



United States Department of the Interior

BUREAU OF RECLAMATION

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MEMORANDUM

To: Regional Director, Region 2, U.S. Fish and Wildlife Service,
P.O. Box 1306, Albuquerque NM 87103

From: Charles A. Calhoun
Regional Director

Subject: Response to the Final Biological Opinion on the Operations of
Glen Canyon Dam (2-21-93-F-167)

We have received and reviewed the subject Biological Opinion (Opinion), dated December 21, 1994. It is our intent to implement the elements of the Reasonable and Prudent Alternative (RPA). However, we still have concerns related to definition of the environmental baseline and the conclusion that the proposed action violates the jeopardy threshold.

The construction and operation of Glen Canyon Dam (GCD) is a past Federal action and part of the environmental baseline. This baseline condition has brought about environmental changes which have caused harm to the endangered native fish of Glen and Grand Canyons. Therefore, we understand the difficulty of separating the on-going impacts of dam construction and operation from projected results of the proposed action. This distinction is important in determining whether the proposed action will result in jeopardy. By definition, the elements of an RPA describe an alternative action which will avoid the likelihood of jeopardy, as opposed to actions to achieve recovery. The elements of the RPA seem to be focused on recovery.

The opinion points out that to jeopardize the continued existence of a species is to engage in an action that would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by further reducing the reproduction, numbers, or distribution of that species (emphasis added). Page 32 of the opinion concludes that "the 470 km reach of the mainstem Colorado River downstream of Glen Canyon Dam... apparently does not provide for survival of all age classes nor an environment for successful spawning and recruitment of young to adult humpback chub. For razorback sucker, only minimal support for the adult life stage has been identified in the mainstem reach downstream of Glen Canyon Dam." The Opinion further concludes "The proposed action is anticipated to improve conditions over NA [No Action] for the humpback chub ..." The current, baseline conditions do not meet the definition of survival, and the proposed action is expected to improve conditions for the fish. Therefore, we fail to see that the proposed action jeopardizes the continued existence of the humpback chub (HBC) or razorback sucker.

The Opinion then states that "the likelihood of recovery in the mainstem Colorado River is still appreciably reduced." It appears as though the Opinion is making the argument that a proposed action cannot reduce appreciably the likelihood of survival or recovery without falling below the jeopardy threshold. However, the opposite conclusion is supported by the U.S. Fish and Wildlife Service's (Service) analysis of the regulations as printed in the following sections of the Federal Register:

Page 19931 of the Federal Register, Vol. 51, No. 106, June 3, 1986 states:

"The obligation of Federal agencies under section 7(a)(2) is to insure that the actions they authorize, fund or carry out are not likely to jeopardize listed species or destroy or adversely modify their critical habitat. A showing of "adverse effect " does not necessarily violate section 7(a)(2), because the jeopardy standard is the ultimate barrier through which Federal agencies may not pass in conducting these actions. "Reasonable and Prudent Alternatives" represent avenues of fulfilling the action without violating the jeopardy standard."

Page 19958 states:

"The Definition of "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."
(emphasis added)

Page 19934 of this same rule states that:

"The conjunction "and" was added to the 1978 rule's definitions of these phrases, but the word "both" was added by the proposed rule to emphasize that, except in exceptional circumstances, injury to recovery alone would not warrant the issuance of a "jeopardy" biological opinion."

The difficulty of separating jeopardy and recovery is further illustrated by numerous references within the Opinion to pre-dam conditions and to a report by Dr. Stanford evaluating instream flows to assist in recovery (page 31). Similarly, references within the Opinion to 'a unique opportunity to conserve and protect endangered and other native fish..' (page 33), and, reference to the Grand Canyon Protection Act (GCPA) as opposed to the Endangered Species Act (ESA), raise concern as to whether the reasonable and prudent alternative has as its goal removal of jeopardy or recovery. It should be recognized that the GCPA is Title XVIII of the Reclamation Projects Authorization and Adjustment Act of 1992, Title VI of which contains the provision that nothing in these titles shall be interpreted as modifying or amending the provisions of the ESA of 1973. Also, section 1806 of the GCPA states that nothing in this title is intended to affect in any way ...any Federal environmental law, including the ESA. Again, we appreciate the difficulty in separating impacts

resulting from existence and past operations of GCD and predicted consequences of operation as described in the preferred alternative. Recovery actions should be included in the Opinion only as conservation recommendations.

We fully recognize our responsibility under Section 7 of the ESA to not only avoid actions which will result in jeopardy to listed species, but that as a Federal agency we are also directed to utilize resources in furtherance of the purposes of the ESA through carrying out programs for conservation of endangered species. Reclamation supports a number of recovery efforts in the Colorado River Basin, and will likewise take actions to aid in the recovery of the HBC in Grand Canyon. We are willing to accept the opinion recognizing the uncertainty surrounding the ecosystem functions with GCD in place, the agreement between our offices to reevaluate the need for implementing experimental fish flows as part of the planning process, and the ability of either agency to re-initiate consultation should new information become available. For these reasons it remains our intent to move forward to implement the RPA as described in the following discussion.

Elements of the Reasonable and Prudent Alternative

The introductory section recognizes that certain common elements in the Glen Canyon Dam Environmental Impact Statement (EIS) would influence native and endangered fish, and that certain elements were previously identified by Reclamation and the Service as conservation measures. One of these is referred to in the Opinion as "research or long-term monitoring (adaptive management)". We would like to clarify the difference between these terms. Research is hypothesis-driven investigation to gain additional information. Long-term monitoring is data collection to determine the status of certain resources over a long period of time. Adaptive Management is a program through which dam operations may be modified based on scientific information gained through both research and long-term monitoring.

Element 1. Adaptive Management Program

Formulation of the adaptive management program (AMP) is on-going with the input of interested parties.

The implementation of studies and monitoring to determine impacts of flows on listed and native fish fauna (as well as other resources) will be completed through the AMP. Reclamation is continuing to work with the Transition Work Group to create a Research Center to manage and administer long-term monitoring and research programs. A draft document describing resources to be monitored is being prepared by Reclamation's Denver Technical Center (Flagstaff office) and the Senior Scientist, with input from the Transition Work Group monitoring subgroup, and will be reviewed by Reclamation's Upper Colorado Regional Office and the National Research Council. The draft plan is scheduled for completion in Fiscal Year 1996 and will be finalized by the director of the proposed research center. Activities included in the long-term monitoring program will then be managed and administered through the research center. Recommendations for operational changes based on the research and monitoring will be implemented through the AMP.

In keeping with the GCPA, funding for long-term monitoring may be provided by power revenues and/or appropriations, and are contingent upon congressional approval. Reclamation has budgeted funds and is in the process of preparing a transition monitoring plan to avoid data gaps which would otherwise occur during the period between completion of the EIS and the Record of Decision which will initiate the AMP. Certain studies required specifically to address elements of the Opinion will be identified during Fiscal Year 1995 and scheduled for implementation. It is our intent to minimize overlaps and form cooperative and integrated approaches to designing and implementing the evaluation of the scientific hypotheses.

1.A. Experimental flows.

A specific description of experimental flows needed to remove jeopardy must first be developed based on the conceptual description and goals for these flows as outlined in the Opinion. The specific description must also meet the definition of a reasonable and prudent alternative prior to implementation. Specifically, these flows must be evaluated to insure they can be implemented in a manner consistent with the intended purposes of the proposed action, are within the legal authority and jurisdiction of Reclamation, and are economically and technologically feasible.

The plan to implement these flows will include scientifically based peer reviewed criteria to measure and evaluate the impacts of the flows on endangered fish and other resources. It also must contain provisions and defined protocol to alter the flows or return to previous flows if negative impacts to endangered fish or their habitats occur. We must also identify staff and funding levels necessary to conduct the work and program those funds, as well as evaluate the potential benefits and risks which may result. The decision as to when and how to conduct appropriate endangered fish flows will be based on this and other information. Implementation will be coordinated through the AMP.

A general implementation schedule for this element of the RPA has been prepared and Reclamation is continuing the planning and budgeting necessary to allow experimental fish flows of the type described in the Opinion to be implemented at the earliest possible date. We will continue to coordinate with the Service and other stakeholders as the process moves forward. However, it will be difficult at best to implement the flows within the period of time recommended by the Service and we therefore appreciate the provision for annual evaluation of sufficient progress.

1.B. Selective Withdrawal Program for Lake Powell

Temperature modification has been identified as the central issue to be resolved in order to develop a mainstem spawning population of HBC. The Selective Withdrawal item was identified as a common element in the EIS and included in earlier drafts of the RPA. Reclamation has been working diligently to accelerate the technical and administrative process necessary for construction of the selective withdrawal structures (SWS). Reclamation has begun the planning and budget process for determining the feasibility and

expected results of installing and operating a SWS on Glen Canyon Dam. This effort will require a specific source of construction funds. Funding will be requested as a separate appropriation through the Federal budget process under Section 8 of the Colorado River Storage Project Act.

A Draft Plan of Study on the SWS has been produced by Reclamation and contains a potential schedule for investigations and implementation. This report has been provided to the Service and other interested parties. The schedule represents an acceleration of Reclamation's planning and construction process. Implementation is contingent upon congressional appropriations to complete the work. Work will most likely be conducted in 2 phases. Phase one will focus on technical and planning activities and include scientific evaluation of the potential effects and impacts of the SWS on the upstream and downstream resources. If studies indicate implementation is feasible and funding is approved, phase two, construction would consist of an initial effort focused on installation and testing of structures. Additional evaluation under the National Environmental Policy Act may also be required on the operation of the SWS.

1.C. ~~Studies of the Response of Native Fish to Various temperature regimes and River flows.~~

Reclamation recognized the need to gather additional information on the ecology of endangered fishes in Glen and Grand Canyons and will support additional research determined to be necessary. Many of the studies identified in the RPA are either on-going or included in the planning process. However, studies will necessarily be limited to threatened and endangered fish, with data on other native fish and non-native fish collected incident to these studies. Studies of other resources is more appropriately addressed through the long term monitoring program or research conducted under the supervision of the research center.

2. Protect HBC spawning population and habitat in the Little Colorado River by being instrumental in developing a management plan for this river.

Potential threats to HBC or their habitat in the vicinity of the LCR identified by the Service are not related to dam operations. Reclamation does not have the legal authority or jurisdiction to implement a plan to provide protection against catastrophic or other events not related to dam operations. We continue to believe development of a management plan for the Little Colorado River (LCR) should be included in the opinion only as a conservation recommendation as it does not meet the definition of a RPA.

In the spirit of recovery of the HBC, Reclamation has assisted the Navajo Nation in gathering technical information necessary to initiate this effort. This includes data which has been input to the Glen Canyon Environmental Studies Geographic Information System and includes detailed maps of the lower 12 kilometers of the LCR, the critical habitat area, and large scale maps of the rest of the LCR watershed. Reclamation is funding a one-year effort by the Navajo Nation in Fiscal Year 1995 to develop the Management Plan forum. We will continue to work cooperatively with those entities having authority and jurisdiction to fund and implement the plan.

3. Razorback sucker workshop

Reclamation agrees with this action and will complete the workshop in Fiscal Year 1995. Reclamation's Denver Service Center, Flagstaff office has begun the preliminary planning efforts. Funds for the workshop are included within the Fiscal Year 1995 budget.

The process will include assembling a group of experts to evaluate the results of the existing information and to formulate specific areas of concern and future research needs for the Service's use. Reclamation's Grand Canyon Area Office, located in Boulder City Nevada, has jurisdiction over the areas we believe have potential for conservation of the razorback sucker and will participate in this effort.

4. Second Spawning Aggregation of Humpback chub

This element has been identified as a common element in the EIS and Reclamation will make every effort to implement it in coordination and cooperation with fishery experts and other stakeholders. A quantitative definition of what will constitute a second spawning aggregation and whether attempts should be made to establish this population in a tributary or the mainstem are needed. The areas which have been previously discussed with the Service are under the jurisdiction of Reclamation's Grand Canyon Area Office. The data needs to accomplish planning efforts have been given consideration in the development of the interim monitoring plan.

Other Endangered Species Issues

Several other issues related to endangered species below GCD also require discussion. We remain concerned about the presence of reproducing populations of non-native fishes and their potential to negatively impact recovery of the HBC through predation and/or competition. We believe it would be prudent to review the management of non-native fish with AGF and the National Park Service. For example, implementation of angling regulations which result in suppression of these species and additional restrictions on stocking should be given greater emphasis.

We would also like to address the incidental take statement as it relates to the Kanab ambersnail. Although the RPA (page 35) says "Studies of high steady flows in the spring may include studies of habitat building and habitat maintenance flows." (emphasis added), page 40 indicates that habitat building and maintenance flows are included in the RPA. It is our understanding the Service supports the inclusion of the Beach/Habitat building flows in the Proposed Action.

Survey information on the extent and elevation of habitat for this species has been collected recently through a cooperative effort between the Arizona Game and Fish Department (AGF) and Reclamation using the Service's Section 6 (ESA) funds. This data, which was not available during the preparation of the Opinion, indicates that potential habitat totals approximately 836 square meters, including both major plant species within the habitat (monkey flower and water cress). The table on page 25 of the Opinion indicates that 86

square meters of monkey flower would be inundated at a flow of 45,000 cubic feet per second. Beach/Habitat building flows will result in an exceedance of the 10% loss of Kanab ambersnail habitat allowed by the incidental take statement. This does not include the area of water cress that would be inundated. Due to the restrictions of the incidental take statement, releases for Beach/Habitat building flows will have to be restricted to less than 45,000 cfs to avoid exceeding the 10% habitat loss. The maximum allowable flow will be determined when the analysis of habitat and snail use data are completed.

We believe the Beach/Habitat building flows are important to many resources in the river corridor. The Biological Opinion provides no rationale for the determination of 10% of the habitat being the amount which if exceeded would constitute an unacceptable incidental take. It is doubtful the species is evenly distributed within available habitat spatially or temporally, or that loss of habitat directly correlates to loss of individuals. We believe this issue needs reevaluation and clarification.

To aid in the effort to protect the Kanab ambersnail, a cooperative effort between AGF, Reclamation and the Service began in March of 1995. A total of three data collection trips will be completed. Seasonal variability and total population will be determined through collecting information on when the species becomes active in spring, the highest population numbers in mid-summer, and lowest population levels in the fall. Permit requirements have been negotiated with the National Park Service. Reclamation's Flagstaff office is working to complete habitat maps which will provide information on the amount of usable habitat and the area of habitat within the zone of potential inundation. A population model to estimate the number of individuals and their distribution within the habitat is being developed from which the actual take resulting from high flow can be determined. Completion of this investigation is expected to result in new information and Reclamation anticipates reconsultation at that time.

Conservation Recommendations

1. Operate according to the Seasonally Adjusted Steady Flow alternative. Reclamation filed the Final Environmental Impact Statement on the Operations of Glen Canyon Dam with the Environmental Protection Agency on March 21, 1995. Glen Canyon Dam will continue to be operated according to the interim operating criteria until after the Secretary of the Interior signs the Record of Decision (ROD), determining which operating alternative will be put in place at that time. Future operations of GCD will be guided by the ROD and the AMP.

2, 3, and 4. Monitor peregrine falcon and bald eagle.

It has not been shown that dam operations have a negative effect on either of these species. Reclamation will recommend monitoring of peregrine falcon and bald eagle be considered in final development of the long-term monitoring plan.

5. Kanab ambersnail life cycle and distribution. Studies Reclamation will conduct related to the Kanab ambersnail have been previously discussed.

General life history studies and distribution will be recommended to the director of the research center for consideration as part of the long-term monitoring and research effort.

Southwestern willow flycatcher

On February 27, 1995, the Southwestern willow flycatcher was listed as endangered by the Service. The listing became effective on March 29, 1995. Final designation of critical habitat has been deferred until July 23, 1995.

Reclamation has funded the Colorado Plateau Research Station, now a part of the National Biological Service, to collect data on the status of this species in Glen and Grand Canyons. This data can be used in the assessment of impacts of dam operations on the Southwestern willow flycatcher and to aid in development of management options for protection and conservation.

Reclamation and the Service conferred informally on the Southwestern willow flycatcher prior to listing. We are drafting a biological assessment for use in consultation with the Service regarding the effects of dam operations on this species. The National Park Service (NPS) has jurisdiction on known nesting locations for the species within the Grand Canyon. A joint consultation may prove to be the most beneficial method to conserve the Southwestern willow flycatcher and to identify discretionary actions to promote their recovery. Reclamation has had preliminary discussions with NPS regarding a joint consultation and will continue to work with NPS and the Service to determine how best to proceed.

Although we do not agree with your finding of jeopardy, we will fulfill our responsibilities in the spirit of the Endangered Species Act. A copy of this memorandum will be distributed to the Glen Canyon Dam Environmental Impact Statement Transition Work Group. If you have any questions or concerns regarding this response to the Biological Opinion, feel free to contact Christine Karas, Chief, Biological Support Branch, at (801) 524-3273.



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