

Glen Canyon Adaptive Management Work Group (AMWG)

FINAL

Minutes of October 21, 1999 Meeting Phoenix, Arizona

Presiding: Stephen Magnussen, USBR (Chairperson)

Recorder: Linda Whetton, BOR

10/21/99: Convened: 9:35 a.m. **Adjourned:** 3:40 p.m.

Welcome and Introductions

Stephen Magnussen introduced himself as the Secretary's Designee and Chairman for this committee. He welcomed the committee members, member alternates, and visitors to the meeting. This meeting will focus on the work that has been done on the goals associated with the mission and vision statement which was adopted at the last meeting.

Roll Call. There were 17 members initially present so a quorum was achieved.
(Attachment 1- Sign-In Sheet for AMWG Members/Alternates/Public)

Administrative Items:

- Stephen welcomed Linda Whetton as a Management Analyst who will be working for Randy Peterson and will be the permanent recorder for both the AMWG and TWG meetings. If you need to contact her, her e-mail address is lwhetton@uc.usbr.gov.
- Stephen provided an update on the status of the GCMRC director's position. Barry Gold has been recommended by the selecting official who is part of the USGS and it is presently working its way through the approval process in the Department of the Interior.
- Stephen informed the members that the minutes for the last AMWG meeting are still in draft form and copies are available on the back table for review. They will be approved in the January 2000 meeting.
- Stephen met with Mark Schaefer on the institutional home issue last week. He said Mark is anxious to get the issue resolved but no decision has been made. He asked Stephen to inform the AMWG that this is a high priority for him and hopefully will be resolved in the very near future.
- Travel Authorizations are an annual process so those who need them, contact Linda.
- Cliff Barrett requested that the e-mail listings be reviewed as he noticed there were some names missing and said that Leslie James has not been receiving any e-mail messages. Attendees were asked to update their e-mail addresses on the roster being circulated.

At the last meeting, a subcommittee was designated by the AMWG to continue to work on the goals that were associated with the Vision and Mission Statement that was adopted at the last meeting. By way of introduction, Mary Orton, who is no longer representing American Rivers, was the chairperson of the group and was asked to make today's presentation. Stephen thanked

her and the other members on the subcommittee: Andre Potochnik, Amy Heuslein, Rick Johnson, Wayne Cook, Clay Bravo, Ted Rampton, and Jerry Zimmerman. Based on the comments received, the AMWG will determine what the next step will be.

AMWG Ad Hoc Committee Report - Mary Orton

Mary stated that this was a group comprised of both AMWG and TWG members. In addition, Barry Gold and Randy Peterson assisted in providing technical expertise and support and guidance from the perspectives of the Grand Canyon Monitoring and Research Center and Bureau of Reclamation.

The Vision and Mission Statement (Attachment 2) was developed on the river trip in May and was adopted at the July 1999 AMWG meeting.

The next steps were to define goals and then objectives. The AMWG gave a charge to a new strategic planning ad hoc group to look at the Vision Statement and develop goals (Attachment 3). The process the group followed fit well with recommendations from the NRC to adopt a vision with very clear goals (Attachment 4). The group tested the goals by arraying old management objectives under the goals to see how they would fit. Many of the goals are very similar to the old MOs so the group lifted the level of specificity up from a management objective to a goal which means that the management objectives now will need to be much more specific to tell us how we're going to achieve the goal.

The group developed some goals and suggested management objectives that probably couldn't be paid for out of power revenues so an additional task would define responsibilities for these goals. Each year the AMP would examine priorities and goals as input to the budget process. On a less frequent basis the goals will need to be re-addressed rather significantly as new information is learned about the Grand Canyon ecosystem. Some goals may be unrealistic or irrelevant while others might turn out to be key issues. The goal document will grow and change as more is learned through the adaptive management process.

AMP Strategic Plan Principles - Draft by AMWG Goals Ad Hoc Group (Attachment 5).

The Strategic Plan Ad Hoc Group developed guiding principles that hadn't been captured in the goals which guided many decisions on the goals. Several discussions and revisions to the principles followed. Mary reviewed the principles with the AMWG, resulting in the following comments:

<u>Principle</u>	<u>Comments</u>
1	Concern with the wording "may not be the responsibility of the AMP." If it's not the responsibility of the AMP and its funding sources, then it's the responsibility of some other funding mechanism. Consider adding another statement to this goal

or possibly creating another goal. Stephen Magnussen said his recollection of the Charter of the Adaptive Management Program includes a recognition that there may be some things in there that aren't necessarily funded under power revenues so AMP isn't synonymous with being funded or not being funded by power revenues. The Charter recognizes that there might be other funding resources under the AMP other than power revenues.

Recommendation: Add: "look for other funding sources" and alternatively address in goals and objectives.

- 2 Concern about the wording "much is unknown about the Colorado River ecosystem ..." Much is known and reference should be made to information that currently exists.

Recommendation: Consider revising the statement to read: "A good body of knowledge exists but much remains to be known." It needs to be tied into adaptive management.

- 3 Bruce Taubert recommended the following words be added after the word "dam," human disturbance, air pollution, noise pollution and possibly others.

Recommendation: Add "human disturbance, air pollution, noise pollution" as factors that have changed the ecosystem.

- 4 Cliff Barrett asked about phrase, "to benefit native and non-native resources..." Did the group mean non-native species or just all the resources in the canyon like recreation, boating, etc.? Mary said that it doesn't mean all the resources in the canyon nor all non-native species. It means there are some natives and non-natives that we will be managing to benefit.

Recommendation: Change the word "resources" to "species"

- 7 Question: Are experiments going to be done within the provisions of the Law of the River? Goal #4 refers to that. Mary said the group didn't feel that it needed to be addressed in every goal since it was contained in the vision/mission statement.

Recommendation: Reword so that "additional experiments should be conducted within the Law of the River."

Action: The above comments will be taken back to the Strategic Plan Ad Hoc Group for revision and brought to the AMWG at a future meeting.

Mary referred to the fourth handout (Attachment 4), "Ad Hoc Committee on Goals."

Category A: Riverine Ecosystem

While the MOs help define the goals, Mary thought the discussion with the AMWG should focus

on the goals.

The following are the comments recorded on the “flip charts:” Note: Many of the comments were not delivered in sequential order so an attempt was made to consolidate by goal:

<u>Goal</u>	<u>Comments</u>
1	prioritization is a future step replace - “native” with “existing” protect existing foodbase
2	Frame broader goal that includes several more specific goals (#2-6, 7-8) - maintain endangered species - investigate reintroduction possibilities - Table 2-7 of EIS should be used to define species of concern (responsibility should also be defined) - “remove jeopardy” means from the operation of Glen Canyon Dam, rather than recovery of species.
7 & 8	could address the issue of predator control of non-native species.
8	reintroduction of the otter could be viewed as exotic → rewrite goal (endemic otter is extinct)
9	should not restrict hatchery augmentation Change “removal” to “avoidance” (avoidance of jeopardy higher priority than “wild reproducing”)
10	change “species” to “fish”
11	Ecosystem goals should be defined Delete goal #11 / retain goal #11 Make goal #11 a management objective this is the only goal that deals with water characteristics Concern over “within the range of natural variability” → too broad
12	concern over “historic” “historic spatial distribution” talks about relative comparisons between reaches “conserve” rather than “increase” How can you mimic pre-dam? Do we know what that is? (for sediment)
13	shouldn't be a goal → mission statement

Category B: Riparian Ecosystem

- #14 why worry about “spring species” more than other endemic species?
- add to “unique areas/species”
- Suggested MO2 better placed under #14

Collapse 14-16 into one goal

- 15 Maintain native biodiversity - system
only break out listed species
17 isn't “SMART” goal (put in principles or mission)

Public Comment on Categories on A & B: None

Category C: Socio-cultural Resources

- 18 delete “native”
Prefer natural processes
What ecosystem is desired? (need to define)
Principles lead us to more like pre-dam ecosystem (though not completely)
- 19 not viewed as true statement. Substitute language from Guidance Document pg. 4
benefit all resources - benefit power as well - not in conflict w/pg. 4 of Guidance Document
- 20 funding is an issue
“recording knowledge” not compatible w/GCPA
for sites under jurisdiction of NPS, add NPS, Federal agencies and other entities after affiliated tribes - also P.A. signatories → involve these in developing goals/MOs
do no harm vs. protect?
add “as appropriate” after “cultural properties” and delete “or” - substitute “or” with “and/or”
tribes concerned about dispersing sacred knowledge
GCPA requires site protection
#20 - concerned w/interpretation of cultural/sacred sites
leave sites as they are, protect sites
PA participants should provide comments on goal #20 (statutory language)
Archaeology sites can be different from cultural, TCP, sacred sites
need more guidance on this goal
Mitigate if you can't protect
need to protect other trust assets (incl. biological/nat. resource) → create another goal?

Action: Amy will confer with the tribes and provide comments back to the committee. Mindy Schlimgen-Wilson mentioned that the PA people had done a lot of work in this area and suggested that Nancy Coulam provide that documentation to a member of the Strategic Planning Ad Hoc Group for further discussion.

21 should be a principle
recognizes consumptive use benefit of Lake Powell

22 delete "native"

Public Comment on Category C:

(Ruth Lambert)- Regarding #20, protection and mitigation are really two opposites. Suggest that the goal is really protection of cultural sites. You mitigate only if you can't protect and in some cases, mitigation is not possible. Archaeology sites are now called cultural resource sites.

(Pam Hyde) Would like to echo what was said about goal #21, think this is encompassed in Principle #4. While it might be beneficial to use as a legal term in the law of the river, I think out of context with some of the other aspects of the law, it could be completely misinterpreted.

(David Wyaco, Sr., Zuni Tribal Council) Regarding goal #20, Grand Canyon is considered very significant to our tribe. I think our people would appreciate that if we could keep those sacred sites as they are rather than even interpreting them. When you start interpreting such sites as what they are, then we excite the outsiders to become more interested and they start desecrating. These sites are very valuable to us and we would like to have them left as they are. With your help in putting this language together, we can work together to help us protect all our interests. Don't put in language as "will be protected or interpreting or record knowledge."

Category D: Administration

23 **EAMO** #1 (MO 39) and MO18 belong to another goal.
delete "adaptive ecosystem management"
MO # 17 - parity refers to GCMRC, AMWG, - SAB or I.R.P. (TWG is subgroup of AMWG) - use consistent terms

24 Suggested MO 20 - need better information dissemination and outreach
Suggested MO-21 to include all resources

25 Suggested MO-25 - what was meant?
Need to have more power revenues (repl. MO-25 w/procedure for add'l funding)
maintain existing and develop new revenue sources

26 Expand goal to include the values for which GRCA (Grand Canyon) and GLCA (Glen

Canyon) were established as part of the National Park System - add GCPA statute
Omit federalism issues between the agencies and include language concerning far
reaching stakeholders in the state of Arizona and the Indian tribes - eliminate just the
Department of the Interior.

Public Comment on Category D:

(Pam Hyde) - Want to register my real pleasure with the inclusion of #24, outreach to the public. As someone who has been a part of this process and now being part of the public, I want to just relate that Glen Canyon Institute held a conference in Salt Lake City last week and one of the things we did was bring a lot of environmentalists together. A lot of them didn't have any idea what was going on in the Adaptive Management Process. There is no information going out of these particular rooms if you don't make the effort to come here. That's a real disservice to the Colorado River management as a whole.

(Barry Wirth) - have prepared a detailed report for Charley Calhoun to get involved in that process. Working to get information disseminated on the web, videos, etc.

Mary advised that if there were any additional comments, they should be directed to members of the committee: Andre Potochnik, Amy Heuslein, Rick Johnson, Wayne Cook, Clay Bravo, Ted Rampton, and Jerry Zimmerman.

Action: Stephen asked that the group convene again and discuss the above and prepare a report for the next AMWG meeting in January 2000.

Guidance Document - Scott Loveless

Scott passed out copies of page 5 of the revised guidance document (Attachment 6) and addressed the issue of downramp rates. The third paragraph on page 5 discusses a downramp rate of 1500 cfs per hour integrated across the hour as being a firm limit. There remains a question as to what that firm limit is referring and a question on how to interpret the ROD, whether that is a limit that should never be exceeded or if it is a target without the certainty of actually being hit. The language in question in the circulated draft says, "these figures should be understood to represent a firm limit on changes in release rates integrated over each hourly interval to be enforced by the Secretary subject to being exceeded only in times of emergency or unless and until changed by subsequent decision of the Secretary." That has been suggested as being too rigid because it implies that the number can never be exceeded. There is the question: What does the ROD mean? An alternative interpretation is what was indicated in red in Attachment 6. It's clear that the ROD talks about a firm limit but to what does it apply - the actual rate that's achieved after the fact or what you are trying to do before the hour occurs? Those are the two language alternatives that Scott has been considering.

Dave Sabo said that since there are a lot of people around the table that weren't involved in the Glen Canyon EIS process, it would be valuable to have a "hydropower 101" discussion. He said WAPA collects the schedules from the customers, transfer that information to their office in Montrose and then to the dam. The dam actually implements the schedule. Dave drew a diagram on the board to illustrate how the schedule is adjusted on an hourly basis. The problem that Scott discussed is that we don't know if we've achieved a 1500 cfs downramp change until the hour is ended.

There was discussion what would to do next, whether additional information was needed, or if the Secretary should provide further clarification on the language. Scott said there are two ways of reading the document and he tried to explain what he thought the Secretary meant when he signed the ROD. It is then up to the committee to say if they need to modify it. He has tried to make the best cut on the question but this was intended as guidance to the AMWG in their deliberations.

Dave Cohen said the catalyst for starting this discussion was to see if they could offer WAPA some additional flexibility in their operations while not impacting resources downstream. They made an effort over a year ago to start the dialogue and it had not progressed as quickly as they had hoped. They felt today's discussion was a first step in getting this done. He feels they are on their way to doing that and has trust in Dave to get this done and would prefer that no changes be made at this point in time.

Scott responded to Clay's concern about the issue of the AMP looking only at resources inside the National Park boundaries or looking at the Canyon as a whole, questioning if titles in acts such as the Grand Canyon Protection Act have legal effect. Scott replied that the courts have determined that titles in acts are only titles and that the actual language of the law are the substantive provisions of the act. He drafted the guidance document the way he did because the operative language in the act talks about the values for which the national parks were established. That does not mean, however, that resources on adjacent lands will also not be benefitted.

Action: Additional comments on the Guidance Document should be sent to Scott by November 19, 1999.

Programmatic Agreement Meeting - Randy Peterson, Kurt Dongoske, and Nancy Coulam

At the last meeting, the AMWG instructed the PA signatories and the TWG to discuss the issues surrounding both tribal participation and the financial requirements for cultural resources in the Grand Canyon. The PA signatories and others met on Sept. 20, 1999, had a very good discussion, with many alternative viewpoints expressed. Kurt will reported his perspective of some of the key conclusions from that meeting, and Nancy described some of the short-term goals that were used to address the financial priorities as well as the enacted 2000 budget and the proposed 2001 budget.

Kurt said there were several topics discussed:

- 1) There was general consensus to consider the Grand Canyon a traditional cultural property that is eligible to the National Register of Historic Places. The eligibility boundaries would be from rim to rim and most of the PA signatories agreed that that was a good boundary to establish. A draft MOU was constructed identifying the boundaries for the traditional cultural property designation. This will be supported by documentation from the tribes.
- 2) It's unclear right now whether the TCP designation will actually go through a formal nomination process so that it is actually listed on the National Register for Historic Places or whether it will just be managed and dealt under the consideration that it is determined eligible for the National Register.
- 3) They also reviewed Tom King's assessment report. He is one of the authors of National Register Bulletin No. 38 which identifies traditional cultural properties and how they may be eligible to the National Register. He reviewed the entire PA program and offered some comments: He thought the program focused too much on archaeology and didn't focus sufficient attention on the other values that make the Grand Canyon significant, and also that we should pay attention to other resources that are contributing elements that make the property a register eligible property. Some of the values would be the tribal values and other values by other communities that place great value on the Grand Canyon (e.g., the river running community). He also suggested we continue development of the Historic Preservation Plan. There was unanimous agreement among the signatories to complete the HPP.
- 4) There was a discussion over reevaluating the area of potential effect. The area of potentially effect is defined within the NHPA as the area that any undertaking has the potential to impact adversely or not historic properties that are considered eligible to the National Register. We have a way to go before we can actually reevaluate the area of potential effect.
- 5) Another aspect that would need to be reevaluated and defined by the PA is what constitutes a direct effect on historic properties from the operations of a dam? What constitutes indirect effect? What would constitute a cumulative effect? The NHPA does place responsibility on a federal agency to consider both the direct and indirect effects on an undertaking. Also, need to consider whether just the presence of the dam in the absence of sediment in the system, is a direct effect.
- 6) Discussed how to mitigate effects and noted that one of the most mitigated treatments for historic properties (arch. sites) has been to perform data recovery. Also, consider how to potentially mitigate those values that the tribes ascribe to as historic properties. It's a more complex approach to managing historic properties, requires less of an

archaeological approach but more an anthropological approach.

- 7) The final thing discussed was tribal participation and funding for tribal participation in the AMP. Right now in FY2000 and 2001, funding for that participation is coming out of the monies that were slated for the compliance and programmatic agreement program. At that meeting they stated that they didn't think it was appropriate for the PA program to fund solely tribal participation. Tribal participation should be funded out of the greater AMP and that it should be planned for in the future more effectively than it has been up to this time. They also suggested to the USBR that they become involved in greater dialogue with the tribes to identify what funding levels each individual tribe felt they needed to adequately participate.

PA Budget - Nancy Coulam

The PA group discussed three general goals for FY 2000 and 2001 in terms of PA activities. First, the top goal was to complete the protocol evaluation of the overall programs, the socio-cultural program at the GCMRC as well as Reclamation's compliance programs. It will be an integrated protocol evaluation and all of the PA signatories and the GCMRC are working to get that organized. Second, they also agreed to complete the HPP, which will serve as their strategic plan in guiding compliance and other cultural resource activities over the next 5 years. One of their goals is to get better integration with the other programs as a whole, whether it is the GCMRC, the TWG, strategic plans, etc. Third, they also articulated a goal of increasing opportunities for the tribes and those goals are reflected in some of the PA budget decisions.

For FY 2000, they have \$973,000 which includes money for tribal participation in the overall programs of the AMWG and TWG, the programmatic agreement, and cultural resource monitoring and compliance. With these tasks in mind, the specific PA line items were developed (see Attachment 7)

Because traditional cultural properties are a relatively new category of property eligible to the Register and because of the importance of them in the Grand Canyon in particular, they don't know how to mitigate for those tribal values right now.

She noted that an amount of \$5,000 is being set aside for the Havasupai who have asked to become an active participant in the program. At a minimum, she told them it would mean coming to AMWG meetings.

Barry Gold asked if there were any narratives on the individual line items? Nancy said they were detailed in a PA Signatories memo she sent out. A hard copy will be sent to Barry and Ruth and will also be put on BOR's web site. (Attachment 8)

Rob Arnberger was concerned that there was an HPP that was almost finished two years ago and questioned why we're spending \$180,000 on something that was in a final draft two years ago. It has major implications relative to the funding in the other categories in terms of total availability of money. Nancy said that the structure of the plan done two years ago was good at the time but is lacking at this time, noting Tom King's comments. Nancy said that in recognition of the fact that we should have TCP's as eligible resources, we need to revisit how specific sites are managed in the canyon. That is not in the current plan. The draft plan does not contain site specific management information, nor does it contain any method or mechanism for providing a tradeoff between the values which made the resources eligible for the Register and trying to mitigate the effects. They will build on the existing plan.

Rob was concerned that as shown in the 2001 budget, the monitoring of sites in the Grand Canyon has been cut from almost \$260,000 down to \$130,000 and that has been with little or no agreement between the two agencies. Randy replied that the HPP and PEP review would determine the allocation of funds for monitoring and treatment of sites. For FY 2000, the issue was conflicting pressures for funding both participation and monitoring so it was a cut that Reclamation made to try and balance all the demands. The Bureau and the Park Service have taken a 25% cut in the FY 2000 budget in order to balance the budget. Rob said he felt it was a very strategic change of direction, potentially to move away from a monitoring protocol of those sites to something less than that and that is a very fundamental change of course that he didn't feel should be ascribed to the difficulties of trying to find a way to fund the tribes involvement.

Clay said that tribal participation is different from cultural resources in the PA. That component should come from a different account. Stephen said that Reclamation is currently involved in ongoing conversations with the Budget Office as part of the Department of the Interior to determine if there other ways or mechanisms of which funding can be made available. Tribal participation is a line item and there was concern that dollars that should be going to towards cultural resources, historic preservation plans, or monitoring are actually going to the tribes to participate in the AMWG. Clay asked what the tribes can do to assist in the process that is ongoing and also what other agencies in the AMWG can do to facilitate the tribes getting more money.

Rob stated that as an advisory group to the Secretary of the Interior, if this group feels it is important to give advice to the Secretary of the Interior to take some action to fund the tribal participation with certain caveats and stipulations, it is the prerogative of the group to do so. While the Bureau of Reclamation may be pursuing other types of avenues, he was not certain he was well enough informed to advise the Secretary relative to specific dollar amounts.

MOTION: Move to recommend to the Secretary of the Interior that appropriated dollars be used to provide tribal participation to the Adaptive Management Program. Motion seconded and carried. The motion will be e-mailed to Stephen on Monday, 10/25/99, for further action.

Stephen would like to see this discussed at the next AMWG meeting in January.

Status Report on Budget Ad Hoc Group - Bruce Taubert

(Attachment 9) - The Budget Ad Hoc Group was formed to make a recommendation to the GCMRC on how they could formulate their budget proposal for the January meeting so that all could better understand what dollars were associated with what tasks. The group also suggested that the Bureau also develop similar budget papers for line items I-IV for the January meeting. Present at the meeting were: Randy Peterson, Barry Gold, Vicki Kieffer, Don Bay, Dave Cohen, Renn Loeffherner, Bill Persons, Mary Orton, and Bruce Taubert. Barry asked the group to think about how they would like to have these documents modified. GCMRC would like comments on Tables 1-3, 2.1, and 2.2 so they can revise the format and bring to the TWG on Dec. 7-8 for further discussion. Comments should be sent to Bruce Taubert by November 19, 1999.

Public Comment:

(Pam Hyde) - would like to request that Reclamation put the minutes of meetings on their website in a timely manner.

Next Meeting Date and Location: The next meeting will be January 20-21, 2000 at the Bureau of Indian Affairs in Phoenix, Arizona.

Possible Agenda Items for the Next Meeting:

Updated reports on:

- Budget Report
- Goals & Management Objectives
- TCD briefing
- Tribal participation issue - appropriated dollars

Dave Cohen said he would like an agenda item on federal trust responsibilities. A copy of Rebecca Tsosie's paper will be provided to him and also placed on the BOR website (Attachment 10).

Adjourn: There being no further business, the Chairman adjourned the meeting at 3:40 p.m. on October 21, 1999.

General Key to Adaptive Management Program Acronyms

ADWR - Arizona Department of Water Resources	IT - Information Technology (GCMRC program)
AF - Acre Feet	KAS - Kanab ambersnail (endangered native snail)
AGFD - Arizona Game & Fish Department	KAWG - Kanab Ambersnail Work Group
AGU - American Geophysical Union	LCR - Little Colorado River
AM - Adaptive Management	LCRMCP: Little Colorado River Multi-Species Conservation Program
AMP - Adaptive Management Program	MAF - Million Acre Feet
AMWG - Glen Canyon Adaptive Management Work Group (a FACA committee)	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)	