

**Technical Work Group  
Phoenix, Arizona  
August 7, 2001**

**Presiding:** Rick Johnson, Chairperson

**FINAL**

**Committee Members Present:**

Robert Begay, Navajo Nation  
Kerry Christensen, Hualapai Tribe  
Dave Cohen, Trout Unlimited  
Wayne Cook, UCRC  
Jonathan Damp, Pueblo of Zuni  
Bill Davis, CREDA  
Kurt Dongoske, Hopi Tribe  
Amy Heuslein, BIA  
Matt Kaplinski, GCRG

Phillip Lehr, Colo. River Commission/NV  
Don Metz, USFWS  
S. Clayton Palmer, WAPA  
Bill Persons, AGFD  
Randall Peterson, USBR  
D. Randolph Seaholm, CWCB  
Nikolai Ramsey, Grand Canyon Trust  
Robert Winfree, GRCA

**Committee Members Absent:**

Perri Benemelis, ADWR  
Brenda Drye, So. Paiute Consortium  
Lloyd Greiner, CREDA  
Christopher Harris, CRBC  
Norm Henderson, GLCA

Nancy Hornewer, USGS  
Pamela Hyde, Southwest Rivers  
Robert King, UDWR  
John Shields, WY State Engineer's Office  
John Whipple, NM Interstate Stream Comm.

**Alternates Present:**

Wayne Cook  
Wayne Cook

**For:**

John Whipple, NM Interstate Stream Comm.  
John Shields, WY State Engineer's Office

**Other Interested Persons:**

Jan Balsom, GRCA  
Paul Barrett, USFWS  
Timothy Begay, NNHPO  
Karen Blakney, USBR  
Nancy Coulam, USBR  
Leslie James, CREDA  
Dennis Kubly, USBR  
Lisa Leap, GRCA

Ruth Lambert, GCMRC  
Mike Liszewski, GCMRC  
Ted Melis, GCMRC  
David Orr, Living Rivers  
Mary Orton, The Mary Orton Company  
Jennifer Pitt, Environmental Defense  
Barbara Ralston

**Recorder:** Linda Whetton, USBR

## **Meeting Opening and Administrative Items**

**Convened:** 9:35 a.m.

### **Welcome and Administrative:**

The Chairperson welcomed the TWG members, alternates, and guests. All introduced themselves. A quorum was established and attendance sheets (*Attachment 1*) were distributed.

### **Action Items from May 30-31, 2001, Meeting**

All items were completed with the exception of #3. Matt Kaplinski reported he doesn't have the sediment report prepared but will try and send it out prior to the next TWG meeting.

**Action:** Matt will try and complete the sediment report and send to the TWG before the next meeting.

**MOTION:** Move to approve the May 30-31, 2001, Meeting Minutes.  
Pending one correction, the minutes were approved.

**LIDAR Update** - Mike Liszewski passed out a copy of FY 2001 Aerial Imagery Collection (*Attachment 2*) and reviewed the current status of the LIDAR work. He said a complete update will be provided at the next TWG Meeting (Sept. 6-7). They will be looking for more days as a result of the shadowing involved and are planning to fly again on Labor Day. Leslie James asked how many days and what flows would be used. Mike said they would go back to their original request of 7.5 - 10 days of steady flows. It was his understanding that September was a more positive month to get the steady flows. Leslie said with the shifting that was done in June it was about a \$600,000 purchase. It was determined a conference call would be needed to discuss further. Mike will make the necessary arrangements.

**Tribal Consultation and Participation Update** - Randy Peterson reported that Reclamation has been working with the Department of the Interior during the last six months and the Asst. Secretary of Policy, Management, and Budget has ruled that the five Interior agencies involved in the Adaptive Management Program will contribute to the funding of tribal consultation and participation starting this year. There will be \$25,000 per agency for a total of \$125,000 in 2001; \$375,000 in 2002 (\$75K each); and \$475,000 (\$95K) in 2003. The Department has given the agencies direction to include the

funding in their 2003 budget. For 2001 and 2002, the agencies will be charged or billed. The Department is setting up an account for those tribal participation charges. The power revenue funds used previously will be put in an experimental flow fund for monitoring and research during future experimental flows.

**Strategic Plan** - Mary Orton referenced the Strategic Plan (*Attachment 3*) and said today's goal would be to have the TWG come to consensus on the proposed changes and be able to make a recommendation to AMWG to approve the document. She said the current document has been substantially edited but they will be going through it again for additional edits. She proposed the TWG send grammatical edits directly to Jayne Kelleher ([jkelleher@uc.usbr.gov](mailto:jkelleher@uc.usbr.gov)). She informed the group all their comments would be recorded, reviewed, and updated on flip charts. She suggested if there was a small group of people who wanted a particular change, they could submit a "minority" report to AMWG as alternate language from the TWG. She said all proposed changes made today will also go to the Ad Hoc Committee on Strategic Planning so the final document may be 99% recommended by the TWG for approval but will also include comments if consensus could not be reached on a particular issue or if there wasn't enough time to review the document in its entirety today. She said the one change made since the May meeting was a definition for "interested parties" per NHPA (top of page 3).

She identified four documents which were missing: the Glossary, List of Abbreviations, References Cited, and the Vision Narrative. Copies of the Glossary (*Attachment 4*) were distributed and the other documents will be included in the next revision before it goes to the AMWG. Don Metz asked why the Vision Narrative wasn't included. Rick said that with all the work to be done today, the AHC didn't feel there would be time to discuss it. However, time permitting it could be addressed later today. Mary advised the members that if they didn't agree with something in the document, they should present alternate language.

Concerns were raised about whether or not to include a definition of "dam operations" in the Glossary, which led to further discussion on the correct words, "dam operations vs. powerplant operations" and if/where it needed to be placed within the document. Clayton provided some language (*Attachment 5*) for the TWG to consider and suggested it be placed under "The Role of the AMWG." It was determined to use the second paragraph but modified to read:

*GCD operations refers to the operation of the powerplant and other release structures, such as bypass structures, spillways, and potentially a temperature control device among others. Their uses conform to applicable law. The AMWG develops recommendations for all of the dam's structures to further the purposes of the GCPA, the EIS, and the ROD. This is done within the limits of the ROD and/or through experimentation.*

Mary asked the members to look at the posted flip charts (*Attachment 6*) and if there was a particular item requiring more clarification they wanted to discuss to let her know, otherwise the items marked "substantive" would be addressed first. The Ad Hoc Committee would address those needing more clarification at another time.

Rick offered the following change to the Foreword:

*One of the primary objectives of the program is to meet the environmental commitments of the Glen Canyon Dam Environmental Impact Statement and Record of Decision and comply with the Grand Canyon Protection Act.*

After some discussion, Wayne provided additional language for the Foreword (**Attachment 7**) and proposed the following language change in the form of a motion.

**MOTION:** One of the primary objectives of the program is to meet the environmental and monitoring commitments of the Glen Canyon Dam Environmental Impact Statement and Record of Decision and comply with the Grand Canyon Protection Act. The GCPA mandated the preparation of the FEIS/ROD to direct operations of Glen Canyon Dam and use other authorities in such a manner to protect, mitigate adverse impacts to and improve the values for which the Grand Canyon National Park and Glen Canyon National Recreation Area were established.

Motion seconded.

Call for question.

Discussion: None

Public Comments: None

Motion passed unanimously.

Randy Peterson provided a rewrite of the Summary (pg. 9):

*The Adaptive Management Program is developed and designed to provide an organization and process for collaborative, science-based integration of monitoring and research information to make formal recommendations to the Secretary of the Interior. These recommendations must recognize the environmental commitments of the Glen Canyon Dam Environmental Impact Statement and Record of Decision, and comply with the Grand Canyon Protection Act. The Adaptive Management Program must also remain in compliance with the Law of the River and relevant environmental statutes, regulations, and policies. With all these demands, the Adaptive Management Work Group devised a vision and mission statement and principles to guide its activities and decision making.*

Clayton provided a rewrite of Goal 10 (**Attachment 8**). Randy said the changes were previously presented to the Ad Hoc Committee on Strategic Planning and were rejected. Clayton said the TWG never formally discussed his rewrite. Mary said that when the MO's came back in final form, they were approved without this. He would like them to be considered as a TWG recommendation to the AMWG.

**MOTION:** Substitute language in Goal 10.

Motion seconded.

Discussion: Randy said when target levels are set, they must have good science and an understanding of the impacts involved. He thinks that has been lacking in terms of adding the numbers to the target level.

He suggested a more appropriate approach might be through the IN's discussion or research and monitoring in the future. Rick suggested Clayton form an ad hoc group to spend some time discussing and then bring back to the full TWG with a broader explanation so the TWG can get some support from people to do it. Clayton concurred.

Motion withdrawn.

**MOTION**: Accept "current levels" only on the handout.

Motion seconded.

Call for question.

Discussion: None

Motion passed.

**MOTION**: Recommend approval of the Strategic Plan as changed at the August 7<sup>th</sup> TWG Meeting and recommend that the AMWG approve the Strategic Plan.

Motion seconded.

Call for question.

Discussion: None

Motion passed unanimously.

**AMP Budget Presentation** - Randy presented the integrated budget for the AMP (*Attachment 9*). They took two basic approaches: first, to list all the program needs and secondly, to list the source of incoming program dollars. He said his goal was to explain each of the line items and obtain comments in preparation for the upcoming AMWG meeting. He reviewed the line items under Program Administration. Comments were recorded on flip charts (*Attachment 10*).

Nancy Coulam presented a "Work Plan for Reclamation's PA Compliance, FY01-03" (*Attachment II*). She said some of the 2001 projects did not get completed so what they are listing in the 2003 budget is as if everything were on track. There may be a little bit of confusion associated with that but if everything that had been planned for had gone forward as planned, this would be 2003. Some of the work is contingent upon a 2001 project that didn't get completed which is whether or not to do more geomorphological work or holocene mapping.

Bob questioned the allocation under Section 3A for PA work plan activities with a lot more under scientific activities and yet looking at a reduction of 85% in cultural resource monitoring over a period of about four years. He said he doesn't see any way that can be accomplished. Nancy said one of the recommendations of the PEP was to revise and re-do the monitoring plan. The new monitoring plan should take place in 2002. In 2002 with joint funding from Reclamation and the GCMRC, they will have a new monitoring plan in place contingent upon a research design which is also deferred. Bob said he thought it was totally unrealistic and that by putting in numbers is showing the direction they want to go. He doesn't feel they can meet the NHPA requirements. Nancy said she felt the

requirements of NHPA could be met. She said the goal of the NHPA is to come to resolution of effect so what they are tracking with the HPP and with the monitoring program right now is deciding where there are effects of dam operations. When they know that, they will consult very broadly with the signatories, the public, and the tribes to come to resolution of adverse effects and get to the treatment plan which is the culmination of the HPP and the NHPA process. She is very focused on the NHPA side of things and perhaps a little less focused on the GCPA as they don't really know the structure of that program pending a new plan.

Clayton said he would like to support Bob in pulling some money for cultural resources and work on the details of the work plan later. He asked if it mattered if there was \$200,000 in treatment and \$40,000 in monitoring or could it be treatment and monitoring at \$240,000.

Bob said he thinks there is an effort to keep a lid on cultural resource programs - archeological and physical resources - that do not reflect inflation or the cost of doing business, which all the other programs do in the AMP, to keep the total cultural resource program below \$1 million including all the PA and everything else, and to squeeze out the monitoring program. If you look at 1999-2003 and include the increased costs of doing business, it would take \$300,000 to maintain the monitoring program. A new monitoring program hasn't been developed nor has a report been given to the TWG recommending such a change. The monitoring program has been getting scaled down with projected reductions of 50% per year on monitoring and putting money into planning for plans that were nearly finished or haven't been done. He said he is really concerned with what is happening with the cultural resource program.

Nancy said the HPP starts with some work in 2001. In 2002, they will start working on the structure of the plan and curation, archival, and NAGPRA plans. Right now, \$25,000 will not cover NAGPRA costs. She has been spending approximately \$80,000 to do just NAGPRA. This will be deferred into 2004 and later. There is also a tribal involvement and consultation plan. Loretta Jackson took the lead on that this year. In FY01, \$40,000 is set aside for the workshop to address the issue of APE and getting a better definition of the processes linked with dam operations that are behind the erosional processes the NPS has been documenting. All things wind up being part of the HPP but the real goal is to get down to the completion of the document and reach resolution of effects.

Bob said that before changes could be made, he sees a need for the TWG to review the PEP for the cultural resource program and develop a recommendation for AMWG on that PEP. He would like to see the PA signatories and the TWG involved in developing a similar budget so they not only agree on the needed tasks but also on the magnitude and scope of them. Wholesale changes are being made in the cultural resource program and he doesn't think they've been agreed to at this level of detail by the PA signatories or the TWG.

Bob proposed two motions:

**MOTION:** Form TWG Ad Hoc Group to review Cultural PEP and provide comment and

recommendations to TWG and AMWG.

**MOTION**: Budget for PA should conform to BOR NHPA requirements.

Cultural monitoring should be in GCMRC budget.

There weren't enough members to constitute a quorum so the motions were withdrawn.

Kurt said in the last eight years the money allocated to PA activities has remained constant and hasn't varied from \$800-900,000. The amount slated for the PA doesn't seem to be based on needs of the program but rather what Reclamation is willing to give to that program for each fiscal year. In the past when they've asked for more, they were turned down. The bottom line for PA activities doesn't appear to be motivated or generated by the work needs that are linked to compliance. What he finds significantly lacking from the work plan activities for 2002 and 2003 is mitigating adverse effects to register eligible properties. While a new monitoring plan is being developed, register eligible properties are being lost and the information potential within those properties also lost. He said Reclamation is out of compliance with the PA. He would like to see some effort by either the GCNP or Reclamation to address what types of immediate mitigation activities need to happen at specific register eligible properties in 2002 and 2003.

Nancy said she believes Reclamation is within compliance and thinks the SHPO would agree. Recent conversations with Ann Howard indicate she absolutely demands completion of all the plans that were set forth in the PEP. There have been a couple of efforts, largely from the Advisory Council, to collapse some of the planning efforts and perhaps move things forward. The SHPO has met that suggestion with great reluctance. She thinks that until the plans are in place and remembering that one is contingent with another, they are in compliance and they will come to resolution of effects through the comprehensive HPP which will include all of the subsidiary plans, including the data plan, curation plan, NAGPRA plan of action, etc.

Experimental Flow Fund. Randy said there is \$569,000 in the fund and most of that was offset due to appropriated dollars. In addition, some money came from the administrative section.

Clayton commented that available fund sources haven't been tied to expenditures. In representing WAPA, he wants CRSP power revenues tied to the monitoring program and appropriated sources to be tied to the other aspects of the AMP. The experimental flow fund is one of those other things. He believes the cap language requires it. Power revenues should be used to support long-term monitoring and appropriated dollars to fund other things. The reason for that is to not get into the same problem this year of having appropriated dollars cut.

Terrestrial Ecosystem Activities - Barbara Ralston said there are seven projects, three in terms of the biological elements. The first one would be the third year of three years of monitoring and inventory. The costs included in this project are the logistics, GCMRC personnel costs, and project costs. Basically this project has five river trips so the logistics are fairly expensive. Included in this is a tribal participation project and costs associated with this have been increased in 2003 by \$50,000 to include

all five tribes as participants. Ruth added that the terrestrial monitoring is a separate project primarily out of the biology area and the \$15,000 for the river trips is out of the PA program.

Bob said he really wanted to see these better integrated rather than see tribal monitoring programs, tribal agreements, and tribal participation. He has talked with people doing some of the terrestrial monitoring and they've emphasized that their proposal included a lot of tribal involvement. He asked why there is another budget category for that. Barbara said the reason they separated it out was for fiscal reasons - they can write cooperative agreements with the tribes and don't get 5% cut out for overhead costs. Ruth said the tribes' concern was that a successful bidder would tell them what to do and they would be given basically X funds coming out of the contractor's overall bid. They set that up at the request of the tribes and had them submit scopes of work on what they wanted to do. Thus, the money is kept separate so the contractor who is bidding can't lowball the tribes and use the rest of the money.

Kurt commented that the Hopi Tribe's position on this is that the work they are planning to do in terrestrial monitoring looks at not only resources that are of cultural importance to the tribe but also avifauna and other wildlife. They can try to augment their monitoring program by having tribal concerns addressed within the way terrestrial monitoring is done by the GCMRC. Rather than being in the field all the time, they can just access the data from the monitoring to assess additional resources to the Hopi Tribe. You differentiate from the type of monitoring that would go on in other tribal consultations where the tribe sets locations within the Canyon they want to stop at and monitor. For example, the salt mines. They would monitor the condition of the salt mines which would be separate from the ones that were part of terrestrial monitoring. It would be completely distinct efforts by the Hopi Tribe involved in these types of monitoring activities.

Clayton said he understands how tribal views inform the AMP but doesn't understand how tribal participation is requisite for terrestrial monitoring. He would like the detailed work plan to address the issue of integration of tribal participation and tribal monitoring. Amy said she thinks the reason there is a question on this is that because it has never been done before or looked at what can be gleaned from a tribal perspective. It's always been cultural but the tribes have other interests. There are other tribes, besides Hopi, that have a land base or title to the Canyon and they have responsibilities for the resources down there and don't feel as if they have had a role to participate from their perspective in the process. Even when there is monitoring and inventory, they may not get the contracts because they are competing with other contractors and are not getting their perspective put into the bigger picture. She likes the idea of seeing tribal participation involved in this.

Kurt said tribal participation in monitoring is really beneficial because it can develop into the GCMRC having monitoring activities that have a tribal component. The tribes aren't doing duplicate monitoring trips and not impacting the resources even more. It also benefits the tribes with the results of their monitoring getting into the GCMRC as well.

Rick asked how much discussion on the INs over the next couple of days be incorporated into modifying these projects. Barbara said she thought they would be somewhat but not too much for the monitoring inventory because they've started that and it's a 3-year project. Rick said that one of the

things they are not going to get to today is the KAS panel report but within that report the ad hoc is making a recommendation to the AMWG to do two things, one of which is to look at the level of impact in the monitoring to see if there are less invasive ways to do that and the other is to provide information that would be fed into a population model to look at what impacts of various flows would be on KAS populations. He would argue the reason for wanting to change it might be to get the information out sooner rather than later. Barbara said there is a line item for terrestrial research which has some money associated with it for no designated projects based on prioritization of information needs. In that case, a population model could be one of the things to do in 2003.

Kanab Ambersnail Taxonomy - Barbara said that since there is no prioritized needs for 2003, this is just an idea she put out. She estimates to fund a graduate student at \$20,000 a year.

Terrestrial Research - This is dependent upon prioritized information needs. The research could include things associated with cultural programs or biology, just an open-ended fund based on the prioritized information needs.

Terrestrial Mapping and Inventory - Barbara said this was proposed in the 2002 budget but they didn't have funding so it's being proposed again for 2003. It would incorporate data from the monitoring inventory project as well as delineate vegetative communities at a larger scale than what is currently happening in the monitoring and inventory program so one gets a larger scale view of terrestrial vegetation change. This mapping effort could be used to provide better randomized sampling for subsequent monitoring of terrestrial resources.

Holocene Mapping - Ruth Lambert said this is the second year of a two-year project that was approved in the 2002 budget. The first part was contingent upon the geomorphic workshop which was scheduled to occur in 2001. The project is important because most of the tribes have expressed concern with effects to sites, whether they are natural or related to dam operations. It is a critical issue to resolve. If it can be mapped, then it would be really useful information. One of the purposes of the workshop was to see what information we have so that we wouldn't have to go out and re-do information that may already exist, maybe a project Ted has conducted in the past or people he has worked with. The workshop should identify what are available resources so it can be tailored to that, how much effort is going to be involved, and what level of effort is desired. Whether this money is needed for that, she doesn't know.

**Action:** Nancy Coulam will prepare a White Paper on the Cultural Resource PEP recommendations and sequencing and send to the TWG via e-mail.

Cultural Resources Data Management (C12). Bob said no agreement has been reached in transferring the cultural resource database to the GCMRC. There was a protocol committee a couple of years ago and even though he hasn't been involved with it for the last couple of years, he is pretty certain it didn't come to completion. Consequently, there is no agreement as to whether or what to transfer or what protection there would be under FOIA requests. He has no objections to the budget figure being in there but feels there is quite a way to go. Ruth concurred that there would need to be some additional scoping of data and a database plan in place before it could happen. It's probably two years out at

least. Nancy said that a data plan was started this year and some of those issues will be resolved.

Cultural Resources Synthesis and Status Report. Kurt asked what the plans were for this. Ruth said this was an attempt to beef up the SCORE Report in the cultural area as well as make it more accurate and current. It's basically funds that will bring people in for a workshop and incorporate all the information into the SCORE Report so it is more meaningful.

Tribal Interns - Amy asked where the tribal internships would be located. Ruth said they would be anywhere within the GCMRC, not just in the cultural program.

Rick asked if it made sense to convene the Budget Ad Hoc Group between now and the Sept. meeting to have them review the budget and make a recommendation to the TWG.

**Action:** Randy will convene the Budget Ad Hoc Group before the next TWG meeting.

**Kanab Ambersnail Recommendation** (*Attachment 12*). Due to the lateness in the day and no quorum available, it was decided to postpone this discussion until the next TWG Meeting (Sept. 6-7, 2001).

TWG Chairperson. Randy asked if anyone was interested in this assignment. Clayton said that Gary Burton may still be a possibility.

Agenda Items for next meeting:

- FY 2003 work plans / Budget AHC Report
- Automated Generation Control Report
- Results from the INs Workshop
- Aquatic PEP recommendation
- KAS Report/recommendation
- Experimental Flows Ad Hoc Report
- Basin Hydrology
- LIDAR plans
- Appraisal of California power situation
- Election of new TWG Chairperson

**Next Meeting:** Thursday, Sept. 6, 2001 (9:30 a.m. - 5 p.m.)  
Friday, Sept. 6, 2001 (8 a.m. - noon)

**Location:** Bureau of Indian Affairs  
400 N. 5<sup>th</sup> Street  
Phoenix Arizona  
Conference Rooms A & B

**Hotel Block:**      Holiday Inn Express & Suites  
                              620 N. 6<sup>th</sup> Street  
                              602-452-2020  
                              Rate: \$90 + tax (12.07%)  
                              Block closes: August 21, 2001

Adjourned: 6:10 p.m.

## General Key to Adaptive Management Program Acronyms

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