

Glen Canyon Dam Adaptive Management Program  
Technical Work Group Meeting  
November 7-8, 2002

**Presiding:** Kurt Dongoske, Chairman

**FINAL**

**Committee Members Present:**

Robert Begay, Navajo Nation  
Kerry Christensen, Hualapai Tribe  
Wayne Cook, UCRC  
Cole Crocker-Bedford, NPS/GRCA  
Jonathan Damp, Pueblo of Zuni  
Bill Davis, CREDA  
Brenda Drye, So. Paiute Consortium  
Lloyd Greiner, UAMPS  
Norm Henderson, NPS/GLCA  
Matt Kaplinski, GCRG

Robert King, UDWR  
Don Metz, USFWS  
Clayton Palmer, WAPA  
Bill Persons, AGFD  
Randy Peterson, USBR  
Randy Seaholm, CWCB  
John Shields, WY State Engineer's Office  
Mike Yeatts, The Hopi Tribe

**Committee Members Absent:**

Perri Benemelis, ADWR  
Dave Cohen, Trout Unlimited  
Christopher Harris, CRB/CA  
Amy Heuslein, BIA  
Nancy Hornewer, USGS

Pamela Hyde, Southwest Rivers  
Phillip Lehr, Colo. River Comm./NV  
Nikola Ramsey, Grand Canyon Trust  
John Whipple, NM Interstate Stream Comm.

**Alternates Present:**

Garry Cantley  
Wayne Cook  
Sylvie Johnson

**For:**

Amy Heuslein, BIA  
John Whipple, NM Interstate Stream Comm.  
Pamela Hyde, Southwest Rivers

**Interested Parties:**

Jan Balsom, NPS/GRCA  
Mary Barger, WAPA  
Gary Burton, WAPA  
Nancy Coulam, USBR  
Chris Flaccus, GCMRC/USGS  
Steve Gloss, GCMRC/USGS  
Kristin Huisinga, The Hopi Tribe

Loretta Jackson, Hualapai Tribe  
Dennis Kubly, USBR  
Ted Melis, GCMRC/USGS  
Mary Orton, The Mary Orton Company  
Dan Shein, citizen  
Jeremy Simons, USBR/Denver Office  
Jeff Sorensen, AGFD

**Recorder:** Linda Whetton, USBR

## Meeting Opening and Administrative Items

**Convened:** 9:45 a.m.

### Welcome and Administrative Items:

Kurt Dongoske welcomed the TWG members, alternates, and guests. All introduced themselves. A quorum was established and attendance sheets were distributed (**Attachment 1**).

**MOTION:** Move to approve the August 15-16, 2002 Meeting minutes .  
Motion seconded.  
Pending corrections and without objection, the minutes were approved.

### TWG Minutes, May 15-16, 2002

Randy Seaholm requested a correction to the May 15-16, 2002, meeting minutes – page 3, remove the words “AMP funding” from #8.  
Without objection, the minutes were re-approved.

**Legislative Updates** – Randy Peterson reported there has been no further action on the energy bill. If he sees anything relative to hydropower, he will send an e-mail to the TWG.

**Member Update** – Randy reported that he, Dennis Kubly, and Norm Henderson visited with Dave Cohen last month. Dave continues to recuperate at a local rehabilitation center. Dave has been diagnosed with Diabetes and recently had his right foot and some toes on his left foot amputated. Dave’s spirits remain high and Randy said he would like to hear from the TWG members. Randy will provide the address and phone number of the Rehab Center at tomorrow’s meeting.

**Sequencing Order of 9 INs and 2 EINs** – Mary referenced the memo dated October 8, 2002 (**Attachment 2a**) from the TWG Chair and reminded the TWG that in April the AMWG directed the TWG to put the Information Needs in sequence order with a recommendation due back to them at the January 2003 meeting. In May the TWG created a framework for sequencing the INs using a paired comparison exercise. Mary distributed copies of those results (**Attachment 2b**). Following that, the TWG put the remaining 189 INs into the framework and then addressed those which didn’t have concurrence. She passed out copies of their comments (**Attachment 2c**) which further identified some gaps. She said she wanted to make sure the members were comfortable with the new INs before moving on . She informed the TWG that she would take the three new INs and any additional ones established at today’s meeting and work with the TWG on sequencing those today (**Attachment 2d**).

Randy Seaholm said he was not in agreement with some INs and asked if they could be discussed later in an effort to reach consensus on sequencing the first 11 INs. He said his fear was that if those considered outside the program are left in, the TWG won’t reach consensus on the document. He would like to have the INs that everyone is in agreement with voted on and said his INs fall into three categories: 1) INs that are addressed in recovery goals for the endangered fish, 2) INs under the responsibility of the FWS, and 3) other ones that are research on research that aren’t necessarily needed to be identified or contracted for but put into certain scopes of work. Randy said the Ad Hoc Committee on what is In and Out (ACHIO) of the AMP hasn’t met and his observation is that within that group there are divergent views and they may not be able to accomplish their task.

Mary reminded the group of the TWG Operating Procedures and that they should attempt to reach consensus before going to a vote and advised they could develop a majority vote from a majority opinion.

It was decided to list the INs that Randy felt were of concern. The TWG continued to discuss and had the following concerns:

- Concerned with not pulling information needs out of this document but rather send what's been done to AMWG, along with a dissenting report from AHCIO on why some goals don't belong in the program. Would recommend sending the full list. (Persons)
- We don't know what percentage of the TWG is identifying them as questionable. It will further delay progress. (Dongoske)
- We started this process agreeing to describe the entire process and would have to parse out what is in and out of this program. The buck has to stop. Until that parsing takes place, some of us can't recommend the list to the AMWG. (Cook)
- I've asked and the stakeholders have asked to address this issue and have said to do it later. This is later. We can't agree to go forward without addressing this issue. (Seaholm)
- It's incumbent upon us to provide AMWG with as much information as possible. It's not the list that is critical but we need to send something up to them. (Burton)
- We need to send something to AMWG. Have a vote and identify which ones are problems and which aren't. (Metz)
- We can report to the AMWG that the INs have been sequenced but there are some concerns. The AHC needs to develop the criteria. Would like to have them apply it or have the AMWG apply. (King)

The members discussed language for a motion to forward the sequenced INs and In/Out concerns to the AMWG.

**MOTION:** The Technical Work Group has sequenced the entire set of Information Needs as directed by the AMWG. The TWG is unable to recommend approval of the INs, absent the criteria for what is in and out of the program. Therefore, the TWG recommends that this list be approved by AMWG only after it has been subjected to AMWG-approved criteria for what is in and out of the AMP. Without objection the motion was passed.

Mary will update the INs document and the TWG will forward it for inclusion in the AMWG meeting packets.

Adjourned: 5:20 p.m.

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Mary Orton, The Mary Orton Company  
Dan Shein, citizen  
Jeremy Simons, USBR/Denver Office  
Jeff Sorensen, AGFD

**Recorder:** Linda Whetton, USBR

## **Meeting Opening and Administrative Items**

**Convened:** 8:15 a.m.

### **Welcome and Administrative Items:**

Kurt Dongoske welcomed the TWG members, alternates, and guests. All introduced themselves. A quorum was established and attendance sheets were distributed.

### **Non-Native Fish Control Update**

Bill Persons gave a PowerPoint presentation (**Attachment 3a**). The TWG discussed time frames needed in order to forward the report to the AMWG by its January 2003 meeting:

November 22:	E-mail Draft Report to TWG (Linda)
December 10:	TWG Comments due to Bill Persons
December 16:	Bill will mail revised report to the TWG and interested parties and Linda will post report to Bureau of Reclamation web site
December 20:	TWG phone poll (conference call with motion from TWG)
December 26:	Meeting packets sent to AMWG (Linda)
January 28-29, 2000:	AMWG meeting

**ACTION ITEM:** Bill Persons will send the Non-native Fish Control Report to the TWG by November 22, 2002.

**ACTION ITEM:** TWG members should send comments on the Non-native Fish Control Report to Bill Persons by December 10, 2002.

**ACTION ITEM:** The working members of the Non-native Fish Control AHG will review the TWG comments and consider revisions to the report prior to the TWG phone poll on Dec. 20, 2002.

Bill Davis added that the ad hoc group is struggling with a couple of points: 1) If the experiments work, then how do they move into a management mode? Who does it? When do they do it? How is it paid for? If the experiments are going to be done under the experimental flows this year, followed by mechanical removal, who will be responsible for doing them in 5 years, 10 years? 2) Mechanical removal was identified as a major method of controlling non-natives, however, because of current concerns that is no longer an option. Unless the mechanical removal concerns can be resolved, that particular method is off the table.

Dennis Kubly also said that some of the group members thought the AMWG's directive was too narrow, that perhaps it starts in the wrong place. There is no strategic plan for non-native removal, which is what they did in the upper basin so they are tiering down -- they develop a strategy, develop an implementation, an experiment that works, and move on. It's an aggregate of methods that collectively will have the desired effect. He questioned whether we ever step back and ask systemwide can the species be effectively controlled by using this set of methods. He said there will probably be a recommendation back to the AMWG that they consider a broader perspective.

**Proposed Fishing Regulations** - Bill Persons gave an update on the fishing regulations for Lees Ferry (**Attachment 3b**). The AGFD submitted a recommendation to the Arizona Game and Fish Commission to increase the bag and possession limit at Lees Ferry and change the

regulations at the head of the Paria River to allow bait fishing and also increase the bag limit. They are trying to increase the harvest of fish and encourage a new clientele to see if it's successful. There were few concerns from the public but not much. The regulations should go into effect on January 1, 2003.

**Budget Ad Hoc Committee Report** – Steve Gloss provided a report on the FY04 AMP Budget in response to the AMWG's motion in which they approved a bottom line budget but weren't comfortable with some of the line items. Steve distributed a handout, "FY-2004 GCMRC Research and Monitoring Work Plan Budget-AMP Funding: 11/7/02," (**Attachment 4a**) and reviewed the following major line items:

B8 – Captive Breeding Program. This was originally budgeted at \$150,000 with \$100K coming from Appropriations. It is still shown here because it was originally shown in the FY04 work plan but they are proposing to move it to Experimental Flows (second page of handout).

F5 – Decision Support System. Funding for this was also to come from Appropriations and that is shown as 0 dollars. It is proposed that there will be no decision support work in FY04.

Randy said the basic goal was to take the FY 2004 budget and evaluate the line items in response to the concerns expressed by the AMWG in July and the need to provide additional funds for experimental flows starting this year. It's almost a circular logic -- What do you need for experimental flows? What can you get from the budget? How are the two tied together? It was a difficult task for the Budget AHC to do. He directed the members to look at the second page where changes were made to the budget proposed to the AMWG in July (shown in the middle part of the spreadsheet as **bold italic** numbers). Under D8 Experimental Flows, the total project cost is now **\$300,000**. GCRMC reduced the projects above that line by \$300,000 in order to move \$300,000 into Experimental Flows. As they did that, it was primary that they not reduce the long-term monitoring program to injure the credibility of that long-term dataset. That was a primary consideration. He reviewed the following changes:

A4-Mapping Holocene Deposits. This was eliminated in both 03 and 04. The prior cost on that was \$113,000 in FY04.

B8 – Captive Breeding Program. That money was \$50,000 and has been moved from 2004 up into 2003 to get a jumpstart on that effort.

C4 & C5 – Logistics Costs associated with establishing the control network which is somewhat of a long-term, ongoing effort and the channel mapping.

The cuts represent about \$64,000 worth of reduction.

D1 – Unsolicited Proposals. This is a reduction of about \$110,000 each.

D2 – AMWG/TWG Requests. These are shown at \$16,000. These were previously \$50,000.

D4- Tribal Outreach. This was reduced from \$30,000 to 15,000.

The above reductions total \$300,000. The second page of the 2004 handout is what the Budget Ad Hoc Group recommended to the TWG as a recommendation to the AMWG for implementation in FY04.

Randy said the FY03 budget was adjusted as well (**Attachment 4b**). He recalled at the end of the Budget AHC meeting, the deficit in FY03 was about \$600,000 if there are no sediment inputs this year and about \$1.2 million if there were. The deficit in FY04 is about \$1 million without the sediment inputs, and with the sediment inputs about \$1.7 million. The strategy is to go back to Washington during the first week of December and tell the Department that if they want to conduct the experimental flows that we need approximately a \$1 million a year for the next 2 years to fund this program. If they can't provide that money, the AMWG would recommend the flows not be done.

Matt asked if there was a science plan for the experimental flows. Steve said there isn't a document per se but it will basically be a document that is in the process of deleting projects in phases much like the exercise has been to reduce the budget to meet the available funding. The "Experimental Flow Budget Summary With and Without Sediment Inputs" pages (**Attachment 4c**) reflect what GCMRC recommended in terms of ways to trim the experimental flows budget. It was further revised by the Budget Ad Hoc Group on 11/6/02. This is the current proposed experimental flows budget. These are all the projects and budget activity that was listed in the full-blown science plan. GCMRC reduced that substantially in a lot of areas and eliminated some projects completely. Steve said there is still a shortfall of \$500,000 to implement the plan in the present fiscal year and through FY04, that deficit increases by another \$1 million so they're at about \$1.4 million in shortfall in order to carry this project to completion. The worse case scenario should be a combination of the FY04 shortfall with sediment which is \$1.725 plus the shortfall without sediment for FY03, which was about \$500,000.

Randy felt it might be helpful to go through some of the line items noting some of the comments the Budget AHC discussed. The budget is very complicated and advised the members to think in terms of when the studies might be done in FY03 and FY04, and whether or not there is sediment. He directed the members to look at the following:

2 – FIST. It shows \$490,000 in FY03 and \$140,000 in FY04. The \$490K cost is to document the effects of fluctuating flows on beach deposits, even though a high flow test is not expected this year. In FY03, the cost was \$750,000 and that's the difference between those two is about what the high flow test monitoring would cost, about \$260,000. If one were to think of a most probable scenario, we would probably say that we wouldn't have a high flow test year but probably would have one next year. The frequency of those inputs in order to produce a half million tons of sand or a million tons by January 1 is about every other year. It's likely more money will be needed for FIST next year. An overflight was done last June so they currently have a very good mapping of the entire canyon right now. If a high flow test were to occur right now, the canyon wouldn't need to be re-mapped but it would need to be done immediately thereafter to be able to quantify the improvements or changes to the sandbars in the canyon. Another one would be needed later in the spring to document the effect of the fluctuating flow regime on those newly created deposits. One suggestion was to, in 04, to eliminate the December overflight and use the Namdor team to do their 35 beaches as a sample of the before case and then photographically measure after the high flow test to document change.

13 – Monitoring of RBT Adult Stranding. This originally had a substantial amount of money in both years. The Budget AHC thought that if an experiment was implemented this year, they would go through and document the stranding in the first year but not the second. So the second year was zeroed out.

14 – Distribution of Spawning Redds for RBT. The same type of discussion went to that issue as well but the concern raised was that because of changes in the channel structure potentially because of a high flow test next year, it makes sense to keep the \$100,000 in there to see if the trout spawn in different places.

15 – Determination of the Mechanism Accounting for Reduced Recruitment. GCMRC is not sure this project can be done. They're not sure even how to go about what causes the lack of recruitment. The Budget AHC feels this is a very important item. GCMRC is going to issue an RFP but it probably won't be in place in time to conduct the first year's work.

19 – RBT Diet Analysis at the LCR Confluence. There was some discussion about eliminating this in the second year of the test but the group's thinking was that because of the reduced population density in the LCR confluence reach, that it may be important to see if the trout's diet changes, if they become more piscivorous depending on density effects.

24 – Tribal Resource Studies – Tribal Monitoring. There is an error in line 24. The group's sense was that the tribal resource monitoring studies would primarily be related to the high flows since the other flows in the non-sediment input scenario would be below river stage levels. If there is no sediment input in FY03, there probably would be a questionable reason to have additional tribal monitoring but there should be \$200,000 in FY04 associated with the potential high flow test in that year. Randy clarified that neither the first sheet nor the second sheet represent the most likely scenario. He thinks the FY03 column on the first sheet and the FY04 column of the second sheet is probably what will happen economically. Randy said he would send out his Budget Ad Hoc Group meeting notes, today's handouts, and the original science plan budget table to the TWG to help them understand the changes.

**ACTION ITEM:** Randy will send out his Budget Ad Hoc Group meeting notes along with today's handouts and the original science plan budget table to the TWG.

Pam Hyde expressed concern with the blurred budget lines just as she had a problem with commenting on the EA because of not knowing what the science plan was. She raised concerns that the Budget AHG is deciding what monitoring is and isn't appropriate and feels that needs to be discussed.

Randy said it was a bit of problem coming up with the FY04 budget and agreed it was a legitimate concern because there was no science plan. They looked at the budget, tried to find what money could be available to put into experimental flows, and then called it good for FY04. They then went back and reviewed the experimental flows budget again. GCMRC took the lead in that process. As they described what would be cut, the Budget AHG raised concerns about how that might affect the resulting analysis of the effects.

Randy asked GCMRC what their time frame was for the science plan and the processes they used to come up with the projects and costs associated with those.

Steve said they have been through 9 months of chasing a moving target and it's been impossible for them to consider developing a science plan as a useful investment of time in order to meet the budget deadlines. There are significant budget constraints and no apparent place to find a lot of this money. They have internally looked at their FY03 and FY04 budgets have made significant cuts in numerous areas in an effort to move money into experimental flows. Given that, they will still have a significant shortfall. There also hasn't been an



opportunity for them to share a lot of information with stakeholders. It was not the intent of the Budget AHG to make the decisions but simply to bring forth some recommendations. Steve concurred with some of Pam's concerns and said that when the USGS became a partner with the NPS and USBR in writing the EA, it took considerable staff time and distracted their ability to focus on the science plan and interaction with the stakeholders.

Randy said the Budget AHG asked questions but in no way did they dictate what the budget was going to be. He went on to say that perhaps there is something missing from where they were in late summer versus where they are right now. That's an explanation of how GCMRC took TWG input and came up with this budget. He asked if it would be helpful in the next mailout of the AHG's meeting notes to include a statement from GCMRC as to how they made that jump. He said that in the initial deliberations on the FY04 budget, their intent was not to cut that below an important level and not to eliminate work essential to the program. That's why they only cut \$300,000 from the FY04 funding and moved it to experimental flows. There is a deficit and had they been politically smart, they probably would've shown it as zero deficit and made the program fit within the budget but that made no sense because they would be cutting the projects that GCMRC and others felt were essential and couldn't go lower. The message to the Department is that we're more than \$2 million short and don't feel the experiment is worth doing unless we have the \$2 million.

Randy asked for a recommendation from the TWG on the FY04 budget line item changes to send to the AMWG. Some members said they wanted more time to review the changes and asked if a recommendation could be delayed. It was decided to hold a conference call on December 20 with the purpose of passing a motion at that time. Randy also asked that any "fatal flaws" noted in the budget be sent to him as well as to Steve Gloss.

**ACTION ITEM:** The TWG will hold a special conference call on December 20 to poll the members on two specific motions:

- 1) Recommend to the AMWG the specific line item details of the FY2004 Budget, and
- 2) Recommend to the AMWG the Non-native Fish Control Report prepared by the Non-native Fish Control AHG.

Randy added that when the TWG gets the document next week, it will show a shift in dollars from the PA program into the GCMRC's cultural resources research and monitoring program. There will be a different number there than the table passed out today.

**Warm Water Science Plan** - Steve Gloss said this issue arose in anticipation of the possibility of low elevation at Lake Powell and whether there might be a "natural" experiment with respect to increased water temperatures that would occur next summer if the reservoir remains at low levels and the warm waters in the surface zone of the reservoir begin to approach the pinstock. In addition, whether GCMRC had an adequate monitoring program in place to determine if there was any change. He proceeded with a PowerPoint presentation (**Attachment 5a**).

Steve presented another PowerPoint presentation on "Biological Aspects of the Warm Water Science Plan" (**Attachment 5b**).

Dennis added that if the majority of HBC are dying from thermal shock or from being eaten by cold water predators and the water is going to be warmed to reduce the predators, it's possible a whole lot more HBC might make it into those habitats and survive to recruit. He wants the TWG to be aware how the environment could change and what the responses might be.

## **Cultural Monitoring Results**

1. Brenda Drye said they alternate between taking youth or adults down every year to the Colorado River to do cultural monitoring work. Under the Consortium they have two bands - the Paiute Indian Tribe and the Kaibab Paiute Tribe. This year the youth did some water quality, photo matching, and plant transects. She proceeded with a PowerPoint presentation (**Attachment 6**).

2. Loretta Jackson said they have been doing a lot of the cultural resource site identification as far as traditional cultural properties (TCPs) in the Grand Canyon since 1993. Just recently they started doing a monitoring program and they want to implement and continue to use the monitoring program as far as assessing the conditions of the TCPs. She proceeded with a PowerPoint presentation on "Evaluating Hualapai Cultural Resources Along the Colorado River, 2001, Final Report and parts of 2002 Draft Report" (**Attachment 7**).

3. - Lisa Leap gave a PowerPoint Presentation on "NPS Archaeological Monitoring for FY 2002" (**Attachment 8**). Kurt advised that funerary objects need to be reunited with human remains and suggested she work closely with the affiliated tribes and get NAGPRA work underway. Lisa concurred with his recommendation. She also displayed several slides of work proposed for FY 2003.

**Basin Hydrology** – Chris Cutler (USBR) presented the following graphs (**Attachment 9**):

Upper Colorado River Basin Precipitation Oct 2001 – Oct 2002. This has been a really low precipitation year, the third year in a row. From October 2001 through last month, there have been 9 months of below average precipitation. The only relief was last September when it was 185% of normal and October was about 110%. That small relief helped a little bit on the drought and helped to reduce the soil moisture deficit which is going to improve the runoff efficiency next year. Even if there was an average snowpack, there would still be a below average runoff for next spring.

Lake Powell Unregulated Inflow WY 2002. This year has been one of the driest years. We received 3.06 maf of unregulated inflow into Lake Powell, which is 25% of average. In 2001, we received 59%, and in 2000 we received 62%. It is just getting drier and drier. The previous low year was 1977 when we received 3.06 maf which was 33% of average. In September we received 58% of average unregulated inflow and in October received 56%. This month we're averaging 7,500 cfs which is about 75% of average. It's looking a little better.

Projected 2003 Lake Powell Inflow. We are projecting about 84% most probable inflow with a range of possibilities of 28% up to 144%, and 10.1 maf release year.

Glen Canyon Dam Monthly Releases (CFS). There are three possible scenarios that are possible: 1) experimental flows with sediment inputs, 2) experimental flows without sediment inputs, and 3) without the experimental flow. The decision to run the experimental flow will be made in early December.

Lake Powell Projected Elevations – We're currently at an elevation of 3624.4 and by the end of the year should be down to 3621. It would take 11.5 years to refill Lake Powell if there were average hydrology conditions.

**Status of the EA** – Randy Peterson reported there were 19 comments received on the Environmental Assessment. Reclamation has pulled off the substantive comments and will be sending them to the Park Service and USGS to address. The package will then be provided to the three joint lead agencies and the DOI staff for a decision meeting to take place during the first part of December. The time frame also matches up with the consultation work with the USGS and NPS and FWS for a biological opinion. There have been a number of conference calls with the FWS and Reclamation believes they will issue a Biological Opinion by the end of November. There are three options: (1) prepare an EIS, (2) drop the proposed action, and (3) prepare a Finding of No Significant Impact (FONSI). If it's the latter, Reclamation will include the Comments and Response document with the FONSI along with an Errata Sheet.

**Non-native Fish Disposal**. Randy reported that a couple of the tribes expressed concern about the killing and disposal of the non-native fish in the canyon. GMCRC has taken the lead in that discussion and Randy asked Steve Gloss to provide an update. Steve said they have been working on an effort to examine alternative potential beneficial uses of non-native fishes that are removed from the LCR. It is still a work in progress. They have been seeking a beneficial use for the fish. They held a conference call with tribal representatives in the last month and have explored a variety of beneficial use options. They have narrowed the suite of possibilities down to: live removal and re-stocking to other waters, removal of non-native fishes in a fresh or frozen state for human consumption, removal of the biomass for direct land application, agricultural fertilizer, removal of material for fertilizer and hatchery ponds at the Hualapai Hatchery, removal of non-native biomass as a fish emulsion or horticultural fertilizer product, and removal of biomass to use as either pet food or animal food supplement. The original *in situ* disposal of non-native fish biomass to benefit the ecosystem by recycling the nutrients and energy, and finally the originally proposed action was a land-based disposal in a landfill. Steve proceeded with a PowerPoint presentation (***Attachment 10***).

**Report on Salmonid Assessment Trip** – Steve said the original mechanical removal proposal had two trips scheduled, one in August and one in September. GCMRC actually began implementing mechanical removal during the fall but then scaled back to a single trip which became a non-lethal salmonid assessment trip in the LCR Reach that was conducted between Sept 8-23, 2002. It ended up being a trip under unusual conditions because of the flash flooding and LCR input contributions. The trip launched on Sept. 8 and was actually working upstream of the LCR on Sept 9 and 10 and they got into the LCR Reach for 5 days right at the time the LCR produced pretty good flood at least in the dry year conditions. Steve gave a PowerPoint Presentation (***Attachment 11***).

**Trout Sampling and Estimates** – Bill Persons said they just did an electrofishing sample in October and were surprised at the relative absence of small fish in the Lees Ferry Reach and raised some concerns that they expressed in their letter to Reclamation, in response to the EA. He was asked to give an update on that and also on the downstream sampling. He proceeded with a PowerPoint presentation (***Attachment 12***).

**Sediment Update** – Ted Melis said he had a few slides that are intended to be the mid-year update for sediment resources. He wanted to give an update for the FIST for the first half of WY 2002 and then would show a long time historical series prepared by David Topping for Paria River sand inputs, annual sand inputs, as well as the Little Colorado River sand inputs. He gave a brief PowerPoint presentation (***Attachment 13***).

**Future Agenda Items:** Kurt asked that any agenda items for the February TWG meeting be sent to him. He will wait on setting up the agenda until after the AMWG meeting in January. He reviewed the action items from the meeting:

- 1) TWG should send comments on the Non-native Fish Report to Bill Persons by Dec. 10.
- 2) TWG should send comments on the FY04 budget to Randy Peterson by Dec. 11.
- 3) TWG members should send comments on the Science Plan associated with the FY04 budget to ~~Steve Gloss~~ Denny Fenn (change made per e-mail from Steve on 11/25/02) by Dec. 11.
- 4) A telephone conference call for the TWG will be set up for Dec. 20 regarding the budget and the non-native fish report.

Adjourned: 3 p.m.

## General Key to Adaptive Management Program Acronyms

ADWR – Arizona Department 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  
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(=s) - 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)