

**Technical Work Group  
September 20, 2000  
Phoenix, Arizona**

Presiding: Rick Johnson, Chairperson

**DRAFT**

**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  
Christopher Harris, CRBC  
Norm Henderson, NPS/GCNRA  
Amy Heuslein, BIA  
Nancy Hornewer, USGS  
Pamela Hyde, Southwest Rivers

Rick Johnson, GCT  
Robert King, UDWR  
Phillip Lehr, Colo. River Comm./Nevada  
Don Metz, USFWS  
S. Clayton Palmer, WAPA  
Bill Persons, AGFD  
Randall Peterson, USBR  
Andre Potochnik, GCRG  
John Shields, WY State Engineer's Ofc.

**Committee Members Absent:**

Robert Begay, Navajo Nation  
Brenda Drye, So. Paiute Consortium  
Matt Kaplinski, GCRG

Randy Seaholm, CWCB  
Robert Winfree, NPS/GCRA

**Alternates Present:**

Jan Balsom  
Timothy Begay            Robert Begay, Navajo Nation  
Wayne Cook  
Andre Potochnik

**Alternate for:**

Robert Winfree, NPS/GCRA  
Randy Seaholm, CWCB  
Matt Kaplinski, GCRG

**Other Interested Persons Present:**

Mary Barger, WAPA  
Gary Burton, WAPA  
Jeffrey Cross, NPS/GRCA  
David Culver, Ohio State Univ.  
Barry Gold, GCMRC  
Bill Jackson, NPS-Water Res.

Linda James, JEDA, et al  
Dennis Kubly, USBR  
Mike Liszewski, GCMRC  
Mary Orton, Mary Orton Company  
Barbara Ralston, GCMRC  
David Speas, AGFD

**Recorder:** Linda Whetton, USBR

## **Meeting Opening and Administrative Items**

**Sept. 20, 2000: Convened:** 9:40 a.m.

### **Welcome and Introductions**

The Chairperson welcomed the TWG members, alternates, and guests. All introduced themselves. The Chairperson determined there was a quorum established.

The Chairperson noted there were a few changes to the agenda:

- 1) Nancy Coulam's presentation on the PA Response to the Cultural PEP will be rescheduled for the TWG Meeting in November.
- 2) The Kanab ambersnail presentation by Debra Bills will be given at tomorrow's meeting.
- 3) Cliff Barrett requested an update on Glen Canyon operations as the schedule allows.

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

### **Action Items from Last Meeting:**

1. KAWG response to expert panel report and report to TWG - to be handled as part of Debra Bills' presentation tomorrow.
2. Barry will send out an e-mail advising which river trips dates are available.

### **Approval of TWG May 10-11, 2000 Meeting Minutes.**

**Motion:** Approve May 10-11, 2000, meeting minutes. With changes noted, the minutes were approved without objection.

**Ground Rules** - Clayton reviewed the TWG Ground Rules (Attachment 2) and asked the members to conduct themselves accordingly.

**TWG Operating Procedures** - Randy Peterson informed the members that the AMWG Charter was discussed with the AMWG members in a conference call on August 31, 2000. The revised Charter (Attachment 3) will be sent to Washington around mid-October so it's renewed on time. One revision included clarification on reimbursing AMWG and AMWG sub-group members for travel expenses. It was decided that AMWG members and AMWG sub-group members should be reimbursed for attending regularly scheduled meetings, participating in protocol evaluation panel (PEP) reviews, and working in ad hoc groups. Thus far, AMP travel expenses have been fairly minimal. He asked the members if they felt the TWG Operating Procedures needed to be amended. After some discussion, it was decided that since the TWG operates under the AMWG Charter, no additional changes were needed.

**ACTION:** E-mail the revised AMWG Charter to the TWG members.

**Nominations for TWG Chair for FY 2001.** Randy asked for nominations to elect a new TWG Chairperson for the upcoming fiscal year (Sept. 30, 2000 to October 1, 2001). The following persons were nominated: Rick Johnson and Gary Burton. Randy advised that a formal vote will take place at tomorrow's meeting. Rick said his contract with the Grand Canyon Trust terminates at the end of the month, however, he will continue to be a member of the TWG but will be representing Southwest Rivers. Pamela Hyde will be the alternate from Southwest Rivers. The GCT hasn't decided who their TWG representative will be.

Randy announced that Secretary Babbitt appointed Pam Hyde and Rick Gold to the Adaptive Management Work Group effective Sept. 13, 2000. Pam will represent Southwest Rivers and Rick will represent the Bureau of Reclamation, replacing Charles Calhoun.

**MOTION:** Change the TWG Chair term in the Operating Procedures to October 1 - Sept. 30. The current TWG Chair will serve until the new Chair takes office.

Motion passed unanimously.

**Transfer of GCMRC to USGS** - Randy said that the Bureau still hasn't received official concurrence from the Senate Interior Appropriations Subcommittee for the transfer. A draft MOU and an Interagency Agency (IA) are being prepared to effect a smooth transition as well as allow a process whereby the USBR can transfer power revenue funds to the USGS. Barry Gold said the USGS is working to have all personnel transferred to the USGS by October 1.

**Status of FY 2001 Appropriations** - Randy said that in early August a copy of HR 4733 (Attachment 4) was sent to the AMWG members. At this point in time, the bill is moving to conference between the House and Senate. Section 203 of the bill addresses GCD AMP funding from power revenues and has three sections: 1) capping of power revenue funding of activities to meet the requirements of the Grand Canyon Protection Act, 2) the inclusion of the activities of the Programmatic Agreement and requirements of the Biological Opinion in the AMP, and 3) allows appropriations to be sought if needed using Section 8 of the 1956 CRSP Act. The Department is concerned about several provisions of the bill, but doesn't oppose limiting power revenue funding if there is the ability to seek additional appropriations. Chris Harris asked the membership if they had seen the letter sent from Duane L. Shroufe of the AGFD dated August 7, 2000 (Attachment 5) in which Mr. Shroufe raised concerns about HR 4733.

Dave Cohen expressed concern that the other DOI agencies haven't provided funding to the Adaptive Management Program and questioned why that wasn't included in the bill. Randy responded that the proposed bill stated additional appropriated funds would come under Section 8 authority in Reclamation's budget. Dave said he hasn't seen any amendment language. The Dept. will be responding to the bill language and is only offering explanatory comments at this time.

A lengthy discussion followed surrounding the capping of power revenues at \$7.85 million and what

impact that would have on the Adaptive Management Program. There was concern because this issue hadn't been discussed at the AMWG and there should be a way for the AMWG to receive updates from the Dept. during active legislative sessions and some method of providing and receiving feedback on critical budget matters.

Randy suggested that the bill language may have resulted from a lack of communication and understanding among AMP stakeholders. If we can't get consensus on an issue, then perhaps more discussion is needed. Clayton stated that the TWG Operating Procedures (page 4, paragraph 8), talks about consensus:

“ . . . All reasonable efforts will be made to bring the group to a consensus decision or recommendation. If consensus cannot be achieved, a vote will be taken on motions and recommendations to be forwarded to the AMWG. . . . Ad hoc groups consisting of dissenting members maybe formed as needed to prepare minority opinions. Each appointed TWG representative is expected to explain and/or clarify issues to their respective AMWG member.”

The members discussed the above and the important role of ad hoc groups. The following motion was made to change the TWG Operating Procedures to read (page 4, paragraph 8):

**MOTION:** “ . . . All reasonable efforts will be made to bring the group to a consensus decision or recommendation, **including, for example, formation of ad hoc groups.** If consensus cannot be achieved, a vote will be taken on motions and recommendations to be forwarded to the AMWG. . . .”  
Motion seconded.

Voting Results:

Yes = 19

No = 1

Cliff suggested that the TWG form an ad hoc TWG group to look at the whole budget process.

**MOTION:** Formation of an ad hoc group to review the budget process and bring recommendations back to the TWG.

Motion seconded

Discussion. (Budget timing, prioritization process, organizing lobbying efforts, etc.)

Voting Results:

Yes = 20

No = 0

Abstentions: 2. No comments offered.

Budget Process Ad Hoc Group Membership:

Cliff Barrett*	Wayne Cook
Clayton Palmer	Robert Begay
Randy Peterson	Bill Persons
Barry Gold	Rick Johnson

\* Will serve as the chair and make the necessary arrangements.

A suggestion was made to have *legislative updates* provided at each TWG meeting as part of “new business.”

**ACTION:** Legislative updates will be included as a regular agenda item under “New Business” for future TWG meetings. In addition, future notices published in the Federal Register will be crafted in such a manner to include other topics which could be covered under new business as well.

**Trout PEP Presentation.** David Culver is a limnologist working at Ohio State University. He works primarily on juvenile fish ecology and was invited along with a number of other people to review the Trout PEP Program. He said it was a good experience and they found some challenging problems to work on. He passed out copies of his overhead presentation (Attachment 6) and also copies of the final report (Attachment 7).

He said the panel recommends that GCRMRC develop an explicit set of ecologically-based Study Objectives, based on desires of stakeholders, that will drive all activities, including design of requests for proposals, and that the AGFD take an active role in communicating this process to stakeholders. The panel found that a more integrated research program would benefit the adaptive management of the Glen Canyon and Grand Canyon resources, and that the GCMRC should work to achieve this goal.

**TWG River Trip** - Barry Gold said he was asked to develop a calendar for a river trip. He proposed a motorized trip which could be done in 7 days or an oar trip which could be done in 11 days. Assuming there are no unexpected flow experiments, he suggested March or April 2001. The costs will be dependent on whether they can get “volunteers” to row some of the boats and use some staff as opposed to having to hire boatmen. A road trip would require four additional days of food packets (\$18 per person/per food pack) so if all 27 members go, that’s \$500 per day or an additional \$2000. There would be no additional equipment costs because GCMRC has the equipment.

The consensus of the group was to go forward with a motorized trip. Barry suggested they go from a Saturday to Saturday, which means that people would need to arrive in Flagstaff on a Friday, they would launch on Saturday, and then take out the following Saturday at Diamond Creek. People could travel back either Saturday or Sunday afternoon. Barry offered the dates of March 24-31, 2001 and asked if there were any conflicts. There was only one conflict noted. Barry will schedule the trip for that time frame.

**PEP Integration** - Randy distributed copies of the “Proposed Process” (Attachment 8) for incorporating PEP Reviews and Monitoring and Research Results into the AMP. This was brought up

about six months ago and included monitoring protocols, resource evaluations, and adjustments in operations. Part of the feedback from that discussion was that there isn't a well understood or clarified process.

There was some discussion on PEP review reports, specifically which ad hoc groups would be asked to review these reports. Randy said some groups might have management or policy expertise, addressing a PEP report that is largely technical in nature so the fit might not be very well. Part of the PEP reports in the past have been policy in nature that might go beyond the scope of monitoring and research activities.

**ACTION:** TWG Members to send comments to Rick Johnson and Randy Peterson.

**ACTION:** Rick and Randy will review and present a detailed proposal at the next TWG meeting

**FY 2002 GCMRC Work Plan.** (Attachment 9) Barry said the intent for mailing the work plan slides to the TWG in advance of this meeting was to get comments and answer questions so that the GCMRC could provide a detailed work plan. This would include a response to comments table so the TWG could see how GCMRC responded to their comments. At the Nov. 7-8 TWG meeting, time would be set aside to review the final draft work plan, get final comments from the TWG, then GCMRC would incorporate those comments into a final work plan that would be mailed to the AMWG on Dec. 8, in advance of their January 2001 meeting. Attachment 10 was included to display the specific project and the activities related to the MO's and prioritized INs. In terms of detailed budget information, GCMRC divided the budget information into project and contract costs, and total costs which includes staff time, logistics support, surveying, GIS, etc. in order to make the effort complete.

**Terrestrial Ecosystem** - Barbara Ralston said she could review six projects, two of them were ongoing monitoring programs that would start in 2001: 1) Terrestrial Mapping and Inventory and, 2) Mapping Holocene Terrace Deposits. As per the Terrestrial PEP, GCMRC would be combining avifauna with vegetation monitoring. They are also beginning inventories for vertebrates and invertebrates at these sites. The monitoring project will be looking at abundance and distribution and changes in faunal constituents, determining vegetation composition and structure associated with habitats, and then also making linkages with the ethnobotanical resources. The anticipated costs are the same as 2001 with funding coming from the biological and cultural program budgets.

Bill asked about the status of the SCORE Report. Barbara said it didn't get done last year but will be done this year and should be coming out in December.

Barry recorded the comments (Attachment 11) and indicated they would be addressed in the draft work plan to be mailed out before the next meeting. Prior to his leaving to catch a flight, he provided some dates when he would be available in September and October to have a special meeting if more discussion of the work plan was required.

**Summary - Sociocultural Activities.** Ruth Lambert reported that a Socio-cultural subgroup met at the

end of August to talk about coordinating efforts within the PA and the GCMRC's cultural program, recommendations of the PEP, and work plan activities for implementing those recommendations over the next couple of work years. She said the slides shown today were a result of that meeting. She also presented two additional slides (Attachment 12) which weren't included in the GCMRC mail out.

Integrated Terrestrial Ecosystem Monitoring. Barry presented two sets of slides, one on monitoring and the other on modeling. He said the intent of the modeling work is to improve GCMRC's ability to predict the effects of BHBF and other dam operations as well as to improve GCMRC's ability to predict, on a reach scale, how bars will change over time in response to dam operations. The goal is to get the models developed, predict how the sediment resource will respond to changes in dam operations, and then use the models to forecast how sediment storage will change over time so that the actual level of empirical monitoring can be reduced. He indicated you still need to validate the models with a lower scale of monitoring activities.

Aquatic Ecosystem Monitoring Activities. Barbara said they will have a protocol evaluation for the aquatic food base and fish monitoring programs this Spring with the intent that long-term monitoring for both of those components would begin in 2002. She indicated that the objectives of the program would likely remain collecting data associated with benthic and aquatic communities that support the aquatic ecosystem. She doesn't know if the scale they are currently collecting data will decrease, increase, or remain the same. The monitoring for the aquatic food base will likely be more integrated with fisheries work than it has been in the past.

She reviewed the objectives for monitoring fish below Lees Ferry. Norm expressed concern that the RFP going out next week would focus on trout and that the monitoring of native fish above Lees Ferry are going to lose out because of the trout. Barbara said that was taken into consideration when they looked at how to do sampling in the Lees Ferry Reach.

Information Technology - Mike Liszewski presented his portion of the GCMRC work plan.

Agenda Update. Rick suggested that the items listed for 12:30 today be rescheduled for tomorrow and extend tomorrow's meeting to conclude at 1:00.

Rick said there was a comment to form some small groups to look at each program area in more detail and asked the members what they wanted to do. The TWG needed more detailed budget information and recommended the formation of a Budget Ad Hoc Group to work with the GCMRC to go through an FY 2002 budget and have the GCMRC staff meet with interested TWG members to discuss the scopes of work with the individual program managers. The dates proposed were Sept. 28, and Oct. 2-3, 2000.

Rick reviewed the following schedule:

1. Project synopsis - from GCMRC (by Sept. 29)
2. Informal meeting on project details (Oct. 3)

3. GCMRC provides detailed budget on Oct. 27
4. Budget Ad Hoc Group review between Oct. 27 - Nov. 8

**MOTION**: Form a Budget Ad Hoc Group to review GCMRC and BOR's budget for FY 2002 and report to the TWG on November 8, 2000.

Motion seconded.

Voting results:

Yes = 15

Abstained: 1

Budget Ad Hoc Group Membership:

Cliff Barrett*	Randy Peterson
Dave Cohen	Rick Johnson/Pamela Hyde
Wayne Cook	Bob Winfree
Clayton	

\* Will serve as the chair and make the necessary arrangements.

Adjourned: 5 p.m.

Public Comments: None

**Technical Work Group  
September 21, 2000  
Phoenix, Arizona**

Presiding: Rick Johnson, Chairperson

**DRAFT**

**Committee Members Present:**

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Andres Cheama, Pueblo of Zuni  
Kerry Christensen, Hualapai Tribe  
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Norm Henderson, NPS/GCNRA  
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Matt Kaplinski, GCRG

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**Alternates Present:**

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Linda James, JEDA, et al.

Dennis Kubly, USBR  
Lisa Leap, NPS/GRCA  
Mike Liszewski, GCMRC  
Mary Orton, Mary Orton Company  
Barbara Ralston, GCMRC  
Tom Ryan, USBR  
David Speas, AGFD

**Recorder:** Linda Whetton, USBR

## **Meeting Opening and Administrative Items**

**Sept. 20, 2000: Convened:** 8:10 a.m.

### **Welcome and Introductions**

The Chairperson welcomed the TWG members, alternates, and guests. All introduced themselves. The Chairperson determined there was a quorum established.

### **Nominations for TWG Chair**

Randy asked for any comments from the members before voting. Rick Johnson and Gary Burton were asked to leave the room. Clayton said that WAPA's view is that Rick is functioning adequately as a chair and is currently involved in a number of activities that are being carried over from this fiscal year to the next and they would like to see that continuity continue. After discussing the matter, WAPA has decided to withdraw Gary's name.

**Motion:** Retain Rick Johnson as chair for another term by acclamation.

Motion passed.

Discussion: Dave Cohen raised the question if it was a matter of money for Gary's salary. Clayton said it wasn't as they were already paying his salary but Gary is a good technical resource for WAPA and he would prefer to let Gary get up to speed on more issues. If Gary were nominated again at some point in the future, WAPA would endorse him.

**Voting results:**

In Favor: Unanimous

**Management Objectives** - Mary Orton suggested that the majority of time at the TWG Meeting be devoted to working on the Qualitative Targets and referred to the "Development of Qualitative Targets for Management Objectives" (Attachment 13) which were mailed out with the MOs.

She distributed copies of the "Draft Detailed Outline of AMP Strategic Plan" (Attachment 14) and "Draft Schedule for Developing AMP Strategic Plan, Quantitative MOs and INs" (Attachment 15). The core of the Strategic Plan (Attachment 16) is the goals, objectives, and action plans. The process to develop the plan is often very important because the process itself can help position the group to actually achieve the strategic plan. She said the ad hoc group wanted input from the TWG on these documents.

Mary passed out a list of the chairs of the small groups (Attachment 17) and asked TWG members to sign up to be involved in the small groups. The small groups will be putting together a draft of the numerical targets which will then come back to the TWG for review and then eventually go to the AMWG for approval.

Mary directed the members' attention to the Draft Detailed Outline of the Strategic Plan, page 2, (list of guiding and relevant documents) and it was her understanding that Chris Harris had electronic versions of those documents. Chris said he had all the information scanned and put on a CD. Mary suggested that it be included in the final Strategic Plan.

**ACTION:** Chris Harris will send Randy a CD containing the guidance documents. Randy will have copies of the CD made for distribution to all TWG members.

The members continued to review all the MOs and provided comments which were recorded on flip charts (Attachment 18). The Ad Hoc Committee on Strategic Planning will review those and consider changes.

**Update on LSSF Monitoring.** Mike Liszewski gave a presentation on the remote sensing activities associated with the LSSF. As a result of LSSF, but also in conjunction with the remote sensing initiative, they flew approximately eight overflights since March. The first overflight in late March was associated with the LIDAR data collection and color infrared orthophotography. In addition, they flew the regular annual aerial photography in early July, multi-spectral imagery in July, and a series of overflights surrounding the spike that occurred in September (Attachment 19)

Bill Persons reported that they had seen some generally stable habitat during Jun-Jul-Aug. The two groups doing fish work on the river right now (SWCA and AGFD), were charged with trying to determine population estimates on rainbow, brown trout, and native fish. Preliminary observations were that there weren't an explosion of small body exotics. This was one of the primary concerns during the test that the fathead minnows and red shiners would take over the backwaters. They didn't see that happen and aren't sure why. They also didn't see flannelmouth suckers or humpback chub in backwaters below the LCR until July.

**Hydrologic Predictions.** Tom said WY 2000 was a dry year. It started out being forecasted in January as being very dry but with higher precipitation in January-March, the forecast went up. Inflow in April through July was 56% of average, WY inflow was probably about 62% of average, and inflow in July and August was extremely low. August was only 27% of average. With average precipitation in August (Attachment 20), the water didn't go into the river, but into the ground. This helped increase the soil moisture, which becomes very important as the stage is set for what is going to happen next year. In terms of reservoir storage, as WY 2001 begins, Lake Powell is 2.1 maf lower than a year ago.

In October 2000 there seems to be a slight trend towards it being drier and warmer but for October through December, there is no indication of climate being wetter or drier than normal. For the 24-month operations study that is prepared for next year's operation, we have assumed 94% of average for WY 2001. That is primarily due to fall and early winter months being below average. The inflow forecasts for Sep-Oct-Nov are all about half of average. If there is another dry fall like last year, there is probably some basis that we may have less than average inflow through next July. Tom said the analysis he did puts us at a 15% chance of a BHBF in WY 2001 because of the WY 2000 dry year.

In terms of a probability of a 8.23 maf release year, there is about a 38-40% chance for next year but it depends on the outcome of the surplus discussions. If there is a surplus declared for the lower basin, it actually decreases the likelihood of having an 8.23 maf release next year because equalization may require additional releases.

Tom said that we are predicting an average flow of 9800 cfs for October (Attachment 21) and the current plan is that the LSSF test flows end on September 30. On October 1<sup>st</sup>, releases will return to the MLFF constraints of the GCDEIS Record of Decision. He showed a final slide of the most probable elevation at Lake Powell (Attachment 22).

**Power Contracts and Rates.** Due to time constraints, it was decided to postpone this presentation until November.

**Kanab Ambersnail - Development of the Recovery Implementation Plan.** Debra Bills reported that the plan is going to be done. They don't have any concrete plans at the present but there is an anticipated contract going from Reclamation to AGFD to lead that effort. She thinks it will be a one-year contract.

**Follow up on GCMRC Budget Presentation.** Barry would like specific concerns or questions regarding the FY 2002 work plans that can be answered at the October 3 meeting to be e-mailed to him so that his program managers can prepare for the meeting. If there are any specific ideas the members have about how GCMRC can change their budget presentations be clearer to the TWG, send those comments to both Barry and Randy.

**ACTION:** TWG members should send comments/questions to Barry and Randy regarding the GCMRC presentation in preparation for the October 3<sup>rd</sup> meeting in Flagstaff.

2) Dennis Kubly suggested that we explore some "box and arrow" diagrams so it becomes very clear how processes work within the Adaptive Management Program. For example:

- 1) how AMWG recommendations go to the Secretary and come back,
- 2) how the budget process works in terms of RFPs, contracts, reports, etc.,
- 3) how scientific recommendations are folded back into changes in operations or experimental flows, etc.

**ACTION:** If TWG members have any suggestions/comments, send those to Barry and Randy.

**Budget Process Ad Hoc Group.** Cliff said that as the chairman of the newly formed ad hoc group yesterday, he is going to send some e-mail messages to the members on how he thinks that group should function. If any of the members have any questions/comments, send him an e-mail message.

([barrett@trilobyte.net](mailto:barrett@trilobyte.net))

**Other Business:**

1. Dave Cohen questioned why there has been no mention of the SAB in this meeting. Andre said he talked with Ted Melis about the SAB and Ted is pretty close to having it put together. Ted has received some tentative commitments and just getting those commitments confirmed.
2. Dave also questioned whether members attending the GCMRC Budget meeting on October 3 could receive travel reimbursement. Randy said that they would be reimbursed.

### **Future Agenda Items**

- SAB update
- Experimental Flows
- Report by the Budget Ad Hoc group
- Power revenues presentation
- Process discussion
- LSSF Update
- Quantitative Targets
- 2002 work plan
- Legislative update
- Research & Monitoring updates

### **Meeting Review**

Randy said he appreciated the discussion yesterday morning. Even though it was a difficult topic and some statements were made about lack of trust, he feels that this group has made great progress over the past year in interacting together where differing points of views and opinions can be expressed but in a respectful, civil way.

Adjourned at 12:30 p.m.

### General Key to Adaptive Management Program Acronyms

ADWR - Arizona Department of Water Resources	KAWG - Kanab Ambersnail Work Group
AF - Acre Feet	LCR - Little Colorado River
AGFD - Arizona Game & Fish Department	
AGU - American Geophysical Union	LCRMCP: Little Colorado River Multi-Species Conservation Program
AMP - Adaptive Management Program	MAF - Million Acre Feet
AMWG - Adaptive Management Work Group	MA - Management Action
AOP - Annual Operating Plan	MO - Management Objective
BA - Biological Assessment	NAAO - Native American Affairs Office
BE - Biological Evaluation	NAU - Northern Arizona University (Flagstaff, AZ)
BHBF - Beach/Habitat-Building Flow	NEPA - National Environmental Policy Act
BHMF - Beach/Habitat Maintenance Flow	NGS - National Geodetic Survey
BHTF - Beach/Habitat Test Flow	NHPA - National Historical Preservation Act
BIA - Bureau of Indian Affairs	NPS - National Park Service
BO - Biological Opinion	NRC - National Research Council
BOR - Bureau of Reclamation	NWS - National Weather Service
CAPA - Central Arizona Project Assn.	O&M - Operations & Maintenance (USBR funding)
cfs - cubic feet per second	PA - Programmatic Agreement
CRBC - Colorado River Board of California	PEP - Protocol Evaluation Panel
CRCN - Colorado River Commission of Nevada	Powerplant Capacity - 31,000 cfs
CREDA - Colorado River Energy Distributors Assn.	Reclamation - United States Bureau of Reclamation
CRSP - Colorado River Storage Project	RFP - Request For Proposals
CWCB - Colorado Water Conservation Board	RPA - Reasonable and Prudent Alternative
DBMS - Data Base Management System	SAB - Science Advisory Board
DOI - Department of the Interior	Secretary(s) - Secretary of the Interior
EA - Environmental Assessment	SWCA - Steven W. Carothers Associates
EIS - Final Environmental Impact Statement	TCD - Temperature Control Device (for Glen Canyon Dam water releases)
ESA - Endangered Species Act	TCP - Traditional Cultural Property
FACA - Federal Advisory Committee Act	TES - Threatened and Endangered Species
FEIS - Final Environmental Impact Statement	TWG - Glen Canyon Technical Work Group (a subcommittee of the AMWG)
FRN - Federal Register Notice	UCR - Upper Colorado Region (of the USBR)
FWS - United States Fish & Wildlife Service	UCRC - Upper Colorado River Commission
FY - Fiscal Year (Oct 1 to Sept 30 each year)	UDWR - Utah Division of Water Resources
GCD - Glen Canyon Dam	USBR - United States Bureau of Reclamation
GCMRC - Grand Canyon Monitoring and Research Center	USFWS - United States Fish & Wildlife Service
GCNP - Grand Canyon National Park	USGS - United States Geological Survey
GCNRA - Glen Canyon National Recreation Area	WAPA - Western Area Power Administration
GCPA - Grand Canyon Protection Act	WY - Water Year (a calendar year)
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)	