Summary
Transition Work Group Meeting
May 21, 1996
Phoenix, Arizona

Stephen Magnussen, the Secretary's designee, was in attendance.

Bruce Moore, Manager, Resources Management Division, Bureau of Reclamation Upper Colorado Region, welcomed the group to the Transition Work Group meeting. Participants introduced themselves (attachment 1).

Status of GAO Audit - Steven Lloyd -- GAO auditors have completed all field work. The draft report will be completed the end of July, with the final report expected in September, 1996. There have been no changes in the scope of work. The GAO has not determined the review process for the draft report; typically the report is distributed to the affected Federal agency--in this case, Reclamation and the Congressional Committees requesting the audit. Reclamation has requested that the GAO make the draft available to the TWG for review, but they have not agreed to this to date. Dave Wegner noted that GAO is in the process of conducting a "technical fact review" prior to releasing the draft, and some participants have been contacted by the GAO. Questions may be directed to Jim Yeager, 202-512-6780. It is anticipated that he will attend the first TWG meeting following release of the final GAO report.

Temperature Control Studies - Dave Trueman -- Reclamation initiated its preliminary studies last fall. These studies will evaluate two critical issues. A temperature modeling study will be conducted to determine if a selective level withdrawal structure would be effective at warming water for the native fish below Glen Canyon Dam. A productivity study will evaluate if warm water releases from Lake Powell might adversely impact the food base of the river. If the results of these studies are favorable, then Reclamation will proceed with a planning and environmental compliance to retrofit the dam with a temperature control structure. An environmental assessment will be completed for the construction of the structure and will evaluate the impacts of the construction and testing of the facility. Based upon the results of these studies, Reclamation will decide whether to proceed with construction and testing of the facility. After construction is completed, different operational scenarios will be tested. Based on the results of the tests, Reclamation will complete its environmental analysis and select an alternative using the NEPA process.

Reclamation's Denver Technical Center is conducting the temperature modeling study with the TVA's BETTER model. This is a two-dimensional model capable of temperature and water quality modeling of Lake Powell. Northern Arizona University is conducting the river productivity studies.

Trueman noted that it is important to understand that there are numerous decision points to be passed. The preliminary studies are the first in a long series of issues to be resolved. If these studies are favorable, Reclamation will proceed with planning and an environmental analysis. If successful, Reclamation would then request construction funds for the selective withdrawal structure. After the structure is constructed and the operational scenarios tested and evaluated, further NEPA analysis would be prepared to address the preferred operational scenario(s).

Responding to a question on who is providing input into these studies, Dave Trueman noted that a team composed of GCES researchers discussed and developed the plan that Reclamation is following. The two preliminary studies (temperature and productivity) were identified by the group as the two most critical issues needing further study before proceeding with any additional work.

Larry Riley, Arizona Fish & Game Dept., expressed concern on the lack of communication regarding how the studies were proceeding. Dave Trueman noted that the first results of verification runs will be available by the end of the summer. Further discussion of the studies will be included in the next TWG meeting agenda. A brief outline of work for the temperature study is attached (attachment 2).

Productivity studies - Dave Wegner -- A thermal database is being collected and will be maintained through GCES. Information from this database will be used to validate the models. Since Cataract Canyon has a similar pre-dam ecosystem to that below Glen Canyon Dam with selective withdrawal, Northern Arizona University (GCES) is studying microinvertabrates in Cataract Canyon to determine the productivity of that system. Aquatic food base studies have already been completed.

Limnological data is being collected on Lake Powell and entered into a data base by the GCES office. In addition, baseline information has been collected and included into a data base from Lake Powell to Lake Mead.

After all information is collected and included in the data base, GCES will conduct a meeting with scientists, researchers, and interested parties.

The relationship between the native and non-native fish will be addressed in a separate contract through GCES. A selective withdrawal structure will allow us to manage the system on a weekly or monthly basis. Dave Wegner noted that a tool for the native fish is to warm the water below the Little Colorado River. A requirement of the Biological Opinion is to evaluate the potential for warming the releases of Glen Canyon dam to allow for enhanced native fish growth.

Dave Truman noted that the EA will cover physical construction and potential impacts of the tests, address potential ranges of affects, and will be used for obtaining funds from Congress for construction and testing. The goal of this phased approach is to shorten the process and improve the environmental evaluation process. Gordy Lind explained that there are several go/no go decisions: an EA to select different operational scenarios, construction of the selective withdrawal structure, and testing of the different scenarios. Then an Environmental Impact Statement would be prepared to select the best operational scenario(s). Gordy noted that scientists believe that putting warmer water into the river will benefit native fishes, but no one knows what operational aspects will actually work best; therefore, possible scenarios must be tested and evaluated. It was also emphasized that if the analysis of the EA results indicate that an EIS is necessary, then an EIS will be completed prior to construction.

Action Item: It was agreed that Dave Trueman will provide the plan of study for the overall program as an attachment to this summary (attachment 2). He will also provide the scope of work

for the temperature modeling study (attachment 3). This topic will be included in the agenda for the next meeting.

In response to a question on possible future research, Dave Trueman responded that future studies will be identified and evaluated in the planning and environmental analysis phase of the program which is scheduled to begin in FY-98. Tony Morton noted that the Final Biological Opinion needs to be factored into the AOP.

Beach/Habitat-Building Test Flow - Dave Wegner -- He reviewed the schedule. Glen Canyon Dam is operating at an average level of 18,500 cfs now. Overall the experiment itself was a success. Dave commended all those involved for making it happen.

Physical system - Dave Wegner -- (Attachment 4) Dave noted that the 45,000 cfs flow pretty much cleaned out the bottom of the river. Some eddies filled in, but upon reaching their capacity, began to erode. Evidence indicates that the eddies are very dynamic--filling, emptying, and refilling. Preliminary observations indicate that the majority of the deposition occurred at the beginning of the high flows; therefore, researchers are attempting to assess time/function of resuspension of sediment to determine if the length of the high flows can be reduced in the future. Of critical importance is determining how long the new sediment deposits last. Analysis of data collected during this experiment will be provided to management, and future lengths of the high flows will be determined through the Adaptive Management process.

Following a meeting on May 13 with the sediment researchers, it was agreed that follow up photography is needed this fall to determine the rate of loss of sediment.

Mark Anderson, USGS -- (Attachment 5) He began by saying that this was one of the most remarkable experiments in the hydrological sciences ever completed. The experiment was a success, not because of effects measured or predictability, but because of tremendous amount of data collected for analysis. Based on observations of measurements, a good deal of sediment was moved from the bottom of the channel and deposited onto channel margins. Bathymetry data was collected by GCES and maps are being assembled. He said that two questions need to be answered: how long will the deposits last and how much sediment went downstream. The experiment analysis will be used to calibrate and validate modeling. He noted that most of the information collected by the USGS was collected before and after the high flows, and data collected during the high flows was quite small.

Biological - Dave Wegner -- Dave noted that no Southwestern Willow Flycatcher nests were inundated. There were lesser numbers of Kanab ambersnails removed than originally planned, as per the Fish and Wildlife Service's direction, and all requirements as identified in biological opinion were met. There were no ill effects to the Humpback chubs spawning since the spawning occurred in February, but there are substantial numbers of nonnative fish in the Little Colorado River, which may have other compounding affects. There seemed to be little affect on the trout.

Cultural - Jan Balsom -- Jan indicated that significant amounts of sediment were deposited in problem aroryo cuts. Palasidas delta mitigation checkdams and retaining features were filled in with sediment which is considered a success. Generally, the flow was favorable system-wide for cultural resources.

For the Glen Canyon Reach, there appears to be a lot more sediment in the river than previously considered. Within that stretch, beaches were built considerably more than expected. There was some erosion from high terraces, as expected, but no loss at cultural sites, and sediment was accumulated at Spencer steamboat.

GIS - Dave Wegner -- He emphasized that the GIS is an important element in analysis and management of the massive amount of data collected. Information is being put into the GCES GIS system. Photography has been collected, both color and black and white, video imagery of entire system pre-, during, and post flood. Meta data was collected. Bathymetry mapping (part of river underneath the water) is ongoing, and will be input to the GIS.

Lake Powell - Dave Wegner -- The Lake dropped 3-1/2 feet during the event, inflow to Lake Powell during that time was low, and the reservoir responded as expected. The opening of the penstocks, provided higher oxygen at the river outlet tubes, resulting in a "fresher" system.

Cost - Dave Wegner -- Although logistics were more than expected, with some juggling, we are still within the $1.5 million budget. Responding to a question, it was indicated that the $1.5 million budget includes data analysis, with draft reports due September 30, 1995, and the finals December 30.

In addition, the final reports will be available through the NTIS system, summaries and updates will also be available on the internet at http:\\phantom.uc.usbr.gov. It is expected that a workshop/symposium will be held next April/May.
Dave's email address is: **dwegner@gces.uc.usbr.gov**.

CREDA reminded the group that all collected data must be scientifically analyzed before declaring the experiment a "wonderful" success.

Bruce thanked the group for their participation in helping complete this experiment flow. This would not have occurred without group's participation. Pulled off on time, within budget, great success!

Subgroup Reports

Transition Monitoring - Dave Wegner -- Flood and transition monitoring are closely integrated, and results of the flood will be monitored as part of the transition monitoring

Management Objectives - Bruce Moore -- A few comments were received on the draft. A draft of the final Management Objectives will be forwarded to the group for review and comment. He reminded the group that this will be a dynamic, fluid document. Discussions will be held in the

future on the scope of the work, including how operations affect Lake Powell. A copy of the Final Management Objectives is attached (attachment 6).

GC Monitoring and Research Center - David Garrett -- The status of organizing the Center was discussed (attachments 7&8). Emphasis will be placed on ecosystem science and participation of stakeholders. It was noted that objectives of the future research will be identified by stakeholders through the Adaptive Management Program. The Research Center will interact with the group through another subgroup to decipher from objectives what research/monitoring needs are. Research information requirements will be drafted by the Center and presented to AMWG. Draft guidelines and protocol for operation of the Center was distributed to group (attachments 9&10). Extensive planning is needed in order to make a seamless transition from the GCES to the Center so that resources are not adversely impacted.

Adaptive Management Work Group Charter - Bruce Moore -- The draft Charter was distributed for review by participants, requesting comments be provided to either Steve Lloyd or Bruce Moore within the next two weeks (see attachment 11 for revised charter). The revised charter will be sent to the commissioner, then to Secretary Babbitt.

Dr. Duncan Pattan, GCES senior scientist, was presented with Reclamation's highest civilian award, the Citizen's Award, for his outstanding contribution to the GCES and GCDEIS.

The next meeting will be Thursday, August 29, 1996, 10:00 a.m., at the LaQuinta, Phoenix.

Agenda items:

- Research Center
- Temperature Control
- Draft GAO audit
- Transition monitoring plan

Attachments:

1. List of Attendees
2. Glen Canyon Dam Temperature Model (Study Objectives)
3. Glen Canyon Dam Discharge Temperature Control Draft Report
4. GCES Beach Habitat Building Flow
5. USGS Fact Sheet - Controlled Flooding
6. Glen Canyon Dam Final Management Objectives
7. Guidelines for Glen Canyon Monitoring and Research Center
8. Schedule -Cooperative Development of Long-Term Monitoring & Research Plan for the GCMRC
9. Proposed Guidelines for Operation of GCMRC
10. Protocols for Merged Adaptive Management/Ecosystem Science Approach by the GCMRC
11. Revised Copy of Charter - Adaptive Management Work Group (revised 6/29/96)