

**Glen Canyon Dam Adaptive Management Work Group**  
**Agenda Item Information**  
**August 27-28, 2014**

---

---

Agenda Item

Planning for a Fall 2014 High Flow Experiment

---

---

Action Requested

Information item only

---

---

Presenter

Dr. Jack Schmidt, Chief, Grand Canyon Monitoring and Research Center (GCMRC)  
Glen Knowles, Chief, Adaptive Management Group, Environmental Resources Division, Upper  
Colorado Region, Bureau of Reclamation (Reclamation)

---

---

Previous Action Taken

N/A

---

---

Relevant Science

The Environmental Assessment and Finding of No Significant Impact for Development and Implementation of a Protocol for High-Flow Experimental Releases from Glen Canyon Dam, Arizona, 2011 through 2020 can be found here: <http://www.usbr.gov/uc/envdocs/index.html>

---

---

Background Information

The Finding of No Significant Impact for the Development and Implementation of a Protocol for High-Flow Experimental Releases from Glen Canyon Dam, Arizona, 2011 through 2020 (HFE Protocol) was completed in May of 2012 along with a directive from the Secretary of the Interior on the implementation of the HFE Protocol and Non-native Fish Control in Grand Canyon. The second HFE conducted under the HFE Protocol was completed in November 2013. The planning for this event under the Secretarial Directive was comprehensive, and resulted in a thorough review of all Glen Canyon Dam Adaptive Management Program resources. Reclamation will review the HFE planning and implementation process in preparation for a possible 2014 HFE. GCMRC will provide an overview of considerations in developing a hydrograph recommendation for a 2013 Fall HFE.

# RECLAMATION

*Managing Water in the West*

## Planning for a Fall 2014 HFE

Glen Knowles

Bureau of Reclamation

GCDAMP AMWG Meeting

August 28, 2014



U.S. Department of the Interior  
Bureau of Reclamation

# HFE Decision Making Process

## 1. Planning and Budgeting Component

- Annual resource status assessment
  - Agency Reporting (Jan. Reporting Meeting)
  - GCDAMP Budget and Work Plan Process

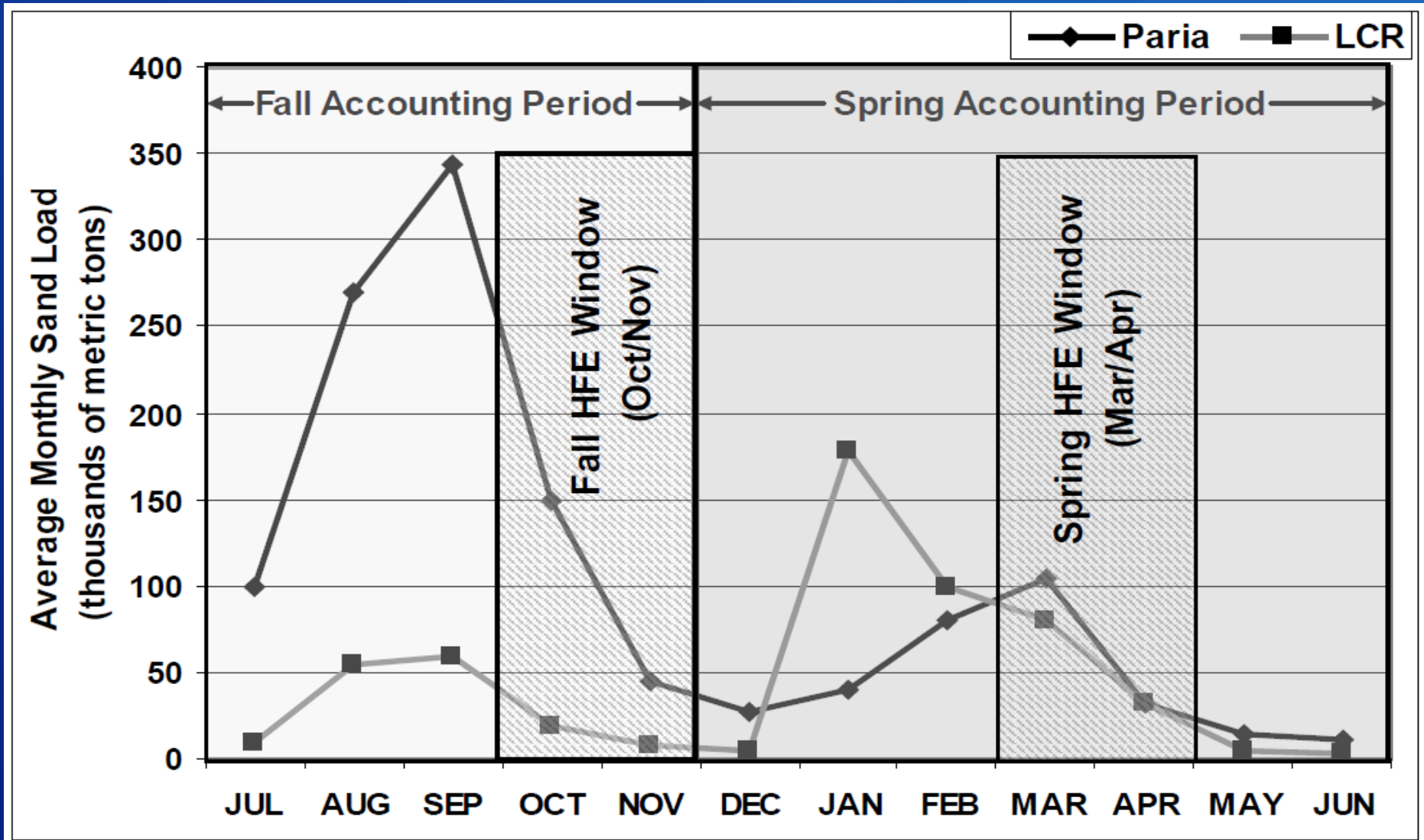
## 2. Modeling Component

## 3. Decision and Implementation Component

- Review Modeling Component
- Review Status of Resources
- Consultation with agencies and tribes, AMWG input
- Tech Team Report and Recommendation/DOI  
GCD Leadership Team Recommendation

RECLAMATION

# Modeling Component



RECLAMATION

# HFE Protocol Parameters

## Possible Timing

- March-April and October-November through 2020
- Spring HFEs will not be considered until 2015

## Duration range

- 1 hr – 96 hrs (at full magnitude)
- 1 ½ days – 6 ½ days (including ramping)

## Magnitude range

- 31,500 cfs – 45,000 cfs (depends on maintenance)

## Ramping rates

- Ramping rates are defined by 1996 ROD and 1997 Glen Canyon Dam Operating Criteria (62 FR 9447, 4,000 cfs up and 1,500 cfs down)

## Model Constraints

- “the Leadership Team's view is that it would be inappropriate to adjust the model output in a way that would increase the amount of water to be released or increase power costs associated with an HFE release.” November 7, 2012 memo from Anne Castle

# Resource Status Assessment

## *Sediment Resources*

In-channel sediment storage

Sandbar campable area

High-elevation sand deposits

## *Cultural Resources*

Archaeological site condition and stability

Access to archaeological sites by tribes

## *Biological Resources*

Aquatic food base

Lees Ferry trout population

Lees Ferry fishery recreation experience quality

Endangered humpback chub and other fish abundance

Riparian vegetation

## *Hydropower and water delivery*

Water quality

Water delivery

Dam maintenance

Hydropower production and marketable capacity

RECLAMATION

# HFE Protocol Reporting

1. GCDAMP Annual Reporting meeting every January.
2. Updates at TWG and AMWG GCDAMP meetings.
3. Meet with the HFE MOA consulting parties and consult with tribes as needed.
4. The HFE Technical Team report to the Secretary's Glen Canyon Leadership Team for their consideration in HFE decisions.
5. US Fish and Wildlife Service report on the effects of prior HFEs and conservation measures of the 2011 FWS biological opinion.

RECLAMATION

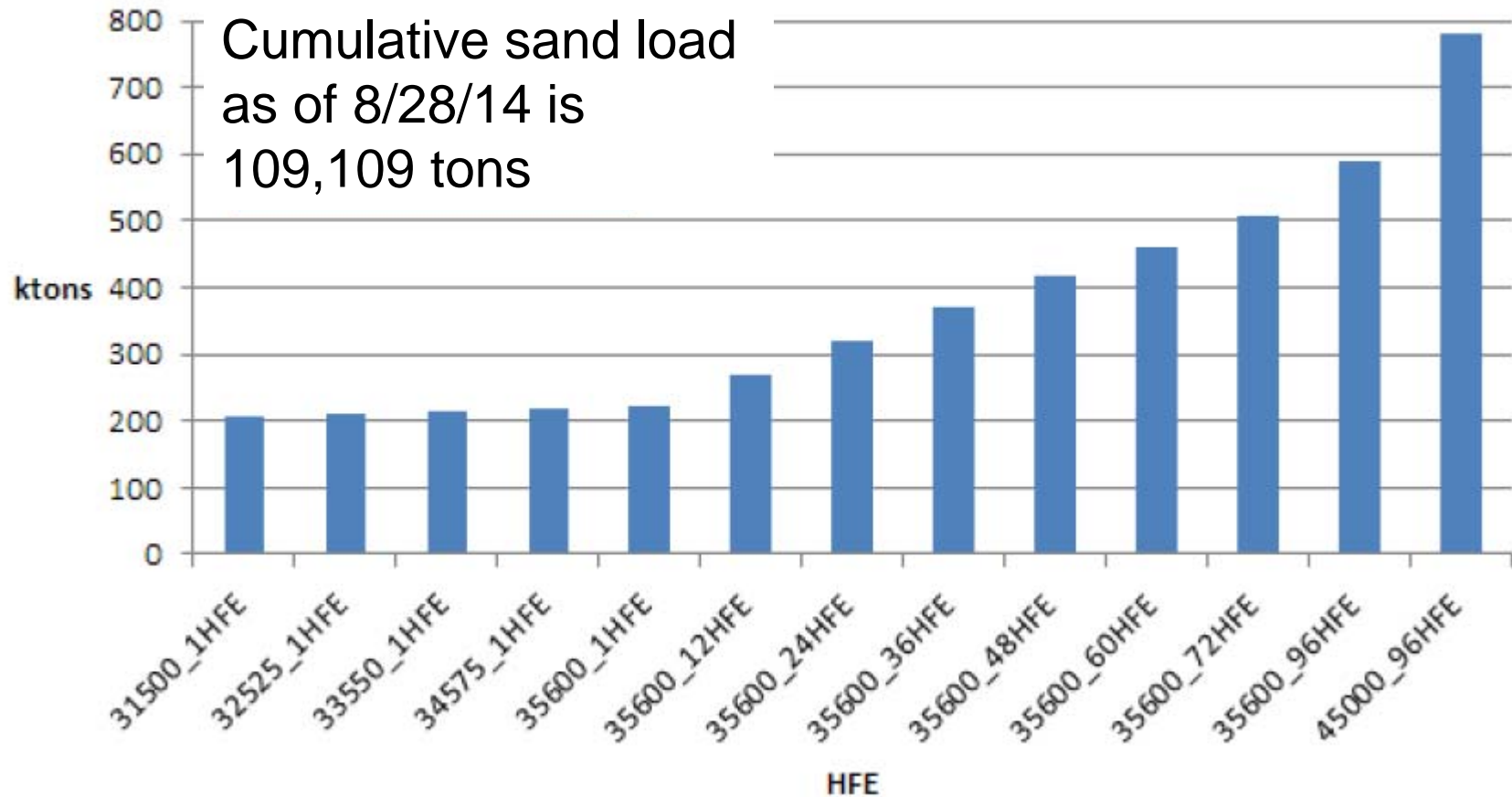
## HFE Protocol Reporting cont.

6. Reclamation will undertake a review in 2014 of the first two years of implementation of the proposed action through a workshop with scientists to assess what has been learned; this review will also serve as the first re-evaluation point. Reclamation will also produce a written report of each evaluation.
7. Interior will conduct a comprehensive review of the Protocol after multiple HFEs (at least 3) have occurred.

RECLAMATION



## Ktons Required for Fall HFE



RECLAMATION