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To: Field Supervisor, U.S. Fish and Wildlife Service, 2321 W. Royal Palm Road, Suite 103,
Phoenix AZ 85021-4951

From: Regional Director, Salt Lake City

Subject: Review of Sufficient Progress in implementation of the elements of the Reasonable and Prudent Alternative from the December 21, 1994, Biological Opinion on the Operations of Glen Canyon Dam.

The Bureau of Reclamation has reviewed the elements of the Reasonable and Prudent Alternative contained in the Glen Canyon Dam Operations Biological Opinion and our progress to date in implementing them. The completed and ongoing activities have been presented to members of the Fish and Wildlife Service's Phoenix office staff. A detailed description of the status of each elements is attached for your review. ~~Based on this review we have concluded that progress to date is sufficient.~~

We intend to continue working diligently to complete the remaining work and will keep you apprised of our progress. Your written view on this conclusion is requested. Although our previously scheduled meeting had to be canceled, we are looking forward to meeting with you in the near future to complete a programmatic review of activities related to the operation of Glen Canyon, including implementation of the RPA.

Should you need further information or clarification on any of this information, contact Christine Karas, Environmental Resources Group, Salt Lake City, at (801) 524-3679.

Sincerely,

Charlie Calhoun

CC: Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, P.O. Box 1306, 500 Gold Avenue, Albuquerque NM 87103

Dave Garrett, Grand Canyon Research and Monitoring Center

Progress Review - Implementation of the Glen Canyon Dam Operations Biological Opinion

1 - Adaptive Management Program

Prior to the Secretary of the Interior signing the Record of Decision (ROD) on the Glen Canyon Dam Environmental Impact Statement, Reclamation organized the transition work group. This group met regularly, in much the same fashion as the Adaptive Management Work Group will meet. Steve Magnussen has been appointed as the Secretary's designee. Numerous drafts of the Adaptive Management Workgroup Charter have been circulated for comment, and the final version sent the Washington D.C. Office on July 15, 1996. Due to a number of ongoing concerns, some additional language is being crafted. The ROD was signed on October 9, 1996, formally sanctioning the preferred alternative, including the AMP and the Grand Canyon Research and Monitoring Center. Activities to staff, house and set up the center are ongoing.

1.A - A Program of Experimental Flows *

The RPA recommends that experimental flows include high steady flows in the spring, and that studies of high steady flows in spring may include habitat building and habitat maintenance flows. A habitat/beach building flow of 45,000 cfs, including appropriate up and down ramps, was conducted in March, 1996. The final reports analyzing the effects of the habitat/beach building flow are due on or before December 31, 1996. Final analysis and integration of the data will require approximately one additional year and should be available in late 1997. Conducting this experimental flow required preparation of an environmental assessment (February, 1996), and a Biological Assessment (November, 1995) for consultation under the Endangered Species Act. A symposium is scheduled for April 2-3, 1997 to review results of the test flow.

The BO also recommended: "... testing of low steady flows in summer and fall during low water years. Information from final GCES endangered fish reports, researchers who conducted those studies and other knowledgeable individuals are to be used to develop hypotheses and studies to accompany those flows. Design of the experimental flows and associated studies will begin as soon as possible and be targeted for completion by October 1996". The BO also recommended experimental flows to begin in April, 1997, or alternatively, if sufficient progress was not being made in implementation of the RPA, they would begin April of 1998.

Reclamation accepted the Service's recommended RPA in an April 6, 1995 response to the BO. This letter of response indicated how Reclamation would implement the RPA. In this response, Reclamation articulated that: implementation of experimental flow are to be coordinated through the AMP; the flow experiments will include scientifically based peer reviewed criteria to measure and evaluate their impacts on downstream resources; the research would be managed and administered through the research center; and that appropriate staff and funding levels needed to be identified. Delays in the signing of the ROD have resulted in delays in establishing the AMP and the research center. However, as stated previously, Reclamation has managed to keep these process moving forward regardless. Dr. Garrett, the research center director, has conducted multiple meetings to formulate the research needs and is continuing to progress toward long term research and monitoring plan which will evaluate the flows.

*A copy of the RPA is attached for reference.

1.B - Selective Withdrawal Program for Lake Powell

Funding has been programmed to continue working toward a decision regarding selective withdrawal. Studies of the macro invertebrates below the dam are ongoing, and the final report is scheduled for completion in May, 1997. Studies on Chlodophora and gammerous have been completed by Dean Blen. A model which will be used to evaluate the effectiveness of a selective lever withdrawal is being set up and calibrated by Reclamation's Denver office. The study will be completed in 1997.

1.C - Determine responses of native fish to various temperature regimes and river flows (future research program)

The contracts for certain fish studies which were on going been renewed to preserve a long term data base, avoiding gaps in the data. A large amount of research was conducted during the experimental flow as well. Future research and long term monitoring will be conducted through the research center. Progress toward establishment of the center continues, many of the functions of GCES were transferred to the center on October 1, 1996. Dr. Garrett has hired several staff members, and continues to establish the infrastructure necessary to run the center.

2 - Protect humpback chub population and habitat in LCR by being instrumental in developing of a management plan.

Reclamation contracted with the Navajo Nation to prepare the plan. The Navajo Nation contracted with SWCA consulting firm to produce the document. A preliminary draft was prepared and Reclamation and the Navajo Nation met to discuss modifications. Reclamation will provide final comments to SWCA by the end of November, 1996. It is anticipated the draft will be completed in shortly thereafter. The draft will be circulated to the Service and any other interested party for comment and finalized upon incorporation of the comments. The final LCR Management Plan will then be transmitted to the Service and other parties with the jurisdiction and authority to implement it. Reclamation is willing to participate in the process in accordance with responsibilities under Section 7(a)(1) of the Endangered Species Act.

3 - Sponsor razorback sucker workshop

Reclamation sponsored a workshop on the endangered razorback sucker on January 11 and 12, 1996. Representatives of State and Federal agencies from the seven Basin states, the environmental community, and water and power interests attended. Recognized native fish experts outlined the ecology, genetics, and threats to the razorback in the Colorado River system. The status of the razorback sucker population and a photographic tour of habitat in Glen and Grand Canyons was then presented. With this background, the workshop participants then engaged in an active discussion, attempting to answer the questions 'Should we manage for razorback sucker in this reach of the Colorado River; Can we manage them here; and, What specific actions should be taken in the next three to five years?' Although many differing opinions were express, overall the group believed razorback sucker could, and should be managed in Glen

and Grand Canyons, and improved communication/dissemination of data, continued research, and investigating the control of non-native fish were the three major actions identified as needed. The results of the workshop were sent participants, including the Service, on February 12, 1996.

The Service will now recommend a course of action and develop a Memorandum of Understanding to further the process.

4. Establish a second spawning population of humpback chub

Limited activities have taken place on this element. Some evaluation of the tributaries to determine suitability have been undertaken by the Service through Reclamation funding. Additional work will be conducted through the research center.

Other work related to endangered species

A biological assessment is being prepared to evaluate the effects of the preferred alternative on the southwestern willow flycatcher. The draft is scheduled for completion by the end of November, 1996, and the final by the end of January, 1997. The expected outcome is a request for formal consultation.

Habitat and life history data has been collected on Kanab ambersnails, and the populations were monitored during the experimental flow. Reclamation staff are participating regularly on a Kanab ambersnail working group. One of the activities recently initiated is to use the grassy area of Glen Canyon Dam and power plant as a location to first establish the plant communities needed by KAS and possibly establish an experimental population or 'seed source' population which could be used in the establishment of other populations.

Fish Data Integration Work

There are three individual efforts underway regarding native fishes, all of which contribute to the requirements of the Biological Opinion.

A. Arizona State University Summary - This is a summary of all information from GCES Phase II. It includes information on all resources and is similar to the 1998 report put out by Reclamation. It will also include information on what studies were conducted during the Beach/Habitat Building flow. The work is being done by a post doctoral student under W.L. Minkley.

B. Data Integration - During GCES Phase II the fishery research was divided into four contracts, one with BioWest, Arizona State University, Arizona Game and Fish, and the Fish and Wildlife Service. These 4 data sets will be linked and integrated by Fish and Wildlife Service (Owen Gorman).

C. Synthesis and Risk Analysis - Reclamation awarded a contract for this work through a competitive bid process. Steven W. Carothers and Associates won the contract. SWCA will

synthesize existing peer reviewed data and published data on flows and temperature, etc. Related to native and non-native fishes to test the hypothesis that the benefits of steady flows to native fish outweighs the benefits to non-natives.

A final step in this process will be synthesis of other data, such as sediment resource data, with the fish data.