

# Glen Canyon Dam Adaptive Management Program

## Preparation for AMWG Conference Call, September 6, 2006

This document is in three parts:

1. The August 18, 2006 message from Assistant Secretary Limbaugh to AMWG, asking that suggested changes to and questions regarding the TWG-recommended hydrograph, budget, and workplan be sent in advance of the September 6, 2006 conference call.
2. The list of suggested changes to the TWG-recommended hydrograph, budget, and workplan submitted by AMWG members.
3. The list of questions (and their answers) from AMWG members regarding the TWG-recommended hydrograph, budget, and workplan.

### MESSAGE FROM ASSISTANT SECRETARY MARK LIMBAUGH TO AMWG

From: Assistant Secretary Mark Limbaugh via Linda Whetton  
Date: Fri 8/18/2006 1:08 PM  
Subject: Important Information for AMWG Conference Call

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It is the Assistant Secretary's expectation that AMWG members will discuss in detail with their TWG members the WY07 hydrograph, budget, and workplan that was accepted at the TWG meeting for recommendation to the AMWG. Also, the budget issues that were addressed in detail at the TWG level should not need to be addressed in detail again at the AMWG level.

AMWG members who still have questions about the proposed WY07 hydrograph, budget, or workplan, after discussion with their TWG members, should send their questions to BOR and/or GCMRC well in advance of the conference call.

Most importantly, if you plan to propose a change to the TWG-recommended WY07 hydrograph, budget, or workplan, please send it to me ([lwvetton@uc.usbr.gov](mailto:lwvetton@uc.usbr.gov)) and Mary Orton ([mary@maryorton.com](mailto:mary@maryorton.com)) by noon on Friday, August 25, 2006. The proposed changes, if any, will be distributed to the full group in advance, and this due date is based on the time needed to post or distribute an aggregated list.

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### PROPOSED CHANGE TO HYDROGRAPH, BUDGET, AND WORKPLAN

From: Bradley Warren, Western Area Power Administration  
Date: 8/25/2006

Western Area Power Administration requests that the hydrograph chart/table be modified by adding "Note: Monthly volumes are subject to change in accordance with the final Annual Operating Plan for Colorado River Reservoirs 2007." The AOP process is the appropriate forum for deciding the operating plan. The AOP allows for adjusting monthly release volumes and Western does not believe the AMWG process can limit the flexibilities provided under the AOP.

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From: Nikolai Ramsey, in behalf of Grand Canyon Trust and Grand Canyon River Guides  
Date: 8/25/2006

Proposed WY2007 Hydrograph

Grand Canyon Trust  
Grand Canyon River Guides  
August 25, 2006

The Technical Work Group (TWG), voted at their 3 August 2006 meeting to recommend that MLFF flows be continued in 2007. Unfortunately, there was not a technical discussion of options, and GCMRC was not prepared to discuss the implications of the different options. We do not believe that there was sufficient information and discussion for the TWG to make an informed recommendation, and we do not believe that MLFF fulfills our responsibility to recommend flows that meet the intent of the Grand Canyon Protection Act (GCPA).

We urge implementation of experimental flows in WY2007 that are consistent with the GCPA, and to the extent possible, meet the requirements of the 1994 Biological Opinion (BO). We recommend the following hydrograph:

1. October 2006 to July 2007. Equalized monthly volumes (about 700 kaf) and normal daily ROD fluctuations (i.e., 7500 to 13,500 cfs). BHBF may occur under enriched sediment conditions (i.e., under the new sediment trigger developed by the sediment scientists).
2. August 2007 to September 2007. Monthly volumes of about 620 kaf and steady daily flows of about 10,000 cfs.

The main purpose of the equalized monthly volume flows with a BHBF is to evaluate whether this combination can provide a “flow-only option” for maintaining a positive mass balance of sediment. The main purpose of the steady flows is to evaluate the effects on mainstem rearing for humpback chub and other native fish. We purposefully leave developing the specific hypotheses to be tested and the determination of how the effects are to be measured to GCMRC with review and consent by the TWG and AMWG. However, we expect that several key questions (many of which were identified in the Knowledge Assessment) will be evaluated regarding the effects of these flows on:

1. Sediment accumulation, transport, and retention.
2. Aeolian transport and protection of archaeological sites.
3. Temperature dynamics.
4. Tamarisk germination and survival.
5. Native and non-native fish spawning and rearing.
6. Foodbase productivity and availability.
7. Campsite number, area, distribution, and quality.

The results of these experiments will be useful in making recommendations to the Secretary of Interior on implementation of the GCPA, especially in regard to the three key park resources and values—sediment, humpback chub, and cultural resources. In addition, this hydrograph does not negatively affect our ability to implement any of the three experimental flow hydrographs being developed by the Science Planning Group,

and additional compliance is either not necessary or not excessive. The equalized monthly volumes and the steady flows are both within the constraints of the Record of Decision.

We are not comfortable with yet another year of failure in the AMP. We believe it is necessary and responsible to take advantage of every opportunity to discover how best to “protect, mitigate adverse impacts to, and improve” these magnificent park resources and values.

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From: André Potochnik  
Date: 8/25/2006

I have two additional considerations for the AMWG phone conference discussion on the 2007 hydrograph/budget.

**1) Sediment-triggered BHBF in 2007.**

GCMRC reported at the March AMWG meeting that the Colorado River ecosystem below the dam remains fully loaded with sediment following the large Paria River inputs since January, 2005. We may have met the sediment trigger for another BHBF. GCMRC recommends a replication of the Nov. '04 BHBF to verify and refine the technique. Otherwise, we risk sending 4 to 5 millions dollars worth of Grand Canyon sediment to Lake Mead, where it loses all of its river ecosystem values and only subtracts from the water storage capacity of Mead. This BHBF could be a management action of the ROD, as originally envisioned.

**2) Fund the Adopt a Beach (AAB) program as a part of core monitoring.**

Following recent completion of GRCA's Colorado River Management Plan and GCMRC's Recreation Protocol Evaluation Panel, recreational campsite values should be monitored as per recommendations of these two programs. The Sediment PEP and the Recreation PEP both recommended funding and continuation of this cost-saving program. The Recreation PEP also recommended establishment of a GIS atlas of campsites to satisfy Recreation Management Objectives that can be assisted by the AAB:

- MO 9.3 Beaches and Camps
- MO 9.5 Visitor Experience & GCMRC Monitoring

The Adopt a Beach program is aligned with Interior's concern for Secretary Norton's Four C's - Conservation through Cooperation, Communication, and Consultation:

- Cooperation signifies the Department's emphasis on voluntary action, partnerships, collaborative work, and commitment to work in concert with all partners to attain common conservation goals.
- Communication highlights Interior's commitment to transparency and accountability, and the innovation that occurs through the exchange of ideas and ongoing dialogue with partners.
- Consultation signifies Interior's commitment to integrated decision-making, and our focus on using local information and knowledge to address place-based conservation challenges.

see this website: <http://www.gcr.org/aab/ab.htm>

## QUESTIONS RECEIVED

From: Leslie James, CREDA  
Date: 08/24/2006 02:53 PM

I have two questions related to the budget, and depending on the response, may have a recommended change(s).

1. If I assume the TWG recommendation of no experimentation in FY 07 is adopted, which line items could be either a) eliminated, b) reduced or c) deferred, and why is \$500,000 included in BOR's budget for experimental flows?
2. If mechanical removal were included in FY 07, is last year's \$795K an accurate cost estimate, or what did the actual experience cost?

Comment: I really appreciate seeing the historical budget amounts in BOR's work plan descriptions. That, coupled with actual expenditures, would provide a good source of information for the TWG and AMWG members.

### Response From John Hamill

Leslie: The first two items below were discussed and resolved by the TWG and SPG. Kurt Dongoske and Bill Davis should have a good understanding of these issues:

You are right--no experimental research is planned for FY07. The \$500K included in the FY 07 budget is basically a deposit to an escrow account to pay for future (FY 08+) experimental research. The estimated cost for research and monitoring associated with a BHBF test alone is \$1.0 to 1.5M per test. Currently the balance in the experimental research fund is approximately \$450K. \$500K of the FY 07 budget is being set aside for use in evaluating future BHBF tests and other research related to experimental program. This will allow the AMP to accumulate sufficient funds to conduct the necessary experimental research without impacting ongoing science activities. My understanding is that the funding will be held in the in the Colorado River Basin Fund until it's needed

The need for additional non native control was discussed at length by the SPG and TWG. The following resolution was agreed to by both committees:

*The SPG and TWG recommend that the non-native fish mechanical removal program focused primarily on trout be discontinued in FY 2007, as originally designed, and efforts be redirected at other non-native species, provided that appropriate monitoring of native and non-native fish populations is conducted. Such monitoring information may be used to evaluate the need to reinstate trout removal on schedule differing from the original experimental design.*

GCMRC's FY 07 budget includes funding of a river wide monitoring effort to detect increases in nonnative populations, development of comprehensive nonnative fish management/control strategy, and pilot testing new techniques to control non natives. Per the agreement above, if large numbers/concentrations of nonnatives are detected through the monitoring program we will revisit the need to reinstate an active removal program.

It should be noted that trout removal was curtailed at the end of FY 06 because there were too few trout in the system to justify continuing the full control effort.

Preparation for AMWG Conference Call, continued

Finally, we are assessing your request for additional financial info on historical expenditures by GCMRC. My financial officer is heavily burdened with year end close-out and your request is not trivial. However, I am trying to accommodate your request.

Once again, Kurt or Bill should be familiar with these and other issues resolved by the TWG and SPG. However, feel free to contact me if you have further questions or concerns

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From: Darryl Beckmann, Bureau of Reclamation  
Date: 8/24/2006 12:54:29 PM

**Note to Sam Spiller:** At the AMWG ad-hoc Public Outreach meeting last week, you mentioned to me that your Regional Director was wanting to insure that if a TCD is constructed, it will be necessary to have a HBC refugia in place for as long as the TCD operates. You indicated that FWS needed some insurance in the event that warmer water attracted cat fish, bass and other non-native species that may jeopardize the existence of the HBC. You also indicated that it might be a sizeable cost on an annual basis (I think you mentioned \$300,000 to \$1.5 million per year) plus a capital cost for the refugia. This was certainly was an eye opener for me and it might be helpful if you provide more information to the AMWG members or at least be prepared to discuss it with the AMWG members so we can be aware of the cost and operational ramifications.

Response From Sam Spiller

No, I do not expect them to affect the FY07 budget. This needs a lot of science and hydro-enviroengineering before we could come up with any costs and we just aren't at that stage yet. Sam.

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From: Rick Gold  
Date: August 29, 2006

This email is provided to communicate the decision to implement ROD flows from Glen Canyon Dam during the month of September 2006. This decision was made by Reclamation in collaboration with GCMRC and GCNP, NPS. This decision has been discussed with FWS and they concur that the action agencies can revoke this part of our proposed action, not conduct the corollary studies, and remain in compliance with the November 17, 2004, biological opinion. The subject of operating Glen Canyon Dam to implement sediment conservation and native fish flows in September-October having alternating periods of steady and fluctuating releases has been a point of discussion among our agencies in recent weeks. These flows were first identified in 2002 in order to assist in sediment conservation and were characterized as sequential periods of steady (8000 cfs) and low fluctuating (approximately 6500-9000 cfs) flow during September and October of 2005 and 2006 with duration and magnitude determined by research requirements. These flows were provided during September and October 2005 accompanied by appropriate research, which was funded out of a combination of power revenues and appropriated funds for the temperature control device. Preliminary results of GCMRC sediment and biology studies were presented to the TWG in August 2006. The sediment studies conducted in 2005 showed significantly less sand transport under steady versus low fluctuating flows during September and October. However, both steady and low fluctuating flows transported significantly less sediment than normal summer ROD flows.

Preliminary results of the biological studies indicate questions still remain concerning differences in biological effects between these two flow regimes. Rather than replicate the 2005 biological field studies, GCMRC determined that it would be more informative to address the steady and fluctuating flow questions in 2006

through laboratory studies and computer modeling. Results of these studies will be used to develop future field studies of steady versus fluctuating flows.

Given the timeframe and current status of the research and planning efforts, it is not believed that the anticipated duration and magnitude of the conservation flows can be supported based on research requirements. Accordingly, the anticipated flows will be deferred for the month of September 2006 and planning efforts will instead be focused on short and longer-term science planning. The Technical Work Group, during August 2006, recommended that ROD flows begin in October 2006, but that recommendation has not yet been acted upon by AMWG. It is expected that this issue will be addressed, as part of the WY 2007 hydrograph discussion, during the upcoming AMWG conference call scheduled for September 6, 2006. Importantly, stable flows (similar to those anticipated for September and October) are included in all experimental options under consideration by the Adaptive Management Program. It is expected that evaluation of fall steady flows will be discussed as part of any Long-Term Experimental Plan that is considered by AMWG, and might likely be included in future recommendations to the Secretary. It is believed that this approach will result in more comprehensive and integrated studies.