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NATIVE FISH WORK GROUP:
AN APPROACH TO REMOVAL OF JEOPARDY FROM NATIVE FISHES IN GRAND CANYON

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INTRODUCTION

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The Adaptive Management Program (AMP), as a construct for planning, investigation, and recommendations leading to decision-making, opens the door for a new approach to resolving conflict, removing jeopardy, and contributing to prevention of the need for further federal listing under the Endangered Species Act. Since issuance of the first biological opinion on operation of Glen Canyon Dam (GCD) more than 20 years ago (U.S. Fish and Wildlife Service [Service] 1978), Bureau of Reclamation (Reclamation) and the Service have been in a reactive and defensive, rather than proactive, mode with respect to removal of jeopardy from native fish of the Colorado River in Glen and Grand canyons (hereafter Grand Canyon region). We believe that this reactive approach has contributed to a growing perception that the environmental compliance tail wags the adaptive management dog, and that much time and funding is being wasted in the process.

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In this document, we briefly outline the proposed approach with respect to native fish. We concentrate on native fish because this group of species is deemed to be most affected by GCD operations. Two of the remaining five natives in the Grand Canyon region are considered by the Service (1994) to be in jeopardy under environmental conditions created by operations under the preferred alternative of the GCD Environmental Impact Statement (Reclamation 1995). We note that these native fish also are negatively impacted by other important environmental factors, that these factors will have to be addressed in our proposed approach, and that addressing these factors will require AMP participants, in addition to Reclamation, to invoke their authorities (and responsibilities) for this approach to be successful. The past approach to addressing these environmental factors largely has been piecemeal, rather than holistic, and this approach persists with independent, rather than integrated, proposals to conduct experimental flows, modify release temperatures, and conduct nonnative control activities.

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GOAL

Removal of jeopardy from federally listed fish in Grand Canyon is the goal of this effort. We believe that attainment of this goal also will contribute to recovery of the listed species and benefit as yet unlisted native fish and, if done using precepts of adaptive management, will facilitate due consideration of other ecosystem components and goals.

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BACKGROUND

In their function as the agency primarily charged with protection of federally listed species, the Service (1994) has set down a Reasonable and Prudent Alternative (RPA) as part of their biological opinion on the operation of Glen Canyon Dam. Language from the RPA helps to better define our goal:

> the Service believes, that to prevent jeopardy to the endangered fish of Grand Canyon, restoration of the aquatic ecosystem by reducing, to the extent possible, known limiting factors and conducting appropriate research to identify and reduce suspected limiting factors will be necessary and can be accomplished with cooperation, innovative approaches, and elements of the following reasonable and prudent alternative.

The Service goes on to identify that:

> (t)he reasonable and prudent alternative will be accomplished when all elements of the selected alternative have been effected and studies confirm compatibility between these species requirements and the operation of Glen Canyon Dam.

This language makes clear the Service's belief that a program of management actions, aimed at ecosystem restoration, and associated research and monitoring will be necessary to make the determination of whether the referenced compatibility is demonstrated once all elements of the RPA have been instituted.

It is clear from the Service's position that a danger will remain when all elements of their RPA have been accomplished; that danger is persistence of the incompatibility between the listed fish and operation of Glen Canyon Dam. There is, of course, a parallel explanation, which is that a combination of other factors, not responsive to or controlled by dam operations, exerts too much negative impact on these populations to force this compatibility through modifying dam operations. Here is where we believe the true power of adaptive management can be put into effect. Because of restrictions on participation in development of biological opinions, the Service often is forced to reach conclusions in the absence of involvement by individuals having considerable expertise with the species and ecosystems of interest. It is understandable, therefore, that the Service would hold out the possibility that jeopardy might not be removed even when all elements of their RPA have been accomplished. One way of diminishing the uncertainty faced by the Service is to create an advisory body, ancillary to the adaptive management process, that allows the agency to take advantage of available expertise in a proactive mode, not under the shadow of Section 7 consultations.

PROPOSAL

Our proposal for resolving conflict, removing jeopardy, and contributing to recovery and prevention of need for further listing calls for the creation of a Native Fish Work Group (NFWG) as part of the adaptive management process. This group would be made up of a core group of resource managers (*sensu* Nyberg 1998), who would be complemented by researchers from the academic and consulting professions. The NFWG would collectively have the education, experience, and expertise to analyze the existing status of native fish in the Grand Canyon region and to develop a proactive plan for removal of jeopardy from listed fish (RJP), with its attendant contributions to recovery and prevention of future listings.

We recognize that the AMP has a commitment to ecosystem management, which includes native fish management, and thus there is a need to integrate the RJP with other actions proposed to better manage the ecosystem. Fortunately, there is available to the NFWG a good basis in past and ongoing management actions, both proposed and initiated, that have directed attention to the needs of native fish in the Grand Canyon region (see e.g., Service 1990, Minckley and Deacon 1991, Clarkson and others 1994, Reclamation 1999, Valdez and others 1999). Furthermore, in recent years scientists have begun to look carefully at different restoration strategies and their potential effects on various resources in the ecosystem. Their findings and recommendations (Marzolf and others 1998, Schmidt and others 1998) also are available to the NFWG and to other scientists and resource managers involved in the AMP.

In the six steps of the adaptive management process (Nyberg 1998), the NFWG would concentrate primarily on the first three steps: (1) problem assessment, (2) project design, and (3) implementation, to achieve the desired goal. There would be less emphasis and involvement in development and implementation of research and monitoring plans. This step would be vested largely in the Grand Canyon Monitoring and Research Center (GCMRC) and in work groups formed by GCMRC, such as the recently proposed Fish Long-term Monitoring Workgroup (FLMW; Ralston and Gold 1999). The primary charge of the FLMW will be to:

> (1) collate and analyze existing fish data,
> (2) design a long-term fish monitoring plan, and
> (3) propose how the baseline monitoring plan would be modified and expanded to collect additional data around proposed actions such as beach-habitat building flows, habitat maintenance flows, experimental low flows, a temperature control device, and exotic species control.

The NFWG and the FLMW would collaborate to strengthen their respective efforts. Both groups would need access to fish data and reports generated from analyses of those data for contribution to steps 5 and 6 of the adaptive management process (evaluation and adjustment of future decisions [Nyberg 1998]). Thus, the FLMW would share results of their analysis of existing fish data with the NFWG to ensure they were working from a current knowledge base. The NFWG, in turn would

identify proposed actions to remove jeopardy so that the FLMW could use that information in developing its long-term monitoring plan and other data gathering activities.

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We propose several levels of interactions for the NFWG, which will retain their center of attention on the RJP, but expose them to broader management needs in the adaptive management process. The first level of interaction for the NFWG would be with other scientists and resource managers engaged in study and management of physical resources, other biological resources, and cultural resources. This interaction is expected to occur both during formulation of the RJP and in ensuing reviews to determine how best to integrate native fish needs in an ecosystem management program. The second level of interaction for the NFWG, and for review of the RJP, would be by the Technical Work Group (TWG). The TWG is comprised of technical representatives from the various stakeholders on the Adaptive Management Work Group (AMWG). The TWG performs those tasks charged to them by the AMWG. Additional responsibilities of the TWG are to develop criteria and standards for monitoring and research programs and provide periodic reviews and updates, develop resource management questions for the design of monitoring and research by or under the direction of the GCMRC, and provide information as necessary for preparing annual resource reports and other reports as required for the AMWG.

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TWG members have sufficient expertise to provide a level of scientific review for proposed management actions, and they are tasked to use that expertise as technical representatives of their stakeholders on the AMWG. Most TWG members do not have the level of expertise that would be expected of members of the NFWG, however, and therefore the collective role of the TWG would be to serve as reviewers of the draft RJP. This is not to say that some TWG members would not be members of the NFWG; clearly there are TWG members who have been directly involved in research, monitoring, and management of native fishes in the Colorado River.

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Review of the RJP preferably would be iterative to provide feedback loops during development of the plan. This could be accomplished by workshops or by progress reports during regular meetings of the TWG (see schedule below). Iterative review and feedback is a significant construct in adaptive management. It ensures communication among scientists and between scientists and managers as products are being developed, rather than upon their submission in draft form for review. We believe the first product developed by the NFWG for review should be a charter and goal statements. Success of the NFWG will be to a significant extent determined by acceptance of their charter and goals by other levels with which they interact in the AMP. In the same respect, constructive and objective review of NFWG products will be enhanced with early concurrence by other scientists and managers on the charter and goals.

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The third level of interaction for the NFWG would be with the Science Advisory Board or with a Program Evaluation Panel. The panel would review the RJP, preferably in conjunction with review of the Long-term Monitoring Plan and any other research and monitoring plans necessary to measure the effects of management actions on the ecology of native fishes in the Grand Canyon region. Since the RJP is being formulated not just as a native fish plan, but as a component of a program of

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ecosystem management, the review process would necessarily also consider effects on other ecosystem components and the research and monitoring efforts directed at those resources.

COMPOSITION OF THE NFWG

There are three areas of qualification that we believe should govern the composition of the NFWG. Not all members will necessarily meet all areas of qualification, but the group as a whole must be well founded in these areas. As indicated above, it is important that members have a combination of education, experience, and expertise on the ecology of native fish to make them productive contributors. By inserting ecology, we mean to imply knowledge of the fish, their habitat needs, their predators and competitors, their diseases and parasites, etc. A second area of importance is the knowledge of responsibilities and authorities held by the different government entities that would either undertake the proposed management actions or oversee them through permitting. The third area of importance is that of compliance with the National Environmental Policy Act and the Endangered Species Act. Although the formation and use of the NFWG is designed to be proactive, and to ultimately result in some remission of the conventional Section 7 consultation process, it will be necessary for members to be advised of legal restrictions or impediments to proposed actions as these actions are being considered, rather than after the RJP is formulated.

Given these areas of qualification, we perceive the membership of the NFWG core group being primarily agency biologists. Representation by the Service, Reclamation, National Park Service, GCMRC, and Arizona Game and Fish Department is imperative because of their authorities and responsibilities for resources and their roles in compliance, permitting, and logistics. The Navajo Nation and Hualapai Nation might well be represented for the same reasons.

Involvement in the NFWG by consultants and university personnel is highly desirable for the high level of education, experience, and expertise on native fish ecology that they would bring to the group. We anticipate that most individuals in the latter group would have extensive knowledge of Grand Canyon fishes, but it undoubtedly would be desirable to enlist others from this same arena with knowledge of these fish in waters outside the canyon region. These individuals would be drawn from a pool of experts who have responded to a solicitation of their interest in contributing to removal of jeopardy from Grand Canyon fishes.

ADMINISTRATION

Administration and responsibility for meeting deadlines and delivering products will be assumed by Reclamation. We advocate that the NFWG should elect a chairperson who would chair meetings and act as point of contact for the work group. This individual would have to work closely with Reclamation staff to ensure good communication and meeting deadlines. The work group will also need to have one or more individuals trained as facilitators, to ensure that all viewpoints are addressed and that meetings proceed according to schedule.

SCHEDULE

The NFWG should be convened as soon as possible in calendar year 2000. The schedule would best be commensurate with that proposed by Ralston and Gold (1999) for development of the FLMW, given the expected interaction that will occur between the two groups. There also are important potential management actions to be considered during the year 2000, such as a beach/habitat-building flow and/or experimental flows, for which input from the NFWG would be most valuable.

We view the NFWG as a long-standing group, whereas it is anticipated that the FLMW will dissolve when their tasks have been completed. Members of the NFWG would remain available to review results of management actions as they are undertaken, and to make recommendations for modification or adjustment as necessary in the fashion of adaptive management.

We think the task of developing a RJP, including reviews by the tiers described above, will require 15 months in the calendar years 2000-2001, after the NFWG is convened, as defined by the schedule proposed below.

2000

January	Contact potential NFWG members to determine availability
March	First meeting of NFWG
	Elect chairperson and facilitator(s)
	Develop draft charter, goals and objectives, and operational rules
	Receive background documents for review
	Receive assignments for next meeting
	Transmit charter, goals and objectives, and operational rules to other scientists and resource managers, including TWG and FLMW members; solicit review and response
May	Second meeting
	Develop draft strategic plan
	Identify potential actions, target taxa, and anticipated responses
	Identify potential conflicts and effects on nontarget taxa
	Identify authorities and responsibilities associated with proposed actions
	Receive assignments for next meeting
	Transmit progress report to other scientists and resource managers, including TWG and FLMW members; solicit review and response
June	Third meeting (combined NFWG and FLMW)
	Receive information from analysis of existing data from FLMW
	NFWG to share thoughts with FLMW on removal of jeopardy actions

July Fourth meeting
- Finalize draft strategic plan
- Review and revise potential actions, target taxa, and anticipated responses
- Review and revise potential conflicts and effects on nontarget taxa
- Review and revise authorities and responsibilities associated with proposed actions
- Receive assignments for next meeting
- Transmit progress report to other scientists and resource managers, including TWG and FLMW members; solicit review and response

August Fifth meeting (combined NFWG and FLMW)
- Information sharing and feedback

September Sixth meeting
- Integration of data syntheses from FLMW
- Finalize potential actions, target taxa, and anticipated responses
- Finalize potential conflicts and effects on nontarget taxa
- Finalize authorities and responsibilities associated with proposed actions
- Develop proposed schedule of actions within and among years as related to environmental factors and other limiting conditions
- Receive assignments for next meeting
- Transmit progress report with draft strategic plan to other scientists and resource managers, including TWG and FLMW members; solicit review and response

November Seventh meeting (one-day combined NFWG and FLMW)
- Writing of draft RJP

2001

January Convene workshop for review of draft RJP; involve Science Advisory Board or Program Evaluation Panel

March Release draft RJP for AMWG/TWG review

May Finalize RJP

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