

Glen Canyon Dam Technical Work Group Meeting

March 15-16, 2010

Conducting: Shane Capron, Chairperson

Convened: 9:30 a.m.

Committee Members/Alternates Present:

Mary Barger, WAPA
Cliff Barrett, UAMPS
Charley Bullets, So. Paiute Consortium
Kerry Christensen, Hualapai Tribe
William Davis, CREDA
Kurt Dongoske, Pueblo of Zuni
Jennifer Gimbel, Colorado Water Conservation Board
*Paul Harms, NM Interstate Stream Commission
Amy Heuslein, BIA
*John Jordan, Federation of Fly Fishers
Robert King, UDWR

Glen Knowles, USFWS
Dennis Kubly, USBR
Steve Mietz, NPS/GRCA
John O'Brien, Grand Canyon River Guides
Emily Omana, GCWC (alternate)
Don Ostler, UCRC (alternate for WY)
Perri Benemelis, ADWR
*Bill Stewart, AGFD
Jason Thiriot, Colo. River Comm./NV
Michael Yeatts, the Hopi Tribe

* Not officially appointed by Secretary's Designee

Committee Members Absent:

Norm Henderson, NPS/GCNRA
Christopher Harris, Colorado River Board/CA
Rick Johnson, Grand Canyon Trust

John Shields, Wyoming State Engineer's Office
Larry Stevens, Grand Canyon Wildlands Council

Interested Persons:

Glenn Bennett, USGS/GCMRC
Marianne Crawford, Bureau of Reclamation
Helen Fairley, USGS/GCMRC
Dave Garrett, Science Advisors
Pamela Garrett, M³Research
Paul Grams, USGS/GCMRC

John Hamill, USGS/GCMRC
Leslie James, CREDA
Barbara McKenzie, USGS/GCMRC
Sam Spiller, U.S. Fish and Wildlife Service
Bill Werner, member of the public

Meeting Recorder: Linda Whetton

Approval of the September 29-30, 2009, Meeting Minutes. Pending two edits, the minutes were approved.

Review of Action Items. The action items were reviewed (**Attachment 1**). Norm Henderson asked for an update on the current litigation between the Grand Canyon Trust and the Fish and Wildlife Service. Shane told him this would be covered at the next AMWG meeting.

Geomorphological Workshop. Helen Fairley said this workshop was postponed due to other workshops being scheduled. They are looking at doing in late June/early July. She is waiting for commitments from the presenters and then will involve the TWG. Mary would like to see an outline and what will be accomplished at the workshop. Helen will send out something in late April. Shane asked for comments on the workshop and support for disbanding the ad hoc group. Kurt Dongoske said he didn't want to disband it because he felt there would be more work for the group following the workshop.

Tribal Consultation and Plans. Dennis Kubly said Mike Berry and Nancy Coulam have initiated government-to-government consultation with the Hopi and Hualapai tribes. Mike Yeatts said he thought the consultation went well but no new information was presented. Mike said they met with Leigh Kuwanwisiwma and discussed the mechanical removal issues but it was more of an introductory meeting. There will be some follow up scheduled with the elders on future consultation. Kurt asked for an update on the status of the Tribal Consultation Plan for the next meeting.

ACTION ITEM: Reclamation (Dennis Kubly) will obtain status of ongoing tribal consultation efforts from the Washington Office and advise the TWG members accordingly.

Compliance Update. Dennis said Tom Ryan gave a presentation on the HFE at the last AMWG meeting but it's not known when the HFE protocol will be completed. The last AMWG meeting was the start of the scoping session. Letters have been received as part of the scoping process. Dennis said Tom could provide additional details tomorrow. Regarding mechanical removal, Reclamation initiated re-consultation with the FWS and will not be doing the 2010 removal trips. Glen Knowles said FWS responded with a standard 30-day letter to Reclamation initiating consultation. Dennis said Reclamation will identify the effects of not doing removal and offsets for not doing the removal in the biological assessment.

Kurt directed his comments to Dennis and Glen and asked at what point they would talk with the Pueblo of Zuni again. Dennis said there is a consideration of future actions to be taken. The compliance documents are due by Sept. 30, 2010. Kurt asked if the two option papers developed by GCMRC and FWS and given to the Pueblo of Zuni in January 2010 would be considered as part of the assessment. Dennis said they would.

Non-native Workshop. Dennis said they will be developing more information on this and would like to include a tribal panel.

Ad Hoc Group Updates. Shane asked Kurt if there were any plans for the CRAHG to go over the budget. Kurt said he hadn't envisioned a need for the group to get together but will probably want to hold a short meeting to go over the budget process.

General Core Monitoring Plan. Shane said the plan that came out of the Dec. 1st workshop was to address the issues identified in the report and discuss how they were ranked. He worked with Cliff, Rick, and Norm to make revisions (**Attachment 2a**) and provide feedback to GCMRC. The revision is with GCMRC at this point in time.

John Hamill gave a PPT on the updates (**Attachment 2b**) and concluded with the Review/Approval Process:

- SA Review – August 2009
- TWG Review – December 2009 Workshop
- AMWG Update – February 2010
- TWG Review/Recommendation – March/June 2010
- AMWG Recommendation – Summer 2010

Following the workshop Helen Fairley said they tried to prioritize the work. She distributed copies of the report (**Attachment 2c**) and gave a PPT presentation on the next steps (**Attachment 2d**). This plan is the first step in the process; step 2 will be to hold workshops to determine and/or refine the information needs and possibility reprioritize them; step 3 will focus on evaluating the information; and step 4 would be to prepare a final plan and give to the TWG so they can work on the criteria to be used for doing tradeoff analysis. She hopes to get something back to the TWG by May.

Dennis said his fear is that the TWG is taking what Shane has written and incorporating it into their writing and then it doesn't come back to the TWG. Helen said Shane wrote an agreement with the TWG and she feels it is consistent with the process. Shane said he only did what was requested out of the workshop. Helen said they are pretty far along into making the changes and feels the group will be pleased with the changes.

Don cautioned that moving to a permanent CMP won't allow the program to expand and that the TWG would lose the ability to turn things off and on by having a permanent staff.

John said he didn't want the report to be written by a committee. He is going to take Shane's input, the guidance from the workshop, and integrate those with their comments. He feels people would be better served if they were working from the newest draft.

Shane said he would like to develop a Core Monitoring Plan Ad Hoc Group (CMPAHG) to revise the CMP and bring something back to the TWG in June that they can really support. He felt that after the workshop there was a sufficient gulf between the conversations TWG had and the philosophy that GCMRC had and thought that someone really needed to put it down on paper so that they could see the changes in an effort to move them along. Helen said she and Shane talked about GCMRC putting a plan together, but TWG needs to develop its own decision process for how elements get reviewed and accepted or rejected. Shane said he would be happy to share the revised document he sent to GCMRC. Helen felt it would be worthwhile for the TWG to focus on that and try to get the plan into another iteration. She said there are two pieces that need to come together: 1) the plan GCMRC is trying to develop that's programmatic in how they're trying to talk about the schedule for developing and implementing the core monitoring programs, and 2) the need for TWG to have agreement about how they're going to use that information to make decisions. Cliff said the changes Shane made really addressed the issues which were raised at the CMP Workshop and are quite good. and that using the draft report would be a good task for a new hoc group with direction to look at the revised report and also offer a recommendation on the TWG decision-making process at the next TWG meeting. Shane said the TWG needs to integrate with GCMRC during specific parts of the review process so they can make it clear what type of analysis is wanted. John said he felt it would be better to take Shane's comments, integrate them into a revised document, and let the ad hoc group work from that.

Dr. Garrett asked if risk assessment and tradeoff analysis would also be done by the ad hoc group. Shane told him it would be built into the plan. Dennis said he would like a notification from GCMRC on the timeline for when the draft will be done so the TWG can plan ahead. John said they would try and get it done within the next 30 days.

ACTION ITEM: John Hamill will provide a timeline to the TWG for when the revised Draft Core Monitoring Plan will be done.

New Core Monitoring Plan Ad Hoc Group (CMPAHG). Chair: Shane Capron. Members: Cliff Barrett, Mary Barger, Kurt Dongoske, Norm Henderson, and Dennis Kubly.

Charge: Develop, for TWG review at its June 2010 meeting, an appendix for the General Core Monitoring Plan (Plan) which describes a TWG process for making recommendations to AMWG on the individual core monitoring plans developed by GCMRC. Review the revised draft Plan from GCMRC this spring and develop a recommendation for TWG at its June meeting.

Socio-economic Workshop Report and Consultation. Helen Fairley passed out copies of the "Partial Workshop Report Including Polling Results of the GCMRC TWG Socioeconomic Workshop," (**Attachment 3a**), copies of the Final Report (**Attachment 3b**) and then gave a PPT presentation (**Attachment 3c**). Because there was some confusion between market use and non-market use, it was suggested GCMRC put together a workshop to explain those so everyone has equal understanding. She said Phase II would be the time to do non-use values.

Shane asked if the TWG wanted to form an ad hoc group to discuss the report and help prepare a recommendation for the TWG's consideration in June and forward to the AMWG at its August meeting.

Don said he thought the total cost was around \$1 million if all the pieces that were recommended were included. He asked if they all had to be done or if half could be done and then stopped. Helen said there were recommendations that had come forward based on the information from the workshop that people expressed interest in. She thought that the people who wrote the report tried to articulate why this information is needed by the program. Don said it sounded like the bulk of the work needed to be done. When asked where it was in the budget, Helen said it showed up in two places on the deferred list.

Cliff said it was premature to talk about budget and issues for the program without having the TWG review it. He feels the AMWG needs to know what the costs might be and what work should not be done in order to fund the work. Jennifer concurred with Cliff and said she didn't want to see the TWG rush into a process without more deliberation.

Shane reminded the TWG it was an "informational" report and that the TWG should be thinking about what kind of a recommendation to make, actions or activities needed, and how to implement the plan if they wanted to do so. (Line Item 184)

Dr. Garrett said the Science Advisors have strongly recommended this program for the primary reason that effective tradeoff analysis can't be done without the information which needs to be done as the CMP is implemented. His biggest concern is how the program does future budget planning.

Dennis said there are reports that are required by the program that are produced by the agencies and those are typically not done at a very in-depth level. One way of exploring alternative funding for this would be for the program to look at those reports and ask whether or not the program would like to see more in-depth reporting, one of which would be a financial/economic consideration. There could be some progress made in that direction by looking at those reports and forward them to see whether or not some of the questions could be addressed.

Shane said he thought there was general support for putting together an ad hoc group to work with the economics report and bring a recommendation back to the TWG in June. He thought the TWG should think about what the recommendation should look like in order to give the ad hoc group some support. He asked the TWG to think about some language to include in the charge to the ad hoc group and be prepared to discuss tomorrow.

Budget Process Paper Discussion. Shane distributed copies of the "GCDAMP Biennial Budget Process Paper" dated March 2, 2010 (**Attachment 4a**) and a description of the Upper Basin's timeline for their budget process (**Attachment 4b**). He went over the changes to the budget. The BAHG decided it was good to add those things that didn't have funding and attempt to get funding for those things that were unfunded. Dennis talked about the difficulties trying to develop a process while implementing a process so the AMWG budget approval process may not be the best timeline. He said the second year is where people were having the majority of questions and how much to open to new starts. There was some discussion about the uncertainty in year 2 with regard to experiments when there are triggers and a larger funding need for those experiments. (**Attachment 4c** = GCDAMP Biennial Budget Process Paper approved by AMWG on 5/6/10).

Shane said the BAHG didn't weigh in with a recommendation or a decision that they were completely satisfied with it so it was decided to discuss it further with the TWG.

Jennifer wondered if the second year process is the same as the first year review, then why is it being done. It was her understanding that some people were uncomfortable with the process and needing a more refined process for year two and now it appears to her that they're the same thing. She asked if they were defeating the purpose by doing the same process in year one and year two.

Dennis suggested it could be viewed as an iterative process of adaptive management and undertake it on an experimental basis and tweak as needed.

Kurt reminded people that the CRAHG usually provides information to the BAHG, but he didn't see it in the paper. Shane said a statement could be added that the BAHG's recommendation would include a recommendation from the CRAHG.

Motion (by Kerry Christensen, seconded by Amy Heuslein): The TWG recommends that the AMWG approve the biennial budget process as outlined in the Biennial Budget Process paper

dated March 2, 2010, as amended at the TWG March 15, 2010, meeting. The TWG recommends that this process be evaluated by the TWG after the first budget cycle is completed. Passed by consensus.

TCD/Sediment Motion Language for TWG Consideration:

The TWG recommends that the AMWG consider a recommendation to the Secretary of Interior to develop an engineering feasibility study and risk assessment, with a synthesis of existing information, for the implementation of a Temperature Control Device that considers the following: (a) incorporates a TCD design with both warm and cold-water release options and with a combination of 2,4, 6, and 8 units, (b) considers concerns that new warm-water non-natives and additional planktonic food sources might become delivered or established in the CRE, and (c) considers the potential of using turbidity (silt and clay) as a mechanism to affect predation rates of nonnative fish on native fish. The goals of the action would be to support recovery of native fish. TWG further recommends that the consideration of a TCD be implemented within a long term experimental process.

Shane said the above motion was brought to the TWG with some additional wordsmithing done at the last AMWG meeting. Kerry asked if Reclamation had any thoughts on the motion. Dennis asked how it would be funded if it was in 2011. He said it was pre-compliance work because there is no plan to construct a TCD and the FWS has taken a position on its positive and negative effects.

The motion was revised and voted on by the TWG:

| Motion (Proposed by Steve Mietz, seconded by Mary Barger): The TWG recommends that the AMWG consider a recommendation to the Secretary of Interior to develop an engineering feasibility study and risk assessment, with a synthesis of existing information, for the implementation of a Temperature Control Device that considers the following: (a) incorporates a TCD design with both warm and cold-water release options and with a combination of 2,4, 6, and 8 units, (b) considers concerns that new warm-water non-natives and additional planktonic food sources might become delivered or established in the CRE, and (c) considers the potential of using turbidity (silt and clay) as a mechanism to affect predation rates of nonnative fish on native fish. The goals of the action would be to support recovery of native fish. TWG further recommends that the consideration of a TCD be implemented within a long term experimental process. No funding sources have been identified to complete this work. | | |
|---|---|---------------|
| Representative | Stakeholder Entity | Vote |
| Bill Stewart / Andy Makinster | Arizona Game and Fish Department | not appointed |
| Amy Heuslein / Garry Cantley | Bureau of Indian Affairs | a |
| Dennis Kubly / Marianne Crawford | Bureau of Reclamation | a |
| Mike Yeatts | Hopi Tribe | y |
| Kerry Christensen | Hualapai Tribe | n |
| Steve Mietz | National Park Service - Grand Canyon | y |
| Norm Henderson / Chris Kincaid | National Park Service - GLNRA | absent |
| VACANT | Navajo Nation | vacant |
| Kurt Dongoske | Pueblo of Zuni | n |
| VACANT | San Juan Southern Paiute Tribe | vacant |
| Charley Bullets/LeAnn Skrzynski | Southern Paiute Consortium | n |
| Glen Knowles | U.S. Fish and Wildlife Service | a |
| Mary Barger / Clayton Palmer | Western Area Power Administration (DOE) | y |
| Rick Johnson / Nikolai Lash | Grand Canyon Trust | absent |
| Larry Stevens / Emily Omana | Grand Canyon Wildlands Council | y |
| John Jordan | Federation of Fly Fishers | not appointed |
| John O'Brien / Andre Potochnik | Grand Canyon River Guides | y |
| VACANT / Perri Benemelis | Arizona | absent |

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| Christopher Harris | California | absent |
| Jennifer Gimbel / Ted Kowalski | Colorado | y |
| McClain Peterson/ Jason Thiriot | Nevada | y |
| Paul Harms / Don Ostler | New Mexico | not appointed |
| Robert King | Utah | y |
| John Shields / Don Ostler | Wyoming | y |
| Bill Davis | Colorado River Energy Distributors Association | y |
| Cliff Barrett | Utah Associated Municipal Power Systems | y |
| | Total Yes | 11 |
| | Total No | 3 |
| | Total Abstain | 3 |
| | Total Voting | 17 |
| | Motion Passes | |
| Abstentions count toward the quorum, but not the vote. For example, if 20 TWG members are present then a quorum is present (quorum=16). If the vote is 3-0-17 (that is 3 yeas, 0 nays, and 17 abstentions), the motion passes because abstentions are non-votes for all purposes other than to establish a quorum. To explain further, the simple majority or two-thirds majority is based on all votes minus the abstentions. | | |

Draft FY2011-12 Budget Recommendation. Shane went over the process the TWG would follow. He reminded the TWG that this is the time to raise their issues of concern so they can be presented to the AMWG at their May 6th meeting.

USBR Budget. Dennis said that both Reclamation and GCMRC started with an assumption of 0% CPI and that's tenuous. (**Attachment 5a**). The last 12 months has been +2.6%. They went from -1.3% in the preceding 12 months at the end of the fiscal year to a +2.6%. Given that, it was their thought to wait until after the draft stage has passed, they've gone to the AMWG, and then in the June timeframe reassess and see whether it appears there will be additional funds. They assumed a 3% CPI for FY12. There are no new starts in Reclamation's budget. They reinstated the carryover funds at the FY10 level and incremented and did the same for the non-native fish suppression contingency fund which was initiated in FY09. He reminded them that at the last AMWG meeting, they moved experimental funds and non-native fish contingency funds into GCMRC's portion of the budget. He wasn't sure of the total but they were reinstated. He said there was a question within the BAHG about the intent of the experimental flow funds and how they should be used. He said that's one of the major subjects they had and feels it should be open to discussion by the TWG because there is a proposal to use the EFF again. In the consultation for the treatment plan there may be some changes in what has been proposed because they are just going through the consultation process right now so he wasn't sure if the full amount would be expended in some other way or if there will be an agreement between Reclamation and the tribes over what the differences are. Other than that, he said everything was incremented from last year by a 0% CPI rate.

Kerry asked what the facilitation money was being used for. Dennis told him that part of it was used this year for facilitation of the workshop and then part of it is being used by Reclamation for the salary increases. He said about \$10K was held back for Reclamation to make up the difference.

Dennis said the BAHG revisited the compliance documents line item which they have agreed to carry over and right now they're under spending on compliance but are anticipating increased needs with the high flow protocol and assessment of non-native control actions. Those two needs are definite and there is also a reference to a Long-Term Experimental and Management Plan (LTEMP) by the Assistant Secretary. It may be similar to an LTEMP level process and in that process they reserved \$250K for power revenues and \$250K from appropriated funds. They will have to do the first two issues which may be covered by the amount that is carried forward, but the third would certainly not if it's initiated in FY2012.

- *Archaeological treatment is not an issue at this time because we're not sure what sites will be dealt with in year two. The changes that occur in the first year are not that major in the sense of totally revising the budget. (Yeatts)*
- *Zuni has already voiced its displeasure with the current scope of work with the treatment plan for 2010 that tribal values have been omitted from integration into the treatment plan and that's what we want discussed. We would advocate holding off on data recovery at sites in 2010 until you are able to formulate a tribal integration aspect to the treatment plan. (Dongoske)*

GCMRC Proposed Budget. John Hamill gave a PPT, "GCMRC Preliminary FY11-12 Budget" (**Attachment 5b**) which provided information on their hydrograph assumptions, fiscal assumptions, anticipated funds and sources, and experimental fund expenditures and balances. He went through the next steps and concluded that a final work plan would be sent to the AMWG by mid-July.

John distributed a memo dated March 3, 2010 (**Attachment 5c**) and said there were significant changes made to GCMRC's budget. They started with a \$400K deficit which meant having to cut some work/projects and he identified those on the table. The following concerns were captured:

Goal 2 Native Fishes

- HBC Translocation. Dennis said this is a conservation measure for Reclamation and not to carry it out would probably require reinitiation. Glen said as he explained to John Beeman/GCMRC, FWS still considers this an experiment, and their goal is to get a population of 200 adult HBC upstream of Chute Falls. They are monitoring over time to see how well this conservation measure is functioning with the goal in mind of trying to achieve 200 adult fish above Chute Falls as part of the whole LCR aggregation. FWS would recommend monitoring every year and continuing with the capability of additional translocations in any given year for the duration of the proposed action. They would like to see the capability through 2012. Shane said he was looking at the technical issues rather than a budget issue. Glen said the translocation is contingent on monitoring. John said monitoring and translocation has been taken out of the budget for FY2011. Glen said he opposes that. Steve said the text should be changed in line 61 because it says monitoring and translocation. Barbara said it was previously listed at \$145K and it went down to \$92K with translocation out. She didn't remove the word "translocation" from the title of the project because that's how it was submitted. She said a change would be made.
- Stock Assessment and Native Fish. John said this was analysis of fish stock data and they would like to do ASMR analysis of the fish population in FY2011 and that consistent with PEP recommendations, there would be no ASMR analysis in FY2012. They're proposing to do ASMR analyses every three years as opposed to an annual basis. It's very laborious to run ASMR so the panel thought it was overkill to do it every year.

Mary questioned why the DOI agencies didn't list projects that were related to compliance first since that is the budget priority and then list monitoring. John said it's a policy issue that's been raised a number of times within Interior and that Ms. Castle is aware of the issue. He said the compliance commitments are totally out of GCMRC's control. Mary said it would be nice to ask AMWG for some advice in the future for direction on how the budgets are being decided so this doesn't continue to happen.

- Pit Tag Reading. They had planned to expand into several other arrays but due to budget problems, any expansion has been deferred and will continue to operate and maintain the equipment they have and analyze the data in FY10 and FY11.
- Nearshore Ecology. The majority of work is being funded from Reclamation appropriated funds. There is a problem with increased logistics costs for funding the river trips. John said each trip costs about \$60K and is a very logistically demanding exercise and only \$100K was put into that activity. It's the same problem for FY10 and they're trying to find more money. They greatly under estimated the logistical costs for FY10, FY11, and FY12.
- Stock Assessment of Native Fish. John said they would not be doing an ASMR population assessment but there would be closed population estimates which can track very closely to ASMR. He said monitoring would continue through the period.
- Lines 59 and 60. Kerry said he didn't understand what was going on in lines 59 and 60. John said that in lines 58 and 59 they're coded under column C as "CRD," which is core monitoring, research, and

development. In line 60, it's COR because they're assuming it will become a core monitoring project beginning in FY2011. They took the two monitoring efforts that have occurred in lines 59 and 60 and merged them as a single core monitoring project for HBC in the LCR. So line 58 + 59 = 60.

- Mainstem Non-native Fish Control. John said funding was included in FY2011 for one LCR control trip using Experimental Flow Funds. There were originally two trips planned but the second trip was deferred. The BAHG brought up whether one trip would do any good and they were asked to look at that issue in more detail. John said he didn't have hard data to present but the people who have been looking at a lot of the fish data over the past six months have indicated the trout populations are on a rapid rebound and are back to where they were in. There was concern that one trip would not be sufficient in providing the data that was needed. John said how this activity is funded in perpetuity is a much greater issue that the program needs to wrestle with. John said he thought after completion of the April monitoring trip, he would be able to give a better idea of the overall trout populations in the LCR and the needed monitoring trips. Shane said if six trips are required at a cost of around \$900K, then that concern needs to be forwarded to the AMWG.
- Biometrics & General Analysis. John said this was a position Lew Coggins held and GCMRC feels that high level analysis is needed in the program. They need to figure out how to fund the position in FY2012.

Goal 3 Extirpated Species. John said nothing was proposed and nothing was funded.

Goal 4 Rainbow Trout. John said they have continued to recommend funding for adult RBT monitoring in Lees Ferry and that monitoring of early life stages be deferred unless a high flow experiment was conducted.

Goal 5 Kanab Ambersnail. This is a relatively low budget item of \$20K a year and AGFD does the work.

Goal 6 Springs/Riparian. In FY11, they are scheduled to do vegetation transects on a biannual basis that assumes approval of a core monitoring plan. John said the budget was based on assumptions of a sample design that has been developed by David Cooper and is going to be brought back to the TWG for review and approval before GCMRC moves forward on it. John said Barbara Ralston was hoping to implement bird monitoring within the riparian zone and also arthropod monitoring. She is also working on the analysis of the imagery from the 2009 overflight and will be doing vegetation comparison work from 2004 to 2009.

Goal 7 Quality of Water

- Lake Powell & Tailwaters. GCMRC is planning a PEP review that would occur for Lake Powell and also involve downstream water quality, Lake Powell water quality monitoring, and the aquatic foodbase as a single PEP with the idea of trying to integrate those programs in a more comprehensive way. They are working with Reclamation to do more field work and free up GCMRC staff time to do more analysis of the database in what's happening in Lake Powell and getting data ready for the PEP review.
- Downstream. John said they are considering how the PEP review could help Lake Powell and the aquatic foodbase in FY11 but they would continue to implement the program until there are recommended changes.
- Integrated Flow, Temperature & Sediment Modeling. This is looking at how dam operations affect flow, temperature, and sediment to consider alternative scenarios for dam operations. Results will be provided at the Saguaro Lake Modeling Workshop.

Goal 8 Sediment. John said they took a year off from channel mapping in FY10 to evaluate the channel mapping data that was collected in FY09 to look at error analysis and see what the precision and accuracy is of the bathymetric maps they're creating of the surface of the channel. The idea is to monitor how much sand is in the channel. Given the cost of this activity and the uncertainty about how that data is going to be interpreted in evaluating sand conservation, another year of additional work to further evaluate the data is likely needed. Paul said they are also using some of the previously collected data for some publications that are not finalized yet.

Goal 9 Recreation. John said they will be doing campsite monitoring and updating the campsite atlas with hopes of having that available on the web. There is a PEP planned for FY12 on the campsite program. FY10 is a focus on getting a lot of the reports written up and resume monitoring in FY11.

Goal 10 Hydropower. John said there is still a plan to extract data from Western that would allow them to serve some of the hydropower data that Dave collected and produce an annual report.

Goal 11 Cultural. John said the scope of the cultural program was reduced so they're not doing as many sites as originally proposed for the pilot program. This could extend the length of the project. They're very close to getting permitted from the NPS to get back into the field to resume where they left off a couple of years ago in terms of field data collection.

Goal 12 DASA

- Overflights. John said originally they didn't propose any money in FY11 to go into overflights. They're trying to accumulate a minimum of \$600K to support the next overflight which is scheduled in FY13. They set up a working capital fund and have deposited about \$150-200K in FY10 and propose to contribute \$71K in FY11, \$129K in FY12, and in FY13 there will be another \$200K to give them the money for an overflight in FY13.
- Oracle Database. No changes.
- Library Operations / Scanning. John said the FTE was cut in half. The library has been taken offline over some copyright issues they had and will leave it that way because they hope to come up with a new library system.
- GIS Support. John said they were planning to hire a term to help improve the quality of the GIS support. That appointment is being deferred and they will probably use a student instead.
- Integrated Image Analysis & Change Detection. Final reporting will be done in FY11-13.

Goal 13 Planning

- Ecosystem Modeling. They have a contract with Carl Walters to do a lot of the analysis and modeling of the fish work.
- Knowledge Assessment & SCORE Report. John said they intend to complete the Knowledge Assessment in FY11 and complete the SCORE report in FY12. The Knowledge Assessment report would not be a USGS-published document.
- New Desired Future Conditions. John said he had hoped to put some money in that for FY11 and 12 because it's a bigger charge that came from Anne Castle, both in terms of scope to look at all the goals and then taking them into Phase II.

Support

- Logistics Base. Standard operation. No changes.
- Survey & Control Network. They are continuing to expand their network to help support the channel mapping work that Paul Grams is doing and survey support provided through outside contracts.

Administrative. John said this was pretty much the same as what was proposed in FY10 and FY11.

Q: John, what is the probability for a high flow experiment in FY2011 and then let's do the same thing for 2012. Several years ago you were requested to do a with and without experiment budget, but we have a similar situation right here because of the uncertainty of knowing when to have the protocols in place where we're going to have an experiment. Which of those categories would likely be affected if we have a high flow experiment? It doesn't look like there is money allocated there and there is only \$239K left at the end of FY12. (Kubly)

A: We should probably talk about that. Our recommendation for high flow experimentation is to rely as much as we can on ongoing monitoring programs to assess the effects of future high flows. Our view is this should be looked at as a long-term experiment to do repeated high flows over some period of time and then evaluated in more depth for what happens after 10 years and three or four high flows. We think our monitoring programs at this point are robust enough to measure what those effects would be in terms of sandbars and camping beaches, foodbase, fish response, and trout response. Our hope is that it may only require \$200K-\$400K of supplemental funds every time we did a high flow. We haven't worked all that through yet and we assumed that some of those details will get worked out in the NEPA process. We're not going to be advocating for huge, new studies unless they're specifically

called for. In some cases projects will be deferred if there is a high flow (channel mapping work) which would free up \$300K-\$400K in the budget in those years we did high flows. (Hamill)

Q: Then it sounds like the level of core monitoring is going to be very important. I'm assuming that you presume a relatively high level of core monitoring to be able to do what you just said. (Kubly)

A: Yes, I think that assumes that the kind of monitoring programs that we have in place today are going to stick around. We see those as a critical part of the strategy for evaluating not only what is the status of the resource but how the resource is responding to various kinds of management actions. (Hamill)

Deferred Projects (beginning on line 166). John went over the list of deferred projects which total over \$1 million that they couldn't fund under the current budget.

Budget Ad Hoc Group Report. Dennis distributed copies of the "BAHG Conference Call Summary 2010" (**Attachment 5d**) and gave a PPT presentation (**Attachment 5e**). In the past Dennis said the hydrograph was developed from Reclamation's 24-month modeling output as the basis, superimposed with current compliance requirements. For example, the September-October low flows for 2008-2012 were existing compliance and ended up being the recommendation to AMWG. He said the Grand Canyon Trust will be asking GCMRC to conduct some modeling runs on different scenarios in developing a hydrograph. The BAHG didn't feel that developing a hydrograph was in their purview. He presented a summary of their conclusions.

Q: The President said something about keeping the federal agency budgets flat for a period of several years. How does that relate to the 3% CPI for FY12? Is that inconsistent or can 3% still be incremented for this program if he keeps them flat? (Ostler)

A: These power revenues take on a different identity depending on who is looking at them. The legislation says to increment by CPI. If Congress so agrees, we could have a change in that earlier agreement. We'll have to wait until we get there. (Kubly)

SPECIFIC BUDGET ISSUES. Shane asked if there were specific issues the TWG wanted to discuss tomorrow.

Electrical Power System Economics. Clayton passed out copies of a document, "Electrical Power System Economics" (**Attachment 6**). He said Western routinely does analysis about the electric power system and has been doing this since the GCPA was passed. The GCPA requires that they do before and after analyses on the impact of changed operations at Glen Canyon Dam resulting from experiments. In response to that Western developed models that simulate the power system. They have done quite a bit of work with these models. They have been peer reviewed and used for a variety of applications. The Bureau of Reclamation and other agencies call on Western to run power systems analysis for EA's and EIS's on such things as the shortage criteria, the Aspinall EIS, and the Flaming Gorge Operations EIS. Recently Western did work at GCMRC's request for an LTEP – the four LTEP options. He said there has been more discussion in recent years to do power system economics. As such, he proposed adding a line item to the budget, "Power Economic Studies" in 2011 to conduct at least some of the studies he outlined in his handout and that the studies they routinely do then be made available to the AMP committees. The proposal is to increase transparency in terms of WAPA's power economic studies, to increase the perception of credibility by being transparent, and to accomplish some of the tasks that stakeholders want accomplished. WAPA would do power economic studies in FY2011 but the changes they would have in order to achieve transparency is having GCMRC do work at their request. WAPA would prepare the report and have it peer reviewed by GCMRC. WAPA will provide an estimate on their costs but they won't come out of Reclamation's or GCMRC's budgets.

Norm said the AMP needs to include all the programs to give a clear picture of what is being done. The budget spreadsheet should include other projects being undertaken by cooperators using funds outside of the GCDAMP funding.

John expressed frustration by having to do a workplan "by committee." He said meeting with people and going through information needs in the pre-development phase of the workplan could work and then GCMRC would submit the workplan for peer review. He said if the decision was to develop this and lay out a plan in June, then he really wants to understand how it is going to work with a clear objective in mind.

Draft Proposed Motions. Shane asked for proposed motions so the TWG could think about them overnight and be prepared to discuss and vote on them at tomorrow's meeting. He asked if there were any other issues in the budget before he addresses the list that Steve Mietz provided to him.

Steve presented the following motions and said the first three motions he is looking for the money to come from DASA 12.D5.10 Cooperative Agreement.

NPS Motion #1: The FY10-11 budget/workplan should include \$25,000 to fund an Extirpated Species Workshop (line 71) to achieve the following:

1. Finalize and prioritize species list;
2. Assess current compliance environment for various implementation strategies;
3. Develop a strategic framework for implementing extirpated species goals within the AMP.

NPS Motion #2: The FY11-12 budget/workplan should include \$89,568 to fund deferred project DASA 12.D9.10-11. This one-time study is needed to aid the AMP in quantifying a desired future condition for sediment and campsite resources. The work would involve looking at historical photos but they're not in a format that can be readily analyzed so this project would get them scanned and geo-referenced, get them into the GIS system, and then allow the analysis to be done and provide numbers on DFC's. This work could be funded by reducing the DASA 12.D5.10 cooperative agreement by \$89,568 for one year or \$45,000 over two years. (Line 188)

NPS Motion #3: Propose funding of Deferred Project Phase I results of the economic values workshop, line 184.

NPS Motion #4: The FY10-11 budget/workplan should reprogram funds from "Mainstem Nonnative Fish Control," BIO 2.R17.11 (line 66 - \$104,765) to initiate development of a non-native fish control implementation plan (led by NPS with cooperator status of the DOI agencies and tribes) that will include elements that will be scoped in the March 31st Non-native Fish Workshop.

Shane reminded Steve that the TWG was working on the FY11-12 budget, not the FY10 budget. Steve said if there was approval to move forward, he feels funds could be secured and the work could be done quickly and collaboratively.

Issues for further discussion:

- *Removal of trout is a very sensitive issue. It should be discussed as a possible pilot project. We need to keep that door open as to what happens with these types of funds. (Heuslein)*
- *On #4, I would like see funding added that's ear-marked for non-native fish control and like it to be considered for also looking at the viability of testing non-lethal options that GCMRC and FWS proposed to the Pueblo of Zuni. On line 141, we have \$309K in FY11 and \$159K that is 0% CPI. Use experimental flow funds to do the work. (Dongoske)*
- *The comment about alternative funding sources being identified. I think that's an issue because GCMRC is also recommending finding alternative funding sources for certain line items. (Barger)*
- *We need a footnote for the line items labeled COR core monitoring that these are subject to the outcome of the core monitoring plan and process. (Knowles)*
- *Eventually I think it would be nice to do a tour for the TWG members or AMWG members so they can actually see some of these places along the river and make informed decisions. (Thriot)*

- *The issue that we originally discussed was that translocation was a compliance activity and that there was actually no funding proposed in the budget for that activity. The funding that was listed was only for monitoring, not for the translocation. So the question was, if there is a compliance activity, which should be one of the principle activities that is taken care of under this program, why isn't there funding for that particular activity that is reflected in the budget? (Benemelis)*
- *If it's not funded on GCMRC's side of the budget, then I don't feel there is any choice but to put it on Reclamation's side of the budget and then we'll go through the same process we did last year. (Kubly)*
- *Line 191 I'm not clear what that supports for desired future conditions and facilitation and decision support. During the core monitoring presentations, clearly the DFCs are really, really important in order to make the core monitoring recommendations firm. It looks like we're deferring some of the DFC stuff but we're not deferring the core monitoring which relies on the DFCs so wouldn't the DFCs be more important? (Barger)*
- *Does the group think Reclamation should put \$50K on its side of the budget for quantitative DFCs? John's proposal is they will put \$50K in if we will put \$50K. (Kubly)*

Public Comments: None

Adjourned: 5:20 p.m.

Glen Canyon Dam Technical Work Group Meeting
March 15-16, 2010

Conducting: Shane Capron, Chairperson

Convened: 9:30 a.m.

Committee Members/Alternates Present:

Mary Barger, WAPA
Cliff Barrett, UAMPS
Charley Bullets, So. Paiute Consortium
Kerry Christensen, Hualapai Tribe
William Davis, CREDA
Kurt Dongoske, Pueblo of Zuni
*Paul Harms, NM Interstate Stream Commission
Norm Henderson, NPS/GCNRA
Amy Heuslein, BIA
*John Jordan, Federation of Fly Fishers
Robert King, UDWR

Glen Knowles, USFWS
Dennis Kubly, USBR
Steve Mietz, NPS/GRCA
John O'Brien, Grand Canyon River Guides
Emily Omana, GCWC (alternate)
Don Ostler, UCRC (alternate for WY)
Perri Benemelis, ADWR
*Bill Stewart, AGFD
Jason Thiriot, Colo. River Comm./NV
Michael Yeatts, the Hopi Tribe

* Not officially appointed by Secretary's Designee

Committee Members Absent:

Christopher Harris, Colorado River Board/CA
Rick Johnson, Grand Canyon Trust

John Shields, Wyoming State Engineer's Office
Larry Stevens, Grand Canyon Wildlands Council

Interested Persons:

Glenn Bennett, USGS/GCMRC
Marianne Crawford, Bureau of Reclamation
Helen Fairley, USGS/GCMRC
Dave Garrett, Science Advisors
Pamela Garrett, M³Research
Paul Grams, USGS/GCMRC

John Hamill, USGS/GCMRC
Leslie James, CREDA
Barbara McKenzie, USGS/GCMRC
Sam Spiller, U.S. Fish and Wildlife Service
Bill Werner, member of the public

Meeting Recorder: Linda Whetton

Welcome and Administrative. Shane felt there might not be enough time to do the budget and so he thought GCMRC updates could be handled via e-mail. He reviewed the charge for the new Socioeconomics Ad Hoc Group:

New Ad Hoc Group: Socioeconomics AHG (SAHG): Chair Mary Barger

Members: Cliff Barrett, Jerry Cox, Helen Fairley, Norm Henderson, Steve Mietz, Clayton Palmer, and Jason Thiriot, and Helen Fairley.

SAHG Charge: Review the final report of the GCMRC Socioeconomic Research Review Panel (dated February 26, 2010) and develop a recommendation for TWG or an update on progress for TWG review at its June 2010 meeting. Consider the technical feasibility and pros and cons of implementing the panel's recommendations. Also consider how to better utilize current resources in responding to the panel's recommendations.

GCMRC Updates. Due to limited time on the agenda, Shane told the members to pose their questions to GCMRC staff via e-mail.

Downstream Water Quality (including Sediment) Update. Paul Grams distributed copies of his PPT, "Sediment and Temperature Modeling Update" (**Attachment 7**) as presented at the January 2010 Annual Reporting Meeting. He reported there haven't been any significant sediment inputs since the 2008 high flow and the results of that is a trending negative sand mass balance in most reaches. He said there was some

discussion of Scott Wright's sand transport modeling work that he presented at the annual reporting meeting and felt it would be helpful to understand that as a precursor to Rick Johnson's proposed motions. He explained how the models could be used in order to predict sediment inputs so they used an average input year or a combination of averages to create something statistically representative. He explained the four different operation scenarios Scott used to run his model. Shane encouraged the members to submit questions to Paul prior to the workshop so GCMRC can be prepared to answer them there.

Science Plan for Fall Steady Flows. John Beeman distributed copies of the report, "Study Plan – Biological Resource Responses to Fall Steady Experimental Flows Released from Glen Canyon Dam, 2009-12," (**Attachment 8a**) and gave a PPT, "Science Plan for Fall Steady Flows" (**Attachment 8b**). He said he would talk about the comments in general and how they were incorporated and why others weren't included in the document. He said the majority of questions came from the transition study. He said the next steps would be the TWG discussion today and whether or not a recommendation would be made to the AMWG.

C: When Reclamation has been asked about the direction they're giving Western in terms of operating Glen Canyon during the transition and into the steady flow period, the BIG issue is stranding. We have a concern if the science doesn't address the issue that FWS has when they're doing their consultation with Reclamation. (Palmer)

Q: Glen, do you think FWS would be satisfied with this plan the way it is and the argument made here for not looking at the stranding issue further? (Capron)

R: Although I would like to discuss this with Clayton and some other concerns, I don't feel I've had enough time to review the document. It seems as though it's changed substantively and moreso than I thought it would. I move that we have additional time to review and provide comments on the document for potential approval at the next TWG meeting. (Knowles)

Q: How literal do you interpret the title of this document to what its content addresses? Is it really two months of fall steady flows and their effects or do you view it as the entire hydrograph with an emphasis on fall steady flows? Is there an emphasis on the contrast of the steady flows to other operations? (Kubly)

A: The nearshore ecology project was only in the field during the MLFF two months before the FSF and during the FSF period. I think what ties the stuff together is the ecopath modeling. It's really about if nearshore warming is sufficient and the habitats the native fish are in during the different kinds of operations, but I don't know how far you could tie the other times of year when there is a lot more warmer water in the summer. (Beeman)

C: We didn't sit down with FWS and Reclamation to design a FSF science plan from start to finish. We inherited a 2-month FSF regime tied to MLFF. Obviously we're looking at four years of MLFF with two months of steady flows and so whatever inference you can make from a year-round standpoint, I guess will be somewhat limited. The nearshore ecology study begins in July and goes through October so there will be seasonal changes. I don't know if you can make profound statements about the overall, year-round hydrograph based on what's going on here. (Hamill)

C: From an adaptive management view, it's backwards. Steady flows in the fall with declining sunlight and mainstem temperatures is not the time to get good information on flow effects to fish. I think you could come up with a testable hypothesis but given this experiment you can tell right now there is no significant outcome with the short fall flows. (O'Brien)

Clayton suggested an additional amount of time to review the plan before making a recommendation to the AMWG. Norm asked if the SAs had reviewed the document and Dave told him they had reviewed the LSSF reviews but it had been some time ago.

ACTION ITEM: Approval of the Fall Steady Flow Plan was tabled until the TWG has had an opportunity to read the document and have more discussion at the Saguaro Lake Workshop in April. It will be further discussed at the TWG meeting in June.

It was suggested an ad hoc group be developed to work with GCMRC on the plan. John said he was concerned about the length of time being spent on this document and pulling staff off other projects in order to revise this document. Shane concurred but wasn't sure what more could be done.

New Ad Hoc Group: Fall Steady Flows AHG (FSFAHG): Chair, Dennis Kubly. Members: Shane Capron, Bill Davis, Glen Knowles, and Steve Mietz.

Charge: Review the Revised Fall Steady Flow Plan and determine what further revision of the Plan is necessary for approval by TWG at its June meeting.

FY2011-12 GCDAMP Budget. Shane read a proposed budget motion and said the group would review and vote on the issues of concern identified at yesterday's meeting.

Additional issues of concern:

1. Kurt reminded the members that anywhere in the budget discussion where there is non-native fish control, non-native fish suppression, mechanical removal, emergency fund for non-native fish suppression, and anything that deals with mechanical removal of non-natives is an ongoing issue for the Pueblo of Zuni that has not been adequately resolved from the position of the Zuni governor. In any budget recommendation about FY11-12 it should be acknowledged that it is an ongoing consultation issue and hopefully it will be resolved to everyone's satisfaction at some point. He would like to see a CPI increase for tribal participation in Reclamation's side of the budget. He said this line item has been limited to the \$95K for approximately 10 years while all the other programs get a CPI increase. There has been no recognition that costs for tribes also go up and the costs for participating in AMP meetings, staff personnel, and travel is increasing for the tribes. They would like to see that increase considered.

2. Kurt said he would also like the TWG to consider if there is no data recovery at archeological sites in 2010 because of the ongoing tribal consultation issues, one of those issues is that the archeological research design does not sufficiently integrate the tribal perspectives or values regarding these archeological sites. They have advocated to Reclamation that the data recovery not be done in 2010 but focus on developing methodologies that integrate tribal perspectives and tribal research concerns into the standard archeological practice so that it's a more holistic treatment of the archeological context and materials that come out of archeological sites and that tribes become more active participants in generating narratives of the past. If data recovery is postponed, they would like to see some of that funding go towards developing methodologies for tribal integration and if there is any funding left over from that effort, they would like to see it carried over into the data recovery for 2011 and 2012.

Shane said he wasn't sure how Kurt's suggestions fit into the budget proposal because he was making a recommendation about the FY10 budget and carryover which they've been told there won't be any carryover from FY10 to FY11. He felt that Kurt would want to focus on FY11. Kurt said if for some reason in FY2010 data recovery is continued as usual, then in 2011 he would like to see an effort put towards developing those methodologies for integrating tribal perspectives into treatment plans.

3. In addition to the CPI increase, Mike Yeatts said they should be aware that the Havasupai may become involved with the AMP. He said there is a sixth Federal agency (WAPA) that isn't contributing \$95K to tribal participation and that should be considered. Leslie reminded the TWG that WAPA doesn't get appropriated funds so any support would have to come from power revenues.

Dennis pointed out that since the tribes are not expending all their monies, he would like to request that Kurt encourage the tribes to spend the money so Washington can release those funds. Washington is also looking to fund the tribal liaison position.

Hydrograph Discussion. Tom Ryan said he didn't have a formal presentation but had quite a bit of background in working with the Annual Operating Plan process and development of the AOP. He said the question periodically comes up with how the AOP matches up with the GCDAMP. He said it's always been his impression that there are some misconceptions about what the AOP process really is. He explained that every month Reclamation (Upper and Lower regions) coordinate to develop the 24-month study. The 24-month study is the operation of the main reservoirs in the CRSP (Flaming Gorge, the Aspinall Unit, Navajo, Glen Canyon, Lake Mead, etc.). It needs to be coordinated because it's one river system. In that study the correct annual volumes, consistent with whatever the governing criteria has been put in, and recently that

has been the interim guidelines. The monthly volumes are the intermediaries to get from point A to point B. When it's an 8.23 maf year, there is more water put in the winter months and summer months and a little bit less in the off-season shoulder months, the spring and the fall, for the purposes of hydropower. We've had a lot of 8.23 maf years and that's been a consistent practice that Reclamation has followed. It goes back to the 1995 EIS which states the monthly volumes for the preferred alternative would be consistent with the no action where there is more water released in the summer and winter. He said it's generally more like 800,000 acre-foot months in the winter and summer and more like 600,000 acre-foot months in the shoulder season.

He said the AOP utilizes the information that is contained in the 24-month study. It's a chance for the Secretary, through the Bureau of Reclamation, to consult with the Colorado River basin states, the scientific community, Indian tribes, and anyone who is interested on how Reclamation is operating the system. The way the 24-month study is put together is consistent with the law and consistent with existing compliance. As a result, they see steady flows in September and October consistent with the compliance that was done for the 5-year period. The bulk of the discussions at the AOP meetings aren't on the releases but over the language that's contained in the document that describes how the system is operated. He feels there is a perception that somehow the AOP is where people get together and determine how the monthly volumes are going to be patterned for the year and how the system will be operated. He said it's done on a month-by-month basis in the 24-month study but it's an annual chance for the community to gather and talk about that, make sure it's consistent with everyone's belief that it's consistent with the law, and with existing compliance and so forth. He said the hydrograph included in the GCDAMP budget has always been taken from the 24-month study. The 24-month study is the most likely thing to happen. It is the best projection of what the releases will be.

Rick asked Tom to point out the No Action Alternative in the EIS because all he could find was the criteria they used in developing it. Tom said he didn't have the document with him but could send him the exact notation. Norm said it can be found on page 19 of the EIS. Rick said the current data for monthly volumes came from the Colorado River Management Work Group that initiated the AOP process in 1986 and this was referenced in a Wayne Cook memo and it's been that way since then. Tom said he didn't know how to respond to that.

Shane told Rick that the TWG received his three motions and asked if he wanted to talk about those. He said there was only about 15 minutes left on this item and asked him what he wanted to do. Rick said he would like to have consideration of motion one, and if not motion 1 then motion 2, and then regardless of motions 1 and 2, then motion 3. Norm said that before they do that, it sounded like from Tom's discussion there was no legitimate process for the TWG to provide input into that, that the 24-month study dictates everything so there is no real opportunity or no legitimacy for TWG or the AMP to make input into that as far as to change that. Tom said he disagreed with Norm because there have been many instances of experimental releases that have come through the AMP. The 24-month study, which is included in the formal product of the Annual Operating Plan, includes operations based on recommendations from the AMP to the Secretary that Reclamation has completed compliance for. Norm said the other side of the coin is the management of the ongoing operations and not the experimentation. He said he thought he heard the 24-month study dictates that and he said the GCPA was not that way and it sounds like the letter from Anne Castle to Rick (**Attachment 9**) says she doesn't feel that way either. The TWG does have a legitimate role in making recommendations for ongoing operations.

Shane asked Rick to review his motions. He asked Paul if GCMRC could accommodate Rick's request about having the information by the end of May. Paul said it's not an easy timeline but is possible. He said the next step is the journal article publication that documents how the model works and an administrative write-up on how the model is applied in this instance. Shane said other members have expressed interest in providing information to the sediment folks and incorporating the potential hydrographs into the modeling run. He asked the members to send their concerns to Paul so they can prepare to discuss at the Integrated Modeling Workshop. Shane asked Rick if that was agreeable to him or whether he still wanted to make a

motion. Rick said he still wanted to propose a motion because if the information can be obtained from GCMRC by the end of May, then the second motion is not needed. He wanted to propose the motion and get validation from TWG on the direction they wanted to go. Shane reminded Rick the TWG can't direct GCMRC to do anything without going through the AMWG and the Secretary. John said he felt he had some discretion on what GCMRC could do but due to the sensitivity of this issue, he would like to talk with the Secretary's Designee to find out if it's appropriate. Given that Scott will do more modeling on hydrographs, Shane asked Rick if that was acceptable to him and then he could make a specific motion to AMWG at a later point. Rick said that would be fine. John said he could talk with Anne Castle before the workshop so they can be prepared to present hydrographs at the workshop. As such, Rick rescinded the first motion. Rick said he perceived this as information that would come back to the TWG by the end of May and then they would be able to work on hydrographs for discussion at the late June/early July TWG meeting and that recommendation would go to AMWG.

Draft GCT Motion #1 (Proposed by Rick Johnson, seconded by ____). To assist in the development of a technically sound 2011 hydrograph recommendation to the AMWG that is likely to conserve sediment while having the most beneficial (or least detrimental) impact on other resources, the TWG requests that GCMRC provide sediment mass balance model results for the following eight scenarios:

| Annual release | Monthly pattern | Daily fluctuation |
|----------------|--------------------------|-------------------|
| Equalization | Current | Typical MLFF |
| Equalization | Current | Steady |
| Equalization | Equalized Monthly Volume | Typical MLFF |
| Equalization | Equalized Monthly Volume | Steady |
| 8.23 maf | Current | Typical MLFF |
| 8.23 maf | Current | Steady |
| 8.23 maf | Equalized Monthly Volume | Typical MLFF |
| 8.23 maf | Equalized Monthly Volume | Steady |

The TWG requests this information by the end of May, 2010. The TWG will then discuss the implications for different releases and make a hydrograph recommendation at its June 2010 meeting. The AMWG will consider the recommendation at its August 2010 meeting for incorporation into the 2011/12 AMP workplan/budget/hydrograph development process as well as the 2011 AOP.

Draft GCT Motion #2: If the TWG does not request the mass balance model results from GCMRC, or if GCMRC declines to provide the model results, then the TWG recommends that the AMWG rely on the model results in the 2008 Wright paper ("Is there enough sand?") to implement Equalized Monthly Volumes and steady daily releases in WY 2011.

Based on the above conversation with Rick, this motion was rescinded.

Draft GCT Motion #3. Rick said that if current BHBF trigger is exceeded, they move to flows that will maintain that sediment in the system and then implement a BHBF in March 2011 similar to the one done in 2008. Shane asked if he wanted to make the motion before having the modeling results. Rick said he thought this was something that could be done regardless of what the intervening flows are.

GCT Motion #3 (proposed by Rick Johnson, seconded by John O'Brien).

The TWG recommends to the AMWG that if sediment inputs exceed the current BHBF trigger before March 2011, then dam operations will immediately switch to equalized monthly volumes and steady flows (if this is not already the operating scenario), and a BHBF will be implemented in March 2011.

Q: If I understand your motion correctly, then the sole criteria for making that determination would be the sediment input? (Benemelis)

A: Yes, using the current BHBF trigger that we used for triggering the 2008 BHBF. (Johnson)

R: I would not be able to vote for using that criteria and not acknowledging any other criteria that exists for determining how releases would be made. (Benemelis)

C: I oppose the motion. WAPA has supported and does now support continued experimentation with BHBFs. We're in the middle of developing an HFE protocol. When it's completed, the protocol will specify the parameters, triggers, etc., related to the conduct of these HFEs. We're supportive of these experiments but don't imagine the HFE protocol will result in a sediment trigger as being the only consideration relative to implementation of BHBFs. The second part of the motion is not about BHBFs but about the subsequent flows that as soon as a trigger occurs and a BHBF occurs, that it switches to equalized monthly volumes and steady flows. The notion that there are other resources to be considered (trout, aquatic foodbase, and power) isn't being considered by this motion and hasn't been considered by the TWG or the AMWG. Further, it's unclear from the science presented earlier today by Paul Grams, coming from Scott Wright's model, that there is a scientific case to be made for equalized monthly volumes as superior in terms of sediment conservation over MLFF. It looks like the model results are similar and they appear to be within the error band of the sediment transport model. We don't even know that the results presented are realistic results. One of the things not included in the modeling is the idea of forecast error. (Palmer)

C: This motion looks like a management action. From the State of Utah, we would have to oppose that because it's contrary to 1956 and 1968 Acts. Unless this is an experimental action where we're testing hypotheses, we would have to change those or go through an EIS process that changes that. I don't see an associated science plan with this, an experiment, or part of the experimental plan. I would oppose this. (King)

C: This is a technical work group and we evaluate these on a technical basis. I'm going to vote on this. I don't know if my agency would approve this. All models back up this information and further clarify and I think this is a proper motion to put forward on a technical basis. (Mietz)

C: If we really want to protect resources, then let's use the science we've already got and not let the law get in our way necessarily but let's understand exactly what we're dealing with here. (Henderson)

C: I see this as an experiment because it's preceding a BHBF with a particular type of flow and we haven't had that in the past. I think we're well along the road of having an experimental design that we can modify with antecedent conditions and whatever the BHBF tends to be or is available to be and then we can have this as an experiment. I don't think we're starting from ground zero on this. (O'Brien)

C: It's ironic to me that we're talking about a specific proposal when we don't have a process – the BAHG identified in its deliberations that the TWG does not have a process for developing hydrographs other than following the 24-month study. It's healthy to discuss how you get to more flexibility but I think this is such a big bite of the apple, I can understand how people have a problem accepting it. I want to get back to the development of the hydrograph process, making a recommendation to the AMWG, but I think the first thing is to develop that process. (Kubly)

C: I'm not aware of what the current BHBF trigger is. As far as I know, we don't have a trigger, at least one that has been formally adopted. There have been triggers discussed but the last time we had a formal trigger was in 2004 and that was for that one experiment. Prescribing a BHBF in March may be something you want to reconsider given the response we just saw with the trout populations in Lee's Ferry; one of the significant findings of the last experiment was that we saw a large cohort of trout resulting from the high flow and we think there is a strong relationship between the two. This is making a prescription for a science plan without having a whole lot of input from us on how you would go about this, this gets us back to the comments I made on the FSF Science Plan. This isn't how you do good science. (Hamill)

Motion (proposed by Rick Johnson, seconded by John O'Brien). The TWG recommends to the AMWG that if sediment inputs exceed the current BHBF trigger before March 2011, then dam operations will immediately switch to equalized monthly volumes and steady flows (if this is not already the operating scenario), and a BHBF will be implemented in March 2011.

| Representative | Stakeholder Entity | Vote | |
|----------------------------------|--------------------------------------|---------------|--|
| Bill Stewart / Andy Makinster | Arizona Game and Fish Department | not appointed | |
| Amy Heuslein / Garry Cantley | Bureau of Indian Affairs | a | |
| Dennis Kubly / Marianne Crawford | Bureau of Reclamation | n | |
| Mike Yeatts | Hopi Tribe | a | |
| Kerry Christensen | Hualapai Tribe | n | |
| Steve Mietz | National Park Service - Grand Canyon | y | |
| Norm Henderson / Chris Kincaid | National Park Service - GLNRA | y | |
| VACANT | Navajo Nation | vacant | |

| | | | |
|--|--|------------------|--|
| Kurt Dongoske | Pueblo of Zuni | n | |
| VACANT | San Juan Southern Paiute Tribe | vacant | |
| Charley Bullets/LeAnn Skrzynski | Southern Paiute Consortium | absent | |
| Glen Knowles | U.S. Fish and Wildlife Service | a | |
| Mary Barger / Clayton Palmer | Western Area Power Administration (DOE) | n | |
| Rick Johnson / Nikolai Lash | Grand Canyon Trust | y | |
| Larry Stevens / Emily Omana | Grand Canyon Wildlands Council | a | |
| John Jordan | Federation of Fly Fishers | not appointed | |
| John O'Brien / Andre Potochnik | Grand Canyon River Guides | y | |
| VACANT / Perri Benemelis | Arizona | n | |
| Christopher Harris | California | absent | |
| Jennifer Gimbel / Ted Kowalski | Colorado | n | |
| McClain Peterson/ Jason Thiriot | Nevada | n | |
| Paul Harms / Don Ostler | New Mexico | not appointed | |
| Robert King | Utah | n | |
| John Shields / Don Ostler | Wyoming | n | |
| Bill Davis | Colorado River Energy Distributors Association | n | |
| Cliff Barrett | Utah Associated Municipal Power Systems | n | |
| | Total Yes | 4 | |
| | Total No | 11 | |
| | Total Abstain | 4 | |
| | Total Voting | 19 | |
| | Motion Fails | | |
| Abstentions count toward the quorum, but not the vote. For example, if 20 TWG members are present then a quorum is present (quorum=16). If the vote is 3-0-17 (that is 3 yeas, 0 nays, and 17 abstentions), the motion passes because abstentions are non-votes for all purposes other than to establish a quorum. To explain further, the simple majority or two-thirds majority is based on all votes minus the abstentions. | | | |

Agenda Update. Shane went over the items to be accomplished this afternoon: 1) pass a FY2011-12 budget motion, 2) Science Advisors Report, and 3) an update from Marianne on deliverables.

FY2011-12 Budget Discussion. Shane said he thought in order to get through the budget, he would allow three minutes per item, make a few changes, and then vote.

Lines 167 & 168: Mary asked what was being deferred on line 167. Helen said the original proposal was to do some field work and do some monitoring at Diamond Creek and Glen Canyon Reach. John made the decision not to do this and get ready for the PEP. On line 168, Mary said she wasn't sure it was about looking for HBC in limited areas. Helen said she thought was to try to actually implement one of the PEP recommendations and put more into mainstem monitoring. Mary said they would like to suggest that since this is a method by which they could identify the threat of warm water fish, Western wanted it funded.

Shane suggested they go through a hand vote on each item as some members would be leaving and there wouldn't be a quorum.

Item #12. Bill Davis asked what the budget implications for this would be. Steve said the budget implication is that he wants to forward it to AMWG to see if it's appropriate to fund as part of the AMP since it relates directly to the program and involves a lot of the stakeholders. Don asked if there was rationale for shifting this from GCMRC to the NPS and secondly, can you do this ahead of the consultation that's going on with the tribes which may completely change the methods for non-native fish control. Norm said this is an implementation plan and not a science plan. It's taking all the information they've gotten from GCMRC, all

the science and different alternatives that are available to control non-natives, and putting it into an implementation plan of some sort. Steve said he would like the AMWG (policy makers) to tell them how the work should be done.

Item #14. This was removed per Mary's request based on the conversations held earlier about carryover money from FY2010.

Shane asked if the group wanted more discussion or do a hand vote. It was decided that if there was no discussion needed, then they would move onto the next item.

Issues of Concern:

1. Implement a new start in the work plan for power economics which will be carried out by WAPA in FY 2011 and 2012, as described in the proposal provided by WAPA dated 3/15/10. WAPA will perform these tasks with no cost to the GCDAMP, and will provide the actual cost as a cooperator in the budget spreadsheet. The work will be part of the work plan and coordinated and reviewed by GCMRC. The workplan would be developed by GCRMC and WAPA in coordination with the TWG. This will result in costs to GCMRC that will need to be provided to oversee and provide peer review of this project. **(10/3/3)**

2. (line 175) Humpback chub translocations above Chute Falls have been deferred by GCMRC. TWG believes this is an important compliance requirement, and a project that has shown great potential for positive effects on the LCR population and should be funded in FY 2011 and 2012. **(no objection)**

3. TWG is concerned about the continued use of the experimental flow fund for other purposes within the budget. Without setting aside the experimental fund, it may be difficult to carry out flow experiments in the future. Should there be an HFE in FY 11 or 12, having this small amount of money available for data gathering and analysis would mean no meaningful study. The default would be determining the effect of an HFE through the monitoring program alone. An HFE should only be conducted to answer direct science questions. Therefore, a science plan should be developed and funding should be identified for this purpose. **(10/3/3)**

4. (line 24) TWG is concerned about the continued use of the warm water nonnative fish contingency fund for other purposes within the budget. **(no objection)**

5. (line 166) GCMRC has moved numerous projects out of the budget to an unfunded projects list. Many of these issues represent compliance requirements or other important projects that should be carried out to further the goals of the GCDAMP. The AMWG should consider other mechanisms for acquiring funding for these projects, such as identified in the biennial budget process paper. **(13/2/2)**

6. Although GCMRC has designated projects in the spreadsheet as core monitoring (COR), TWG has only provisionally approved the sediment-related programs at this time and will be considering the other programs over the next few years. **(no objection)**

7. (line 115) Add funding in FY 2011 for DFC support (60k), including facilitation and decision support. **(no objection)**

8. (line 71) The FY11-12 budget/workplan should include \$25,000 to fund an Extirpated Species Workshop to achieve the following:

1. Finalize and prioritize species list
2. Assess current compliance environment for various implementation strategies
3. Develop a strategic framework for implement extirpated species goal within AMP

This work could be funded by reducing the DASA 12.D5.10 cooperative agreement by \$25,000. **(12/3/1)**

9. (line 188) The FY11-12 budget/workplan should include \$89,568 to fund deferred project DASA 12.D9.10-11. This one-time study is needed to aid the AMP in quantifying a desired future condition for sediment resources. This work could be funded by reducing the DASA 12.D5.10 cooperative agreement by \$89,568 for one year or \$45,000 over two years. **(11/3/2)**
10. (line 160) Evaluation of rainbow and brown trout movement . . . this funding is inadequate for the purpose of studying and implementing possible alternatives to lethal fish removal. We suggest an increase to \$200 to \$300 k. Alternatively, we suggest a budget correction after tribal consultation and resulting actions identified. **(no objection)**
11. (line 168) Increased mainstem monitoring should be funded in FY 11 and 12. **(no objection)**
12. (line 186) Since this geomorphological modeling project assists in the identification of the impacts of dam operation vs. the impacts of natural effects, this project should be funded. **(no objection)**
13. (lines 38-42) Recommend that DOI and DOE meet with the tribes to discuss including a CPI increase for tribal participation to those tribes that utilize their allocation, consultation and tribal monitoring programs. Another tribal entity may participate in FY 11 and additional funding may be necessary. **(no objection)**
14. (line 29) Develop methodologies to integrate tribal perspectives into the treatment plan. **(no objection)**
15. The budget spreadsheet and workplan should include other projects being undertaken by cooperators using funds outside of the GCDAMP funding. **(7/6/3)**
16. TWG advises the AMWG that if a long term experimental management plan EIS is undertaken in FY11 or 12 the amount of power revenues requested in the budget will increase. **(no objection)**
17. TWG recognizes that it does not have a formal process for evaluating and identifying a proposed hydrograph to the AMWG, and intends to undertake that development in this budget cycle. **(8/7/1)**

Failed "Issues of Concern"

1. (line 184) The FY11-12 budget/workplan should include \$117,273 to fund deferred project HYD 10.tbd, "Phase I – Results of Economic Value Workshop". **(6/7/3)**
2. (line 66) The FY11-12 budget/workplan should initiate the development of a non-native fish control implementation plan that will include elements that will be scoped at the March 31st 2010 NNF workshop, but include the following elements:
 - Define Cooperating Groups and Roles
 - Agencies and tribes involved
 - Roles of agencies and tribes in plan development
 - Roles of agencies and tribes in plan implementation
 - Role of conservation measures
 - Define geographic and programmatic scope of plan
 - Outline possible control alternatives for inclusion in plan
 - Compliance and consultation and science needs
 - Completion schedule and deadlines
 - Funding needs for implementation
 - Draft outline of chapters of plan

(4/7/5)

3. (line 143 & 161): SCORE report – FY 11 & 12 are “tight” budget years. We suggest deferring this project.
(3/13/0)

Motion: TWG has reviewed the preliminary FY 2011-12 biennial budget provided by GCMRC and Reclamation and is forwarding that budget to AMWG along with a list of concerns for AMWG consideration and feedback. This recommendation is based on a two-year biennial budget as requested by AMWG at their August 2009 meeting. The TWG will work with GCMRC and Reclamation to develop a final biennial budget recommendation for FY 2011-12 and a proposed workplan and hydrograph over the summer, incorporating input from AMWG, using the recommended biennial budget process.

TWG requests either AMWG concurrence with the TWG recommendations on the "Issues of Concern" or further direction on how to resolve these.

| Representative | Stakeholder Entity | Vote | |
|---|--|---------------|--|
| Bill Stewart / Andy Makinster | Arizona Game and Fish Department | not appointed | |
| Amy Heuslein / Garry Cantley | Bureau of Indian Affairs | y | |
| Dennis Kubly / Marianne Crawford | Bureau of Reclamation | y | |
| Mike Yeatts | Hopi Tribe | y | |
| Kerry Christensen | Hualapai Tribe | absent | |
| Steve Mietz | National Park Service - Grand Canyon | y | |
| Norm Henderson / Chris Kincaid | National Park Service - GLNRA | y | |
| VACANT | Navajo Nation | vacant | |
| Kurt Dongoske | Pueblo of Zuni | y | |
| VACANT | San Juan Southern Paiute Tribe | vacant | |
| Charley Bullets/LeAnn Skrzynski | Southern Paiute Consortium | absent | |
| Glen Knowles | U.S. Fish and Wildlife Service | y | |
| Mary Barger / Clayton Palmer | Western Area Power Administration (DOE) | y | |
| Rick Johnson / Nikolai Lash | Grand Canyon Trust | absent | |
| Larry Stevens / Emily Omana | Grand Canyon Wildlands Council | y | |
| John Jordan | Federation of Fly Fishers | not appointed | |
| John O'Brien / Andre Potochnik | Grand Canyon River Guides | y | |
| VACANT / Perri Benemelis | Arizona | y | |
| Christopher Harris | California | absent | |
| Jennifer Gimbel / Ted Kowalski | Colorado | absent | |
| McClain Peterson/ Jason Thiriot | Nevada | a | |
| Paul Harms / Don Ostler | New Mexico | not appointed | |
| Robert King | Utah | n | |
| John Shields / Don Ostler | Wyoming | y | |
| Bill Davis | Colorado River Energy Distributors Association | y | |
| Cliff Barrett | Utah Associated Municipal Power Systems | y | |
| | Total Yes | 14 | |
| | Total No | 1 | |
| | Total Abstain | 1 | |
| | Total Voting | 16 | |
| | Motion Passes | | |

Abstentions count toward the quorum, but not the vote. For example, if 20 TWG members are present then a quorum is present (quorum=16). If the vote is 3-0-17 (that is 3 yeas, 0 nays, and 17 abstentions), the motion passes because abstentions are non-votes for all purposes other than to establish a quorum. To explain further, the simple majority or two-thirds majority is based on all votes minus the abstentions.

Science Advisors' Report to GCDAMP. Dr. Garrett informed the TWG that the Science Advisors Program is now entirely contracted out with GCMRC. The contract is up for renewal every year. He distributed copies of his PPT, "Fiscal year 2009 Science Advisors program Report to GCDAMP" (**Attachment 10**). John said that any work the SAs are asked to do, the requests need to go through him for approval.

GCMRC Updates (AIF=Attachment 11). Due to time constraints, Shane asked the TWG to address any comments or questions to GCMRC via e-mail.

Attachment 12 = Ad Hoc Group Updates

Public Comments: None

Adjourned: 3 p.m.

Respectfully submitted,

Linda Whetton
Bureau of Reclamation
Upper Colorado Region

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 |
| DBMS – Data Base Management System | ROD Flows – Record of Decision Flows |
| DFCAHG – Desired Future Conditions Ad Hoc Group | RPA – Reasonable and Prudent Alternative |
| DOE – Department of Energy | SA – Science Advisors |
| DOI – Department of the Interior | Secretary – Secretary of the Interior |
| EA – Environmental Assessment | SCORE – State of the Colorado River Ecosystem |
| EIS – Environmental Impact Statement | SHPO – State Historic Preservation Office(r) |
| ESA – Endangered Species Act | SOW – Scope of Work |
| FACA – Federal Advisory Committee Act | SPAHG – Strategic Plan Ad Hoc Group |
| FEIS – Final Environmental Impact Statement | SPG– Science Planning Group |
| FRN – Federal Register Notice | SSQs – Strategic Science Questions |
| FWS – United States Fish & Wildlife Service | SWCA – Steven W. Carothers Associates |
| FY – Fiscal Year (October 1 – September 30) | TCD – Temperature Control Device |
| GCD – Glen Canyon Dam | TCP – Traditional Cultural Property |
| GCT – Grand Canyon Trust | TES – Threatened and Endangered Species |
| GCMRC – Grand Canyon Monitoring & Research Ctr. | TWG – Technical Work Group |
| GCNP – Grand Canyon National Park | UCRC – Upper Colorado River Commission |
| GCNRA – Glen Canyon National Recreation Area | UDWR – Utah Division of Water Resources |
| GCPA – Grand Canyon Protection Act | USBR – United States Bureau of Reclamation |
| GLCA – Glen Canyon National Recreation Area | USFWS – United States Fish & Wildlife Service |
| GRCA – Grand Canyon National Park | USGS – United States Geological Survey |
| GCRG – Grand Canyon River Guides | WAPA – Western Area Power Administration |
| GCWC – Grand Canyon Wildlands Council | WY – Water Year (a calendar year) |
| 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

Updated: 2/3/09