

Glen Canyon Dam Technical Work Group  
Meeting Minutes  
October 1, 2003

**Conducting:** Norm Henderson, Chairperson

**FINAL**

**Committee Members Present:**

Mary Barger, WAPA  
Perri Benemelis, ADWR  
Kerry Christensen, Hualapai Tribe  
Wayne Cook, UCRC  
Jonathan Damp, Pueblo of Zuni  
William Davis, CREDA  
Brenda Drye, So. Paiute Consortium  
Amy Heuslein, BIA  
Lloyd Greiner, UAMPS  
Robert King, UDWR

Glen Knowles, USFWS  
Dennis Kubly, USBR  
Phillip Lehr, Colo. River Commission/NV  
Bill Persons, AGFD  
Nikolai Ramsey, Grand Canyon Trust  
John Ritenour, NPS/GLCA  
D. Randolph Seaholm, CWCB  
Mark Steffen, Federation of Fly Fishers  
Larry Stevens, Grand Canyon Wildlands Council

**Committee Members Absent:**

Robert Begay, Navajo Nation  
Cole Crocker-Bedford, NPS/GRCA  
Christopher Harris, CRB/CA  
Lloyd Greiner, UAMPS

John Shields, WY State Engineer's Ofc.  
John Whipple, NM Interstate Stream Comm.  
Michael Yeatts, The Hopi Tribe

**Alternates Present:**

Jan Balsom  
John O'Brien  
Wayne Cook  
Wayne Cook

**For:**

Cole Crocker-Bedford, NPS/GRCA  
Matt Kaplinski, GCRG  
John Shields, WY State Engineer's Office  
John Whipple, NM Interstate Stream Comm.

**Interested Persons:**

Wendy Batham, EcoPlan Associates  
Emma Benenati, NPS/GRCA  
Mike Breedlove, USGS/GCMRC  
Gary Burton, WAPA  
Nancy Coulam, USBR  
Phil Davis, USGS/GCMRC  
Kurt Dongoske, CREDA  
Helen Fairley, USGS/GCMRC  
Denny Fenn, USGS/GCMRC  
Lisa Force, Grand Canyon Trust  
Steve Gloss, USGS/GCMRC  
Susan Hueftle, USGS/GCMRC

Lisa Leap, NPS/GRCA  
Bill Leibfried, NPS  
Paul Li, IEDA  
Mike Liszewski, USGS/GCMRC  
Jeff Lovich, USGS/GCMRC  
Ted Melis, USGS/GCMRC  
Steve Mietz, USGS/GCMRC  
Barbara Ralston, USGS/GCMRC  
Sam Spiller, USFWS  
Chris Updike, NAU  
Mike Yard, USGS/GCMRC

**Recorder:** Linda Whetton, USBR

## **Meeting Opening and Administrative Items**

**Convened:** 9:30 a.m.

**Welcome and Administrative Items:** Norm Henderson announced that he has been approved to serve as the TWG Chairperson for FY 04. John Ritenour (GLCA) will serve as the TWG representative.

A quorum was established, introductions made, and attendance sheets (**Attachment 1**) were distributed.

Nikolai Ramsey introduced Lisa Force who started working for the Grand Canyon Trust this week. She will replace Nikolai as the TWG representative for the Grand Canyon Trust.

**Review of Action Items.** All items were completed.

**Approval of June 30-July 1, 2003, Meeting Minutes.** Pending a few minor edits and without objection, the minutes were approved.

**Meeting Priorities** – Norm asked if any changes needed to be made to the agenda. Dennis Kubly commented that even though the FY05 budget is the last item on the agenda, it is a high priority and encouraged all members to be present for that discussion.

**Remote Sensing Initiative PowerPoint Presentation** – Norm said this program was started in 1997 as a 5-year initiative to integrate remote sensing technology into the GCRM to see how it might be applied to a core monitoring initiative in an effort to make monitoring more efficient and less intrusive. He introduced Phil Davis (GCMRC) who gave a PowerPoint presentation (**Attachment 2**).

Bill Davis asked where the program goes now in terms of recommendations. Jeff Lovich responded that he sees remote sensing as one of the tools in providing them with an integral part of what will become core monitoring.

**Fine Grained Sediment Inventory and Change Detection in the Grand Canyon River Corridor Using Airborne Digital Imagery PowerPoint Presentation** – Mike Breedlove (GCMRC) said that in December 2002, the information technology (IT) section at GCMRC decided to take on a project to explore and document a canyonwide test of remote sensing as it applied core monitoring technology. He proceeded with a PowerPoint presentation (**Attachment 3**).

**2-Dimensional Flow Modeling** – Ted Melis said that Steve Wiele (GCMRC) is leading a modeling research project that GCMRC awarded to his team two years ago and is entering the third and final year of that research effort. The primary objectives are to be able to develop a predictive capability for the fate of individual sand inputs that come in from places like the Paria River once they actually get into the mainstem and are affected by the operations of the dam as well as being able to conduct simulations to predict sandbar evolution locally at specific sites throughout mostly the upper third of the system. Steve gave a PowerPoint presentation (**Attachment 4**).

Ted said that one of their current experimental scenarios is to not attempt to create big bars above 25,000 cfs with powerplant spikes but to temporarily store new sand in eddies below 31,000 cfs for use during a higher flow several months later. Steve said he thought that strategy could be very effective if those depositional sites are already scoured out. If there hasn't been any recent scouring of those sites and the sites already contain sediment, then taking the flow up to 30,000 would send sediment straight downstream. It wouldn't be stored anywhere because the accommodation space is such a critical factor.

**Lees Ferry Stranding Report (Attachment 5a)** – Wendy Batham (EcoPlan Associates) gave a PowerPoint Presentation (**Attachment 5b**) on their findings of stranding of rainbow trout during flow fluctuations.

Ted said that one topic that came up a year or so ago was whether common stranding areas could be identified and the sites mechanically modified relatively easy to allow fish to egress or escape during the low flows to avoid stranding. Wendy said she thought there were some areas that could be used. Dennis questioned whether the areas where there were stranded fish could be characterized as good spawning areas. Wendy said there were some that were good spawning areas.

Bill Persons asked what the guides had to say about the flows. Wendy said that at first the guides were a little worried about what the flows would do to their businesses. There were some weeks in which businesses completely dropped off but as word got out that the fishing was still pretty decent, just as long as people would time fishing with when the water was up, then business picked up again.

**Mechanical Removal Update** – Mike Yard (GCMRC) reported on the work he and Lew Coggins have been doing regarding the mechanical removal of non-native fish in the Colorado River. Mike gave a PowerPoint presentation (**Attachment 6a**).

Dennis Kubly asked if there is a target abundance to hold the predator population, trout, in the reaches and if that feeds into the decision on whether to maintain the present effort over the whole reach or having to back off and go upstream. Mike responded that they built into their overall design a boundary or buffer upstream to account for movement of fish that would perhaps immigrate into the lower part, not knowing to what degree that was and still don't. As far as a management prescription down the road, Mike said that would depend on whether it was a successful experiment based on seeing a signature of recruitment that they don't anticipate to see between 2006 and 2007 to test their hypothesis.

Dennis asked if they had thought about doing any calculations like Valdez and Ryal did using the predation rate, the number of fish extracted from the system, and then how many humpback chub or native fish were actually saved in the process. Mike said that was their intent but they are just completing the diet analysis for the winter period. They have all of the summer period and anticipate having to modify their efforts due to changes in the budget on assessing diet and predation which may influence some of that work as far as looking at variable predation during that time period.

Dennis questioned if there were any sensitive sites they were avoiding or not doing electrofishing in that reach of the river. Mike said that both the Navajo and Hopi tribes requested they avoid shocking in the area around the confluence and that didn't bother them due to the high concentration of salts in that area which would load up the generator. They have an off-limit area in and along that interface between the LCR and the mainstem though they do sample slightly upstream and downstream from that as well as on the other side of the river. Because of the variable nature of sediment inputs from the Paria as well as the LCR and the way sediment wraps both upstream and downstream, they felt that that would influence their analysis when comparing different levels of clarity, upstream vs. downstream, so although they do shock and deplete in those areas, they don't include that in their analysis.

Jeff Lovich commented that he hopes the members can see the value of this work and that it is still very imprudent in terms of the information they're garnering, particularly regarding the seasonal component of diet and also the effects of turbidity on the feeding behavior of the fish. He said that in the FY04 budget it was recommended \$159,000 be removed from the predation on humpback chub and the diet of rainbow trout analysis. As such, he asked Mike and Lew to prepare a one-page fact sheet on the implications of that reduction and feels the TWG should know there are potential impacts particularly comprising GCMRC's ability to understand the importance of seasonal variation of diet and susceptibility

of predation. He distributed copies of the fact sheet (**Attachment 6b**) and asked that if there were any questions to talk with him or Mike.

Susan Hueftle (GCMRC) asked what effect the temperature control device would have mechanical removal experiments because currently there are increased temperatures coming out of Glen Canyon Dam. Mike said that one of the experimental designs was a 4-year period of having a treatment effect. As a group, the stakeholders and TWG agreed on two but as originally proposed, there were four to maintain an effect on non-natives but it was also meant to stop to see a negative response besides a positive response on recruitment of humpback chub in the LCR. They feel that it is strongly related to non-native interactions but it could also be due to habitat differences and a change in temperature along the near shoreline area which may influence survivorship in a different way.

Bill Davis commented that if it is known for sure that trout are consuming endangered fish here, then from a management standpoint something must be done right away.

**NPS Updates** – Norm said Bill Leibfried would make a couple of presentations, one on the brown trout removal at Bright Angel Creek and the other is a new project for non-native removal within the tributaries in Grand Canyon. Norm said the Park Service has basically gone into a mode of removal of non-natives throughout the Grand Canyon. The fish removal efforts are targeted now toward salmonids within the Grand Canyon in total, in the tributaries primarily, and the mainstem. The NPS, in cooperation with some of the wildlife agencies in the early 1920-30's were actively promoting the trout fishery in Grand Canyon. As time has gone by, the NPS has clarified their management objectives within the NPS and there is no role for non-natives within the national parks. That goal has been fulfilled in a variety of national parks throughout the nation and Grand Canyon is just getting started with the effort.

Bill Leibfried (SWCA) introduced himself. He has been working as a biologist for SWCA Environmental Consultants and has worked with the GCES/GCMRC program for the last 15 years or so. He said his presentation today will have three components: 1) looking at the results of the feasibility study that the Park Service contracted them to do last fall, 2) the next phase of that project, and 3) provide an update on the latest project the NPS has contracted them to do which is looking at non-native fish removal in selected tributaries as a feasibility study. He gave a PowerPoint presentation (**Attachment 7**).

Bill said that when they complete NEPA compliance (possibly mid-December), a management action will include mechanical removal of both brown and rainbow trout. He said that part of the program will go back in during the springtime and use the weir to capture migrating native fish, both species of suckers, and also do more baseline population monitoring to look at changes in the community and then in that fall and every fall if every year they will run the weir and do more mechanical removal of brown trout.

**Phase 2 Bright Angel Creek Trout Removal** – Bill Leibfried (SWCA) commented there is a data the before brown trout became predominant in Bright Angel Creek, there were species like specked dace and other native suckers that were much more prevalent in BA Creek. Over the last decade there has been a complete reversal in the fish and fauna in BA Creek. It used to be almost exclusively rainbow trout. However, in the last 15 years or so there has been a shift and now over 95% are brown trout and it is the top predator.

Mark Steffen said there were a lot of visitors to the park who have appreciated the recreational opportunities presented by the brown and rainbow trout fisheries in BA Creek. It has been his experience that it has been one of the top fisheries in the United States and so to take that away, he feels NPS needs to strongly justify taking that action.

**Native Fish Habitat Restoration in Selected Grand Canyon Tributaries** – Bill said that beginning in winter 2004, a reconnaissance trip is scheduled to go to several tributaries, spend four nights in each one, and

do some removal efforts, population estimating with removal of non-natives, and hopefully come up with a program in which they can do some additional work. The second, third, and fourth trips will focus on one or two tributaries so that they can put some effort into one or the other and not spread their effort too thin. In subsequent years, they will have selected those tributaries and just hit those two during the course of that trip.

Comments:

- *There is no request from the program and how the chronology or the objectives might be integrated with this program. In the FY05 budget, an opportunity for translocation in other suitable tributaries and that would likely be Bright Angel Creek - is Park ready? (Kubly)*
- *1) Need for NEPA process with the tribes, 2) Need to consider further utilization of dead fish similar to what was done for the Hualapai (fertilizer) perhaps a pilot project to educate the public about what's going on in the canyon. (Heuslein)*

**Temperature Control Device (TCD) Update** – Dennis Kubly said that at the AMWG meeting in August 2003, Dave Garrett made a presentation on risk assessment for the TCD. Dennis reviewed the findings of the Science Advisory Board. He explained the various designs Reclamation was considering and said Reclamation's projections for the reservoir show lower elevations than were anticipated a few years ago. They are investigating a "full utility design" that takes the reservoir down to an even greater depth. Reclamation has drafted a letter to the Secretary based on recommendations from the last AMWG meeting. They have also begun drafting a sufficient progress letter to the Fish and Wildlife Service and one of the requests is for them to concur with Reclamation and AMWG that it is feasible to construct and operate a temperature control device as contained in the Biological Opinion. They have also discussed the need for NEPA compliance with the Solicitor's Office. The last time Reclamation did this, they issued an environmental assessment. In most instances when an EA is done, there is the anticipation of a Finding of No Significant Impact (FONSI). There have been sufficient concerns about the TCD in the past and whether it could be done. The science advisors identified a number of mitigating activities that they foresaw could be used for a mitigated FONSI. The final option, the most costly option, is to do an environmental impact statement.

Dennis reiterated that the science advisors' report advocated a means of approaching the TCD that would allow for testing but not make a full commitment to construction. If that were possible to do, the SAB thought there would be a lower standard for the NEPA compliance and less commitment from the funding side so the TCD could be tested for a period of time and then re-evaluate usage.

**HBC Comprehensive Plan Update** – Glen Knowles gave a PowerPoint presentation (**Attachment 8**) on the Humpback Chub Comprehensive Plan. The next step is to respond to the SAB's comments, complete the two proposals (development of non-native stocking procedures and investigate the controls of diseases and parasites), and move forward in developing recommendations for the 2005 budget. Since the AMWG HBC AHG has completed its work, he suggested the remainder of the work be done by a TWG ad hoc group.

Sam Spiller reported that representatives from FWS Region 6 met in August with their region along with personnel from the Arizona Game and Fish Department and went over population estimates, concerns for over sampling, cost estimates in regards to multi-task sampling, removal of piscivorous fish below GCD, and adding the TCD. They all concurred that there is a lot of work to be done in order to be ready for the TCD. The AGFD committed to write a letter laying the groundwork as to what the resource agencies were thinking. There is going to be discussion on the Lower Basin RIP. Sam asked the TWG how they thought the MSCP and AMWG should collaborate on recovery issues.

Comments:

- *Is the RIPS WIG update at the end of this year going to include humpback chub? (Davis)*
- *Even if you include the HBC in the RIPS WIG, there is still a framework missing to implement the programs that might be within the RIPS WIG. There is still a need for some kind of recovery program. (Henderson)*
- *Perhaps the science advisors could look at the whole basin and provide guidance. (Stevens)*
- *The recovery of the various species is a lot more expensive than removing jeopardy. (Davis)*
- *FWS should take the lead in recovery. It's not the responsibility of the AMWG or the MSCP. (Persons)*
- *The FWS might identify those actions that are leading to removal of jeopardy that would also contribute to recovery because we tend to draw this line between the two that is largely a line that reflects funding differences. The FWS could also identify potential funding sources and what organization or set of entities would most appropriately seek that funding. (Kubly)*
- *We need to have a separate recovery effort of HBC in the Grand Canyon in order to avoid all the other problems that we have in the lower basin. We would be supportive of the FWS taking a leadership role in trying to bring a recovery effort for the HBC in the Grand Canyon. (Seaholm)*

MOTION: The TWG form an HBC AHG. (Stevens)

Purpose: Complete the HBC Comprehensive Plan and establish interaction with a recovery program.

Dennis said he would like to see the HBC Comprehensive Plan completed and if the TWG agrees that it is something worthwhile, he would agree to serve on it if Glen Knowles would chair it. Dennis also felt it would be important to establish a calendar and complete it for the AMWG to see again in January 2004 as they really didn't pass on the plan but picked up on the 2004 budget items. He suggested the HBC Plan could be sent from the AMWG to the FWS in accomplishing the work since the plan was based on FWS recovery objectives.

Sam said it was his understanding that the AMWG hasn't asked the HBC AHG to do any additional work. He said the TWG could tell AMWG that they want to finish the remaining two proposals. He said that if the AMWG tells him to complete those proposals, all he is going to do is send it out to the people who are responsible for those proposals, get their input, put it into the existing package, and send it back out for review. He feels it is a technical function and doesn't see it as a policy type action. He sees AMWG telling the HBC AHG to take a stab at getting the proposals together.

Dennis said he felt it was important to have a document that was suitable to send to the FWS that could serve as input from the AMP into a recovery action program, where some other entity could deal with the funding issues. He doesn't feel the current plan could be sent to them because it hasn't been completed. If the TWG waits until the AMWG meets in January, it will probably be June 2004 before anything can be done.

Realizing the short time frame before the next AMWG meeting, the TWG decided to have the existing (AMWG) HBC AHG work on completing the report and present it to AMWG in January with the intent of having AMWG forward it to the FWS.

**Tribal Consultation Plan Update** – Nancy Coulam (USBR) said the tribes – have worked for many years with Loretta Jackson as the chair of an ad hoc group on a tribal consultation plan. The plan serves two functions: 1) it is suppose to be a component of the Strategic Plan for the Adaptive Management Program, and 2) it is suppose to be a component of an Historic Preservation Plan that is being written to fulfill Reclamation's Section 106 compliance needs for operation of Glen Canyon Dam. It is a document that has been designed to serve two functions that overlap. In working on the plan, it exposed some disparate needs as well as disparate authorities under which consultation is being done or perhaps participation in the program. Nancy said her understanding was that when the tribes sit at the AWMG/TWG table, they sit as equal stakeholders. One of their dilemmas is the need for a new funding agreement with the start of a new fiscal year, either with the federal agencies that have been funding the tribes to participate in this Federal Advisory Committee Act (FACA) group or they need additional funding

from the federal agencies that have been funding the tribes as part of government-to-government consultation. The agreements with the tribes have expired and if the program is going to continue to fund consultation on a government-to-government basis, she either needs the federal agencies within the AMP to agree to get together and do that and do it under some specific authorities or she needs the TWG, as a FACA group, to address it in its budget knowing that the tribes would be in a different category than other stakeholders.

Nancy said that Loretta is about to give the consultation plan back but isn't sure it should go to the federal agencies or the TWG. In working on the TCP, it became very clear that the tribes view the AMWG and TWG meetings as only one component in their government-to-government consultation relationship, whether that is mandated under the National Historic Preservation Act (NHPA) or under a whole list of Executive Orders, laws, regulations, etc., demanding government-to-government consultation. The coops that the AMP has been funding have been based on the idea that funds are being provided by the federal agencies for the tribes as part of that government-to-government consultation. One of the dilemmas with the new cooperative agreements is the requirement to identify very specific authorities which both allows the money to be taken from the agencies and to provide it to the tribes.

Denny asked if Mike Gabaldon or any other agencies had consulted with the Secretary and requested that the order under which the coops had originally been established be revisited and used again as the basis for continuing them for another period of time. Denny said it would be important to have a departmental recommendation or directive which would provide the basis for continuing the agreements. He advised that AMP seek advice from the Secretary via Mike Gabaldon. Nancy asked if there were any members from the federal agencies who would support Denny's suggestion of seeking input from the Department. Amy said she would agree as the BIA is in the midst of a major reorganization which is going to play out to a lot of different funding aspects.

Nancy asked the representatives of the federal agencies present to meet with her following the meeting and discuss further.

**GCMRC Science Symposium Update** – Jeff Lovich said the hotel for the Science Symposium has changed. It was moved to the Sheraton Tucson Hotel Suites on Grant Road. So far, they have 57 papers. He passed out copies of the draft agenda (**Attachment 9**) for the Symposium. There will be speakers from 18 organizations, tribal, federal, state, private, universities, etc. Bennett Raley from the DOI will also be speaking on Colorado River law. In addition, there will be speakers from USC, SWCA, Ecometric, Park Service, WAPA, Grand Canyon River Guides, University of British Columbia, Colorado State, Arizona Game and Fish, Illinois Natural History Survey, EcoPlan Associates, Inc., and the Hopi Tribe. Jeff said the GCMRC web page has been updated with the new hotel information and also includes a registration form if people want to complete and submit for attendance at the Symposium.

**Adjourned: 4:50 p.m.**

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Bill Vernieu, USGS/GCMRC  
Mike Yard, USGS/GCMRC

**Recorder:** Linda Whetton, USBR



## Meeting Opening and Administrative Items

**Convened:** 8 a.m.

**Welcome and Administrative Items:** Norm Henderson welcomed the members, alternates, and public. Introductions were made and attendance sheets distributed.

**Core Monitoring Development** – Steve Gloss (GCMRC) said his presentation is intended to start a process for the TWG to work interactively with the GCMRC to define what constitutes their core monitoring program in support of the GCD AMP. A lot of the interest has been expressed by people wanting to understand what level of support needs to be undertaken on a yearly basis to help managers and stakeholders know more about the status and trends in critical resource areas. His presentation today will be a kickoff for further discussion and deliberation and hopefully will lead to some resolution as to what constitutes the core monitoring program.

The GCMRC held a 2-day meeting with the Science Advisory Board in late March following their 2-day TCD risk assessment meeting in Page in which the GCMRC program managers presented what constituted their present core monitoring program and sought feedback/input from the SAB in that regard. GCMRC also introduced the subject of core monitoring in a meeting scheduled with Reclamation and the NPS regarding their water quality monitoring program primarily on Lake Powell to try and help GCMRC get a better understanding from the managers' perspective of what kind of information needs the managers have in order to make decisions about the status and trends of the resources. GCMRC used the information and began a very preliminary process to conceptualize what might constitute core monitoring. Steve gave a PowerPoint presentation (***Attachment 10***).

**Long Range Planning** - Jeff Lovich (GCMRC) said the key to the whole success of the AMP is going to be a long-term plan and a critical part of that will be a core research and monitoring effort. There has to be a research component as well because as they monitor, they are not just collecting data and moving down, they are going to continually review the data which may raise more questions and lead to experiments. Jeff responded to the following questions.

### *Comments:*

- *Concerned with combining research with the core monitoring program. (Henderson)*

Jeff said he would like to have the TWG think broader than just monitoring and find ways to modify or refine monitoring activities. Jeff said he would like to see the development of a core monitoring program that would bank a percentage of money to deal with research issues that arise from the monitoring program, not research issues that come out of experiments that are prescribed by the AMP, like experimental flows or the HBC actions that were undertaken which are outside the purview of GCMRC's current core research and monitoring activities.

- *Under the EIS, the original plan for the GCMRC was to be a small administrative group that would coordinate the science being done in the canyon. Over the years GCMRC has grown into a huge organization with a lot of in-house work and I'm concerned that this is not the best science that is being done in Grand Canyon for the Colorado River Ecosystem. (Emma Benenati, NPS)*

Steve responded that several things have contributed to GCMRC's perception of growth: 1) experimental flow activities, 2) information technology program needs, and 3) moving the logistics operation in-house. Most of what people are doing at GCMRC in terms of any changes were a result of implementing protocol evaluation panel recommendations, which is part of the peer review process that they use.

Jeff added that he has tremendous faith in the GCMRC scientists. He estimates that the \$3.6 million which comes into GCMRC annually will be contracted out. He feels the program needs to reach out to the broadest community of scientists as possible and would like to see more people from across the country involved in the program.

- *The Hualapai Tribe is one of the few land managers in Grand Canyon and believe it's a big mistake to discontinue monitoring of terrestrial wildlife as part of the core monitoring program. A new species was discovered for the first time since the monitoring program began. The populations are highly variable and very sensitive to environmental changes. Vegetation is not an adequate surrogate for monitoring of these species. (Christensen)*
- *Within the cultural discussion, there is a movement and a discussion about trying to restrict the area where we say the effects of dam are. The NPS is concerned that all the sciences be linked to this discussion. The Bureau of Reclamation is talking about a 97,000 cubic foot zone and my concern is that the other sciences haven't come in on this discussion yet and I don't want us to be premature in the cultural part of the program to draw some line that may be used for restriction, confinement, or some kind of a paradigm between the other sciences. (Ritenour)*
- *Josh Korman and Carl Walters did a splendid job building an ecosystem model. It's a very useful framework for being able to structure a Strategic Plan for GCMRC for this program and it allows us to be able to look into the future as the data unfolds. (Stevens)*
- *Let's get a core monitoring program up and running. Also, assume there will be a linkage with the Strategic Plan. (Persons)*
- *Concur with determining effects of dam operations and making linkage between core monitoring and the Strategic Plan but also feel that when a question arises from core monitoring, it should be put back on the Strategic Plan and take its appropriate place in that list of priorities. (Seaholm)*
- *I'm more concerned with the aquatic food base and how we're going to monitor that. Need for a Hippocratic oath to "do no harm" with our monitoring. (Steffen)*
- *Effects monitoring is separate from core monitoring and it may be more related to research even if it's the effect of a management action, it's separate from what core monitoring should be in some peoples' opinions around the table. The PEP recommendations for the most part did include a core monitoring segment and it would be important to look at the PEPs since the TWG has reviewed all the PEPs. (Barger)*
- *With regard to the biological resources we're interested in, we may find information that is developed as part of the core monitoring to be of more value even than the effects monitoring that we're doing for some of the experimental treatments because the expression of those effects is sometimes so much later in time that we're going to need that baseline data in order to really evaluate what's happening. (Benemelis)*
- *As the GCMRC is developing the core monitoring program they should add a "why do they want to know it" to their deliberations because the needs of a GCMRC manager to ensure compliance with GCPA might be very different from the needs of other managers within the program and identifying the "why" might help prioritize available funds. (Coulam)*
- *In developing a strategic plan and even perhaps core monitoring issues that might relate to eventual need, it's important to consider restoration of some species as well as how the public perceives the AMP. Considering restoring Gooding willow trees along the Colorado River. (Stevens)*
- *Involve the tribes in development of a core monitoring program. (Dongoske)*

Jeff said he would like GCMRC staff to start working on development of a core monitoring program, involve the science advisors and any other appropriate groups, and then bring it back to the TWG for more discussion. With the possibility of having a TCD in place within the next couple of years, he felt it

would be important to have a core monitoring program in place. He thought he could have a draft plan ready by January 2004.

Dennis said Reclamation is very interested in being able to identify whether or not changes in the system can be attributed to dam operations. The TWG needs to have a discussion about that because it will relate to the budget and allocation of resources. He would like to advocate that it be placed high in the agenda in the development of core monitoring. He cautioned not to forget the other components that are out there and if they're going to be developed sequentially, the TWG shouldn't put 100% of the budget into core monitoring.

Mary questioned if the core monitoring plan would have an effect on the FY 2005 budget. She said the budget is more important than the core monitoring plan at this point in the budget cycle. She asked Jeff to be clear on what the plan would mean in terms of the FY 2005 budget. Jeff said he wasn't sure of the plan's impact on the budget but it would affect some research activities. She didn't feel approval of the FY05 budget should be delayed in lieu of having a core monitoring plan was presented in January 2004.

Dennis concurred with Mary and said he would agree to vote on the motion if the group would agree to pursue discussion of the FY05 budget. With \$1.4 million less in FY05 for program needs, it is going to feed into the core monitoring decisions that need to be made. He also believes there are projects the AMWG hasn't had time to flesh out and certainly can't be contracted out by GCMRC so by virtue of having made the decision in August, GCMRC is already behind going into FY04.

**MOTION: The TWG directs the GCMRC to develop an initial draft core monitoring plan (core, effects) that addresses the requirements of the Strategic Plan to bring to the TWG by January 1, 2004, with a final report by April 2004.**

**Motion seconded.**

Call for the question.

Voting Results: Yes = 15      No = 0      Abstained = 2

Motion passed.

Abstaining: Dennis Kubly and Mary Barger

Motion passed.

**Agenda Update** – In addition to discussing the FY05 budget, Norm said there was a suggestion to discuss the FY05 budget with regard to the cuts and the modifications that were made by GCMRC in a general sense and then give it back to GCMRC to develop a work plan around a revised set of directions. The TWG would then meet in November, review the revised budget again with the work plan, seek for approval, and then forward to the AMWG. If and when it goes to AMWG and there is a complete or partially completed core monitoring program that might be modified, the TWG would ask the AMWG to revise the budget at that time.

**Proposal to Modify Winter Fluctuating Flows** - Regarding the January-February-March flows for disadvantaging the trout which will end the NEPA cycle for this flow cycle, Mary Barger said WAPA has talked with Ted Melis about making some changes to the fluctuating flows done last winter in order to conserve even more sediment. WAPA would like to talk with GCMRC about proposing some minor modifications to the winter fluctuating flow and present it at the November TWG meeting so everyone could hear their proposal. Mary said this suggestion came out because Aspinall units were almost dry last year and WAPA couldn't back Glen Canyon for power so WAPA ended up buying a lot more power last year than they anticipated and that's the first time that had happened. Aspinall is also expected to be pretty low this year. Norm said the agenda was already pretty full but he would try to accommodate that discussion.

**FY 2005 Budget Development** - Jeff said that when the program managers sat down to prepare the budget, there were a lot of uncertainties and many of those were related to not having a core monitoring program in place. On their first pass through the budget staff made a credible attempt to budget the research and monitoring activities that were identified in the 04 work plan and then used that information as a springboard for FY05. At the end of the first draft, they had a \$3.3 million overrun which was a reflection of having more work being forced on the program. Jeff then instructed the program managers to work through several iterations and come up with as close to a balanced budget as possible. There is still a slight overrun but it is so trivial in comparison with \$3.3 million that he wasn't going to sweat it at the last minute. The philosophy he adopted and the charge he gave his staff was to make the cuts as strategically as possible.

Jeff said the word "eliminated" was used frequently in the comments section but thought a better word would be "deferred" because a lot of the projects should not be eliminated. He doesn't want to see wholesale cuts made across the board to all the projects to the point where the ability to do the work is compromised. Referring to the handout (***Attachment 11***), he directed the TWG to the bottom line found on page 5. He said the Director of the USGS has committed to give a \$1 million base increase to GCMRC for FY04 and there is a request in the FY05 budget to give GCRMC another \$500,000 base appropriations but it's unclear whether that means there will be \$1.5 million in FY05 or \$500,000, or even \$1 million. They took the conservative approach and assumed that they would get \$500,000 of USGS appropriations in FY05 and based the budget on that amount.

Denny said the Senate hasn't passed the Interior Department Appropriations bill. The money is not in that bill. They heard the House had passed the bill supporting the increase. The Senate doesn't really care as they don't have sufficient ceiling to grant the USGS that money so they probably won't fight too hard in the conference committee to get it down.

**Programmatic Agreement** - Nancy said this portion of the budget reflects what the PA signatories came up with most recently. The PA signatories are suppose to operate based on consensus and currently they don't have consensus on the individual projects. The key item for Reclamation is moving to a treatment plan and implementation. This was started per agreement of the AMWG and the TWG in FY04 with a Navajo Nation and possibly Glen Canyon treatment plan. In other words, that Navajo Nation and Glen Canyon, based on where they believe the effects of the dam are, are in agreement on that. Then in FY05 treatment needs to be extended for the rest of the canyon.

Randy asked if the work was going to be limited to the CRE. Nancy said it is going to be limited to the CRE but the real question is in terms of Section 106 compliance under the NHPA where within the CRE treatment will occur and the plan is suppose to address that. The PA Signatories have not formally identified they have actual effects of dam operations but it becomes a placeholder in the budget. The signatories agreed that they need to be fair with their contractors and so the agencies need to move forward with some very specific criteria to be turned over to the contractors to do the actual planning.

#### *Comments on PA Budget:*

- *Would like to see some discussion on the role of independent science outside of the USGS in this process. (Stevens)*
- *The whole canyon treatment plan is premature and shouldn't be funded until those subset of sites that are directly affected by dam operations are identified. (Dongoske)*
- *Should a canyonwide plan be done to look at all the sites being affected? Sites are being lost on a regular basis so a plan needs to be put in place now. (Ritenour)*
- *Is the USGS the institutional home that will administrate the science or is the USGS considering themselves an independent science group that needs to compete? (Benenati)*

Reclamation Administration – Dennis reviewed Reclamation’s portion of the budget and said every item was either indexed by the CPI, reduced, or held constant. The budget went from \$387,000 to \$390,000. with some reductions in travel costs and office supplies.

Bill Persons said in the past there have been requests to show an “actual expense” column on the worksheet. Dennis reminded him that funds not expended are being carried over to fund future experimental flows.

Cultural Resources - Nancy provided a brief history. In 2000, it was agreed to keep Reclamation’s administration of the PA flat and so it has remained at \$50,000 for the last 4-5 years. The AMWG voted a 15% cut so that was changed to \$43,000. She proposed putting it back to \$50K in FY05 with a CPI adjustment. This would fund Reclamation’s regional archeologist and accounts for \$5,000 in travel and 100 person days of work.

Jan Balsom asked if the plan reflected more than one PA meeting a year. Nancy said it would be up to the Regional Archeologist to determine to need to hold additional meetings. Loretta Jackson disagreed and said it was up to the Bureau of Reclamation to have enough funding to ensure that the PA working group holds more meetings because it is Reclamation’s responsibility in order to meet their Section 106 compliance. The PA group hasn’t been active for the past 4-5 years and she feels they really need to work together to identify the cultural resource issues.

Database and GIS - As a result of the PEP, GCMRC and Reclamation had talked about putting \$25K towards the plan. GCMRC then adjusted by integrating or proposing to integrate the cultural data layer in with its Oracle database and GIS system. Instead of spending money on a formal plan, Nancy spent \$30K with the start of a nascent data layer that has been turned over to GCMRC for a cultural database housed at GCMRC. It’s zeroed out in part because it’s not clear how it is going to be administered at GCMRC or what data is really needed. Also, last year the Park Service completed an overhaul of their Access database and one of the hopes is that money could be saved in FY04 and FY05 by integrating information.

NPS – GRCA/GLCA Monitoring Costs - Jan Balsom (GRCA) reported that both Park Service units have been administering their monitoring and remedial action programs. As John eluded to about how many archeological and cultural properties have been affected by dam operations. After their initial survey, there were 475 properties identified, 336 of them were considered within the area of potential effects of the EIS. They’ve gone from that down to about 162 properties that they’re actively monitoring. There’s 20+ in Glen Canyon, 34 of those properties have been recommended for some excavation treatment. There are a number of others that have treatments in the form of checkdams, vegetation, planting, etc. One of those items, #7 Zuni conservation program is the installation and maintenance of checkdams which is seen as a relatively low cost, low key way to help preserve the sites without actually having to do any kind of significant data recovery. Items #3 and #4, continuing the ongoing monitoring and mitigation programs that both parks are doing. Item #7 refers to the checkdam program itself.

Dennis questioned if the PA signatories could make a presentation to the TWG showing how all the pieces fit together – treatment plan, whether sites are in the 106 boundaries or not, something that would show the process from beginning to end.

Jonathan explained that when the Zuni tribe collects TCPs, they have to make a commitment to the cultural/religious leaders that the information will remain confidential. Several years ago he attended a meeting in Flagstaff which focused on how they could go about presenting the TCPs. It was in an Access database format and was linked to GIS. They found the potential to be good because it would allow them to make the information available to the Park Service without necessarily putting it on paper.

The feeling is that once that information gets on paper, it can be copied and disseminated to people who really shouldn't have it.

Terrestrial Ecosystem Monitoring Project - Steve said this project is entering its fourth year. He feels there has been a lot of valuable information generated and GCMRC needs to time to review and then bring the results back to the TWG and AMWG. GCMRC has asked the investigators to continue to do a reduced level of monitoring but also do a synthesis before their projects and activities to date that could be evaluated early in FY05 by a PEP panel and then they would issue an RFP. He said more information would be presented at the November meeting. Wayne – talk about D8, D10, D11 (page 4)

(D8) 1<sup>st</sup> Year Geomorph. Model, Process Study – Helen Fairley said this study was an outgrowth of some of the ideas from Joel Pedersen's initial work on studying the effects of checkdam erosion and proposing that there might be some way to model what was happening in terms of the erosion to cultural sites.

(D9) Evaluation and Plan for Cultural Monitoring – Helen said this project was an attempt to try and get some independent input into their cultural monitoring program and to see if there are other things they should be doing that might get them closer to actually being able to monitor effects related to dam operations as required by the GCPA.

(D10) Implementation of Recreation PEP – Helen said the implementation of a REC PEP is a placeholder for what was approved in FY04 with the understanding there would probably be some PEP recommendation to do some catch-up work.

Sediment Projects - Mary Barger questioned why the big difference for Ted's sediment projects in FY 04 (\$1.4 million) and only \$700,000 in FY05. Jeff said if they eliminate (C3) Coarse-grained sediment Inputs, in FY05, then that means that within the mass balance tracking that they're doing that sediment inputs coarser than sand are about 2 millimeters will no longer be part of GCMRC's effort to document the input.

For fine sediment mass balance, Jeff said GCMRC would limit their streamflow and fine sediment monitoring to either 2 gages on the Paria River, one at Lees Ferry and one at Hwy 89 or to the Paria River to Lees Ferry and the Little Colorado River, either at the Cameron gage or the new gage located just upstream from the confluence. Support for surface water measurements along the main channel would be eliminated completely.

For the Integrated fine sediment storage work or FIST, the reductions that are proposed would eliminate sand storage monitoring efforts in the main channel, both upstream and downstream of the Marble Canyon Reach.

(D9) Evaluation & Plan for Cultural Monitoring – Comments - Kurt asked for clarification on the "Address Core Monitoring IN 11.1.3a and 11.3.14" and whether this wasn't something GCMRC planned to do between now and January 1 as well as actually including in the core monitoring program.

Helen said that when they were putting the budget together, they hadn't worked out all the details on the core monitoring plan. She is hopeful that with more input, it will be included in the final core monitoring plan but this at least gets them part way there.

**ACTION ITEM: TWG Members should send comments on the FY 05 budget to GCMRC by October 17, 2003.**

**Next TWG Meeting: November 12-13, 2003**

Next agenda items:

- flow modifications (WAPA)
- NEPA for experimental flows
- Core monitoring (include feedback on remote sensing initiative)
- FY 2005 budget and work plan

ADJOURNED: 11:55 a.m.

### General Key to Adaptive Management Program Acronyms

ADWR – Arizona Dept. of Water Resources  
AF – Acre Feet  
AGFD – Arizona Game and Fish Department  
AGU – American Geophysical Union  
AMP – Adaptive Management Program  
AMWG – Adaptive Management Work Group  
AOP – Annual Operating Plan  
BA – Biological Assessment  
BE – Biological Evaluation  
BHBF – Beach/Habitat-Building Flow  
BHMF – Beach/Habitat Maintenance Flow  
BHTF – Beach/Habitat Test Flow  
BIA – Bureau of Indian Affairs  
BO – Biological Opinion  
BOR – Bureau of Reclamation  
CAPA – Central Arizona Project Assn.  
cfs – cubic feet per second  
CRBC – Colorado River Board of California  
CRCN – Colorado River Commission of Nevada  
CREDA – Colorado River Energy Distributors Assn.  
CRSP – Colorado River Storage Project  
CWCB – Colorado Water Conservation Board  
DBMS – Data Base Management System  
DOI – Department of the Interior  
EA – Environmental Assessment  
EIS – Environmental Impact Statement  
ESA – Endangered Species Act  
FACA – Federal Advisory Committee Act  
FEIS – Final Environmental Impact Statement  
FRN – Federal Register Notice  
FWS – United States Fish & Wildlife Service  
GCD – Glen Canyon Dam  
GCMRC – Grand Canyon Monitoring and Research Center  
GCNP – Grand Canyon National Park  
GCNRA – Glen Canyon National Recreation Area  
GCPA – Grand Canyon Protection Act  
GUI – Graphical User Interface  
HBC – Humpback Chub (endangered native fish)  
HMF – Habitat Maintenance Flow  
HPP – Historic Preservation Plan  
IEDA- Irrigation and Electrical Districts Association of Arizona  
IN – Information Need  
IT – Information Technology (GCMRC program)  
KAS – Kanab ambersnail (endangered native snail)  
LCR – Little Colorado River  
LRRMCP – Lower Colorado River Multi-Species Conservation Program  
MAF – Million Acre Feet  
MA – Management Action  
MO – Management Objective  
NAAO – Native American Affairs Office  
NAU – Northern Arizona University (Flagstaff, AZ)  
NEPA – National Environmental Policy Act  
NGS – National Geodetic Survey  
NHPA – National Historic Preservation Act  
NPS - National Park Service  
NRC - National Research Council  
NWS - National Weather Service  
O&M - Operations & Maintenance (USBR funding)  
PA - Programmatic Agreement  
PEP - Protocol Evaluation Panel  
Powerplant Capacity - 31,000 cfs  
Reclamation - United States Bureau of Reclamation  
RBT – Rainbow Trout  
RFP - Request For Proposals  
RPA - Reasonable and Prudent Alternative  
SAB - Science Advisory Board  
Secretary - Secretary of the Interior  
SWCA - Steven W. Carothers Associates  
TCD - Temperature Control Device (for Glen Canyon Dam water releases)  
TCP - Traditional Cultural Property  
TES - Threatened and Endangered Species  
TWG - Glen Canyon Technical Work Group (a subcommittee of the AMWG)  
UCR - Upper Colorado Region (of the USBR)  
UCRC - Upper Colorado River Commission  
UDWR - Utah Division of Water Resources  
USBR - United States Bureau of Reclamation  
USFWS - United States Fish & Wildlife Service  
USGS - United States Geological Survey  
WAPA - Western Area Power Administration  
WY – Water Year (a calendar year)