

Glen Canyon Dam Adaptive Management Program, Updated Science Advisors Program Charter and Operating Protocols, 2016

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Introduction

This document updates the “Operating Protocols, GCMRC Science Advisors” approved by the Glen Canyon Dam Adaptive Management Program (GCDAMP) Adaptive Management Work Group (AMWG) in December, 2000, and the “Additions to the GCDAMP Science Advisors Operating Protocol (12/2000)” approved by the AMWG in August, 2004. Those two documents are attached here as Appendixes I and II. The present document incorporates the key elements and approved wording of these two documents into an “Updated Science Advisors Program Charter and Operating Protocols, 2016.”

The update also incorporates information from three other sources:

- U.S. Office of Management and Budget, “Final Information Quality Bulletin for Peer Review,” December, 2004, attached here as Appendix III.
- GCDAMP Science Advisors, “Adaptive Management Work Group Briefing Paper on Science Advisor Appointments for 2010-2012,” AMWG meeting, August, 2009, attached here as Appendix IV.
- U.S. Bureau of Reclamation, “Solicitation No. R15PS00518, Executive Coordinator Science Advisory Services IDIQ,” May 2015.

1. Preamble

1.1 Independent Review Panels and the Science Advisors Program

The 1995 Final Environmental Impact Statement (1995 FEIS) on the Operation of Glen Canyon Dam, Colorado River Storage Project, Arizona, led to the establishment of the Glen Canyon Dam Adaptive Management Program and its Adaptive Management Work Group, Technical Work Group (TWG), and Monitoring and Research Center, later renamed the Grand Canyon Monitoring and Research Center (GCMRC). The GCMRC is part of the U.S. Geological Survey (USGS), Southwest Biological Science Center (SBSC).

The 1995 FEIS, pp. 37-38, further called for the Secretary of the Interior (Secretary) in consultation with the AMWG to establish Independent Review Panel(s) (IRPs):

“The Independent Review Panel(s) would be comprised of qualified individuals not otherwise participating in the long-term monitoring and research studies. The review panel(s) would be established by the Secretary of the Interior in consultation with the

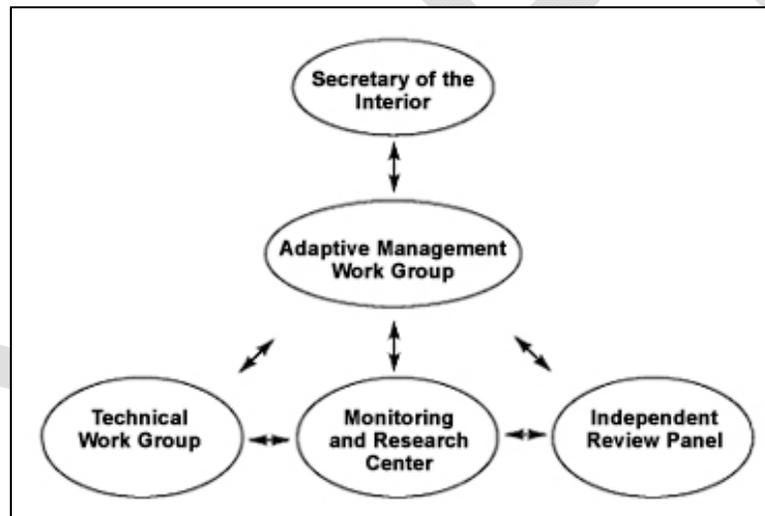
National Academy of Sciences, the tribes, and other AMWG entities. The review panel(s) would be responsible for periodically reviewing resource specific monitoring and research programs and for making recommendations to the AMWG and the center [GCMRC] regarding monitoring, priorities, integration, and management. Responsibilities of this review panel would include:¹

- *Annual review of the monitoring and research program*
- *Technical advice as requested by the center [GCMRC] or AMWG*
- *Five-year review of monitoring and research protocols”*

The 1995 FEIS (p. 37) also called for the center [GCMRC] to:

- *“Coordinate review of the monitoring and research program with the independent review panel(s)”*

The 1995 FEIS included a diagram showing the reporting relationships among the different components of the overall GCDAMP, reproduced here:



The AMWG assigned to the GCMRC the responsibility for establishing the IRPs. As described in the December 2000 Science Advisors Operating Protocols, the GCMRC responded by:

- (1) Establishing an independent, external peer-review process for all proposals received by GCMRC and scientific reports resulting from GCMRC activities.
- (2) Initiating a contract with the National Research Council (NRC) for review of the GCMRC Long-term Strategic Plan and GCMRC FY 98 and FY 99 Annual Plans. This contract resulted in the 1999 NRC report, “Downstream: Adaptive management of Glen Canyon Dam and the Colorado River Ecosystem.”

¹ The December 2000 “Operating Protocols, GCMRC Science Advisors, Final,” slightly misquoted these responsibilities – see Appendix I.

- (3) Developing a Protocol Evaluation Program (PEP) for reviewing long-term monitoring protocols.
- (4) Proposing to establish a general-purpose IRP to fulfill the remainder of the requirements identified in the 1995 FEIS, "... for periodically reviewing resource specific monitoring and research programs and for making recommendations to the AMWG and the center [GCMRC] regarding monitoring, priorities, integration, and management."

The AMWG approved the Operating Protocols for the GCMRC Science Advisors in December 2000. This document established the general-purpose IRP proposed by the GCMRC and named this IRP, the "Scientific Advisors." The Scientific Advisors consisted of a single standing panel, operating year-round, with member term limits (see below). The December 2000 operating protocols charged the Scientific Advisors with the same responsibilities stated in the 1995 FEIS, "... for periodically reviewing resource specific monitoring and research programs and for making recommendations to the AMWG and the center [GCMRC] regarding monitoring, priorities, integration, and management." The December 2000 Operating Protocols also established the position of "[a]n Executive Secretary who will be an employee of, or contractor to the GCMRC [who] will lead the Scientific Advisors to GCMRC."

The December 2000 Operating Protocols described the functions of the Scientific Advisors as follows:

The Scientific Advisors individually will be expected upon request, among other things, to review and comment on:

- (1) *results of ongoing and completed monitoring and research program activities, as well as any synthesis and assessment activities initiated by GCMRC,*
- (2) *the appropriateness of GCMRC's RFPs, especially their responsiveness to management objectives,*
- (3) *the protocols used in GCMRC sponsored scientific activities, including a 5-year review of GCMRC monitoring and research protocols,*
- (4) *GCMRC's long-term monitoring plan,*
- (5) *GCMRC's annual monitoring and research plans,*
- (6) *GCMRC's annual budget proposals, to ensure that the science program is efficiently and effectively responding to AMWG goals (i.e., management objectives), and*
- (7) *any other program specific scientific and technical advice it is asked to address by the AMWG, the GCMRC, or the Secretary.*

1.2 Independent Review Panels and Science Advisors Program, 2000-2015

The IRPs and the Science Advisors program operated continuously following their inceptions until the end of FY 2014. The Science Advisors program then experienced a hiatus during most of FY15, during which administration of the program changed hands from the GCMRC to

Reclamation and Reclamation contracted with a new Executive Coordinator. This hiatus did not affect any other IRP activities.

The character of the IRPs and the Science Advisors program evolved between their inceptions and 2015 in several ways. However, the Science Advisors program Charter and Operating Protocols were not consistently updated to document the changes to this program. The present updated Science Advisors Program Charter and Operating Protocols documents these changes and incorporates additional changes associated with the transfer of administration.

Ten changes stand out in particular between 2000 and 2015 that have implications for the present updating of the Science Advisors Program Charter and Operating Protocols:

- (1) Terminology
The original terms, “Scientific Advisors” and “Executive Secretary,” in practice evolved into “Science Advisors” and “Executive Coordinator.” Variant terms and spellings also occur. The updated charter standardizes the terms.
- (2) Administrative Responsibility for Science Advisors Program
The Secretary transferred administrative responsibility for the Science Advisors program and the Executive Coordinator from the GCMRC to the U.S. Bureau of Reclamation, Upper Colorado Region, Environmental Resource Division (Reclamation), effective with FY 2015. The Executive Coordinator remains a contractor. This change affects several internal procedures for the Science Advisors program, reflected in the present document.
- (3) Assignment and Reporting of Science Advisor Tasks
The Science Advisors informed the AMWG in June 2004 that the existing protocols for the program “do not explicitly clarify how the Advisors are to receive their list of annual tasks from the AMWG/GCMRC/USDI Secretary’s Designee, or report on accomplishments.” The Advisors therefore proposed and the AMWG approved (August 2004) adding the following amendment to the existing Operating Protocol Document at the end of the section on operating procedures (page 5): “Annually the AMWG will, in its summer meeting, review, update and assign a general set of 24-month review tasks and advisory activities for the Science Advisors. The Chief of the GCMRC, TWG Chair and Executive Secretary of the Science Advisors are responsible for providing all necessary inputs to the Chair of the AMWG by May 1 to permit development of the new Science Advisors charge. The Science Advisors or Executive Secretary are to present each May 15 to the Secretary’s Designee, AMWG Chair, GCMRC Chief and TWG Chair a written annual report of accomplishments, including specific documentation of Science Advisor activities. Further, the Advisors, or Executive Secretary, are to report to AMWG in verbal and written reports at each formal AMWG meeting on any review or advisory report completed since the previous AMWG meeting. The Science Advisors and/or the Science Advisors’ Executive Secretary will be available at all formal AMWG meetings to respond as needed to requests for information from AMWG, the Secretary’s Designee or GCMRC.” The updated charter incorporates this amendment.

- (4) Responsibility for Appointing Science Advisors
The 1995 FEIS specified that the Independent Review Panel(s) "... would be established by the Secretary of the Interior in consultation with the National Academy of Sciences, the tribes, and other AMWG entities." In practice, the GCMRC Chief and the Executive Coordinator for the Science Advisors established IRPs without formal input from the Academy. The Executive Coordinator developed recommendations for nominations for Science Advisors in consultation with the AMWG, TWG, and GCMRC, and submitted the final recommendations to the GCMRC Chief. The GCMRC Chief then made the final appointments and informed the AMWG. The updated charter recognizes that, under the terms of the new contract administered by Reclamation for the Executive Coordinator effective with FY 2015, the Executive Coordinator will make all Science Advisor appointments following a careful and transparent process of recruitment for each review described below.
- (5) Duration of Science Advisor Appointments
The Science Advisors originally consisted of a single standing panel continuously available to participate in reviews and provide other advice as needed in response to AMWG requests. Each member served a three-year term, renewable for one consecutive three-year term (see Appendix I). The disciplines represented among the Science Advisors followed guidelines established by the AMWG and GCMRC. The GCMRC updated these guidelines in 2009, as discussed at the August 2009 AMWG meeting under the Agenda Item, "Science Advisor Nominations and Appointments" (see Appendix IV, below). The updated charter recognizes that, under the terms of the new contract administered by Reclamation for the Executive Coordinator effective with FY 2015, the Executive Coordinator instead must establish a separate panel and timeline for each review. The timeline for each review must include the time necessary for Reclamation and the Executive Coordinator to agree on a task order and for the Executive Coordinator to recruit the Science Advisors for the required task(s) (see below).
- (6) Criteria and Process for Recruiting Science Advisors
The GCMRC updated the criteria and process for recruiting Science Advisors in 2009, as also discussed at the August 2009 AMWG meeting under the Agenda Item, "Science Advisor Nominations and Appointments." The Executive Coordinator described for that meeting the updated criteria and process in a document, "Adaptive Management Work Group Briefing Paper on Science Advisor Appointments for 2010-2012." This document was distributed to the AMWG as Attachment 13 to the records of that meeting (see Appendix IV, below). The updated charter for 2016 incorporates all relevant aspects of the 2009 criteria and aligns them with the guidelines established by the U.S. Office of Management and Budget in 2004, "Final Information Quality Bulletin for Peer Review" for all federal governmental agencies. A copy of the OMB guidelines is attached to the present document as Appendix III.
- (7) Independent Review of Monitoring and Research Proposals
The GCMRC initially contracted much of its monitoring and research work with outside partners. However, over time the center increased its own monitoring and research capabilities and now carries out almost all such work directly. All work

proposals within the GCMRC or submitted by outside collaborators undergo a review that follows USGS procedures under the supervision of the SBSC Deputy Center Director. These procedures follow USGS Fundamental Science Practices² that “meet or exceed the standards articulated by the Secretary of the Interior for DOI agencies,” as noted in the GCMRC FY 2010 work plan. Consequently, no additional IRP and external peer-review process was developed for proposals to the GCMRC.

(8) Independent Review of GCMRC Reports

GCMRC scientists must submit all reports they intend to publish, whether in a USGS series or in a peer-reviewed book or journal, for review through the Survey’s own rigorous peer review process. This process also follows USGS Fundamental Science Practices, which “meet or exceed the standards articulated by the Secretary of the Interior for DOI agencies,” as noted in the GCMRC FY 2010 work plan. Consequently, no additional IRP and external peer-review process was developed for scientific reports resulting from GCMRC activities.

(9) Annual Reviews

The 1995 FEIS included “[a]nnual review of the monitoring and research program” in its list of responsibilities for the IRPs, as noted above; and called for the GCMRC to “[c]oordinate review of the monitoring and research program with the independent review panel(s).” It is not clear in the 1995 FEIS whether this call for coordination pertained to the annual reviews, the five-year reviews (see below), or both. In practice, this responsibility appears to have been replaced by an annual review of GCDAMP monitoring and research activities by the TWG, termed the “Annual Reporting” meeting. The TWG conducts this meeting, which consists of presentations on all GCDAMP monitoring and research projects by the GCMRC and other investigators, and serves as the review panel. There does not appear to be any history of having an independent, external annual review of the monitoring and research program. The Science Advisors have provided reviews of specific components of the monitoring and research program, but only upon request rather than as a regular, annual effort. The updated charter, consistent with the 1995 FEIS, recognizes that the GCMRC or AMWG may request the Science Advisors program to conduct an independent review of GCDAMP monitoring and research activities as part of the Annual Reporting process.

(10) Protocol Evaluation Program

The 1995 FEIS also included “[f]ive-year review of monitoring and research protocols” in its list of responsibilities for the IRPS and called for the GCMRC to “[c]oordinate review of the monitoring and research program with the independent review panel(s),” as noted above. The December 2000 Operating Protocols called for the GCMRC to develop the PEP, but also stated that the Science Advisors could be requested “to review and comment on ... the protocols used in GCMRC sponsored scientific activities, including a 5-year review of GCMRC monitoring and research protocols.” In practice, the resulting PEP has operated without routine input from the Science Advisors program. The GCMRC has organized the PEP reviews of all monitoring and research protocols, some of which were developed and implemented in cooperation

² http://www.usgs.gov/fsp/faqs_general.asp

with other agencies.³ The updated charter, consistent with the 1995 FEIS, recognizes that the GCMRC or AMWG may request that the Science Advisors program assist the GCMRC with the planning or implementation of individual Protocol Evaluations (*aka* Protocol Evaluation Panels).

2. Updated GCDAMP Science Advisors Program Charter and Operating Protocols, 2016

The paragraphs below directly incorporate previously approved text describing the Science Advisors program purposes and operating protocols, whenever possible, consistent with the necessary updates. The previously approved text consists of relevant sections from the following four documents:

- GCMRC, December, 2000, “Operating Protocols, GCMRC Science Advisors, Final.”
- GCMRC, August, 2004, “Additions to the GCDAMP Science Advisors Operating Protocol (12/2000).”
- GCDAMP Science Advisors, August, 2009, “Adaptive Management Work Group Briefing Paper on Science Advisor Appointments for 2010-2012.”
- U.S. Bureau of Reclamation, May, 2015, “Solicitation No. R15PS00518, Executive Coordinator Science Advisory Services IDIQ.”

2.1 Purposes of the Science Advisors Program

The Science Advisors program periodically conducts reviews of GCDAMP resource-specific monitoring and research programs, and carries out other advisory tasks as requested, in order to provide recommendations to the AMWG and the GCMRC regarding monitoring, priorities, integration, and management of natural, cultural, and recreational resources affected by Glen Canyon Dam operations. The Science Advisors program conducts reviews or carries out advisory tasks to: (a) ensure that the monitoring and research findings used by the AMWG and the Secretary in implementing the GCDAMP meet the information needs of the GCDAMP; and (b) ensure that the information on which the AMWG and the Secretary base their adaptive management decisions is timely, comprehensive, efficient, unbiased, objective, and scientifically sound. The Science Advisors are advisory and not a decision making body.

The Science Advisors program conducts reviews or carries out other advisory tasks on request from the AMWG in consultation with the GCMRC and the TWG, and delivers the resulting reviews or advice to the AMWG through reports and presentations. The AMWG in consultation with the GCMRC and TWG may request the Science Advisors program to review and provide advice or recommendations concerning, among other matters:

- (1) The results of ongoing and completed monitoring and research activities, and syntheses and assessments of these results, carried out to meet the information needs of the GCDAMP concerning natural, cultural, and recreational resources affected by Glen Canyon Dam operations and the effects of those operations, to evaluate whether the

³ Agencies cooperating in GCDAMP monitoring and research include the U.S. Bureau of Reclamation, the U.S. National Park Service, the U.S. Fish and Wildlife Service, the Arizona Game and Fish Department, and Tribal resource management offices.

best information is being provided to meet these needs, including whether the investigations focus on the right questions for which the GCDAMP needs answers to carry out its mission;

- (2) The protocols followed in monitoring and research activities carried out to meet the information needs of the GCDAMP, including 5-year reviews of these monitoring and research protocols;
- (3) GCMRC long-term monitoring plans, annual monitoring and research plans, and annual budget proposals; and
- (4) Any other topics for which the AMWG requests additional, independent information concerning resources affected by Glen Canyon Dam operations and the effects of those operations, options for managing these effects, coordination and balancing among resource programs, and the combined effectiveness of these programs in advancing understanding of the Grand Canyon ecosystem and ensuring progress in defining and conducting adaptive management experiments.

The Science Advisors program does not review, interpret, or otherwise evaluate public policy decisions or assess legal compliance associated with the GCDAMP and activities of the AMWG, TWG, GCMRC, or individual member agencies and organizations.

2.2 Executive Coordinator of Science Advisors

An Executive Coordinator leads the Science Advisors program and serves as the liaison officer for the Science Advisors program to the AMWG, TWG, and GCMRC. The Executive Coordinator is an individual contracted by Reclamation with a demonstrated ability to manage science review panels, knowledge of scientific programs and methods related to the study of large river ecosystems, ability to work in a committee environment, and demonstrated capability to work in an interdisciplinary setting. The Executive Coordinator may not otherwise be a participant in the GCDAMP or in GCMRC monitoring and research activities. The Executive Coordinator administratively reports on work plans, budgets, task orders, activities, and deliverables to a Contracting Officer in Reclamation through a Contracting Officer Representative (COTR). The contract between Reclamation and the Executive Coordinator establishes the details of the contractual relationship between the two parties.

The Executive Coordinator oversees and administers the activities of the Science Advisors program in the performance of Science Advisory task orders for specific independent reviews or advisory services. The Executive Coordinator ensures the completion of required Science Advisory tasks and the deliverables for Science Advisory task orders. The activities of the Executive Coordinator in turn are themselves governed by task orders.

The duties of the Executive Coordinator may include the following. This list is representative of requirements, but not all-inclusive. The actual requirements will be defined in the Statement of Work issued for each Executive Coordinator task order.

- (1) Propose Science Advisors in the discipline(s) required by each task order to provide the review or advisory services required by the task order, following the criteria and process for Science Advisor Selection described below, identify the number of reviewers or advisors and the types of review or advisory services needed for each task

order, and work cooperatively with the COTR to agree upon the Science Advisors to work on each Science Advisory task order.

- (2) Enter into contracts/agreements to secure the required services of the Science Advisors for each Science Advisory task order and provide appropriate administration of these contracts/agreements including ensuring suitable performance.
- (3) Provide administrative support (i.e., travel, expenses, and report production) for Science Advisor activities.
- (4) Recommend replacements for Science Advisors as necessary in response to resignations, non-performance, etc.
- (5) Recommend the use of supplemental Science Advisors for individual Science Advisory task orders if necessary.
- (6) Develop, recommend, and coordinate Science Advisor review procedures and performance schedules.
- (7) Act as a Science Advisor when appropriate on specific Science Advisory task orders based on the Science Advisor Selection criteria for that such task orders.
- (8) Annually solicit requests for Science Advisory activities for the upcoming fiscal year from the AMWG and solicit additional suggestions for such activities from the TWG and GCMRC; compile the resulting requests and suggestions into specific potential review or advisory activities; and propose a prioritization (ranking) of the resulting potential review or advisory activities for the upcoming fiscal year.
- (9) Prepare and submit to the TWG and AMWG an annual work plan and budget for Science Advisors program activities in accordance with the GCDAMP budget and work plan schedules.
- (10) Implement the annual Science Advisors program work plan following review by the AMWG and GCRMC and approval by the AMWG and Secretary.
- (11) Coordinate and direct all Science Advisor review assignments, work tasks, and writing requirements.
- (12) Maintain an archive of Science Advisors program reports, meeting summaries, correspondence, etc., and deliver the archive to Reclamation at the end of the Executive Coordinator contract.

The Executive Coordinator also must meet the following contractor requirements as specified by Reclamation:

- (1) All work and invoices must be approved in advance in the form of task orders from the COTR prior to work being performed.
- (2) Work in excess of that defined in a task order must be approved by the COTR and Contracting Officer prior to initiation.

- (3) The contractor will work with the COTR in defining additional tasks for which a modification of an existing task order is required. Modifications must be authorized by Reclamation, must be approved by the Contracting Officer and are dependent on available funds.

2.3 Annual and Multi-Annual Work Plans

The Executive Coordinator will develop annual and multi-annual work plans as parts of the annual and multi-annual planning process of the GCDAMP as a whole, and develop the budget for the Science Advisors program in cooperation with Reclamation. The Science Advisors program annual work plan will include all tasks to be carried out by the Executive Coordinator, including the implementation of task orders for individual Science Advisory reviews and advisory services.

The fiscal-year cycle of development of annual work plans will include the following:

- (1) October-March: Solicit requests or suggestions for GCDAMP review/advisory needs from the AMWG, TWG, GCMRC, and Secretary's Designee for the upcoming fiscal year. The Executive Coordinator may ask those who make specific requests or suggestions to provide a written prospectus with sufficient information to enable the Executive Coordinator to assess the feasibility and potential costs of implementing the suggestion/request. The Executive Coordinator may also work directly with those who make specific requests or suggestions to help them develop a complete prospectus.
- (2) March-April: Compile the resulting requests and suggestions into a list of specific potential review or advisory activities for the Science Advisors program for the upcoming fiscal year; assess the feasibility and potential costs of implementing the suggestion/request and use this information to prioritize all suggestions and requests (see criteria below); and consult with the AMWG, TWG, GCMRC, and Reclamation on the resulting prioritized list of potential reviews and advisory activities.
- (3) April-June: Work with Reclamation and the TWG to develop a final list and ranking of Science Advisors program activities for the upcoming fiscal year and a budget for each potential activity, consistent with available funding. The budget for the Science Advisors program will be reviewed by the TWG as part of the overall Reclamation budget within the GCDAMP budget.
- (4) June-August: Work with Reclamation, the GCMRC, and TWG to prepare the final proposed Science Advisors program work plan and budget for the upcoming fiscal year for presentation to the AMWG at its August meeting for approval.

The Executive Coordinator will rank prospective reviews/advisory services for each upcoming fiscal year based on the potential for the findings to:

- Synthesize multiple knowledge inputs, data, methods, models, and assumptions used by the AMWG and the Secretary in implementing the GCDAMP;
- Clarify uncertainties in the available information that have the potential to affect adaptive management decision making within the GCDAMP, or suggest ways to reduce these uncertainties;

- Ensure that the information on which the AMWG and the Secretary base their adaptive management decisions is timely, comprehensive, efficient, unbiased, objective, and scientifically sound;
- Improve the transparency of decision making within the GCDAMP; or
- Improve stakeholder or public perceptions of the credibility of the information on which the GCDAMP makes decisions.

Five types of tasks will routinely appear in the Science Advisors program annual work plan or will routinely be considered for inclusion in the annual work plan when they rank highly on the criteria stated above:

- (1) The work plan for every fiscal year will include a task covering the development of the work plan and budget for the next fiscal year.
- (2) The AMWG or the GCMRC may request that the Executive Coordinator or a panel of Science Advisors review GCMRC long-term monitoring plans, annual monitoring and research plans, and/or annual budget proposals.
- (3) The GCMRC or the AMWG may request that a panel of Science Advisors review the information presented at the Annual Reporting meeting.
- (4) The GCMRC or the AMWG may request that the Executive Coordinator participate in planning and implementing PEPs, including the selection of panel members based on the criteria for Science Advisor Selection (see below).
- (5) The AMWG, TWG, GCMRC, or Reclamation may request that the Executive Coordinator attend any of two AMWG meetings and any of 3-4 TWG meetings annually.

2.4 Science Advisory Task Orders

The Science Advisors program work plan and budget for each fiscal year will identify the individual reviews or advisory services to be carried out in the fiscal year. Each review or advisory service will be implemented through a task order specifying the objectives, procedures, deliverables, and budget for that Science Advisory task. The schedule for each task order will allow for the time necessary for Reclamation and the Executive Coordinator to establish the details of the task order, for Reclamation to authorize the task order, and for the Executive Coordinator to recruit the Science Advisors for the required task(s) following authorization of the task order.

The Executive Coordinator and Science Advisors will be reimbursed for travel expenses necessary to complete all task orders, including per diem for lodging, meals, and incidental expenses during necessary travel. Reimbursement will follow General Accounting Office (GAO) rules. The Science Advisors program will also provide Science Advisors with an honorarium for service, unless an individual Science Advisor is a federal employee or otherwise prohibited from receiving such compensation. The amount of this compensation will follow USGS practice. Science Advisors may be asked to participate in an informational river trip on the Colorado

River as part of their activity under a task order to familiarize them with the ecosystem, if/as appropriate for the task order.

The Executive Coordinator will implement the Science Advisory task orders for each fiscal year, assemble the review or advisory panel, manage the review or advisory process, and ensure the timely completion and delivery of the panel report.

2.5 Science Advisor Selection

The Executive Coordinator will follow these steps to establish the independent review or advisory panel for each Science Advisory task:

- (1) Review the selection criteria that apply to GCDAMP Science Advisors (see below) and identify additional selection criteria relevant to the Science Advisory task at hand.
- (2) Solicit recommendations from the AMWG, GCMRC, and TWG on additional selection criteria relevant to the Science Advisory task at hand, and recommendations for potential reviewers/advisors.
- (3) Consult the professional literature and seek advice from professional colleagues outside of the GCDAMP to identify additional potential reviewers/advisors.
- (4) Assemble a list of potential reviewers/advisors along with information on their professional title and place of work, postal and email addresses, phone number(s), web sites, areas of significant expertise, experience as an external reviewer, and any other information that will help assess their suitability for the Science Advisory task at hand.
- (5) Ask the GCMRC and TWG to review the resulting list and provide recommendations on additional names to add to the list or names to remove based on official selection criteria (see below).
- (6) Rank the resulting final list of potential reviewers/advisors on their appropriateness and potential value for the Science Advisory task at hand.
- (7) Submit to the Reclamation COTR the list of proposed reviewers/advisors for the Science Advisory task at hand, and work with the COTR to mutually agree upon the final list of Science Advisors to work on the task.
- (8) Contact the top-ranked individuals to determine their availability, working down the ranked list until the desired reviewer/advisor panel size is reached, and notify the AMWG, GCMRC, and TWG of the results of the selection process.

The Executive Coordinator will select the reviewers/advisors for each Science Advisory task based on the following criteria, consistent with U.S. Office of Management and Budget, 2004, “Final Information Quality Bulletin for Peer Review” (see Appendix III, below):

- Expertise: All reviewers/advisors must have the knowledge, experience, and skills necessary to perform the review or advisory task at hand. More specifically, the Executive Coordinator will select reviewers/advisors with well-established scientific or technical expertise in disciplines central to the task at hand in accordance with generally accepted scientific standards as indicated by their records of publications in

the peer-reviewed literature or other demonstrable scientific or technical achievements. All reviewers/advisors must be actively involved in the discipline(s) relevant to the task at hand as indicated by professional web-site and other evidence of their current professional status. In cases where the document being reviewed spans a variety of scientific disciplines or areas of technical expertise, the Executive Coordinator will choose reviewers who together represent the necessary spectrum of knowledge.

- **Balance:** A range of respected scientific and technical viewpoints may exist regarding the available literature and knowledge concerning the subject at hand. The Executive Coordinator will select reviewers/advisors to represent a diversity of scientific and technical perspectives relevant to the task at hand, potentially including expertise in the following disciplines: adaptive management; anthropology/Native American studies; archaeology; fisheries biology and ecology; ecosystem/riparian ecology; geomorphology; GIS/remote sensing; hydrology; aquatic ecology/limnology; and socio-economics.
- **Independence:** The Executive Coordinator will select reviewers/advisors whose own work will not be affected by the outcome of the task at hand. The potential may exist for such dependence when there is a potential conflict of interest (see below) or a potential inter-dependence of interests among prospective reviewers/advisors that could affect the objectivity of a reviewer/advisor.
- **Collaborativeness:** All reviewers/advisors must have a demonstrated ability to work effectively and collaboratively with other reviewers/advisors in an interdisciplinary environment as indicated by a record of successful participation in peer-review panels and similar professional service.

The following conditions also apply:

- Science Advisors may be drawn from federal agencies including other USGS offices, academia, and the private sector other than stakeholders or agencies represented on the GCDAMP. Federal employees will adhere to all federal rules and principles of ethical conduct (5 C.F.R §2635.101(b)).
- Science Advisors will not be selected or asked to serve as representatives of any particular agency, organization, or other stakeholder group.
- Science Advisors must recuse themselves from bidding on proposals funded by the GCDAMP for one-year after their term of service is completed.
- Science Advisors must not participate in any review or advisory task that presents a conflict of interest, and must not be a participant in the GCDAMP or in GCMRC monitoring and research activities. The Science Advisors program follows The National Academy of Sciences guidelines on conflicts of interest,⁴ as recommended by the U.S. Office of Management and Budget, 2004, “Final Information Quality Bulletin for Peer

⁴ National Academy of Sciences, “Policy and Procedures on Committee Composition and Balance and Conflicts of Interest for Committees Used in the Development of Reports,” May 2003: Available at: <http://www.nationalacademies.org/coi/index.html>.

Review” (see Appendix III). Science Advisors will be asked to sign a “Conflict of Interest” statement as a requirement of their service.

2.6 Reporting

The Executive Coordinator will present progress reports on the Science Advisory tasks in each fiscal year to the AMWG at its February and May meetings, and an annual report to the AMWG at its August meeting. The Executive Coordinator will also present progress reports on the Science Advisory tasks in each fiscal year to the TWG minimally at its January and June meetings.

The Executive Coordinator will submit an annual report to Reclamation at the end of each fiscal year, covering work on all task orders active during the fiscal year.

DRAFT

Appendixes

Appendix I: December 2000 Operating Protocols

[Double-click on page image below to open document in a pdf reader]

Operating Protocols

Current Copy
May 2001

GCMRC SCIENCE ADVISORS
FINAL
December 2000

INTRODUCTION

The final Environmental Impact Statement on the Operation of Glen Canyon Dam calls for the Secretary of the Interior in consultation with the Adaptive Management Work Group to establish Independent Review Panel(s) (IRP's) (pg. 37-38) to

- (1) annually review resource specific monitoring and research programs initiated by the science center [Grand Canyon Monitoring and Research Center (GCMRC)];
- (2) make recommendations to the Adaptive Management Work Group (AMWG) and the GCMRC on the long-term monitoring and research program regarding priorities, integration, and management;
- (3) conduct a five-year review of monitoring and research protocols; and
- (4) provide other such scientific and technical advice as may be requested by the GCMRC, the AMWG, or the Secretary.

The GCDEIS states that the IRP's should " be comprised of qualified individuals not otherwise participating in the [GCMRC] long-term monitoring and research studies."

GCMRC has responded to the GCDEIS call for IRPs by:

- Establishing an independent, external peer-review process for all proposals received by GCMRC and scientific reports resulting from GCMRC activities.
- (2) Initiating a contract with the National Research Council (NRC) for review of the GCMRC Long-term Strategic Plan and GCMRC FY 98 and FY 99 Annual Plans that resulted in the 1999 NRC report, "Downstream: Adaptive management of Glen Canyon Dam and the Colorado River Ecosystem."
- (3) Developing Protocol Evaluation Program (PEP) for reviewing long-term monitoring protocols.

Appendix II: August 2004 Additions to Operating Protocol

[Double-click on page image below to open document in a pdf reader]



M3 RESEARCH

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TO: Glen Canyon Adaptive Management Program (GCD AMP)
Adaptive Management Work Group (AMWG)
Grand Canyon Monitoring and Research Center (GCMRC)
Mr. Michael Gabaldon, USDI, Secretary Designee

FROM: GCD AMP, Science Advisors (SA); by L.D. Garrett, Executive Secretary

DATE: July 6, 2004

SUBJECT: A Proposal for an Amendment to the GCD AMP Science Advisor Operating Protocol; and a 24-Month Review Program, October 1, 2004-September 30, 2006

The Science Advisors feel as a group that we can create valuable sets of information in the near and long-term for the GCD AMP and its leadership. Recent reviews and reports on the Long-Term Science and Monitoring Programs, Temperature Control Device Project, Aquatic Food Base Program, Humpback Chub Comprehensive Plan, etc., all attest to our capabilities.

To better serve the GCD AMP, the Science Advisors would like to propose additional operations protocols for our group. We also would like to propose a 24-Month Review Plan.

The Science Advisors Operating Protocol approved by the AMWG and GCMRC in December 2000, lacks protocols that define how the SAs receive their charge (tasks) from the AMWG, and how they are to report to AMWG on completed tasks. In Attachment A we offer a proposed protocol amendment to the Science Advisors Operating Protocol Document, to clarify the above activities.

In addition, the Science Advisors can best serve the GCD AMP and AMWG/GCMRC leadership through an agreement on a 24-month plan for reviews and advisory functions. In 2003, at the SAs request, Dr. Garrett, our Executive Secretary, requested permission from Mike Gabaldon, Secretary's Designee, to present a proposal for a 24-month list of review and advisory activities for AMWG/GCMRC consideration. We submitted an original plan, which has now been revised to start 10/04. The revised 24-Month Plan reflects discussions of review needs with AMWG, TWG and GCMRC members.

The first six months of the plan includes finalizing reviews of the GCMRC Strategic Plan, Core Monitoring Program, Long Term Experimental Plan and Humpback Chub Plan. Twelve months are dedicated to an overall GCD AMP program review. This includes revisions of science process and accomplishment and the adaptive management reviews. Also proactive efforts with GCMRC to establish robust integration in the science and monitoring programs, and improved science protocols are also included.



Appendix III: OMB 2004 Federal Peer Review Guidelines

[Double-click on page image below to open document in a pdf reader]



THE DIRECTOR

**EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503**

M-05-03

December 16, 2004

MEMORANDUM FOR HEADS OF DEPARTMENTS AND AGENCIES

FROM:

Joshua B. Bolten
Director

Handwritten signature of Joshua B. Bolten in blue ink.

SUBJECT:

**Issuance of OMB's "Final Information Quality Bulletin
for Peer Review"**

OMB has today issued a bulletin applicable to all departments and agencies entitled "Final Information Quality Bulletin for Peer Review." This Bulletin establishes government-wide guidance aimed at enhancing the practice of peer review of government science documents. Peer review is an important procedure used by the scientific community to ensure that the quality of published information. Peer review can increase the quality and credibility of the scientific information generated across the federal government. This Bulletin is one aspect of a larger OMB effort to improve the quality of the scientific information upon which policy decisions are based.

The bulletin has benefited from extensive public and agency comments received on two prior draft versions, which were released by OMB in September 15, 2003 and April 28, 2004. The bulletin includes guidance to federal agencies on what information is subject to peer review, the selection of appropriate peer reviewers, opportunities for public participation, and related issues. The bulletin also defines a peer review planning process that will permit the public and scientific societies to contribute to agency dialogue about which scientific reports merit especially rigorous peer review.

If your staff has questions about this guidance, please contact Margo Schwab at (202) 395-5647 or mschwab@omb.eop.gov.

Attachments

Appendix IV: August 2009 Briefing Paper on Science Advisor Appointments for 2010-2012

[Double-click on page image below to open document in a pdf reader]

Glen Canyon Dam Adaptive Management Work Group Agenda Item Information August 12-13, 2009

Agenda Item

Science Advisor Nominations and Appointments

Action Requested

✓ Information item only. We will answer questions but no action is requested.

Presenter

David Garrett, Executive Coordinator, Science Advisors

Previous Action Taken

- ✓ By TWG
Discussion was held and input requested from TWG during the March 2009 meeting.
- ✓ By AMWG:
Discussion was held and input requested from AMWG during the April 2009 meeting.
- ✓ Other: Discussion was held and approval for changes in disciplines received from GCMRC Chief and program managers

Relevant Science

✓ No research or monitoring is required on this subject.

Background Information

The Science Advisors' Operating Protocol reads, "AMWG members may provide GCMRC with names of individuals who should be considered for appointment as a Scientific Advisor. . . . Scientific Advisors will be selected from among nominees based on evaluation criteria approved by AMWG. GCMRC will seek the consultation of the AMWG in selecting individuals to serve as GCMRC Scientific Advisors."

The Science Advisor's Executive Coordinator discussed the program activity with with TWG members at the March 2009 TWG meeting and with AMWG members at the April 2009 AMWG meeting, and nominees were requested for three Science Advisor Panel Positions.

The following names were submitted, and were included in the mix of recommended names (see report, next page): Larry Zimmerman, PhD, Indiana University-Purdue University, and Charles Redman, PhD; Arizona State University. An economist's name was also suggested, but the economist post was not vacant.

The attached briefing information presents the adopted process for Science Advisor appointments, the recommended new disciplines for 2010-2012, and the names of the recommended Advisors.

Glen Canyon Dam Adaptive Management Program:
Updating Science Advisors Program
Charter & Operating Protocols

David P. Braun, Sound Science LLC
GCDAMP Executive Coordinator for Science Advisors
TWG Meeting, Phoenix, AZ
April 19, 2016



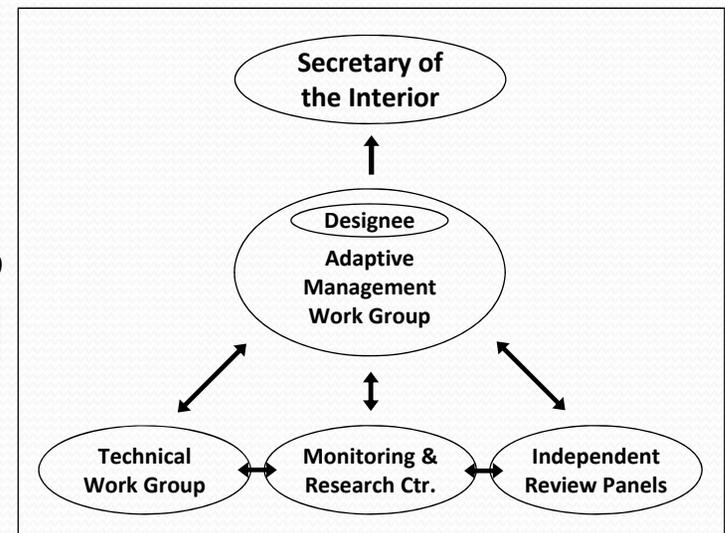
Presentation outline

- *Brief* history of Science Advisors program
- Why update program's Charter & Operating Protocols
- Process for updating
- Summary of proposed update
 - Sources of text comprising the updated charter
 - Structure and key features of updated charter
- Three items for further consideration
- Discussion and TWG recommendation to AMWG

Science Advisors origins

- SA program established 2000 as one component of “Independent Review Panels” established by 1995 FEIS & 1996 ROD, coequal with TWG and GCMRC

IRPs “... responsible for periodically reviewing resource specific monitoring and research programs and for making recommendations to the AMWG and the center [GCMRC] regarding monitoring, priorities, integration, and management” (1995 FEIS)





Science Advisors, 2001-2015

- Dr. L. David Garrett, Executive Coordinator
- Work plans included under GCMRC
- Advisors on-call year-round with overlapping 3-year terms (max 2 terms)
- Conducted numerous reviews & advisory services
- Topics selected in consultation with GCMRC, AMWG
- Collaborated with GCMRC on 2005 Knowledge Assessment
- Charter amended 2004, 2009 to clarify protocols
- Dr. Garrett departs end of FY2014; brief program hiatus
- Administration transferred to Reclamation, FY2015



Why update SA program charter?

- Amendments (2004, 2009) never incorporated into main text
- Reclamation administration requires changes, e.g.,
 - Advisors no longer continuously on-call; separate panel required for each review or service
 - All actions & services require Reclamation Task Orders
- Protocols need to follow OMB (2004) standards governing selection criteria for external reviews and reviewers
- Refresh AMWG, TWG understanding of SA program purposes and processes
- Updating as opportunity to rethink and tinker where useful



Key steps to updating SA charter

- Reviewed guiding documents (*see next slide*)
- Reviewed AMWG assessment survey findings (Orton)
- Examined other IRPs for large multi-institutional adaptive management programs for large regulated western rivers
 - *Confirmed that DOI does not have standards of practice for IRPs*
- Consulted with TWG, GCMRC, Reclamation COTR
- Solicited input from previous Executive Coordinator and Science Advisors (particularly from FY 2010-14)
- Delivered draft to TWG Steering Committee AHG for review and recommendations
- Requesting TWG recommendation to AMWG
- AMWG to vote on TWG recommendation (8/2016)



Guiding documents

- Original AMWG-approved charter and protocols, 2000
- AMWG-approved amendment, 2004
 - *Clarified “how the Advisors are to receive their list of annual tasks from the AMWG/GCMRC/USDI Secretary’s Designee, or report on accomplishments”*
- AMWG-approved amendment, 2009
 - *Revised procedures for Science Advisor nominations and appointments*
- OMB Final Information Quality Bulletin for Peer Review, December 2004
- Reclamation, Solicitation No. R15PS00518, Executive Coordinator Science Advisory Services IDIQ, May 2015
- Editing for internal consistency and integration



Structure of charter & protocols

1. Preamble
 1. Independent Review Panels and Science Advisors program (*origins*)
 2. Independent Review Panel and Science Advisors programs, 2000-2015 (*program evolution*)
2. Charter and Protocols
 1. Purposes of the Science Advisors Program
 2. Executive Coordinator of Science Advisors
 3. Annual and Multi-Annual Work Plans
 4. Science Advisory Task Orders
 5. Science Advisor Selection
 6. Reporting
3. Appendixes (*AMWG 2000, 2004, 2009; OMB 2004*)



2.1 Purposes of SA program

- Review GCDAMP resource-specific monitoring and research programs, and carry out other advisory tasks per AMWG request to...
 1. *Ensure that the monitoring and research findings used by the AMWG and the Secretary in implementing the GCDAMP meet AMP needs*
 2. *Ensure that the information on which the AMWG and the Secretary base adaptive management decisions is timely, comprehensive, efficient, unbiased, objective, and scientifically sound*
- Does not review, interpret, or otherwise evaluate public policy decisions or assess legal compliance associated with the GCDAMP and activities of the AMWG, TWG, GCMRC, or individual member agencies and organizations



A broad mandate

- Natural, cultural, and recreational resources affected by Glen Canyon Dam operations and the effects of those operations
- Results of ongoing and completed monitoring and research activities, and syntheses and assessments of these results
- Protocols followed in monitoring and research activities
- GCMRC long-term monitoring plans, annual monitoring and research plans, and annual budget proposals
- *Any other topics* per AMWG request concerning:
 - Resources affected by Glen Canyon Dam operations, effects of those operations, options for managing these effects
 - Coordination and balancing among resource programs
 - Combined effectiveness of resource programs in advancing understanding of the Grand Canyon ecosystem and ensuring progress in defining and conducting adaptive management experiments



2.2 Executive Coordinator

- Leads Science Advisors program
- Liaison for SA program to AMWG, TWG, GCMRC
- Contracted by and reports administratively to Reclamation but substantively to AMWG
 - *All EC and SA program activities require authorization by Reclamation task orders*
- Prepares SA program work plans, budgets, task order proposals
- Oversees all SA program activities
 - *Design and implementation of all review and advisory services*
 - *Recruitment of review/advisory panel members*
 - *Completion of SA task orders and delivery of reports*



2.3 Work plans

- AMWG Action Items
- Recommendations for additional tasks for consideration
 - *Input from AMWG, TWG, GCMRC, and Secretary's Designee*
 - *EC may propose additional tasks*
 - *Work plans also cover routine tasks*
- List of potential new tasks ranked in consultation with AMWG, TWG, GCMRC, Reclamation (*see next slide*)
- Ranked task list and costs reviewed by Reclamation and TWG in normal cycle of planning and budgeting
 - *Work plan and budget included with Reclamation*
- AMWG approval



Criteria for ranking potential tasks

- Synthesize multiple knowledge inputs, data, methods, models, and assumptions used by AMWG and Secretary in GCDAMP
- Clarify uncertainties in available information that affect (or could affect) adaptive management decision making, or suggest ways to reduce such uncertainties
- Ensure that information on which AMWG and Secretary base adaptive management decisions is timely, comprehensive, efficient, unbiased, objective, and scientifically sound
- Improve transparency of decision making within GCDAMP
- Improve stakeholder or public perceptions of credibility of information on which the GCDAMP makes decisions
- Financially and logistically feasible



2.4 Task orders

- SA work plans & budgets included in Reclamation work plans and budgets
- EC general duties and specific SA tasks require task orders from Reclamation; follow Reclamation procurement procedures
- Reclamation administers task orders for SA program activities approved by AMWG



2.5 Science Advisor selection

- SA panel size and selection specific to each review/advisory task
- EC steps for selecting SA panel members:
 1. Review potential selection criteria (*see next slide*)
 2. Consult AMWG, GCMRC, TWG, professional networks, literature
 3. Tabulate selection criteria, names, credentials of potential SAs
 4. Solicit GCMRC, TWG review of resulting tables
 5. Prepare final ranked list of potential SAs
 6. Reclamation COTR administrative review
 7. Extend invitations; work down ranked list until panel filled
 8. Notify AMWG, GCMRC, TWG of result



SA core selection criteria

- Expertise
 - Advisors must have well-established scientific or technical expertise in disciplines central to the task at hand as indicated by their records of publications in the peer-reviewed literature or other demonstrable scientific or technical achievements
- Balance
 - Advisors must represent the existing diversity of scientific and/or technical perspectives and spectrum of knowledge relevant to the task at hand
- Independence
 - No advisor may have a conflicting interest in the outcome of the task at hand
- Collaborativeness
 - Advisors must have a demonstrated ability to work effectively and collaboratively with other experts in an interdisciplinary setting



2.6 Reporting

- Progress reports on SA tasks to AMP meetings:
 - TWG, January
 - AMWG, February
 - AMWG, May
 - TWG, June
- Annual report to AMWG, August
- Annual report to Reclamation at end of FY



Three possible modifications

1. Allow option for establishing year-long or multi-year “standing panel” for ongoing/recurring needs?
2. Include a step/process for approval of potential SAs after EC identification and ranking?
3. Include description of a procedure for amending charter & protocols in the future?

Other suggestions?



Panel duration

- Proposed new paragraph to insert after present first paragraph in Section 2.1:

“Science Advisors work in panels sized for efficient completion of each review or advisory task (typically 5-6 panel members). The Executive Coordinator establishes a separate Science Advisor panel for each review or advisory service approved by the AMWG. However, the Executive Coordinator may propose and the AMWG may approve establishing panels that operate over a whole- or multi-year timespan to address ongoing or recurring review/advisor needs.”



SA panel member approval

- Formerly:
 - GCMRC Chief approved new appointments, with input from the standing SAs, TWG, and AMWG
 - Maintaining standing panel meant new appointments not time-sensitive
- Currently:
 - GCMRC Chief no longer responsible for SA program
 - Task-order structure means appointments always time-sensitive
 - GCMRC and TWG input on proposed ranked list of names: advisory, not same as approval
 - Reclamation COTR approval: administrative only?
 - EC (Sound Science) therefore makes final decisions on SA panel members for each task order

SA panel member approval *(cont.)*

- Should charter/protocols include a final step for SA panel member approval?
 - *Approvals may be time-sensitive*
- Option: **change** item “(6)” in Section 2.5 to:
*“(6) Rank the resulting **draft** final list of potential reviewers/advisors on their appropriateness and potential value for the Science Advisory task at hand **and submit the ranked list to the GCMRC and TWG for final review and approval. Requests for approval may be time-sensitive. The Executive Coordinator will resolve any differences in responses between the GCMRC and TWG.**”*



Process for amending document

- Proposed addition of a final Section 2.7:

“2.7 Amending the Charter and Protocols

Changes to this charter or its protocols may be proposed to the TWG, which will then review each proposal and convey to the AMWG any recommendations for changes. The Executive Coordinator must provide recommendations to the TWG on each proposal for its consideration during its review. Reclamation must review all proposed changes to ensure that they are consistent with Reclamation requirements as administrator of the Science Advisors program, and convey its findings to the AMWG. All amendments require approval by the AMWG, which may request further information from the TWG, GCMRC, or Executive Coordinator for its deliberations.”

Questions & Discussion