

March 29, 2024

To: Glen Canyon Dam Planning and Implementation Team

From: William Stewart, Bureau of Reclamation, Glen Canyon Dam Adaptive Management Program Manager

Re: Insufficient Sediment to Trigger Implementation of a Spring 2024 High Flow Experiment at Glen Canyon Dam

The purpose of this memorandum is to transmit technical information regarding a potential 2024 Spring High Flow Experiment (HFE) at Glen Canyon Dam to the Glen Canyon Leadership Team and to the Department of the Interior (Department) in accordance with the Long Term Experimental and Management Plan (LTEMP) Record of Decision (ROD). The Glen Canyon Dam Technical Implementation / Planning Team (Technical Team) includes technical representatives from the National Park Service (NPS), the U.S. Fish and Wildlife Service (FWS), the Bureau of Indian Affairs (BIA), the U.S. Geological Survey (USGS) Grand Canyon Monitoring and Research Center (GCMRC), the Bureau of Reclamation (Reclamation), Western Area Power Administration (WAPA), the Arizona Game and Fish Department (AGFD), the seven Colorado River Basin States (States), and the Upper Colorado River Commission (UCRC).

On March 25, 2024, Reclamation and Grand Canyon Monitoring and Research Center (GCMRC) determined that there is not sufficient sediment to support implementing an HFE at Glen Canyon Dam during the Spring 2024 planning window; therefore, an HFE will not be tested this Spring. This determination is based on the best available sediment and streamflow data and sand budget modeling to date. The determination that no HFE has been triggered this Spring is made in accordance with the process for sediment related experiments described in the Glen Canyon Dam LTEMP ROD.

LTEMP Process for Implementing Experiments

Under the LTEMP, the Department may conduct flow-based experiments (HFEs, Bug Flows, Trout Management Flows, and Low Summer Flows) at Glen Canyon Dam when resource conditions warrant and if it is determined that there will not be unacceptable adverse impacts on other resources. This process entails outreach to Glen Canyon Dam Adaptive Management Program (GCDAMP) partners through regular meetings and additional notification to Tribes inviting consultation. The process also entails coordination with the Technical Team to plan for the possible experiment, evaluate the status of resources, and make a technical recommendation regarding whether to conduct an experiment. The Technical Team presents its recommendation to the Glen Canyon Leadership Team, which makes a recommendation to the Department. In the Spring 2024 HFE planning window, the sediment trigger was not met; therefore, no technical recommendation or decision-making process was initiated.

LTEMP HFE Protocol

As described in the LTEMP ROD, HFEs are experimental in nature and are designed to achieve a better understanding of whether, how, and when to incorporate high releases into future dam operations in a manner that maintains or improves beaches, sandbars, and associated habitat. The

LTEMP HFE Protocol establishes a decision-making framework consisting of three components: (1) planning and budgeting, (2) modeling, and (3) decision and implementation. It also provides the framework and process for implementing high flow releases from Glen Canyon Dam when sediment and other resource conditions warrant.

The purpose of HFEs is to learn, through adaptive management, how to better conserve the limited sand supply to the Colorado River below Glen Canyon Dam for ecological, recreational, and cultural purposes; and to better meet DOI obligations under the Grand Canyon Protection Act (1992). Under the LTEMP HFE Protocol, for the Water Year 2024 sediment triggered HFEs may be conducted in the Fall (October to November, beginning in 2023) and Spring (March to April, beginning in 2024). Cumulative sand input from the side canyons during the Fall and Spring windows is evaluated in a sand budget model to determine whether the sediment trigger has been met. HFEs are only considered when they will not result in net erosion to the riverbed and sandbars in Marble Canyon as measured over the sediment accounting period.

HFE Sand Budget Results

The LTEMP HFE Protocol uses modeled sand inflow from the Paria River (USGS Gaging Station 09382000) and cumulative sand load at the Colorado River above Little Colorado River gage (USGS Gaging Station 09383100) verified by direct sediment-transport measurements combined with forecasted hydrologic data to determine whether suitable sediment and hydrology conditions exist in the Marble Canyon for a high-flow experimental release. On March 25, 2024, the measured post-December 1 Paria Cumulative Sand Load was approximately 37,625 metric tons and on March 2, 2024, the measured post-December 1 Colorado River above Little Colorado River Cumulative Sand Load was approximately 50,099 metric tons. Given the uncertainties associated with these measured loads and after accounting for the sand inputs from the lesser tributaries, the December 1–March 2 Marble Canyon sand mass balance was -12,474-±30,000 metric tons. A large sand input is therefore needed from the Paria River to result in a positive mass balance in Marble Canyon and trigger an HFE. Current long-term forecasts for the region do not indicate that any large sand inputs into the Paria River are likely, therefore reaching a trigger for a Spring HFE is highly unlikely. HFE implementation requires several weeks of advance planning and coordination. On March 25, 2024, GCMRC scientists and Reclamation determined there is insufficient sediment to meet the trigger in time to plan and coordinate an HFE in the March to April 2024 implementation window."

Consultation

On February 12, 2024, the required 30-day advance notification and offer for consultation was emailed to the Tribes and Parties to the LTEMP cultural Programmatic Agreement of the potential for a HFE beginning April 18, 2024. As of March 25, 2024, Reclamation has not received any requests for consultation on the potential experiment.