

Glen Canyon Dam Adaptive Management Program
Technical Work Group Meeting
May 16, 2002

Presiding: Kurt Dongoske, Chairman

FINAL

Committee Members Present:

Perri Benemelis, ADWR
Kerry Christensen, Hualapai Tribe
Wayne Cook, UCRC
Jonathan Damp, Pueblo of Zuni
William Davis, CREDA
Brenda Drye, So. Paiute Consortium
Lloyd Greiner, UAMPS
Norm Henderson, GLCA
Amy Heuslein, BIA

Robert King, UDWR
Phillip S. Lehr, Colo. River Comm./NV
Don Metz, USFWS
Bill Persons, AGFD
Randall Peterson, USBR
D. Randolph Seaholm, CWCB
John Shields, WY State Engineer's Office
Robert Winfree, NPS/GRCA

Committee Members Absent:

Robert Begay, Navajo Nation
Dave Cohen, Trout Unlimited
Christopher Harris, CRBC
Nancy Hornewer, USGS
Pamela Hyde, Southwest Rivers

Matt Kaplinski, GCRG
Clayton Palmer, WAPA
Nikolai Ramsey, Grand Canyon Trust
John Whipple, NM Interstate Stream Comm.
Michael Yeatts, The Hopi Tribe

Alternates Present:

John O'Brien
Wayne Cook
Gary Burton

For:

Matt Kaplinski, GCRG
John Whipple, NM State Engineer's Office
Clayton Palmer, WAPA

Other Interested Parties:

Jan Balsom, NPS/GRCA
Mary Barger, WAPA
Dave Busch, GCMRC/USGS
Nancy Coulam, USBR
Steve Gloss, GCMRC/USGS
Dennis Kubly, USBR

Ruth Lambert, GCMRC
Matt Mallory, BIA
Ted Melis, GCMRC/USGS
Mary Orton, The Mary Orton Company
Tom Ryan, USBR

Recorder: Linda Whetton, USBR

Meeting Opening and Administrative Items

Convened: 9:40 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*).

Announcements:

1. Rick Johnson has resigned from Southwest Rivers.
2. Norm Henderson announced he was selected as the Colorado River Coordinator for the National Park Service. He will be headquartered in Salt Lake City and will be working with other Interior agencies. It's unclear at this point in time how much he will be involved with the Adaptive Management Program. This is a one-year detail assignment.
3. Amy said she received a call from a friend of Dave Cohen's a few days ago. Dave is back in the hospital. Apparently he had a double aneurysm. If anyone is interested in contacting Dave, he's at Valley Lutheran Hospital (480-981-2000, room 731). She asked his friend if he would let other Trout Unlimited persons know of Dave's involvement in the AMP and whether anyone would be interested in serving as Dave's alternate.
4. Dave Busch introduced himself as the Acting Chief of GCMRC. He works for the USGS Western Region. He has been focused on forest and aquatic issues in the northwest. Prior to that he worked for the National Park Service with the development and implementation of the monitoring system in the Florida Everglades. Prior to that he worked for the Bureau of Reclamation in the Lower Colorado Region. He has considerable experience with design and implementation of monitoring systems and also riparian plant ecology.

Review of Action Items from the Feb. 26-27, 2002, TWG Meeting:

1. Mary said she didn't receive any comments on the "big issue INs.
2. Linda mailed out the AMWG comments on the INs.
3. All items under Experimental Flows were completed.
4. Randy did receive comments on the FY 2004 Budget. The Budget Ad Hoc Group couldn't meet until they had the detailed work plans which were recently mailed out. The Budget AHG will be meeting tonight to discuss further.
5. Randy said he did not write a "white paper" and questioned if there are still issues that prevent the TWG from moving forward with the Strategic Plan. If so, then more discussions can be held and a white paper written if people feel it is necessary. Ted Melis said the GCMRC has been looking at what they perceive as an AMWG/TWG request for additional help around target level development for resources and have been discussing a process they might bring to the TWG as a proposed way of helping with that, if that is still something that is desired. They have a budget to support requests of that type and could initiate it this year.
6. Since Rick Johnson has resigned from the AMP, Bill Persons said he would check with the members of the Non-native Fish Group and send out an update.

7. Bill said he talked with several groups about what is happening with non-native fish control (working on mechanical removal, weir at Bright Angel Creek, or changes in dam operations). There are some people who are a little bit uncomfortable about the experimental flow concepts. Steve Gloss said he and Bill talked about setting up a meeting with the guides and will try to do that. The guides have formed a group called Lees Ferry Conservancy and have hired a writer (Kirk Deeter out of Colorado) to represent them. John O'Brien said he wasn't sure if anything was added to the GCRG quarterly newsletter.

Action: Randy will check with Barry Wirth on preparing a press release for releases over Memorial Day weekend.

8. Norm Henderson had agreed to write a white paper on what is "in" and "out" of the AMP, but he said at the last AMWG meeting, it was decided a small group would deal with the issue. There was a group formed with Randy Seaholm taking the lead.

MOTION: Approve the Draft Minutes of the Feb 26-27, 2002, Meeting
Motion seconded.
Pending two minor edits, the minutes were adopted.

Legislative Updates – Randy said Senate Bill 517 (Energy Policy Act) failed in terms of the ANWR drilling portion of the bill. There have been about 100 amendments to that bill thus far and it has now become very unwieldy. The Senate did pass a version of the bill which will go to conference but there are so many substantive differences with the House Bill H.R. 4 that it could take a long time to resolve them. The House bill is the only bill Randy is aware of that addresses hydropower generation; the Senate version is silent on that issue as far as he can tell. Kurt said there was a news story done on National Public Radio that talked about the energy bill and the notion of developing energy plans on tribal lands. They gave a little bit more positive indication that the bill had passed the Senate and gone into the Senate and House Conference Committee.

Basin Hydrology – Tom Ryan presented various hydrologic graphs (*Attachment 2*)

Aggregate Upper Colorado Region Precipitation WY 2002 – We're in a drought right now with this year one of the worst in history. We had 62% of average inflow in 2000, 59% of average in 2001, and right now for the water year we're projecting to have only 4 maf which is about 34-35% of average for the year with the April-July runoff forecasted to be 25% of average. There was a little bit of moisture that came into the basin around Thanksgiving that continued on into December and it looked like things could get off to a good start but since then it has been very, very dry.

WY 2002 Lake Powell Unregulated Flow – This shows how far off average we continue to be. The base flows are significantly below the average line and the runoff has taken a drop in May.

WY 2002 Lake Powell Inflow Compared to 1977 – In 1997 there was a little bit of runoff in June and a monsoon produced a little bit of runoff in the summer which helped things out quite a bit. There will be some runoff this year in the latter part of June but it isn't going to be much. It will probably exceed the peak as indicated on the graph.

WY 2001 Lake Powell Unregulated Inflow – This gives an idea of what we had last year. The last couple of years were dry years but they weren't severe in terms of historical exceedences.

2002 Upper Colorado Apr – Jul Inflow – The current distribution of forecasted inflows are: 25% of average at Lake Powell, 51% at Flaming Gorge, 28% at Blue Mesa, and 14% at Navajo. It's been dry all over but severely dry in the southern portions of the basin particularly in the San Juan. They are looking at inflows that are record lows there.

Glen Canyon Dam Releases, Based on May 2002 Final Forecast – This year's release from Glen Canyon Dam will be an 8.23 maf year, a minimum objective release year. Lake Powell will end up lower than Lake Mead so there won't be equalization releases. Normally they look at three scenarios – the minimum probable, the most probable, and the maximum probable with the minimum and the maximum being deciles in terms of runoff extremes, end points you could reasonably expect could happen. Even under the reasonable max, no equalization releases would take place. The reasonable max, April-July forecast is 3.9 maf so almost under any reasonable range of circumstances, there will be 8.23 maf release this year.

Tom showed a graph displaying monthly release volumes with and without experimental flows. The specifics of the experimental flow was presented to the Colorado River Management Work Group meeting yesterday that if the experimental flows proceed, there will be some shifting of water for the remainder of WY 2002 to keep the annual release volume the same but September drops to a 476,000 AF month so that you can begin the low flow sequence assuming you have Paria inputs. The volumes go up a little bit in June and July, stay pretty much the same in August, and then go down in September.

Lake Powell Elevations – This graph shows what Lake Powell is supposed to do in dry cycles. The reasonable max will be a runoff of 3.9 maf, most probable is April-July with 2.0 maf; and the Weather Service is using 1977 for the reasonable minimum. It's likely we'll be down 75-80 feet by the end of the calendar year but the next month or so the lake elevation will probably hold steady.

Lake Powell Water Surface Elevations 1980 through Present – In 1988-1992 we went through a 5-year dry period. The third year of that dry cycle was 1990 and it's going to be drier this year than it was in that year. It will take more water to refill the system than during that previous drought because Lake Mead didn't drop as fast in that cycle as it has this year because there are greater demands on Lake Mead. There were also several runoff events in 1993 on the Gila River that reduced the need to make releases out of Lake Mead. It's going to take quite a bit of water to refill the system. The reservoirs above Lake Powell have to be filled in addition to filling Lake Powell and Lake Mead.

Experimental Flows Update – Randy Peterson said there are only 3½ months remaining until they start the experiment and need to get started on the science planning, NEPA, and ESA compliance. He said he would like the members to discuss their concerns and be prepared to forward a TWG recommendation to AMWG on the nature of the fall dam releases. He displayed a hydrograph that was shown at the AOP meeting yesterday depicting the low flows for this fall and the early winter months in order to save water for the BHBF next Spring. If there is no sediment input, a portion of the January volume would be moved back into December, resulting in a more typical 8.23 maf release pattern. Randy proceeded with a PowerPoint presentation (*Attachment 3*).

Randy emphasized that this is an integrated ecosystem experiment. It may be perceived to some as a sediment experiment, but it has just as much to do with endangered humpback chub and native fish. It's more than just reducing the number of trout to help the chub, he believes things can be learned about habitat conditions in the fall through the proposed Scenario 1 and parts of Scenario 2 experiments. He said today's discussion would focus on remaining concerns: whether to use stable or fluctuating flows, what level of fluctuations, the attenuation aspect, habitat response to the flows in the LCR Reach, effect of sediment transport as near to the dam as the Paria, and Paria inputs triggering volume. He asked Ted Melis to present information from the conference call/meeting held last week.

Ted said a real topic of discussion centered around what to include in the treatment document in response to enrichment by Paria inputs and whether to go with low constant flows or with low fluctuating flows. He went back to the sediment scientists, specifically David Topping and Dave Rubin. Rubin is recommending that when enrichment occurs, that opportunity be used to actually directly compare the two flow treatments by alternating one, and then the other, over the course of a couple of months, perhaps for a week or two at a time, constant 8000 cfs and maybe 7-9,000 cfs that is equivalent in terms of average release volume and do intensive measurements from the cableways using standard procedures as well as some of the new technologies. After that enrichment has occurred, the scientists would look at the two datasets and make a call as to which seems better or worse in terms of sediment transport.

TWG Questions/Comments/Concerns:

- Do we know absolutely that the majority of the desired fractions of the sediment are retained during 8,000 cfs steady releases or do we need to do some experimentation? Historical data published by Topping, Rubin, and others state that 8,000 seems to be a significant threshold for sand transport.
- Over the course of two months, can you really distinguish between the two treatments? Perhaps a commitment needs to be to alternate 3 or 4 times over a couple of months, maybe 3 months.
- There may be some benefit for having fluctuating flows to stress the trout near the LCR.
- What is going to be measured in terms of the chub? Primarily habitat measurements – turbidity, temperature, velocities, stability in habitat, presence/absence of YOY, presence/absence of predators, etc.
- If there are enrichment conditions with sizeable inputs Jul-Oct, and if a BHBF is going to be done against a normal operation in December with the normally scheduled December volume (8,500-14,000), then whatever is going to be tried should be kept substantially less aggressive if a BHBF is going to be done in January.
- Need to review data from 1990 experiment.
Action: Ted Melis will provide the raw data from the 1990 experimental flows to the TWG.
- Can data results be turned around within two months when it has taken so long in the past?
- Need to develop a science plan within the next two weeks and tie to specific projects in order to cover for the extra monitoring costs.
- By doing the alternating cycles, are we going to be able to detect any biological differences?
- As long as research is going to be done during the experiment, can you combine with other monitoring needs?
- Was the December hydropower concern raised at the AOP? Yes. Randy asked for comments which will be forwarded to the Secretary with the AMWG recommendation.
- Need for better “numbers” from Clayton on how Basin Fund would be replenished?

Randy asked if the members were comfortable making a recommendation to the AMWG at this time or if they wanted to wait until later today. He said he would craft some language and present it later today. Randy complimented the members on their good work and participating in the various discussions.

Biological Opinion Sufficient Progress and TCD Update – Dennis Kubly passed out copies of a memo from Reclamation dated May 8, 2002, “Implementation Status of the Elements of the Reasonable and Prudent Alternative from the Dec. 21, 1994 Biological Opinion on the Operations of Glen Canyon Dam” (*Attachment 4a*). He then updated the members on the various elements (*Attachment 4b*).

John Shields read the last sentence of the report (Results from this work could have significant effects on the selected approach to establishing a second spawning aggregation of humpback chub in Grand Canyon) and asked what Reclamation sees as being a timeline for making a decision about the approach or establishment of the second spawning aggregation would be and if hard pressed, what methodology would they use. Dennis said there are potential precursors to successful establishment of a second spawning aggregation identified in a report to GCMRC by Valdez and others (2000), one of which is a TCD. His expectation for a TCD construction schedule is 30 months so if in this evaluation they determine it's necessary to have all things in place, they're not talking about serious establishment of a second population for 3-4 years. Dennis said he didn't think it was necessary to have all things done before having a discussion and the Valdez and others report provides a recommendation that should probably be considered formally. However, Dennis didn't think a lot of people were aware of that recommendation and it is not for a tributary population but for a mainstem population, a meta population. John asked how the meta population would be established. Dennis said there are two ways to look at it – the chub are already there and are ready to do what they would do naturally if the appropriate environmental conditions and the load of predators are reduced and that would require no supplementation. The other is that you would actually have to move individuals, either from the existing LCR population to new locations or take them into a captive breeding population, make a production facility, and stock them in Grand Canyon. While action is advisable will depend in part on the yet to be completed genetics study contracted through GCMRC.

Randy said there is a lot of work to be done before September 1, 2002: Dennis Kubly will be taking the lead on the NEPA and ESA compliance but is going to need assistance from GCMRC staff and technical stakeholders who have the data and can help prepare the NEPA document. He asked the members to give some thought as to whether they could help Dennis and be part of an interdisciplinary team.

Sequencing of Information Needs – Mary Orton said that at the AMWG meeting in April, the AMWG members recommended a process by which the TWG could put the Information Needs in sequence order. The purpose of the sequencing exercise is to give the GCMRC some input on ultimately what AMWG wants to see them work on and in what order. Once they approve the list of INs (*Attachment 5a*) in sequence order, then GCMRC will know what AMWG feels should be accomplished first and have the direction to put together their Strategic Work Plan and Annual Work Plans. She reminded the TWG that they had not finalized the INs but had agreed to go ahead and put the ones they have in sequence order. If some of those are ultimately eliminated, they will be taken out. If there are new ones, they'll be able to fit into the framework fairly easily. The AMWG directed the TWG to finish the work on the INs in time for a recommendation for final approval by the AMWG

at the January 2003 meeting. AMWG also agreed that the Core Monitoring Information Needs (CMINs) and the Effect Information Needs (EINs) were going to be put to the side for this process. Steve Gloss will make a presentation on Status and Trends of the Resources in the Grand Canyon (SCORE Report) so that the members would have some base information of where the resources are today. After that the exercise will begin. She explained that AMWG suggested they use a paired comparison exercise. She will be putting up two INs at a time which will form a statement that says "This IN should be addressed before or at the same time as this IN." The members will then discuss and determine if the statement is true or not true and then she will call for a vote. She will use that information to organize the INs into the sequence order. After the meeting, Mary will send the members a questionnaire which will aid them in putting the remaining INs into the framework. Where they are in general agreement, that's where she'll put it in the document. Where they are not in agreement, it will be brought back and discussed further.

Steve Gloss passed out a copy of version Table II-7 from the GCDEIS (*Attachment 5b*). It represents the output of the small group exercise last fall in which they looked at the state of resource conditions with respect to how the Preferred Alternative, Record of Decision, and operating flows were expected to behave. He came up with substantial differences (highlighted in yellow) from what was predicted in the EIS. He passed out copies of the preliminary draft SCORE Report (*Attachment 5c*) and said he would like to have some feedback on the format and content of the document so that GCMRC can develop in a more timely manner and have it be more useful to stakeholders.. He then proceeded with a PowerPoint presentation (*Attachment 5d*)

Action: TWG to provide comments on the SCORE Report to Steve Gloss by June 15, 2002.

Mary proceeded with the INs exercise and voting results were recorded (*Attachment 5e*) She said the next thing the members would see is a framework containing 11 steps. She will send them a form to place the remaining INs into that framework.

Experimental Flows (cont) – Randy presented language for the TWG to consider in making a recommendation to the AMWG on the proposal experimental flows.

TWG Recommendation on Experimental Flows

1 – The fall dam releases of Scenario 1 would consist of alternating periods of approximately 2 weeks of (1) steady 8,000 cfs dam releases and (2) dam releases fluctuating between 6,500 cfs and 9,000 cfs. These alternating periods would commence upon reaching the sediment input threshold identified in item 2 below, with a potential real-time decision on the nature of December dam releases based on data collected prior to December. Absent a recommendation by the researchers to alter December hourly dam releases, the alternating periods would continue through December.

2 – The initiation of Scenario 1 after September 1 is based on cumulative Paria River sand inputs of at least 500,000 metric tons after July 1. Continuation of the Scenario 1 experiment past October 31 would be dependent on cumulative total Paria sand inputs of at least 1 million metric tons. Implementation of a January beach habitat building flow would be dependent on the retention of at least 800,000 metric tons of sand in the reach above the Little Colorado River.

3 – The adjustment of monthly volumes is being facilitated through the Annual Operating Plan process. Monthly volumes during September, October, and November would be reduced to 476,000,

492,000, and 476,000 AF respectively. The December monthly volume would be 492,000 AF if the sediment input criteria of item 2 is met and about 750,000 AF if it is not. January releases would be about 1,060,000 AF if Scenario 1 is implemented and about 800,000 AF if it is not.

MOTION: Move to adopt the language on the board as a recommendation..

Motion seconded.

Voting Results: Yes = 16 No = 2 Abstaining = 1

Motion passes.

Voting no (Bill Persons): I guess I would've liked to had the opportunity to take it back to my agency or my AMWG member to make sure he is comfortable with it. I'm a bit uncomfortable with mixing treatments. I think the treatments are getting very confounded. As a biologist, I'm not going to be able to tell the difference between those 2-week on and 2-week off flat flows or just ROD flows. I understand that it may answer sediment questions but from a biological standpoint, I don't think I could do anything.

(Voting no) (Randy Seaholm: I feel a need to discuss this with my AMWG representative before I vote. Personally, I think it makes sense but I want to make sure I'm comfortable with what my AMWG member thinks.

Abstaining (Lloyd Greiner): The same reasons Randy stated. I would like to talk with the folks at UAMPS because I'm representing them here and I'm not sure I have enough information.

Adjourned: 5:00

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Convened: 8:10 a.m.

Committee Members Present:

Perri Benemelis, ADWR
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Jonathan Damp, Pueblo of Zuni
William Davis, CREDA
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John Shields, WY State Engineer's Office
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Committee Members Absent:

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Alternates Present:

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Ruth Lambert, GCMRC/USGS

Lisa Leap, GRCA
Mike Liszewski, USBR
Matt Mallory, BIA
Ted Melis, CGMRC/USGS
Tom Ryan, USBR

Recorder: Linda Whetton, USBR

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.

Cultural PEP Report (Attachment 6a) Mary Barger said the Cultural Resources PEP was held in March 2000. It was a joint PEP that was sponsored by the Bureau of Reclamation and the GCMRC. The focus of the PEP was to look at GCMRC's normal protocols as well as Section 106 compliance. The PEP Report was mailed to the AMWG and TWG in June 2000. In the meantime the Programmatic Agreement (PA) Group had two meetings to discuss the recommendations of the PEP. For the most part, the PA Group was on the river trip for the PEP. There was a presentation made by Dr. William Doelle (TWG, 5/10/00) who was the PEP leader. The AMWG approved a budget which incorporated the PEP recommendations as of January 11, 2001. Some of the PEP recommendations have been incorporated into the budget and approved by both the TWG and AMWG. In September 2001, the TWG requested an ad hoc group be formed. Mary said there were two TWG members who were on that group, Matt Kaplinski and Robert Begay, and advised the TWG if they had any questions to contact either one of them. Mary reviewed the PEP's eleven recommendations. Mary proceeded with an overhead presentation of key points from the report.

TWG Questions/Comments/Concerns:

- Why did the group not approve the TCP Plan? Response: It was felt that each tribe's needs should be addressed on an individual basis.
- Recommendation #9 should be rewritten so it doesn't sound like we're making a decision for GCMRC and GCMRC should consider hiring an intern or detailing a person from another agency to assist vs. creating another position.
- Need to include comments from NPS, Andre Potochnik, and the ACHP.
- Rec. #5. The PEP is continuing to look at geomorphology issues and how things can be folded into something that will work for more than one discipline.
- Need to bring tribal perspectives or tribal thoughts about management of resources into GCMRC and need to educate scientists about tribal perspectives.
- Need for TWG to understand tribal feelings for the canyon and not see all resources in terms of science issues and recognize the value of water in the canyon as not just another resource but one that gives and sustains life.
- Some concerns weren't addressed by the TWG PEP Ad Hoc in their report (monitoring protocols, specifics of what the protocol review was intended to be).
- Concern about PEP's recommendation about splitting responsibilities between NPS and BOR related to cultural sites and how will this be resolved.

MOTION: The Technical Work Group accepts the report of the Cultural Resources Ad Hoc Committee on the Cultural Resources PEP Report.

Motion seconded.

Voting Results: Yes =18 No = 0 Abstaining = 1

Abstaining (Jonathan Damp): I don't know if we're doing any good at all. I would've voted no but don't want Mary mad at me.

MOTION: The TWG establish a standing Cultural Resources Ad Hoc Committee.

Motion seconded:

Voting Results: Yes = 17 No = 0 Abstaining = 0

Motion passes.

The TWG had a lengthy discussion on whether the Cultural Resources AHC PEP Report should be forwarded to the AMWG with TWG's recommendation or if the TWG should modify the Ad Hoc Committee's report and forward that to the AMWG. John Shields offered to incorporate the TWG recommendations into the Ad Hoc Committee's report and change the heading so TWG could forward to the AMWG. The Committee's report remains with the TWG as a "work in progress" document that the TWG standing ad hoc committee can work with. John provided copies of the revised report (*Attachment 6*) to the members.

MOTION: The Technical Work Group recommends to the Adaptive Management Work Group the 10 recommendations of the TWG Cultural Resources PEP Ad Hoc Committee, with the following revisions and actions:

- 9) The PEP recommendation for Improving Coordination of a Complex Program was to create another federal position. To respond to this need, the TWG recommends GCMRC enhance their focus on cultural resources work achieving balance with the social, economic, and recreation resources and other monitoring programs and come to the TWG with options for this new focus.
- 10) The TWG recommends that the responsible agencies resolve the issue of responsibility for the area of potential effect, in consultation with the Adaptive Management Program stakeholders.

Motion seconded.

Voting results: Yes = 16 No = 0 Abstaining = 1

Motion passes.

Abstaining (Norm Henderson): Recommendation #10 needs a little more direction in getting that resolved within this quorum and sending a recommendation to the AMWG.

Aquatic PEP Report – Dennis Kubly passed out copies of the GCRMC Draft Report of the Aquatic Protocol Evaluation Program Panel (*Attachment 7a*) and the TWG AHC Review of the Aquatic PEP Recommendations Report (*Attachment 7b*) and then proceeded with a PowerPoint presentation (*Attachment 7c*). Dennis asked for any comments or concerns the TWG had.

TWG Questions/Concerns/Comments:

- No discussion in report on water quality. Should that be included?
- Address handling protocol of Humpback chub (obtaining stomach contents)
- How do recovery goals fit in with the recommendations in the report?

MOTION: The TWG accept the Aquatic PEP Report.

Motion seconded.

Call for the question

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

Motion passes.

Action: Steve Gloss will send a copy of Allan Haden's unpublished manuscript (GCMRC's Draft Report of the Aquatic Protocol Evaluation Program Panel, pg. 13) to John Shields.

MOTION: The TWG recommends that the AMWG should accept the Aquatic PEP report and the TWG Ad Hoc report and recommends the AMWG direct GCMRC and the TWG to work together to integrate recommendations from those reports into annual and long-term work plans for the Glen Canyon Dam Adaptive Management Program.

Discussion.

AMENDED LANGUAGE: add "to the extent that the recommendations do not conflict with anticipated recovery goals and the AMP funding paper for Lake Powell water quality."

Discussion. The members voted on whether to amend the original motion.

Voting Results: Yes = 13 No = 2 Abstaining = 1

Amendment passed.

Voting no (Bill Persons) – I think the amendment may confuse some AMWG members who will interpret it to mean that there are recommendations that conflict with this paper's other goals and the AMP funding. The way it is worded will cause some confusion.

AMENDED MOTION: The TWG recommends that the AMWG should accept the Aquatic PEP report and the TWG Ad Hoc report and recommends the AMWG direct GCMRC and the TWG to work together to integrate recommendations from those reports into annual and long-term work plans for the GCD AMP to the extent that the recommendations do not conflict with anticipated recovery goals and the AMP funding paper for Lake Powell water quality.

Motion seconded.

Discussion. The members voted on the amended motion:

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

Motion passed.

Agenda Update – Wayne requested the agenda item on the 2001 Monitoring Results be moved up to 1:00 to accommodate people who need to leave early. Bob objected to making the change because the issue of having full TWG participation through the remainder of meetings was discussed at the last meeting and he didn't feel the schedule should be changed to accommodate personal travel plans. It was decided to follow the agenda.

FY 2004 Annual Work Plan Randy advised the members that this would be the last time they would be able to provide input into the plan (*Attachment 8a*) because the AMWG will take it up at the July meeting and will be making a recommendation to the Secretary of the Interior. This is the first year that the work plan will tie in better with the Department's budget request. In terms of process, he hopes the TWG will make a recommendation to the AMWG to accept it. He passed out copies of the Budget Ad Hoc Group meeting notes (*Attachment 8b*) and asked the members for any additional comments.

TWG Questions/Comments/Concerns:

- P. 36 table 2.3 cultural affiliation study, summing error -> rounding?
- P. 57-59 Cultural data base plan, unclear if this will develop data mgmt. Protocols

- P. 129. D4. whole concept is vague, re: tribal outreach, training -> unequal communication re: tribal views as opposed to western science
- Cultural Resource synthesis and status report to be done in-house (GCMRC) → just part of GCMRC responsibility / funds are for workshops to help bring in new data for SCORE Report
- P. 135, D7, Cultural Affiliation Study – is poorly conceived, tribes not involved in study design → should drop study.
- Tribes and GCMRC should meet soon to talk about this proposal.
- 50-60% of aquatic PEP recommendations already completed.
- B7 project already complete
- INs should be identified in table, cost to accomplish, time to complete
- Need to figure out how to incorporate IN sequencing into work plan
- Program needs to find financial flexibility to accomplish research requirements (reduce monitoring \$?)
- Need to reprogram \$ to install Paria warning system
- Experimental flows budget should be better defined (multi-year)
- Need some evaluation of mudsnail w/respect to food base sampling

Action: TWG Members to provide comments on the FY 2004 Budget and Work Plan to Steve Gloss by May 31, 2002.

2001 Monitoring Results – Steve presented a PowerPoint presentation (*Attachment 9*) and said he would incorporate the slides into the SCORE Report. A more formal report will be presented at the August TWG meeting.

Ted gave a PowerPoint presentation entitled, “Summary of Sand bar Data (1990-2001)” (*Attachment 10a*) and distributed copies of the NAU Fact Sheet, April 2002 (*Attachment 10b*).

Lake Powell Monitoring Results – Steve distributed copies of the “Draft Integrated Water Quality Program Plan, FY 2002-2007” (*Attachment 11a*) and proceeded with a PowerPoint presentation (*Attachment 11b*).

Action: TWG members to provide comments on the “Draft Integrated Water Quality Program Plan, FY 2002-2007” to Steve Gloss by July 1, 2002.

Non-Native Fish Control Update – Bill Persons said Rick Johnson sent out a draft outline but only got comments from two people. Bill has the outline and will send it again. There is no recommendation for the AMWG at this time. Kurt suggested the ad hoc group be reconvened, they select a new chairman, and continue with the recommendation process.

Action: Bill will send an e-mail message to the members of the Non-native Fish Control Group for the purpose of 1) electing a new chairman of the group, and 2) continue working on the recommendation process.

Upcoming Agenda Items

- INs – Fatal flaw analysis
- Sediment input

- Science Plan for experimental flows
- Resource target development process – GCMRC
- IWQP Final Report
- SCORE Report
- Non-native fish AHG update
- TCD Update

Next TWG meeting: August 15-16, 2002

Location: Bureau of Indian Affairs
2 Arizona Center
400 N. 5th Street
Phoenix, Arizona

Hotel: Holiday Inn Express & Suites
6th and Fillmore
Phoenix, Arizona
602-452-2020
\$59 + tax
BLOCK CLOSES: July 21, 2002

General Key to Adaptive Management Program Acronyms

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