



IN REPLY REFER TO:

United States Department of the Interior

GRAND CANYON MONITORING AND RESEARCH CENTER
2255 N. GEMINI DR., MS-5000
FLAGSTAFF, ARIZONA 86001

TWG
9/14/85/99
Attachment 8
T. Melis

GCMR-700
RES-1.10

Mr. Tom Moody
Glen Canyon Technical Workgroup Representative
Grand Canyon Trust
Flagstaff, AZ 86001

July 20, 1998

Dear Mr. Moody:

This letter is in response to your letter of May 30, 1998, regarding a request from the Glen Canyon Technical Workgroup for additional information from the GCMRC on future BHBF testing. The assessment that you describe in that letter has been initiated by the GCMRC, and will be further accomplished through the following steps:

- 1) technical discussions with cooperating physical and cultural scientists at the upcoming August 23-26, 1998 physical science peer review panel workshop in Flagstaff, AZ,
- 2) similar discussions at a yet-to-be announced biological review workshop in fall 1998,
- 3) work conducted during at least 2 task-group meetings coordinated by GCMRC during fall 1998,
- 4) ongoing efforts by GCMRC staff over the next several months.

In addition, the assessment will benefit from discussions with TWG members at future meetings, and cooperating scientists led by GCMRC staff. The assessment will also be supported by a literature survey, including the impacts of the 1996 experimental flood, preliminary results of in-progress synthesis of historical impacts of pre-dam floods that occurred on the Colorado River, as well as results of the conceptual/simulation model currently being developed. Please contact me with any additional questions or concerns that you may have.

Sincerely,

Ted S. Melis, PhD.
Physical Scientist

**Proposal to Develop a Research Plan to Analyze the Response of Natural Resources
below Glen Canyon Dam to a Beach Habitat Building Flow Greater than 45,000 cfs and
Fluctuations During Periods of High Powerplant Releases.**

May 19, 1998

The objectives of a Beach Habitat Building Flow described in the Glen Canyon Dam EIS are to "...rebuild high elevation sandbars, provide water for vegetation, deposit nutrients, restore backwater channels, and provide some of the dynamics of the natural system." (GCDEIS) Specific research questions addressed by the 1996 test flow included (BHBFEA):

- 1) Displace non-native fish;
- 2) Rejuvenate backwater habitats for native fish;
- 3) Increase height and area of existing sandbars, followed by erosion rates that decrease with time;
- 4) Reduce nearshore vegetation;
- 5) Preserve and restore camping beaches;
- 6) Protect cultural resources from erosion;
- 7) Result in more navigable rapids, and
- 8) Or cause significant adverse effects on the aquatic food base, trout fishing, endangered species, cultural resources, and economics.

While benefiting many natural, cultural, and recreational resources, the experimental Beach Habitat Building Flow (BHBF) conducted in 1996 failed to achieve several of these objectives (GCMRC, 1997). Following that test flow, many researchers suggested that a BHBF of greater magnitude and shorter duration could achieve greater sediment deposition and additional rejuvenation of backwater habitats without significant adverse impacts (GCMRC, 1997). In addition, subsequent steady high powerplant releases accelerated beach erosion (Moody, 1998). Researchers hypothesize that moderate fluctuations may decrease this rate of erosion at high powerplant flows (Kaplinski, 1998) while an increased ability for the hydropower resources to follow electrical loads has economic value (Palmer, 1998).

This paper proposes a process for determining the parameters for flows that would better achieve the objectives of the Beach/Habitat Building Flow, determine a strategy to assess these test flows, and evaluate the potential impacts for implementing such a test. This information will be used by the TWG and AMWG in deciding whether to carry out the proposed research.

The Proposal:

The Grand Canyon Monitoring and Research Center (GCMRC), in consultation with the TWG, is to:

- A. Recommend the magnitude, timing, duration, and pre and post flow regimes for a test flow between January and July that best meets the objectives of a BHBF. This should include flows greater than 45,000 cfs.
- B. Define a test flow regime to reduce beach erosion rates during periods of high powerplant releases (>1.5 maf/mo). These should include fluctuating flows, (within

- current daily, upramp, and downramp limits) above 25,000 cfs up to powerplant capacity.
- C. Assess the advisability of conducting research on A and B sequentially and/or separately, and
 - D. Evaluate, based on best current knowledge, the positive and negative impacts of implementing the proposed test flows.

Issues to consider:

- ESA consultation requirements
- NEPA compliance
- NHPA compliance
- Impacts to unlisted native fish
- Impacts to terrestrial biological resources
- Impact on sediment resources
- Impact to cultural resources
- Impacts to aquatic resources
- Impacts to trout resources
- Impacts to water quality
- Recreational resources including boating and fishing
- Economic impacts including power production and recreation
- GCMRC budgetary impacts
- And others as appropriate

Based on the GCMRC evaluation and suggestions, the TWG will recommend to the AMWG whether this proposal should or should not be implemented. If the AMWG approves the implementation of this proposal, the Monitoring Center will be asked to develop a detailed research proposal, Reclamation will pursue ESA and NEPA compliance, and adequate funding will be arranged.

References:

- Kaplinsky, M, 1998. Verbal communication. Northern Arizona University, Flagstaff, Arizona.
- Grand Canyon Monitoring and Research Center (GCMRC), 1997. Symposium on 1996 Beach/Habitat Building Test Flow, Flagstaff, Arizona.
- Moody, T., 1998. Verbal communication. Grand Canyon Trust, Flagstaff, Arizona.
- Palmer, C., 1998. Verbal communication. Western Area Power Administration, Salt Lake City, Utah.
- U.S. Department of Interior, 1996. Operation of Glen Canyon Dam Final Environmental Impact Statement (GCDEIS), Bureau of Reclamation, Salt Lake City, Utah.
- U.S. Department of Interior, 1996. Glen Canyon Dam Beach/Habitat-Building Test Flow Final Environmental Assessment and Finding of No Significant Impact (BHBFEA), Bureau of Reclamation, Salt Lake City, Utah.