Minutes of
Technical Work Group
October 22, 1999
Phoenix, Arizona

FINAL

Presiding: Rick Johnson, GCT (Chairperson)

Committee Members Present:

Clifford Barrett, CREDA
Andres Cheama, Pueblo of Zuni
Kerry Christensen, Hualapai Nation
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
Amy Heuslein, BIA
Rick Johnson, Grand Canyon Trust
Matt Kaplinski, GCRG
Phil Lehr, CRCN
Don Metz, USFWS
Clayton Palmer, WAPA
Bill Persons, AGFD
Randall Peterson, USBR
Andre Potochnik, GC River Guides
Randy Seaholm, CRCB
John Shields, WY State Engineer's Ofc.
Mindy Schlimgen-Wilson, Am. Rivers
Robert Winfree, NPS/GCRA
Fred Worthley, CRBC

Committee Members Absent:

Mark Anderson, USGS
Alan Downer, Navajo Nation
Christopher Harris, ADWR

Alternates Present:

Georgia Smith
Nancy Hornewer

Alternate for:

Alan Downer, Navajo Nation
Mark Anderson, USGS

Other Interested Persons Present:

Jan Balsom, NPS
Mary Barger, WAPA
Timothy Begay, NNHPD
Shane Collins, WAPA
Nancy Coulam, USBR
Marlis Douglas, ASU
Michael Douglas, ASU
Milton Friend, Salton Sea Science Subcmte.
Barry Gold, GCMRC
Loretta Jackson, Hualapai Cultural
Dennis Kubly, USBR
Arden Kucate, Pueblo of Zuni
Ruth Lambert, USBR
Mike Lieszewski, GCMRC
Ted Melis, GCMRC
Barbara Ralston, GCMRC
Tom Ryan, USBR
David W. Wyaco, Sr., Pueblo of Zuni

Recorder: Linda Whetton, USBR

MEETING OPENING AND ADMINISTRATIVE ITEMS

10/22/99: Convened: 8:10 a.m. **Adjourned:** 12:20 p.m.

Welcome and Introductions

The Chairperson welcomed the TWG members, member alternates, and guests. All introduced themselves. The Chairperson review l the ground rules for the meeting and name plates were distributed. Linda Whetton will be t ng minutes.

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

Review/Approval of Agenda: The Chairperson went over the agenda and asked if the two ad hoc groups (TWG Strategic Plan Ad Hoc and the TWG MO Ad Hoc Group) still wanted to meet this afternoon. Since the TWG doesn't have a charge from the AMWG, it was felt that they should be canceled. Rick said some of the people on the AMWG Ad Hoc Group wanted to do another iteration of the goals to incorporate the comments they received from yesterday's AMWG meeting and then they would come back to the TWG for another iteration of the goals and MOs. It was thought that the goals would be approved at the January AMWG. Rick suggested that the discussion continue after lunch and a determination made at that time.

Randy said he thought the motion carried in the AMWG meeting was tha AMWG would form an ad hoc group to address the goals and objectives which flowed fr e Vision Statement. There was a moti made to charge the TWG to move forwar developing definitions, goals, and objectives but was not seconded. After the first motion passed, the group was then named the Strategic Planning Ad Hoc Group.

The TWG MO Ad Hoc Group is comprised of the following individuals: Barry Gold, Bill Davis, Bill Persons, Bob Winfree, Clayton Palmer, Cliff Barrett, Don Metz, Matt Kaplinski, Mindy Schlimgen-Wilson, Randy Peterson, Wayne Cook, Kurt Dongoske, Norm Henderson, and Rick Johnson.

Review of Previous TWG Minutes - Randy said these are still in draft form and will be available for approval at the December meeting. In the future, minutes will be sent out two weeks after the meeting.

Temperature Control Device Workshop Update - Dennis Kubly announced that as part of Reclamation's commitment to re-issue the Draft EA on the Temperature Control Device, a workshop is being planned. The purpose will be two-fold: 1) provide an evaluation by a group of scientists and managers of the Draft Research and Monitoring Plan that Barbara Ralston and the

GCMRC is producing, and 2) provide additional content for the EA from this group of individuals. The site of the workshop will be at Saguaro Ranch just outside of Mesa and the dates are November 8-10. The first day and evening will be comprised of 12 different presentations, divided into reservoir and river categories and selected people who have expertise and experience with Flaming Gorge and Glen Canyon. A sister system was selected because it has already experienced temperature modification. There are people coming in who can provide us with the chronological assessment of changes that have occurred in the Flaming Gorge Reservoir and the downstream tailwater, both before and after temperature modifications. There will also be corollary presentations on Glen Canyon which will provide us with a foundation to bring everybody in the group to a common understanding.

The second part the workshop will be small group discussions with the intent to divide people across their areas of expertise. They will be divided into groups to have them develop recommendations for the draft research and monitoring plan.

At mid-day on the second day, the people would be reconvened into a large group to hear what ideas the small groups generated. They would then go back and work within their individual groups for the remainder of the day. On the evening of the second day, Dr. Josh Korman will make a presentation on the conceptual model.

On the third day the small groups will make presentations to the large group. From those, they will try to develop consensus recommendations. The draft science plan (Attachment 2) and a modeling effort done by Bob George (Reclamation's Denver Office) will be posted on Reclamation's web site this next week (Attachment 3) and there will be an e-mail sent out to everyone advising them of the availability of those two documents to serve as background for the workshop.

Saguaro Lake Ranch was chosen in part because it is somewhat remote. It's a place that affords greater concentration because there are no external distractions. When people are brought in, they are forced to focus on the issues at hand. One of limitations of this location is that it doesn't hold as many people as other locations might. Right now there are about 52 participants and the lodging accommodations are almost maxed out, however, people can still come during the day and participate in the meetings. If any of the TWG members would be interested in doing that, Dennis would like to know. A summary of the workshop will be placed on Reclamation's web site. For those individuals who can't access the web site, Dennis said hard copies could be mailed or faxed. The web site is: www.uc.usbr.gov

Bob Winfree asked at what point before we get into the approval of a TCD do we identify what actions would be taken if there were an increase in non-native fish or find they are migrating, what management actions would be taken. Dennis said that we haven't tried to deal with that side of the decision making process but will certainly concentrate on the scientists' perspective and how that information should be integrated into a decision making process.

Kurt said the EA was previously designed to evaluate the construction of the TCD and not the operation. If he recalled correctly, there was some discomfort from the TWG about the rationale of doing an EA to build something before you really assess the operational implications. He questioned if the Bureau is reassessing its approach to this and considering doing a complete EIS on the construction and operation all in one shot. Dennis said the action is in response to a biological opinion by the FWS and is directed to ensuring the future welfare of humpback chub. Reclamation is not trying to propose an action or construct something that would go beyond those boundaries. There will be an interdisciplinary team formed to give us feedback and advice in the development of the revised EA. A request was made to have an update on the TCD workshop placed on the Dec. TWG agenda.

GCMRC Draft Monitoring and Research Plan - Barbara Ralston said the actual plan will be available next week on the web site. Her intention today was to give an outline of the plan, starting out with how this plan came to be, the objectives of the science plan as well as the components in it. Refer to Attachment 4 - Science Plan for TCD.

Basin Hydrologic Conditions - Tom Ryan began by saying the elevation of Lake Powell is quite high. He did a database query and pulled out all the reservoir elevations for October 19th for the history when the dam went in, and this year was the third highest in all the years. The two years that were higher were 1983 and 1984. That has been as a result of the high inflows this past summer and fall. August inflow was 190% of average. We are trending more towards average inflows right now but are pushing a little more water out of Glen Canyon than we normally would in the fall months. Average releases are about 800,000 acre-foot months. This year, we're releasing 1.05 maf during October and November. We will target a storage of 21.8 maf by the beginning of the calendar year. If you recall Randy's analysis that looked at the risk of a BHBF, it is about 1 in 3 for this January 1 storage level. In terms of the kind of patterns we might expect in water year 2000, the Climate Prediction Center (CPC) of the National Weather Service are forecasting that water year 2000 will be a La Niña year. It's hard to say specifically how that will manifest itself. There is a tendency toward wetter weather patterns in the northern part of the basin and dryer in the south. All these things are pretty theoretical and correlations are fairly week. The bottom line is that we're planning on average hydrology.

There is some maintenance work (breaker replacement) being done at Glen Canyon from now until May. There will be two units off-line which means that releases from the power plant will be limited to about 23,000 cfs. If a wet year starts taking shape, more water may need to be released as we get into calendar year 2000.

Tom passed out a handout (Attachment 5) which shows how Reclamation operates under the three scenarios of wet, dry, and most probable.

Barry requested that Tom bring another graph that shows how much we have to deviate away from the most probable towards the maximum probable in order to trigger a BHBF. Tom said he

would not be at the next meeting but would provide a handout for Randy to bring.

Preliminary Effects of Fall Monsoon Events - Ted Melis said it was an unusual monsoon season this year. It started around July 5th and ended about 29 days ago. At the very end of that, it wasn't actually monsoon but a remnant of the last hurricane in the eastern Pacific that had a northward migration and dissipation potential. It caused a lot of flooding in tributaries of the Verde River but didn't really cause much in the Grand Canyon, including Diamond Creek. The event of the season occurred on Sept. 15, with a peak on the Paria River of about 3,700 cfs. They are still trying to work up the sediment estimate numbers from David Topping's computer model. Their hope is to have presentations at the December TWG meeting by both Northern Arizona University on their current evaluation of the status of sandbars as well as information from the USGS on how many tons of sand vs. silt and clay may have come actually come into the system this summer. Based on conversations with David Topping, Ted thinks that we're at or above average annual sediment inflow, so in terms of sediment supply, it's characterized as a good season.

Ted said they have also been trying to get much more intensive sediment sampling data on the mainstem during the period when all the inflows were occurring. They have had continuous sediment sampling at the two sites on the mainstem above the LCR confluence and in the Grand Canyon at Phantom Ranch. Two samples a day have been collected there almost continuously since August 12. The goal there is to see how much of the material is coming in, under this dam operation, may actually be retained between the upstream input point at the Paria River and mile 87 at Grand Canyon. The working hypothesis at this time is that the majority of the sediment coming in is probably going to move through the critical reaches during the season. These measurements, once analyzed, will actually give us a handle on whether these flows have had any effect in conserving sediment in terms of channel agradation or not. They're hoping that under this flow regime they'll actually able to retain some fine sand material in the bed. Based on the research done by Dave Topping and Dave Reuben, they don't believe that is occurring much at all, and if it is occurring, it's probably only occurring for the coarsest size classes of sand. The problem with that is the coarsest size classes of sand are not very easily manipulated through floods to rebuild sandbars. Hopefully throughout the year and after this season, they will have more information on what happened this summer as well as what happened in 1998 and 1997. He anticipates to provide more information in early December on the current status of the sediment resource.

Clarification on two presentations for December 7-8 meeting:

1) 30 minutes by NAU Geology Dept. on their current status of the time series for the 37 sandbars that they measure.
2) Dave Reuben of the USGS presenting for the Arizona District on their research and characterization of the sediment supply.

Review of the Recent Papers on Flannelmouth Sucker and Humpback Chub - Bill Persons said

that by way of introduction he received a call a couple of weeks ago requesting an update on the recent papers on the Flannelmouth sucker. Dr. Michael Douglas and his wife, Dr. Marlis Douglas, agreed to come and give a presentation on some of their research (Attachment 6). He has been studying the fish in the canyon since the early 1990's.

Dr. Michael Douglas said that he and his wife are doing work down in the mainstem on movements of native fishes. They were involved in the LCR during GCES Phase II and they've been publishing that data but have shifted to the mainstem because they have a pretty good handle on what's going on in the LCR and want to look at other tributaries to see what native fishes are doing there. They were down in Havasu Creek in the fall and in the spring again for three weeks at each sampling period and found that in the fall they had a resident population of about 300 flannelmouth suckers that were in the inflow area. They documented that three weeks of sampling were required in order to generate any kind of a population estimate. They also documented that there was late season reproduction by suckers in the inflow area of Havasu Creek. Some of the larvae were identified as bluehead sucker and one identified as a possible razorback sucker. They argued in their 1998 paper that razorback sucker is not a constituent member of the Grand Canyon fish fauna but instead is a transient that used to move through the canyon going from habitat to habitat above and below the canyon, but some got caught in the canyon when the dam was built. There are echoes of that population at the LCR where there is a population of flannelmouth razorback hybrid, which number about 30, which are mostly males that mate with the flannelmouth there. They might also have the same thing at Havasu Creek with the possible larval razorback suckers. They marked fish there in the spring and 80% of the fish they caught there were unmarked which indicates that the tributaries are not being monitored well enough. They came back in May to see how many were marked and 90% of what they caught were unmarked. This gave them two hypotheses: 1) the flannelmouth sucker population is very mobile in Grand Canyon, or 2) it's so large that we're only sampling a small amount.

They are also doing some genetic work in the canyon. They have been working with humpback chub and flannelmouth sucker genetics for the last several years. They collected fin clips from humpback chub in the LCR and looked at the mtDNA. They can track lineages from mtDNA but it's always on the mother's side. It means that you don't need as many individuals to understand the variation in the population of mtDNA. They found that the humpback chub population in the LCR is not very variable with regard to mtDNA. In fact, it is surprisingly not very variable. With this data, they can determine effective population size for that population - how many individuals are reproducing, how many individuals it would take to encompass the variability you see down there if you wanted to have an idealized randomly mating population to represent the variability you see in the LCR and estimated a need for about 18,000 individuals.

<u>Update on Papers</u> - Bill distributed and discussed three papers that came out recently:

1. Flannelmouth Sucker in the Lee's Ferry Tailwater, Colorado River, Arizona (Attachment 7)
2. Ecology of spawning humpback chub, *Gila cypha*, in the Little Colorado River near Grand Canyon, Arizona (Attachment 8)

3. Dispersal of Larval Fishes in a Regulated River Tributary (Attachment 9)

Response to Comments on GCMRC Draft Plan - Barry Gold passed out the following documents:

a. Schedule for Reviewing GCMRC FY 2001 Work Plan (Attachment 10a)
b. Draft FY 2001 Work Plan (Attachment 10b)
c. Set of comments received on the PowerPoint presentation that the GCMRC gave at the last TWG meeting. (Attachment 10c)

Barry reminded the members that they agreed to a schedule and a set of steps at the last TWG meeting. Comments on the Draft Work Plan are due to the GCMRC by November 5, 1999. They committed to producing a response to comments document and mailing that back to the TWG by November 19, so that the discussion at the next TWG meeting on Dec. 7-8 would focus on the response to comments document with a notion that if they could get agreement on that, they could go back and modify the 2001 work plan.

They have already tried to incorporate the comments on the PowerPoint presentation. He pointed out that the format was changed and asked Ted to explain more about it. Ted said that the first thing people will notice is that it doesn't look like any of the previous work plans. Internally, they have attempted to produce a more highly integrated science program and specifically an integrated long-term monitoring program. There are not specific resource sections (physical resources or biology program) nor the individual categories which the program was segregated into when GCMRC was originally formed. Those are being phased out. The budgets in Chapter 3 are still broken down into physical, biological, socio-cultural categories because they didn't want to change everything. However, in the final version of this workplan that chapter will look fundamentally different and there will probably be one line item that just says "science activities" and it will include the costs of not just individual awards that get made in 2001 but the logistics support costs, the staff support costs, and all other costs involved in actually doing projects. They recount the importance of keeping these projects tied to the management objectives and information needs. He said that a big part of Chapter 1 that people should focus on is "Current Knowledge" and the importance of reviewing what has been learned prior to beginning new projects. The last chapter on budget and management gets into specific things, i.e., how will we deal with in-house research, ongoing needs for AMWG and TWG support, etc. Appendix 4 contains an outline for a contingency plan for a BHBF.

The heart of the chapter 2 work plan is really found in Tables 2.1 and 2.2 and neither one of these is complete. In Table 2.1, there are some projects Ted wrote narratives on but don't have MOs listed. This was worked on as a team but they didn't have time to complete before coming to the AMWG meeting on Wednesday. This continues to be a work in progress.
Even though the work plan looks really different, the goal is to make this look like and become a highly integrated science program in a way that costs can be tracked from beginning to end.

Barry asked that comments be returned using the line numbers on the left-side of the pages so that when they develop the response to comments table, they will have clear reference back and forth.

Wrapup - Rick said there are five ad hoc groups that are current right now: Experimental Flows, MO, Strategic Plan, Budget, and the TWG Effectiveness. He questioned if they should be sunset today with the proviso that if they need them again, they can be quickly re-convened.

MOTION: Sunset all but the following ad hoc groups:
Experimental Flows
MO
Strategic Plan

Motion seconded and carried. Motion passed.

Randy passed out a revised table of some of the areas of concern that were addressed in a brainstorming meeting in which they talked about ways to improve TWG effectiveness. The group had a conference call and prepared a list of ways they felt they could be more effective as a technical work group (Attachment 11).

After some discussion, Bob Winfree suggested that the TWG look at its effectiveness by putting it as an agenda item for quarterly review. This might put more focus on it rather than keeping as an ad hoc group.

Randy also mentioned that on the way home from that meeting, he found an article in the America West (August 1999) flight magazine on negotiating nicely. It's the story of a sports agent who negotiates contracts in the $10-50 million range. He is very successful and found that the best way to get the best deal for his clients was to negotiate nicely, noting that building long-term relationships yield more benefits than targeting short-term benefits.

Public Comment:

Ted said he would like to get some input from the group that he thought would be really helpful for the GCMRC Program staff through a series to standing subcommittees, not ad hoc groups, that specifically focus detailed efforts on interpreting resource related technical information. For example, not everyone has the background or high level of interest to track every minute development in sediment transport, geomorphology, and hydrology, etc. A standing subcommittee to work with him on those would be of some use and then that group can convey their understanding of how the technical information applies to the management of the greater body.

Matt Kaplinski said that as part of the NRC review, one of the serious omissions of the program

was in recreational resources. To Barry's credit, he funded Jeff Behan to review the recreational component of the GCMRC program. Jeff came out with a draft report (Attachment 12) which is posted on the GCMRC web site. The GCMRC plans to circulate it to the TWG for review and comment. Matt suggested that the TWG have Jeff come down in December and present his findings. Matt will send a recommendation to Randy to put this on the agenda.

Bill Persons announced that Barbara Ralston is putting together a tailwater trout workshop for April 25-29, 2000.

Clayton said that in a previous meeting, we had asked that Bob talk about the proposed wilderness designation for the Grand Canyon and some of its effects on the GCMRC. Bob said he could brief the TWG on the comprehensive planning effort for the Colorado River and the undeveloped areas of Grand Canyon National Park. The Colorado River management planning process has been going on for some time. They released a draft wilderness plan over a year ago. Their wilderness coordinator has left the Park Service but the planning program continues. He could do a presentation on the basis for that plan and where they anticipate going at the December TWG meeting.

Next meeting:

December 7, 1999 - 9:30 a.m. to 5:00 p.m.
December 8, 1999 - 8:00 a.m. to 3:00 p.m.

A Federal Register notice correcting a previous error on these dates and location will be mailed out.

Adjourned at 12:20 p.m.

General Key to Adaptive Management Program Acronyms

ADWR - Arizona Department of Water Resources
AF - Acre Feet
AGFD - Arizona Game & Fish Department
AGU - American Geophysical Union
AM - Adaptive Management
AMP - Adaptive Management Program
AMWG - Glen Canyon Adaptive Management Work Group (a FACA committee)
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 - Final 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
FY - Fiscal Year (Oct 1 to Sept 30 each year)
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 (stakeholder)
IT - Information Technology (GCMRC program)
KAS - Kanab ambersnail (endangered native snail)
KAWG - Kanab Ambersnail Work Group
LCR - Little Colorado River
LCRMCP: Little Colorado River Multi-Species Conservation Program
MAF - Million Acre Feet
MA - Management Action
MO - Management Objective
NAAO - Native American Affairs Office
NAU - Northern Arizona University (Flagstaff, AZ)
NEPA - National Environmental Policy Act
NGS - National Geodetic Survey
NHPA - National Historical 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)