

## Glen Canyon Dam Technical Work Group Meeting

March 16-17, 2009

**Conducting:** Shane Capron, Chairperson

**March 16, 2009**  
**Convened:** 9:30 a.m.

### Committee Members/Alternates Present:

Mary Barger, WAPA  
Cliff Barrett, UAMPS  
Charley Bullets, Southern Paiute Consortium  
Kerry Christensen, Hualapai Tribe  
William Davis, CREDA  
Jay Groseclose, NM Interstate Stream Comm.  
Norm Henderson, NPS/GCNRA  
Amy Heuslein, BIA  
Rick Johnson, Grand Canyon Trust  
Robert King, UDWR  
Dennis Kubly, USBR

Steve Mietz, NPS/GRNP  
John O'Brien, GCRG  
Don Ostler, UCRC  
Clayton Palmer, WAPA (alternate)  
Bill Persons, AGFD  
D. Randolph Seaholm, CWCB  
Sam Spiller, USFWS (alternate)  
Mark Steffen, Federation of Fly Fishers  
Bill Werner, ADWR  
Michael Yeatts, the Hopi Tribe  
VACANT, Navajo Nation

### Committee Members Absent:

Christopher Harris, Colo. River Board of Calif.  
Glen Knowles, USFWS

John Shields, WY State Engineers Office  
Larry Stevens, GCWC

### Interested Persons:

Matthew Andersen, GCRM/USGS  
Glenn Bennett, USGS/GCMRC  
Mike Berry, USBR  
Jen Dierker, NPS/GRCA  
Helen Fairley, USGS/GCMRC  
David Garrett, Science Advisors  
Pamela Garrett, M<sup>3</sup>Research  
John Hamill, USGS/GCMRC  
Doug Hendrix, USBR

Loretta Jackson-Kelly, Hualapai Tribe  
Leslie James, CREDA  
Andy Makinster, AGFD  
Barbara McKenzie, USGS/GCMRC  
Emily Omana, Grand Canyon Wildlands Council  
Clayton Palmer, WAPA  
Tom Ryan, USBR  
Jason Thiriot, Colo. River Commission of Nevada

**Meeting Recorder:** Linda Whetton, USBR

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**Welcome and Administrative.** The Chairman welcomed the TWG members, alternates, and interested persons. Attendance sheets were distributed. Bill Werner welcomed everyone to the meeting and gave logistics for the meeting.

Shane reviewed the TWG Ground Rules and encouraged everyone to be on time for the agenda items. He said the Science Advisors' Update on staffing would be presented tomorrow at 2:00. He also said resolution on the management actions may occur during today's budget discussion and not be needed tomorrow. He distributed copies of the follow-up from the past two TWG meetings (**Attachment 1**).

**Approval of Draft Minutes from July 16-17, 2008.** These will be ready for the June 2009 meeting.

**Approval of Draft Minutes from October 15-16, 2008.** Pending a few minor edits, the minutes were approved without objection.

**Action Item Tracking Report:** Shane reviewed the action items (**Attachment 2**).

**Old Business:**

Roles Ad Hoc Group Report. Shane said the latest revision of the Roles AHG Report was completed in December 2008. Tom Ryan said that Kameran Onley reconstituted a new ad hoc group with the goal of trying to finish it under her tenure. Unable to complete, she made a decision to not adopt the report but pass it on to the new Secretary's Designee. The report is currently with Larry Walkoviak who is waiting for further direction from the new Secretary's Designee.

### New Business:

Department Memos: Shane said there were two memos distributed from Kameran Onley. The first one focused on her thoughts while serving as the Secretary's Designee (**Attachment 3a**), the second memo focused on the role of science in the AMP, more interagency cooperation within DOI, and the future of the AMP (**Attachment 3b**).

Next AMWG Meeting. The next AMWG meeting will be April 29-30 and their biggest issue will be the FY2010-11 budget. Other issues will be the HEC-RAS motion they passed at their last meeting and management actions.

Roles and Ethics Responsibilities of the TWG. Randy Seaholm distributed copies of a letter, "Subject: Decision Making Process Associated with the GCD Operations GCDAMP (**Attachment 4**) prepared by the seven basin state AMWG members. He said one of his concerns in this process is the group keeps jumping outside the process and if people aren't getting what they want, they find other forums. In particular there is a lawsuit going on, there have been a couple of criticisms from the Park Service about the process, and the states feel very strongly that these are inconsistent with the directions given to the TWG. The TWG is supposed to be responding to issues directed from the AMWG, staying focused on science questions, and not getting into policy questions such as those posed by the Park Service. He advised the members to read the TWG Operating Procedures again which states the TWG is supposed to be looking at reviews, science updates, and formulating questions designed to look at monitoring and research, and to look at those with respect to how they might go into some annual reports. He feels the TWG is drifting too far from those tasks and that's the reason for the letter. He feels there is plenty of support for that and advised looking into the AMWG Charter as well. He feels the TWG really needs to stay focused and not jump into other side issues.

Questions Posed by Norm Henderson. Shane said he wants the TWG to work in a situation where if people bring up important questions, they have a chance to air them at the TWG, but in this situation he doesn't believe Norm's questions are appropriate for the TWG to tackle and said Tom Ryan would help him deal with the issue. However, he first wanted Norm to address his concerns:

- Update on how the Department intends to prepare the annual operations report to congress (Sec. 1804(c)(2)) - update TWG on the purpose, who is responsible, contents, timeframe, TWG role?
- Update on how the department intends to prepare the annual financial report to congress (Sec. 1804(e) and 1807) - same parameters as above
- Update on the five-year review of the GCD operating criteria - when will the review take place, how will AMP/TWG be involved?

Norm said he was interested in an update essentially of where the TWG is going with regard to three processes: One being the required annual report and how the TWG fits into that, although he said there are actually two reports that are required by the GCPA. One could be called the annual financial report and the other would be the Report to Congress with regard to the operations of Glen Canyon Dam, and the third is the required 5-year review of the Glen Canyon Dam Operating Criteria. He feels these reports have a lot of relevance to what the TWG does and what input they might have.

Tom said the 1804 report Norm referenced is being developed and Reclamation is making progress on it. There have been discussions on the report at the RD's level and also at the DOI staff level. However, it's not done. He said he wasn't sure if the 1807 report was ever done so he had no information to provide.

With regard to the 5-year review of the GCD operating criteria, Tom said it's a policy issue and he couldn't provide any input to the group.

Norm said he would like to make a recommendation the same questions be given to the AMWG as a concern from the TWG. Shane said he would include in his chair report.

**GCMRC Updates (Attachment 5).** Shane said GCMRC was asked to provide written updates rather than making oral presentations. He asked if there were any questions for GCMRC. Shane said the HBC Stock assessment report will be ready for the AMWG meeting and the TWG will be provided a copy of that when it becomes available.

**MRP/SSP.** John Hamill said there were three documents provided to the TWG (**Attachment 6**). He said when the MRP was approved by the AWMG in 2007, it was done so with the recommendation that it reflect the outcome of the Long-Term Experimental Plan (LTEP) EIS. When the plan was approved, the Secretary also accepted the condition that it would be updated when the LTEP was completed. The LTEP got derailed and they ended up doing a 5-year environmental assessment. GCMRC went back to the AMWG last year and told them that given they would have a 5-year experimental program, it made sense to update the MRP and the SSP to reflect those results. The AMWG passed a motion asking the TWG to work with GCMRC in making those revisions and it was a fairly crafted motion designed to just update the plan to reflect the outcomes of the EA (March 2008), the biological opinion that USFWS issued on that EA, as well as the biological opinion that the USFWS issued on the shortage guidelines, which also had recommendations that were relevant to the AMP. In October 2008, they presented a revised version of the SSP and MRP to the TWG. They gave a 30-day comment period for members to send in written comments. They also extended the comment period and received comments up until February 2009. They received about 25 comments on the SSP and about 400 comments on the MRP from approximately 20 reviewers. He felt the majority of comments on the SSP were considered outside the scope of the direction they were given. He said comments were all over the board on both of the documents. They wanted to see major revisions of both documents in spite of his repeated guidance that GCMRC was trying to keep those narrowly focused, but people tended to ignore that. He wasn't interested in opening up the whole MRP and SSP discussion felt it was also the AMWG's intent to do so. In talking with the Secretary's Designee, she didn't want the AMWG to do this so only basic revisions were made to the SSP (see pages 3, 5-7, and page 10). They reference there are new NEPA documents and related biological opinions that would be considered as they put together their science strategies and move forward through 2007-2011. He felt that was a pretty simple fix for the SSP.

The MRP was more of a challenge because of the volume of comments received. He said the comments are available and GCMRC responded to about half of them because others fell outside the scope of what they were asked to do. He made a decision that it would be simpler to add an amendment to the MRP and not even open the document. The amendment stated what the EA said, what the biological conservation measures were, and included the science activities GCMRC would propose to conduct in response to those activities. He referenced the March 6, 2009, draft amendment and said the introductory sections on the EA include direct quotes from either the ROD or from the EA itself and then the biological opinion that was issued by the USFWS.

Shane referenced the AMWG's motion language and said the TWG needs to develop a motion recommending the AMWG approve the changes or not. He asked the TWG for input.

**SSP Comments:** John said he read all the comments and many were basically redefining roles and responsibilities and emphasizing Interior's role in the program, Park Service mandates, etc., and while he felt they were valid comments, he felt they were outside the scope of what they were asked to do.

- *Page 6 – reference to the LTEP EIS. Even though this is on hold, the compliance is in place for 2008-2012 unless some court proceeding or decision moves the program in that direction faster. John said he would include language from the FRN (putting the LTEP EIS on hiatus) to satisfy this concern.*

- *Steve Mietz said there has been a change in direction and shifting the science emphasis and noticed comments all over the board. He asked whether a statement could be made to that effect. John said they could capture some of the history in the MRP revision in a short paragraph on how they shifted from an LTEP to an EA.*
- *Bill Davis said this is supposed to be a plan for 2007-2011 and asked why the plans couldn't be updated so the SSP is current. John said it was his intent to do that but it was naïve without opening up a lot of other issues and he didn't want this to be diversion of what was going on in the TWG. Bill questioned the value of an SSP that's out of date. John said it's still a good plan but doesn't think it's worth updating to include all the changes.*
- *Page 6, line 19. Norm said there is an obligation to conclude one science activity for each GCDAMP goal and he just wondered if that is still the intent because the budget proposed for 2011-12 doesn't fit with that overall direction. John said at the time there wasn't anything being done relative to Goal 3. He said there wasn't an ironclad commitment that every goal would have it but generally they would try to have something in there for every goal due to financial constraints or whatever.*
- *Page 7, line 15. Norm said there is a goal or vision of updating the SCORE report every five years along with a Knowledge Assessment Report and he didn't see this in the 2011-12 budget. John said he thinks a new knowledge assessment should be done in the FY11 timeframe to correspond with the updating of this plan. Norm said that if the SCORE report isn't going to be updated every five years, he feels new language needs to be included.*
- *Page 7, Figure 2. Amy suggested it would be helpful if there were dates for products included in the figure or table so they can see a good snapshot of what's going on.*

Shane said he would like to have a management ad hoc group that would look at these types of issues and what pieces need to fit together for the next five years. Randy said the AMWG should be consulted before the TWG heads down different paths.

MRP Amendment Comments: John said the format addresses the updates on the EA, the Shortage BO, and the EA on operation of GCD. The EA specified two basic activities: 1) a HFE in March 2008, and 2) a MLFF operation with steady flows in September or October for the period of 2008-2012. He said GCMRC activities are described in detail along with the SSQs and the list of studies associated with the HFE science plan in Tables 2 and 3. It also indicates when the results are expected and a commitment that GCMRC will do a synthesis of the 1994, 2004, and 2008. GCMRC will work with the TWG and the Secretary of the Interior on when to do another HFE. The MLFF with steady flows is basically to implement the near shore ecology study and to supplement that with clarification on the flow regimes they would likely see in conjunction with that. He said Matthew Andersen is in the process of starting discussions about that in the next two months and there would be a science plan that would look at fall steady flows and near shore ecology and how those studies would be integrated by July 2009. John asked for comments about GCMRC's response to the provisions of the EA and the ROD. He said GCMRC's responses are in *italics*.

#### Comments on GCMRC Science Activities

- *Page 3, line 15. Norm wants the National Park Service listed there. Mike Yeatts said Navajo Nation should also be included since it's their land. John will make the additions.*
- *Page 4, line 16. Steve Mietz wanted "to look at mainstem monitoring" included. Matthew concurred.*
- *Page 4, line 7. Dennis said that "Reclamation and the AMP will continue ..." should be changed because FWS is actually doing the monitoring. John said this was language given to them from FWS.*
- *Page 4, 45. Bill Davis referenced the wording "detailing current information ...," and asked if GCMRC is looking worldwide for what people are doing. He feels the group needs to reach out to see what methods are already being used and if they could be useful to this program. He wants to see some language included pertaining to his concern. Matthew said the short term plans include techniques from around the world.*
- *Page 5, line 12. Norm said there is a statement about "transfer of funding ..." and he thinks there are probably some differences of opinion and wanted to know where John wants to have that discussion. John said he left the language ambiguous because he knows this is an issue probably debated through the whole budget cycle and beyond. He feels a strategy is needed on how they're going to transfer some research to management and non-native fish control could involve into a major activity in this program with serious financial implications.*
- *Dennis echoed Norm's sentiments and said they could do it a different way by identifying, as a closing sentence, the process that will lead to whether GCMRC's proposal is adopted or not. This would involve the recommendation from the AMWG and perhaps a decision by the Secretary due to having technical, policy, and budget implications.*

*He said this document is to address the conservation measures which require activities on the part of other entities and GCMRC. John said he could add some language so that it is open-ended.*

- *Mary asked if this document only focuses on the Marble and Grand Canyon reaches as she thought there were concerns about warm water fish coming up from Lake Powell and talking about monitoring lower in the canyon. She thinks the issue was that if they had warm water fish moving up then by the time they got all the way up there, they would be in a nightmare situation and asked if the entire mainstem should be included. John said considering the time frame they're looking at through FY2011, the primary focus is going to be on trout removal in the Little Colorado Reach. There will be some pilot testing of warm water fishes and they've also proposed enhancing the mainstem monitoring program to detect any increased numbers of fish coming from Lake Mead or elsewhere. Assuming there is going to be relatively cool waters for the next few years, John said the focus is going to be on trout removal in the LCR.*
- *Page 4, line 46. Norm questioned if the annual planning included in Part I would include planning within the tributaries as well as the mainstem. Matthew said he didn't think the AMP is ready to go there. They expect Part II will address sources on where the fish come from but the decision on who would address which species in which river or stream is beyond their authority.*
- *Page 5, line 6. Dennis asked where the "10 percent" comes from. Matthew said they have sought documentation on what is the correct percentage that one has to achieve to realize success but doesn't think it exists. This was their best, educated guess. The Science Advisors also agreed with that number.*
- *Page 5, line 10. Randy referenced "to facilitate conservation ..." and said he would like to propose adding after the word 2009: "and identify funding" as opposed to what is there now to transfer funding. John said he couldn't do that and felt someone else has to figure that out.*

#### Comments on HBC Nearshore Ecology Study.

- *Page 6, line 9. Bill Davis said one of the questions they had about this study was whether or not they're going to establish the value of different habitats, not just whether or not they're occupied or whether or not they lead to certain growth or food conditions or whatever. If 10% of a particular type of habitat is only occupied by 5% of the fish, does that make it as valuable as others? In trying to make a judgment call as to creating certain types of habitat, i.e., backwaters, they need to know if it's more or less valuable than perhaps shoreline habitats. He doesn't see the answer specifically documented and feels it is a very critical question to answer. Matthew said he could work with the cooperator to determine what they can actually do.*

#### Comments on Monthly Flow Transition Study:

- *Page 6, Line 13. Bill Persons said there have previously been transitions from August to September where it has been a pretty radical transition, where the lows in August were higher than the highs in September. He asked if something has been done to change that. John said it wasn't a big issue last year and the only thing that has changed is hydrology. Clayton says Reclamation hasn't made any modifications to transition except for last year for the first study flow and WAPA was asked to draw from the August level of daily change to the September level of daily change over a 3-day period rather than a 1-day period. Clayton said the reason it's in the BO is because the FWS believes it is a big issue and believes the transition is from the summer months to September. Josh Korman thinks the transition time is more telling in terms of reducing trout, potential predators, than were the non-native fish management flows that occurred three years in a row a few years ago. Clayton said WAPA's comment would be either to confirm or dismiss it through scientific study because it affects their resource. John said their plan is to study fish habitat use during that transition time period. They will also be doing additional foodbase work during that time period so they think that will provide additional information to help form that decision about whether assuming they would see several different types of transitioning over the course of this study over a 5-year period, they will be able to provide some data.*
- *Page 6, line 28. Bill Davis asked if this included ramping rates as well as daily range because it's not clear to him and the question has never been answered. When they talk about the EA and fall/summer flow regimes, it says the nearshore ecology study plan will be expanded to specify recommended late summer/fall flow regimes that should be provided to maximum learning and the group has never talked about that. John said they are going to have steady flows in Sept-Oct but there may be some flexibility to adjust the magnitude of them to maximize learning so they don't look at 12,000 cfs every year.*

Humpback Chub Refuges. John said he didn't see GCMRC as having a major role in refuge planning but has providing advice an consultation to FWS on what they should do and will continue to give support.

- *Kerry asked why this project appears in two different places (pgs 6 and 7). John said that in the middle of page 7 they transitioned to a new biological opinion.*

Little Colorado River Watershed Planning: John said their activity will be to provide information they have on the LCR. They will also provide input to the watershed planning effort in whatever activity that evolves into. They have also looked at the risk of non-natives coming down to the LCR into the mainstem and one of the things they could possibly do at some point is actually document non-native fish sources. This is primarily an advisory role for GCMRC and they possibly summarize literature with what is going on with non-native fish.

Kanab Ambersnail Habitat Protection. John said they've done what is being proposed here which is remove the habitat and put it back. Everything was completed and looks good as far as the HFE science plan.

Sediment Research. John said they are going to continue with the high flow reporting and routine sediment monitoring that has been in place. He said some of that will also be investigated through the nearshore ecology study in trying to establish better relationships between sand dependent backwater habitats, turbidity, and things like that as it relates to survival of young fish. In response to a concern raised by Norm Henderson, they are doing some modeling to look at the effects of different operating regimes on the sediment transport. Mary Barger mentioned that at a recent science meeting, Emma made a presentation that suggested the foodbase could be adversely affected by sediment so she wanted that included in the issues related to sediment and foodbase. Matthew said the existing work will report on clarity of water and primary productivity.

Parasite Monitoring. John said they're proposing this be done every 5-6 years. There was a study done in the past and that was the conclusion. The next time it will be done is in 2012.

KAS Monitoring and Research. John said they supported some genetics research to the program on this species and that study is now in draft form and is expected to be completed sometime in 2009. Bill Davis said there should be something added which says that if it is determined through the genetic monitoring that this is a widespread species, monitoring may become unnecessary. Shane said that Glen reported at the last meeting that even if they do, they will have to go through a re-consultation period with a new biological opinion which could take awhile so he didn't think the program had to worry about it immediately.

SWWF Monitoring and Research. John said they don't do avian monitoring at this point. Bill Davis said the MSCP is a major topic for them in terms of habitat protection so he wanted to know how they were going to coordinate their activities with Reclamation in Boulder City with the MSCP in the lower canyon. Matthew said they have coordination activities with the Park but wasn't sure how they would coordinate with people who are working outside Grand Canyon. Bill said it was in the Grand Canyon from Separation down to White Cliffs which is where they were found in the past. John said he would add some language that they will work with the Park Service to provide information on how collaboration should occur.

Norm said the ones presented were focused on conservation measures but part of the study plan for the HFE was a study or an analysis that was done for the effects to hydropower. He thinks that should be recognized in the document because there is a science advisor response to the plan to say that wasn't an analysis of all economic values. He thinks the group should recognize what was done as far as the analysis for the test and then consider adding additional economic value studies to that study, to not just show the effects of hydropower but also the cost benefit and analysis to the values within Grand Canyon. While he can see the value, John said that isn't part of the science plan. Norm said that is what he was getting at as far as priorities, arthropods versus doing this economic analysis. He said there hasn't been re-analysis for the other economic values within Grand Canyon. John said he could make reference to Norm's concerns on page 2 but that a broader economic study is probably beyond the scope of what they're proposing today.

Shane asked if the TWG could agree on a recommendation to approve this based on the comments received today and the changes John has agreed to make.

**MOTION** (proposed by Bill Werner, seconded by Kerry Christensen): TWG recommends that AMWG approve the SSP and the MRP and Research Plan as modified and amended by GCMRC in their March 6, 2009, memorandum, and per discussions at the TWG meeting (March 16, 2009).

**Q:** John, how do we move forward with this when we have the question on non-native removal as to whether it is in or out and the language here, without saying in or out, is very specific about saying it should be transferred to someone else? It appears that issue is unresolved so how do we go forward with a clean recommendation to AMWG? (Ostler)

**A:** My understanding as far as non-natives go, it will remain in the program. It's something that needs to be done for a conservation measure. We still need to resolve the funding issues. (Capron)

**Q:** If no other funding source is found, it's my understanding that non-native removal will occur and it will come out of this program's budget. (Ostler)

**C:** I agreed to make a change on page 5, line 11, where we propose to transfer funding responsibility and lead to an appropriate management agency. We could follow that up with a statement that the issue of funding and lead responsibility will ultimately be decided by the Secretary in consultation with the AMWG. (Hamill)

**C:** I'm ready to send it to the AMWG for review but would add something like "conditional approval pending review by the TWG" or something of that nature of proposed changes. I'm not ready to say I recommend approval of it. (Seaholm)

**C:** I've asked a lot of questions today and I'm satisfied with the responses. I'm ready to move forward and hope they're incorporated into the minutes. (Davis)

**C:** I think if we can receive copies of these changes far enough in advance of the AMWG meeting, we'll have time to read them and then consult with our AMWG members, I'm okay with this. (Barrett)

**REVISED MOTION** (Proposed by Bill Werner, Seconded by Kerry Christensen): TWG recommends that AMWG approve the SSP and the MRP and Research Plan as modified and amended by GCMRC in their March 6, 2009, memorandum, and per discussions at the TWG meeting (March 16, 2009). The TWG recognizes the subject of non-native fish control has technical, budget, and policy implications, and wishes to identify to AMWG that these issues will need to be resolved, and that the MRP and SSP may need to be modified to reflect these policy changes.

Representative	Stakeholder Entity	Vote	Representative	Stakeholder Entity	Vote
<b>Bill Persons</b> Andy Mankinster	Arizona Game & Fish Dept.	Y	Rick Johnson / Nikolai Lash	Grand Canyon Trust	absent
<b>Amy Heuslein</b>	Bureau of Indian Affairs	Y	Larry Stevens	Gr. Canyons Wildlands Council	absent
Dennis Kubly	Bureau of Reclamation	Y	Mark Steffen / Tim Steffen	Federation of Fly Fishers/ Northern Arizona Flycasters	absent
Mike Yeatts	Hopi Tribe	Y	<b>John O'Brien</b> / Andre Potochnik	Grand Canyon River Guides	Y
Kerry Christensen	Hualapai Tribe	Y	Bill Werner	State of Arizona	Y
Steve Mietz	National Park Service – Grand Canyon	N	Christopher Harris	California	absent
<b>Norm Henderson</b>	NPS-GLNRA	Abstain	Randy Seaholm	State of Colorado	Y
VACANT	Navajo Nation	Vacant	McClain Peterson / <b>Jason Thiriot</b>	Nevada	
VACANT	Pueblo of Zuni	Vacant	<b>Jay Groseclose</b> / Don Ostler	New Mexico	Y
VACANT	San Juan Southern Paiute	Vacant	Robert King	State of Utah	Y
<b>Charley Bullets</b> / LeAnn Skryzski	Southern Paiute Consortium	Y	John Shields / <b>Don Ostler</b>	State of Wyoming	Y
Glen Knowles / <b>Sam Spiller</b>	U.S. Fish & Wildlife Service	Y	Bill Davis	CREDA	Y
<b>Mary Barger</b> / Clayton Palmer	Western Area Power Admin.	Y	Cliff Barrett	UAMPS	Y
			<b>Total Yes</b>		<b>16</b>
			<b>Total No</b>		<b>1</b>
			<b>Total Abstain</b>		<b>1</b>
			<b>Total Voting</b>		<b>17</b>
			<b>Motion Passes</b>		

**FY2010-11 Preliminary Budget Development (AIF= Attachment 7a)**. Shane reviewed the schedule for the remainder of the day. Once the group hears the BAHG recommendations, he would like to identify items which are controversial and might require more discussion, add any new issues, and then go through all of them for final disposition.

**USBR CPI FY08 and FY09 Budget**. Dennis Kubly directed the TWG to go back to the FY08 carryover and the FY09 underfunding document (**Attachment 7b**). In the past, he said Reclamation would estimate 3% indexed by the CPI for each of the years. They don't know what the actual CPI will be until after the beginning of the next fiscal year. At the close of FY08 they estimated 3% but it ended up being 4.9% so there was actually underfunding in the projected FY09 budget that the AMWG saw and went as a recommendation to the Secretary by 1.9%. For Reclamation's portion of the budget, the amount of the underfunding was almost \$88K. He broke that down into four major categories. He said the numbers were derived by multiplying forward by the amount that would've been in the FY09 budget if it had been 3%, the amount that was actually there in 4.9%, and subtracted the difference. He said some of them were off quite a bit. For example, in FY08 there was a \$300K Canyon Treatment Plan budget and then in FY09, it went to \$500K.

On the FY08 carryover they had \$55,175. The majority of that, about \$40K, comes from the LTEP fund. Reclamation paid for the LTEP expenses with 50% from power revenues and 50% out of appropriated funds. There was a smaller amount of funding that was used for LTEP than was originally programmed so they ended up with about \$40K in carryover there. They're proposing to apply the carryover to a non-native fish contingency fund and this is precipitated by the mainstem mechanical removal question and whether or not funds would be available if they have a non-native fish eruption, the old "vampire in the basement" problem. In FY09 one series of controls is programmed rather than six separate trips and this year only one trip with four passes. GCMRC put in their MRP a projection to hold those same fish at 10% of their 2003 numbers. Nobody knows what level of control is necessary to do that and then there's the issue if the water, instead of being cold goes warm, and there is a warm water non-native fish eruption and what would be done. The program would have to come back and re-program a lot of dollars. The contingency fund is an attempt to get in front of that. They advocate the \$55K in carryover be in that fund and then \$48,500 of the underfunding for a total of about \$104K. The other underfunding is allocated to AMWG expenses, TWG expenses, and to a small degree the Programmatic Agreement. They took \$10K above the underfunded amount for AMWG expenses and TWG expenses and \$5K for Contract Administration because they were negative in those three areas in FY08.

**Q:** *So that makes FY09 whole? (Barger)*

**A:** *Yes, it does. There is also the carryover which is really on top of that. (Kubly)*

**Q:** *Would the contingency fund be an ongoing thing? (Garrett)*

**A:** *Yes. If you look at your budget spreadsheet and you have to tie these things together. When you go over to FY2010-11, we incremented by 3% but it wasn't the total \$103K but only the \$48K that came from the underfunding. (Kubly)*

**Q:** *If we don't use it for a few years, are we shooting for \$300K then we would not be putting money in? (Capron)*

**A:** *We could do that but we really didn't calculate the amount because it's such an unknown. Steve was making these points in our BAHG discussions. You might be talking about another \$130-40K. However, something could come out of the woodwork but you just don't know. We could set an upper limit on it. (Kubly)*

**USGS CPI FY08 and FY09 Budget**. John Hamill referenced his memo dated March 6, 2009, "Subject: Allocation of FY2008 Carryover Funds and FY2009 CPI Funds" (**Attachment 7c**). John said they had three sources of funding to deal with: (1) carryover from planned budget, \$1.9 million, (2) the HFE carryover was about \$670K, and (3) CPI funding was about \$207K. The majority of the carryover (**Attachment 7d**) was allocated to completing activities that were deferred due to the HFE. There were a number of things that fell into that category, various other planned activities that were expected to be funded in 2009, like the HFE data analysis, overflights, nearshore ecology study, etc., of this he considered about \$531K to be truly discretionary, things that weren't already spoken for. Referring to the spreadsheet, they broke out the discretionary from the non-discretionary. The criteria he used in allocating the funds were to put them into

deferred, replacement and maintenance of equipment. There are a lot of things falling apart and they don't typically budget enough to replace a lot of the equipment. There were some positions in DASA they were trying to fill especially in the GIS and remote sensing arenas. They also did some reorganization where they moved some people out of the biology program into DASA to provide statistician support and study design support in DASA and that created some funding needs in DASA and the biology program. They were also trying to restore funding for certain projects that were cut at the end of the year. The one most notably was the whole control network was zeroed out in FY09 budget and after a long discussion they decided that needed to be added back in. He was also unaware that Reclamation was establishing a non-native contingency fund but they also created a couple of contingency funds to deal with high priority, unanticipated needs primarily in the overflight they're doing in FY09 and in the non-native control project in FY09.

The Summary Table indicates there was \$2,332,308 in non-discretionary funds and the sources of that were almost \$2.6 million from the annual workplan and the HFE. They received some cash contributions from the Southwest Biological Science Center (SBSC) who they had loaned money to last year to help support the science symposium and they paid GCMRC back this year. There was \$207K in the CPI increase and they actually had a reduced burden rate so they were able to free up almost \$10K for their activities. That equals a total of \$2,863,781 that was available. He reviewed the details of the allocations.

The members expressed concerns about having sufficient money to do the overflights, \$35K to replace a GCMRC, and the amount of money being carried forward,

**USBR FY2010-11 Preliminary Budget Development.** Dennis distributed copies of his PPT, "Bureau of Reclamation GCDAMP Preliminary FY10-11 Budget (**Attachment 7e**). He said the AMWG passed the biennial budget process in 2004 but at the present time it's a rolling 2-year process rather than a strict two-by-two process. In the second year the budget is reviewed and additions made. He said the draft budget the AMWG requested in 2004 was to assess whether or not their priorities were identified and dealt with. They went through a workshop in 2004 and they ranked their priorities and identified any issues the TWG wanted to alert them to, things they were unable to reach resolution on and wanted feedback.

**AIF: Public Outreach Ad Hoc Group (POAHG) Report.** Doug Hendrix distributed copies of the POAHG's progress and gave a corresponding PPT (**Attachment 7f**). He went over POAHG budget for FY2010-11. He reminded the TWG that any products developed are vetted through the AMWG for a full review and approval before they go into operation, either on the website, on display at Glen Canyon Dam, or for public outreach purposes.

Bill Davis said there was an interesting article in the paper this morning about the river washing away and wondered if the POAHG had prepared it. Doug said he wasn't aware of the article. Bill said he was curious that if the POAHG is doing all this really good work, it's disturbing to see an article which undermines what the POAHG is trying to do. Leslie said it was a Park Service article that appeared in the Flagstaff newspaper. Doug said they try to communicate in a consolidated voice on behalf of the program. He said there are times when members have to respond on behalf of their organization. Steve Mietz said the project was funded with Park funds, not AMP funds.

**GCMRC AMP Preliminary Budget.** John Hamill provided a copy his February 13, 2009 memo and spreadsheet (**Attachment 8a**), and said he would give an overview and explain the differences. He said the majority of the budget was developed with the BAHG conference calls. He went through the individual goals and addressed those which required more focus.

**Q:** *Is there a reason why the \$1 million of USGS directed toward overhead does not increase with the CPI? I know originally there was a deal made but as time goes on, that becomes more significant and it seems like within the USGS budget, the capability would be there to increase with the CPI. (Oster)*

**A:** *I would think so and it's an issue we've raised because this pays what we call our cost-share and our cost-share is increasing and the \$1 million isn't enough to cover our needs and part of that is the costs of this program keeps going*

*up and our \$1 million has stayed the same. If there is anything the AMWG can do to bring that issue to the attention of our director, we've brought it their attention but you know how bureaucracies work. (Hamill)*

*Q: Regarding the high flow test synthesis, what do you mean by synthesis? What's in that? (Ostler)*

*A: I think it would take what we've learned out of the last three experiments and try to boil it down into a document that says not just what we learned in 2008 but when you look at three experiments collectively, what's the take-home message about what we've learned and what it implies for future direction of high flows. (Hamill)*

*Q: Does it input predictive tools like modeling so that you could do various scenarios without actually running the test to predict what may happen? (Ostler)*

*A: That's the goal of the integrated flow temperatures sediment modeling project which is separate from that. The preliminary results of that should hopefully be available by the beginning of this fiscal year and there may be ways to integrate some of the output of those models into this synthesis report and maybe this is the appropriate venue to talk about the implications because I think that is clearly within the scope of what we're trying to talk about here. (Hamill)*

*Q: I didn't hear you address the \$1 million short for 2010 that you take some cuts off the original budget? (Barger)*

*A: I guess what you're talking about when we start our budget process, the first thing I ask my program managers is to look at their ongoing projects and look at what they have coming down the road and what commitments are necessary both from what the workplan says we're supposed to produce, what are staff costs are likely to be, and equipment we have to purchase. When we went through that exercise initially, we came up about \$1 million in the hole and so that pretty much took a lot of new starts off the table. We started looking at ways we could save costs to get it back within budget and when we found our proposal to not fund non-native fish control wasn't well received within Reclamation and other places, and so they added it back in and so that was one of the reasons why we have a deficit right now. (Hamill)*

*Q: You mentioned razorback suckers under Goal 3, are you looking for AMP funding or is that something you're going to propose in future budgets? (Mietz)*

*A: No, we're not proposing any money from the AMP to support that. (Hamill)*

**TWG Chair Comments:** Shane said the goal for the TWG is to forward the preliminary budget to AMWG for their consideration. He said there is a preliminary budget motion in the packet that lays out the basics and there has been some discussion about how specific it needs to be with regard to the 22 issues

**BAHG Report (Attachment 8b)** Dennis said the BAHG always goes through a series of conference calls with GCMRC and the BAHG to develop an initial budget. The CRAHG develops their recommendations and provides to the BAHG. The BAHG goes through a very laborious process of line-by-line through the previous year's spreadsheet developing questions for GCMRC and Reclamation to use in their development of the initial draft budget. They also go back through the line items again and having more interaction so that at the end GCMRC understands all the BAHG concerns so that the BAHG can make a recommendation to the TWG. Then the next stage is for the TWG to develop a recommendation for the AMWG. He said what they have in the summary report are the highest level issues, not every question was asked and answered, but they think they're the issues the TWG needs to consider in developing its recommendation.

Shane said there are 22 issues and two additional ones that were included that hadn't gotten fleshed out too much and GCMRC also provided some responses to the questions. Shane said he thought there were three general ways of approaching this: 1) the issues are forwarded to AMWG and ask for their feedback. If the TWG does that, he didn't think they would get anything back that's very specific and it may not be that helpful to their deliberations. So if the TWG gets a workplan from GCMRC during the first week of June, it may not change very much from what the TWG may want it based on their concerns. If that's the case, there is no real time to work with the BAHG to make changes before they have to run it through the system to get it to AMWG. He felt the more specific the TWG could be in providing a recommendation to AMWG, there will be success in getting specific items implemented. 2) The second way requires the TWG to be a more specific in forwarding those items of more concern. Shane said the some of the 22 items are not specific right now and don't have decision points. 3) The third way and Shane's preference is that they be very specific and each of the 22 items or a larger list be put in as a line item motion so that they're very clear exactly what they want to happen. Shane said another concern is the list is very wordy and while it may be appropriate for a BAHG report, it may not be appropriate for something that goes up to the AMWG. He tried to slim them down to the essence of each one and for the ones that he thought did have a decision point the TWG could consider, he put in a draft decision point so they could package something more

appropriate for the AMWG. Dennis said the BAHG did a lot of work and went through a lot of discussions and they don't know if this is the list the TWG thinks is the list. He said he could start by asking if there are additions. Shane said there are two additional pieces of information: 1) more CRAHG report information, and 2) more information on trout numbers that Bill has when the non-native fish control is discussed. Shane said he wanted to ask for additional items from the TWG members before they get started with the review. Cliff disagreed and said the TWG should go with the BAHG's list. Norm said the list didn't capture everything that was discussed. Shane said there were two new issues posed for consideration but they didn't having the funding identified and weren't in the format required, so they were dropped. He asked Norm to propose his two concerns.

Norm Henderson concerns:

1. Inclusion in the budget for an "off the shelf" science plan for HFE. Not to have an HFE necessarily but to have a science plan ready for an HFE as specified by Asst. Secretary Mark Limbaugh.
2. The SCORE report and Knowledge Assessment report to include in the budget as required as specified in the SSP or MRP. Norm said they were done in 2005 and should be done every 5 years.

Other New Issues for Consideration:

**1. GCMRC should develop a research plan to determine effects of varying ramping rates on foodbase and drift, and include this within the foodbase program.**

John said there was nothing in the EA or the BO that the USFWS issued that said they should look at alternate ramping rates as part of the 5-year experiment that they laid out so that was one of the reasons why they didn't explicitly address it as an element of the 5-year plan. Bill Davis said his concern was that they have never looked at drift hour-by-hour. Shane said they have been sampling and the project that Western asked for last year was to sample across that on an hourly basis to get those ramping rates. Shane said this was part of Western's request and they should get a pretty good idea of what's happening around the ramping rates based on those samples, but he said the part that was dropped was the experimentation component that they had asked for to look at the different ramping rates and the effects other than just what was given. Bill said he hasn't seen any information or study plans and that's why he continues to ask the question and this is one of the five operating parameters that continue to not be looked at in terms of experimentation or research. He felt the information being collected could be easily modified and it's not necessarily within the Lees Ferry area, maybe the effect dissipates going further downstream. Shane said this could be put in the list for GCMRC to get back to the TWG with what is currently being done and how it would relate to answering this question and get a better idea of what could be added. With the program ramping down in the next two years, Shane said there will be reports coming out. He has already seen some earlier reports of the relationship of the foodbase items to ramping rates. Bill said he still wants this added to the list. Matthew said GCMRC would make a response.

2. Helen said she responded to one of the concerns about the vegetation. GCMRC is actually going to be doing that in conjunction with the campsite analysis for it and the remote sensing overflight analysis.

Steve Mietz said this was taken care of so this is no longer an issue of concern.

3. Tribal Monitoring Workshop. Amy said this was something discussed for the future but there was no indication of who was going to fund. It's still a year out. Mike Berry said this was discussed recently at a meeting in Flagstaff. The tribes have money to come to that particular workshop and present the results of this year's tribal protocol monitoring. Mike said they would like to have a discussant for that depending on how much money he is able to squirrel away for the Programmatic Agreement funds, otherwise they won't have a discussant. He highly encouraged as many stakeholders to attend those meetings to find out what the tribes are doing and get their perspectives. He said a discussant would be an anthropologist, ethnographer, enthnoscience, whomever they can get. Mike said this would probably be in early FY2010.

4. Mary had three issues: (1) One thing that came up this morning was if the MRP runs out in 2011, would that mean another one wouldn't be amended until 2011 which result in one year without an MRP. John said

they are going to write a new MRP in 2011. John said it doesn't have budget implications so it's not on the list. (2) On one of the calls they talked about some issues and wrote in issue #23 so she has some language: For the 2010-11 workplan, they would like GCMRC to revise the workplan, first that the total USGS burden be identified for each budget line item. The amount of carryover funds be identified for each budget line item. That there would be a crosswalk provided from the 2009 workplan to the 2010-11 workplans so that the TWG can both identify what projects have been bundled in the 2009 budget and un-bundled in the 2010-11 budget so that changes in the budget for each item can be understood. GCMRC identify how and where the cuts were made for a budget shortfall. (3) Mary said that for mechanical removal, Loretta Jackson-Kelly had suggested in one of the tribal consultation discussions that there should be tribal funds to have tribal participation and mechanical removal and it had been talked about in the CRAHG meeting. Matthew said he had talked to Loretta and his current understanding was that they would be willing to receive the remains from fish that are removed from the river but they wanted some additional funding to do that and GCMRC does have money available for them to do that.

5. Bill Persons said in previous work plans, GCMRC and USBR have provided expenditures for previous years so if the TWG had an FY2010 workplan, they could see what had been expended on a project in 09, 08, 07, 06, 05. This was done on a regular basis but he hasn't seen it in a couple of years. He would like to see it in the workplan if possible. It helps to see what's been done for the past five years on a project – what was budgeted and what was spent. They had those discussions when they first started talking about how they wanted budget information presented. Dennis said that information is on the website but they're behind this year because they didn't have the spring meeting. Bill said the value is laying them side by side with each other and then side by side with the proposed budgets for the outyears.

Bill said he saw how they framed the non-native mechanical removal issue or challenge as one of trying to identify projects as management activities or research activities. He said the other issue is some of the projects are mandated compliance activities. He said that is the bigger part of the issue when it comes down to figuring out how to fund these projects. Shane said he didn't want to get into a management action discussion because he doesn't think it's appropriate at this point. He said when they get to that item, it's a compliance issue and that's why Reclamation put it in their portion of the budget. He said the bottom line is that if it has to be funded out of the program this year, so it affects the budget whether it is above or below the line. The longer term issue of management actions is a separate policy discussion.

Norm pointed out that removal of warm water non-native removal isn't in the budget. Shane told him this was pushed into the mainstem trip. John said they didn't put anything in for warm water non-native removal or cold water removal. Norm said he felt it was a high priority and the AMWG needs to know about it. Dennis explained that's why a nonnative contingency fund is being started. He said there is a difference of opinion as to whether this is a science program or whether it's a compliance and science and management program. He said the BAHG asked GCMRC which projects they discontinued and where the money went for mainstem mechanical removal but didn't get a response.

Matthew said he answered that question in multiple meetings but explain again that there are two primary ways to think about where that funding went, number one is salaries so within goal 2 there are primarily three agencies that get funding, USGS, FWS, and AGFD. All those salaries are growing so that's where the FY09 mechanical removal funding went to and the other project was to provide a little more support for the pit tag antennae for that remotely deployed in the LCR to read pit tags in the absence of people to monitor.

Shane said the AMWG approved a two-year rolling budget process at their August 2004 meeting. This is the first year that a two-year budget has been attempted since that approval and developing the budget with two options for a budget process was discussed. First is the rolling budget approved by AMWG that was based on an interest by AMWG members to seek additional funding outside the AMP for unfunded projects. Secondly is a two-year budget that is only modified slightly in year two thus requiring much less effort in the second year saving valuable time and resources to work on other AMP concerns. He felt a motion which stated "TWG recommends that AMWG direct TWG to develop a discussion paper on the pros and cons of

the two budget approaches and respond back to AMWG at their August meeting with an initial review” is required.

Dennis said he thought that was a mischaracterization of the reason for the rolling budget. He said the BAHG talked about the source of trout and if GCMRC is correct and if those trout are coming out of Lees Ferry, that really creates a problem for the program in its goal to manage native fish below the Paria River and trout downstream. He advocated that if there's not solid consideration for identifying whether the trout are emigrating out of Lees Ferry as part of the trout work that's being proposed here, that it be added to the budget. He feels it's an emergency situation. He feels it's becoming a bigger potential problem for the program.

Shane said he thought there would be pit tagging of the trout this year at Lees Ferry and that they might see those pit tags showing up in the mechanical removal program. Andy said they been floy tagging every trout they've come into contact with and that's downstream of Lees Ferry. Upstream of Lees Ferry they've been pit tagging trout in certain sites but then in the other sites they're also giving a floy tag to adult trout as well. He said almost every trout they've handled has been marked in some way. In response to a question from Dennis about the size ranges, Andy said their tagging efforts are geared towards adult fish. Basically, the smallest fish that gets a tag is about 150 millimeters so 6 inches. Dennis said it sounded like only part of the population is getting tagged which might be the most vulnerable so he advocated tagging the smaller size classes to the extent that they're encountered. Bill Persons said a full study plan would be needed before they could start something like that. Dennis said that since they're going to recommend a budget to the AMWG in June, that might be an appropriate time to bring up the issue.

Shane said he would put together a list tonight of the concerns raised today and the TWG could go through them in detail tomorrow.

Adjourned: 5:15 p.m.

**Glen Canyon Dam Technical Work Group Meeting**  
March 16-17, 2009

**Conducting:** Shane Capron, Chairperson

**March 17, 2009**

**Convened:** 8:05 a.m.

**Committee Members/Alternates Present:**

Mary Barger, WAPA  
Cliff Barrett, UAMPS  
Charley Bulletts, Southern Paiute Consortium  
Kerry Christensen, Hualapai Tribe  
William Davis, CREDA  
Jay Groseclose, NM Interstate Stream Comm.  
Norm Henderson, NPS/GCNRA  
Amy Heuslein, BIA  
Rick Johnson, Grand Canyon Trust  
Robert King, UDWR  
Dennis Kubly, USBR

Steve Mietz, NPS/GRNP  
John O'Brien, GCRG  
Don Ostler, UCRC/alternate for Wyoming  
Clayton Palmer, WAPA (alternate)  
Bill Persons, AGFD  
D. Randolph Seaholm, CWCB  
Sam Spiller, USFWS (alternate)  
Mark Steffen, Federation of Fly Fishers  
Bill Werner, ADWR  
Michael Yeatts, the Hopi Tribe  
VACANT, Navajo Natio

**Committee Members Absent:**

Christopher Harris, Colo. River Board of Calif.  
Glen Knowles, USFWS

John Shields, WY State Engineers Office  
Larry Stevens, GCWC

**Interested Persons:**

Matthew Andersen, GCRM/USGS  
Glenn Bennett, USGS/GCMRC  
Mike Berry, USBR  
Jen Dierker, NPS/GRCA  
Helen Fairley, USGS/GCMRC  
David Garrett, Science Advisors  
Pamela Garrett, M<sup>3</sup>Research  
John Hamill, USGS/GCMRC  
Doug Hendrix, USBR

Loretta Jackson-Kelly, Hualapai Tribe  
Leslie James, CREDA  
Andy Makinster, AGFD  
Barbara McKenzie, USGS/GCMRC  
Emily Omana, Grand Canyon Wildlands Council  
Clayton Palmer, WAPA  
Tom Ryan, USBR  
Jason Thiriot, Colo. River Commission of Nevada

**Meeting Recorder:** Linda Whetton, USBR

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**Welcome and Administrative.** The Chairman welcomed the TWG members, alternates, and interested persons. Attendance sheets were distributed.

**Approval of the October 15-16, 2008 Minutes.** The minutes were approved as amended.

**FY2010-11 Budget Discussion.** Shane distributed copies of the FY2010-11 Preliminary Budget Recommendation to the Adaptive Management Program dated March 17, 2009 (**Attachment 9a**). He said he went through what was discussed yesterday and added items 23-31. He suggested the group consider taking off as many items as possible and figure out which ones are the most important. In doing that, he sees two ways off the list for the fate of the items: 1) the group agrees the item is important and GCMRC and BOR agrees to do it and it comes off the list and goes into the minutes; 2) the other way off the list is that there is disagreement about whether an item should be on and the group votes. If there isn't a majority vote on any one item, it doesn't stay on, and then eventually the group votes on the remaining list. Even though most of the items have been discussed by the BAHG, there were two issues on non-native and cultural issues so the group needed to hear from Bill Persons and the CRAHG. Shane clarified that if the

group agrees that an item stays on, they should ask GCMRC and/or BOR if they agree to make the change. If not, then it stays on this list. If they agree, then it comes off the list and stays in the minutes.

Mary Barger said she had e-mailed Shane another item last week but said she didn't see it on the list. Shane said it didn't make it on the list yesterday. She said she wanted it added today so he added #32: The emphasis of the proposed budget is in DASA and sediment; the AMWG should evaluate the prioritization of program areas (to satisfy compliance concerns).

Dennis said he thought Mary was echoing a broader discussion that was held in the BAHG which is what was in the TWG's report to the AMWG at the budget meeting either in April or August and one of the suggestions was to start out with an evaluation of what has the TWG done to address AMWG's priorities, what have they learned to produce that kind of an assessment at the outset to get them to have an exchange with the TWG. He said that it seems too often the TWG produces a report, they don't give the TWG any feedback, and the TWG goes on thinking they're meeting AMWG's needs. He said the group needs to be better about reflecting that. He also said the group starts with the line item budget proposal from BOR and GCMRC but what they don't start with is how do these projects all fit together and what are the linkages. For example, he said he was having a hard time moving to an arthropod monitoring because he can't see the linkages in the terrestrial riparian ecosystem than he can in the aquatic foodbase. It's very clear the fish are the issue and GCMRC is trying to find out whether energy is limiting and without having the birds on the terrestrial side. He couldn't find a high value in that.

Shane said from the list of 22 items, he picked out six high priority items that he feels the TWG should discuss:

1. CPI
4. Non-native removal
6. Whether the treatment plan is capped at \$500K or increased by CPI
7. Unbundling projects
11. The economic study
12. The geomorphological model
16. The cultural program
23. The budget process

He said there were others that came after and the group didn't have time to debate them. He said the entire list could be forwarded to AMWG. Some of the easier items that are potentially resolved, for example #13 and #14. From what he understood from GCMRC was that they generally agreed to try to implement that and work with the group through the workplan. He said some items are just informational and he would highlight those which need specific AMWG attention. Shane said the other way would be for the group to go through all the items and thoroughly discuss them.

#### Discussion:

1. Line 1. Agreement → GCMRC and USBR will work on developing a current estimate for the CPI
2. Line 15. Agreement → BOR will do it. Dennis said there needs to be a footnote that describes there are times when the TWG chair's expenses are covered and other times when they're not just to educate the AMWG on what this means.
3. Line 19. Agreement → Dennis said that compliance needs should be kept in the compliance line but could be increased based on future experimental flow fund needs.
4. Line 24: Action: Take out line 64. Shane said the difference between recommendation 1 and 2 is that recommendation 2 would result in there being two removal trips versus one removal trip under recommendation 1. The would both move non-native back under the GCMRC side of the budget and recommendation 2 would results in two trips versus one trip.

Shane said he would like to Bill Persons to present some current trout data before they continue their deliberations on the budget.

**Sport Fish Stocking Consultation for State of Arizona**. Bill Persons distributed copies of "Preliminary data update on AGFD Mainstem Colorado River fish monitoring" (**Attachment 9b**). He said they had a monitoring trip in the canyon about two weeks ago. Andy Makinster hiked out the data and they worked it up really quickly. He said the last catch per unit on the right represents a pretty good estimate of trout density above the LCR. He said there is a caveat is that the data refers to samples from the Clearwater reach. When they get below the LCR, when its running turbid, the catches go down. Even if the number went from 80 down to 40, they're still way above if they're trying to achieve that 10% of 2003, they're way above the number they're targeting which may be left at the 2006 level.

### **Budget Discussion** (cont).

Shane said they pretty much know that GCMRC doesn't want this back in the GCMRC budget so this is one they won't get agreement from them to implement. He said this would have to stay on the list that goes up to AMWG and the TWG decides how to deal with it. He asked what the group wanted to fund, one trip or two trips. He said GCMRC set aside a contingency fund, 30K, and another \$103K from carryover, so it's likely a second trip could be funded in FY2010. John said his intent was to fund a second trip for this year. Bill said he wasn't sure a second trip could be done just based on logistics. Dennis said that when they get to the AMWG, one of their arguments will be that this is part of a research design that is intended to stabilize non-native fish at a low level so that they're not confounding the result of the improvement or degradation of the humpback chub numbers. He reiterated this is not just a compliance issue if you can hold the non-native trout to a low level, you remove one of the confounding factors in the design. They're pushing this is still research. As such, recommendation #1 goes away and #2 is accepted.

Bill Persons expressed concern about the funding issue in recommendation #2. Shane said that's why he highlighted it because he wasn't sure how to deal with funding with taking bits and pieces. If they come out with a budget that has a different CPI, the budget is going to change. Shane said he thought it should be taken out and tell AMWG they don't know where the money is going to come from but they think the TWG thinks it's a high priority. Shane wanted to know if the group had agreement on two trips. It was decided that this issue needs to go up to the AMWG.

5. Line 74. Shane said this was the larger mainstem discussion. He kept it as a placeholder and thinks it can now go away but will make AMWG aware of the TWG's discussion. Shane also said the BAHG held a larger discussion on this item. Status → This item goes away.

6. Line 31. Canyon Treatment Plan and Implementation. Shane said the question is whether the \$500K should be increased by CPI. He said it was his understanding it was never agreed to that that number would increase with CPI. He said they're already asking that CPI reflect zero or something based on current outlooks. He said it may be more of a policy issue and he'd like this answered so it doesn't come up every year. Status → The group decided to postpone discussion on this and combine with the cultural section.

7. Lines 55, 62, 64, 82. Shane said there were a number of projects that were bundled based on GCMRC's projection that these will be core monitoring projects and they should be bundled. Shane asked if the group will endorse the bundling of those projects at this point or whether they want to hold off to consider them as core monitoring and then decide how to bundle them in the budget process. GCMRC feels they should be bundled because they're going to be core monitoring projects. Matthew said this is specifically in Goal 2 in which there are two areas where the projects are together. There are three Little Colorado River projects that were for the purposes of 2010-11 budget and grouped as a single LCR monitoring project, anticipating GCMRC is going to have to revisit that during the summer of 2009 and coming a few months following the PEP. Similarly for work in the mainstem, the mainstem fish community monitoring together with monitoring for non-natives, they bundled together as a single project expecting they would get recommendations from

the PEP on how to move forward with that. Matthew said it seems a little false to present it as the same projects five projects with the same intent they've been conducting in 2009 knowing that a PEP panel will be giving them more direction. Mary said they CRAHG asked that Helen's monitoring be unbundled (line #114) as well. Norm said the issue for him in bundling is the consolidation of the research questions with the actual monitoring. He feels there is a distinction between core monitoring, actual collection of the data, and the basic status and trends and answering the research questions that are being posed. He thinks they are two separate funding mechanisms. He would like to see separate questions that are being asked so they could have separate reports and updates on how they're doing with those questions for the research questions and separate from that is the core monitoring which would get its status and trends in general. Status → Recommendation is taken away based on agreement with GCMRC not to lose the details of those projects if they push them together, specifically for Goal 2. They'll retain technical information in there that the TWG can follow for each of the projects if they're lumped together. He said he would make this an issue for the AMWG and explain the TWG is concerned about core monitoring and that they haven't had a chance to look at a general core monitoring plan yet. Mary said she doesn't disagree as long as the cultural program can show them as separate tasks with the funding also separate. Helen said a lot of these are R&D projects that require the various pieces to make the whole in the end. John Hamill said they are going to be proposed as core monitoring projects and making the assumption that they will go through the TWG for review and approval.

8. Line 58. Shane said this is just an information item for the AMWG and he will make that point to them. Status → Item removed.

9. Line 77. Status → Item removed.

10. Diamond Creek NASQAN Station. Shane said Bob Hart will be reporting on this later. He said this item is being flagged because we may not be able to get water quality information from this station. Status → Removed until further discussion following Mr. Hart's presentation.

11. Goal 10 (NEW). Shane said this would be a new start for 2010-11. The cost could be around \$150K and take \$116K from line 92. Norm said there wasn't a specific amount as he was leaving that projection up to GCMRC. Members felt it needed more discussion and that a proposal be made and reviewed before a decision could be made. Norm said the reason he suggested the arthropod surveys was because it was a new start and there was an assumed priority for that without consideration of other priorities which may be higher. John Hamill said the proposal should be written up by the agency because it's not GCMRC's job to write proposals. Dennis said he feels a tradeoff analysis should be done and include the Science Advisors to work on this. The group agreed to keep line #19 on the list and gather more information. Status → Remove from the list. Norm will work with GCMRC in preparing a proposal for the June meeting.

Line 19. The TWG is still concerned about the non-market value. Randy said he wants issues to be kept on an equal basis so that the group can measure apples to apples. He says when people get into the non-market issues, it becomes very subjective. Status → Keep on the list.

12. Goal 11 (NEW). Mary said this is related to looking at the HEC-RAS model which was the AMWG motion down to the TWG, down to the CRAHG. The CRAHG did have a recommendation on that but after the CRAHG meeting, there was a discussion that perhaps rather than using the HEC-RAS model they could geomorphological model that could tease out dam operations and facts. The CRAHG agreed to support this as a line item in the budget. Helen said one of the reasons they originally recommended was they got this recommendation from several independent panels which had looked at the program and the way monitoring has been handled in the past. One of the things they really felt strongly about is that it's helpful to have a model in terms of what you expect to see happening so that you can then find out what you think is going on through the results of monitoring. Having this in place would give the program a framework against which they could evaluate their current state of knowledge why the sites are eroding, how fast they're eroding,

under what circumstances they may or may not be eroding, and so forth, and be able to evaluate that against predictive models. Dennis said the treatment plan is funded for five years and so he was curious that at the time the model was developed and functional, where would it be in the treatment of the sites that the model would be used on. He also wondered about GCMRC's response to an additional 2.5% across the board off their budget, particularly if they use their CPI. He asked Helen if someone had explained the geomorphological model development to the full TWG. Helen said no. In that case, Dennis advocated the words be changed from "develop" to "evaluate" and that the TWG be allowed to hear a perspective modeler at its June meeting to help them in their evaluation. John Hamill said he wasn't comfortable that there be clear agreement on what the scope and objectives of this model should be. GCMRC has had a lot of frustration in getting monitoring programs and getting R&D off the ground and there is a lot of contention around that and he doesn't want to be put in a position where they're launching off into another R&D project until they've brought consensus about what this project should achieve, especially with the two management agencies that are responsible for cultural resources fully support what they're about to do. He doesn't feel they're there yet. Mary wants to leave this in but have Shane inform the AMWG in his report. Shane presented a recommendation and asked for a show of support. The majority voted for the recommendation. The following people abstained: Amy Heuslein, Mike Yeatts, and Kerry Christensen. Status → Recommendation: TWG recommends that AMWG direct TWG and GCMRC to develop a general proposal incorporating technical information for a geomorphological model to evaluate dam effects on cultural sites.

13. Line 127. Status → Remove from the list. GCMRC will work with Steve Mietz on this project.

14. Line 128. Status → Remove from the list. GCMRC will work with Steve Mietz on this project.

15. High Flow Experiment. Status → Removed from the list. This will be handled as a policy issue for the AMWG.

16. Cultural Program. Shane said there were three recommendations that came from the CRAHG for additional funding or projects. The following were the most recent changes:

- 1) Line 114: add back in \$70K to the NPS
- 2) NEW: Preservation Treatments, \$36,450
- 3) NEW: Tribal 106 support, \$60K

Shane said he could see two approaches for addressing this program: 1) more information to discuss in June, or 2) make a recommendation to have funding for these items. He asked Mary to address the projects.

1. The CRAHG took a look at this project and decided the \$70K needed to go back to the Park Service to support their part of the program and Jen Dierker is here to answer questions about that.
2. Under the preservation treatments it was felt that right now the \$500K that Mike Berry has is also for treatment but it's for excavation so treatment can also include check-dams, fixing trailing, and all kinds of preservation type treatments. It was felt the program wasn't being responsive to the treatments that occur so that's where it came up that check dam maintenance hasn't been done for years and there is a list of sites that need check dam work. She passed out the proposal the Park Service had put together for that work.
3. Tribal 106 support had an estimate of \$60K that the tribes would participate in the monitoring of archaeological sites in the canyon and the tribes did agree to do this. Mike Berry said the issue is that they are not doing all the components of the treatment plan as it applies. They're concentrating the first two years on data recovery which is terribly expensive and the \$500K gets eaten up very quickly in data recovery. He said the other big issue is the fact that they are not working on the dedicated monitoring program. He said they have a recommendation right now for excavating or data recovery on 54 sites over the next 10 years. Those sites are prioritized in accordance with degree of erosion and significance of sites. The plan was to re-juggle the priority list every year based on monitoring. They have been doing that as

catch-as-catch-can with what the Park Service's overlap is with CRMP and what his consultants can actually do as far as monitoring goes between data recovery trips on the way down the river. It's not the intensity of monitoring those sites that was anticipated in the work plan. It was felt that since the tribes were going up and down the river that they could actually make 106 observations while doing those trips which would give them the cover they need and the feedback for monitoring that is required. They met with the tribes in Flagstaff and after some difficulty in estimating how much this would cost, they came up with essentially extending their current trips for tribal protocol monitoring by three days. They felt that would allow them to do monitoring and filling out CRMP forms from between eight and ten sites each. That would put them back in compliance with the original plan. The SHPO is aware of this and complaining about the fact that they don't have a monitoring plan. He feels the additional stipend to the tribes will not only fulfill Reclamation's 106 responsibility for monitoring, it will also do a lot as far as getting the tribes into the program for getting recognition for what they're doing. It's a win-win situation.

Mary said the CRAHG talked about the CPI and Mike's work and why they're not incrementing the \$95K to the tribes every year, but they didn't come out with a recommendation on either of those.

Shane said he envisioned the bulleted items would be relayed to AMWG and get their feedback because this is an expansion of the cultural program of about \$166K from where the budget is today. The proposal was to go to AMWG and explain the situation, to do some more work this summer, and to come back to the TWG in June with a little more explanation of why the cultural program can't be fully implemented with the money currently funded. He is hopeful they will have some direction from AMWG in the April meeting or the money be used differently. He feels there are some big policy issues that the TWG needs help from the AMWG to resolve.

Shane said there has been some disagreement among the DOI agencies whether the \$70K should be funded by the Park Service. He said an alternate approach is that the TWG put the \$70K back into the budget for the Park Service. He says the \$70K has traditionally been in the budget but was taken out this year. He feels it's an Interior issue and needs to be resolved and then let the TWG know how the issue should be handled. The other items are new projects that require additional funding.

Steve Mietz said he would like the following statement added in: TWG recommends that AMWG direct TWG to develop a final budget recommendation that reinstates the \$70K for the NPS under line 114.

The members voted: : Yes = 7 No = 9 Abstention = 1

Jay asked why it was taken out in the first place. Helen said it was taken out for a couple of reasons, one was they were looking for how they could save some money for the program and because the Park Service last year had brought forth a proposal on how to save the AMP funding by taking on some of these responsibilities internally, they thought this was a good opportunity to see if that was going to take place because of the constraints they were dealing with. The other issue is that it's unclear to GCMRC what the role of the Park Service is in this project at this point and the reason is because the original intent of how they designed the program was they were going to be collaborating with the Park Service on developing protocols to meet a diverse assortment of needs, both within the immediate AMP concept as well as the broader compliance issues that the Park Service and Reclamation deals with. In last year they provided funding to the Park but then the work they were proposing to do for the project never took place and yet the funding was used basically for supporting the CRMP program development and at this point they haven't had discussions with the Park on how the CRMP monitoring efforts and the AMP efforts need to be done in a well coordinated manner. If the Park is going to pursue the development of CRMP monitoring protocols separately, that's great and it's their prerogative to do it but she doesn't think the AMP was signing up to support to a CRMP monitoring separately. They're trying to get clarity on what the Park's role is in this program. Steve said he had many issues with what Helen said. He said the issue on the table right now is that until some of the issues are clarified, does the AMP continue to fund ongoing programs until then. He thinks the prudent thing to do is to fund this and continue to look at the issue.

Shane asked the members to vote on putting the \$70K back in based on Steve's recommendation which reads, "**TWG recommends that AMWG direct TWG to develop a final budget recommendation that reinstates the \$70K for the NPS under line 114.**"

**Voting Results: Yes = 7 No = 9 Abstaining = 1**

**Recommendation passes fails.**

The members voted on the following recommendation: "**Discussion should occur between the Park Service, GCMRC, and Reclamation on the necessity of the \$70K for the National Park Service which was dropped this year from GCMRC's cultural budget, line 114. DOI agencies should discuss and determine who is responsible for that funding and provide a response to the TWG by May 22, 2009.**"

**Voting Results: Yes = 14 No = 1 Abstaining = 0**

**Recommendation passes.**

Dennis said the discussion on the CPI and the treatment plan were deferred for this discussion and said those issues would affect the amount of money that was available for the treatment plan. He said if these are reported as being deficiencies in the treatment plan, then it should be modified to ensure the whole range of responsibilities are covered and not developing a series of add-ons whose connection to the treatment plan isn't clear.

6. Line 31 (cont). Shane read the following: "TWG recommends that AMWG direct TWG to develop a final budget recommendation that does not increase line 31 by CPI and that this be adopted as policy for future budgets." He asked if there was agreement if it should stay at \$500K or if people felt it should be increased by the CPI. Dennis said Mike has an alternative which would be to fund the \$200K that was taken out in the first year and that would cover the additional monitoring. Mike said it would cover his tribal involvement if they were to make their contractor uphold. Shane clarified that this would be an additional \$200K. Shane said the program agreed to the \$500K for the treatment plan. He thinks it should be clarified and that it not be increased by the CPI. However, he feels they also need to deal with the whole issue of underfunding of the cultural program under #16 and that this issue gets fully explained to the AMWG. Mike said the program agreed to fund for \$500K but they only received \$300K for the first year.

Status → Removed from the list. Reclamation will make the change in the budget.

**Diamond Creek Gage Discontinuation**. Dr. Bob Hart (USGS, Water Resources, Arizona Water Science Center). He is in charge of the Flagstaff programs office and recently took over as the scientist in charge of the Flagstaff science center. He has been working on the Colorado River for a lot of years and said he wanted to give a brief overview of their gage that is operated just above Diamond Creek. He proceeded with a PPT, "Colorado River at Diamond Creek" (**Attachment 10**).

*Q: Was your budget specifically cut causing this station to be reduced or just your costs are increasing and the costs won't let it continue? (Ostler)*

*A: It was a flat-funded program so over the years the costs got to be too much. Actually NASQAN went through various redesigns. In the early 1970's the whole program had over 500 stations. Then it was redesigned in the 1980's and the gages were reduced and then when the Natdon Creek site online, that further redesigned the program and they were all related to budget cuts. In 2000, the directed most of the NASQAN funding to the Yukon so we were cut back to a bare minimum. Most of the funding now is going to the Mississippi Basin.(Hart)*

*Q: So your last round of sampling would be the end of this fiscal year? (Ostler)*

*A: Sampling for the NASQAN gage was stopped in September 2007. (Hart)*

*Q: I presume the Arizona water quality folks have a responsibility of assessing the quality of all the waters in the state probably used the data from that gage or by chance are they also sampling? (Ostler)*

*A: To my knowledge they're not sampling at Diamond Creek. We do have a program with the Arizona Dept. of Environmental Quality and they provide funding for the Lees Ferry gage. (Hart)*

*Q: Can you take us through your process and tell us where in the hierarchy these decisions get made so that we know if we want to try and influence that process in the future, where would be effective? (Kubly)*

*A: NASQAN and other national programs are managed out of our office of water quality in Reston, Virginia. The office of water quality make the decisions about the funding. (Hart)*

## **Budget Discussion (cont.)**

10. Diamond Creek NASQAN Station. Shane asked the TWG how they wanted to deal with this issue since hearing Dr. Hart's presentation. Jay said in his dealings with other organizations, they've addressed USGS' cutbacks and the need for the USGS to focus on its primary responsibility of basic data collection which seems to be the first thing they ignore. He feels some recommendation needs to come out of AMWG to the Secretary of the Interior to focus on needs of basic data collection. Dennis asked John what he thought the cost would be for picking up the trips. Shane said it would be about seven trips per year at approximately \$47K for the year.

Status → Remove from the list. The TWG needs to talk more about the data being collected before it can send anything to the AMWG. Shane will bring up the TWG's concerns to the AMWG.

John passed out copies of the "Final Report of the Protocol Evaluation Panel for the GCMRC Integrated Water Quality Program" (**Attachment 11**).

16. Cultural Program (cont.) Shane said they had two more items to discuss. He said rather than implementing the money for the check dam program, the preservation treatments, and new tribal 106 support, he would make the AMWG aware of the issues and the TWG would do more work this summer to figure out and explain why they can't fund with the current funding and that they need more money.

Status → Shane will report to the AMWG.

17. General Core Monitoring. Shane suggested dropping #7 and accepting #17 because it's better written.

Status → TWG Chair has the discretion to drop #7 and/or combine 7 and 17.

Norm asked how he thought the best way would be present the TWG's concerns to the AMWG. Shane said he drafted the following statement: "TWG recommends that the issues of concern be resolved and either incorporated into the budget or documented in writing why such is not appropriate. TWG requests either AMWG concurrence with the TWG recommendations on the issues of concern or further direction. High priority or controversial issues have specific recommendations included."

**TWG Meeting Schedule**. Shane said he would like to have a meeting toward the end of June and again in October. He said there are a lot of things to do which may also require some conference calls. John Hamill and Dennis Kubly said they both wouldn't be available on June 29-30 as Shane had proposed, so it was decided to hold the meeting on June 22-23.

**AIF: River Stage and Archaeological Sites** (**Attachment 12a**). Mary passed out several documents:

**Attachment 12b**: An Evaluation of Selected Erosion Factors on Grand Canyon Archaeological Sites

**Attachment 12c**: Hoda's Sondossi's "Potential of Glen Canyon Releases to Inundate Cultural Sites in Grand Canyon National Park: A GIS Analysis Using Modeled Virtual Shorelines, and Canyon-Wide Topographic Data" **PPT**

**Attachment 12d**: CRAHG recommendations for 2010-11

**Attachment 12e**: The Cultural Resources Ad Hoc Group's Report to the Technical Work Group Regarding the Hydrologic Engineering Centers River Analysis System (HEC-RAS) Model's Applicability to Archaeological Sites

**Attachment 12f**: Geoarchaeological investigations and an archaeological treatment plan for 151 sites in Grand Canyon, Arizona. Treatment plan implementation, including checkdam installation and maintenance at the recommended sites.

**Attachment 12g**: Expanding the Tribal Monitoring Role for the Glen Canyon Dam Adaptive Management Program

Mary reminded the TWG that at the last AMWG meeting there was a motion for the TWG to review the flow levels as indicated by the currently available shorelines of the HEC-RAS model associated with each of the 158 archaeological sites that were identified for monitoring and/or mitigation of impacts and to report the information and any recommendations with regard to how the data would fit into the process of making

choices of sites to be monitored and are impacts mitigated to the AMWG at its next meeting with the provision that any recommendation will not alter the choice of sites selected for impact mitigation in 2009. She said the HEC-RAS model is the flow line model that shows where flow lines are in Grand Canyon. It was peer reviewed and published and there were a series of flow lines that were run and made available so they chose to use those rather than run any new model flow lines. It ran flow lines of 25, 45, 97, 125, 170, and 210K cfs. Hoda ran the model against those sites and actually ran them against 232 sites that are proposed for monitoring and/or mitigation. She said some of the overheads have some of the data that came out of that effort. She said related to that sites up to 60,000 cfs have been mitigated so they're done with all the sites that are up to 60,000 cfs. The flows in Grand Canyon run up 45,000 cfs and historically they've run up as high as 95,000 cfs when they ran an earlier test in 1983. She said Mike Berry decided to run a model of an evaluation to look at what are the factors that affect condition of sites in Grand Canyon because condition was the decision cutoff of information potential in an archaeological sense as well as condition of sites to determine treatment. The results of that statistical model is that it wasn't a significant factor in determining condition, that it didn't seem to make any difference as to what the flow is and to the condition of the site. The CRAHG took a look at Mike's model and Hoda's presentation and discussed what should be done and there wasn't agreement on what should be done with the data because the intent was how would you use that information to decide which sites should be excavated or treated for other reasons as well as monitoring. They came up with a motion (printed on the AIF) and said the HEC-RAS model probably has some utility because it does a good job of virtual shorelines. She said some of the sites are pretty good sized because they may be on bench that slopes and that site could be a 97,000 cfs and 125,000 cfs, etc., so many of the sites lie within multiple flow lines. She said there is an error with the HEC-RAS model and it varies but it goes from .4 meters to 1.5 meters at the upper level. She said some of the error bars appear on Hoda's document.

Mike Berry said there were two classes of highest erosion versus the three classes of lowest erosion so they had two dependent variables. They used the interval scale of variables on the Park Service database which was river mile elevation, distance from the river and slope, along with the HEC-RAS. For the HEC-RAS, they used a minimum inundation level for each individual site as considered. The analysis was not robust in whole; it did not explain a great deal though it did correctly classify 77% on reclassification statistics. The HEC-RAS was the least discriminating of the five variables considered. After discussing this with Reclamation staff, they would like to work their way back up from the bottom, the bathtub ring, as they determine which sites will be excavated in any given year. They still don't know what causes erosion of the sites but will use the HEC-RAS model as one of the criteria to determine which sites will be excavated in any given year. Mary said that WAPA feels the HEC-RAS model should be used to the decision related to sites in terms of prioritization and monitoring based on their location in the canyon and flow lines. The CRAHG was not able to make a definitive decision on how best that should be used. It basically says another look should be done in detail.

Helen said if there were time she would've like to have talked about the limitations but said in a PPT she passed around, "Analysis of Virtual Shorelines in Relation to Archaeological Sites in the Colorado River Ecosystem" (**Attachment 13**), it contains concerns about using such a simplistic approach to assess dam effects. She directed the members to the diagram on page 3 which depicts some sites in the second graph that suggests there are sites that are well above the 210,000 cfs line. They have similar situations as shown in the diagram where there are sites up on a terrace and because the GIS analyzes the surface of the sites relative to some point of inundation, it won't show effects from lower flows. She feels that's an important caveat to keep in mind but also said there could be a reverse scenario where there is a site actually up on the terrace surface and isn't being effected directly and may be showing inundation when, in fact, there is very little of it.

**MOTION** (Proposed by Mary Barger, seconded by Randy Seaholm): The TWG recommends to the AMWG that the existing virtual shorelines generated by the HEC-RAS model are good predictors of river stage and are reliable predictors of the inundation of archaeological site surfaces. However, river stage is not the only consideration employed for determining which archaeological sites need to be treated. Other proximate, secondary, and tertiary causes must be considered in determining archaeological site condition and the need for treatment. Additional modeling is necessary to evaluate which combination of variables has the most explanatory value in assessing current site condition. The current monitoring and treatment of archaeological sites should continue while the utility of alternative (i.e., geomorphological) models is investigated.

Representative	Stakeholder Entity	Vote	Representative	Stakeholder Entity	Vote
<b>Bill Persons /</b> Andy Mankinster	Arizona Game & Fish Dept.	Y	Rick Johnson / Nikolai Lash	Grand Canyon Trust	Absent
<b>Amy Heuslein /</b> Garry Cantley	Bureau of Indian Affairs	Y	Larry Stevens	Grand Canyons Wildlands Council	Absent
Dennis Kubly	Bureau of Reclamation	Abstain	Mark Steffen / Tim Steffen	Federation of Fly Fishers	Absent
Mike Yeatts	Hopi Tribe	Y	<b>John O'Brien /</b> Andre Potochnik	Grand Canyon River Guides	Y
Kerry Christensen	Hualapai Tribe	Absent	Bill Werner	State of Arizona	Y
Steve Mietz	National Park Service – Grand Canyon	Abstain	Christopher Harris	State of California	Absent
<b>Norm Henderson /</b> Chris Kincaid	NPS-GLNRA	N	Randy Seaholm	State of Colorado	Y
VACANT	Navajo Nation	Vacant	McClain Peterson / Jason Thriot	Nevada	
VACANT	Pueblo of Zuni	Vacant	<b>Jay Groseclose /</b> Don Ostler	State of New Mexico	Y
VACANT	San Juan Southern Paiute	Vacant	Robert King	State of Utah	Y
<b>Charley Bullets /</b> LeAnn Skrzynski	Southern Paiute Consortium	Vacant	John Shields / <b>Don Ostler</b>	State of Wyoming	Y
Glen Knowles <b>Sam Spiller</b>	U.S. Fish & Wildlife Service	Abstain	Bill Davis	CREDA	Y
<b>Mary Barger /</b> Clayton Palmer	Western Area Power Admin.	Y	Cliff Barrett	UAMPS	Y
			<b>Total Yes</b>		<b>12</b>
			<b>Total No</b>		<b>1</b>
			<b>Total Abstain</b>		<b>3</b>
			<b>Total Voting</b>		<b>13</b>
			<b>Motion Passes</b>		

**AIF: Management Actions (Attachment 14).** Shane said he realizes that people would like to have a lot of discussion but there isn't enough time today. He's aware of the concerns surrounding non-native fish, mechanical removal, and the issue of how this program transitions from science to management actions, how that process is done, who agrees to it, how the AMP works, and how pays for these things and how will it influence the AMP program. He said he talked with John Hamill, Dennis Kubly, and Dave Garrett and they split this out of the two major issues, 1) the technical side which is what determines a management is. The Science Advisors have been asked to prepare a discussion paper for the TWG that helps them understand the technical side and this would be the first action: "Action 1: 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).

Shane said the second action has to deal with the policy aspect of management actions so they're basically asking the AMWG to look at this item and how they would like the TWG to proceed. He read Action 2: "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.” Shane cautioned the members there was limited time for discussion on this item.

John said he and Shane saw this as having two components, how to other programs around the country deal with transitioning from science into management, where are some examples they can bring to the table, what’s the literature on adaptive management say about moving from a research framework into a management framework. They don’t want to get the SAs involved in legal, institutional, and policy issues so they separated out of this part two which was to look at the legal, management, and policy framework.

Dr. Garrett said that managers have separate protocols of what they consider management actions. He said the SAs plan was to go get as much information as possible from other adaptive management programs and see if any of them fit and if any of the information can apply to your needs. It wasn’t a situation whether they were trying to get individual agency definitions on what a management action is here. It wasn’t when and what situations does science and managers and other applications feel that you’re at a point of transfer.

Comments:

- *On the first action, I want it to be a little more inclusive of the management agencies that are tasked with compliance activities in this process so I propose changing the words to “TWG Chair, TWG co-chair, NPS, and BOR, and the chief of GCMRC.” (Mietz)*
- *It would help if there were more clarity to develop a report on management actions, consider moving from research to management actions and including compliance activities as management actions. (Persons)*
- *What are the management actions? We’ve been avoiding this for three years. (Kubly)*
- *Would like to have an advisory group representing management agencies and tribes should be made available to support the work of this group. Also, want to be in compliance with the GCPA. (Spiller)*
- *GCMRC is being asked to make cuts in their program without even knowing what a management action is. (Hamill)*
- *We’ve waited too long to get this work done. (Kubly)*
- *On the second action, I want compliance with the GCPA. (Spiller)*
- *Maybe we back up and have the first sentence say “request the science advisors develop a survey report on the transition from research to management actions from other programs” and proceed from there. (Groseclose)*
- *Concur with Jay. I think we’re just asking for a benchmarking project to help us provide some input. It doesn’t provide any threat to any of the management agencies. That’s a good place to start. (Ostler)*
- *If we don’t define a management action for the science advisors, then they’re going to have to do that before they can do that report. (Henderson)*

Shane asked if anyone was willing to make the motions. If not, he wanted to get back to the budget discussion.

**MOTION:** (Proposed by Cliff Barrett, Seconded by Bill Werner): 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.  
**Voting Results: Passed by consensus.**

**MOTION:** (Proposed by Cliff Barrett, Seconded by Bill Werner): 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).					
Representative	Stakeholder Entity	Vote	Representative	Stakeholder Entity	Vote
Bill Persons/ Andy Makinster	Arizona Game & Fish Dept.	Y	Rick Johnson / Nikolai Lash	Grand Canyon Trust	Absent
Amy Heuslein / Garry Cantley	Bureau of Indian Affairs	Abstain	Larry Stevens	Grand Canyon Wildlands Council	Absent
Dennis Kubly	Bureau of Reclamation	Abstain	Mark Steffen / Tim Steffen	Federation of Fly Fishers/ Northern Arizona Flycasters	Absent
Mike Yeatts	Hopi Tribe	Y	John O' Brien / Andre Potochnik	Grand Canyon River Guides	Y
Kerry Christensen	Hualapai Tribe	Absent	Bill Werner	Arizona	Y
Steve Mietz	National Park Service – Grand Canyon	N	Christopher Harris	California	Absent
Norm Henderson / Chris Kincaid	National Park Service – GLNRA	N	Randy Seaholm	Colorado	Y
VACANT	Navajo Nation	Vacant	McClain Peterson / Jason Thiriot	Nevada	
VACANT	Pueblo of Zuni	Vacant	Jay Groseclose / Don Ostler	New Mexico	Y
VACANT	San Juan Southern Paiute Tribe	Vacant	Robert King	State of Utah	Y
Charley Bullets / LeAnn Skrzynski	Southern Paiute Consortium	Absent	John Shields / Don Ostler	Wyoming	Y
Glen Knowles / Sam Spiller	U.S. Fish and Wildlife Service	N	Bill Davis	CREDA	Y
Mary Barger / Clayton Palmer	Western Area Power Administration (DOE)	Y	Cliff Barrett	UAMPS	Y
				<b>Total Yes</b>	<b>11</b>
				<b>Total No</b>	<b>3</b>
				<b>Total Abstain</b>	<b>2</b>
				<b>Total Voting</b>	<b>14</b>
				<b>Motion Passes</b>	

Budget Discussion (cont.)

18. General comment on the work plan. Status → Issue stays in.
19. General comment on Goal 19. Status → Issue stays in.
20. Line 74. Status → Removed from the list. GCMRC's response will be included in report to the AMWG.
21. Line 71. Status → Removed from the list with the expectation GCMRC will provide a written response.
22. General comment on accounting. Status → This issue stays in.
23. General comment on the budget process. Status → This issue stays in.
24. Goal 1 (NEW). Matthew said they are tasked with developing a science plan for nearshore ecology fall steady flows that includes a foodbase component. He recommends that be completed so the TWG can review to determine if it addresses this item. Bill Davis said that under the extent that GCMRC can do it under the MLFF and the steady flows, they would study varying ramping rates.  
Status → This issue comes off until the TWG reviews GCMRC's report.
25. Goal 8 (NEW). There was disagreement on whether to keep this on the list. The group voted on whether to keep it on the list. Voting results: Yes = 8 No = 7 Abstention = 0
26. Goal 12 (NEW). There was disagreement on whether to keep this on the list. The group voted for 6 to keep it on the list and 8 to take it off the list.  
Status → This issue comes off the list.
27. Historical expenditures. Shane said he thought there was agreement from GCMRC to do this. John said providing the information isn't as straightforward as the group might desire. Bill Persons said AGFD does their planning on a 5-year cycle. The group decided on three years. Dennis reminded the group that the AMWG already gets annual expenditures report.  
Status → This issue stays on the list.

28. Goal 2 (NEW), Warm water NN control. Matthew couldn't estimate how much the project would cost. John said this would also bring in a whole discussion on management actions. Several members stated that AMWG needs to be aware of this program. Norm said this project has been identified for years as being a high priority issue. Dennis said there is already a contingency plan above the line but it could be used for warm or cold water. Shane said the TWG needs to let AMWG know this is for FY2011 and it will need to be funded. Status → This issue stays in as written.

29. Goal 2 (NEW), develop trout research plan. The group felt new language needed to be added regarding trout research. Dennis said the new language should include a consideration to specifically target fish being tagged. Status → This issue stays in as rewritten.

30. Budget general, GCMRC disclosing total burden. Mary said she didn't see the \$1 million for USGS. Barbara McKenzie said she used last year's template and so it doesn't appear in this version. It was an oversight on her part, however, it is not adding \$1 million to the budget, it is reducing the burden on the gross numbers which is really buying more science. She will add that line in as has been done in the past. Status → This issue stays in.

31. Budget general, GCMRC shortfall cuts. John said he would give some additional information about how the original \$1M was changed. Shane said he thought it was going beyond what the TWG should expect from GCMRC. He said there are a lot of fixed costs that keep increasing and that's what the TWG needs to address. Mary said when she added this issue it was she was looking at what projects might have been delayed, put off, or reduced but not overhead charges or salaries. She sees it as a prioritization issue where the AMWG could look and see what projects need to go back in should a project get canceled. John said the TWG already has enough issues to deal with and if they go to this level of detail, it will require more meetings. John said that any project that was in existence in FY09 and discontinued in FY10 was shown in the workplan as a zero item. He said the TWG could look at the FY09 and FY10 funding level was and compare them to see if they were increased or decreased, or increased simply by the CPI. He said if something was pulled out of the budget, GCMRC showed it.

Status → This issue is removed. The TWG will work with GCMRC to better understand how projects may have changed in relation to the budget cap.

32. Emphasis in budget is on DASA. Bill Persons said he sees the budget focused on sediment and wondered if this is an accurate interpretation of the budget. John said the four top priorities are fish, sediment, program management, and DASA. Mary said a lot of the sediment is buried in quality of water so that elevates where sediment really resides. Shane suggested the AMWG should re-evaluate the prioritization of program areas in order to accommodate compliance issues.

Shane said based on the changes made there is a draft motion. He asked if anyone wanted to make a motion that packages this process.

Without a quorum present, it was decided to hold a conference call to vote on the budget.

Sport Fish Stocking Consultation for the State of Arizona (follow-up). Dennis asking about the stocking activities as there is no proposal for Lees Ferry information for the program. Bill Persons said they are currently in consultation on this issue and didn't feel comfortable talking about. Bill said AGFD has a website for people to read more about what they're doing and once NEPA is completed, he'd be able to share more information with the group. Dennis asked if AGFD would be willing to make a presentation at the next AMWG meeting. Bill offered to talk privately with Dennis.

**Adjourned:** 3 p.m.

DOCUMENTS MOVED OFF AGENDA AND/OR NOT OFFICIALLY PRESENTED		
15	AIF: TWG Meeting and Workplan	Shane Capron
16	AIF: Ad Hoc Group Review/Dissolution of Groups and PPT	Shane Capron
17	PAPER: Effects of Hydropeaking on Nearshore Habitat Use and Growth of Age-0 Rainbow Trout in a Large Regulated River written by Josh Korman and Steve Campana	
18	PAPER: Effects of Fish Size, Habitat, Flow, and Density on Capture Probabilities of Age-0 Rainbow Trout	

	Estimated from Electrofishing at Discrete Sites in a Large River written by Josh Korman, et. al	
19	Transmittal of Report from AGFD to GCMRC, Subj: Distribution and Prevalence of Parasites of Fishes in the Colorado River and Selected Tributaries in Grand Canyon, Arizona Final Report 2008	Bill Persons

**Glen Canyon Dam Technical Work Group Conference Call**  
 March 24, 2009

**Conducting:** Shane Capron, Chairperson

**Convened:** 9 a.m.

**Committee Members/Alternates Present:**

Mary Barger, WAPA  
 Cliff Barrett, UAMPS  
 Kerry Christensen, Hualapai Tribe  
 William Davis, CREDA  
 Jay Groseclose, NM Interstate Stream Comm.  
 Christopher Harris, Colo. River Board of Calif.  
 Amy Heuslein, BIA  
 Robert King, UDWR  
 Dennis Kubly, USBR

Steve Mietz, NPS/GRNP  
 John O'Brien, GCRG  
 Don Ostler, UCRC  
 Bill Persons, AGFD  
 D. Randolph Seaholm, CWCB  
 Bill Werner, ADWR  
 Michael Yeatts, the Hopi Tribe  
 VACANT, Navajo Nation

**Committee Members Absent:**

Charley Bullets, Southern Paiute Consortium  
 Norm Henderson, NPS/GCNRA  
 Rick Johnson, Grand Canyon Trust  
 Glen Knowles, USFWS

John Shields, WY State Engineers Office  
 Mark Steffen, Federation of Fly Fishers  
 Larry Stevens, GCWC

**Interested Persons:**

Matthew Andersen, GCRM/USGS  
 Mike Berry, USBR  
 Helen Fairley, USGS/GCMRC  
 David Garrett, Science Advisors

John Hamill, USGS/GCMRC  
 Barbara McKenzie, USGS/GCMRC  
 Tom Ryan, USBR

**Meeting Recorder:** Linda Whetton, USBR

Shane Capron welcomed the members to the conference call. Since a quorum (16 members) wasn't established as yet, it was decided to have Dr. Dave Garrett make the two presentations he wasn't able to do at the TWG Meeting on March 16-17.

Science Advisors' Staffing Report. Dr. Garrett went over the report, "Strategy for Science Advisor Areas of Expertise to Respond to Emphasis Areas of the GCDAMP; 2009-2013" (**Attachment 20**). He said the following disciplines were proposed for permanent and part-time contracts for the 2009/2013 program period:

Full Time Disciplines	Part Time Disciplines
1. <u>Geomorphologist</u> ; systems and modeling experience (currently, Dr. Ellen Wohl)	Cultural Resource Specialist; <sup>2</sup> , Anthropology
2. <u>Fish Ecologist</u> ; systems and modeling experience (currently, Dr. James Kitchell)	Cultural Resource Specialist; <sup>2</sup> , Field Archeology
3. <u>Adaptive Management Specialist</u> ; systems and modeling experience (currently, Dr. Lance Gunderson)	Remote Sensing Specialist; <sup>2</sup> ; aquatic and terrestrial experience

4. <u>System Ecologist</u> ; <sup>1</sup> riverine and riparian systems experience; modeling expertise	Data Base Management System Specialist; <sup>2</sup>
5. <u>Aquatic Ecologist</u> ; <sup>1</sup> fresh water riverine systems experience	Natural Resource Economist; <sup>2</sup> terrestrial and aquatic system experience; modeling experience
6. <u>System Analyst</u> ; <sup>1</sup> experience with remotely sensed and large multiresource sample designs and multivariate analysis procedures	
<sup>1</sup> Disciplines for potential full time SA nominations.	
<sup>2</sup> Disciplines where reviewers are intermittently selected from a pool of qualified experts for specific tasks.	

- *Mary Barger stressed the importance of having a cultural and compliance person who knows a lot about those particular and the person should be full-time. Dave said last year there was some confusion with the science advisor contracts. John Hamill added that the work by the SAs was put on hiatus for a period of time in order to competitively compete Dave’s contract. Dave said r. Dale’s contract was not renewed.*
- *Mike Yeatts expressed his concern about the departure of Dr. Dale and that someone is really needed to oversee the treatment plan, GCMRC, and facilitate better integration with tribal monitoring with the overall monitoring program.*
- *John O’Brien said it was important to have someone well educated in recreational issues and possess the expertise needed to serve in this capacity. He thought the Natural Resource Economist might fulfill this need. Clayton said WAPA supports adding economics of recreation and integrating recreation into the full body of work as outlined in an “Options” report done by GCMRC in 2006.*
- *Don questioned if there would be increased costs. Dave said he needs to sit down with GCMRC staff as they’re trying to respond to a systems approach program. He anticipates the costs will go up. John Hamill said \$180K (line 140) is programmed for 2010 and \$224K in 2011.*

When asked if Dave was willing to make changes to the contract, he said the cultural contract may need to be more robust. However, he is trying to hold the budget to \$195-200K. He said there are at least eight reviews this year which will require a lot of time.

**Results of Science Advisors/GCMRC Meeting with Carl Walters.** Dave referenced his PPT, “Key Discussion Points from Meeting of GCMRC and its Senior Ecologist with Science Advisors on Ecosystem Approaches in Science” (**Attachment 21**). Dave said some of the key issues they discussed were how to improve scientific approaches, full integration of the Lake Powell and downstream water quality monitoring programs, improved science integration, tourism, critical need for remote sensing, etc.

**TWG Budget Discussion:** A quorum was established and Shane directed the members to the draft motion he prepared. The group felt #10 could be moved to the resolved list as Matthew Andersen had indicated at the meeting that GCMRC would incorporate the work needed. Shane asked if there was consensus on the motion. Steve Mietz said he didn’t feel the motion covered his concerns regarding the CRAHG recommendations. With that, Shane asked for a roll call vote:

**MOTION** proposed by: Bill Werner: TWG has reviewed the preliminary FY 2010-11 biennial budget provided by GCMRC and BOR and is forwarding that budget to AMWG along with a list of concerns for AMWG consideration and feedback. This recommendation is based on the Budget Development Process approved by AMWG at their August 2004 meeting. The TWG will work with GCMRC and BOR to develop a final budget recommendation for FY 2010-11 and a proposed workplan over the summer; incorporating AMWG input on the “issues of concern”, further considerations based on the draft workplan (provided by GCMRC before June 8, 2009), and other considerations.

TWG recommends the annual operations hydrograph for FY 10 and 11 water years be MLFF with fall steady flows in September and October.

TWG recommends that the “Issues of Concern” (**attached below**) be resolved and either incorporated into the budget

or documented in writing why such is not appropriate. TWG requests either AMWG concurrence with the TWG recommendations on the “Issues of Concern” or further direction.

Representative	Stakeholder Entity	Vote	Representative	Stakeholder Entity	Vote
<b>Bill Persons</b> Andy Mankinster	Arizona Game & Fish Dept.	Y	Rick Johnson	Grand Canyon Trust	absent
Amy Heuslein	Bureau of Indian Affairs	Y	Larry Stevens	Gr. Canyons Wildlands Council	absent
Dennis Kubly	Bureau of Reclamation	Y	Mark Steffen	Federation of Fly Fishers	absent
Mike Yeatts	Hopi Tribe	Y	John O'Brien	Grand Canyon River Guides	Y
Kerry Christensen	Hualapai Tribe	Y	Bill Werner	State of Arizona	Y
Steve Mietz	NPS-GRCA	N	Christopher Harris	State of California	Y
Norm Henderson	NPS-GLNRA	absent	Randy Seaholm	State of Colorado	Y
VACANT	Navajo Nation	vacant	Vacant	State of Nevada	vacant
VACANT	Pueblo of Zuni	vacant	Jay Groseclose	State of New Mexico	Y
VACANT	San Juan Southern Paiute	vacant	Robert King	State of Utah	Y
Charley Bullets	Southern Paiute Consortium	absent	Don Ostler	State of Wyoming	Y
Glen Knowles	U.S. Fish & Wildlife Service	absent	Bill Davis	CREDA	Y
Mary Barger	Western Area Power Admin.	Y	Cliff Barrett	UAMPS	Y
			<b>Total Yes</b>		<b>15</b>
			<b>Total No</b>		<b>1</b>
			<b>Total Abstain</b>		<b>0</b>
			<b>Total Voting</b>		<b>16</b>
			<b>Motion Passes</b>		

**FY 2010-11 Preliminary Budget Recommendation to the Adaptive Management Work Group  
 March 20, 2009**

**DRAFT MOTION:** TWG has reviewed the preliminary FY 2010-11 biennial budget provided by GCMRC and BOR and is forwarding that budget to AMWG along with a list of concerns for AMWG consideration and feedback. This recommendation is based on the Budget Development Process approved by AMWG at their August 2004 meeting. The TWG will work with GCMRC and BOR to develop a final budget recommendation for FY 2010-11 and a proposed workplan over the summer; incorporating AMWG input on the “issues of concern”, further considerations based on the draft workplan (provided by GCMRC before June 8, 2009), and other considerations.

TWG recommends the annual operations hydrograph for FY 10 and 11 water years be MLFF with fall steady flows in September and October.

TWG recommends that the “Issues of Concern” be resolved and either incorporated into the budget or documented in writing why such is not appropriate. TWG requests either AMWG concurrence with the TWG recommendations on the “Issues of Concern” or further direction.

**Issues of Concern:**

1. Line 24: Mainstem Non-native Mechanical Removal. BOR has placed funding for this project in their portion of the FY 2010-11 budget in response to GCMRC removing this project from their proposed budget (see line 74). The TWG believes that since this activity was included in the conservation measures within the 2008 Biological Opinion that it must be funded and carried out in 2010 and 2011 and should be carried out by GCMRC.

**Recommendation:** TWG recommends that AMWG direct TWG to develop a final budget recommendation that moves the funding for “Mainstem Non-native Mechanical Removal” back to line 74 under the GCMRC budget and that GCMRC add an additional removal trip. The resulting cost would be about \$300,000.

2. Goal 11 (NEW): GCMRC should develop a general proposal for a project that would develop a geomorphological model to evaluate dam effects on cultural sites.

**Recommendation:** TWG recommends that AMWG direct TWG and GCMRC to develop a general proposal incorporating technical information for a geomorphological model to evaluate dam effects on cultural sites.

3. Cultural program: three proposals for additional projects were requested by the CRAHG with no specific funding source provided: (a) Line 114, add back in \$70k to the NPS, (b) NEW: Preservation Treatments, about \$36,450, and (c) NEW: Tribal 106 support of about \$60k. These projects are considered by the CRAHG to be important for the support and implementation of management actions/compliance under Section 106. These activities are described in the BOR treatment plan, but are currently not being fully carried out. CRAHG is concerned that this year's treatment plan is primarily an excavation/data recovery plan and that other important components of the treatment plan are not being implemented with the funding currently available. Further, it may be that the \$500k per year generally agreed to by AMWG for treatment of these sites may not be sufficient and further work at each of the treated sites is possible.

**Recommendation:** TWG recommends that AMWG direct TWG to work with the CRAHG, GCMRC, and BOR to determine the following before proposing a final budget:

- Provide an explanation of current funding line items (more explicit description of accounting) and how they relate to the treatment plan and necessary compliance, including lines: 23, 31, 114, and relevant portions of lines 39-43.
- Describe why the treatment plan cannot be fully implemented using the current line items described above, specifically the \$500k allocated in line 3 and ~ \$165k in line 23.
- Discussions should occur between the NPS/GCMRC/BOR on the necessity of the \$70k for the NPS which was dropped this year from GCMRC's cultural budget (line 114). DOI agencies should discuss this and determine who is responsible for that funding and provide a response to the TWG by May 22. The TWG voted to recommend returning this funding to line 114 but it failed.

4. General comment on core monitoring: the budget assumes that we will have moved forward on core monitoring for a number of Goals under the AMP. Although this is reasonable to consider TWG believes it is premature. TWG will begin to consider the General Core Monitoring Plan this summer and from there will have a better idea what may constitute core monitoring. TWG should, within the core monitoring discussion, evaluate cost-effectiveness of current monitoring programs (precision, accuracy, cost trade-offs). GCMRC is planning a core monitoring workshop before the next TWG meeting to discuss the draft plan.

5. General comment on the workplan. TWG is looking for additional clarity in the workplan on staff funding including a current organizational chart. TWG requests the following: (a) that staff time for individual projects be allocated under those projects, (b) time be allocated in the workplan such that a substantial amount of time, about 20%, is allocated to writing reports and publications, and (c) any new staff additions or deletions be clearly outlined in the budget introduction and appropriate projects.

6. General comment on Goal 10. There is a lack of economic analysis capacity in the program to evaluate trade-offs or other economic concerns. Additional capacity should be considered. Unknown funding needs at this time.

7. Line 74: Priorities and funding under Goal 2. GCMRC should provide an explanation of where funding used in FY 2009 for Mainstem Non-native Mechanical Removal has been reallocated within the program.

**GCMRC response:** There are two primary budget items that received the money previously allocated for the mainstem removal project:

1. The salaries at USFWS, AZGFD, and USGS are only going up each year. GCMRC always receives requests for more funding for salaries from the cooperators each year, and USGS salaries also increase.
2. An additional \$25,000 was provided for the remote PIT tag project in 2010 to provide for more equipment and the expertise to install it. This project has, to date, received broad support from the fish cooperators (primarily FWS, AZGFD, GCMRC, and BOR) because of its potential to reduce personnel costs in the future to get the same, or even more, data on the tagged fish (primarily HBC) that use the LCR.

8. General comment on accounting. Currently, BOR does not have adequate staff resources to track reports due by GCMRC from the workplan. Thus, there is inadequate tracking of deliverables by the AMP for projects funded by BOR funds. BOR should investigate options to provide staff resources in tracking reports.

9. General comment on the budget process. AMWG approved a two-year rolling budget process at their August 2004 meeting. This is the first year that a two year budget has been attempted since that approval. In developing this budget, two options for a budget process were discussed. First, is the rolling budget approved by AMWG in 2004. Second, is a two-year budget that would only be modified slightly in year two, thus requiring much less effort in the second year. This could save valuable time and resources to work on other AMP concerns.

**Recommendation:** TWG recommends that AMWG direct TWG to develop a discussion paper on the pros and cons of the two budget approaches and respond back to AMWG at their August meeting with an initial review.

~~10. Goal 1: GCMRC should develop a research plan to determine effects of current ramping rates on food base and drift, and include this within the food base program.~~

10. Goal 8: GCMRC should develop an on-the-shelf HFE science plan for a potential next HFE.

11. TWG understands that GCMRC will provide historical expenditures by project (going back 3 years) in the workplan.

12. Goal 2 (line 67): AMWG should be aware that the implementation of the warm-water non-native control plan efforts in 2011 may have budget implications (moving from the testing phase to non-native control implementation).

13. Goal 2: GCMRC should investigate research into determining the natal origins of trout in the LCR reach of the mainstem. This investigation should consider the feasibility of whether to specifically target juvenile fish which aren't currently being tagged.

14. Budget general. GCMRC should disclose the total "burden" for each budget line item, the amount of carry-over for each budget line item, and that a crosswalk be provided from the 2009 budget to the 2010 and 2011 budget so that changes in the budget/workplan for each item can be understood.

15. The emphasis AMWG should evaluate the prioritization of program areas (to satisfy compliance concerns).

Respectfully submitted,

Linda Whetton  
U.S. Bureau of Reclamation  
Upper Colorado Region

**NEXT TWG Meeting: Monday-Tuesday, June 22-23 at ADWR**

## General Key to Adaptive Management Program Acronyms

ADWR – Arizona Dept. of Water Resources	KA □ Knowledge Assessment (workshop)
AF – Acre Feet	KAS – Kanab ambersnail (endangered native snail)
AGFD – Arizona Game and Fish Department	LCR – Little Colorado River
AGU – American Geophysical Union	LRRMCP – Lower Colorado River Multi-Species Conservation Program
AIF □ Agenda Information Form	LTEP – Long Term Experimental Plan
AMP – Adaptive Management Program	MAF – Million Acre Feet
AMWG – Adaptive Management Work Group	MA – Management Action
AOP – Annual Operating Plan	MATA – Multi-Attribute Trade-Off Analysis
BA – Biological Assessment	MLFF □ Modified Low Fluctuating Flow
BAHG – Budget Ad Hoc Group	MO – Management Objective
BCOM – Biological Conservation Measure	MRP □ Monitoring and Research Plan
BE – Biological Evaluation	NAAO – Native American Affairs Office
BHBF – Beach/Habitat-Building Flow	NAU – Northern Arizona University (Flagstaff, AZ)
BHMF – Beach/Habitat Maintenance Flow	NEPA – National Environmental Policy Act
BHTF – Beach/Habitat Test Flow	NGS – National Geodetic Survey
BIA – Bureau of Indian Affairs	NHPA – National Historic Preservation Act
BO – Biological Opinion	NPS □ National Park Service
BOR – Bureau of Reclamation	NRC □ National Research Council
CAPA – Central Arizona Project Association	NWS □ National Weather Service
GCT □ Grand Canyon Trust	O&M □ Operations & Maintenance (USBR funding)
CESU – Cooperative Ecosystems Studies Unit	PA □ Programmatic Agreement
cfs – cubic feet per second	PEP □ Protocol Evaluation Panel
CMINs □ Core Monitoring Information Needs	POAHG □ Public Outreach Ad Hoc Group
CRBC – Colorado River Board of California	Powerplant Capacity = 31,000 cfs
CRAHG - Cultural Resources Ad Hoc Group	PPT □ PowerPoint (presentation)
CRCN – Colorado River Commission of Nevada	R&D □ Research and Development
CRE □ Colorado River Ecosystem	Reclamation □ United States Bureau of Reclamation
CREDA – Colorado River Energy Distributors Assn.	RBT – Rainbow Trout
CRSP – Colorado River Storage Project	RFP □ Request For Proposals
DASA - Data Acquisition, Storage and Analysis	RINs □ Research Information Needs
CWCB – Colorado Water Conservation Board	ROD Flows □ Record of Decision Flows
DBMS – Data Base Management System	RPA □ Reasonable and Prudent Alternative
DFCAHG □ Desired Future Conditions Ad Hoc Group	SA □ Science Advisors
DOE □ Department of Energy	Secretary □ Secretary of the Interior
DOI – Department of the Interior	SCORE □ State of the Colorado River Ecosystem
EA – Environmental Assessment	SHPO – State Historic Preservation Office(r)
EIS – Environmental Impact Statement	SOW □ Scope of Work
ESA – Endangered Species Act	SPAHG – Strategic Plan Ad Hoc Group
FACA – Federal Advisory Committee Act	SPG □ Science Planning Group
FEIS – Final Environmental Impact Statement	SSQs □ Strategic Science Questions
FRN – Federal Register Notice	SWCA □ Steven W. Carothers Associates
FWS – United States Fish & Wildlife Service	TCD □ Temperature Control Device
FY – Fiscal Year (October 1 – September 30)	TCP □ Traditional Cultural Property
GCD – Glen Canyon Dam	TES □ Threatened and Endangered Species
GCT □ Grand Canyon Trust	TWG □ Technical Work Group
GCMRC – Grand Canyon Monitoring & Research Ctr.	UCRC □ Upper Colorado River Commission
GCNP – Grand Canyon National Park	UDWR □ Utah Division of Water Resources
GCNRA – Glen Canyon National Recreation Area	USBR □ United States Bureau of Reclamation
GCPA – Grand Canyon Protection Act	USFWS □ United States Fish & Wildlife Service
GLCA – Glen Canyon National Recreation Area	USGS □ United States Geological Survey
GRCA □ Grand Canyon National Park	WAPA □ Western Area Power Administration
GCRG □ Grand Canyon River Guides	WY – Water Year (a calendar year)
GCWC □ Grand Canyon Wildlands Council	
GUI – Graphical User Interface	
HBC – Humpback Chub (endangered native fish)	
HMF – Habitat Maintenance Flow	
HPP – Historic Preservation Plan	
IEDA □ Irrigation & Electrical Districts Assoc. of Arizona	
INs – Information Needs	
IT – Information Technology	

**Q/A/C/R** = Question/Answer/Comment/Response