

**<Glen Canyon Dam Adaptive Management Work Group  
Agenda Item Information  
April 29-30, 2009**

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Agenda Item

Defining Management Actions

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Action Requested

- ✓ Feedback requested from AMWG members.

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Presenter

Shane Capron, Chair, Technical Work Group

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Previous Action Taken

- ✓ By TWG: In order to build a common understanding of what other adaptive management programs from around the country have done in moving from Science to Management Actions, TWG made the following request from the Science Advisors via a motion that passed on a vote of 11-3, 2 abstaining:

The TWG requests that the Science Advisors develop a report on Management Actions from other programs which describe the transition from research to management. This should be developed in coordination with the TWG Chair, TWG Co-Chair, and Chief of GCMRC. The report should be provided to the TWG at its next meeting and a presentation should be provided. The SAs should also be available to present this to AMWG at their late summer meeting (likely in August).

This request would provide a place for the TWG to start in understanding the technical arguments and considerations of management actions and that further work would need to be done. TWG felt that given the current budget implications, it was necessary to begin work in order to inform the budget discussion. TWG has no experts in this area and thus asked the Science Advisors for support in this limited capacity. As part of the second motion passed on this subject, detailed below, TWG requests that AMWG (a) consider the topic of Management Actions and (b) request TWG to further consider the technical aspects of making these decisions, as well as potentially participating in the policy discussions, as appropriate.

The TWG requests that AMWG consider the policy implications of management actions. This could look similar to an in-and-out committee, involving interested parties that are familiar with the legal and policy framework of the program. This could either be a TWG or AMWG committee and could involve a mix of individuals from all parts of the AMP. We are looking to AMWG for guidance on how to, and if we should, further pursue the question of management actions.

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Relevant Science

✓ N/A

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Background Information

The GCDAMP web site includes the following two statements related to management actions (emphasis added):

*The scientific information obtained under the Adaptive Management Program is used as the basis for recommendations for dam operations and management actions.*

*Through the Adaptive Management approach, scientific experimentation is integrated into resource management actions. Over time, as more is learned about the complexities of the downstream ecosystem, the goal of enhancing and improving downstream resources and dam operations can be realized.*

The concept of management actions was brought forward in development of the Long-Term Experimental Plan (LTEP). Management actions were contrasted with experiments in the development of an experimental design for the LTEP. That design was designated the “hybrid” design because it accommodated both experiments and management actions. Definitions used at that time held that both experiments and management actions are purposeful manipulations of the system. The ~~former~~ **latter** category is considered to have known, positive effects, however, and therefore is implemented and maintained; the ~~later~~ **former** category has unknown effects and is purposefully turned on and off, or implemented in different states, as treatments to determine those effects.

Neither the Strategic Plan nor any of the other guiding documents in the AMP clearly describe what management actions are, how they should be developed, or what funding should be used to implement them. This is further confused by the need to implement compliance activities within the program, which might be considered by some to be management actions. Thus, there is no clear vision of what a management action is.

With regard to funding compliance actions with power revenues, H.R. 4733, Section 204, passed in 2001, provides the following language:

ACTIVITIES TO BE FUNDED- The activities to be funded as provided under subsection (a) include activities required to meet the requirements of section 1802(a) and subsections (a) and (b) of section 1805 of the Grand Canyon Protection Act of 1992 (106 Stat. 4672), including the requirements of the Biological Opinion on the Operation of Glen Canyon Dam and activities required by the Programmatic Agreement on Cultural and Historic Properties, to the extent that the requirements and activities are consistent with the Grand Canyon Protection Act of 1992 (106 Stat. 4672).

In developing the FY 2010-11 budget, it has become clear that the program should consider the implications of management actions. The primary example is the non-native fish mainstem mechanical removal project, which GCMRC believes, is ripe to be implemented as a management action rather than scientific research. This has sparked substantial discussion on whether management actions should impact the science budget, whether GCMRC should implement

## Defining Management Actions, continued

management actions, and a variety of other issues. Additionally, the complexity of the cultural program and the need to provide compliance for Section 106 has added the issue of compliance costs to this discussion. For example, as compliance costs rise and more management actions are implemented, the impact on the science budget could be substantial.

Management actions, within an adaptive management program, might be intended to induce change in an ecological system (e.g., removal of non-native fish, control of water temperature, thinning of forests to create habitat, etc). Development of management actions may begin by asking “how” as opposed to asking “why.” The non-native fish removal project is a good example of this, answering the question of “why.” The removal program was included in the 2008 Biological Opinion as a necessary conservation measure, and thus was established as a program objective (low numbers of non-natives in the vicinity of the confluence with the Little Colorado River [LCR])). GCMRC believes that they have developed adequate methods (the “how”) to conduct non-native removal (specifically for rainbow trout in the vicinity of the LCR), and that this task should now be handled by a management agency. This would allow those funds to be put to addressing other science questions. The question becomes, is this a management action, and if so, who should fund it?

We should have a common understanding of the process of moving from science to management actions. The term is found in the guiding documents but is not defined there. It is needed to help us develop the current budget, and would also assist in the development of a revised Strategic Plan for the AMP. The implication of this program developing extensive management/compliance activities is that our science budget may shrink substantially. The development of management actions may be split into two major areas of discussion: science and policy.

### Science and adaptive management

GCMRC believes the scientific portion of the non-native removal work is completed, but what does it mean in the adaptive management world to move from science to management actions? Can we learn from the example of other adaptive management programs? Where does monitoring fit? Do management actions fall on a continuum of how much “science” is involved in their implementation and monitoring? What are the important considerations in defining management actions and how do we determine who is responsible for funding and implementation? These questions should be investigated by TWG in order to make technical recommendations to AMWG. Thus, TWG asked the Science Advisors to investigate examples of the transition of science to management in other programs. This is intended to provide a starting point of conversation for this discussion.

### Policy and funding

In addition to the SA review, it is critical to address the policy issues related to implementation and funding of management actions within the GCDAMP. It would be helpful to have a common understanding of the regulatory and political background while considering how and if the program will implement management actions. The policy discussion should review the range of management actions that could be considered, their costs, and the role of the Program in implementing compliance or management actions. What are the guiding documents and can we agree on their interpretation? Who should pay for management actions and who should implement them? How should these choices affect budget priorities and our ability to do science? These decisions can be made through the authority of the Secretary of the Interior and they are worthy of AMWG recommendations.