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To: Amanda Erath, Colorado River Post-2026 Program Coordinator, Bureau of Reclamation  
Via email: [crbpost2026@usbr.gov](mailto:crbpost2026@usbr.gov)

From: Grand Canyon River Guides, Inc.

Lynn Hamilton, Executive Director on behalf of the Officers and Directors of GCRG  
David Brown, Glen Canyon Dam Adaptive Management Work Group representative  
Ben Reeder, Glen Canyon Dam Technical Work Group representative

Re: Scoping Comments for the Post-2026 Operational Guidelines and Strategies for Lake Powell and Lake Mead

Date: August 15, 2023

Grand Canyon River Guides, Inc., (GCRG) founded in 1988, is unique in that it provides a unified voice for river guides and river runners in defense of the Colorado River through Grand Canyon. Our non-profit educational and environmental 501(c)(3) organization is comprised of over 1,700 individuals who are passionately dedicated to the continuing preservation of this national icon. Consequently, Grand Canyon River Guides' goals are to:

*Protect the Grand Canyon*  
*Provide the best possible river experience*  
*Set the highest standards for the guiding profession*  
*Celebrate the unique spirit of the river community*

As the recreational river running stakeholder for the Glen Canyon Dam Adaptive Management Program, and as a longtime Grand Canyon defender, Grand Canyon River Guides respectfully submits the following scoping comments, clarifying questions, and recommendations for consideration in the development of Post-2026 Operational Guidelines and Strategies for Lakes

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Powell and Mead. Our comments are grounded in the mandates of the Grand Canyon Protection Act of 1992 which states, *“The Secretary shall operate Glen Canyon Dam... in such a manner 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.”* (Section 1802, GCPA). **Indeed, GCRG and the broader public view the Colorado River through Grand Canyon National Park, not as a pipeline between two reservoirs, but as a sacred place and living river with complex and interrelated resources and associated values that must be protected in perpetuity.**

Furthermore, the legal obligations of the Grand Canyon Protection Act (GCPA), the Endangered Species Act (ESA), the National Park Service Organic Act, and National Historic Preservation Act (NHPA) underpin the Long Term Experimental and Management Plan (LTEMP) EIS, that outlines resource goals and objectives, management actions, and experimental options for adaptively managing Glen Canyon Dam over a 20 year timeframe. It is within this overarching context that the Bureau of Reclamation, as a federal agency, must move forward towards developing sustainable, holistic, and environmentally responsible post-2026 Operational Guidelines and Strategies for Lakes Powell and Mead that also preserve the values of the Colorado River through Grand Canyon including:

- a healthy ecosystem based on the preservation of critical habitats and natural patterns and processes, to the extent possible,
- healthy native fish populations, including the federally listed Humpback Chub, supported by a sustainable, diverse and productive aquatic food base,
- preservation of archaeological, cultural resources, and traditional cultural properties along the river corridor, sacred to the eleven tribes of Grand Canyon,
- sufficient base flows that ensure safety and navigability for the 20,000+ people who run the river each year, and
- numerous sandbars, camping beaches, and associated habitats, distributed throughout the Colorado River ecosystem.

With these values and resource goals in mind, there are a number of questions that Grand Canyon River Guides would like the Bureau of Reclamation to consider and analyze through this EIS process:

1. Considering that High Flow Experiments (HFE) are the ONLY tool for managing the sediment resource in Grand Canyon by replenishing sandbars and camping beaches as well as protecting cultural sites, how can HFE's (in particular, naturally timed HFE's under sediment enriched conditions) be ensured and optimized through this EIS considering our low water future?
2. What are the lowest flows that can be safely navigated, given the inherent risks of river running, in different types of craft, especially large motor boats which enable under-served segments of the public to experience Grand Canyon?

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3. At what point will flow levels through Grand Canyon negatively impact the Colorado River Management Plan (CRMP) which is the visitor use plan that balances recreational opportunities with conserving park resources?
4. How will this EIS ensure the quality of the recreational river running experience, the viability of the thriving recreational river running industry in Grand Canyon, and its significant economic benefits to the state of Arizona?
5. How can we best protect the health and long term viability of native fish populations in Grand Canyon, in particular the federally listed Humpback Chub, in the face of the recent invasion of predatory smallmouth bass, an alarming consequence of lower lake levels and rising water temperatures?
6. Given the challenges of creating a sustainable future the entire Colorado River Basin and with careful consideration of the benefits and tradeoffs of managing the two largest reservoirs in the United States, Lakes Powell and Mead, how can this EIS best protect the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were created?
7. Considering that the combined storage of Lake Mead and Lake Powell may rarely exceed 50% of capacity (Wheeler et al, 2022), what are the environmental, recreational, and hydropower tradeoffs when analyzing alternatives for preferential storage of water in Lake Powell or Lake Mead?

In addition to these clarifying questions, Grand Canyon River Guides offers the following recommendations for the development of the post-2026 Operational Guidelines and Strategies, for Lake Powell and Lake Mead:

### **Resolve the water supply/consumptive use imbalance**

Balancing and stabilizing the system so that long term average consumptive uses and losses do not exceed the natural supply is absolutely imperative for the long-term sustainability of the Colorado River system and must serve as a primary goal of the Post-2026 Guidelines. GCRG advocates that the BOR include an alternative in the EIS that focuses on maintaining this balance to avoid the current predicament. In our view there is a clear need to avert a future human and ecological catastrophe by meeting this goal. Therefore the purpose of the 2026 Operational Guidelines and Strategies should include a management regime to these ends.

As Colorado River Basin experts explain, "...it is no surprise that the 21-year average (2000 – 2020) rate of water consumption and losses that exceeded the natural supply by approximately 1.2maf/yr led to today's crisis." (Schmidt, Fleck, and Kuhn, 2022). Their blunt assessment of how we got into this crisis offers a sobering cautionary tale that the Bureau of Reclamation must heed when developing this EIS:

- When the Colorado's flow was up, we used it all.
- When it was down, we drained the reservoirs.
- The river's natural flows have been down for a long time.

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- And during the few stretches of somewhat higher flows, we did not significantly refill the reservoirs.

Thankfully, the strong snowpack from this past winter gave us a brief reprieve, but must in no way minimize the magnitude of the Colorado River crisis or the urgency with which we address it. As Brad Udall, senior water and climate researcher at CSU's Colorado Water Institute stressed, the hydrology from the last 23 years indicates that *"one bad year will return the nation's two largest reservoirs to 25 % capacity."* Udall goes on to say that in order to fill Powell and Mead, we would need about six consecutive years just like 2023. (Goodland, 2023)

As Jocelyn Gibbon, river guide and water lawyer, explained in her blog for American Rivers, *"If we want to continue to have water to support the millions who rely on it, if we hope to take care of Grand Canyon and its river, if we want to even have a choice about what flows looks like in the future, we need to stabilize this system. We can't continue to deny the reality of simple numbers, and we can't rely on year after year of hurried emergency measures to get us by. That's not planning, that's triage."* (Gibbon, 2022)

A possible path forward is explained in an April 2023 paper by Jack Schmidt, Charles Yackulic, and Eric Kuhn, which concludes by saying, *"If Basin-wide long-term average water consumption is reduced by 13 – 20%, reservoir storage could be maintained and potentially increased, providing a buffer against interannual variability in water supply that has supported economic and population growth in the Basin. Over longer time scales, water supply allocations will likely need to continue to be adaptive and responsive to changes in runoff under future climate change."*

### **Strengthen the Purpose and Need statement**

The first sentence of the "Purpose" segment of the Notice of Intent begins by stating, *"To assure the continued stability of the Colorado River system into the future, Reclamation announces its intent to prepare an EIS for post-2026 operations..."* GCRG contends that the Colorado River system is no longer stable or predictable -- it is in crisis because of the past decisions we've elucidated above which have led to significant imbalances and instabilities that are untenable, unsustainable, and must be rectified immediately. Throughout the 21<sup>st</sup> century, basin-wide consumptive use has so far exceeded the natural supply that the combined contents of Powell and Mead declined by 33.5 million acre feet between January 2000 and April 2023 – going from roughly 95% full to 22% full in that timeframe. (Schmidt, Yackulic, Kuhn, 2023) Consider this EIS process a "do-over" where it is imperative that we live within our means in regards to the Colorado River. The Purpose and Need statement must be clear-eyed about the profound crisis that faces us all, the hard choices that must be made, the urgency of the timeline for this EIS process, and the absolute necessity of using the best available science and resource-impact models for a robust EIS.

Furthermore, the Purpose and Need Statement for the post-2026 Operational Guidelines EIS must acknowledge and utilize the terms **climate change** and **aridification**, defined as "the

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gradual change of a region from a wetter to a drier climate.” We find it disturbing that these key words are entirely lacking throughout the June 16, 2023 Federal Register Notice of Intent – a significant oversight. Semantics matter! Simply put, drought is temporary, aridification is permanent. The phrase “prolonged period of drought” is no longer adequate to express the Colorado River crisis that has been building since 2000, making this period one of the driest in the last 1200 years. This is especially remarkable when in consideration of the record-setting global heat records experienced in 2023 and the prolonged periods of extreme heat experienced in central Arizona. We urge the Bureau of Reclamation to utilize the correct terminology which 1) underscores our new reality resulting from human-caused climate change and 2) highlights the absolute necessity of developing forward-thinking paradigms based on the best available science (including climate science) to manage the Colorado River wisely, sustainably, and proactively for our low water future.

### **The National Park Service should be a cooperating agency**

The NPS manages, protects, and conserves resources and the quality of the visitor experience in nine park units distributed throughout the Colorado River Basin: Dinosaur National Monument, Curecanti National Recreation Area, Black Canyon of the Gunnison National Park, Canyonlands National Park, Arches National Park, Glen Canyon National Recreation Area, Rainbow Bridge National Monument, Grand Canyon National Park, and Lake Mead National Recreation Area. The NPS has requested (and should be granted) cooperating agency status for the forthcoming National Environmental Policy Review (NEPA) process, pursuant to 40 CFR 1501.8. As per Council of Environmental Quality regulation ([40 CFR 1508.5](#)), "cooperating agency" means any Federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative. Clearly the NPS is more than qualified to serve as a cooperating agency for this EIS and not including them would be a black mark on the legitimacy of the EIS itself. Furthermore, the multiple sovereign Tribes that have expressed interest should also be extended an opportunity to participate as cooperating agencies.

### **Tribal involvement in Post-2026 negotiations and planning**

There are 30 federally recognized tribes in the Colorado River Basin -- some have adjudicated water rights, while others have water claims that remain unresolved. Many tribes lack the infrastructure and money to use their full allotments. And shamefully, many tribal communities lack access to clean water; a profound failure of the trust and treaty responsibilities of our federal government. To date, the tribes of the Colorado River Basin have been largely excluded from discussions on how the river is shared and managed. They now demand a seat at the table, and rightly so. Prioritizing inclusion and access to clean water for all Colorado River Basin tribes is an absolute necessity for this EIS process and a keen responsibility on the part of the federal agencies to usher in a new era of cultural justice based on tribal involvement and respect for tribal needs, perspectives, and traditional ecological knowledge.

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### **Safe whitewater boating threshold**

The BOR needs to reconsider what it concludes as a “safe whitewater boating threshold” of 5,000 cubic feet per second (cfs) which “would be no change in exposure to unsafe boating conditions caused by changes in water levels.” (Draft SEIS, Page 3-230). We would encourage the EIS authors to navigate through Badger, Hance, Grapevine, Horn Creek, Deubendorff, Upset, or several other rapids in Grand Canyon at 5,000 cfs before making that conclusion. We understand releases would mirror the 8.23 model which assigns more water in summer months (the peak commercial months) and we encourage the EIS analysis to be revised so minimum flows of 8,000 cfs would be preserved from April 1- September 22.

### **Alternative paradigm for managing Powell and Mead as one reservoir**

To date, Lake Mead has been used to trigger consumptive use reductions to the Lower Basin and Mexico, however it is clear that current policies are inadequate to stabilize the system. Going forward, the Upper and Lower Basins need to share equitably in the reductions of flows due to climate change. Managing Lake Powell and Lake Mead *as one facility* is the innovative and forward thinking concept born out of discussions between some of the foremost experts on Colorado River management and our warming climate: Jack Schmidt, Eric Kuhn, Kevin Wheeler, and Brad Udall. This combined volume approach to water management has become the consensus idea of the Future of the Colorado River Project, and is clearly articulated in White Paper #6 (Alternative Management Paradigms for the Future of the Colorado and Green Rivers), and in the Wheeler et al paper published in Science in 2022. As described in White Paper #6, this new metric “*focuses attention of the public and of water managers on the status of the actual resource being managed – the stored available water supply.*” This option would also allow for better resource protection for Grand Canyon, which we wholeheartedly support.

### **Minimize non-native fish passthrough at Glen Canyon Dam**

In the Upper Basin, smallmouth bass are considered the greatest threat to native fish and have been linked to declines in the federally listed humpback chub. We now face one of the most serious consequences of our current and future low water situation in Lake Powell – an increase in smallmouth bass and other predatory nonnative fish passing through Glen Canyon Dam, along with warmer water temperatures sufficient for these species to reproduce. The establishment of these warm water non-native fish invaders could permanently shift Grand Canyon’s aquatic ecosystem away from the fish assemblage typical of the last 50 years. (Schmidt, Yackulic and Kuhn, 2023). Due consideration must be made to keeping Lake Powell above the 3525’ threshold to minimize passthrough and reduce warming of the river below Glen Canyon Dam. Please note that warmer water temperatures can also threaten the viability of the recreational rainbow trout fishery in the Glen Canyon reach.

The profound negative effects of low reservoir conditions in Lake Powell and increased water temperatures on the future of Grand Canyon’s fish populations cannot be overstated. All possible measures should be assessed immediately, including screens, barriers, and other physical means, as well as examining the efficacy of a temperature control device. From

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predatory invasive species, to low dissolved oxygen and warmer water temperatures, the potential threats and stressors abound to the fish community we currently have in Grand Canyon. Mitigating those threats by whatever manner(s) possible and with great expediency must be an important focus for this EIS.

### **Grand Canyon protection**

The mandate of the Grand Canyon Protection Act, as well as the goals and objectives of the Long Term Experimental and Management Plan (LTEMP), are the litmus test against which all draft alternatives of the Post-2026 Operational Guidelines EIS must be modeled, measured, and analyzed. In fact, the magnitude of this responsibility to protect and preserve the crown jewel of our national park system and the values that it encompasses is so great, we urge the Bureau of Reclamation to consider developing a “Protect Grand Canyon” alternative as part of the suite of alternatives for this EIS which includes (but is not limited to) the elements discussed earlier in this comment letter: ensuring High Flow Experiments, safe and navigable flows, a healthy ecosystem including protecting the sediment resource and our native fish, and preserving precious cultural resources in this sacred landscape.

### **Worst-case scenario**

In order to shift from a reactive mode when crises arrive to a proactive mode, this EIS must seek out the best available science and climate modeling to fully examine a “worst case scenario,” including all of its ramifications, in order to develop an adaptive, transparent plan for addressing those dire conditions as nimbly as possible. We caution that environmental projections based on the last 30 years may not be sufficient to address the harsh realities of our low water future. Furthermore, having accurate data for evaporative losses from our reservoirs (which is a significant consumptive use in and of itself) is a necessity as part of this EIS, and must also be factored in to water availability in our ever-warming climate. The necessity of including a worst case scenario underscores the pressing need for the EIS to be as adaptive as possible in order to be prepared for all future hydrologic conditions.

Accordingly, should the BOR entertain a worst case alternative, then GCRG would suggest that it rely on hydrologic modeling of a *greater than 20 percent reduction in flows and the inclusion of an operational option to release where outflow matches inflow*. If anything, climate change has demonstrated that what once was ‘reasonably foreseeable’ is no longer the case. The historical flow data demonstrates that a 20 percent change in flows is not uncommon at all and therefore highly vulnerable to being inaccurate, especially coming on the heels of one of the best water years of the last two decades. Furthermore, relegating the operational floor to matching outflows to inflows *minus losses* diminishes what should be the most valid operational floor – establishing minimum base flows below Grand Canyon that match the inflows regardless of the losses.

GCRG encourages BOR to examine a range of alternatives that considers up to 50 percent reduced flows and an operational floor that does not penalize downstream resources for Lake

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Powell's losses. This would better represent the reality of the situation and properly disclose to the public the results of BOR's actions. It could also disclose potential consequences that lead to a more thoughtful and effective planning process.

In closing, we thank you for this opportunity to provide scoping comments for this important process. We can only imagine the magnitude of work involved as the Bureau of Reclamation embarks on developing adaptive, equitable, sustainable, and proactive operational guidelines and strategies for Lakes Powell and Mead, for 2027 and beyond. Grand Canyon River Guides would be happy to be of assistance in any way, and please let us know if you have any questions. We look forward to our continued involvement as we work together on behalf of the Colorado River.

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