



United States Department of the Interior
U.S. GEOLOGICAL SURVEY

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April 17, 2008

MEMORANDUM

To: Adaptive Management Work Group

From: Chief, Grand Canyon Monitoring and Research Center, Southwest Biological Science Center, US Geological Survey, Flagstaff, Arizona

Subject: Preliminary Fiscal Year 2009 Glen Canyon Dam Adaptive Management Program Budget

Attached is the subject budget for your consideration. The draft budget was developed based on guidance provided in the:

- Monitoring and Research Plan (MRP) to Support the Glen Canyon Dam (GCD) Adaptive Management Program (AMP) which was approved by the Adaptive Management Work Group (AMWG) in August 2007, and
- Conservation Measures included in the 2007 and 2008 Fish and Wildlife Service Biological Opinions on the Shortage Criteria EIS and operation of GCD, respectively.

In addition, GCMRC discussed FY 09 budget priorities with the Budget Ad Hoc Work Group, the Technical Work Group, and the Department of the Interior agencies participating in the AMP. We considered their recommendations in the development of the preliminary budget. Attachment 2 provides our response to the comments or concerns raised by the TWG at their April 9, 2008 meeting.

The preliminary budget and work plan is based on the assumption that the FY 09 hydrograph will consist of MLFF operations including experimental steady flows in October 2008 and September 2009. An additional five days of steady flows at 8000 cfs will be needed in late May to accommodate the planned remote sensing overflight of the Colorado River. The preliminary budget does not account for a potential High Flow Experiment (HFE) in FY 09. Currently, a HFE has not been authorized for FY 09 and no funding remains in the Experimental Fund to support a HFE (all the experimental funds are committed to the current test at least through FY 09). GCMRC estimates the study costs for conducting a scaled back or "lite" version of an HFE test at approximately \$750,000.

The proposed budget provides for the continued implementation of a number of ongoing projects included in the approved AMP FY 08 Work Plan and Budget. General descriptions of each of the ongoing projects can be found in the MRP; more detailed descriptions are contained in the FY 08 AMP Work Plan and Budget. The budget also provides for several new starts or major

expansions of existing projects, including:

- Increased funding for implementation of the Grand Canyon archaeological site treatment plan (line 31).
- Implementation of a Near Shore Ecology Study to evaluate the importance of various near shore habitats to humpback chub recovery. This study will also be designed to address the effects of late summer–fall steady flows (as described in the Biological Opinion) on humpback chub (line 73 and line 148).
- Coldwater nonnative fishes control and associated native fishes monitoring (line 74).
- Expanded efforts to refine and further develop an integrated flow, temperature, and sediment model for the Colorado River ecosystem (line 94).
- Implementation of the recommended integrated core sediment monitoring project (combined effort related to several AMP goals, see lines 93, 99, and 115).
- Acquisition, post-processing and analysis of digital aerial imagery of the Colorado River Ecosystem (line 115).
- Compilation and analysis of existing recreation safety data (line 104).

To achieve a balanced budget, a number of projects had to be eliminated or scaled back to accommodate the increased funding being requested for the new or expanded projects noted above and for other non-discretionary increases in costs for continuing projects. These adjustments are noted in the attached spreadsheet (see line 179).

Several ongoing projects and new projects that were identified in the MRP to start in FY 08 or 09 will need to be deferred to accommodate the available funds. These include:

- Evaluation of the relative importance and effects of different flows on the recreation experience (originally scheduled to start in FY 08 but deferred to FY 09)
- 1973 Weeden survey revisited (FY 09)
- Quantify vegetation encroachment on campsites (FY 09)
- Evaluate geomorphic changes to archaeological sites using remotely sensed imagery (FY 09-10)
- Geomorphic model of archaeological site vulnerability (FY 09-10)
- Protocol Evaluation Panels (PEPs):
 - Lake Powell
 - Kanab ambersnail
 - Camping beaches

The proposed budget addresses all of the Conservation Measures included in the 2007 and 2008 FWS Biological Opinions that are within the purview of GCMRC. This was accomplished in part based on additional appropriations that are expected from the Bureau of Reclamation in the amount of \$110K and \$485K in FY 08 and FY 09, respectively. In addition, NPS and BOR are expected to provide separate funding for the Conservation Measure to translocate humpback chub from the Little Colorado River to several tributary streams in Grand Canyon including, Havasu Creek, Shinumo Creek, and Bright Angel Creek in FY 08 and FY 09. Since GCMRC will not be expected to lead these translocation projects, they are not addressed in the GCMRC preliminary FY 09 budget proposal.

Attachment 2
GCMRC Responses to FY 2009 budget issues raised at
Technical Work Group meeting 9 April 2008

1. **TWG Comment:** Funding is needed to continue work in FY 09 on the synthesis of science studies conducted around the 2000 Low Summer Steady Flow (LSSF) experiment.

Response: It's uncertain at this time how much funding, if any, will be needed to continue work on the LSSF synthesis in FY 09. That issue will be addressed at a workshop planned for the fall of 2008 as part of the initial review of the 2000 LSSF studies and databases. In response to the concerns expressed by the TWG, GCMRC proposes to address continued support for this project in FY 09 by including a \$40-\$50K placeholder in the FY 09 budget to implement recommendations for additional analyses from the fall workshop. In addition, GCMRC's new systems ecologist will be available to assist with additional analyses, as needed and appropriate. If additional work is not recommended, then the funds will be reallocated to another FY 09 project.
2. **TWG Comment:** Assignments and funding for the TWG chair and potentially for a TWG facilitator should be discussed further. Additional assignments/personnel would have budget implications.

GCMRC Response: We believe that a professional facilitator would improve the operation and functionality of the TWG and assist GCMRC's ability to develop a science program that is responsive to the diverse needs of the Adaptive Management Program. However, since the TWG is not under GCMRC's purview, no funding is included in GCMRC's budget to support a TWG facilitator.
3. **TWG Comment:** Renewed efforts to remove rainbow trout from the mainstem Colorado River in the vicinity of the Little Colorado River are opposed by at least one TWG member.

Response: GCMRC included this project in response to the 2008 Biological Opinion that identified this activity as a Conservation Measure and to ensure that trout population do not increase significantly and potentially threaten humpback chub. Because a majority of stakeholders support the project we propose to keep it in the budget but are open to further discussion and guidance from the AMWG.
4. **TWG Comment:** The study of near shore ecology and fall steady flows needs to be accelerated.

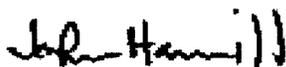
Response: GCMRC is proceeding with all good speed to describe, review, and implement this project through an open competitive process. Our goal is to initiate the project in the fall of 2008. We recommend that the desire to implement this work as fast as possible (which we agree with) does not out-pace the need to describe and conduct well-considered, peer-reviewed science.
5. **TWG Comment:** A tribal liaison should be hired.

Response: GCMRC will schedule a meeting with tribal representatives to discuss this proposal.

Finally, the Monitoring and Research Plan was approved by the AMWG and the Secretary of the Interior last year with the understanding that it would be revised to reflect the results of the Long-Term Experimental Plan Environmental Impact Statement once it is finalized. Given the direction provided in the 2008 Environmental Assessment and related Biological Opinion, I believe it would be appropriate for the TWG and GCMRC to work together to update the MRP over the next 9 months to reflect that new direction. The AMWG agenda includes some time to discuss this recommendation in more detail.

After considering recommendations from the AMWG, GCMRC, consistent with our established process, will develop detailed work plans for each of the projects that will be submitted to the Budget Ad hoc Group, TWG and AMWG for final review and consideration.

Your participation in this review process is appreciated.



JOHN HAMILL
Chief, GCMRC

Attachment (2)

cc Secretary's Designee
Technical Work Group
Executive Coordinator, Science Advisors

Attachment 2 (continued)
GCMRC Responses to FY 2009 budget issues raised at
Technical Work Group meeting 9 April 2008

6. **TWG Comment:** Because steady flows will be released in September and October 2008 GCMRC should schedule overflight photography during that time period instead of in the spring of 2009, as currently planned.

Response: While GCMRC desires to coordinate as much work as possible we do not support this suggestion for the following reasons:

- a. One of the important priorities for collecting overflight data is to allow for comparisons between and among years. Because overflights in prior years were conducted during 8000 cfs releases, the next overflight should be conducted at the same flow.
- b. Previous overflights were conducted in the late spring to minimize shadows that interfere with interpretation of the imagery. In addition, the late May time frame is more appropriate for capturing vegetation data and less likely to be affected by poor weather conditions than a fall overflight schedule.

7. **TWG Comment:** Budget for an AMP Effectiveness Workshop in FY 2009 should be included.

Response: While GCMRC is supportive of such a workshop, the decision to conduct an AMP effectiveness workshop rests with the Department of the Interior.

8. **TWG Comment:** Sediment transport study should include all necessary data.

Response: GCMRC believes that abundant data are available to support and advance the sediment element of the proposed integrated flow, temperature and sediment transport modeling effort in FY 09, particularly with the ongoing sediment monitoring and following the successful implementation of the 2008 HFE.

9. **TWG Comment:** Conservation Measures from the BO should be included in the AMP budget.

Response: The BO Conservation Measures that are within the purview of GCMRC's monitoring and research mission have been included in the AMP budget. This includes evaluating the status and trends of humpback chub, translocating humpback chub above Chute Falls, evaluating the status and trends of cold water nonnatives in the LCR reach (with a removal project), continued development of a plan and methods for warm water nonnative aquatic species control, design and implementation of the near shore ecology/fall steady flows study, and monitoring Kanab ambersnail. Separate funding for other translocation projects (Havasupai, Shinumo, Bright Angel) is expected from the Bureau of Reclamation and NPS and will be dealt with separately from the GCMRC budget.