Technical Work Group
December 7-8, 1999
Phoenix, Arizona

Presiding: Rick Johnson, GCT (Chairperson) **FINAL**

Committee Members Present:

Clifford Barrett, CREDA
Andres Cheama, Pueblo of Zuni
Kerry Christensen, Hualapai Tribe
Dave Cohen, Trout Unlimited
Wayne Cook, UCRC
Wm. Davis, EcoPlan Assoc./CREDA
Kurt Dongoske, The Hopi Tribe
Brenda Drye, So. Paiute Consortium
Norm Henderson, NPS/GCNRA
Rick Johnson, GCT
Matt Kaplinski, GCRG
Robert King, UDWR
Clayton Palmer, WAPA
Bill Persons, AGFD
Randall Peterson, USBR
Randy Seaholm, CRCB
Mindy Schlimgen-Wilson, Am. Rivers
Fred Worthley, CRBC

Committee Members Absent:

Mark Anderson, USGS
Alan Downer, Navajo Nation
Christopher Harris, ADWR
Amy Heuslein, BIA
Phillip S. Lehr, CRCN
Don Metz, USFWS
John Shields, WY State Engineer's Office
Robert Winfree, NPS

Alternates Present:

Nancy Hornewer
Debra Bills
Robert Begay

Alternate for:

Mark Anderson, USGS
Don Metz, USFWS
Alan Downer, Navajo Nation

Other Interested Persons Present:

Mary Barger, WAPA
Timonthy Begay, NNHPD
Gary Burton, WAPA
Nancy Coulam, USBR
Kevin Fagot, USBR
Carol Fritzinger, GCMRC
Barry Gold, GCMRC
Pamela Hyde, GCI
Christine Karas, USBR
Dennis Kubly, USBR
Ruth Lambert, GCMRC
Lisa Leap, GCNP
Mike Liszewski, GCMRC
Steve Meitz, GCMRC
Ted Melis, GCMRC
David Rubin, USGS
Linda Jalbert, NPS
Barbara Ralston, GCMRC

Recorder: Linda Whetton, USBR

Meeting Opening and Administrative Items

12/7/99: Convened: 9:30 a.m. **Adjourned:** 5:35 p.m.

Welcome and Introductions

The Chairperson welcomed the TWG members, member alternates, and guests. All introduced themselves. The Chairperson reviewed the ground rules for the meeting and name plates were distributed. The Chairperson determined there was a quorum established.

Attendance: Attendance Sheets were distributed (Attachment 1 - List of Attendees)

Review/Approval of Agenda: The Chairperson advised the members of the revised agenda and distributed copies.

Review of Previous TWG Meeting Minutes

The Minutes were reviewed from the past three TWG meetings (July 20-21, 1999; September 7-8, 1999; and October 22, 1999). Several comments were made. Changes were noted and Linda Whetton will make the corrections.
MOTION: Move the Minutes be accepted as amended and edited.
Motion seconded and passed.

Modification of Operating Procedures - Randy said an issue came up at the last AMWG meeting wherein following a strict interpretation of the Operating Procedures, only those alternates who notify us a day and a half in advance of the meeting can vote as an official alternate to their member. He wasn't sure how detailed the TWG procedures need to be but thought it made some sense to eliminate that provision.

Motion: To modify TWG Operating Procedures to allow an officially designated alternate in the absence of the member to fully participate and vote in TWG meetings without prior notification. Motion seconded and passed.

Temperature Control Device Workshop - Dennis Kubly reported on the workshop which took place on Dec. 8-10, 1999 at Saguaro Ranch in Mesa, Arizona. There were four scenarios presented (Attachment 2) but the group was not asked to recommend one scenario over another. The input from the workshop will be included in the EA as part of the analysis in evaluating the alternatives. A written summary of the workshop findings will be distributed to all TWG members. The following are some of the overall recommendations:

1. Establish reliable monitoring of native and exotic species before implementation of treatments.

2. Monitor the pre-treatment long enough to establish a baseline that quantifies variability due to monitoring and natural variation in recruitment.
3. Assess the implementation of risky treatments in relation to the urgency of the problem.
4. Trend analysis does not support an urgency to modify the dam release temperature, but there were different interpretations of the status of humpback chub in Grand Canyon depending upon what type of analysis was used (stable, not declining, or declining).

A stepwise approach was also advocated:

1. Evaluate the existing data
2. Conduct studies prior to operation in the form of controlled experiments (food base issue).
3. Evaluate temperature effects at all trophic levels.
4. Combine field data and modeling efforts to assist the experiments.
5. Conduct those studies in the laboratory and in the field to allow for colonization.
6. Concentrate heavily on communication and coordination among the research and monitoring groups.
7. The effort needs to be long-term and consistent with all these components.

Along with the summary, a set of questions will be distributed to workshop participants to formalize their opinions and generate additional questions/comments. An interdisciplinary team will be created to help to assist in NEPA compliance coordination with the target of producing a draft EA for comment this winter. There will be a scheduled presentation to the AMWG in April 2000 with a potential recommendation sought by July 2000.

FY 2000 BHBF Preparation and Issues - Randy Peterson distributed a forecast from the National Weather Service (Attachment 3). The top half of the page is the historic and forecasted inflows from Lake Powell (unregulated values). The bottom half of the page was a precipitation summary by river basin. While August and September were relatively wet, in October and November the basin turned extremely dry. The November inflow to Lake Powell was 86% of normal and had been steadily declining since August. The expected forecast during the December to February period is in the range of 80-90% of normal. Even though it appears we may be headed for a dry year, conclusions can't be drawn because only about 10% of the snow accumulation season has passed to date. The expected forecast for next spring, if the NWS were forced to make a prediction right now, would likely be very close to average.

At the TWG's request at the last meeting, a line was added to the Glen Canyon Dam release graph (refer to page 1), which represents a hypothetical release pattern if a BHBF had been triggered. The Y axis represents releases from Glen Canyon Dam in average cfs for the month. The X axis is the 2-year time frame showing 12 months of historic releases and projected releases 12 months into the future. The blue curve at the top represents the releases if Lake Powell received an upper decile inflow (an exceedance of 90% of historic traces or about 17 MAF of inflow). The green curve releases result from the most probable inflow, about 11.5 MAF and the

red curve is a minimum release of 8.23 MAF that would result from a lower decile inflow of perhaps only 5 or 6 MAF, and would result in Lake Powell storage dropping.

There are number of ways that a BHBF could occur and the black curve represents only one of those ways. It shows that starting from our current basin conditions with an average forecast, releases probably would not be increased materially in the next month or so. Randy believes there is almost no chance that the January 2000 forecast would be 140% of normal and trigger a BHBF, but that potentially heavy winter snowfall could cause the triggering criteria to be met.

The last page of the handout is a monthly operating plan for Glen Canyon. It numerically displays what the graph shows in terms of releases but also includes both regulated and non-regulated inflow, and reservoir elevation. Lake Powell is expected to fill this year.

Sediment Data Collection - Nancy Hornewer reviewed the table on page 1 (Attachment 4) which displays recent historic tributary sediment inputs. These types of data are very difficult to collect with accuracy because the technology is not advanced enough to do a really good job with data collection. There are also errors inherent in the sediment model itself.

For large sediment inputs, the error percentage decreased. If there is a small absolute error with a large sediment input, the relative difference is small. That same magnitude error with low concentrations results in a significant percentage difference. With large sediment inputs, there is relatively good agreement between the sediment model and the actual data collected. The model is a work in progress and further calibrations will need to be made.

In summary, the model seems to show a great deal of promise. The errors shown in the table are significant but the fact that it is able to show the same patterns and trends is very promising. The model is helpful in doing a better job of collecting the data at the Paria River. It's a relationship where modeling results and data collection efforts work together to ultimately produce a model that can be used for a monitoring program.

Sediment Resources. David Rubin stated that during the planning for the 1996 flood, it had been a decade since the high flows of 1983 - 1986. During that decade, presumably the Paria and Little Colorado were introducing tributary sediment to the main channel and there were various calculations done which suggested that tributary sediment was being stored in the channel just waiting for an artificial high flow to pick it up out of the deep parts of the channel and deposit it up on the sandbars. It was hoped that a BHBF would reduce the export of sand out of the canyon.

Today the researchers have a different understanding. The GCMRC Sediment Monitoring Program has been monitoring sediment input (Paria and Little Colorado Rivers) and export (mainstem); grain size of sediment in flood deposits, on the bed, and in suspension; volume of sediment in storage at selected sites; and surface area of sand deposits (geomorphic mapping and

side-scan sonar mapping). The channel is now viewed more as a pipe where sediment is transported downstream relatively quickly, and less as a storage bank where sediment is accumulated from year to year. Refer to Attachment 5 for more details.

Most of the tributary sediment inputs are transported past the Grand Canyon gauge within a few months from the input. The grain size of the 1996 flood revealed that only a few days of 45,000 cfs is enough to significantly winnow the fine sediment from the bed. Another high flood like the one in 1996 might again be designed to accomplish the same goals as the 1996 flood which would be to transfer sediment from the low parts of the bars to the high parts of the bars. That goal could probably be accomplished no matter when we had a BHBF. On the other hand, the goal of retaining as much sediment as possible from recent tributary inputs can only be accomplished by having a BHBF shortly after the tributary input. If months pass between the input and the BHBF, then it's likely 90% of the sediment would have been transported out of the canyon.

Monitoring Fine-Sediment Storage of the Colorado River Ecosystem below Glen Canyon Dam - (Attachment 6) Matt Kaplinski stated that he and his colleagues have been working since 1990 on a monitoring project looking at relative sediment storage levels, both on sandbars and within the channel. They have 35 long-term study sites that are measured using conventional survey techniques and in the channel using hydrographic surveys. The terms high elevation and low elevation were used to characterize sediment storage in these two environments. The hydrographic surveying technology didn't begin until about 1994 so the best data is right before and after the floods, continuing until the present. Matt said they maintain a network of cameras that take daily photographs and then proceeded to display a series of slides.

In November 1997, the powerplant released at capacity for 48 hours following the largest input period on the Paria that Nancy reported on. Unfortunately, they weren't able to measure within the channel and take low elevation storage measurements because it was during a non-motor season and motorized rafts were required to do hydrographic surveys. No significant high elevation bar building occurred since the flow was only 31,000 cfs. However, they did measure the sandbars above 8,000 cfs and there weren't any significant increases in bar volume.

Experimental Flows Ad Hoc Group Update - Randy said that initially there was high interest in this group developing experimental flows, but as these were prioritized, interest dropped off. He posed several questions: Were the MOs and INs addressed when the prioritized listed was created? Are the MOs and INs and hypotheses a way to address the priorities? Does the scope of just the BHBF as an experimental flow seem narrow? What about other resources and integration with those concerns? What about some other hypotheses that would be just as important as a BHBF that aren't being addressed at all?

Clayton Palmer reminded the TWG that the process was begun by looking at BHBFs and trying to find a range of BHBFs that environmental compliance could be done on and then submit

something to the GCMRC. A plan for a BHBF followed by load-following flows called the Cook-Moody proposal was presented to GCMRC. The GCMRC came back with a scientific plan and a set of possible flows for our consideration. An alternative was put together and sent it to the GCMRC asking them to look at certain things but then the process stopped at that point. Another committee was formed which looked broadly at all the other things but it also hasn't developed into anything with respect to putting together a proposal for a BHBF from which recommendations could be made and environmental compliance achieved.

Randy concurred and proposed the TWG convene a small group of people who would be dedicated to work on this issue to its conclusion. The group would also work with the GCMRC staff in formulating an experimental flow regime that not only would address BHBF issues, but all the resource issues in the canyon, specifically including the Biological Opinion Reasonable and Prudent Alternative requirements. This approach would combine the resources and issues into a package that scientifically makes the most sense.

Norm raised the concern that if we go forward with the proposal, we would end up again with a package of disparate programs that we can't do NEPA compliance on. Debra Bills said the charge wasn't clear to her and questioned if the group is going to develop an array of experimental flows. There was a great deal of discussion on this subject and it was suggested that three or four people should meet tonight and bring something back to the TWG tomorrow morning for further discussion.

***Action*:** Barry will get a small group of people together this evening and discuss the following issues:

1. Meet the needs of the goals
2. Learn how different flows could be used for management
3. Schedule/sequence of flows
   - exhaust potential designs of BHBF and HMF and SASF. Are current tools sufficient?
4. Flows that focus on sediment and flows that focus on fish and find the intersection
5. Designs need to be specific
6. Focus on removing sideboards, e.g., jeopardy
7. Experiment outside the sideboards to determine what needs to be changed to meet the goals of the EIS/ROD.

The following people will be involved:

Barry Gold	Clayton Palmer
Christine Karas	Gary Burton
Rick Johnson	Wayne Cook
Bill Persons	

FY 2000 BHBF Preparation and Issues - Barry Gold reminded everyone that in December of each year we review the current status of both the hydrologic triggering criteria and the environmental resources of the Grand Canyon.

Biological Resources - Barbara Ralston passed out a table (Attachment 7) which showed a comparison between no action vs. a proposed action of a BHBF if the hydrologic triggering criteria are met. This is based on 2-4 day duration of a 45,000 cfs BHBF with steady releases of about 15,000 cfs before and after the spike. For many of the biological resources, the effects are a seasonal timing effect so if productivity is disrupted later in the year, recovery times are likely slower. This is particularly true for the aquatic food base, for which productivity is probably at its highest in June corresponding with the greatest available sunlight. If there is a disruptive event later on in the year (e.g. May), recovery time for the food base would be longer. This effect ripples up into the higher tropic levels of the aquatic system. Barbara drew a diagram on the overhead projector and explained how productivity is affected.

In terms of habitat, there may not be large benefits for adult fish from BHBFs, but these flows may still provide return current channels or backwater habitats that could be used or potentially available for use by young fish. Again, the timing of the BHBF should be considered and the ephemeral nature of the backwaters is also another consideration. The previous BHBF showed that these backwaters didn't last very long but there were some other confounding issues, including the low flows following the BHBF and the high steady flows that followed that.

From her perspective, if a BHBF were done next year, it would probably provide more information. Displacement of young fish is still a key question. They looked at movement of adult fish during the 1996 flood but really didn't look at how young fish are affected in higher velocity environments. She also believes the biological resources were somewhat compromised as a result of the 8,000 cfs steady flows which resulted in desiccation of the aquatic food base . The overall affect of the 45,000 cfs BHBF can't necessarily be distinguished from the effect of the low steady flows for some of the aquatic system.

Socio-Cultural Resources - Ruth Lambert directed people to look at page 2 (Attachment 8), specifically the Cultural Resources and Recreational Resources. In the cultural area there are two major components - the archeological sites and the traditional cultural resources. Without a BHBF, erosion of terraces that contain cultural deposits would continue. Based on the 1996 experimental flow, most of the archeological sites either benefitted or had no harm done to them with the redeposition of sediments along the margins. Another BHBF would slow the erosional rates of the archeological materials. What is not on the chart are the traditional cultural resources and those generally include what the tribes may consider of importance including plant locations, plants, and mineral resources, particularly important land forms. In l996 there were some benefits to plant locations and traditional resources through a redistribution of nutrients to various locations. She also feels that the tribal stakeholders need to be consulted on their perspectives to determine the status of the vegetation community and other traditional resources.

During the last BHBF the archeological sites were assessed up to the 60,000 cfs level so if there was a BHBF proposed for 45,000 cfs, the archeological resources wouldn't require consideration. Other areas of consideration for recreation would be a disruption in river rafting activities. There may be issues of safety depending on who's on the river, the number of boats on the river, fishing activities, and rafting trips.

Physical Resources - Ted Melis passed out copies of "The GCMRC's Basis for BHBF II Hydrograph Design," (Attachment 9). The consensus of the physical scientists right now is that the bars that were built in 1996 have eroded significantly since they were deposited but there is reason to believe that they could be rebuilt again if we had a BHBF in the next several months because there is plenty of sand storage in the eddies off shore as well as some sand in the main channel. From the perspective of sediment and flow, Ted recommended the group think about trying to implement a controlled flood this year. The results of the 1996 flood have been published in a book format.

The hydrograph design that the GCMRC would propose this year to the TWG consists of a 3-day constant flow period of 15,000 cfs followed by a peak release of 44,000 cfs, gradually decreasing releases, and a 3-day period of 15,000 cfs constant flow. The basic hypothesis is that despite the flow duration would be half of the 1996 BHBF, bar building would be comparable to the 1996 flow.

FY 2000 BHBF Experimental Design - Dennis Kubly said the BA for the potential FY 2000 BHBF is almost ready. They will be looking at the information that Barbara Ralston handed out today for any updates. They also have some recent information on the level of habitat take for KAS that would be affected. The April 1999 values were 12.8% and the October 1999 value was 11% so they have asked the GCMRC to define the area of habitat that would be taken in 1000 cfs increments below 45,000. The formation of a native fish group that would better define the flow needs for native fishes and how a set of flows might affect them could be very important input for the BA. He has delayed sending the BA to the FWS to have the best definition of what the flow is going to be. Since the probability of a BHBF is quite low for January-February, the probability could be increasing for a BHBF as we go into May and June. If we could hold off on this decision until the end of January, the native fish group might be able to provide substantive input.

Motion: Recommend that a BHBF be conducted in FY 2000 (Mar- Jul) if the Hydrologic Triggering Criteria (HTC) are met.
Motion seconded and voted on:
Yes = 17, No = 1, Abstained = 1

Those members not supporting the motion did so out of concern for the effect a BHBF in May - July could have on larval humpback chub. Barry noted that Mar-Apr presents one window. June to July is a different window and requires a different science plan. Ted proposed specifically not

only that magnitude and duration, but that the timing was March-April, as a means of trying to replicate the 1996 BHBF.

Action:
- Send comments to the GCMRC by Friday, Dec. 17, 1999
- GCMRC staff will address comments, produce a response or revise the hydrograph as appropriate, and will produce an outline of the science plan.
- Discuss on January 19, 2000 at next AMWG/TWG meeting.

FY 2001 Work Plan - Barry Gold

The GCMRC mailed a packet of materials related to the FY 2001 Work Plan. Barry asked for comments from the group.

Feedback provided:

1. Cliff Barrett wants the text to conform with the tables.
2. Clayton Palmer requested additional monitoring below the dam in the Lee's Ferry reach.
3. Norm Henderson expressed concern for multiple INs for single projects.
4. Page 37, response table and page 62 of the document, there is still an issue of being able to separate out the funding components of the integrated water quality program, i.e., how much is O&M money vs. power revenues in the AMP program. Cliff said he still can't find that breakdown.

Discussion & GCMRC Responses:

1. The proposal for all of this is to take the comment and if the response to comment is adequate, to make that change in the document. Because they sent out revised tables, all the tables were made consistent. They will double-check to make sure that project names are consistent throughout the document.
2. Clayton thought the responses provided are beneficial. He questioned how proposals should be made There was quite a lengthy discussion on this and the following motion was proposed:

MOTION: To direct WAPA, CREDA, Trout Unlimited, and AGF to develop a proposal to address the impacts of AGC on downstream flows, including justification, budget, and work items to the January TWG meeting.
Motion seconded and passed.

Action: - Put on January 2000 agenda

Dave Cohen expressed concern on how this would impact the GCMRC budget for FY 2000 and referred to previous discussion on getting non-AMP funding. He thought more openness needed

to occur and that both sides of the issue need to be included.

3. Norm believed that INs and the resultant work proposals should address specific requirements and objectives of the program.

Action: Barry and Norm will work on a proposal that would have the specificity Norm wants.

4. Barry said they are in the process of converting the percentages of GCMRC staff time into actual salary figures.

Action: Barry will make the changes and mail out a revised plan on Dec. 20, 1999.

Tribal Participation Funding Update - Randy Peterson said that the for last 8-9 months Reclamation has been vigorously pursuing funding of tribal participation in this program. He will cover some key principles regarding tribal participation, provide an update on the appropriations request, and then propose an FY 2001 budget for tribal participation and tentatively the PA Program (Attachment 10).

Two conference calls were held in the past two weeks regarding the issue. The participants on the calls included all the members of the TWG Budget Ad Hoc Group except Cliff Barrett. The participants felt the tribal requests and the need to find $475,000 per year was reasonable, and the monitoring trips currently estimated at $75,000 are appropriately taken from the PA /cultural program. However, the Tribes' participation spans all resource areas. It was decided the monitoring trips should be peer reviewed (proposals, specific work items, specific methodology). Although the details of the specific areas of sites may be confidential or sacred and need not be disclosed, some peer review over the quality of the work being done was agreed upon by the tribes as being important. There will be a PEP review conducted in 2000 for the PA Program. The PEP review will significantly help define the future direction of the program but there is some uncertainty it will get done in time to focus the scope of 2001 activities. In general, the participation costs should be treated as an administrative expense.

The response from the Department budget office for FY 2000 was that the $475,000 request for appropriations was too high. They suggested a reduction to $50,000 for each of the five Interior agencies involved with the AMP, but the final decision reduced the DOI-directed dollar amounts to $15,000 per agency. For FY 2000, we will have $75,000 of appropriated money to apply toward tribal participation. This is an important step in recognizing a trust responsibility to the tribes who have participation in this program and that all agencies within the Dept. in this program share in that responsibility. Randy proposed that the $475,000 tribal funding need be comprised of $75,000 in appropriations, $75,000 in PA funds for tribal monitoring, and $325,000 in AMP administrative funds.

MOTION: Recommend the funding alternative presented by the TWG budget ad hoc group for FY 2001.
Seconded and voted on:

Yes = 15 No = 1 Abstained = 3

Those not in favor of the motion were concerned about the lack of appropriate notification of the proposed funding status and motion. This was unavoidable since the Departmental decision occurred on the previous day.

Action : Randy will prepare a budget document which shows the breakout on dollars.

MOTION:
Part 1
Recommend that GCMRC revise their 2001 Work Plan to incorporate the revisions mailed out on 11/22; as well as the additional revisions agreed to on 12/799 at the TWG meeting.

Part 2
Recommend to the AMWG that they recommend adoption of the revised GCMRC FY 2001 Work Plan.

Yes = 19, No = 0 , Abstained = 0

Native Fish Monitoring - Barry Gold provided copies of the "Proposal for Accelerating the Development of a Long-Term Monitoring Plan and Non-native Fish in the Colorado River Ecosystem below Less Ferry" (Attachment 11) and asked people to read it and be prepared to discuss it tomorrow morning.

Public Comments

None.

Adjourned: 5:35 p.m.

Minutes of
Technical Work Group
December 8, 1999
Phoenix, Arizona

Presiding: Rick Johnson, GCT (Chairperson)

Committee Members Present:

Clifford Barrett, CREDA
Kerry Christensen, Hualapai Tribe
Dave Cohen, Trout Unlimited
Wayne Cook, UCRC
Wm. Davis, EcoPlan Assoc/CREDA
Kurt Dongoske, The Hopi Tribe
Brenda Drye, So. Paiute Consortium
Norm Henderson, NPS/GCNRA
Rick Johnson, GCT
Matt Kaplinski, GCRG
Bill Persons, AGFD
Randall Peterson, USBR
Randy Seaholm, CRCB
Eldrick Seoutina, Pueblo of Zuni
Mindy Schlimgen-Wilson, Am. Rivers
Robert Winfree, NPS
Fred Worthley, CRBC

Committee Members Absent:

Mark Anderson, USGS
Alan Downer, Navajo Nation
Christopher Harris, ADWR
Amy Heuslein, BIA
Phillip S. Lehr, CRCN
Don Metz, USFWS
John Shields, WY State Engineer's Office

Alternates Present:	**Alternate for:**
Nancy Hornewer	Mark Anderson, USGS
Robert Begay	Alan Downer, The Navajo Nation
Debra Bills	Don Metz, USFWS

Other Interested Persons Present:

Mary Barger, WAPA
Timonthy Begay, NNHPD
Jeff Behan, GCMRC
Gary Burton, WAPA
Nancy Coulam, USBR
Carol Fritzinger, GCMRC
Barry Gold, GCMRC
Pamela Hyde, GCI
Ruth Lambert, GCMRC
Lisa Leap, GCNP
Mike Liszewski, GCMRC
Ted Melis, GCMRC
David Rubin, USGS
Linda Jalbert, NPS
Joe Shannon, NAU
Michael Yard, USBR

Christine Karas, USBR
Dennis Kubly, USBR

Recorder: Linda Whetton, USBR

Meeting Opening and Administrative Items

12/7/99: Convened: 8:00 a.m. **Adjourned:** 12:30 p.m.

Welcome and Introductions

The Chairperson welcomed the TWG members, member alternates, and guests. All introduced themselves. The Chairperson reviewed the ground rules for the meeting and name plates were distributed. The Chairperson determined there was a quorum established.

Attendance: Attendance Sheets were distributed.

Rick Johnson presented results from last night's Experimental Flows II Ad Hoc meeting:

1. Develop a multi-year suite of priority flows to evaluate the effectiveness of BHBF, SASF, and HMF to meet AMP natural and socio-cultural resource goals with an emphasis on native fish goals.
2. Recommend that the native fish group interacts closely with this ad hoc group.

Experimental Flows II Ad Hoc Group members:

Gary Burton	Christine Karas
Wayne Cook	Matt Kaplinski
Bill Davis	Ted Melis
Kurt Dongoske	Bill Persons
Barry Gold	Randy Peterson
Rick Johnson	

Motion: To charge the group with the above purpose.
Motion seconded and passed. The former Experimental Flows Group was terminated.

FY 2000 Native Fish Monitoring - Barry Gold

At the TCD Workshop there was a robust discussion involving many of the native fish researchers and it became very clear that some of the difficulty that we've been having in trying to synthesize and collate the existing data stems from the sense of proprietariness that some of the researchers feel having collected that data. There were also some concerns raised that much

of the data, especially the mainstem data, has not been analyzed so there is some uncertainty about the quality. With those issues, Barry went back to the GCMRC staff and they developed a proposal to accelerate the development of a long-term monitoring program for native fish by reducing in FY 2000 the effort put into monitoring and refocusing some of the funding and energy of the PI's.

The matter was brought to the TWG because it involves reprogramming of some work and funds which need to be discussed and may require concurrence by the AMWG. They were looking at this year in FY 2000 of issuing a monitoring contract that was on the order of $350,000 plus the logistical support. Barry proposed scaling back FY 2000 monitoring to: 1) continue the monitoring to assess over wintering mortality of the YOY humpback chub which is compliance related to the Biological Opinion, and 2) maintain the monitoring of the LCR. The proposal is to scale back the monitoring to a minimal level and focus all energies on creating a team led by GCMRC and Reclamation that would collate and analyze data and draft a long-term monitoring plan. He estimates spending $100,000 on monitoring and using the remainder of the money ($350,000) to support the team and develop a long-term plan.

In developing this strategy, Barry said he talked with AGFD, FWS, SWCA, and some of the fish researchers that were at the TCD Workshop. Barry raised concerns about waiting until January 20-21 to make the decision and felt that if the TWG were to recommend this approach today, AMWG approval could be obtained via a conference call. There was a lengthy discussion on other options. Barry said there is $50,000 in the area of TWG requests, $100,000 in unsolicited proposals, and another $50,000 for in-house monitoring which could be also be used. Barry's concerns were: 1) The mainstem data is uncertain. He has some skepticism in spending AMP money at this point and collecting additional data in the mainstem without analyzing previously collected data. 2) If FY 2000 monitoring and development of a long term monitoring plan were done, we dilute the focus of some of those critical Principle Investigators that need to be involved with collation, analysis, and development of a long-term plan. Therefore, his recommendation (Option 1) is to cut the monitoring back and move on to an accelerated schedule for developing a long-term monitoring plan.

There was a lengthy discussion and other concerns raised by the members: consolidating non-native data, scaling back monitoring in other areas, separating out monitoring above and below Lees Ferry, the competitive bidding process among fish researchers, and not enough time for members to be really understand what this means to each of them.

Motion: Proceed with Option #1 and direct GCMRC to take another look at options and alternate sources of funds to reduce impact on monitoring.
Motion seconded. Since no consensus was reached, the members opted for a 5-minute caucus to discuss.
Voting results: Yes = 9, No = 10

Action: Randy will check on the use of Section 8 funds and Barry will see what adjustments he can make in the FY 2000 budget.

***Substitute* Motion**: Proceed with synthesis and analysis of existing data and development of testing of long-term monitoring plan in FY 2000 while maintaining the critical elements of the current monitoring program for both the LCR and mainstem. The long-term monitoring plan will be implemented in FY 2001.

Motion seconded and more discussion followed. The members opted for a caucus before voting:

Yes = 18, No = 1, Abstained = 2

Abstained concerns:

(Kerry Christensen) Too vague, wants more specific details.
(Dave Cohen) The AMWG is entitled to normally 30 days notice when there is an action. The TWG should at least be given a day and a half. We ended up with an option created around the table. There hasn't been adequate time to assess what we're doing and whether we're doing the right thing.
(Bill Persons) - If he had some details, he could evaluate what was being proposed and not sure he understands what it means or what it will lead to.

Action: Barry said he will review the concerns and provide additional details at the next TWG meeting.

NPS Planning & Wilderness Management - Linda Jalbert stated that in 1995, after the General Management Plan (GMP) was completed, the NPS began the revision process. In addition to the direction established by the GMP, there was also a special directive that all Park Service units that had proposed wilderness study areas, would work with the management plan. So the NPS made the shift from a back country plan to a wilderness management plan at that time (Attachment 12). That plan was released in June 1998. In 1997, they also started revising the Colorado River Management Plan so they had both processes going. For the most part, the river issues were focused on visitor experience which included some wilderness values such as crowding, congestion, group size, trip length, overall use levels, the distribution of use, and also access.

The wilderness plan was updated in 1993 to support some of the decisions that were being made through the general management plan as well. Currently, the NPS is tiering down from their GMP which provides for more direction for the developed areas of the park. The undeveloped areas of the proposed wilderness are being addressed in a larger plan and will include some of the ecosystem management goals. They feel that the GCPA provides some of the river protection framework, but the land based portion framework doesn't exist so one of their efforts will be to

build this broader, goal-driven plan particularly for the North Rim area. At present, they have drafted and are in the review process for a Notice of Intent to do an environmental impact statement for this planning effort. Their time frame will likely take up to 3 years. When this process starts depends on funding but they are proceeding as if they will get that funding. There was an EA written for the Draft Wilderness Plan but a decision hasn't been published but will be published in the NOI, allowing them to move forward with the comprehensive plan.

Bob added that the NPS is very recreation based and in evaluating comments received on the CRMP and DWP, they realized that the issues are not strictly recreational issues. Although wilderness experience is often considered a recreational-type experience, the stakeholders are concerned about it from a much larger perspective. Comprehensive planning will bring more stakeholders into the discussion process and broaden the scope of the discussion.

There has been a disconnect in how NPS has been managing the program until now. They are charged with implementing areas of proposed wilderness as if they were wilderness. Congress will make the final decision on whether the park will be designated wilderness. The management policy at the Park will be managed in that way until Congress makes a decision. A key issue is the minimum tool requirement in managing the area as wilderness. That is where they get into the issues of helicopter shuttles, equipment, motor boats, generators, and all types of mechanized or motorized equipment that the researchers typically use. Currently the Park Service finds out what specific work is proposed only after the contract has been awarded. Sometimes they have preliminary discussions with researchers but generally it is after the best and final offer has been made and accepted by the GCMRC. It is a very disruptive point in the research to start evaluating the techniques that are being used because the budget has already been set, protocols have been laid out, and people are planning to do what they had approval to do. The NPS is mandated by law to do the minimum requirement analysis, allow the central activities to continue in the least disruptive manner as possible, and disallow non-essential activities that are not in compliance with the legal requirement. That can be done in the protocol review process as people are evaluating what techniques will collect the most accurate data. As the NPS have evaluated these minimum requirements, in almost all cases where researchers or agencies have been unhappy with the final result, it has come down to two reasons: cost or the convenience. The convenience includes the length of the trip. The problem with using cost and convenience as justifying factors is that the Wilderness Act specifically excludes them as not being primary considerations (safety, efficacy, and essentiality to manage the area as wilderness).

Action: Bob and Barry will meet and discuss the issues surrounding minimum requirements and provide feedback at a future TWG meeting.

Kanab Ambersnail Workshop Update - Dennis Kubly. To recap, a group of six experts provided presentations on the KAS workshop. They covered a wide gamut including information that had been gathered at Vaseys Paradise and other locations in the Grand Canyon, as well as the area of Kanab, Utah, and the Escalante Staircase National Monument. The key

question that everyone was interested in was *what is Kanab ambersnail?* In order to address that question, a study overseen by Larry Stevens was conducted in which specimens were collected from a very wide range of geography as far north as Alberta, Canada. The foot was cut off of each of the specimens and provided to Paul Keim's lab at NAU, with genetics work done by Mark Miller. Mark made a presentation on relatedness using a single gene. The results of showed geographic clustering in the individuals. Although the individuals in the Utah and Arizona geographic area fell into one cluster, the Vasey's Paradise population is separate. It is more unlike than like its other relatives. The second part of that study was an anatomical study by Dr. Shi kuei Wu, classifying the specimens by a classical, typological approach. The single most important thing is that the taxon present at Vasey's Paradise is different. It may not be canabensis but it is something quite different. There will be summary paper from the panel but Dennis wasn't sure when that would be available.

Jeff Sorensen said he has already received some positive comments on the workshop. He was told that the Recommendations Report should be done by the end of the year and so a presentation could be done at the next meeting. He went over the different groupings and species in the extended family (overhead). Based on the last draft of the BA, Jeff would recommend continuing with the mitigation activities for future BHBFs.

Recreation in the Colorado River Ecosystem, Grand Canyon (Attachment 13) - Jeff Behan. At the request of the GCMRC, Jeff was asked to look at recreation in the Colorado River ecosystem and to provide more information on MOs and INs. He stated the following purposes for the paper: 1) Review AMP/GCMRC guiding documents that delineate the GCMRC Recreation Resource Program, and describe the rationale for a recreation resource research and monitoring component; 2) Summarize the current state of knowledge and relevant literature concerning recreation resources in the Colorado River ecosystem, including both previous and current studies; 3) Generate a more explicit description/definition for recreation resources; and 4) Discuss gaps in current knowledge and monitoring of recreational resources in the Colorado River ecosystem, and suggest studies and alternative methodologies which could be utilized to increase understanding and effectively monitor these resources.

Action: Provide comments to Jeff by December 21, 1999.

Stream Health Indicators- Joe Shannon stated as part of a river health proposal being prepared for an EPA Watershed Grant, was the requirement for stakeholder involvement. He sought comments from the TWG on the proposal outline. He passed out copies of the "Draft of EPA/NSF/ USDA Water and Watersheds RFA" (Attachment 14) and reviewed the objectives for creating an effective stream health monitoring program for the upper Colorado River basin. He said the metric that the EPA developed will not work in the Colorado River so they are trying to come up with a long-term monitoring program that will use the data they have collected from various sites: 1) Canyonlands, 2) Grand Canyon mainstem, 3) Grand Canyon tributaries, and 4) tributaries that are outside of Grand Canyon. The proposal will also include social science

research because they want to develop some baseline information on how stream health affects the people in the region. The grant is for $300,000 and because the EPA had a recent budget cut, the proposal may not be put out this year. Joe said that if any of the members have comments or would like to review a draft of the proposal, they can write/e-mail him or Fred Solop at their respective addresses listed in the handout.

Ad Hoc Group Updates

AMWG Goals Group - Mary Orton distributed the latest draft of the goals. A conference call is scheduled for Dec. 14, 1999 after the group has a chance to look at them. They will be mailed on Dec. 20 to the AMWG and hoping for approval of the goals at the next AMWG meeting. Those will also be mailed to the TWG members to help them brief AMWG members.

TWG Strategic Plan Group - We're still waiting for a decision by Stephen Magnussen on what our mandate is there (clarification on INs and MOs).

Budget Ad Hoc Group - This group was formed as an internal work group put together by Dr. Garrett, which functioned for a number of years. In consultation with Randy and Rick, Cliff believes we really don't need that group at present. If a group is needed to review budgets, it will be formed at that time.
Action: The group was terminated.

TWG Budget Ad Hoc Group - Randy said the TWG Budget Ad Hoc Group specifically addressed the tribal participation issue. Randy believed they had accomplished their task. The TWG has approved a budget for 2001 and he will send out a final copy of slides we presented yesterday so it seemed to him that the group should be terminated as well.

TWG River Trip - Rick said he received comments from a number of people on whether or not we should plan a river trip and what the purpose of the trip would be. From comments he has received, some people have some reservations about whether this is a good use of resources while others are enthusiastically in favor of doing one. It seems the benefits far outweigh the drawbacks. Three goals people have mentioned to him as being useful for doing a river trip: 1) Increase TWG understanding and appreciation of cultural and PA issues, 2) Increase TWG understanding of HBC ecology and management options, and 3) Complete development of the Management Objectives.

Barry provided the following as possible trip dates:

April 15 - 22
April 29 - May 6
July 29 - Aug 5
end of Aug - early Sept

Public Comment and Wrapup -

Barry brought up the issue of the TWG rules and particularly people not staying until the conclusion of the meeting. Rick said he has had people bring issues to him as well:

- side conversations
- full participation, coming late and leaving early
- difficulty with staying on schedule
- schedule presentations and action items in the middle of the agenda

Rick said he would like feedback on the above and would like to know what the members want. The members agreed that it was okay for the Chairman to adjust time frames and also confront members if they're being disruptive.

Ted said he has noticed that some members are no longer attending the TWG meetings and he wondered how the information is getting to their AMWG representative.

Ruth said there should be breaks scheduled when major topics are on the agenda. An example was going from the BHBF discussion right into the GCMRC response to comments on the 2001 Work Plan. She thinks it would have been helpful if there had been a break in between these topics. It was decided that the breaks need to be held at 10 minutes and that the meetings will reconvene regardless of whether people are back in the room or not.

There will be a River Otter in Grand Canyon Workshop being held January 25-26 in Flagstaff. If you're interested, contact Dave Wegner at (emiwegner@aol.com). It's going to be held at the museum there.

The next meeting is January 19 and 21 at the BIA office in Phoenix.

Barry said the GCMRC will be doing a briefing for the CREDA environmental committee on GCMRC activities. Barry said he would be happy to distribute information if anyone wants it.

Randy Seaholm requested that important dates and meeting locations be listed on the agenda.

Adjourned: 12:30 p.m.