a lengthy career (10+ years) working on and around the reservoir, as well as for the Navajo Nation as an Anthropologist for the Heritage and Historic Preservation Department (HHPD).

The low water at Lake Powell is a direct result of drought conditions also faced by the Navajo Nation. These circumstances reflect an environmental imbalance that threatens the physical and spiritual wellbeing of Navajo People. Our effort to inform your agency of the effects of drought on the Navajo Nation requires us to impart impacts to both material and traditional cultural lifeways. HHPD has identified three "categories" affected by the drought and low-water conditions at Lake Powell that I believe should be evaluated in the Post-2026 NEPA planning effort including:

Water Access. The original Navajo Nation boundary extended to the centerline of the San Juan and Colorado River until 1958 when a land exchange between the US Department of the Interior (DOI) and the Navajo Nation established the current boundary at the 3720 topographic line. The implicit understanding of the arrangement was that the Navajo Nation would have proximate access to the waters of Lake Powell for uses that had historically been available (livestock, agriculture, etc.) or would be newly available with the creation of a reservoir (marinas, tourism, etc.).

- Water levels also have a significant impact on the economic opportunities provided to the Navajo Nation. This includes Antelope Point Marina, but also must consider other yet to be realized business opportunities as development and capacities increase on the Navajo Nation. Antelope Point Marina has been severely impacted by the low water, both in infrastructure and in visitation.
- Livestock and Horses are of great traditional significance to many Navajo people and the low water conditions at Lake Powell have drastically changed the proximity of available water causing great stresses to livestock and horses.
- Low water may also present new opportunities for uses at certain locations such as Paiute Farms. According to the residents of Oljato Chapter, this location, as the name suggests, sustained agricultural uses including orchards and small gardens. At low water, Paiute farms is an arid wasteland full of invasive plants (mostly dead) and mudflats left over from the receded waters of Lake Powell. If, as expected, waters will remain low, new "fruitful" uses of the area should be considered. This is exceptionally important as the region is largely a food desert and many traditional agricultural practices are being lost.

If water levels are to remain low, access and use by the Navajo Nation must be seriously considered in operating the Dam. This comment is a preliminary statement on an issue that requires much more information, study, and discussion with the Navajo Nation.

Ecological. In the first 50 years of Lake Powell's existence, its ecological effects were not yet clear and therefore have not been adequately evaluated. Beyond the alteration of the environment by impoundment, drastically changing lake levels cause exponential complication to an already stressed ecosystem.

- Long term management of a low water system will expose a much greater area of previously submerged lands to what was considered to be a limited shoreline impact area near the 3700ft elevation. Therefore, the footprint of shoreline related impacts such as the spread of invasive vegetation are expanded exponentially on a nearly regional scale.
- This same dynamic also applies to aquatic invasives like quagga mussels that attach at depths determined by temperature and sunlight exposure. These mussels are spread much deeper in the lake because of low water, are left (in some cases over 100ft high) on canyon walls, and carpet beaches and canyon bottoms with quagga mussel shells.
- The redistribution of sediments is also an important factor in other processes described here. Sediments have deflated upper terraces leaving areas that previously had soils to hold vegetation and archeological deposits eroded and redistributing the sediments at the mouths of canyons. This exposes some archeological sites and buries others. This process also creates the formation of large mudflats. These newly exposed sediment deposits are yet another factor that expand the ecological impact zone of Lake Powell to allow invasive vegetation to spread and create large desolate mudflats (See Paiute Farms, Escalante, & Hite areas).
- The establishment of vegetation, in some cases large tamarisk trees may eventually become re-inundated creating large areas of the lake with dangerous submerged trees- much like the relatively limited areas where dead cottonwood trees are reimerging from the lake in the backs of canyons.
- Plants collected for traditional purposes are also significantly impacted by the expanded impact zones caused by low water. Plants that grow near the water are now much further away from the Navajo Nation and are separated by greater lengths by invasive-choked lands. Traditional practitioners use many plants from the region in healing ceremonies and treatments that may now be unavailable in the area. Drought and low water may also reduce the abilities of Navajos to collect plants for food and other subsistence purposes as their ancestors have for many generations.
- Traditional Cultural Properties (TCP) such as the confluence of the San Juan River and the Colorado River and Rainbow Bridge have already been significantly impacted by the impoundment of the Colorado River. The integrity of these TCPs are dependent upon healthy ecosystems- plants, animals, water, and so forth. Clearly there have been significant impacts to these properties already, but the expansion of impacts threatens their integrity further. Because these are complex and comprehensive landscape features, it is difficult to quantify the impact, but the accumulation of impacts on the scale described in this document.

Again, low water has exponential effects on these kinds of ecological issues because it spreads the impacted zones of Lake Powell well beyond the full pool elevations initially planned for. These impacts must be analyzed comprehensively on a region-wide scale to limit the scale of ecological degradations.

Archeology. The exposure and/or loss of ancestral/archeological sites (including burials) is a significant threat with the recession of Lake Powell. When Glen Canyon was flooded, it was generally assumed that sites would be destroyed, but after many years of fluctuating lake levels it was revealed that many sites were intact to varying degrees.

In a project initiated in 2014, archeologists (including myself) undertook an effort to relocate and assess the condition of sites inundated by Lake Powell. The project attempted to monitor 120 sites, of these, 37 were still inundated, 30 were destroyed, 23 were not relocated or not evaluated (usually due to their location on cliffs). The remaining 30 sites (25%) were in good, fair, or poor condition, but did in fact contain some level of archeological integrity that warrants continued stewardship efforts by BOR and NPS. The following are excerpts from the preliminary 2019 report by Horn and Harmon:[1]

- *Nearly all of these 30 sites show at least some negative effect from inundation. In spite of this, only one was identified as lacking depositional integrity under ASMIS criteria. Twenty-three (77%) retain moderate, substantial, or well-preserved depositional integrity. A majority of sites (n = 26, 86%) were also evaluated as having high, medium, or modest data potential. Although preliminary, these results suggest that if an archaeological site is not destroyed during inundation, it will likely retain at least a moderate amount of data potential and integrity.*
- *As we evaluate sites, we are beginning to identify key factors that influence the preservation of inundated archaeological at Glen Canyon. Site type and site setting both have a major impact on site preservation. Sites in alcoves with no talus slope are among the most vulnerable. Lake water dissolves mud mortar from structures and wave action scours cultural deposits, sediment, and even building stones.*
- *Sites located at elevations that frequently go in and out of the lake are especially vulnerable to wave action. However, sites situated near full pool or in particularly narrow canyons that slow boaters often fare better, with less wave action affecting them. Sites with some sort of natural breakwater like a ledge or talus slope to dissipate wave energy survive the best.*
- *As lake levels continue to fluctuate, wave action and changing geomorphic processes will continue to erode sites, expose fragile deposits and artifacts, and impact masonry structures. Data recovery may be warranted at sites being impacted and threatened. Vegetation growth, especially of tamarisk, can impact structural walls as well as pose a fire hazard as lake levels drop and vegetation dies.*

  The report cited above is only a small sample of what exists at Lake Powell and since this report was completed 3 years ago, it is likely that many more sites are now exposed to new potential impacts from waive action, vandalism, sediment (re)deposition, vegetation growth, wet-dry cycles, etc.

Anecdotally, I have witnessed several pots and even human remains exposed by changing lake levels and a great majority of the time these resources were reported by visitors, not through regular resource monitoring and patrols. This is troubling because this means we are only aware of resources that are encountered by the more responsible visitors to Lake Powell, when we know through vandalism observed at sites and past theft of artifacts, that many visitors do not visit with such good intentions. Essentially, we

[1] Horn, A., & Harmon, B. C. (2019). *A New Low in Cultural Resource Management: Insights from Monitoring Archaeological Resources Re-exposed by Low Levels of Lake Powell in Glen Canyon National Recreation Area*. 15th Annual Biennial Conference of Science and Management on the Colorado Plateau and Southwest Region, (pp. 1-5). Flagstaff.

do not know what is damaged or goes missing if we do not know what exists and what its conditions is. Active stewardship is essentially during this low water period.

In summary, new exposures and the expansion of impacts described above to archeological sites means that the DOI must remain committed to efforts to (re)identify, protect, and maintain cultural resources impacted by Lake Powell. These sites are important to Navajo and other indigenous ancestors and must be stewarded in a way that recognizes their vital importance as ancestral ties to the land.

Conclusion. Lastly and most importantly, I would also like to express the desire for the USBR and the National Park Service at Glen Canyon National Recreation Area to develop new environmental planning documents that address the issues described here in the long term. Many of the existing management plans reflect environmental conditions that are no longer viable and were not developed in close consultation with the Navajo Nation. The impacts noted here are multijurisdictional and require interagency and intertribal collaboration to address adequately.

I thank you for your acceptance of these comments and look forward to continued dialogue on these matters. Please contact me with any follow up questions or clarifications.

Sincerely,

Erik Stanfield

Anthropologist
Navajo Nation Heritage and Historic Preservation Department
ErikStanfield@navajo-nsn.gov
(928) 551-5146

Comments Submitted in Response to the June 24, 2022 Federal Register Notice
Bureau of Reclamation Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies
September 1, 2022

The Colorado River Indian Tribes (CRIT) submit the following comments as requested in the referenced Federal Register notice of June 24, 2022.

Process for engagement with Tribes in the Colorado River Basin

This process should not be difficult. The Tribes should be included in all substantive meetings to develop the next set of operational guidelines. The CRIT do not want to be **informed** of the decisions made or agreements reached with the Basin States. It is critical that we be in the meetings and provide our voices to shape those decisions and agreements. Because our water use is accounted for as part of each states's apportionment, does not mean we are state water users, within the jurisdiction of state water laws, or that the states know or understand our interests in the Colorado River.

Viewing CRIT as a water user or stakeholder, the volume of our water right is very significant in the Lower Basin and our annual water use is similar to that of Southern Nevada Water Authority. We have contributed to decision making in the past, and we will continue to offer substantive contributions both to development of policy and by making wet water available for the River. We cannot participate in decision making if we are not included.

Send us, and the other tribes in the basin, the same meeting notices that you send other water users and the states.

Process for NEPA

The 2007 Environmental Impact Statement for the Interim Guidelines relies on information provided by the Bureau of Indian Affairs (BIA) to determine impacts to cultural resources and other potential economic and resource impacts to tribes. This is not appropriate. Each tribe with ancestral lands and ties to the River must be visited and provided an opportunity to provide appropriate cultural, economic, and resource related information. This process may begin now.

Substantive Elements of Post-2026 Operations

The current hydrology and statements by the Commissioner indicate that the continued flow of the Colorado River is at risk, both through the Grand Canyon and from Hoover Dam through our Reservation. The Guidelines must include sufficient protections for continued flows from Glenn Canyon Dam to the lowest reaches of the River throughout the year. The Life of the River and all that depend on its waters must be preserved and protected.

Health and Safety Volumes of Water

This standard for measuring minimum volumes of available water must include tribal communities, many of whom have far less water available for their people.

If there is a need for further information, please contact the CRIT Attorney General at Rebecca.loudbear@crit-nsn.gov.

[EXTERNAL] Upcoming EIS input

Frownfelter, Jennifer <jennifer.frownfelter@aecom.com>

Wed 9/7/2022 10:27 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

AECOM respectfully submits this comment to the US Bureau of Reclamation (USBR) regarding the upcoming National Environmental Policy Act (NEPA) process to develop post-2026 operating approaches for the Colorado River. AECOM recommends the development and publication of an online, interactive Environmental Impact Statement (EIS), which will facilitate access given the geographic size of the basin and diversity of stakeholders. An interactive EIS is more mobile-friendly, allowing project information to be easily accessed and reviewed by broadband-underserved, low-income, and/or mobile-inclined populations. The public can use their own website translation plug-ins to convert the content to their preferred language.
An interactive EIS would include:

- Integration of interactive maps, visual simulations, dashboards, and other media helps the public better understand the project – in a split screen that adapts as text of the EIS is reviewed. In addition, from the map, the public can search locations, addresses, and/or parcels of interest and see how the project and resource data interact with those locations.
- Interactive acronyms, references, and hyperlinks help the public understand the EIS content, and with technical reports linked and accessible for those seeking additional detail.
- Public comment functionality that allows for public comments to be tagged to locations on a map or sections of the EIS, ensuring that USBR fully understands the public's feedback.
- Document sharing for collaborative development by the project team, and publication of technical studies and reports as completed to enhance transparency through the drafting of the EIS.
- Organized and effective project record management.
- Interactive dashboards allow USBR to track the public's review of the EIS and supporting materials over time. USBR would be able to track the flow and types of public comments, as well as the number of viewers to the EIS.
- Published content that adheres to the latest Web Content Accessibility Guideline standards (and Section 508 of the Rehabilitation Act).

Thank you,

Jennifer Frownfelter
Vice President, Environment
D +1-971-323-6289
M +1-602-538-0719
jennifer.frownfelter@aecom.com

AECOM
aecom.com

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September 8, 2022

The Honorable Tanya Trujillo
Assistant Secretary, Water & Science
U.S. Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

Via email to CRB-info@usbr.gov

Re: 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 Assistant Secretary Trujillo:

The City of Avondale appreciates the opportunity to comment on the Post-2026 Colorado River operations, and we submit this letter to support and reiterate the comments made by the Arizona Municipal Water Users Association (AMWUA), of which we are a member.

The City of Avondale holds a subcontract for Colorado River water delivery through the Central Arizona Project (CAP) system. The Colorado River is a critical water supply for our community, comprising approximately thirty percent of our renewable supplies. We serve residents, businesses, schools, healthcare facilities, and industrial customers, vital to providing jobs, housing, health benefits, and more, while contributing to the local, regional, and national economies. The historically low reservoir conditions on the Colorado River System have caused a large degree of uncertainty of near-term access to critical water resources that we find unacceptable.

Avondale has worked diligently to provide water reliability to our customers and community, and the uncertainty of the future Colorado River supply availability creates additional challenges for water providers to adequately plan and invest in necessary infrastructure, alternative supplies, and conservation programs to overcome system reductions in the timeframe indicated by Commissioner Touton's June 14, 2022 call to action for 2023. These efforts require considerable time, financing, planning, and often, City Council approval. To ensure our long-term ability to continue to provide water to our community and sustain our economy, we need increased clarity and reliability concerning the future of our Colorado River supplies. The Post-2026 operations along with clarity on any interim steps required of the Basin States are critical to that outcome.

Avondale requests Reclamation's serious consideration of the responses submitted by AMWUA to Reclamation's request for feedback in the Notice as summarized herein.

Public Works Department
399 E. Lower Buckeye Road | Avondale, AZ 85323
Phone (623) 333-4400 | Fax (623) 333-0440 | TDD (623)333-0010 | www.avondaleaz.gov

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- **Post-2026 Operations Should Focus on Increased Clarity and Reliability for Water Users** – Municipal water providers need increased clarity from Post-2026 Operations on water supply availability across a broad range of hydrologic scenarios. BOR ought to manage the system for increased reliability (instead of maximizing diversions and releases), to provide more stability for water users reliant on Colorado River supplies. The Post-2026 Operations should seek to restore and increase the Colorado River system reservoirs, and steps must be taken to address the Lower Basin structural deficit. This should also include defined reservoir operations at lower elevations as well as more notice regarding supply availability in upcoming years.

- **Continue to Incorporate Climate Change Impacts in Reclamation's Modeling and Decision-making Tools** – Update BOR's modeling tools and processes to incorporate the best available climate science and to remove biases from past, wetter hydrology. Estimates of what constitutes a "normal" supply need to be consistent with the new reality of the aridification in the Colorado River Basin.

- **Shortage Sharing Must be Equitable and Basin-wide** – Water users throughout the Basin and Mexico ought to all share in the responsibility of taking shortage reductions and making efforts to protect the system.

- **Post-2026 Operations Should Provide Flexibility for Shortage Mitigation** – In light of decreased Colorado River supply availability, the Post-2026 Operations should continue to add flexibility for water management and facilitate shortage mitigation strategies such as augmentation, exchanges, and conservation.

- **Establish a Basin-wide "Municipal Sector" Committee to Facilitate Meaningful Input and Engagement from Municipal Water Providers** – The upcoming NEPA process(es) and the Post-2026 guidelines would benefit from the creation of a Basin-wide Municipal Sector Committee. This Committee should be in addition to Reclamation's consultation with the Governor's representatives from each Basin State.

- **Continue to Emphasize Collaboration and Consultation** – Continued collaboration and consultation with the Basin States, water users, Mexico, Tribes, NGOs, and stakeholders, including municipal water providers, throughout the Basin is crucial for a successful NEPA process and implementation of the Post-2026 Operations.

Avondale recognizes the complexity of the Colorado River System situation, as well as the sheer number of stakeholders and moving parts involved in finding resolutions. We are hopeful for continued collaboration and cooperation among the Colorado River System users, as well as with the BOR, and appreciate BOR's consideration of these comments.

Best,

Jennifer Davidson, CWEP
Water Resources Manager

Kirk L. Beaty, P.E.
Public Works Director

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Phone (623) 333-4400 | Fax (623) 333-0440 | TDD (623)333-0010 | www.avondaleaz.gov