

Glen Canyon Dam Technical Work Group  
**FINAL Meeting Minutes**  
January 7, 2004

**Conducting:** Norm Henderson, Chairperson

**Committee Members Present:**

Mary Barger, WAPA  
Perri Benemelis, ADWR  
Kerry Christensen, Hualapai Tribe  
Wayne Cook, UCRC  
Jonathan Damp, Pueblo of Zuni  
William Davis, CREDA  
Lisa Force, Grand Canyon Trust  
Lloyd Greiner, UAMPS  
Amy Heuslein, BIA

Robert King, UDWR  
Dennis Kubly, USBR  
Phillip Lehr, Colo. River Commission/NV  
John Ritenour, NPS/GLCA  
D. Randolph Seaholm, CWCB  
John Shields, WY State Engineer's Office  
Mark Steffen, Federation of Fly Fishers  
Mike Yeatts, The Hopi Tribe

**Committee Members Absent:**

Robert Begay, Navajo Nation  
Illa Buletts, So. Paiute Consortium  
Cole Crocker-Bedford, NPS/GRCA  
Christopher Harris, CRB/CA  
Matt Kaplinski, GCRG

Bill Persons, AGFD  
Larry Stevens, Grand Canyon Wildlands Council  
John Whipple, NM Interstate Stream Comm.  
Glen Knowles, USFWS

**Alternates Present:**

Jan Balsom  
Marklyn Chee  
Pamela Hyde  
Don Metz  
Andre Potochnik

**For:**

Cole Crocker Bedford, NPS/GRCA  
Robert Begay, Navajo Nation  
Larry Stevens, Gr. Canyon Wildlands Council  
Glen Knowles, USFWS  
Matt Kaplinski, GCRG

**Interested Persons:**

Mark Anderson, USGS  
Emma Benanati, NPS/GRCA  
Gary Burton, WAPA  
Helen Fairley, USGS/GCMRC  
Dave & Pam Garrett (SAB)  
Steve Gloss, USGS/GCMRC

Paul Li, Bob Lynch's Office  
Mike Liszewski, USGS/GCMRC  
Jeff Lovich, USGS/GCMRC  
Ted Melis, USGS/GCMRC  
Ken McMullen, NPS/GRCA  
Carol Young, ADWR

**Meeting Recorder:** Linda Whetton

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

**Welcome and Administrative Items:** Norm Henderson welcomed the members, alternates, and general public. A quorum (16 members) was established, introductions made, and attendance sheets (**Attachment 1**) were distributed.

**Review of Action Items.** All pending items will be forwarded to the next TWG Meeting. Norm suggested the members review the tribal funding letter (**Attachment 2**) and discuss at tomorrow's meeting.

**Review and Approval of Nov. 12-13, 2003 Meeting Minutes.** These will be forwarded to the next TWG Meeting as the members didn't have sufficient time to review prior to today's meeting.

**Review of Agenda.** Norm said he would like to make one modification by switching the 1:15 item with responses to comments and questions on budget work plans with the information discussion. The Budget AHG has been working with the FY05 budget all morning and he proposed having the Budget AHG present where they are with the budget and then include the remainder of the TWG in the budget discussion.

**Status of Information Needs.** Pam Hyde would like the TWG to consider making a recommendation to the AMWG to have the AMWG recommend approval of the Information Needs as part of the Strategic Plan to the Secretary of the Interior. Norm said he spoke with Mary Orton (AMWG Facilitator) regarding the approval process on Monday (Jan. 1/6/04) and also reviewed the minutes from the last AMWG Meeting. Mary told him the AMWG decided it wasn't appropriate to send those specific INs to the Secretary and that the AMWG approved them internally as far as a working document but it was her interpretation that the AMWG didn't want to send anything to the Secretary at this time. Norm said he would add this item to the agenda as time allowed.

**FY 05 Budget Discussion.** Norm said the TWG has been working with the 05 budget since November. GCMRC has presented the FY05 budget and work plan and asked for comments. The Budget Ad Hoc Group (BAHG) had a special BHAG meeting before and after the MATA Workshop in December and had additional deliberations this morning. At this point the BAHG would like to continue with the process they started this morning. Following that, Norm said he would like the TWG to recommend approval of the FY05 budget with any changes noted to the AMWG. The BAHG has reviewed individual budget items and indicated next to specific line items "yes" or "no" or "ok." For those with "no" or a "?" then at least one BAHG member had a strong enough concern and couldn't agree with that budget item. He asked Dennis, as chair of the BAHG, to begin the discussion.

Dennis referenced the FY05 budget spreadsheet (**Attachment 3**). The BAHG has been trying to determine if they concur with what's in the BAHG recommendation column. The column assigned to potential available funds is a column that carries dollars that the BAHG has advocated should not be funded in that project for FY05. If the full TWG agrees to those amounts, then at the end of the deliberation, there would be a sum for re-programming money into other existing projects. Dennis asked the TWG if they would like to start where the BAHG left off from their morning meeting or start from the beginning. It was decided to begin where the BAHG left off and then go back to the beginning of the spreadsheet and address any concerns.

Dennis said the TWG should also refer to the "BAHG Recommendations" document (**Attachment 4**) because it includes the comments generated from the BAHG meeting held at Saguaro Lake in early December.

Helen Fairley also suggested the members use the document which contained the original questions. (**Attachment 5**)

The members continued to review the specific line items.

Line #	Description	BAHG	Status / Comments
102	Fine-grained Sediment Storage	NO	Accepted by TWG per explanation from T. Melis
103	Streamflow & Fine -Sediment Storage	NO	Accepted by TWG per explanation from T. Melis
104	Coarse-grained Sediment Inputs	(OK)	Accepted by TWG per explanation from T. Melis
106	Control Network	(OK)	Will take \$500K - \$1M to finish work over time.
112	Unsolicited Proposals	NO	Need sideboards for what will be considered. – H. Fairley
113	AMWG, TWG Requests	OK	Consider re-programming dollars. Should be \$60K in there but should research the amount.
118	1 <sup>st</sup> Yr. Geomorph. Model Process Study	(OK)	Change to OK with the condition that a peer review be conducted.
128-131	Administrative and Technical Support Services	(OK)	The \$1,289,170 is consistent with what GCMRC has done in the past. The monies largely support his salary, the salary of the program managers, administration and facilities costs, GSA vehicle rental, etc., associated with running the program.
132	Public Outreach	NO	<p><b>John Shields</b> said he committed to putting something down on paper as a starting point. He couldn't say if \$50K was an appropriate amount or not but felt the AMWG wasn't ready to start doing anything until everyone is in agreement with what needs to be done.</p> <p><b>Mike Yeatts</b> said the Hopi Tribe saw 2 needs: (1) traditional public relations and (2) the Hopi Tribe and perhaps other tribes saw an "educational "need in response to cultural monitoring.</p> <p><b>The AMWG Public Outreach Ad Hoc Group (POAHG) was re-established. Amy Heuslein and Pam Hyde will serve as co-chairs. Other members: Marklyn Chee, Andre Potochnik, John Shields, Mark Steffen, and Mike Yeatts. First conference call: Jan. 21, 2004, 10-noon.</b></p> <p><b>ACTION ITEM:</b> The POAHG will provide a progress report at the next TWG and AMWG Meetings.</p>
135	Geographic Information System	NO	<p>Ted gave a PowerPoint presentation on DASA (<b>Attachment 6</b>).</p> <p>TWG should be able to deal with little changes. AMWG should speak for itself.</p>
136	Data Base Management System	NO	
137	Library	NO	<p>FY03 Digitize scanning project that ends in FY04. In FY05, wants to keep student (\$20K) for more scanning work until project ends in 4 more years.</p> <p>Low priority. Consider re-programming money.</p>
138	Survey Operations	NO	Covers salary for field work.
139	Systems Administration	NO	<p>Flat budget from years' past. In FY03, it was reduced 15% to absorb USGS assessment and this reflects the cost of the program from year to year. (computers, network, software, licensing, etc.). Doesn't include geonet.</p>
140	Aerial Photography	NO	<p>GCMRC: change in direction on remote sensing. This will be presented as an "informational item" on the Jan. 23<sup>rd</sup> AMWG conference call.</p>
141	Web page and product development	NO	<p>Increased need to comply with DOI security requirements (very costly) and more demands on web page presence. Need to contract out work and includes ½ year of web programmer's time based on \$80/hr and \$15K to accommodate operating expenses &amp; travel within that prog. Could POAHG utilize for public outreach? Consider re-programming dollars.</p>
157	Genetics Refugium	OK	<p>Timing of the development of genetics refugium plan needs to follow the development of a genetics management plan that is currently being done by USFWS Region 6. It will not be done in time to begin the refugium plan in 04 and funding would shift to 05. Haven't moved the \$40K.</p>
161	Temperature Control Device	(OK)	Defer and go back to it later.
162	Dam Operations Experiment	(OK)	This is really the MATA Workshop and the primary purpose

			was to design operational scenarios and try to estimate the effects on resources of the scenarios. Consider reprogramming dollars.
164	Scientific, Recreation Impact Assessment	OK	The first phase is to look at the effects of the science on HBC and the second part is the recreational package. There were questions whether or not the \$11K for 04 and \$30K for 05 were really sufficient. <b>Steve Gloss:</b> Funds are probably okay for 04 and the effects handling study is underway and should be completed next spring. \$30K was for recreational impacts on HBC in the LCR but no plan has been designed.
165	Bright Angel Non-native Fish Removal	OK	Should be \$167K over 3 years so it adds up to \$500K. <b>Norm Henderson:</b> One funding source came in 03. There is no additional money in 04 or 05 as yet.
167	LCR Confluence NNF Mechanical Removal	OK	This is being funded out of the AMP but is covered in the Aquatics section (line #66). <b>Mark Steffen:</b> Am extremely uncomfortable with the project. The Park seems to be exercising a carte blanche approach to all these tributary killings and don't see that the AMWG has actually approved it. I want the opportunity to vote against this project.
168	Fish Monitoring below Diamond Creek	OK	Assumption that \$25K would come from MSCP but likely will not be available as the MSCP doesn't exist. The only group with mandated responsibility is the AMP. The GCMRC has a requirement to monitor the CRE. <b>Steve Gloss</b> said it would cost \$50K each year.
172	Concurrent LCR, Mainstem HBC Pop Est.	NO	<b>Steve Gloss</b> said the Peer Review Panel did not recommend doing concurrent estimates in the mainstem. Steve said he concurs with the Panel's recommendations from a pure science and technical point of view. <b>Gary Burton</b> said he spoke with Bob Muth and Tom Czapla (FWS) and asked them where they fall on the issue. Their intent is to make it known that they would still stick with what they're asking for (mark and recapture) and if they're not against the newer and more advanced modeling methodology that they won't be able to do – they don't think they could use it in court until its verified against something that makes it a real number. Therefore, they would wish for the concurrent methodology. Potential of \$400K → carry over to FY05?

**Adjourned:** 5:10 p.m.

Glen Canyon Dam Technical Work Group  
**FINAL Meeting Minutes**  
January 8, 2004

**Conducting:** Norm Henderson, Chairperson

**Committee Members Present:**

Mary Barger, WAPA  
Perri Benemelis, ADWR  
Kerry Christensen, Hualapai Tribe  
Wayne Cook, UCRC  
Jonathan Damp, Pueblo of Zuni  
William Davis, CREDA  
Lisa Force, Grand Canyon Trust  
Lloyd Greiner, UAMPS  
Amy Heuslein, BIA

P. Hyde/L. Stevens GC Wildlands Council  
Robert King, UDWR  
Dennis Kubly, USBR  
Phillip Lehr, Colo. River Commission/NV  
John Ritenour, NPS/GLCA  
D. Randolph Seaholm, CWCB  
John Shields, WY State Engineer's Office  
Mark Steffen, Federation of Fly Fishers  
Mike Yeatts, The Hopi Tribe

**Committee Members Absent:**

Robert Begay, Navajo Nation  
Illa Bulletts, So. Paiute Consortium  
Colo Crocker-Bedford, NPS/GRCA  
Christopher Harris, CRB/CA  
Matt Kaplinski, GCRG

Bill Persons, AGFD  
Larry Stevens, Grand Canyon Wildlands Council  
John Whipple, NM Interstate Stream Comm.  
Glen Knowles, USFWS

**Alternates Present:**

Jan Balsom  
Marklyn Chee  
Wayne Cook  
Don Metz  
Andre Potochnik

**For:**

Cole Crocker Bedford, NPS/GRCA  
Robert Begay, Navajo Nation  
John Whipple, NM Interstate Stream Comm.  
Glen Knowles, USFWS  
Matt Kaplinski, GCRG

**Interested Persons:**

Mark Anderson, USGS  
Emma Benanati, NPS/GRCA  
Gary Burton, WAPA  
Helen Fairley, USGS/GCMRC  
Dave & Pam Garrett (SAB)  
Steve Gloss, USGS/GCMRC  
Leslie James, CREDA

Paul Li, Bob Lynch's Office  
Mike Liszewski, USGS/GCMRC  
Jeff Lovich, USGS/GCMRC  
Ted Melis, USGS/GCMRC  
Ken McMullen, NPS/GRCA  
Clayton Palmer, WAPA  
Carol Young, ADWR

**Meeting Recorder:** Linda Whetton, USBR

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**Convened:** 8:20 a.m.

**Welcome and Administrative Items:** Norm Henderson welcomed the members, alternates, and general public. A quorum (16 members) was established, introductions made, and attendance sheets (**Attachment 1**) were distributed.

### **Agenda Review:**

1. Norm suggested the Strategic Plan discussion be rescheduled for another time. Jeff Lovich said he could give a 15-minute overview. The WAPA Proposal would be moved up on the agenda.
2. Norm suggested a follow-up meeting to discuss the results from the MATA Workshop and proposed the date of February 2. He also said it would be good to combine that one-day meeting with another day to do strategic planning with the GCMRC.
3. As follow up to yesterday's discussion on fish removal in Bright Angel Creek, Mark Steffen passed out copies of an e-mail message (***Attachment 8***) he sent regarding his opposition to the project.

**FY05 Budget Discussion (cont.)** The TWG resumed the budget review and changes were noted on the revised budget spreadsheet (***Attachment 9***).

**Line 163, Sediment, Turbidity Augmentation** – Lisa said she understood that this was a sediment augmentation study that included a feasibility study of moving sediment from behind the dam to in front of the dam and now she understands that it's only about blinding site predators. She thinks that the funding needs to be restored for FY05 or even pull it out of the HBC area. She is talking about a \$10-50K feasibility study that could be primarily secondary research to actually provide some options about what it would take, cost-wise, time-wise, to start moving sediment from behind the dam in front of it, if they find that they need to do that. Lisa said she thought the turbidity study would start and end in 2004 and doesn't want to see the turbidity study dropped either. She thinks the AMP needs a study to look at the options at what it would take to move sediment from behind the dam to in front of the dam.

### **Comments:**

- *A decision was made to try some experiments to use input from the Paria, etc., and those were done, but the inputs haven't come in to run the experiments so there is still zero data to know if they're working. Some of the best climatologists are saying that there some potential that we're at the front end of a 4-year drought. (Hyde)*
- *This was part of the HBC discussion and there was a specific item for turbidity augmentation. Will not support but also doesn't want to see the turbidity part dropped. (Davis)*
- *How long should the group wait to before starting to looking at other options? Wait until we're completely in a drought? Continue on a negative sediment budget and then start looking at what's feasible? It might make sense to start the feasibility study in FY05 and don't make any decisions on potential actions until FY06. (Hyde)*
- *The sediment augmentation is way down the road and the State of Colorado is not support of a study of the options. (Seaholm)*

**Status:** The item was put in Category C after line 109 for further discussion.

Dennis said the next thing would be to go back and try and reach a conclusion on concurrent sampling for Humpback Chub. It currently exists with \$200K in FY04 and \$200K available in FY05. There is a "no" from the BAHG indicating there wasn't agreement. He would like to entertain proposals on exactly what would be done.

### **Comments:**

- *The obvious concern amongst the states is that if concurrent accounting doesn't occur, then initiation of the process to begin recovery for that species in the upper basin, along with the other upper basin species doesn't occur, that's unacceptable. They have taken a hardened position with the Department that FWS has to make this call and the bottom line is that the number has to be produced which begins the clock to tick. The risk, if this is taken out, then it means the FWS does in fact produce a recovery team, then the FWS would have to finance this which is probably the right thing to do. The question is whether or not, they will do*

*the right thing. The FWS should put together a recovery team and decide whether or not they are going to accept a count number based on an estimation process rather than a count process. If they refuse to do, then we have to hope that the FWS will come forward with their appropriated dollars to finance that concurrent counting and develop a number that will initiate the clock counting for recovery of these species.*  
(Cook)

- *Perhaps dollars should go into bringing some consensus within the upper basin and lower basin researchers about methodologies and try to create some support for the scientific backing for whatever is the right way to approach coming up with the numbers.* (Hyde)
- *A presentation could be developed addressing the pros and cons but if there was an opportunity that the dollars wouldn't be used, then they would be considered to be re-programmed but with the knowledge that the decision by the AMWG might be to keep them in.* (Kubly)
- *Would like to advocate for keeping them in. We're doing a lot of things in here with respect to the HBC that are really outside the scope of this program and really need a recovery program to benefit these fish. This is fundamental to those activities and would like to keep the dollars there and moving this piece along much as we're moving along with other activities for the benefit of the HBC.* (Seaholm)
- *Depending on what AMWG says, we should have a contingency plan to fall back on.* (Henderson)
- *The AMWG should exert some leverage in having biologists from the upper and lower basins to address the above concerns. There are a lot of working biologists in the field who feel that the methods should be integrated to get the best numbers.* (Gloss)
- *There is no scientifically defensible reason to conduct concurrent sampling of the HBC. The panel that was convened was not a biased panel. GCMRC's recommendation is not to do that.* (Lovich)
- *There are two scientists who have disagreed with that position.* (Davis)

Status: The funds will be considered for reallocation.

**USGS appropriations Update.** Jeff Lovich said that when the USGS budget was submitted, they put in an expectation of \$500K and that is not correct. They expect either \$1 million or no dollars. When they went through the budget planning process, Jeff put in \$500K as a placeholder. When they got the passback on the FY05 budget from the President's Office of Management and Budget, the director of the USGS had put in a request to get an additional \$500K worth of appropriations to support research in the Grand Canyon that would come to GCMRC and they would then contribute that to the AMP. OMB took that out and for reasons unknown to him, USGS Director Groat chose not to appeal that decision. However, Dir. Groat did give GCMRC \$1 million in FY 04 and it's their expectation that he will give them \$1 million in FY05 and perhaps beyond. Jeff is hoping Dir. Groat will come to the March AMWG Meeting and speak on this topic.

**Line 161, Temperature Control Device.** Dennis said Reclamation has identified \$200K available in both FY04 and FY05 for TCD related studies and compliance. The other \$150K in FY05 is shown under a separate project (line #57). Reclamation is going to attempt to complete the compliance for the TCD in the form of a programmatic EA by the end of April. There will be a presentation to the AMWG at its summer meeting requesting a recommendation to move forward to construction. The problem is Reclamation doesn't have the funding. Consequently Reclamation will produce a capability statement identifying a feasibility design has been done, environmental compliance has been completed, and they are ready to begin construction. However, they would need dollars which would open up opportunities for individuals to lobby for those funds. It's likely construction wouldn't start before FY07. The proposal will likely be to modify two penstocks and test for a period of 4 years before any decision is made on additional modifications. If that is the case, then the ability to modify the temperature through warm water releases is constrained as only 8,000 cfs can be released with warm water. The likelihood of the warm water scenario where you have warm water fishes reacting in a strong manner is likely reduced.

The primary effect that Reclamation perceives with the two devices is on a reduction of the impact of cold water for fish at the mouth of the Little Colorado River. It's a big question as to whether it can actually affect reproduction. They propose early research be directed at further identification of the movement of small fish out of the LCR and the conditions that they experience in rearing habitats in the mainstem. The Aquatic PEP recommended an analysis be done on all the data that has been collected

on those rearing habitats. Reclamation recently hired two people: Amy Cutler as an environmental modeler and Mark McKinstry as a biostatistician. Some of their time will be spent doing that work. Dennis has also talked with Bill Persons about convening a meeting of the fish researchers that are actually working in Grand Canyon to formulate a proposal concentrating largely on the effects near the confluence of the LCR and early life stages that are emerging from the LCR. This brings up the \$50K on dam operations. He advocates looking at short-term experiments in FY04 and FY05 in which they would modify dam operations but he doesn't think they can get there in FY04.

### **Comments:**

- *We have an opportunity right now to test whether or not warm water releases out of the dam are going to achieve the same thing. Are we prepared to provide a robust study this year? Will we get enough data this year? Do we need to have some work plans? (Davis)*
- *GCMRC has in place a pretty respectable downstream temperature monitoring program in association with downstream water quality. There are sensors at a dozen sites from the dam all the way down to Diamond Creek that provide continuous information on temperature. The area where they are lacking a more comprehensive program is in the elusive issue of the backwater habitats and how we both measure habitat quality there in terms of temperature and other factors as well as measure any biological impacts that occur in those habitats. There is \$200K for that purpose in the experimental management actions in the event there is a sediment input. So far that would be unexpended in 2004. It's a difficult issue. With respect to temperature, they don't have a practical way to monitor the near shore habitats because they are constantly changing with fluctuating flows. They have developed some proposals to do that if they got low steady flows in the fall which would produce a more stable environment that would be easier to sample but that hasn't occurred yet. The only thing they are currently doing from a biological perspective is allocating one native fish downstream trip to sampling back waters with seining and that has not proven very effective. It's extremely variable. They might occasionally catch 50-60-70 young HBC in one back water out of 100 that are sampled. He thinks there is money in terms of TCD work and in terms of the experimental flow work to try and develop a better program. There is also an effort underway that Craig Paukurt was leading before he departed for Kansas and there should be some forthcoming information. (Gloss)*
- *There is a lot more creativity that can be put into experimental design about TCD and temperature effects on backwaters and on the biota than hasn't been applied yet. Putting together a team of people who are very knowledgeable about those topics and come up with some good, creative experimental approaches in the field could be quite valuable. (Stevens)*
- *We may not even have to build the TCD and spend \$100 million if we can do 2 years of study and determine this thing is not going to work. We have the opportunity to do it and are not prepared to do it. (Davis)*

Dennis directed the TWG back to the beginning of the spreadsheet. He said the BAHG didn't have any further problems with the administrative or tribal dollars and asked if there were any questions on the first page.

**Line 45, NN & GLCA Treatment Plan & Implementation.** John said they have money in FY04 for the Navajo Nation Archeology Dept. to do a treatment plan in the Glen Canyon Reach. They have not completed the Scope of Work for the cooperative agreement for that project because there have been concerns regarding what the treatment plan would do, what funding was needed, what policy decisions need to be addressed, etc. In the last couple of months, he, Jeff, and Randy have worked with those issues. On Tuesday they had a conference call and drafted an umbrella document to guide in the development of the treatment plans. It talks about the treatment plans within the CRE, in the APE, and about all the sites. The treatment plan would discuss every site and not make a determination of cause on the effects or what's occurring on those sites. They created a way for the PA signatories to be a participant in this process by either bringing in-kind support, being involved in consultation, and working with contractors to ensure that when the treatment plan is done, the PA issues would have been addressed. Within the money for the Glen Canyon reach, John said he suspects the treatment plan will not take all of the funds so at some point there will be a treatment plan done and it will come in for prioritization of actual treatment plans. They have also discussed site-to-site responsibilities and feel an archaeologist could determine what needs to take place. When it's time to do the treatment for



those sites that are close to the river, they should be fairly easy to address collectively but as they get to sites where there is a question of what causes the effects, whether it was the recreation it impacts or causes impacts to some other activity, there will then need to be a discussion of what funding source should be used. The idea is to use GLCA Reach as a prototype for designing a treatment plan.

**Line #46, Whole Canyon Treatment Plan & Implementation.** John said that in FY05 there is \$250K for the PA Signatories to begin the treatment planning process for the Grand Canyon itself. It will include all of the sites. They will develop treatment plans for the sites but not determine the cause or the effects of those sites. Recognizing that when the treatment plans are over, some sites will have full data recovery and no longer be a site which would reduce monitoring in those areas. Some of the treatment plans will be addressed and may require longer term monitoring for those sites. For some of the sites, it might mean stabilization which will call for some monitoring. When the treatment plans are done and implemented, it doesn't mean monitoring goes away. The figures in line item #43 and #44 in FY05 reflect current being done today in the Grand Canyon because the treatment plan won't be completed by FY05. The \$28,840 in GLCA is because they have a year's jump on this and may be at a point where they're actually implementing the GLCA Reach treatment plan, therefore reducing the larger dollars in FY05 but they can't guarantee that.

### **Comments.**

- *On lines 45 and 46, add "and begin implementation." (Heuslein)*
- *We thought the Zuni participation in developing the checkdams would be important. There are over 100 checkdams in place that require maintenance. We relied on the Zuni Preservation Team to work with us in doing that and is our long-term preservation method to preclude any need for excavation. The hope was that through a low cost, low intensity effort and that they needed maintaining, and return to the expertise of Zuni to maintain that. We thought it was pretty important. The review done last year by Joel Pedersen showed that some of the checks were better than others and he is recommending not using the stone-line checks but rather the brush checks and that those were effective. They want to see that continued so they can keep those sites from eroding any further. (Balsom)*
- *If we're going to a treatment plan and implementation, it's really a comprehensive package. With the computer evaluation, hopefully some pointed questions will be asked about how this will relate to the archeological sites. The feedback is really needed. (Damp)*
- *Joel had some caveats in his report. He only looked at one season and only part of the canyon that didn't get a lot of rainfall and probably a longer study was needed. Perhaps the PA Group could discuss it in more detail. (Fairley)*

**Line #48, TCP GIS Documentation.** Dennis said this was a reduction to the originally requested \$150K. Nancy Coulam put in \$150K with the assumption that it cost \$30K for each of the tribes. The recommendation here is that the Zuni is ready to go ahead with a pilot study and then the output from that pilot study would be used as an input to decisions on funding in FY06 and beyond.

**Zuni Pilot Project.** Jonathan said they have a traditional cultural property study which was the study of the non-archeological sites that have cultural significance to the Zuni Tribe. They will do digital photography and GPS to get the locations down and put the information into an Access database. It will include one river trip, with the river trip funds that were provided to Zuni, and the rest of the funding will be used in the office to produce that database. The skeleton of that information could be used by other tribes or land management officials in order to determine if any undertaking might have an impact upon TCPs or other sensitive areas to the tribes.

**Lines 54-64.** - No comments.

**Line 65, Food Base Impacts on Fluctuating Flows.** Mark Steffen questioned why there was no money assigned to the project. Ted said in FY05 the fluctuating flow component in the experiment

doesn't occur in years 3 and 4, it appears in years 1 and 2. FY05 is year 3 and there are no fluctuating flows in the winter season.

**Line 66, Mechanical Removal of Non-native Fish.** Dennis said that the BAHG expressed concern that there were no dollars in line items 67 and 68 and left them as question marks for more discussion by the TWG. Mark asked how many trout stomachs were analyzed. Steve said he didn't know but said the initial collections will be processed for predation on native fish and a subset of those will be processed for complete diet analysis. He wasn't sure what Mike (Yard) and Lew (Coggins) have decided to do under the reduced scope of work. He thinks Mike needs to bring that information to the AMWG as part of the 6-month update on experimental flow outcomes at the March AMWG meeting. The intent is to fully process the 2003 samples as originally proposed. Mark said he just wants to make sure that the stomachs are examined for HBC because that was the intent of the experiment.

Status: Consider reallocating some funds back to these line items.

**Lines 69-74.** No comments

**Line 75.** Add "Tribal Monitoring" and funding.

**Line 80, Terrestrial Ecosystem Activities.** Dennis said there was advocacy that dollars be added to ensure that there was monitoring for Southwest Willow flycatcher. In the second line, the "no" had to do with whether or not the tribal funds should be shown independently. At this point, they are being included in the \$250K.

Status: Consider adding dollars.

**Line 82, Kanab Ambersnail Monitoring.** Dennis said there was some discussion about whether or not access could be gained other than from the river and whether the logical costs could be reduced. In the end the BAHG agreed to the \$79K. GCMRC is also going to look at opportunities to pair trips.

**Lines 83-85** No comments.

**Line 86, Cultural Data Base Plan.** Helen said this item is misplaced on the spreadsheet. This was the effort to develop a plan for managing cultural data. There was a plan proposed by the TWG and Ruth to come up with protocols and a written understanding of how the cultural data in this program would be managed in terms of who would have access, what restrictions there would be, etc. When the FY04 budget was being planned, this is one of the things taken out with the goal of doing it with GCMRC's existing database management activities. There are concerns about confidentiality and access privileges.

Status: Move to right location on the spreadsheet.

**Line 87, KAS Taxonomy (AMP).** Dennis said this was looked upon as a recovery activity and not a programmatic responsibility so the dollars are advocated to be moved out. The question to the FWS is whether or not this was a responsibility for them. Jeff said they could count it on their sheet as being available although the money is going to be paid for out of a different fund than appropriations as listed in the budget. This was something Denny Fenn agreed to do with money that was off to the side of their contribution to the AMP. The money was carried over from FY02 into FY03, and in FY03 to FY04. The money is going to be obligated in 04 but for purposes of accounting, it gives them \$88K more flexibility. It should not show in FY05.

**Line 88.** No comment

**Line 92, Monitoring Aquatic Foodbase.** This has now been changed to “Aquatic Foodbase Initiative” because it is more of a research initiative. Mary proposed this be put on the AMWG agenda so the AMWG is also notified of the switch.

**Line 93, Status & Trends of Downstream Fish.** The comments had to do with joining the dollars that are in the HBC portion of the budget with those that are here and that’s being done as one study.

**Line 94, Status & Trends of Lee’s Ferry Trout.** The questions had to do with whether there’s been a change in monitoring methods in the metrics that are being applied and whether those match the objectives for the program.

**Line 95, IWQP – Downstream.** There was concern whether the nutrient portion that would be part of the aquatic foodbase studies was being considered as part of downstream water quality or whether there needed to be more dollars added.

Status: May need to find more dollars in FY05.

**Lines 96-98.** No comments.

**Line 97, Captive Breeding Program.** Same project as #159 (Feasibility of HBC Augmentation).

**Total dollars to be reprogrammed:** \$ 373,000

Dennis said the protocol is to reach consensus. If consensus can’t be obtained, then the group should vote on the individual line items. He asked the members to address specific projects where there wanted dollars added. The TWG reprogrammed the following projects and amounts:

Line	Description	Reprogram Funds
67	RBT Diet Analysis	25,000
68	Predation of Native Fishes	25,000
80	Terrestrial Ecosystem Monitoring	25,000
95	IWQP – Downstream	50,000
112	Unsolicited Proposals	50,000
113	AMWG, TWG Requests	73,000
163	Sediment, Turbidity Augmentation	25,000
168	Fish Monitoring below Diamond Creek	25,000
	<b>NEW PROJECTS:</b>	
	Mass Balance	
	Tribal Monitoring for Experimental Flows	25,000
	Sediment Augmentation Feas. Study	50,000
	<b>TOTAL</b>	<b>373,000</b>

Larry suggested that funds rolled over from FY04 to FY05 be reserved for future discussions.

Norm asked the members to vote on the following projects:

Line	Description	Comments	TWG Voting Results
140	Aerial Photography	Will negotiate on timing (WAPA & NPS) safety issues. Based on results from AMWG Conference Call on 1/23/04 1/29/04	
165	Bright Angel Creek Fish Removal	Steffen: Salmonid genocide	<b>Yes = 13</b> No = 1 Abstaining = 4
	Sediment Augmentation Feasibility Study		<b>Yes = 9</b> No = 7 Abstaining = 1
	Sediment Turbidity Augmentation		<b>Yes = 14</b> No = 4 Abstaining = 0

The bottom line for the FY05 budget: \$10,056,610

The chairman asked the TWG to vote on recommending the whole budget to the AMWG.  
 Voting Results: Yes = 17 No = 0 Abstaining = 1

**WAPA Flow Proposal** – Clayton Palmer passed out copies of GCMRC’s response to WAPA’s flow proposal (**Attachment 10a**) and an Excel spreadsheet (**Attachment 10b**). The spreadsheet reflected the actual operation of the CRSP system occurring on Monday, January 5.

In preparation for the day ahead the plan is to make purchases and some of those purchases were made in a “forward market” which are made 1-3 months ahead of time. Some purchases are left to what is called the “real-time market,” which is they buy an hour before they are needed. WAPA tries not to make purchases on the real-time market. In making purchases 3 or 4 or 5 early morning hours has cost a lot more than anticipated and people have questioned why that wasn’t expected. The answer is that WAPA didn’t anticipate it. The details as to how the experiment was going to be run was completed on Dec. 1, 2002, and then they gave that information to their operations group who started buying power to supplement that. On or about Dec. 15, 2002, they notified WAPA that they couldn’t buy the morning power because it was unavailable. Later on, they said it could be supplied but at very high prices. They have been going for 25 years in a condition where the market is an electrical surplus and have been able to buy power on the real-time market for variable costs or fairly cheap. They should’ve been able to see it but didn’t. They now understand it occurs and are making different kinds of purchasing plans based on a different market.

Since the experiment has now started, WAPA knows what real-time market prices are and they are high. They anticipated spending \$80/megawatt hour for the morning hours. The typical price is \$40-45. Clayton said the prices went up to \$120/megawatt hour. They did not buy it at that price because they bought it earlier enough in the morning. The highest price they paid was \$85 on Monday, June 5. Given those prices, if they were to project that through the 3-month period, they would expect that the change in the WAPA proposal would save \$2.5 million a month, if the proposal were in place today and it was run through January. He said that might be a slight over estimate because the first week of January was colder and prices were probably higher in the first week in January than they will be for the rest of the winter. He said the added expense of the experiment is about the same as the entire budget of GCMRC for the year. They consider it to be a significant expenditure of funds and that is why they have been talking about a proposed change. They care about the long-term and want to be able to have an experiment which can be implemented in the long-term and does what it is intended to do and at the same time, it doesn’t affect power in a way which wasn’t also in the ROD.

On Monday, Jan. 5, 2004, Clayton submitted a request to Reclamation to modify the operations of Flaming Gorge Dam in order to increase releases at FGD for a few hours a day on days in which prices are high. They submitted a new request to Reclamation for 75 megawatts of additional power out of FGD. It's a sensitive issue because there are endangered fish below Flaming Gorge, a wild brown trout population, and elevation of Flaming Gorge is relatively low.

With respect to fishability, he has had some discussions with Jeff English and Mark Steffen. WAPA's proposal is modifiable with respect to Sunday flows. Clayton has talked to his operations staff and they prefer 2 hours at the front of the day based on their anticipated schedule from their customers. If that were to change or to be different, they would be happy to modify and 2 days ahead of time would notify the fishing community about when the rampup would actually occur.

Clayton referenced the table attached to GCMRC's memo and said there was one minor change. In order for his spreadsheet to conform to the table, he put in what WAPA was going to do in March instead of what they started off doing in January. The actual ramp up starts at hour ending 10:00 rather than hour ending 9:00. They propose to modify their 2-hour modification and will be ramped up for hour ending 8:00. The first two columns need to be changed.

Clayton said it would be tougher to draw conclusions about the mechanistic means of producing trout impacts if you did a non-native fish suppression flow for two years and then for the next 2 years switched to the ROD flows but that 16-year design was not approved by the AMWG. In fact, he thinks flow experiments should have fewer treatments and be of longer duration. He said based on their experience with Flaming Gorge and at Glen Canyon Dam, hydrological conditions may dominate over changes in operations so one needs to have treatments which endure over longer periods of time in order to capture the changes in the hydrological events. He believes their conclusions on sediment transport under the ROD are conclusions that they could've only drawn over some years' time had they done the ROD for 2 years and then tried to conclude something about transport, he doesn't think it would be a very robust conclusion. If the non-native fish suppression flows are modified in year 2 and that's the last year, he is quite sympathetic about the scientific argument. However, if the non-native fish suppression flows are modified in year 2 of a 5-year experiment, there is less of a scientific concern.

Jeff said that GCMRC has no official position as to whether they approve or disapprove the proposal. They had a formal request made to them from the TWG through WAPA to provide our best scientific judgment on the effects of their proposed flow modification and we did it from a 2-pronged approach, (1) the potential effect on the resources of interest to this group and also, (3) looking at the possible impact of it at a programmatic level on experimental design. Their best guess as scientists is that the flow modification won't have an adverse effect on the non-native fish suppression flows. It will probably have the same level of impact. He said that Clayton didn't mention was that with the low flows on Sunday, their biologists estimate there could be an increase in trout stranding so that is an issue the group should consider. From the standpoint of sediment, the models predict that there would be a 3% increase in sand export under the proposed flows per week but again the level of uncertainty with their prediction is about 15% so they don't have the statistical ability to identify that there will be an actual loss of sand as result of the change in flows but they do estimate a possibility of 3%. With respect to the program level impact, GCMRC has a 2-year experimental design and the subtle effects of modifying the flows are akin to changing the temperature in a laboratory during an experiment. It's going to be very difficult to remove the effects of confounding air, like a change in the flows. They can't predict if there is going to be an effect or not, or whether the hydrological variation will just swamp whatever effect they might see as a result of the modified flows. They do have a concern from the standpoint of science because once you embark on a major investment of funding using an experimental design, you want to control those conditions through the course of the experiment to make sure that you control from the variance and are able to accurately make estimates of the effects of the treatments that are

being tested. If you manipulate an experiment in the middle of the experiment, you run the risk of having confounded effects that you can't statistically detect from actual treatment effects.

**Comments:**

- *On October 1, 2004, CRSP will start delivering power to each of the tribes represented in the AMP and about 45 other tribes. WAPA had to go back and reduce their allocations because of these conditions. (James)*
- *It's important to accept this modification to the experiment. This is really a bank account that funds what we do here as well as in the upper basin program, the San Juan program, all of which are funded out of these revenues. It's important to keep that account full not only for these programs but for all the projects that are financed out of this program as well as the upper basin. I vote yes on the proposal. (Seaholm)*
- *There was a lot of consternation when Clayton came to us and told us the deficit the basin fund was getting into but we're supportive of the proposal to make the amendments along these lines as well. Granted, there is always tradeoffs and in this case it comes down to being willing to accept risks and we think that the benefits outweigh the risks in this particular case. (Shields)*
- *Hualapai Tribe supports the WAPA flow proposal. (Christensen)*
- *It's good for the fish in that it stirs up food for the fish. (Steffen)*
- *This is the second time we're faced with having a very large and very important experiment altered in mid-course. From a science standpoint, you carry out an experiment as you had planned, bring the results together, present them, and hopefully publish. I'm very tired of having fisheries based studies where this body and the AMWG is forced to make decisions without published data. Our conclusions need to be trustworthy to the public. I don't think this is the right time to do the experiment. (Stevens)*
- *I don't know if the power customers got a good chance to see this schedule in advance. You can clearly see they missed the power curve. (Greiner)*
- *We've already comprised the experiment by and removing more trout in a larger area. (Davis)*

**MOTION:** Move to accept the WAPA flow modification proposal (as sent via e-mail from Clayton Palmer on Dec. 10, 2003) and forward that to the AMWG.

Motion seconded

Voting Results:      Yes = 11      No = 3      Abstaining = 1

Motion passed.

**Strategic Plan** – Jeff Lovich says the Strategic Plan has to be a 3-step process: (1) need a strategic plan, (2) need a core monitoring plan, which he thinks should be a separate document, and (3) a very detailed study plan. He proposed giving GCMRC a 6-month period to develop a strategic plan, a core monitoring plan, and then you would accept his commitment to provide you in FY06 with detailed study plans for any new studies they initiate, he thinks the TWG would get to a point where they would have enough information to evaluate them and feel more comfortable with their research. He gave a PowerPoint presentation (***Attachment 11***).

**Comments:**

- *GCMRC should consider using the Science Advisory Board and Strategic Planning Ad Hoc Group to help develop their Strategic Plan. (Potochnik)*
- *The SAB has encouraged both the AMWG and TWG to give GCMRC this basic need and think it's paramount to the program. (Dave Garrett)*

Misc. Handouts provided at the meeting:

**Attachment 12** - Outyear Budget process (developed by Randy Peterson) with comments from Helen Fairley & Jeff Lovich

**Attachment 13** - Recommendations on a new direction for foodbase monitoring

**Attachment 14** - Humpback Chub Methods Review

**Adjourned:** 3:15 p.m.

**NEXT TWG MEETING:**

February 2, 2004 – Results from the MATA Workshop

February 3, 2004 – Provide input to help GCMRC develop their strategic plan.

### General Key to Adaptive Management Program Acronyms

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