

Minutes of Technical Work Group Meeting
February 23-24, 1999

FINAL

Presiding: Bruce Moore (Chairperson)

Committee Members Present:

Clifford Barrett, CREDA
Kerry Christensen, Hualapai Nation
Dave Cohen, Trout Unlimited
Wm. E. Davis, EcoPlan Assoc. CREDA
Kurt Dongoske, The Hopi Tribe
So. Paiute Consortium (by Brenda Drye)
Christopher Harris, ADWR
Norm Henderson, GCRA
Amy Heuslein, BIA

Rick Johnson, Grand Canyon Trust
Robert King, UDWR
Tom Latousek, American Rivers
Don Metz, USFWS
Bruce Moore, USBR
Clayton Palmer, WAPA
Bill Persons, AGFD
Phillip S. Lehr, CRCN

Committee Members Absent:

Mark Anderson, USGS
Andres Cheama, Pueblo of Zuni
Wayne Cook, UCRC
Alan Downer, Navajo Nation
Andre Potochnik, GCRG

Randy Seaholm, CWCB
John Shields, Wyo. State Engineer's Office
Robert Winfree, NPS/GCRA
Fred Worthley, CRBC

Alternates Present:

Timothy C. Begay
Nancy Hornewer
Brenda Drye

Alternate For:

Alan Downer, Navajo Nation
Mark Anderson, USGS
So. Paiute Consortium

Other Interested Persons Present:

Gary Burton, WAPA
Barry Gold, GCMRC
Ruth Lambert, GCMRC
Mike Liszewski, GCMRC
Robert S. Lynch, (CAP/CREDA/IEDA)

Ted Melis, GCMRC
Randy Peterson, USBR
Barbara Ralson, GCMRC
Bill Vernieu, GCMRC

Recorder: Serena Mankiller, GCMRC Secretary

2/23/99: Convened: 10:15 a.m. Adjourned: 5:00 p.m.

2/24/99: Convened: 8:17 a.m. Adjourned: 2:08 p.m.

MEETING OPENING AND ADMINISTRATIVE ITEMS

Welcome: Bruce Moore, Co-chairperson, convened the meeting and welcomed committee

members, member alternates, and guests. Fifteen members were present at the beginning of the meeting; a quorum was present at approximately 11:00 a.m. No decisions requiring a quorum were made or voted on before that time.

Review of Agenda: The agenda was reviewed, revised and approved.

Attendance Sheets: Distributed.

Review of Minutes: (Attachment 1) Minutes of February 18, 1999, were available for review. Minutes of January 13, 1999, were previously distributed to the TWG. No changes were received on the January minutes.

Recommendation: Submit any revisions on the February 18, 1999, minutes to the GCMRC Secretary within one week.

ADMINISTRATIVE BUSINESS

TWG Chairperson: Due to the recent retirement of Dave Haskell (GCNP), Robert Winfree is fulfilling some of those duties and was not available to chair this TWG meeting.

FY2000 Annual Plan: GCMRC Program Managers presented and reviewed their annual work plans and budgets for TWG comment and approval.

Physical Resources - Ted Melis (Attachment 2): There are no major changes to the presentation given at the November 1998 TWG meeting.

1. **Extend Historical Geomorphic Synthesis up into Glen Canyon** (1 year continuation): \$50,000-\$60,000. The FY2000 program completes this work. Some IN's are redundant. General TWG comments: 25 IN's to be addressed by this project is excessive. Narrow the focus on fewer, specific IN's. Focus on impacts of changed dam operations.
Recommendation: supported by the TWG.
2. **Continuation of Monitoring and Research of Main Channel Flow and Sediment** (1 year continuation): approx. \$350,000. Daily suspended sediment measurements between GCD and the Lees Ferry gage is the best method to address the issue of sediment export or storage within this reach. The researchers need to publish their findings by the end of the modification period (FY2000). General TWG comments: additional work on D. Topping's historical sediment storage hypothesis is a higher priority than this project. If possible, include in the modification to address the sediment storage (piggy back hypothesis) issue if there is a BHBF event. ***Recommendation:*** supported by the TWG.

3. Verification of Gaged Tributary Flow and Sediment Models (Paria and LCR): approx. \$30,000. For modification of two research-based models into more user-friendly platforms to better enable use as management tools. We will be provided at least the transition to a management-type model and a Users Guide, but testing of the models is occurrence-dependent. The Paria model is complete but not user-friendly; the LCR model will be completed in FY99. General TWG comments: Does the \$30,000 include post-flood workup in case of a sediment input? (This will be negotiated, but David Topping did not charge us extra to calibrate the Paria model because we were funding some of his other research.) *Recommendation*: supported unanimously by the TWG.
4. Advanced Development of Conceptual Physical Submodel (1 year continuation): \$50,000. 1 year extension of existing project to develop a more predictive model. General TWG comments: none. *Recommendation*: supported by the TWG.
5. Monitoring of Debris Fans and Rapids: Approx. \$10,000-\$20,000. Extension of existing project to monitor event-related sediment storage. Monitoring of impacts to high-recreational-use areas such as how beach areas change and how vegetation comes in from a debris fan post-disturbance, change detection, impact, future implications of changes to food base, fisheries habitat, recreational site, rapids, terrestrial succession rates. Impacts can be looked at locally as well as throughout the canyon. If the contract is closed in September, there is no long term monitoring program for debris flows, and there should be a long term monitoring program or protocol for debris flow detection. It can be done every 5-10 years. General TWG comments: This is not in the MO's and IN's which drive the budget, but could be funded anyway. It can be added to the MO's and IN's, but that would lose a year. It would be a good project to further the "sand storage piggy bank" hypothesis. *Recommendation*: Support Count: Do Immediately: 11; Wait until March Review of IN's:
4.
6. Completion of Protocols Evaluation and Initial Development of Long-term Monitoring Plan: Approx. \$20,000 (includes capital investments). This will be the third year of the Physical Sciences PEP. The protocols evaluation will assist in designing the long term monitoring plan and supporting protocols for FY2000. It includes working with individuals from the various cooperating agencies with specific field tests and pilot studies (using existing aerial photogrammetry for sand bar changes, oblique stereo photogrammetry, multi-beam testing, remote sensing equipment purchases if necessary). Pilot study status for FY99 will affect the extent of continuation of the research in FY2000. A pilot study will be conducted to see if the Grand Canyon daily measurements can be reinstated. This relates to sediment IN's. There will be approximately 3-5 final reports on pilot studies. TWG Comments: The MO's and IN's for this program are not well defined. The data gathered needs to be synthesized to answer questions in the long term monitoring plan. This feedback will help us and the scientists clarify and focus the IN's. *Recommendation*: supported unanimously.

Biological Resources - Barbara Ralston (Attachment 3): Barbara Ralston reviewed the timeline for initiating long term monitoring projects, FY2000 PEPs, the FY2000 Biology Program, and associated budgets. There is a need for establishment of a long-term monitoring program for biological resources, PEPs for each biological resource, and address some native fish issues associated with Humpback chub (specifically second population and steady flow issues). Projected long-term monitoring begins in FY2001. Two funding cycles/RFP periods are proposed: one in March, and another one in November. Timing of completion of the funding cycles will coincide with the readiness of most of the resources. Better linkages can be established which may improve data collection. Completion of PEPs will allow initiation of a long-term plan. In the year 2000 PEPs are planned for four of the six resources. Part of this is funding availability and part of it is the state-of-knowledge available for the resources. Lees Ferry trout may possible be completed first (by December 2000) for data synthesis and current work. Budgets associated with PEPs are estimates. PEPs for aquatic foodbase and native fish, would occur in the year 2000 but the funding would come out of FY2001 budget (which begins in October 2000). \$50,000 has been set aside for TWG requested work.

General TWG comments on overall program: separate the integrated water quality monitoring program so the budget can be better understood; address/resolve the "inadequate baseline" issue; fisheries data base consolidation effort is a high priority; native fish funding needs to be increased—including PEP; a plan needs to be investigated for fishery ecosystem (can be funded from the \$100,000 reserved for unsolicited proposals); consider a pilot project to remove exotic species in native fish reaches.

Aquatic Ecosystems:

Aquatic Food Base: Extension of contract to continue monitoring, assess state of knowledge and monitoring protocol, examine food web linkages. Estimated cost: \$234,000 (\$194,000 + \$40,000 currently funded through native fish contract). *Recommendation:* Supported by the TWG.

Native Fish Monitoring: Extension of contract to continue monitoring, assess state of knowledge, assist with monitoring protocols. Includes winter fish monitoring trip. Estimated cost: \$470,000. *Recommendation:* Supported by the TWG.

Native Fish Research: Examine relationship of mainstem HBC and LCR HBC populations. Addresses specific IN's. Estimated cost: \$90,000. *Recommendation:* Supported by the TWG.

Trout Fishery: Extension of current contract to continue monitoring, assess state of knowledge, assist with monitoring protocols. Estimated cost: \$130,000.

Non-native Fish Research: Literature review/data consolidation about history of life and status

in Colorado River ecosystem. Addresses non-natives and where to concentrate our efforts (besides trout). Estimated cost: \$30,000. *Recommendation:* Supported by the TWG.

Terrestrial Monitoring:

Riparian Vegetation: Contract (RFP) for synthesis of vegetation data and pilot to develop terrestrial trophic linkages. Estimated cost: \$85,000. This will assist in long-term monitoring initiation.

Avifauna Monitoring: Extension of contract to continue monitoring, assess state of knowledge, assist with monitoring protocols. Estimated cost: \$81,000.

A motion was duly made, seconded and carried: "The TWG directs GCMRC to look at this issue, native fish baseline, get the right people together, study it, work out a plan to address that issue and in the year 2000 and 200. If they need more money in 2000, take it out of the \$150,000 set aside for unsolicited proposals and TWG work requests." (Vote Yes: 16. No: 0)

Socio-cultural Resource Projects - Ruth Lambert (Attachment 4) Total Cost \$300,000: ✓

Photographic Monitoring of Terraces within the Glen Canyon Reach containing Cultural Deposits: Approximately \$35,000. One year.

Investigation of IO's: Approximately \$25,000. One year. General TWG comments: Reliability of NPS survey?, how does IO relate to cultural landscape; need for additional survey?, categorization process.

Cultural Resource Protocol Assessments: Estimated Cost: \$15,000. PEP. General TWG comments: include USBR PA Program?, funding source question, USBR should consult with PA Signatories.

Unanticipated Information Requests: Estimated Cost: \$5,000. General TWG comments: No money carryover.

Application of Flow and Deposition Model to Other Locations with Cultural Resources: Approximately \$25,000. Approximately one year.

Tribal Monitoring and Assessment Projects of Traditional Resources Such as Ethnobotanical Resources Where Assessments Are Not Included Within Other Complementary Programs: Approximately \$125,000 (3 tribes). One year. General TWG comments: address MO's/IN's, justifications to match IN's, confidentiality of unsolicited proposals—more open process, more information needed on contracting limitations, process and roles of TWG and GCMRC re:

unsolicited proposals.

Continuation of Development of Tribal Technology and Procedures for Dissemination and Access to GCMRC Data: Approximately \$35,000. One year. General TWG comments: appropriateness of external funding?

Application of Geomorphic Hypothesis Testing to Additional Field Areas: Approximately \$35,000. New RFP for additional work. Approximately one year. General TWG comments: previous work timing may be problematic; shortage of funds—should address unresolved questions.

Recreational Resources - Ruth Lambert (Attachment 4) Total Cost \$55,000: ✓

Monitor Trout Anglers' Use and Satisfaction Through Creel Survey and Cooperative Monitoring Program with Fishing Guides and Trout Unlimited: Approximately \$5,000. Not implemented in FY99; carried over to FY2000. General TWG comments: examine protocols; include economics to survey, IN's should follow prioritization.

Use past Monitoring, Research and Cooperative Studies to Develop Synthesis of Campsite Beach Changes over 30 Years under Rod Dam Operations: Estimated Cost: \$25,000. One year. Not implemented in FY99; carried over to FY2000. Will be logically linked with Physical projects. General TWG comments: none.

Evaluate Effectiveness of New Monitoring Protocols for Assessing Campsite Changes under Differing Dam Operations: Approximately \$20,000. One year. Initiated under FY98 Physical RFP; cost in FY99 \$20,000; carried over to FY2000. Evaluation of new protocol (PEP). General TWG comments: link with Physical monitoring.

Monitor Beach Changes Through Cooperative Programs with Boating Guides: (Adopt-A-Beach). Approximately \$5,000. FY99 funding \$4,000. FY2000 funding \$1,000. General TWG comments: how will qualitative information be used—move towards quantitative, should include Glen Canyon reach.

Information Technology - Mike Liszewski (Attachment 5): ✓

Data Base Management System: 1 FTE unfilled management position at GCMRC (not likely to be filled for several months). Some objectives might fall over FY2000 & be deleted as not being achieved. Data will not be duplicated, and links will be established to other agencies' web sites. Cost: \$150,000. General TWG comments: total cost of putting the data system together?, meta data, quality and quantity is important, GCES inventory, reinforces data standards amongst scientists, focuses data collection and management. The TWG will be provided information on

software expense and getting the data base up and running. Information will not be duplicated. It is a long term, ongoing effort, requiring consulting services, integration of data standards. No opposition from the TWG.

GIS: Electronic links, web site development, etc. \$10,000. No comments

Automated Library Operations: Continue work on making GCMRC library electronically accessible and user friendly. Cataloging is being converted to the Dewey decimal system. Cost: \$12,000 for incidental efforts. General TWG comments: does the new system meet government records management requirements, and is there an alternative?; provide bibliography of reports generated since GCES Phase I was implemented; consolidate GCMRC web sites.

Remote Sensing: The workshop will probably be canceled. General TWG comments: reminder that remote sensing was approved because of anticipated long term cost savings; some tasks will be completed in FY2000; some actions are contingent on filling positions. *Recommendation:* No opposition.

Surveying: PI requests & GCMRC requests. Cost: \$16,000 for maintenance to keep the survey dept in business. It does not include PA work. Steve Lamphear had prepared a proposal for NPS to do remotely sensed PA work. *Recommendation:* No opposition.

System Administration: Keeping the infrastructure going. Contracting out aspects of system administration (i.e., BOR computer support). Cost: \$120,000 for capital equipment. General TWG comments: is there duplication of cost (costs don't match bullets); include staff costs analysis. *Recommendation:* No opposition.

Experimental Flows Ad Hoc Group: Bill Persons summarized the meeting held on February 23, 1999. The task is to come up with an array of scientifically based experimental flows that we can evaluate. Also to come up with some criteria with which to evaluate those flows. A suggestion was to develop a matrix or an array and maybe write a draft one page abstract of each of those experimental flows, add some criteria and possibly rank some of the proposed actions. It would be sent to the TWG by mid-June. Another meeting was scheduled for March 16, 1999.

Lake Powell Management Objectives and Information Needs:

The group discussed the Lake Powell program. They reviewed the following documents: "Process for Developing an Integrated Water Quality Program" (Feb. 1999) and an attached "Schedule" (Feb. 22, 1999) (Attachment 6); "Lake Powell Ad Hoc Committee" briefing document; "Categorization of MO's and IN's" (Jan. 25, 1999) and attached "Gray Category" (Feb. 22, 1999) and attached "Black Category" (Feb. 22, 1999).

A motion was duly made, seconded and unanimously carried: "Provide the split as written to GCMRC, and alter the schedule so that the TWG is added to Steps 4 & 5¹ on the schedule." (Schedule, Attachment 6).

OTHER BUSINESS

RFP's Status: Barry Gold will give a status report at the next meeting. The RFPs are planned to be out by March 1, 1999.

Next TWG Meeting: The next meeting will be held on March 16-17, 1999, at the Embassy Suites in Phoenix. Items for the agenda were reviewed.

There being no further business, the meeting was adjourned on February 24, 1999, at 2:08 p.m.

Respectfully submitted,

/s/

Serena Mankiller, GCMRC Secretary

¹ Step 4, Target date 4/2/99: "GCMRC sends draft WQ work plan and budget to BOR and the other members of the Lake Powell group for input and activity coordination."

Step 5, Target date 4/15/99: "Comments due from BOR and members of Lake Powell group."

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)