



March 10, 2023

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U.S. Bureau of Reclamation, Upper Colorado Basin Region
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Sent via email

RE: Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment
dated February 2023

Dear Ms. Bucklin,

The Grand Canyon Trust (“Trust”) submits this letter to provide comments on the U.S. Bureau of Reclamation’s Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment dated February 2023 (“EA”), which proposes to modify flows released from Glen Canyon Dam to disrupt smallmouth bass spawning and prevent establishment of the species in Marble and Grand Canyons where it threatens the recovery of native fish species.

The Grand Canyon Trust is a 501(c)(3) non-profit advocacy organization founded in 1985 with a mission to safeguard the wonders of the Grand Canyon and the Colorado Plateau, while supporting the rights of its Native peoples. We are headquartered in Flagstaff, Arizona and have more than 3,000 members and supporters. For decades, we have worked across the four corners region to secure protections for important cultural landscapes, safeguard water from uranium mining pollution, defend the unsustainable withdrawal of groundwater for development, protect the Grand Canyon ecosystem, and restore healthy forests and springs. We appreciate the opportunity to comment on the proposed modified flow options at Glen Canyon Dam related to smallmouth bass and to consider how this proposal fits into a broader backdrop of the Colorado River Basin.

This EA is being developed in an ever-evolving landscape including changing hydrology and policy. As you are aware, Reclamation is currently undertaking the revision of the 2007 Interim Guidelines of the operations of Lakes Powell and Mead by preparing a Supplemental Environmental Impact Statement. 87 Fed. Reg. 69042 (2022). These revisions may authorize a reduction in the annual amount of water released from Glen Canyon Dam and establish a new target elevation for water storage in Lake Powell, among other actions. These policy changes have implications for the Grand Canyon ecosystem, interests of tribes and Native communities, as well as other economies, communities, and environments throughout the Colorado River

Basin. Further, other plans and evaluations (both short and long-term) are underway to determine what other measures may be needed to combat the impacts of low reservoir elevations and low Colorado River flows including possible reengineering of Glen Canyon Dam, construction of physical barriers in Lake Powell to prevent the transfer of lake fish below the dam, and ultimately the renegotiation of the post-2026 guidelines for operating Lakes Powell and Mead into the future. These actions are all interrelated and need to be considered collectively to ensure their effectiveness at a basin-wide scale. Integration of these pivotal components and maximizing the benefits to multiple interests is also key to balancing the many competing mandates of the law.

The Trust is supportive of the proposed action with flow options outlined in this EA and agrees that the time is now to prevent smallmouth bass from establishing in Marble and Grand Canyons. Based on the EA's analysis, Flow Option B stands out as providing the highest effectiveness to reach the target temperature of 16°C for the greatest distance downstream from Glen Canyon Dam and including flow spikes to ensure these cool waters reach backwater habitats where smallmouth bass are known to spawn. We endorse this option, but also understand the need for different tools given changing conditions on the river. While it appears difficult to achieve outside of Marble Canyon, Flow Option D also may be effective to address smallmouth bass in the upper reaches of Marble Canyon where spawning occurred in 2022.

The Trust would also like to see this effort used to benefit broader resource goals set forth in the Long-Term Environmental Management Plan ("LTEMP"), including protecting archaeological and cultural resources, enhancing natural processes, honoring tribal values and resources, increasing sediment transport and sandbar building, improving riparian vegetation, and enriching recreational experiences. While the priority of these flows should be to disrupt smallmouth bass spawning, secondary benefits should be actively pursued where multiple successes can be achieved. Based on the laser focus of this proposal, we fear Reclamation may miss a key opportunity to carry out its mandate under the Grand Canyon Protection Act of 1992 ("GCPA")¹ to ensure that Glen Canyon Dam is operated:

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.

In the spirit of this broader focus, we support the proposed modifications to Flow Options B and D proposed by the National Park Service to address the potential conflict between smallmouth bass spike flows and High Flow Experiments ("HFEs") and to revise the HFE protocol for low water conditions.²

¹ Grand Canyon Protection Act of 1992, Pub. L. No. 102-575, 106 Stat. 4600 (1992).

² See National Park Service's Letter to Regional Director, Wayne Pullen containing its comments in response to the "Glen Canyon Dam Smallmouth Bass Flow Options Environmental Assessment" to be prepared by the Bureau of Reclamation dated December 14, 2022 p. 6-7.

<https://www.usbr.gov/uc/DocLibrary/EnvironmentalAssessments/GlenCanyonDamSmallmouthBassFlowOptions/StakeholderInput/20221215-NPSCComments-508-UCRO.pdf>

Finally, the Pueblo of Zuni, the Hopi Tribe, and other tribes have expressed significant ongoing concerns regarding taking of life in the Marble and Grand Canyons. Specifically, the tribes oppose many, if not all, of the measures proposed by Reclamation to prevent the establishment of smallmouth bass in the Colorado River downstream of Glen Canyon Dam detailed in this EA and otherwise. Given these concerns, we strongly encourage Reclamation and other partners to prioritize and elevate consultation with the Grand Canyon affiliated tribes to understand their interests, consider alternate solutions that do not conflict with their culture and values, and do so in a way that allows adequate time and engagement to ensure meaningful consultation and to influence outcomes. This consultation should be ongoing, not just during the EA process, including during planning, design and implementation of actions related to preventing establishment of nonnative fish in the Grand Canyon, and should include travel to respective reservations to reduce barrier to conversation and consultation. Further, preventative methods—such as creating a barrier in Lake Powell to ensure non-native species do not pass through the dam—have long been advised as an action Reclamation could take that may not conflict with values of and cause harm to tribes and Native communities. We strongly recommend that these proactive solutions be expedited and prioritized to carry out the agency’s trust responsibility to the tribes and Native communities with ties to the Colorado River and its canyons.

The Trust details its comments below:

1. Broader purpose and need could help meet additional LTEMP resource goals

Reclamation engages in this targeted EA to address the immediate threat to the humpback chub in Marble and Grand Canyons from establishment of smallmouth bass below Glen Canyon Dam. Reclamation articulated this very specific purpose and need in the EA at 1-5. The Trust appreciates the urgency of this situation and the need to address it in a focused manner; however, we also believe that with a slightly broader purpose, Reclamation could consider, evaluate, and prioritize the benefits of these actions—not only to remove the threat of smallmouth bass for the humpback chub—but also to contribute to furthering other important resource goals enumerated in the LTEMP that ensure compliance with the mandates of the Grand Canyon Protection Act.

A primary example of this would be designing flow spikes in Flow Options B and D of the proposed action that disrupt smallmouth bass spawning but also operate like or with HFEs to build sandbars and mobilize sediment to enhance archeological and cultural resources, natural processes, riparian vegetation, and recreational camping. If the purpose and need is too narrow, however, Reclamation may be passing up an important opportunity to create much needed environmental benefits to Marble and Grand Canyons.

2. No Action Alternative Should Not Assume HFEs are implemented when triggered

The No Action Alternative suggests that without the proposed action HFEs will continue to occur if triggered by sediment conditions as set forth in the HFE protocol. However, it is not that simple, as HFEs are not always implemented even if sediment triggers are reached. A number of other factors are weighed in deciding whether or not to implement a HFE, including if humpback chub could be impacted by a HFE (e.g. HFE leading to passage of smallmouth bass through the dam or moving nonnative fish further downstream) or the impact on reservoir elevations of the

water release, among other possible impacts to LTEMP resources. Since the LTEMP was finalized in 2016, only one HFE was implemented (fall 2018) after three fall and zero spring HFEs were triggered by sediment. The LTEMP HFE protocol actually authorizes (if triggering conditions exist) 38 HFEs over the 20-year period, but LTEMP modeling suggests that 15 fall HFEs and an additional 5 to 7 spring HFEs (a total of 22 HFEs) were anticipated during the 20-year period.³ But in nearly 7 years, we have seen only 1. So, the assumption that HFEs will occur as triggered by sediment conditions is not entirely accurate. This matters because the proposed action's flow options with flow spikes are not only important in the context of smallmouth bass, but also important to protect and improve sediment resources in Marble and Grand Canyons.

3. Process for deciding between flow options in the proposed action is unclear

The proposed action with flow options analyzed in the EA will provide Reclamation and its partners with the authority to operate Glen Canyon Dam flows in ways that disrupt spawning in smallmouth bass. This is in addition to the *Framework to prevent nonnative fish species establishment below Glen Canyon Dam* that was recently finalized and approved by the Glen Canyon Dam Adaptive Management Work Group ("AMWG"). What is not clear from either of these documents is how Reclamation or its partners will make decisions related to which flow option(s) may be pursued in a given year or what other management actions will be taken. While we understand the agency needs flexibility in this decision making, it would be helpful for the process to be transparent. Further, given the interaction of the flow options with spike flows and the existing HFE protocol (see the discussion below), it would be helpful for Reclamation to clarify when and if the HFE decision trees will be used in that context or if similar tables will be established for determining smallmouth bass flow options. Finally, it is not clear what role, if any, AMWG will have in providing recommendations to Reclamation regarding these flows and Reclamation's process and commitment to tribal consultation.

4. Releasing water through bypass tubes has important dual purpose to control smallmouth bass

All of the proposed action's Flow Options (A-D) expressly rely on releases from the bypass tubes in Glen Canyon Dam to lower temperatures in the Colorado River to create inhospitable conditions for smallmouth bass spawning. However, the other important purpose that is not emphasized in the EA, is that bypass releases are also critical to avoiding additional smallmouth bass passing through the dam. Therefore, until Reclamation can construct a barrier to downstream passage of nonnative fish through the dam, measures should be taken, not just to disrupt spawning of smallmouth bass already in Marble and Grand Canyons, but also to prevent as few nonnative fish as possible pass through the dam.

5. Reclamation should use this EA to resolve the conflict between flow spike alternatives and HFEs by revising the sediment accounting window in the existing HFE protocol

In January, in addition to the dire concern expressed regarding smallmouth bass, Glen Canyon Monitoring and Research Center ("GCMRC") scientists sounded the alarm regarding the

³ U.S. Geological Survey's Evaluation of High-Flow Experiments during Aridification AMWG Reporting Meeting Presentation dated January 25, 2023.

downward spiral of sediment resources in the Colorado River in Marble and Grand Canyons. At least 28 million metric tons of sand has eroded since the dam was closed in 1963 and about half of that eroded in the late 1990s, including six metric tons from each Marble and Grand Canyons.⁴ Further, sandbar monitoring indicates that 67 percent of sites in Marble Canyon had less high-elevation sand in 2022 than in June of 1990; that percentage was 11 percent for Grand Canyon sites.⁵ These scientists urged the AMWG representatives to help reverse this negative trend by implementing a series of HFEs as required by LTEMP. The last HFE implemented in the Grand Canyon was in 2018. This is the only HFE that has been implemented since LTEMP was finalized in 2016. This is very concerning given the mandate in the Grand Canyon Protection Act to operate the dam in a manner “to protect, mitigate adverse impacts to and improve the values for which the Grand Canyon National Park” was established.

This EA seemingly sets up a conflict between conducting smallmouth bass flow spikes and HFEs. Flow Options B and D in the proposed action include up to three 36-hour flow spikes between late May and mid-July. The effects analysis concludes that these options will have both negative and positive effects on sediment including that the “flow spikes would export sediment from Marble Canyon, which could reduce the amount available for HFEs, but would contribute to beach building in Grand Canyon.” Table 3-5, EA at 3-51. These smallmouth bass flow spikes may compete with the ability to implement fall HFEs under LTEMP due to the existing sediment accounting windows. For example, if a flow spike is conducted in July, it would likely mean that an HFE would not be possible in the fall because the sediment trigger may not be reached.

Given these concerns and the strong need to balance both smallmouth bass and ensure sandbar building in the canyons, this EA may serve as an excellent vehicle for revising the sediment accounting window in the HFE protocol as GCMRC scientists⁶ and members of the AMWG have been requesting for some time. In fact, the National Park Service has proposed a modification to the flow spike alternatives (Options B and D) to address the impacts to sediment as a part of this EA.⁷ The Trust endorses this proposal and encourages Reclamation to use this EA as an opportunity to prioritize HFEs over the next three years, including revising the sediment accounting window in the current HFE protocol to run annually starting and ending on July 1 each year. Adapting the HFE protocol and the alternatives in this EA to address the issues arising due to “low water conditions” helps to address both the smallmouth bass issue, the sediment issue, as well as ensure better compliance with the Grand Canyon Protection Act.

This proposed change to the sediment accounting window would reduce the total number of HFEs possible for the remainder of the LTEMP 20-year period, but it could also ensure that HFEs are conducted more regularly to produce positive outcomes for sediment resources. The LTEMP HFE protocol appears to authorize (if sediment trigger is reached during the accounting

⁴ Topping, D. J., Grams, P.E., Griffiths, R.E., Dean, D.J., Wright, S.A., & Unema, J.A. (2021). Self-limitation of sand storage in a bedrock-canyon river arising from the interaction of flow and grain size. *Journal of Geophysical Research: Earth Surface*, 126, e2020JF005565. <https://doi.org/10.1029/2020JF005565>

⁵ See GCMRC, Project A Update and Evaluation of LTEMP Sand Management, January 25, 2023 AMWG Reporting Meeting Presentation.

⁶ See USGS 2023, above.

⁷ See National Park Service’s Letter at 6-7, above.

window) 38 HFEs over the 20 year period, but based on the modeling analysis, LTEMP anticipated 15 fall HFEs and an additional 5 to 7 spring HFEs (a total of 22 HFEs) during the 20-year period.⁸ To date, only one HFE in 2018 was implemented during the LTEMP period, which leaves 15 fall HFEs and 5 to 7 additional spring HFEs through 2036. With the proposed modification to the sediment accounting window, the maximum number of sediment triggered HFEs for the remainder of the LTEMP period would be one per year or 13.

6. Reclamation needs to take advantage of the opportunity in 2023 to create environmental benefits in the Grand Canyon as mandated by the GCPA

Based on several factors that appear to be aligning in 2023, Reclamation may have a unique opportunity to move water through Marble and Grand Canyons—even under lower annual releases and reservoir elevations—in a way that could protect and improve resource conditions in the canyon as mandated by the GCPA. First, “sediment-enriched conditions are anticipated to exist in Marble Canyon through summer 2023, resulting from high sediment inputs from the Paria River during the fall HFE accounting period in 2022.” EA at 3-23. GCMRC scientists indicated that “current sediment conditions support a high flow of up to 40,000 to 45,000 cubic feet per second and up to 72 hours anytime between fall 2022 and summer 2023.”⁹ Second, based on water that was released from Upper Basin Reservoirs and held in Lake Powell under the Drought Response Operations Agreement (“DROA”), 523,000 acre-feet of water will need to be released from Glen Canyon Dam this summer. And, finally, this EA, if modified as suggested by the National Park Service and GCMRC to revise the sediment accounting window, could allow for various opportunities for cool water releases, smallmouth bass flow spikes, and/or a rare spring HFE to both address smallmouth bass and build sandbars¹⁰ for the first time in nearly 5 years. The last time a spring HFE was created in the Grand Canyon was in 2008.

7. 14-day Public Comment Period Inadequate

The Trust understand the urgent need to prevent the establishment of smallmouth bass in Marble and Grand Canyons and we appreciate the actions undertaken by Reclamation to provide flow options to address this challenging situation. However, the agency’s emergency actions on an expedited timeline only ensures that the process is rushed, critical voices and concerns are excluded and/or not addressed, and that the solution does not consider or meet the larger challenges the region is facing. A 14-day public comment period on a 158-page EA is not adequate for meaningful engagement by stakeholders in this process. This is especially true for tribes and tribal communities that have stated strong objections to similar proposals in the past and that stated their continued objections as recently as the February 15-16, 2023 AMWG meeting.

Reclamation has been aware of the need to prevent passage of nonnative species through Glen Canyon Dam at least since the Record of Decision for the LTEMP was finalized in 2016 (six

⁸ See USGS 2023, above.

⁹ *Id.*

¹⁰ “Sandbars form a fundamental element of the river landscape and are important for vegetation, riparian habitat for fish and wildlife, cultural resources, and recreation.” EA at 3-25 “Low-elevation sandbars are also a source of sand for wind transport that may help protect archaeological resources.” *Id.*

years ago) and likely long before. In fact, the Biological Opinion for the LTEMP ROD specifically contemplates temperatures to be warmer under lower reservoir elevations and that options to “minimize or eliminate passage through the turbines or bypass intakes” and to “hinder expansion of warmwater nonnative fishes” were warranted at that time. LTEMP ROD BO at E-12. Further, the importance of “regulation and control of nonnative fish” has been a “management action identified in the humpback chub and razorback sucker recovery goals since 2002.” LTEMP ROD BO at E-12. Reclamation, however, only acted after smallmouth bass were found reproducing in Marble Canyon in 2022.

As mentioned above, Reclamation was aware for decades of the concerns of the tribes regarding the taking of life of nonnative species in the Grand Canyon. Thus, despite the sensitivity around this matter and the opportunity to take preventative measures over the past six years, Reclamation waited until the problem reached a critical point. We emphasize this here, not to place blame, but to encourage the agency to ensure that it has the resources and the foresight to advocate for measures before the issue reaches emergency status. We realize this is easier said than done, but it should be considered all the same.

The Trust appreciates the opportunity to comment on the Smallmouth bass flow operation EA. We support the proposed action with flow options to disrupt spawning of smallmouth bass. This, as well as other dam operations such as restored HFEs, are necessary “to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established.” We believe Flow Options B and D, as proposed to be modified by the National Park Service to adjust the sediment accounting window in the HFE protocol, have the most potential for meeting the needs of native fish as well as the mandates under the Grand Canyon Protection Act to enhance archaeological and cultural resources, natural processes, tribal values and resources, sediment transport and sandbar building, riparian vegetation, and recreational experiences as designated in LTEMP. We look forward to working with you to integrate this solution with the larger challenge of sustainable management of the Colorado River Basin.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jen Pelz', with a stylized, flowing script.

Jen Pelz
Water Advocacy Director
Grand Canyon Trust