

**Minutes of Technical Work Group Meeting
December 8, 1998**

FINAL

Presiding: Robert Winfree (Chairperson)

Committee Members Present:

Mark T. Anderson, USGS
Clifford Barrett, CREDA
Dave Cohen, Trout Unlimited
Wayne Cook, UCRC
Wm. Davis, EcoPlan Assoc./CREDA
Kurt Dongoske, The Hopi Tribe
So. Paiute Consortium (by Brenda Drye)
Christopher Harris, ADWR
Norm Henderson, GCNRA
Amy Heuslein, BIA
Rick Johnson, Grand Canyon Trust

Robert King, UDWR
Tom Latousek, American Rivers
Phillip S. Lehr, CRCN
Don Metz, US FWS
Bruce Moore, USBR
Clayton Palmer, WAPA
Pueblo of Zuni (by Loren Panteah)
Bill Persons, AGFD
Randy Seaholm, CWCB
Robert Winfree, NPS/GCRA
Fred Worthley, CRBC

Committee Members Absent:

Kerry Christensen, Hualapai Nation
Joe Dishta, Pueblo of Zuni
Alan Downer, Navajo Nation

Carlos Mayo, Southern Paiute Consortium
Andre Potochnik, Grand Canyon River Guides
John Shields, Wyoming State Engineer's Ofc

Alternates Present:

Ben Zimmerman, Hualapai Nation
Peter Noyes, Navajo Nation
Wayne Cook, UCRC
Brenda Drye, Southern Paiute Consortium
Loren Panteah, Pueblo of Zuni

Alternate For:

Kerry Christensen, Hualapai Nation
Alan Downer, Navajo Nation
John Shields, Wyoming State Engineer's Ofc
Southern Paiute Consortium
Pueblo of Zuni

Other Interested Persons Present:

Mary Barger, WAPA
Nancy Coulam, USBR-SLC
Greg Glassco, Hualapai Nation/Cult. Resources
Barry Gold, GCMRC (linked via telephone)
Ruth Lambert, GCMRC
Mike Liszewski, GCMRC
Tom Moody, Grand Canyon Trust

Tony Morton, USBR
Fred Nials, Univ. of Nevada
Randy Peterson, USBR
Larry Sibala, BIA
Larry Stevens, GCMRC
Man Susanyatame, Hualapai Nation/Cult. Res.
Bill Vernieu, GCMRC

Recorder: Serena Mankiller, GCMRC Secretary

12/8/98: Convened: 10:07 a.m. **Adjourned:** 4:23 p.m.

MEETING OPENING AND ADMINISTRATIVE ITEMS

Welcome: Robert Winfree, the Chairperson, convened the meeting and welcomed committee members, member alternates, and guests. A quorum was present.

Review of Agenda: The Chairperson reviewed the final agenda. No changes were made.

Attendance Sheets: Distributed.

Review of Minutes: Minutes of November 16-17, 1998 (Attachment 1) were available for review. The TWG will review and submit revisions to the GCMRC Secretary.

OTHER ADMINISTRATIVE BUSINESS

Chairperson/Facilitator for TWG Meetings: The group discussed the need for and available options for the 1999 TWG Chairpersonship. Bruce Moore reviewed the chairperson role and responsibilities, and Robert Winfree reviewed tasks required for all meetings. The TWG members requested more time to consider the appointment and attached responsibilities. A suggestion was made to provide the TWG with a one-page draft document delineating the duties and including a more equal division of those duties among the Chairperson and/or facilitator, Vice-Chairperson, Secretary, and FACA requirements person. A special focus will be made on attempting to keep the Chairperson's intermeeting responsibilities to a minimum by better utilization of support staff. The TWG was reminded about the importance of the Chairperson position in the success of the TWG meetings, and that initially the Chairperson role was to be rotated among the members for a minimum of one-year appointments. The intent is still to report at the next AMWG meeting who will be the new TWG Chairperson.

Recommendation: Robert Winfree will cause the current summary of duties to be redrafted as soon as possible. When it is completed, the draft will be distributed to the TWG.

AMP BUDGET AND PROGRAMMING

GCMRC Draft FY2000 Annual Plan (dated 11/20/98) and **GCMRC Draft FY2000-2004 Strategic Plan** (dated 11/5/98): The plans will be revised based on comments received by the GCMRC from the TWG, including comments received on December 8, 1998. The revised Annual Plan is planned to be mailed to the TWG on December 11, 1998, and the revised Strategic Plan on December 18, 1998. The group partially reviewed the plans and then focused discussion on opposing philosophical and policy issues which arose during the review process. A problem was identified that sometimes group-wide understanding about fundamental issues which were previously thought to have been reached are repeatedly revisited by this group. A timely resolution to this issue is desired in order to improve the decision making process, providing continuing, full and equal participation in the process, and enhance the success of this adaptive management

program. The group desired to approve budgets contained in Chapter 4 of the Annual Plan so the GCMRC may release its FY99 RFPs for competitive bid in March 1999. The group deferred complete approval of the plans until it has had time to address, clarify and resolve uncertainties about serious, valid philosophical and policy issues and questions, which include but are not limited to:

1. Definition of the Colorado River ecosystem (specific language).
2. Expansion of the program area.
3. Linkage of GCMRC's work to power plant operations should be more defined.
4. A lack of recognition of the role of physical science is reflected in the substantial reduction of physical sciences work beginning in FY2000.
5. The goal of adaptive management (the entire group needs to agree on one goal).
6. If the MO's defined in the EIS are the goal of the Preferred Alternative.
7. What is the role of adaptive management and what direction is it taking us?
8. Does adaptive management allow changes to the Secretary's actions (the operating criteria) to get to the Preferred Alternative?
9. Does the adaptive management process limit us to the Preferred Alternative, or since the Preferred Alternative was designed as a compromise, is it adjustable as new information becomes available from research and monitoring?
10. Is the Preferred Alternative the goal and the MO's are to get us there, or is the Preferred Alternative one method to get to the MO's?
11. There is a lack of specificity in the plans that identify that the Preferred Alternative as the goal of adaptive management.
12. Is it the goals or the experimentation that seem to be going beyond the Preferred Alternative (outside of what the ROD specified)?
13. A need for language which indicates a direction towards the mix of resource benefits identified by the Preferred Alternative, and that GCMRC is conducting monitoring and research to determine if the benefits are being achieved and if not, alternatives that may be explored to help achieve them.
14. Concern that previous agreements which encouraged MO's and IN's which were perhaps beyond the scope of the Preferred Alternative now appear to be driving the program.
15. References in the plans which include economic and benefit analyses studies are not included in the MO's or IN's.
16. Issues regarding the program's scope were discussed at length and satisfactorily agreed on during the MO development process and need to be reflected more effectively in the plans.
17. The current process of handling conflicting comments needs to be more efficient and effective (TWG should agree on revisions before submitting to GCMRC).

Some group members wished to see how their comments are/are not incorporated within the document before approving the document as a whole. It is recognized that a GCMRC research component will remain because the TWG periodically requests research and the GCMRC can provide expertise and cost savings over competitive bids in some areas. A suggestion was made to empower GCMRC to make determinations on performing work in-house versus competitively bidding out "low-dollar" studies. The suggestion was not fully discussed during the meeting. An opinion was expressed that the plans should reflect a description of the

anticipated long term transition from a data gathering-synthesizing-predictive model focus to a long-term monitoring program.

Recommendation: With the exception of budget information contained in Chapter 4 (Fiscal Year 2000 Monitoring and Research Activities), the TWG did not approve the GCMRC Draft FY2000 Annual Plan (dated 11/20/98) or GCMRC Draft FY2000-2004 Strategic Plan (dated 11/5/98). Ruth Lambert will prepare a memo to the AMWG which explains that they will not be receiving the plans they expected to approve at their next meeting. It will state that the TWG approved the bottom line budgets, with the various program amounts listed, and that the total is static but monies within the total are flexible. The memo will include brief descriptions of the individual projects that are being funded and their dollar amounts. Ms. Lambert will forward the memo to Bruce Moore this week for inclusion in the 30-day mailing to the AMWG as a recommendation from the TWG. This will enable GCMRC to begin formulating its RFPs in order to meet the March 1999 release deadline which allows a 90-day period for bidders to prepare and submit their proposals.

Ad hoc groups were formed which will hold separate, key issues workshops to discuss the philosophical and policy issues. The Strategic Plan Workshop will be held February 4-5, 1999, and the Annual Plan Workshop will be held February 23-24, 1999. After the key issues have been resolved, an ad hoc work group will be formed to finalize the Strategic Plan. The group would like to use a professional facilitator. Meetings will be held at a Phoenix location to be determined. The intention is to revise and approve both plans and send them forward to the AMWG for approval at its mid-year meeting.

Budget: The TWG reviewed and clarified information from the previously approved program budgets attached to the FY2000 Monitoring and Research Plan. The inflation indexing method and retroactive years to which it would be applied was not entirely acceptable as presented. The Lake Powell \$325,000 budget item was moved from the AMP budget to the CRSP O&M budget under its quality of water item.

Recommendation: The TWG agreed to go forward with the bottom line \$7,622,000 budget, subject to later detail and flexibility to shift monies between programs. This figure does not include either the Lake Powell budget of \$325,000 or Native American participation (in the AMP) funding of \$50,000.

Native American participation funds were cut as part of a nationwide NAOO reduction from \$50,000 to \$20,000 for FY99. A need was identified to have in place a hard source of funding to provide a level of support adequate for the tribes to continue their participation in the AM process. It was suggested that Bruce Moore investigate the issue. The BIA could also contribute.

Recommendation: Bruce Moore will investigate options regarding Native American funding for continued future participation in the AM process.

Lake Powell: (Attachment 2) Norm Henderson stated that an ad hoc group had been formed, and reviewed its activities. The group separated the Lake Powell issues or MO's and IN's into white, gray, black areas. He explained the categories and funding separations. Funding sources and processes were

discussed. A proposal was made to strike the language for approach #1 under "Explanation of Change/Approach." A group majority voted to retain the language. The GCMRC had developed a tentative FY2000 budget process according to the proposed split while awaiting resolution from the TWG.

Recommendation: The TWG approved the divisions of white/gray/black areas. The TWG will continue with its charge and develop budget information to be forwarded to the AMWG.

RESOURCE CONDITION AND HYDROLOGIC FORECASTS

Hydrologic Forecasts and GCD Planned Releases: (Attachment 3) Randy Peterson's hydrologic forecast was distributed. Time constraints prevented his regular oral presentation and discussion.

Alternative BHBF and Load-following Releases: (Attachment 4) Larry Stevens (GCMRC) reviewed the desired and achieved objectives for the 1996 BHBF event. It effectively built sand bars, but some other objectives were not met due to insufficient magnitude. He noted that seven days was probably too long of a duration. The event resulted in a series of questions related to the effects of high flows. Dr. Stevens discussed the process and presented a draft response to the TWG's request to evaluate alternatives for flood flows. Ted Melis, Dr. Stevens, GCMRC Program Managers, and other scientists met and discussed at length options and issues regarding alternate levels of BHBFs and treatments.

The TWG had presented several issues in its letter (dated May 30, 1998) requesting the GCMRC to recommend magnitude, timing, duration and pre- and post-flow regimes for a test flow between January and July that best meets BHBF objectives, and also including flows above 45,000 cfs. Some significant, untested hypotheses are discussed in Ted Melis' letter which was sent to the TWG, and the group was encouraged to review the information. It is recognized that BHBFs may be rarer than we presently expect (maybe 1:5 or 1:10 rather than 1:3) due to greater negative impacts in the spring and summer months conflicting with hydrologic triggering criteria in which flows are more likely to happen late in the inflow season.

GCMRC's response to the first issue is that a flow should be conducted between 45,000-60,000 cfs and a titration strategy is recommended. Timing should be based on our evaluation of conflicts between inflow issues and resources. Biological and cultural resource areas impacts suggest that flows should probably take place between February and April, with a short duration of 3-4 days to test that hypothesis, at the lowest regularly-achieved minimum flow.

The second issue regarding defining a test flow regime to reduce beach erosion rates during periods of high power plant releases, and should include fluctuating flows above 25,000 cfs and up to power plant capacity. GCMRC's response is the hydrologic triggering criteria assume that the post BHBF flow will be high; so the BHBF should be run relatively early in the cycle and followed by whatever the subsequent flow regime is for a month or more, to be able to see the results of that effect downstream.

The third issue was to assess the advisability of conducting the first and second issues sequentially and/or separately. GCMRC's response is to conduct the experiments in separate, high inflow years (triggered years)

with a separate BHBF associated with a separate, subsequent flow regime. For example, a BHBF with steady high flows; a BHBF with fluctuating high flows. This will increase knowledge about using this tool for sediment management and effects of subsequent flows, in a logical manner.

The last issue was to evaluate, based on best current knowledge, the potential positive and negative impacts of BHBFs. Dr. Stevens reminded the TWG that replication, recreation and antecedent conditions are all issues in experimental science. Hypotheses need to be verified so we are comfortable with knowing what the effects will be before progressing to potentially disruptive experiments to the system. GCMRC presented four BHBF scenarios:

Scenario 1: is a minimum hypothesis testing approach of a series of three BHBFs (in triggered years) in sequence. The first flow would be approximately 45,000 cfs (with a shorter duration than the 1996 flow) with a subsequent steady flow of approximately 25,000 cfs or slightly greater for one month.

Scenario 2: the first year a BHBF is triggered, run a 45,000 cfs followed by fluctuating flows. Forego testing of hypotheses in Scenario 1.

Scenario 3: the first year a BHBF is triggered, run a 60,000 cfs followed with either fluctuating flows or steady flows, based on the results of the first two flows. However, this violates the ROD twice by running 60,000 cfs and incorporating a fluctuating flow regime above 25,000 cfs. No hypotheses testing.

Scenario 4: no action.

Recommendation: Submit comments to Ted Melis and Larry Stevens by January 8, 1999.

1999 BHBF Resource Criteria Evaluation: Robert Winfree presented the diagram from results of a comparison that Barbara Ralston (GCMRC) did on the effects of Scenario 2 versus the no action alternative ("Draft Report, BHBF Resource Criteria Analysis for January-July 1999: Analysis Methods and Materials for BHBF Recommendation" dated 12/7/98) (Attachment 5). Dr. Ralston prepared a full resource criteria matrix evaluation and synthesized the data (Attachment 6), and also updated the Process Document (Attachment 7). It indicates that between January, February and March, resource effects are similar and had the least detrimental effects. In April there are potential impacts to larval HBC and flannelmouth suckers. In May and June impacts increase and include larval fish, whitewater rafting, and tamarisk germination. The evaluation is that winter or early spring BHBF would have the least impact on resources. The TWG needed more time to decide on a recommendation to bring forward to the AMWG.

Recommendation: The TWG will convene a meeting the day before January's AMWG meeting to decide on a recommendation. Bruce Moore will cause a notice of official TWG meeting to be published in the Federal Register.

OTHER BUSINESS

SCORE Report: (Attachment 8) Larry Stevens provided hard copies of the State of the Colorado River Ecosystem Report (dated December 9, 1999). It is planned to be available for online review at the website: <http://130.118.161.89/gcmrc/gcmrc.html> in approximately one week. Comments will be accepted. GCMRC prefers to avoid the expense of photocopying and distributing hard copies to TWG and AMWG members who have access to the internet.

KAS Workgroup Workshop: (Attachment 9) Larry Stevens stated that Barbara Ralston recommended holding a workshop in May or June of 1999 to gather representatives and scientists to discuss issues surrounding new information on the KAS. Comments are welcome.

National Geodetic Survey Report: Mike Liszewski (GCMRC) reported that the NGS has asked GCMRC to participate in densification of their HAR report in areas of the Grand Canyon. GCMRC has tentatively agreed to participate. It is advantageous to GCMRC and the adaptive management process because in return for GCMRC's contribution of collecting data, the NGS will contribute substantially greater time in processing the data and providing high accuracy control points in areas of our choice in the canyon. Mike Liszewski will develop a white paper and distribute it to the TWG and the AMWG explaining more details. Comments are welcome. Robert Winfree stated that GCNP would also like to participate.

Glen Canyon Dam Adaptive Management Program Colorado River Ecosystem Science Symposium: (Attachment 10) Robert Winfree announced that GCMRC will host a symposium February *16-17, 1999, at GCNP's South Rim auditorium. The purpose is to review findings from 1998 GCMRC-contracted studies. The TWG, the AMWG, and other interested parties may attend. (Original announcement was February 17-18, 1999. This was later changed to February 16-17, 1999.)

MEETING REVIEW AND WRAP UP

TWG Action Items: The Chairperson reviewed action items which were discussed during the meeting:

- Robert Winfree will redraft the TWG chairperson summary of duties and distribute to the TWG when it is completed.
- Ruth Lambert will prepare the AMWG memo about the delays on Annual and the Strategic Plan, the budget approvals and caveats, descriptions of the funded projects and their dollar amounts. She will forward it to Bruce Moore this week.
- Bruce Moore will investigate the Native American funding for future AMP participation issue.

- The TWG will review Dr. Ralston's "BHBF Resource Criteria Analysis for January-July 1999: Analysis Methods and Materials for BHBF Recommendation" (dated 12/7/98) document for the 1999 BHBF recommendation to the AMWG.
- The TWG is to submit comments to Ted Melis and Larry Stevens by January 8, 1999, regarding the GCMRC response to alternative BHBF and load-following releases information presented. Clayton Palmer will finalize his draft hypothesis on BHBFs and forward it to Ted Melis and Larry Stevens.
- The TWG will develop budget information on the Lake Powell split to be forwarded to the AMWG.
- Bruce Moore will cause a FRN to be published about the January and February 1999 TWG meetings.
- The TWG will inform the GCMRC secretary if they plan to attend the science symposium February 16-17, 1999, so she can keep track of how many people will be attending.

Action items for the January 12-13, 1999, AMWG meeting:

- Barry Gold will finalize and present details on GCMRC staffing and the 1998 Expenses budget report.
- Bruce Moore will make minor revisions to and present the budget protocol document.

Meeting Evaluation: due to time constraints, an evaluation of today's meeting was not done.

UPCOMING MEETINGS (all meetings listed below will be held in Phoenix, Arizona)

Next TWG Meeting: The next meeting will be January 11, 1999, from 1:00-4:00 p.m. at Embassy Suites Hotel. The purpose will be to review recommendations to the AMWG regarding a WY99 BHBF, Lake Powell split, the Annual and Strategic Plan paper with budget information, resource criteria evaluation.

Other TWG Meetings: January 13, 1999: 3:00-5:00 p.m. at the Embassy Suites Hotel. The purpose will be to review charges and work received from the AMWG meeting. A TWG meeting will be held on February *18, 1999, to review information presented at the science symposium, BHBF plan, and TWG chairperson role. (Originally announced as February 16. This was later changed to February 18, 1999.)

Ad Hoc Groups: The next meeting of the Consultation Team of the Compliance Ad Hoc Group will be held December 14, 1998, from 1:00-5:00 p.m. at the USFWS office.

Future Agenda Items: The Chairperson reviewed agenda items for future meetings (listed in the TWG meeting agenda). Updates will be included in the next agenda.

Next AMWG Meeting: The next AMWG meeting will be held January 12, 1999, from 9:30 a.m. to 5:00 p.m., and on January 13, 1999, from 8:00 a.m. to 3:00 p.m., at the Embassy Suites Hotel.

Public Comment: The Chairperson requested comments from the public after each major topic. Comments made are contained in the text of these minutes.

Adjournment: There being no further business, the Chairperson adjourned the meeting at 4:23 p.m.

Respectfully submitted,

Serena Mankiller
GCMRC Secretary

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
AOP - Annual Operating Plan
BA - Biological Assessment
BE - Biological Evaluation
BHBF - Beach/Habitat-Building 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
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 species list - 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
NAU - Northern Arizona University (Flagstaff, AZ)
NEPA - National Environmental Policy Act
NGS - National Geodetic Survey
NHPA - National Historical Preservation Act
NPS - National Park 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
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
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)