

**Glen Canyon Dam Adaptive Management Work Group**  
**Agenda Item Information**  
**August 24-25, 2011**

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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 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 is being 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, and nearshore habitat for native fish. The EA will also analyze 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 Environmental Assessment (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. Reclamation continues to work with the cooperating agencies and tribes to develop this EA. 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 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 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**

The Bureau of Reclamation (Reclamation) began the process to develop an Environmental Assessment (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 on cancelling mechanical removal. Since that time, Reclamation has invited the AMP federal agencies (Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, and U.S. Geological Survey), the Arizona Game and Fish Department (AGFD), and the AMP Tribes (Hopi Tribe, Hualapai Tribe, Navajo Nation, Southern Paiute Consortium, and the Pueblo of Zuni) to be cooperating agencies. All of the Federal agencies, AGFD, the Zuni Tribe, and the Hualapai Tribe are cooperating agencies and completed memorandums of understanding with Reclamation.

In development of the EA, Reclamation has conducted a Nonnative Fish Control Workshop (March 29-30, 2010), as well as numerous Cooperating Agencies conference calls to discuss purpose and need as well as elements of potential alternatives. Reclamation also served on a panel entitled “Non-native Fish Removal in the Grand Canyon: Cultural Considerations and Fish Management” at the July 29, 2010, Native American Fish and Wildlife Society Southwest Region 2010 Conference in Scottsdale, Arizona, to discuss the issues surrounding the use of mechanical removal to control nonnative fish species and the cultural concerns of AMP Tribes over this practice.

Reclamation partnered with the U.S. Geological Survey (USGS) Patuxent Wildlife Research Center to conduct a structured decision making (SDM) project on non-native fish management below Glen Canyon Dam (SDM Project) as part of the NEPA EA. The purpose of the SDM Project was to use a structured approach to develop and provide substantive input from the cooperating agencies and tribes to Reclamation in the NEPA process concerning management of non-native fish below Glen Canyon Dam. This project provided a forum for the diverse cooperating agencies and Tribes to discuss, expand, and articulate their respective values, to develop and evaluate a broad set of potential management alternatives, and to indicate how they would individually prefer to manage the inherent trade-offs in this management problem.

Two workshops were held at Saguaro Lake Ranch near Phoenix, Arizona, on October 18-20 and on November 8-10, 2010. At these workshops, a diverse set of objectives for the project were defined, a set of alternatives (“hybrid portfolios”) was developed, and participants assessed alternatives against the array of objectives. Multi-criteria decision analysis methods were then employed to examine the trade-offs inherent in the problem, and allowed the participating agencies and Tribes to express their individual judgments about how those trade-offs should best be managed in selecting a preferred alternative. The project served to enlist the cooperating agencies in alternative development and analysis. The final report has been published as a USGS open file report (see *Relevant Science* above) and will be provided as an appendix or companion document to the EA.

Reclamation and the Department of the Interior continue to meet with each of the AMP Tribes to conduct tribal consultation on the EA. The EA was distributed to the public on January 28, 2011 for

## Report on Two EAs, continued

a public comment period that closed on March 18, 2011. Reclamation continues to work with the cooperating agencies to develop the EA and expects to provide the EA for a second two-week public review in May 2011.

# RECLAMATION

*Managing Water in the West*

## Non-native Fish Control Environmental Assessment

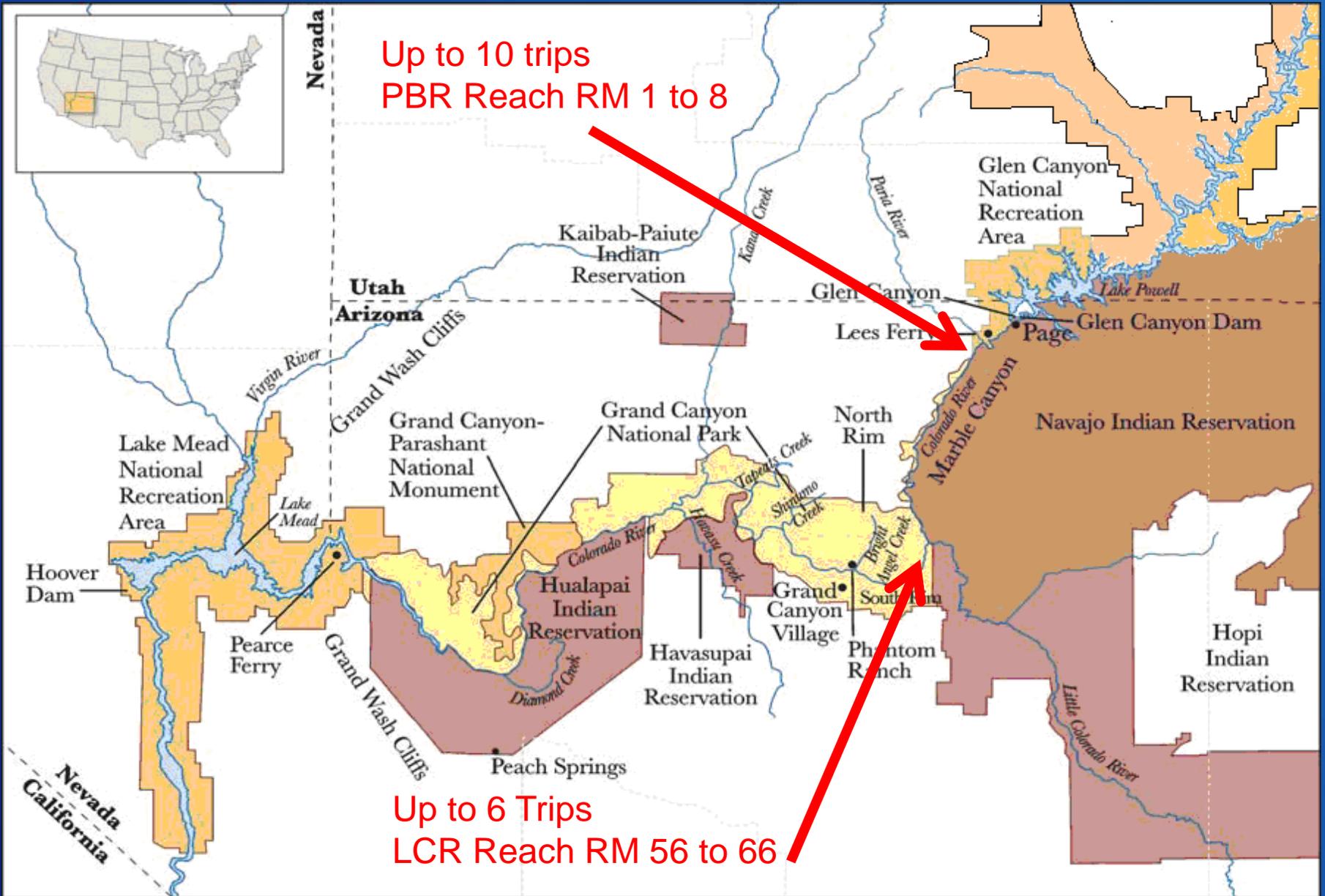
Bureau of Reclamation  
Glen Canyon Dam  
Adaptive Management Program  
Adaptive Management Work Group  
August 25, 2011



U.S. Department of the Interior  
Bureau of Reclamation

# Latest Actions

- **Revised the January 28, 2011 Draft of the EA as described at the May 18, 2011 AMWG Meeting based on comments received during the first public comment period January 28 –March 18, 2011**
- **Second Cooperating Agency Comment Period June 16-29, 2011**
- **Second Public Comment Period July 5-July 26, 2011**



# RECLAMATION

# Refined Proposed Action July 5 DEA

**Removal ONLY IF adult humpback chub abundance drops below 7,000 adult fish based on the Age-Structured Mark Recapture Model**

All fish would be **removed alive** to other waters for use as sport fish unless this not possible, then fish are euthanized for other beneficial use

## Research:

- a. Is Lees Ferry the source? Lees Ferry rainbow trout marking with PIT tags (fall) and increased Marble Canyon trout monitoring (summer)
- b. Can PBR removal work? **Two PBR removal Trips initially (Winter 2011-12)**
- c. Is predation limiting HBC recruitment? Is mainstem important habitat?
  - **LCR removal ONLY IF adult humpback chub abundance drops below 7,000 adult fish**
  - Increased marking and monitoring of young HBC in the LCR and Mainstem (Nearshore Ecology)
- e. Are other NNFC methods better? Begin 1-2 year process with stakeholder involvement to develop and test feasibility of flow and non-flow options
- f. Safety Valve: In 2014 Reclamation will undertake science review workshop with scientists to assess first two years of non-native fish control

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# Comments received during Second Public Comment Period July 5 – July 26, 2011

- 10 comments total, 7 AMWG members
- 2 federal agencies, 1 Tribe, 2 States, 1 State agency, 7 NGOs, 1 comment from 10 business owners

## Major themes of comments:

- Provide more clearly defined proposed action that is more specific
- Not enough evidence linking trout predation and competition to humpback chub population viability
- Need to specify that no trout removal would occur at all unless the 7,000 humpback chub trigger is reached
- EAs should be combined into an EIS

# Next Steps

The July 5<sup>th</sup> DEA is available on the Reclamation website at:

<http://www.usbr.gov/uc/envdocs/ea/gc/nafc/index.html>

Reclamation intends to complete the NEPA process in time to potentially implement the proposed action this fall.

Conclude process in late Summer/early Fall 2011 with a decision notice.

ESA Section 7 Consultation with the US Fish and Wildlife Service is ongoing and a biological opinion is needed to complete that process to finalize a decision notice.

Additional tribal consultation is planned.

A workshop is planned for September 6, 7, and 8 in Phoenix to find resolution to NHPA 106 adverse impacts from the undertaking.

For more information contact **Glen Knowles** at **(801) 524-3781**  
[gknowles@usbr.gov](mailto:gknowles@usbr.gov)

RECLAMATION

# RECLAMATION

*Managing Water in the West*

## High-Flow Experiment Protocol Environmental Assessment Update

Dennis Kubly  
Bureau of Reclamation  
Salt Lake City, UT

Adaptive Management Work Group Meeting  
August 25, 2011



U.S. Department of the Interior  
Bureau of Reclamation

# HFE Protocol EA Chronology

- **Announcement by Secretary: Dec 9, 2009**
- **Federal Register Notice: Dec 22, 2009**
- **Initiate Public Scoping, AMWG: Feb 3-4, 2010**
- **HFE Workshop: June 17-18, 2010**
- **Conference Calls w/10 Coop Agencies: Jul-Dec 2010**
- **Coop Agency Review Draft: Nov 23-Dec 6, 2010 and Jun 15-29, 2011**
- **Public Review Draft: Jan 14-Mar 18, 2011 and Jul 5-19, 2011**

# Some of the Comment Received

- **17 responses from agencies, tribes, and organizations; 10 responses from individuals**
  - Responses generally appreciative of changes, but still not sufficient
- **Main Recurring Issues**
  - Level of NEPA required for this proposed action
  - Coordination and integration of two EAs
  - Rapid response is insufficiently described and assessed for implementation
  - Protocol decision process is unclear; needs more detail
  - Insufficient actions to satisfy GCPA
  - Inconsistencies in different parts of the EA, e.g. effects of HFEs on cultural resources

# What has not Changed

- **Purpose and Need**
- **Primary Elements of the Protocol**
  - Planning and Budgeting, including Resource Evaluations
  - Sand Budget Modeling
  - Decision and Implementation
- **Primary Approaches**
  - Store and Release
  - Rapid Response
  - Assess timing, magnitude, duration and frequency
- **A Science Plan to Measure Effects**
  - Feedback Loops from Scientists to Managers
  - Incorporation of Learning into the next Phase (LTEMP)

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# What is being Done

- **A hard look at assessment of impacts and incorporation of recent findings from scientists, i.e. the fine toothed comb**
- **Further identification of the relationships between HFE Protocol and NNFC proposed actions/impacts**
- **A search for inconsistencies**
- **Clarification and elucidation of process and participation wherever known**
- **Ensuring that decision makers have the best analysis possible to use in the decision process for these proposed actions**

# Ongoing Compliance

- **Second draft High Flow Experimental Protocol EA public review July 5 - 19, 2011.**
- **Reclamation requested formal ESA Section 7 consultation with USFWS January 14, 2011, for effects to endangered humpback chub, razorback sucker, southwestern willow flycatcher, and Kanab ambersnail. USFWS will produce a biological opinion.**
- **Reclamation has scheduled a meeting with tribes and other interested parties September 6 – 8, 2011 to prepare MOAs for NHPA compliance on the proposed actions**
- **Reclamation needs to complete consultation with USFWS, complete tribal consultation and NHPA compliance, and complete NEPA compliance for a decision on the proposed HFE Protocol.**