

**Scoping Comments for the Development of a
Long Term Experimental and Management Plan Draft EIS for Glen Canyon Dam
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Standing: The Colorado River as it flows through Grand Canyon National Park provides opportunities for one of the world's most sought after whitewater experiences, with close to 24,000 visitors running the river annually. The above-named five groups are intimately involved in recreational activity in the river corridor of the Grand Canyon, and have common interests with respect to Grand Canyon river management. Our groups are directly impacted by operations of the Glen Canyon Dam, as it regulates the volume of water in the Colorado River through Grand Canyon. This document represents those common interests, and thus provides a set of core considerations that we urge upon those drafting the Environmental Impact Statement (EIS) for the Long Term Experimental and Management Plan (LTEMP) for Glen Canyon Dam.

Nature of Impact: The volume and flow patterns of the Colorado River have several principal effects on river-based recreation, the recreational experience, and the resources we wish to protect. First, erosion of natural sandbars and camping beaches has progressed under all flow regimes employed to date. This erosion is a concern because as beaches recede and disappear, camping options for river-runners (as well as backpackers who reach the river and decide to camp) are reduced, which exacerbates crowding and congestion and negatively affects the recreational/wilderness experience. Campable area reduction also results in impacts to sensitive resources in the Old High Water Zone. In turn, these conditions reduce the capacity of the ecosystem to absorb visitor impacts in ways consistent with NPS and tribal river corridor management plans. Finally, the magnitude and timing of river fluctuations also have a significant impact on the riverine ecology as well as the cultural record and Traditional Cultural Properties of the eleven associated tribes who live in and around Grand Canyon. Enhanced sediment supplies are necessary to facilitate aeolian transport in order to protect the fragile and non-renewable archaeological sites along the river corridor. As river stewards, we care deeply about the protection and preservation of all the resources that make Grand Canyon so unique.

Goal: The foundational goal of any Plan should be to do no further harm to the Grand Canyon river environment. The operation of Glen Canyon Dam has had a profound adverse impact on Grand Canyon river conditions – ecological, cultural, and recreational. A fundamental test for all future decisions should be whether any proposed action will serve to (at a minimum) preserve or (to the extent practical) restore and improve the values for which Grand Canyon National Park was created.

Decision-Making Principles: The submitting organizations respectfully offer the following recommendations for the development of the Long Term Experimental and Management Plan Draft EIS. We believe it is possible for the EIS team to develop a flow management program that effectively balances the competing interests now involved, and satisfies the following principles.

Responsible Ecosystem Management: In combination with the “do no harm” ethic stated above, this should be the prime goal, and an over-arching consideration in all decisions. A

Plan that embodies this element will result in a healthier river corridor that is in concert with the provisions of the 1992 Grand Canyon Protection Act and the Endangered Species Act.

Adaptive Management-Based Scientific Method: All decisions on dam operations should be based on the best available scientific findings, and application of the scientific method. The experimental aspect of the Plan should provide for further data accumulation, hypothesis testing, and modification of key Plan components over time, in order to further optimize goal attainment. Alternatives must be scientifically defensible and credible, with well defined hypotheses. The Grand Canyon Monitoring and Research Center (GCMRC) should be considered a central resource for this aspect of the Plan, together with other pertinent ongoing scientific investigations in the Grand Canyon corridor.

Desired Future Conditions (DFCs): The Plan should clearly articulate DFCs for all river-related factors under consideration, and utilize those DFCs for evaluation of alternatives. Future operational plans should permit adaptation of DFCs, as new scientific findings emerge and as other variables in the system change materially. The DFCs should be tied to the NPS Organic Act, NPS Management Policies, and the goals and objectives articulated in GCNP and GLCA General Management Plans.

Honor Pre-Dam Flow Patterns: The final Plan must ensure that minimum flows meet long term average legal obligations. However, within those parameters, the Plan should generally seek to establish a year-round navigable river, with dam releases experimentally modulated in a way that emulates pre-dam patterns when the appropriate conditions prevail.

Rebuilding Sandbars: Current findings suggest an optimal flow regime would principally rely on steady flows (in the 8,000 - 11,000 cfs range), with appropriately timed higher volumes to facilitate rebuilding and maintaining sandbars. Accordingly, the Plan should take maximum advantage of natural sediment augmentation opportunities from the Paria and Little Colorado River watersheds. The Plan should contemplate testing the best case scenario presented in the article, "*Is There Enough Sand? Evaluating the Fate of Grand Canyon Sandbars*", *GSA Today*, Volume 18, Issue 8, August 2008. The goal here would be to eliminate or minimize further beach erosion, facilitate re-deposition of sediment, maintain the integrity of cultural resources in situ, eliminate adverse impact on native species, and assist in re-propagation of native riparian plant communities.

Safety & Navigability: To the extent practicable, the structure of the release regime should be known in advance. That is to say, recreational users (boaters and backpackers who may be camped riverside) should know that a rise in the river could occur a certain number of hours after a major sediment increase becomes evident to them as they boat. This would enable them to take precautions against rapid rise in water level.

Additional Factors: Other components of the Plan should include consideration of:

Recreational Capacity: Proposed flows may have an effect on the recreational carrying capacity of the river corridor, which in turn directly impacts the quality of the recreational experience. Carrying capacity is the basis for launch limits incorporated into the 2006 Colorado River Management Plan (CRMP). It would be important to rely on NPS input in this regard.

Tamarisk Leaf Beetle Mitigation: In anticipation of further tamarisk defoliation by the *Diorhabda Elongata* beetle, the Plan should anticipate whether there are measures that can enhance restoration of native riparian shade trees along the mainstem in order to prepare for this watershed-scale change. Again, coordinating with NPS managers and Dr. Todd Chaudhry, the new Watershed Stewardship Program Manager for the park, will be important.

Economic Issues: Grand Canyon river running has a significant economic impact on Page, Flagstaff, Kanab, Fredonia, and other portions of the region, through employment, direct outfitting, supplies, equipment, transportation, and lodging. Prior evaluations have dealt principally with the power generation or reservoir balancing implications of dam management. A full valuation of the socio-economic impacts to recreational resources impacted by dam operations is an essential part of the DEIS process when the economic implications of alternatives are examined. Non-use values should also be assessed and incorporated by managers into decisionmaking.

Temperature Moderation: In furtherance of ecological restoration, the EIS should actively evaluate the efficacy of options that would provide temperature control flexibility and improved water quality. A selective withdrawal structure or other methodology could potentially offer more flexibility in ability to respond to changing ecosystem concerns in future years, if benefits could outweigh the potential negative effects. The LTEMP team should consult with the U.S. Fish and Wildlife Service to address the costs, benefits, and risks associated with a Temperature Control Device (TCD).

Further Sediment Augmentation: The EIS should examine options for introducing additional sediment below the dam, to augment that which is periodically available from tributaries if it becomes clear that sediment resources cannot be restored and maintained through other means.

Representation in Future Decision-Making Activities: Future decision-making bodies and processes should include additional, more proportional representation by recreational and tribal parties. In addition, the final Plan must also incorporate tribal perspectives and values into the decisionmaking process in a meaningful, synergistic way, in order to achieve a balanced outcome during the life of the Plan.

Conclusion: This document should not be considered as a complete summary of concerns and recommendations from the signatory organizations. Each organization will be submitting their own detailed comments for use in formulating the Draft EIS, yet those additional materials will not be in conflict with this presentation. And it is our hope that the reviewing body will take note of the fact that five river stakeholders with such diverse goals have come together to recommend a set of commonly-held principles for river management in the Grand Canyon. We trust these joint recommendations will be regarded with additional weight because they represent the views of such major components of the Grand Canyon river community.

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