

**Glen Canyon Dam Adaptive Management Work Group**  
**Agenda Item Information**  
**February 22-23, 2012**

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Agenda Item

Report on Two Environmental Assessments (EAs): Protocol for High-Flow Experimental Releases  
EA and Non-Native Fish Control EA

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Action Requested

- ✓ This is an information item.

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Presenters

Glen Knowles, Chief, Adaptive Management Group, Upper Colorado Region, Bureau of  
Reclamation

Dennis Kubly, Environmental Resources Division, Upper Colorado Region, Bureau of Reclamation

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Previous Action Taken

- ✓ By AMWG: AMWG provided comments and recommendations on the High-Flow Experimental Releases Protocol EA as part of National Environmental Policy Act scoping at its February 3, 2010 meeting and at subsequent AMWG meetings in Phoenix, Arizona.
- ✓ By AMWG: At its August 2010 meeting, AMWG approved the FY11-12 Biennial Workplan, and with it, an earlier version of the HFE science plan. The approved work plan included the following language: “Some changes to this work plan may be needed once the Protocol is finalized pursuant to the EA process. Additional revisions may be required to address additional experimental activities that may be identified in the Long Term Experimental and Management Plan EIS ([http://www.usbr.gov/uc/rm/amp/amwg/mtgs/10aug24/Attach\\_08b.pdf](http://www.usbr.gov/uc/rm/amp/amwg/mtgs/10aug24/Attach_08b.pdf), page 204).”

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Relevant Science

- ✓ The following describes the relevant research or monitoring on this subject:
  - Coggins, L.G. Jr., M.D. Yard, and W.E. Pine III. 2011. Nonnative fish control in the Colorado River in Grand Canyon, Arizona: an effective program or serendipitous timing?
  - Korman, J., M. Kaplinski, and T.S. Melis, 2011, Effects of fluctuating flows and a controlled flood on incubation success and early survival rates and growth of age-0 rainbow trout in a large regulated river. Transactions of the American Fisheries Society 140:487-505.
  - Melis, T.S., ed., 2011, Effects of three high-flow experiments on the Colorado River ecosystem downstream from Glen Canyon Dam, Arizona: U.S. Geological Survey Circular 1366, 147 p.
  - Melis, T.S., Korman, J. and Kennedy, T.A., 2011, Abiotic & Biotic Responses of the Colorado River to Controlled Floods at Glen Canyon Dam, Arizona, USA, River Research and Applications, (wileyonlinelibrary.com) DOI: 10.1002/rra.1503

- Runge, M.C., Bean, Ellen, Smith, D.R., and Kokos, Sonja, 2011, Non-native fish control below Glen Canyon Dam—Report from a structured decision-making project: U.S. Geological Survey Open-File Report 2011-1012, 74 p., at <http://pubs.usgs.gov/of/2011/1012/>.
- U.S. Bureau of Reclamation, 2009, Notice of Development of Experimental High-Flow Releases from Glen Canyon Dam under the Authority of the Secretary of the Interior (Secretary), Development of an Environmental Assessment, and Notice of Public Meeting: Federal Register 74 (250): 69361-69362.
- Wright, S.A., and Grams, P.E., 2010, Evaluation of Water Year 2011 Glen Canyon Dam flow release scenarios on downstream sand storage along the Colorado River in Arizona: U.S. Geological Survey Open-File Report 2010-1133, 19 p.
- Wright, S.A., J.C. Schmidt, D.J. Topping, 2008, Is there enough sand? Evaluating the fate of Grand Canyon sandbars: *GSA Today* 18(8):4-10.
- Yard, M.D., L.G. Coggins, C.V. Baxter, G.E. Bennett, and J. Korman, 2011, Trout piscivory in the Colorado River, Grand Canyon: effects of turbidity, temperature, and fish prey availability. *Transactions of the American Fisheries Society* 140:471-486.

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## Background Information

### **Report on Protocol for High-Flow Experimental Releases EA – Dennis Kubly**

The High Flow Experiment (HFE) Protocol was developed to establish a set of guidelines that will enable the Glen Canyon Dam Adaptive Management Program to conduct experimental dam releases on a multi-year, multi-experiment basis, while reducing the time and expense of compliance activities. The intent of the experiments is to improve learning that will lead to improved fine sediment conservation and benefit resources that depend on sediment – sandbars, camping beaches, riparian habitat, and nearshore habitat for native fish. The EA also analyzed the effect of conducting high flow experiments on other natural resources, hydropower production, and recreation.

The Bureau of Reclamation (Reclamation) began the process to develop an EA for the HFE Protocol with a Federal Register notice in December of 2009, and held a public scoping meeting at the February 3-4, 2010, AMP Adaptive Management Work Group meeting. Since that time, 10 cooperating agencies--Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, Western Area Power Administration, Arizona Game and Fish Department, Upper Colorado River Commission, Hopi Tribe, Hualapai Tribe and Pueblo of Zuni-- have joined with Reclamation to develop the HFE Protocol and the EA.

In development of the EA, Reclamation conducted a cooperating agencies HFE Protocol Workshop (June 17-18, 2010) and held a series of cooperating agencies conference calls to discuss purpose and need, as well as elements of potential alternatives for the EA. Reclamation also met with each of the AMP Tribes to conduct government-to-government consultation on the proposed action. In a parallel process, Reclamation has worked with other agencies and tribes to develop a memorandum of agreement (MOA) focused on impacts to cultural resources from the proposed action. The EA was provided to the public for a 30-day review on January 14, 2011. A second public review occurred from July 5-19, 2011. The HFE Protocol EA was published on December 30, 2011, and is available at <http://www.usbr.gov/uc/envdocs/ea/gc/HFEProtocol/index.html>.

The proposed HFE Protocol contains three major components: (1) planning and budgeting; (2) modeling and; (3) decision and implementation. The planning and budgeting component sets the

stage for HFE consideration by evaluating the status of resources and assigning funding for conducting HFEs. The resource status assessment is intended to inform managers and decision makers of the risks and benefits that might accrue from any HFE. The modeling component projects the sand mass balance during potential HFE release windows using known tributary sand inputs and forecasted hydrology. The decision and implementation process incorporates the results of the first two components in a process of technical deliberation balanced with policy considerations. If the decision is made to conduct an HFE, GCMRC and cooperating scientists would conduct the scientific investigations following a previously agreed upon science plan.

### **Report on Non-Native Fish Control EA – Glen Knowles**

Reclamation began the process to develop an EA for nonnative fish control in March 2010 when it was determined that, due to tribal concerns over the taking of life in a sacred place, mechanical removal of nonnative fishes in FY 2010 would be cancelled. Reclamation began development of the Nonnative Fish Control EA and reinitiated consultation with the U.S. Fish and Wildlife Service (FWS) on cancelling mechanical removal, a conservation measure of two FWS biological opinions. Since that time, Reclamation has worked with the following cooperating agencies and others to complete the EA and an associated MOA to address effects to cultural resources: Bureau of Indian Affairs, National Park Service, FWS, U.S. Geological Survey, the Arizona Game and Fish Department (AGFD), the Hualapai Tribe and the Pueblo of Zuni.

Reclamation conducted numerous conference calls with cooperating agencies and met with many tribes in government-to-government tribal consultation to develop the EA. The EA was distributed to the public on January 28, 2011 for a public comment period that closed on March 18, 2011. A second public review occurred from July 5-26, 2011. The HFE Protocol EA was published on December 30, 2011, and is available at <http://www.usbr.gov/uc/envdocs/ea/gc/nafc/index.html>.

Reclamation received a biological opinion from FWS on December 23, 2011 for a proposed action that included implementation of the modified low fluctuating flow, the HFE Protocol, and implementation of non-native fish control through 2020. Reclamation will review relevant aspects of the biological opinion. Reclamation also continues to work with interested parties on the MOA to address effects to cultural resources from non-native fish control, and will provide an update in a separate agenda item on National Historic Preservation Act compliance. A decision on this NEPA process is expected in 2012.