

Glen Canyon Dam Adaptive Management Work Group Meeting
April 24-25, 2002

Conducting: Michael Gabaldon, USBR
Recorder: Linda Whetton, USBR

April 24, 2002
Convened: 9:30A

Welcome and Introductions: Michael Gabaldon introduced himself as the Secretary's Designee and Chairman of the AMWG. He welcomed the members, alternates, and visitors to the meeting.

Roll Call: The members introduced themselves and identified whether they were a member or alternate. A quorum was established and attendance sheets (**Attachment 1**) were distributed.

Administrative Items:

1. **Presentation to Barry Gold.** Mike presented a plaque to Barry Gold from the AMWG and also read a statement on behalf of Anne Kinsinger (USGS) in recognition of Barry's contribution to the USGS, leadership of the Grand Canyon Monitoring and Research Center, and participation in the Glen Canyon Dam Adaptive Management Program.
2. **Update on the Strategic Plan.** Mike said he prepared a memo forwarding the recommendations from the AMWG to the Secretary, but that memo is in the process of being routed through various levels at the Department. The Secretary, in turn, has a draft letter going through the process in response to previous recommendations made to her. He said there will probably be something sent out from the Secretary in the next few weeks.
3. **Update on Dave Cohen.** Randy said he spoke with Dave yesterday. He said the facts are a little sketchy, but from his understanding Dave had a couple of aneurysms in the abdominal area removed. Dave was taken unconscious to a hospital, underwent surgery about a week ago, and is currently in a convalescent facility in Mesa. Randy invited members to go with him to visit Dave after today's meeting.
4. **Membership Update (UWFWS).** David Harlow announced that he has accepted a position in California and this will be his last meeting. He has enjoyed working with the group and said he hopes a replacement for his seat on the AMWG will be filled quickly.

Executive and Legislative Updates.

1. **Response to Grand Canyon Trust Letter.** Randy Peterson said the GCT wrote a letter to Reclamation dated March 8, 2002, (**Attachment 2**) stating concerns for this program. The Bureau of Reclamation is in the process of responding to that letter.
2. **Annual Report to Congress.** Randy said a number of comments were received on the report and it is currently being revised. The report will go back to the Secretary because Reclamation does not issue the report, the Secretary does.
3. **Update on Senate Bill 517 (Energy Policy Act).** Randy said Senate Bill 517 was passed in the House as H.R.
4. He said he searched under <http://thomas.loc.gov> under 517 and couldn't find it and yet the Green Sheets (**Attachment 3**) being published by the Congressional Office cite that as a bill number so there is a little bit of confusion. That's the provision that has come to vote on the ANWR provision which failed. The bills are quite different right now. If Senator Dashell is successful in passing an Energy Policy Act bill, it obviously will go to Congress and there will be a number of discussions about what the bill should say. He said the last time he saw something on 517, it did not have any provisions for hydropower capacity maximization or investigations and that is a significant difference with respect to the AMP.

MOTION: Approve the minutes for the January 17-18, 2002, meeting.
Motion seconded.

Motion passed pending correction on page 14.

Non-native Fish Control - Rick Johnson said there are three things the group has been working on: 1) Bright Angel Creek control for brown trout, 2) LCR control for carp and channel catfish, and 3) the research, management and monitoring plan. The group met on Feb. 26 and have exchanged some e-mails, but there is nothing to report on the research and monitoring plan at this time. Larry Riley (AGFD) said Bill Persons could not be here today because he is doing channel catfish collection at the mouth of the Little Colorado River (LCR). One thing they are uncertain about is the actual implementation of non-native fish control on the ground at Bright Angel Creek and are trying to figure out what kind of compliance might be necessary. He has discussed with Dennis Kubly and Jeff Cross about lead responsibilities with regard to compliance. One issue that is important to the AGFD is involving the public so they are aware of what is happening.

Jeff Cross (NPS) said he submitted a proposal to the Park about six weeks ago to secure funding for the implementation of a weir to control brown trout in Bright Angel Creek. In anticipation of receiving that funding, he was directed by Park Superintendent Joe Alston to begin the hiring process for a program manager. The money will also fund NEPA compliance activities. In the interim, Reclamation has agreed to help the Park this fiscal year with a design and feasibility testing of the weir. By the time that is finished, the funding and program manager should be in place and they can implement the management action.

Randy added that Barry Wirth (Public Affairs Officer with Reclamation) is on tomorrow's agenda to talk about public outreach. Reclamation feels NPS should be the lead agency. In that effort, Barry has been in contact with the public affairs officer for NPS. Bruce Taubert expressed concern that the public would be asking about the weir and suggested that time frames be established in tomorrow's discussion.

Basin Hydrology: Andrew Gilmore (USBR) presented graphs on the current basin hydrology (**Attachment 4**):

Aggregate Upper Colorado River Basin Precipitation WY 2002 – In late Nov-Dec 2001, there were some fairly decent storms and the basin got to average precipitation for that one month. Precipitation in the basin is currently at 64% of average.

WY 2001 Lake Powell Unregulated Inflow - This is what operations inflow looked like last year. This is a 59% of inflow for the year. This was a little dry, but not terrible.

WY 2002 Lake Powell Unregulated Inflow – The inflow is a little bit lower than last year. This is looking at about a 33% of average inflow forecast.

2002 Upper Colorado, Apr-Jul Inflow – The Green River Basin is in better shape with 46% of average inflow into Flaming Gorge. Things get drier and drier as you go south.

Variability of Lake Powell Apr-Jul Inflow, Based on April Mid-Month Forecast - This graph shows where the probabilities lie. This is the forecast as of mid-month, 2.6 maf of unregulated inflow at Lake Powell. There is a chance of going over 5 maf release and a 1 in 10 chance of getting some equalization. There are some operational things happening over the year.

Glen Canyon Releases, Based on April 2002 Final Forecast – The Most Probable indicates a chance for a little bit of recovery in June, July, and August. The most probable here is 2.6 maf.

Lake Powell Water Surface Elevations – We are really close to being on track for what happened in the late 80's and early 90's in terms of this dry cycle.

Lake Powell April-July Unregulated Inflow, WY 1977-1990 – This is an image of two years. This was the worst case in 1977 and we'll probably fall somewhere in between these two in terms of actual inflow into the reservoir.

Experimental Flow Proposal – Barry Gold said he wanted to respond to a motion the AMWG made at the January 2002 meeting. He reviewed what has been done since that time:

- After the motion was passed, GCMRC spent a couple of weeks trying to sort through what needed to be done and prepared a draft scenario which they e-mailed out in advance of a conference call.
- February 12 - GCMRC and AG&FD staff met with Lees Ferry Trout Fishery personnel.
- February 15 – GCMRC produced another draft and mailed it out to the TWG.
- February 21 – GCMRC met with the Grand Canyon River Outfitters Association to talk to them about the potential impacts the flows might have on recreation.
- February 26-27 – The document was presented to the TWG on the afternoon of the 26th and discussed on the 27th. The TWG asked GCMRC to do some further analysis.
- March 15 – GCMRC produced a substantial revision to the first document. They didn't have time to do another meeting so a notice was published in the Federal Register announcing a conference call scheduled for March 20.
- March 20 – Based on the conference call, they revised the document (**Attachment 5a**) into what was mailed to the AMWG on March 25.
- April 4 – GCMRC & AGFD prepared a Discussion Paper on Lees Ferry Trout Fishery-Status and Trends (**Attachment 5b**).
- GCMRC met with Arizona Flycasters as they were having a meeting in Flagstaff. Barry pointed out that the Flycasters Federation had sent a letter to Reclamation stating their organization's position (**Attachment 5c**) which is being provided at today's meeting.
- April 5-13. GCMRC had a river trip to introduce the science advisors to the monitoring and research activities and also mailed them a copy of the document and asked them for comments. They are in the process of preparing a draft report and Barry hopes to send that report to the AMWG on April 26.
- April 18 – There was an Experimental Ad Hoc Group meeting that met in Phoenix to discuss again.
- Clayton provided copies of an "Evaluation of the Financial and Economic Impacts of Experimental Flows" (**Attachment 5d**) for inclusion with version 3 of the document.
- A set of consensus recommendations that the Ad hoc group put together relative to the flow scenario is also part of the revised document.

Barry said the Experimental Flow Ad Hoc Group unanimously supports the following set of recommendations to the AMWG (**Attachment 5e**):

1. Adoption of a long-term experimental framework similar to that described in the GCMRC version 3.0 document.
2. Implementation of specific year one and year two treatment scenarios for WY 2002-2004 as detailed below.
3. GCMRC, in consultation with TWG and with advice from the GCMRC Science Advisors, develop a detailed long-term plan for the implementation of treatments under the experimental block design for WY 2004 and beyond.

Barry said he hopes the AMWG will make a recommendation to the Secretary based on the above information and said the next steps would be consultation, some need to engage the AOP process, and development and implementation of a public outreach plan. Once a treatment has been decided on, the GCMRC will need to complete the design of the research and monitoring plan and what supplemental activities would be required to measure the effects. The intent would be to bring the research design to the July AMWG meeting and discuss additional funding needs. Barry proceeded with a PowerPoint presentation (**Attachment 5f**).

Barry said he wanted to present another hydrograph for discussion. This scenario is based on getting sediment inputs. If instead of getting sediment inputs in August and September, the sediment inputs come in January-July, there is no monsoon that develops this year, and no measurable inputs from the Paria River, then mechanical removal of fish would occur during August and September. They would run normal ROD operations and in

January start going to high fluctuating flows to reduce recruitment of trout. When they do get a significant tributary input of sediment, they would trigger a BHBF. Some type of mechanism needs to be figured out so as to determine if there has been a significant input between January-July and within a very short window figure out a way to trigger that BHBF and then back to ROD operations.

The last one is based on no sediment inputs. What happens if WY 2002-2003 there are no sediment inputs from either the Paria or the LCR? The answer is you don't conduct the sediment part of the experiment. GCMRC would still recommend a mechanical removal in Aug-Sep, ROD flows whatever they would be for the Sep-Dec period, then high fluctuating flows to reduce recruitment of non-native fish, and then additional mechanical removal. The recommendation for WY 2002-2003 is do Scenario 1, 3, or 4 depending on what the sediment inputs are. The only part that changes in this experiment is how you operate the dam in order to retain the sediment. The fish part stays the same throughout.

Randy said to look at the experiment and what parts of the experiment are equal to being hydrology dependent. The critical period seems to be in the Sep-Dec time frame, the ability to guarantee some type of low releases, whether they're fluctuating or steady is another issue. With the reservoir drawn down like it is, Reclamation can virtually guarantee that in 2003-2004 those fall releases will be low with a potential expectation of a possible 8.23 maf release year. Even though there might be some equalization, those extra releases would likely come in the spring or summer rather than start off in the water year in the fall.

Barry said there is an alternative proposal that says instead of going to these low fluctuating flows, the other way you can conserve sediment is by running a HMF immediately following the sediment inputs. They're installing some early warning gages on the Paria River in order to get a trigger from one of the gages that there is going to be a flow on the Paria, and then get down to a second point to see if it is actually developing so fact a short duration maximum powerplant capacity release would be done to conserve that sediment. The difference in year two for a scenario in which there were fall sediment inputs is instead of dropping to low flows, HMFs are run to see if they work in an effective way. The reason that's always been important is that it gives flexibility in recommending final management actions and it balances impacts on the sediment resources vs. power and possibly provide other opportunities. They have the ability in Nov-Dec to measure and monitor whether or not we retain enough sand to make it worthwhile to run a BHBF.

Barry said they tried to compare some of the treatment options but still think that low ROD operations or low flat flows is probably the most efficient of the options available to them. If they do the HMFs, they will only have 50-60-70% of the sand left but it's probably still something to try because it balances competing resources and trading off power for sediment storage.

Comments/Concerns from AMWG members:

- AMP has created a whole lot less sand in the system and could end up in worse situation. Consider doing experiments on a year-to-year and wait for information before making decisions.
- Secure funding for a hatchery
- Do economic analysis for impacts on local communities, fishing guides, motels, etc.
- Monitor impacts on recreational experiences – quality of the experience and human safety.
- Ensure consultation with all involved (for example, Navajo Nation)

MOTION: Move to accept the AMWG Recommendation with the following modifications:

1. GCDAMP adopt a long-term experimental framework with a twice-a-year evaluation of data by AMWG.
2. Implement Scenarios 1, or 3, or 4 as appropriate in WY 2002-2003
3. Initiate all needed activities (consultation [include HBC], compliance, development of a science plan, public outreach, analysis of the development and use of a hatchery for HBC)
4. Implement Scenario 2, as appropriate in WY 2003-2004

5. Direct that GCMRC in consultation with the TWG and the SAs develop an experimental plan for long-term implementation

AMENDED MOTION: Add “monitoring” before “plan” on bullet on #5

Amended motion seconded.

Discussion: Rick said he would like to have bullet #4 deleted because the framework shouldn't be up there first, and then a decision made on what to do. He doesn't feel we are constrained in having to make that decision. A decision needs to be made for this fall but not necessarily for the following Fall.

Rod said if Rick wanted to make that as a substitute motion, he would withdraw his amended motion.

Amended Motion withdrawn.

AMENDED MOTION: Move to eliminate bullet #4.

Motion seconded.

Discussion:

Voting Results: Yes = 18 No = 3 Abstained = 0

Motion passes.

AMENDED MOTION: Revise bullet #2 to read:

Scenarios 1 and 2 will be run in the first two years in which fall sediment inputs occur to compare the effects of fall flows on conserving sediment.

The members took a break to caucus on the proposed language. Randy explained that they found a need to modify both the first two bullets to resolve the issue of how to implement the scenarios.

AMENDED MOTION: Amend language on first two bullets:

1. GCD AMP adopt an experimental framework that includes Scenarios 1 through 4 and possibly other scenarios to benefit resources of concern with a twice-a-year evaluation of data by AMWG.
2. Implement Scenario 1, 3, or 4, as appropriate in WY 2002-2003. Scenario 1 will be implemented in first year fall tributary inputs occur. Scenario 2 will be implemented in the next year tributary inputs occur.

Amended motion seconded.

Public Discussion: None

Voting results: Yes = 19 No = 0 Abstained = 0

Motion passed.

Rod questioned the need for “analysis of the development and use of a hatchery for HBC” in bullet #3. He would like to have “analysis of” deleted.

Discussion. The members discussed the above and alternative language.

AMENDED MOTION: Move to amend bullet #3: Strike everything after *public outreach* and add “development of a captive breeding population of Grand Canyon Humpback Chub.”

Motion seconded.

Discussion.

Voting results: Yes = 14 No = 6 Abstained = 0

Amended motion passes.

Clayton said he wanted a clarification on Amendment #1. The recent information that Barry presented would be similar to steady flows, so as he understands it that between now and when the details are worked out for the July AMWG meeting, Scenario 1 may mean some level of fluctuation yet to be discussed. Randy said part of the confusion is that when he and Steve prepared the meeting minutes, there were some inconsistencies in the report from what was discussed at the ad hoc group meeting. What they talked about in the ad hoc group was that September was a likely starting time for these steady flows and that would require a smaller September volume. They talked about moving water from September 2002 into the previous months so they could facilitate this year with implementation of Scenario 1 if there were inputs. His sense from that meeting is starting Sept. 1 we will be ready to cut the flows, get the inputs after that date or even if they were inputs before that date if it made sense to conserve them that way. Randy suggested that issue be taken up with the ad hoc group between now and the next month so that the AOP implications can make that change and clarify Scenario 1.

Call for question.

The full motion now reads:

MOTION: Move to accept the AMWG Recommendation:

1. GCDAMP adopt an experimental framework that includes Scenarios 1 through 4 and possibly other scenarios to benefit resources of concern with a twice-a-year evaluation of data by AMWG.
2. Implement Scenarios 1, 3, or 4, as appropriate in WY 2002-2003. Scenario 1 will be implemented in first year fall tributary inputs occur. Scenario 2 will be implemented in the next year that fall tributary inputs occur.
3. Initiate all needed activities (consultation [include HBC], compliance, development of a science plan, public outreach, development of a captive breeding population of Grand Canyon Humpback Chub.)
4. Direct that GCMRC in consultation with the TWG and the SAs develop an experimental plan for long-term implementation.

Voting results Yes = 17 No = 1 Abstained: 1

Motion passes.

Public Comments (Kelly Burke, Grand Canyon Wildlands). We're a conservation group in Flagstaff. We're very science-based and are concerned with protecting and restoring all native species in the Grand Canyon eco region. We just wanted to comment from the scientific point of view in terms of sound science and I know you've been discussing this all day but we really want to argue on behalf of replication of experimental results and to say that we don't support the proposed flow in January with the low flows and the high 41,000 cfs and the load following after because you're not replicating anything that was done before and you are throwing in a lot of variables at once and we're not sure how you're going to be able to distinguish what is happening there, and also with a spike in January which in terms of the Holocene evolution of the river is kind of a rare event in terms of how the biology is adapted to that. There may be some things in the ecosystem that will respond in ways that we have no idea about and don't really have a way to investigate. We would like to recommend a repeat of the 1996 experiment but not necessarily for such a long duration. We realize there is a lot more discussion going on in terms of tributary inputs so in some ways my comments may be preliminary and if we could get more information, we may have something more creative to offer. That is something we see no matter what you think you are getting from that result, if it hadn't been replicated is outside the realm. The other part is we really want to see action happen quickly in terms of removing the non-native fish and benefiting the chub. We're very concerned about the chub and would like to see as thorough as sustained a program of mechanical or other techniques for removal of the non-natives as soon as possible. So if this process of when we get a flow, and the experiment, or if any of this will slow that down, we would like to see that go ahead. Thank you for your time. Amy Heuslein (abstaining) - I don't necessarily agree with bullet #3 the last portion "with development of a captive breeding population GC HBC."

Rod Kuharich (no vote). I'm still concerned about the direction we're taking on sediment through the decade of loss through this adaptive management program. I'm not convinced this is the answer.

Revegetation Project at Lees Ferry - Fred Phillips said that last year the Grand Canyon Wildlands Council and the Glen Canyon National Recreation Area headed the charge on the revegetation project. The project cost approximately \$110,000 which was funded by the Arizona Water Protection Fund. The Central Utah Completion Act Fund provided some funds toward the end to augment the irrigation system at Lees Ferry. He proceeded with a PowerPoint presentation (**Attachment 6**).

Adjourned at: 4:50 p.m.

Glen Canyon Dam Adaptive Management Work Group Meeting
April 24-25, 2002

Conducting: Michael Gabaldon, USBR
Recorder: Linda Whetton, USBR

April 25, 2002
Convened: 8:12A

Welcome and Introductions: Michael Gabaldon introduced himself as the Secretary's Designee and Chairman of the AMWG. He welcomed the members, alternates, and visitors to the meeting.

Information Needs, Process for Prioritization - Mary Orton presented the report from the Ad Hoc Committee on Strategic Planning. She reminded the AMWG members that at their January 2002 meeting, they had approved a motion recommending to the Secretary of the Interior the adoption of the strategic plan, including vision, mission, principles, goals, management objectives, and narrative sections. She also reminded the members that they had requested that the Ad Hoc Committee on Strategic Planning return to this April meeting with recommendations on four issues, in order to complete the strategic plan.

She noted that any action taken on these recommendations would not be sent to the Secretary, but the TWG and the Ad Hoc Committee on Strategic Planning needed direction from the AMWG in order to proceed on resolving these issues. She added that the recommendations had been presented to TWG at its February 2002 meeting, and that they had been substantially changed because of feedback received at that meeting.

She referenced the memo sent on March 25, 2002 (**Attachment 7**) and proceeded to address the issues. She said she would begin with Issue 2 on that memo, and take Issue 1 last.

Mary presented Issue 2. By consensus, the AMWG approved the process outlined under Issue 2, with amendments indicated below with strikeout and underline:

“Issue 2: Development of a process and timeline for completion of Information Needs and Management Actions. Information Needs: The TWG, at the meeting after the May meeting, will identify the Information Needs around which it does not have consensus, and approve the rest. The approved INs will go to the AMWG for approval at its July 2002 meeting. Those INs that have not been approved are subject to further discussion between GCMRC and TWG. They will go to the TWG for approval, and then to the AMWG for final approval at its January 2003 meeting.”

“Management Actions: After the sequencing exercise is completed, the GCMRC and the TWG will jointly develop the Management Actions for recommendation to the AMWG.”

Mary presented Issue 3. The AMWG discussed the process outlined in Issue #3 and the following changes were made, as indicated with strikeout and underline:

Issue 3: Development of a process and timeline for identification of which MOs are in and which are out of the AMP.

1. The Ad Hoc Committee on Strategic Planning will develop a list of criteria that make power revenue funding inappropriate for an MO.
2. The TWG, at its May meeting, will consider and refine that list of criteria, and then use it to develop a preliminary list of MOs that should be funded by other revenues.
3. In both these cases, the AHCSPP recommends using a simple process, similar to what we have used many times: give people time to think about the question, generate a list, then discuss each item and come to a consensus.

4. That preliminary list of MOs, with the criteria used to generate it, will go to the AMWG for approval or modification in July.

MOTION: Move to adopt the process of Issue 3 with the consensus amendments

Motion seconded.

Discussion. The members discussed timing on the above and added a new item: **#5. The list of “in or out” criteria will be forwarded to AMWG by its January 2003 meeting, with an interim report to AMWG at its July 2002 meeting.”**

Public Comments: None

Voting results on the amended motion: Yes = 10 No = 7 Abstained = 1

Amended motion fails.

Members voting no: Joe Alston, Wayne Cook, Kurt Dongoske, Norm Henderson, Nikolai Ramsey, Randy Seaholm, and Bruce Taubert

Bruce Taubert – I voted no because I don’t believe we need to look at what’s in and out. I don’t want to take too much time in having our processes undirected. Right now someone else is deciding our fate. I think AMWG needs to decide its fate and think about priorities. We will be pushing real hard in the future for a process to look at the Strategic Plan and what is in and out and I do not absolutely believe the Strategic Plan is a life-long document. It is a term document and it has to be reviewed annually. We have to have the ability to take things in and out and we need to have that discussion not at this time obviously but at a future meeting. I’ll be requesting that we have that on as an item of discussion for a future meeting.

The AMWG then considered the original motion. Several amendments were made by consensus, so the language up for consideration for approval was as follows, with additional amendments indicated with ~~strikeout~~ and underline.

Issue 3: Development of a process and timeline for identification of which MOs are in and which are out of the AMP.

1. The Ad Hoc Committee on Strategic Planning will develop a list of criteria that make power revenue funding appropriate or inappropriate for an MO or IN.
2. The TWG, at its May meeting, will consider and refine that list of criteria, and then use it to develop a preliminary list of MOs or INs that should be funded by other revenues.
3. In both these cases, the AHCSP recommends using a simple process, similar to what we have used many times: give people time to think about the question, generate a list, then discuss each item and come to a consensus.
4. That preliminary list of MOs and INs, with the criteria used to generate it, will go to the AMWG ~~for approval or modification in July 2002, for approval or modification of the criteria.~~”

Rick Johnson raised the concern about funding – funding INs, not MOs. He stated that if all the INs under an MO are funded by the same source, then it makes sense to use MOs in this context. If not, then we ought to be talking about funding of INs not MOs. He said there may be a situation in which there are multiple INs, some of which might be appropriate for one funded source and some for another source. Jeff Cross gave an example in that the Non-native Species Program is funding the work in the LCR and the Park is funding the work at Bright Angel Creek.

Voting Results: Yes = 11 No = 9 Abstained = 0

Motion fails.

Rod Kuharich moved to approve the same language that had just failed, with the addition of the following:

“5. That the AMWG form an ad hoc committee to make a recommendation to AMWG regarding criteria for MOs and INs determined inappropriate for the AMP and report back to AMWG at its July 2002 meeting.”

Motion seconded.

Discussion: None

Public Comments: None

Voting Results: Yes = 17 No = 0 Abstained = 3

Motion passes.

Rod suggested a small work group develop some criteria and present it at the next AMWG meeting.

ACTION: Randy Peterson will get with his group and report back in the July meeting.

MOTION: Approve #'s 1-5

Motion seconded.

Discussion: None

Public Comments: None

Voting Results: Yes = 17 No = 0 Abstained = 3

Motion passes.

Rick Johnson (abstaining): I think we're pushing the limits of absurdity, going over some thing over and over again. This is insane.

Mary Orton reported that for Issue 4, "Consideration of the addition of a new Management Objective 7.3: Maintain suitable water quality in GCD releases to meet downstream Management Objectives," the Ad Hoc Committee on Strategic Planning was unable to come to a consensus on this item before the February TWG meeting. She reported that the committee members anticipated that it would be identified during the TWG discussion of INs as an item that needs further discussion.

Mary then turned to Issue 1, Development of a process and timeline for prioritization. She explained that the Committee suggests that because the purpose of the exercise is to provide guidelines to the GCMRC as they develop their strategic plan and annual workplans, the proper question is the sequence order of INs, not prioritization. She explained the process that the Committee was recommending to the AMWG.

MOTION: Move to approve A-F under Issue 1:

- A. At the May TWG meeting, TWG members will hear a presentation from GCMRC that provides information about resource status and trends. This presentation will include the status of achieving the goals in the strategic plan and the expectations outlined in Table II-7 of the EIS, and will address how close we are to achieving those goals. The presentation will also include what the GCMRC recommends as the next step, and the level of urgency of that step.
- B. Next, the TWG will use a "paired comparisons" exercise to put the Research Information Needs (RINs) and Support Information Needs (SINs) in sequence order. The paired comparisons exercise is one in which the group decides, two at a time, which IN should be addressed before the other. There will be discussion before each decision, so that TWG members can learn from each other about how and why they are making their decisions. The result is a list of RINs and SINs in sequence order.

Because there are almost 200 RINs and SINs, the TWG will not have time to put all of them in sequence order during the meeting. They will put only 20 to 30 RINs and SINs in sequence order, based on a sample taken from all goals. After the meeting, TWG members will receive a questionnaire that will aid them in putting the remaining RINs and SINs in sequence order, based on the sequence framework they developed during the meeting. TWG members will assign the remaining INs a numerical score to indicate sequence order, for example, from 1 to 20, with 1 being first in sequence.

- C. The results of the questionnaire will be compiled and the results given back to the TWG. If there are INs addressed in the questionnaire about which the group does not agree, they may continue the paired comparisons exercise to resolve those issues at the next TWG meeting. When all the RINs and SINs are in

sequence order, the group will review the result for fatal flaws – does the result have any fatal flaws that need to be corrected? These might be violations of legal requirements, putting something early in the sequence that can't be determined until later, etc.

- D. These results will be sent to the AMWG for approval at its next meeting.
- E. After the AMWG acts, the GCMRC will use the approved list of RINs and SINs in sequence order to produce its Strategic Plan, which will include the Information Needs that will be addressed during the next 5-year period; and its annual workplan, which will include the Information Needs that will be addressed during the coming year. If, during the process of developing its Strategic Plan or annual workplan GCMRC believes that a lower-ranked IN either needs to be addressed first, or in conjunction with other INs needs to be addressed through a combined RFP, they will bring this recommendation with the accompanying rationale to the TWG for review.
- F. The GCMRC Strategic Plan and annual workplan will be sent to AMWG for approval, after review by the TWG.

Motion seconded.

Discussion: Clayton raised some concerns about the paired comparison process and whether there were other types of processes which could be considered. Andre said the AHCSP discussed various options and this appeared to be the best solution. Mary also said that a number of organizations use this and she feels good about using it as well.

Voting results: Yes = 17 No = 0 Abstained = 0

Motion passes.

FY 2004 Budget - Barry said he wanted to remind the AMWG where they are in the process. He distributed copies of the FY 2004 Budget (**Attachment 8**). The AMWG had recommended in January 2002 that the budget process be accelerated. In the past a bottom-line budget was brought forward in July then they continued to work on it and then in the October meeting AMWG would approved the full annual plan for the outyear. In January the AMWG requested the budget be done earlier so they could get the bottom-line recommendation into the Dept. of Interior process in a way in which DOI could act on it. This budget was presented to the TWG and they are recommending it to the AMWG for approval of the bottom-line. If the AMWG approves, GCMRC will develop the annual work plan, bring it to the TWG for discussion at the May meeting, and then present it to the AMWG in July for approval of the work plan for FY04.

Randy said the format is consistent with what the AMWG has seen in the past in terms of line items but they streamlined it by adding columns with the various funding sources. He reviewed the following:

I. Program Administration:

- A. Adaptive Management Work Group – consistent with past expenditures although Reclamation travel has been somewhat less in past years.
- B. Technical Work Group – consistent with past expenditures but the TWG member travel is often slightly higher.
- C. Science Advisors - Reclamation hasn't been able to identify any costs for the science advisors so this line item will probably eliminated.
- D. Compliance Documents – Reclamation hasn't spent any money in the past but will this year in order to prepare the NEPA and ESA compliance documents associated with the experimental flow.
- E. Temperature Control Device – This is covered with appropriated funds from CRSP Section 8.
- F. Contract Administration – These are funds used for AMP related contracts.

II. Tribal Consultation. This provides for tribal participation, consultation, and government interaction with the tribes as well as a annual river trip logistics cost that is transferred to GCMRC. All these funds are provided through the DOI appropriations with each of the five agencies contributing \$95,000.

III. Programmatic Agreement – Nancy Coulam said there were 11 recommendations from the Cultural Resources Protocol Evaluation Panel. The PA signatories and GCMRC have been working to implement all of them. The top priority item is completion of the Historic Preservation Plan (HPP) which is a stipulation in the current PA. The budget remains flat with \$50,000 budgeted for Reclamation's administrative expenses. The bulk of the funds (\$400,000) are for Treatment and Monitoring Implementation. This includes contracting for a Treatment and Monitoring Plan and implementation of the plan. Reclamation made a commitment several years ago to keep the existing NPS and tribal monitoring programs going until the new plan is finalized. Continuing to fund the existing monitoring programs, to contract for a new treatment and monitoring plan and to begin implementation of the plan is ambitious in one fiscal year, but they're hoping to do all this in 2004. In 2005 they can completely move into resolution of adverse affects of dam operations.

Clayton asked about the work on mapping the Holocene deposits and if it is to be done by a sedimentologist and to be completed prior to the mapping. Nancy said that Ruth would need to respond but before she did, she wanted to provide a little bit more information. One of the things that the TWG had approved for the PA was a proposed a geomorphology workshop to determine what geomorphologists know about how and where dam operations affect Holocene deposits below the dam. The goal of the workshop was to have the geomorphologists develop a white paper on the status of where and what are the effects of dam operations. Given the issue of the experimental flow and her optimism that the group was going to get through that process and approve something to help address that question, she moved the money the TWG had approved for the workshop (\$40,000) to Ted Melis at GCMRC. Ted has proposed skipping the workshop and conducting a specific research project to answer the information need. She added that Holocene mapping and other projects Ruth Lambert is working on are dependent on the results from the geomorphology workshop.

Ruth said that when they were talking about the sequencing of these projects, one of the first steps was contracting for the workshop which would tell them what was needed. It was projected that out of the workshop would come a two-year mapping effort for the Holocene terraces. AMWG had approved years one and two. They're behind schedule because the workshop did not place in 2001, and probably won't take place in FY02 if Ted's proposal for research is approved, but they're moving the second year of proposed Holocene mapping into 2004. The mapping of the Holocene terraces may wind up being a one-year project and may be different in scale and scope than what was originally envisioned.

Nancy added that the PA signatories agreed to amend and update the Programmatic Agreement and are working on that under the new regulations. One of the main changes is the way signatories are handled. The PA signatories agree that WAPA and the BIA should definitely become new signatories and they're exploring the issue of who or what other groups need or want to become a signatory to the PA. for example, the TWG or AMWG may want to become signatories to the amended PA.

IV. Experimental Flow Fund This was established in 2002 in our proposed budget to Congress as a means of carrying over year-to-year and accumulating a sum of dollars which would allow us to do the appropriate monitoring and research associated with the experimental flows. By the fall of 2001, they had about \$125,000. This year will end with close to \$500,000 and probably by the start of FY03 we'll have about \$1 million in that fund all from power revenues. We're budgeting \$500,000 in 04 for experimentation and also seeking \$1 million from the USGS budget for experimental flows as well.

V. GCMRC Scientific Activities - Barry went through the science portion of the budget. He said for the majority of the studies are ongoing studies that were approved in prior years that were multi-year studies with the exception of:

A3, New Research in Terrestrial Ecosystems. He referred the members to the project description on page 5. This project builds on work they're having now but brings a new focus to that.

A6, Kanab Ambersnail Taxonomy. Barry reminded the AMWG that in the January meeting Denny Fenn (USGS) offered to bring \$100,000 of USGS appropriations to address the taxonomy issue.

V.B.7, Native and Non-Native Fish Species. This is work they could program to look at the interactions and

try to get a better understanding of predation. If there is a result from experimental flows, some of that work accelerates. The specific details of what they do change. Their goal with the captive breeding program was to do the feasibility analysis to make sure they took the fish right and be in compliance with all the FWS policies. They are going to have to go back to the 2003 budget and see where to find funds to move up some of the work.

V.C. Integrated Ecosystem Activities. These projects were either 3-5 year projects that AMWG previously approved with the exception of the LCR project.

V.C.7, The LCR Integrated Studies Project. The GCMRC proposed three years ago doing work on LCR hydrology which led to part of the discussion in the Loveless Guidance Document, whether or not someone could work outside what's called the Colorado River Ecosystem and Scott's document says that if you can demonstrate an effect to linkage, then it's probably appropriate to work in.

AMWG Comments/Concerns:

- V.A.1. – Rod questioned the amount of \$624,490 and that it appears to be running double over some of the other work, particularly the hydrology and vegetation components. Steve Gloss said that cost includes about a half dozen river trips a year which include principle investigators that do vegetation, insect work, small animal work, avian work. It's the entire effort of the riparian corridor and also involves coordination with tribal groups.
- V.A.6. – Rod questioned why the Fish and Wildlife Service isn't contributing to the \$25,850. Barry said these are AMP funds because this program has the responsibility to monitor the status of the population and the habitat. The \$100,000 is from the USGS and will be used to address the taxonomy issues.
- V.B.1-2. Rod questioned the Aquatic Foodbase internal (\$179,600) and external costs (\$91,250) along with IWQP (\$309,000) is almost \$500,000 for those three programs. Steve said the three projects are pretty tightly integrated. Barry said the IWQP is going through a review based on the PEP so that's really a placeholder in the budget. They have some meetings scheduled with the Bureau of Reclamation to address the activities of getting the modeling efforts underway and their expectation is that in the future this amount will decline.
- Paria Early Warning System – Bill Davis asked if the work is going to go forward on that. Ted Melis said that until the experimental flow issue is resolved, it will still function under another plan. They propose getting it in place sometime between this summer and next. They may need to think about reprogramming some existing funds and it will probably cost \$20K a year to operate it based on the cost estimate that the USGS has provided.
- V.C.7. – Kurt asked for clarification on how the LCR integrated studies are being articulated with the LCR Multi-Objective Management (MOM) going on in the LCR basin and watershed. Are we looking at the effects of historical occupation from the mid to late 1800's up until now? If we are looking at the LCR from prehistoric times to present, then you will want to look at archaeological site distribution and settlement patterns within the LCR watershed, and take pollen and paleoclimatic information from those sites. This could inform you on trends within the watershed. He asked Barry to explain what they perceive the proposed studies to be. Barry said it does not at this point articulate with the LCR MOM because they're not exactly sure what the program entails. GCMRC had one conversation with Dave Garrett who is running that program or helping to facilitate that program in an effort to try and understand what they're doing. This effort is focused on understanding how historic hydrology changes so they can take the gage record, digitize it, and look at how flows into the river have changed over time. They have the digitized record of the mainstem and can see where and when floods have occurred, how long they occurred, and how that has inundated the mouth of the river and changed the available habitat. Barry indicated they would be thinking about traditional cultural uses, they would also doing some consultation with the tribes that have used that area historically, but they are not actually planning to go out at this point in time and do any kind of prehistoric or paleoclimatic analyses that Kurt described. The primary goal of this study is understanding that when we say habitat conditions have changed substantially, there is a concern that warrants going in there to do more detailed work.
- V.D.7. Kurt said despite submitting a written letter commenting on the proposed FY04 budget to GCMRC and Reclamation, it was still unclear what the parameters and scope of the cultural affiliation

study are going to be. He wants to know how the proposed cultural affiliation study will contribute to or differ from work that was already completed by the tribes under the GGES and EIS. The term "cultural affiliation" has specific legal meaning under the Native American Graves Protection and Repatriation Act (NAGPRA) and he questioned how this proposed study would apply or be utilized by the NPS to make determinations of cultural affiliation in relation to potential inadvertent discoveries in the Grand Canyon. He questioned whether NPS, who is responsible for making the final decisions on NAGPRA cultural affiliation and disposition, would accept studies of cultural affiliation as proposed by GCMRC or the PA. He expressed concern for earmarking a certain amount of money in FY04 and saying that the scope of the study would not be identified until a later date. Ruth said the cultural affiliation funds were considered preliminary, and the first step in the project would be meeting with the tribes to determine their needs and to finalize a scope of work. Barry said they are preparing the details to send out in the 2004 work plan. Kurt admonished GCMRC that if they plan on involving the five tribes in this type of a project, then they should involve them in the planning stage before defining the dollar amount.

Tribal Consultation Plan Update - Loretta Jackson said that she and the tribes have been working hard on a tribal consultation plan, as well as amending the PA for cultural resources. So far they have a draft outline of the consultation plan and have met several times. The scope and purpose hasn't been fully defined as they are trying to determine what the relationship of the consultation plan for the historic preservation plan (HPP) would be to the AMP Strategic Plan. They expect the consultation plan to serve both purposes: to be an appendix to the AMP Strategic Plan and to be a chapter in the HPP. The tribes have discussed the legal basis for tribal sovereignty, trust responsibility, and government-to-government relationships. They want to give a background in the document on tribal involvement regarding the Glen Canyon Dam, what the tribal roles are in the PA, what the tribal roles are in the AMP, and tribal commentaries on experiences with consultation. They need to define what consultation means and what the goals of the AMP consultation process would be and what are the expectations of consultation is for agencies in relationship with the tribe. She and the tribal representatives are working to have a draft ready for the July AMWG meeting.

Colorado River Management Plan Update - Jeff Cross said the National Park Service has begun a river management planning process to revise the 1989 Colorado River Management Plan. They are doing internal planning at this time. A notice of intent to prepare has been prepared for the Federal Register for publication in June. This will be the official notice to the public that the Park Service is reinitiating its river management planning. They will also prepare a letter to the public letting them know they are back in the planning process. They will begin their public scoping process during the summer and begin consultation with the tribes during the summer as well. They plan to have at least four public meetings in Phoenix, Flagstaff, Denver, and Salt Lake City later this summer. From Fall 2002 until Spring 2003, they will be working on the Draft Environmental Impact Statement and will put that out for public review sometime during the summer of 2003. Then they will hold public meetings on the DEIS in the four cities. The target date is to have a Final EIS, the Revised Colorado River Management Plan, and a Record of Decision completed by December 2004.

Public Outreach - Barry Wirth (USBR) began by saying the Adaptive Management Program and the Adaptive Management Work Group have a magnificent story to tell related to the stewardship of one of the world's prime resources. It is a story that should be told to the public. The AMP is doing the public's business with one of the treasures of the world and ought to take pride in what is being done, sharing information, proposing future work to be done, and stating the role and function the AMP plays in supporting the Secretary of the Interior in carrying out her responsibilities.

Previously there was a group of people who either volunteered or were drafted to function as a subcommittee to deal with public outreach. The original genesis of that goes back to a float trip in the last administration and a decision on the banks of the river that there would be an outreach program. That program never quite got off the ground and more recently Rick Gold urged others to get this going again. At the last AMWG meeting, the following organizations indicated a willingness to participate: Reclamation, Park Service, Arizona Game and Fish, Southwest Rivers, Grand Canyon River Guides, Fish and Wildlife Service, and the Grand Canyon Monitoring and Research Center. Unfortunately, no one was picked to lead the effort, so Rick asked Barry to lead

that function and work as staff in that regard. Reclamation has the ability to provide the product development support and the agency is eager and willing to bring in others who may want to help develop materials. He proposed that he make contact with those individuals from those organizations and convene a telephone conference meeting to get something moving and determine what the priorities are and what the group wants to achieve. He presented a handout on possible ideas to consider (**Attachment 9**) and said there are other things which need to be considered relative to communication whether or not we want to do brochures, fact sheets, videos, etc. If they get themselves in a situation with another BHBF, it is going to draw a lot of attention and he wants the members to consider what the role and function of the AMWG is in telling that story vs .the role that Reclamation would have concerning the site itself, getting on the site, and throwing the switches to make the event happen. He asked if the AMWG members were agreeable in having someone take the lead.

Amy Heuslein volunteered to participate on the ad hoc group.

Steve Magnussen (former Reclamation employee) said he was asked by a local rotary club to make a presentation and feels there is a need for some general information (brochure) to be disseminated. As the former chairman of the AMWG, he would be willing to make any presentations to the public.

Statement for the Minutes – Barry Gold said he wanted to make a statement for the minutes. The AMWG Charter calls for members to be in attendance at two concurrent meetings or they should be notified that they are not fully participating. We also need to strengthen the statement in the Charter for members staying for these higher meetings. This meeting was scheduled to go until 3 p.m. The GCMRC is about to make a presentation that is critical to the AMP, it shows up annually as a \$500,000 budget item, we had members ask questions this morning that shows they are not up to speed with some of the information, and what's going to happen is that we're going to come to the next meeting and some of these members who aren't here are going to say, "Why are we doing this? Why should we support it?" We have a process for trying to get that information out and I think it's incumbent on the members who are appointed to a federal advisory committee to fulfill their responsibility to that federal advisory committee by staying and participating. Otherwise, they compromise the efficiency and effectiveness of the process.

Update on AMWG Bulletin Board - Mike Liszewski said that before he starts his presentation, he wanted to give the members an update on the AMWG bulletin board. It was put into effect a little over a year ago and the one complaint he has received about it is that it was excruciatingly slow. In an effort to fix that, the bulletin board was updated and they set up a separate server to operate that. He wanted to put a plug in for the members to start using it again. He said it can be reached from the GCMRC web page and the username is the same. He provided instructions on how to use it. Rick Johnson questioned if the AMWG wants to discuss the utility of using the bulletin board as a communication device, whether it should be a list server or a bulletin board. Mike said his recollection was that they tried the list server and it didn't work that well either. The bulletin board is a relatively simple thing to maintain and keep running and it's there for people to use. He said one of the features of the bulletin board is we can implement a process to notify people when there is a posting but it will require some additional configuration of the server software.

Remote Sensing - Mike Liszewski passed out a table that shows the complete remote sensing and aerial photography inventory (**Attachment 10a**). The GCMRC has been trying to improve and make it a useful document to actually describe to the best extent possible what remote sensing and aerial photography datasets exist and where in the canyon. This represents where they are now and he envisions it will constantly be improving to be more useful. He then proceeded with a PowerPoint presentation (**Attachment 10b**).

Fall BHBF Flows – Rick said that one of the things that came up yesterday was this concern about fall BHBFs. He talked with Randy Peterson, Wayne Cook, and some others about dealing with that issue. They thought it might be a good idea for those people who were interested in discussing this to develop a better understanding of what the legal and policy issues are underlying the BHBF, find a time a get together in the near future. Some people suggested a formal ad hoc might be the way to go but he feels it could be done informally. He suggested a broadcast e-mail be sent to see who is interested in participating and then find a time to set it up.

ACTION: Rick Johnson will draft a purpose for the meeting and e-mail to Linda. Linda will send a message to the AMWG & TWG asking who would be interested in participating in a BHBF discussion. (Update: Rick said he wanted to talk with Randy first and would get back with Linda. A mail message was never sent. Rick notified the AMWG and TWG on 5/13/02 that he had resigned from Southwest Rivers.)

Captive Breeding Population Update – Larry Riley (AGFD) said Dr. Bruce Taubert put together some thoughts relative to the discussion yesterday on a captive breeding population and wanted to share those with the AMWG members (**Attachment 11a**). Earlier this month there was a detection of New Zealand mudsnail at Lees Ferry. The AGFD put together a press release (**Attachment 11b**) which was coordinated with Glen Canyon National Recreation Area to let people know of the potential for transport to other locations. Dr. Gloss and the GCMRC staff are also doing some follow-up to verify the identification so there will be more news forthcoming.

Attachment 12 = NAU Fact Sheet: Colorado River Ecosystem Sand Bar Conditions in 2001: Results from 12 Years of Monitoring

WRAP UP

Randy said that if we are successful in having Secretary Norton accepting the experimental flow recommendation, we are going to be on warp speed for the next 8-9 months. His suggestion for the next meeting following the July 17-18, 2002 meeting would be in January 2003 in order to get all the work done involved with the experimental flow and the native fish control, NEPA and ESA compliance, all the scientific planning, etc.

AGENDA ITEMS FOR JULY MEETING:

- FY 2004 Budget Approval
- TCD Presentation and Recommendation to the Secretary

Adjourned: 2:50 p.m.

Next Meeting: July 17 (9:30 – 5:00) and July 18 (8-1:00)

Location:

Bureau of Indian Affairs
2 Arizona Center
400 N. 5th Street
Conference Rooms A&B
Phoenix, Arizona

Hotel Room Block:

Holiday Inn Express and Suites, 6th and Fillmore
Phoenix, Arizona
602-452-2020
\$59 + tax

BLOCK CLOSURES: June 25, 2002

Respectfully submitted,

Linda Whetton, USBR

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
MOM – Multi-Objective Management
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
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)