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Via electronic mail

Attn. LTEMP SEIS Project Manager
US Bureau of Reclamation
Upper Colorado River Basin Region
125 South State Street, Room 8100
Salt Lake City, UT 84138

25 March 2024

Re: Draft Supplemental Environmental Impact Statement for the Glen Canyon Dam Long-Term Experimental and Management Plan

Dear Project Manager,

For the past nearly quarter of a century, Wild Arizona's Grand Canyon Wildlands Council (GCWC) has vigorously and creatively pursued its goals by serving as an environmental stakeholder in the Glen Canyon Dam Adaptive Management Program, and we are intimately familiar with the environmental, cultural, and economic trade-offs of Glen Canyon Dam management on the Colorado River ecosystem (CRE) downstream. GCWC staff and our nearly 2500 members, supporters and volunteers visit, recreate, conduct research and restoration projects, and volunteer in Grand Canyon and the CRE.

In this document, we provide comments to Reclamation in response to the Federal Register notice dated February 9, 2024 (<https://www.federalregister.gov/documents/2024/02/09/2024-02676/environmental-impact-statements-notice-of-availability>). We previously provided comments and suggestions on the first iteration of the Glen Canyon Dam Smallmouth Bass Environmental Assessment (SMB EA) for the Long Term Experimental and Management Plan (LTEMP) early in 2023, and again in fall 2023 during scoping for this LTEMP SEIS. We expect that Reclamation will include consideration of those comments and suggestions, in addition to those provided here to this Draft LTEMP Supplemental EIS.

Overview

Virtually all of the substantive environmental comments received by Reclamation during scoping and in the previous SMB EA recognized the urgent need for action with regards to the on-going invasion of highly predatory smallmouth bass (SMB) downstream in Glen Canyon. That invasion is taking place primarily because southwestern aridification is reducing water levels in Lake Powell, leading to warmer water releases downstream and conditions that allow SMB and other piscivorous non-native fish to survive and reproduce in the Glen Canyon Dam tailwaters. Based on much knowledge of SMB impacts on native fish populations in the upper Colorado

River Basin and elsewhere, this invasion poses extreme threats to the existence and condition of native fish populations in Grand Canyon, particularly those of Threatened Humpback Chub. We expect Reclamation to use the results of this SEIS to respond immediately and vigorously to the SMB invasion by integrating diverse measures across multiple time scales to reduce or eliminate SMB and prevent other non-native piscivorous species establishment downstream from Glen Canyon Dam.

As stated in the Draft SEIS, "...reductions in water temperature combined with changes in flow velocity may be vital tools that can be used to disrupt smallmouth bass from successfully spawning and establishing a population." Consequently, Reclamation's purpose with this SEIS is to identify methods to prevent this from happening by proposing multiple release (flow) options from the dam that cool the river below 16°C and introduce unfavorable flow velocities for SMB spawning.

The second issue addressed among all the alternatives is revision of the annual sediment accounting period and HFE implementation window. High flow events are essential for conservation of fine sediment mass balance, and springtime is the period when such floods occurred in pre-dam time. Because many native species and ecological processes are timed with springtime, rather than autumn, high flows, GCWC strongly endorses revision of the sediment accounting period and implementation window, which benefit not only the native species, but also other resources tied to sandbars and sediment availability, including river running recreation—by rejuvenating camping beaches immediately prior to the summer recreation season. But such policy revisions will not protect river sandbars if, as occurred in 2023, a springtime flood is followed by continuously elevated summer flows. Springtime high flow events should be the norm, not the exception, for conservation of sediment mass balance.

In addition to the No Action alternative, the Draft SEIS analyzes five flow-option alternatives with changes to the HFE protocols across all five:

Cool Mix

Cool Mix with Flow Spikes

Cold Shock

Cold Shock with Flow Spikes

Non-Bypass Alternative

Reclamation does not identify an agency-preferred alternative, and we recognize it is not required to do so under the agency's NEPA handbook.

In summary of our comments below, GCWC supports a final SEIS alternative that advances and combines all 4 'include-bypass' flow alternatives into a clearly defined experimental and adaptive management framework and we strongly oppose the 'non-bypass' alternative. Such an experimental and adaptive framework should include specific hypotheses to be tested, data collection through appropriate monitoring, comprehensive analysis of results, and flexibility to

facilitate adaptive design of subsequent flow options: **starting initially with Cool Mix with a single Flow Spike—designed as an appropriately timed Spring HFE** (in the context of the changes to the HFE protocols and with flexibility for repetition as fit the availability of sediment and water in the system).

An experimental and adaptive approach is necessary given the urgency and scientific uncertainty around effective control of SMB, Green Sunfish, and other non-native piscivores in this system, and because multiple flow configurations, other non-flow options, and altered timing of implementation may be needed. Integration of monitoring information, and feedback that improves management are crucial to long-term success of this effort, and hopefully will help satisfy the BOR's Section 10 responsibilities to species listed under the Endangered Species Act.

The Non-Bypass Alternative

The Non-Bypass alternative will have significant negative and unacceptable impacts on multiple resources including loss of sediment and damage to ecological and cultural resources/integrity, riparian and aquatic resources, and river based recreational resources, and therefore should be avoided altogether. Under the Non-Bypass Alternative, flows could swing between a low of 2,000 cfs to a high of over 27,000 cfs. This is contrary to the stated goals of the Grand Canyon Protection Act and flies in the face of findings from several decades of research and monitoring, which both informed the LTEMP ROD and emerged during its implementation to date. As we stated during scoping, analysis of impacts under this alternative needed to be conducted across multiple time scales in order to be valid representations.

We restate here that impacts from any actions undertaken should not unfairly burden any one group, and such burdens as may arise from such management actions should be recognized by Reclamation and mitigated, where possible. *However, the threats posed by non-native SMB and other species invasions are dire and very likely irreversible.* Therefore, GCWC does not support limitations on management actions to benefit hydroelectric power production or downstream water delivery that may reduce the effectiveness of the flow management actions. Such limitations could ultimately increase the costs to hydropower and water users by orders of magnitude to try to obtain minimal, or even net zero effectiveness in preventing extirpation and extinction, with SMB established, because of failure to act immediately with the greatest possible effectiveness. The Non-Bypass Alternative would be a giant step backwards, waste precious time, and would seriously hamper the Glen Canyon Dam Adaptive Management Program (AMP) and even potentially its ongoing funding.

Of additional great concern is the failure of the Draft SEIS to accurately portray the impacts from the Non-Bypass Alternative on sandbars/camping beaches by stating that 'camping opportunities would be affected to a similar extent as under the other action alternatives.' This assessment appears faulty in light of years of evidence showing dramatic flow fluctuations adversely affect sediment resources, especially during periods with inadequate sediment mass balance in the system. It concludes by summarizing that the Non-Bypass Alternative would

adversely affect whitewater boating due to low minimum flows but makes no mention of its impact to camping beaches and therefore sandbars and riparian habitats, along with cultural resources. In the context of recreation alone, from navigability/safety, to trip management, to the quality of the recreational resource and recreational experience, the Non-Bypass Alternative is unacceptable and unworkable. Additionally, as two decades of observation of SMB in the Upper Colorado River basin demonstrate, turbidity does not deter SMB and therefore reliance on turbidity but not colder dam releases is likely to prove disastrous for native fish downstream, and threatened Humpback Chub in particular.

Integrated Flow Options/Experiments Adaptive Management Alternative

GCWC strongly supports integrating all 4 ‘with bypass’ flow alternatives as *experiments* into an Adaptive Management Alternative in an experimental framework, consistent with the LTEMP, the GCPA, and the AMP, that includes specific hypotheses to be tested, data collection through appropriate monitoring, comprehensive analysis of results, and flexibility to facilitate adaptive design of subsequent flow experiments: *starting initially with the Cool Mix with a single Flow Spike—designed as an appropriately timed Spring HFE* (assessed in the context of the proposed changes to the HFE protocols in this Draft SEIS, and with flexibility for repetition as fits the availability of sediment and water in the system). The monitoring and analysis associated with this Alternative should also include information around interactions with nonflow and other actions intended to prevent establishment and expansion of SMB and other non-native piscivorous species, including synergistic or conflicting effects of actions and their timing. We are concerned that multiple Spike Flows conducted outside of the HFE protocols and HFE implementation planning/assessment have the potential to increase the risk of reducing sediment mass balance and water availability for triggering spring HFE implementation and/or reduce sandbar gains from a prior HFE.

GCWC strongly supports the most flexible adaptive management approach possible for controlling or eliminating smallmouth bass (SMB) and other warmwater non-native fish and crayfish in this river ecosystem. All possible strategies for limiting or controlling the establishment of reproducing populations of these highly piscivorous non-native species should remain on the table and available to the river ecosystem managers. In particular, GCWC supports rigorous, effective, and rapidly-reported monitoring to ensure knowledge is gained, and an active (where possible, proactive) approach to management. The many large uncertainties regarding success of limiting or control of SMB and other non-native aquatic species require that every option must be available to resolve these invasions, both upstream and downstream of the dam.

HFE Protocol

Grand Canyon Wildlands Council strongly supports modifying the high flow experiment (HFE) sediment accounting and implementation schedule to improve chances of implementing springtime HFEs, whenever possible. As we have recommended since 2011 and as we all saw in 2023, timing high flows from the dam at periods when flooding naturally (spring and early summer) in this river ecosystem has tremendously advantages, beneficially increasing or

improving shoreline habitat quality, recreational camping beach area, and water and hydroelectric power production planning. Conducting HFEs in late autumn, as has generally been the practice since 2000, is not only ecologically wasteful (sandbars erode back over the winter months), but also adds to the uncertainty of water availability in the critical early and mid-summer months and the remainder of the water year. Adopting the proposed changes in sediment accounting for a one-year timeframe and implementation timing whenever possible in springtime are essential steps to move this important ecosystem towards the goals of the National Park Service and the Grand Canyon Protection Act (1992), on which the LTEMP is founded.

Lastly regarding HFEs, and like Grand Canyon River Guides, many of the Native American Tribes, and others, GCWC continues to urge Reclamation to revisit the HFE decision-making about its Planning and Implementation (PI) team membership. More comprehensive involvement is critical to realizing the spirit of the 1992 Grand Canyon Protection Act to adaptively manage 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”. The PI Team needs to include the voices of all AMP stakeholders, as we have previously requested.

Non-flow Options

While the focus on discharge-related options is the primary emphasis of this SEIS, multiple non-discharge-related control measures also are needed, such as measures that reduce through-dam transport of non-native fish, tailwater control efforts (including management of the -12L Mile Slough), and other methods. We know from the Green, Yampa, and Colorado River reaches above Lake Powell that establishment of SMB is a primary factor in population declines of humpback chub and other native fish species outside of Grand Canyon. The Yampa River invasion provides the cautionary tale of the ecological consequences that arise from failing to pursue intervention early in the non-native fish colonization process (Dr. Rich Valdez, personal communication). The costs involved in controlling established SMB through long-term management and to keep federally listed native fish from jeopardy and the brink of extinction there, are orders of magnitude greater than the cost of early prevention of establishment and those goals have proven impossible to obtain. We have also repeatedly heard from our Tribal colleagues in the AMP that taking of life in the Colorado River significantly harms indigenous cultural integrity and therefore should be avoided when possible.

Our previously submitted analysis of non-flow-related options indicated that physical barrier screens, in-reservoir nets, floating barriers, turbine mortality, and electrofishing appeared to be equally easily accomplished and inexpensive short-term (emergency) management actions. If all were to be undertaken simultaneously, these may be the best collective strategy considered to reduce the likelihood of SMB establishment. In addition, we recommend the use of upstream curtain barriers and other means of reducing transport of fish through the dam, with implementation and monitoring at Reclamation’s earliest possible time frame.

It also is essential that the -12 Mile Slough be modified to eliminate SMB and other non-native aquatic predator refuge. The proposed reductions in size and function of the Slough are a good solution. However, that process is immersed in recalcitrance based on mis-information to Tribes and the bureaucracy of the National Park Service. The Slough is not a natural feature, but was created when fine sediment was flushed from the dam tailwaters in 1965, exposing the cobbles there. It is neither ecologically appropriate, nor within the NPS mission to maintain this unnatural feature that so deeply threatens the Colorado River ecosystem's native fish populations. In addition, any action taken at the Slough can be undone, if the NPS so wishes. Therefore, there appear to be no clear reasons for the delays in this important action. Please move forward swiftly with the plan to modify the Slough to keep it from contributing to the non-native aquatic species problem.

Another option we recommended was propagation and release of a large number of mature, predatory, endangered Colorado River pikeminnow. This option would require low cost at a medium-to-long-term timeframe, with medium levels of compliance and low implementation cost. In addition to applying additional pressure to non-native fish, this option would help achieve an essential goal of the AMP and GCPA, namely returning a top aquatic predator to the Colorado River ecosystem. Like all Alternatives and non-flow Options, such an action would require continued monitoring, likely in perpetuity.

We appreciate Reclamation's efforts to develop this SEIS to the Long Term Experimental and Management Plan so that we can provide the essential tools, nimbleness, and flexibility necessary for management of this complex river ecosystem. Thank you for the opportunity to provide comments on this Draft SEIS. Please contact us if you have any questions about these comments, or if we can be of further assistance.

Thank you,



Kelly Burke, Director



Dr. Larry Stevens, Senior Ecologist

References Cited: US Bureau of Reclamation. 2023. Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (EA) Public Comment Analysis Report May 2023. US Bureau of Reclamation Salt Lake City.