Summary
Transition Work Group Meeting
February 3-4, 1997
Phoenix, Arizona

The meeting convened Feb 3rd, 12:00 Noon.

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 meeting. Meeting attendees introduced themselves (attachment 1), and Bruce turned the time over to Dr. Garrett.

Action Item: The suggestion was made to add updates on operations to the meeting agenda. Next meeting's agenda will include updates to inform everyone of what's going on.

Grand Canyon Monitoring and Research Center - Dr. Dave Garrett --

Long Term Monitoring Plan: (See attachment 2)

Dr. Garrett reviewed the 3 major steps involved with putting the program together as charged by Ms. Beneke: 1) we have met monthly with a cross section (Center staff and planning committee) to establish operations guidelines for the Center; 2) we have established protocols; and 3) we have developed a schedule for the year. The intent was to make sure the imprint of stakeholders was involved in all we do, and that the Center reacts to both the concerns and suggestions of the Transition Work Group.

The Long Term Strategic Plan and next year's Annual Monitoring and Research Plan are still going through the review process. As the adaptive management process calls for, the long term plan was peer reviewed by the Corps of Engineers Wisconsin Research Center in December. Dr. Garrett commented that their review was a very well structured, 2-day workshop, and their comments were: 1) they felt good that we have involved the stakeholders, but 2) they were concerned that the synthesis program may be too aggressive for the short 2-year period of time, advising us that taking 5 years would be better. We assured them the two year time frame was necessary, and that we could stay on schedule. Also, they were concerned about having too much detail in the long term plan, and that there were some elements of the annual plan that were "over proportionally" allocated. They liked the fact that the planning group worked together every month, and they see this contact being a necessary trend to continue. Overall, they feel that this is the appropriate way to do adaptive management.

We have spent several months outlining the needs of the project, and in the past two months, there has been concern about how well it is structured, so we went through and restructured it just to make sure it was well understood. Final comments will be accomplished this week on the research assessment, and the planning group will meet next week.

The suggestion was made to add boating and sports fisheries people to the reviews.

On or about March 6th, we'll hold a meeting with the planning group to discuss the annual plan for next year, and we'll try and use the review comments.

Dr. Garrett stated the draft annual plan would be out for comment in February or March, and explained that his executive summary handout (attachment 3) is the preliminary plan.

Dr. Garrett then presented a number of overhead slides describing the Long Term Monitoring and Research Strategic Plan (attachment 3). Some of his comments follow:

Adaptive Management: The concept is that we try the experiment, monitor it, and then try to discern the cause and effect relationships. Its a good model if it works, but there has to be close and constant interaction.

Peer Reviews: We needed a competitive review process, screened by independent reviewers who are selected but not controlled.

Science Advisory Board: The science board will advise us whether or not we are responding to stakeholder needs, and using good science.

Monitoring and Research: Dr. Garrett explained the difference between inventorying, monitoring, and research.

Geographical and Institutional Scope: (See attachment 4.) In the last TWG meeting, there was a lot of discussion about monitoring at Lake Powell, and there was a question on the impacts of the operating criteria on resources in the lake. The Center will complete their assessment in August and provide information which will help decide whether to continue monitoring in the lake.

Approach to Developing Long Term Monitoring and Research Plan: Barry Gold discussed the approach to developing the long term plan over the next two years and stated that if we do a good job we can expect the plan to guide us over the next several years. He reviewed past monitoring activities, discussing identified deficiencies, and explained why we bring in people who have worked in the canyon for several years to develop a conceptual model, and then do data comparison before changing any protocols.

Dr. Garrett then showed an overhead slide identifying stakeholder information needs. The suggestion was made to add tribal water standards for quality to the list of physical resources.

Cultural Resources: Ruth Lambert showed an overhead slide identifying stakeholder information needs in regard to cultural resources. She explained that this is from the latest revision, identified by agency and tribal sources.

Biological Resources: Barry Gold identified stakeholder information for biological resource needs. He stated that we know we're in a different equilibrium than we were, but we don't know the building blocks, functions, and interactions that will keep the program viable. We want to be able to predict ecosystems responses. He showed an overhead slide reviewing potential areas of responsibility in monitoring and research activities as, 1) fish and aquatic resources, 2) riparian vegetation, 3) wildlife and their habitat, and 4) threatened and endangered species. The question was asked how will we accomplish all four. He suggested we'll need to cut back 20-30% in areas where it won't interrupt data continuity. This will allow the Center to perform a synthesis over the next two years identifying linkages, monitoring methods, and viewing the river ecosystem from a broader perspective to improve understanding and methods of performing the work.

Socioeconomic Resources: Dr. Garrett continued identifying stakeholder information for socioeconomic resources needs, discussing the development of a model for evaluating the effects of the Secretary's actions on resources.

Recreation Resources: Ruth Lambert continued identifying stakeholder information recreation resource needs, discussing time intervals for monitoring.

Dr. Garrett suggested that much of this would need to be accomplished though cooperative programming with recreation people and other groups, stating that when you try and package the desires of all stakeholders on a fixed budget, over a 5 year time frame, some of it will need to be done through cooperative efforts to help get the information we all want at a cost we can live with.

Budget for GCMRC: Dr. Garrett discussed the proposed FY 1998-2002 budget for GCMRC, suggesting that it can be cut a little in most areas. He mentioned what an accomplishment it has been to be able to put as much money on the ground as we do, and that he believes the program can be developed within the budget guideline.

Action Item: The question was asked how the Center fits into the contingency plan for the Grand Canyon, and Dr. Garrett said we do plan on developing a contingency plan for the Center. The contingency plan would identify procedures to address critical resources in the canyon during emergency operations at the dam. It was decided that this is a special issue which will be looked at over the next two months.

There was a discussion about clarification of the long term plan. Dr. Garret said we use this transition work group (which is a precursor to the AMWG) to gain information. Then from that information we refine the plan. When the planning group was organized, we didn't feel we could change objectives, and some objectives are not appropriate to change at this time, however, there are some that do need refinement. We are struggling for clarification in some of these areas. We want to get it as close as we can the first time around. We've taken information needs and tried to develop a monitoring program out of it. There needs to be a new round of discussions in the Adaptive Management Work Group for these refinements.

The question was asked of Dr. Garrett of when he expects NRC review of the plan? Dr. Garrett said it had been scheduled for January, but has been moved back due to budgetary constraints.

The subject of the process for modifying the management objectives arose. Bruce recommended that if the planning group felt one or more of the objectives needed to be modified that they should try to put together a consensus of what they the changes are and submit them to the work group.

The question was asked if the Transition Group is still alive until the Charter is in effect, and how will we get work done in the new environment? Bruce commented that the Charter will be filed shortly, and the new work group members appointed shortly after. The concept is that the informal technical groups will be information groups, and will not violate the FACA. There were concerns about the Charter not complying to GSA regulation, and the comment was made that we don't want to repeat getting bogged down in the process and letting it get in the way of progress. Steve Magnussen explained the guidelines that were followed.

Action Item: It was decided that Bruce will research applicable regulations and provide information and an information session for potential AMWG members.

Temperature Control Update -- Larry Riley presented for Dave Trueman.

Larry Riley filled in for Mr. Trueman to discuss the Temperature Control Workshop held in January. Larry said that those who attended were interested in discussing some of the controversy which arose at the last TWG meeting in November. Controversy came from various sources, one being that many were not familiar with the history of the biological opinion and Reclamation's commitment in the GCDEIS to study the feasibility of temperature controls at the dam. Another source of controversy was about the decision-making process being flawed. Some mistakenly thought decisions had been pre-made to commit vast sums of dollars to build the structure before first answering basic questions about its feasibility. The feasibility of temperature controls will be carefully analyzed in an environmental assessment by Reclamation.

The group discussed NEPA procedures. Reclamation will use the environmental assessment to decide on future actions and recommendations. There was concern about warm water in July and August and the fact that there wasn't any one study that addressed all the resources. We need a thorough analysis. This will be done in the environmental assessment. The suggestion was made that when we do have additional workshops, that they are held in conjunction with this meeting.

Glen Canyon Dam Operating Criteria - Bruce Moore -- The operating criteria and 1997 annual plan of operation for Glen Canyon is in the solicitors office in Washington D.C. for review.

Status of Current Operations - Steven Lloyd -- Talked about the snow pack levels in the basin being at 168% of normal. The current prediction of the upcoming releases from the dam were approximately 21,000 cfs beginning in March and extending on into July.

Adaptive Management Work Group Charter - Steve Magnussen -- The Charter is close to final, and is in the Assistant Secretary's office now. There will be a letter coming out very soon asking the agencies involved to recommend individuals for formal designation as members of the Adaptive Management Work Group which will consist of 26 members.

It was suggested by Bruce that when this is accomplished, the group have its first meeting in June. Suggestions were made that all players need to get together prior to this time and study the legalities and governing regulations so that all understand how the system works. There also needs to be some training clarifying the roles of the technical groups in order to avoid crossing legal lines.

The need for having diverse representation was discussed, and there was a discussion on the function of the adaptive management work group and its relationship to the Center and maintaining separation to avoid conflict of interest questions. Dr. Garrett explained that this group cannot approve any research program, but will provide a forum for discussion on key issues, making recommendations to the Secretary, monitoring annual plans, and providing information for annual reports. The Center will respond to the information needs of the group. The group will meet twice per year.

There was a question about whether or not alternates would be allowed. It was explained that there will be a quorum of 15, and either you have a quorum at the meeting, or you don't. There will be no designated alternates.

The question was raised about when we can expect to have the Adaptive Management Work Group in place, and Bruce Moore suggested it would be around mid March after formalities are taken care of.

The meeting adjourned at 4:10 p.m.

Meeting of the second day convened Feb 4th, 8:00 a.m.

ESA Update - Christine Karas -- Christine distributed copies of the cover letter which was inadvertently left out of the attachment on the Biological Opinion of the Operations of Glen Canyon Dam from the summary notes from the last meeting (see attachment 5). FWS has not sent out their written review of the draft yet. The forecast indicated that we will not have 8.23 million acre foot water years for 3-5 years, so this gives us time to develop hypothesis for required research. Research will be done through the Center.

Data Integration: The main reason this is on the agenda, was to discuss the manager's workshop. We intend to follow the scientific workshop with another workshop designed for managers which will present the findings and be more resource management oriented than fishery science oriented. These workshops are very well organized with videos taken of the proceedings and are quite expensive to conduct. Christine suggested that just a simple presentation at this meeting would suffice rather than conducting a separate workshop to go over the integration report, and all agreed.

Final Report on Beach Habitat Building Flow - Dr. Garrett -- We will follow up with a beach habitat building flow symposium in Flagstaff April 8,9, and 10th, with the first 2 days focusing on research reports and integration of, and then an open public meeting, and then the summaries. Announcements will be sent to all in this group. One of the protocols is information - Ruth Lambert said protocols will be developed for workshops.

Dr. Garrett said he had planned to speak on contracts; however, we do not have the final contracts yet.

Backwater rejuvenation, Kanab ambersnail, and Southwestern willow flycatcher: Larry Stevens, BOR consultant, presented slides. The Kanab ambersnail population, located principally at Vasies Paradise, has recovered to pre-flood levels. The vegetation has recovered by about 45%. Larry has observed that the main preditor of the snail is a small mouse which eats it's weight in snails daily. He has also discovered a parasite in about 1% of the snails but hasn't any hypothesis concerning them.

Aquatic food base, native fish and trout: Bill Persons distributed a handout and discussed Summary of Results of the 1996 Experimental Flood (attachment 6).

Cultural resources: Signa Larralde discussed the effects of the experimental flood on cultural resources. There were no adverse affects to cultural resources because of the flood. Signa showed a pre-flood inundation model from Reclamation's Denver Office. Mitigation of adverse effects to sites included excavation (data recovery) and before and after flood documentation. One of the sites excavated yielded some of the earliest occupation dates so far recovered from the river corridor (AD500-600). Before and after photos of historic inscriptions showed no evidence

of adverse impact. The Spencer steamboat accumulated 3 to 15 cm of silt which was a positive effect from the flood.

This sums up the direct effects from flood. Most sites are located above the 45,000 cfs level. We found the flood did have beneficial effects by accumulating sediments that act as barriers to terrace erosion. Signa presented slides showing checkdams. About 100 checkdams have been constructed along the canyon. The flood completely buried some of the checkdams, depositing sediment behind them. We plan to revisit these checkdam sites to monitor how well they are acting as sediment traps.

We will be doing re-mapping and re-monitoring on a regular basis to gauge how long the beneficial effects of the flood will last.

Overall results of riparian vegetation studies suggest stability and vegetation recovery.

The historic willow tree at Granite Park was stabilized with rocks, and it survived well.

USGS organized a presentation on flood rationale and eddies, main channel flow routing and model, beach surveys, and debris flow changes. Mark Anderson began with an introduction, stating that it is difficult to do relevant adaptive management research.

Flood rationale: Ned Andrews explained that controlled flooding on the Colorado River in Grand Canyon by high flow releases from Glen Canyon Dam was proposed as a way to retain the limited sediment supply in the river and to extend the usefulness of USGS models to a wider range of flow conditions. The experimental flood in the spring of 1996 was found to have suspended sand from the river bottom and deposited some of it along the channel margins. He suggested taking a broader view of floods, and he drew a parallel with floods and fires. He said that seasonal high flows are an essential element of a riparian ecosystem. Particular species depend on seasonal high flows. There are healthy native fish populations where natural flooding is allowed to take place. The same goes for vegetation when natural high flows are not allowed to take place. The experimental flood was specifically planned to build sandbars.

Main channel: Steve Wiele showed slides of the mainstem during high flow, then the same reach with new sand deposits and clear water, and then another slide of a large recirculation zone. He discussed the advantages of using model predictions. The sand concentrations were much higher than those in the Lower Colorado floods. Use of detailed sediment-transport models shows that both the location and size of new deposits is strongly affected by sand concentration. In the modeled reach downstream from the Little Colorado River, the flood experiment caused erosion of sand from the main channel and deposition of eddy-associated deposits near the banks. Tributary floods such as like the 1993 Little Colorado River flood produce higher sand concentrations in the river and result in more extensive eddy deposits. Modeling also shows that deposition occurred at higher elevations early in the controlled flood when sand concentrations

were highest, and that decreasing sand concentration during the spike flow had little effect on those deposits.

Models: Eleanor Griffin presented overheads of average shaped channels. The one-dimensional flow model has been substantially improved by data collected during the experiment. The revised model now predicts the arrival of the midpoint of the rising limb of a flood wave to within 1 percent of the total travel time of the flood wave from the dam to Diamond Creek.

Flow routing: Julia Graf talked about time concentration flows, and presented overhead slides of time in hours from injection, and distance from injection in river miles. The approach to monitoring has been to monitor the amount of sand in cross sections scattered in specific sites of interest and to do it often with the primary purpose being to provide an accurate measurement of channel changes to check results. As we gain more confidence that the model is giving good results, then we can decrease the number of cross sections we measure. Monitoring of channel sand storage at 120 locations has shown that significant transport of sand occurs at dam releases less than 20,000 ft3/s. Before the March 1996 experiment, most measured sections were at an intermediate storage level. The relatively high, steady powerplant releases of June 1995-March 1996 caused loss of some sand deposited in the channel from the large 1993 Little Colorado River flood, but much of that sand remained in the channel when the flood began. A little more than half the sections (56%) in both Marble and Grand Canyons experienced a net loss of sand as a result of the high releases.

Beach surveys: Matt Kaplinski discussed the ongoing monitoring project of 35 sites scattered between Diamond Creek and Lee's Ferry. He presented slides showing points of a topographical map on eddy boundaries, explaining how boundaries are calculated. He showed several slides on beach surveys. Results showed good backwater habitat. Comparison of surveys at 34 sand bars before and after the controlled flood showed that sand bars gained a significant amount of sand. Sand bars increased by an average 53 percent in volume but increased only about 7 percent in planimetric area.

Eddies: Ned Andrews discussed detailed surveys at specific eddies, showing loss of camping beaches. The principle question is how much material is in the mainstem? How much sand deposition can you expect? He showed several slides of cross sections and talked about methods, day-to-day comparisons, and pre and post comparisons, showing scour and fill (redistribution of material in separation bars). He showed how drastic amounts came in on day 7 before the flood had receded a great deal. Most of the losses are from the center of the eddy and beyond. When you compare the eddy (topographically) on a day-to-day basis, you see most materials accumulating on the beach are at higher levels. We found that 60-70% of the eddies are larger, with no particular pattern. Evolution of sand bar topography during the controlled flood was very dynamic, as shown by measurements in five eddies. Sand bars aggraded and degraded by as much as 4 meters within 24 hours. Rates of erosion and deposition were highly variable within and between eddies. At most eddies, sand bars aggraded while sand was eroded from the channel and

outer parts of the eddy. Comparison of response of eddy complexes during this flood with that of previous floods shows considerable variability from eddy to eddy and from flood to flood.

Variability in sand bar response: Jack Schmidt observed that what we try and do as good science is to develop a measuring program that takes place over time. We don't have the manpower or dollars to measure every eddy each day. We have to ask the question if the eddies we measure are representative of longer stretches on the river. There will always be unique areas we need to measure. He talked about aerial photography that shows newly formed sandbars created from the flood, and he placed posters on the wall highlighting them. He presented slides of pre-flood and post-flood showing high sandbars. Showed also a low sand bar that was probably destined to become a marsh prior to the flood. He stated that as managers we can gain confidence with a picture of how the whole system looks because of the aerial photos.

Debris flow changes: Ted Melis discussed what the objectives of the experimental flood were (redeposition of sand, restore camping beaches, etc.) Monitoring of 16 debris fans showed that the amount of reworking depended on the length of time since aggradation of the fan. Older deposits, which had been reworked by tributary flooding and lower dam releases, were more resistant to reworking by the controlled flood than recent deposits. The largest amount of reworking was measured at recently aggraded fans at Badger and Lava Falls Rapids. At Lava falls Rapid, most of the reworking occurred during the rising limb of the flood hydrograph.

Costs associated with the test flow: Dave Harpman talked about the economic effects of the test flow on hydropower compared to no action. The effects of the test flow extended throughout the water year. The financial effects were accounted for separately to show the revenue that would have been collected if power had been sold. Financial costs may or may not have occurred depending on the secretary's decision, and may not ever cost Western, but economic costs are paid by all of us. He talked about possible future flood hydrography. This would result in significant less water. He discussed future implications (cost in revenues, not benefits). The test flow under perfect conditions cost about 1.3 million.

Lunch Break

Cultural Resources and Programmatic Agreement - Signa Larralde -- We sent out another draft of the historic plan with comments due February 1st. We'll put out final draft before April 1st, with a 30-day comment period, and then the final document will be produced. There will be a symposium on cultural resources in the river corridor at the George Wright Society Conference for Resource Managers in Albuquerque in March.

Wrap-up - Bruce Moore -- Bruce asked for comments. There were none.

The date for the next meeting is currently up in the air because of the Federal Advisory Committee Act (FACA), but this may be the last meeting of the TWG, as we know it. The next meeting will be of the Adaptive Management Work Group about June timeframe. The suggestion

was made that a sooner meeting is needed to define legalities, governing regulations, and consequences. Bruce said he'll gather such data and set a date for a meeting very soon.

Dr. Garrett stated that he and many others have spent 12 months developing the Center, and he thanked all those involved for working in the spirit of cooperation. He said it is such cooperation that will be necessary for the success of the AMWG.

The meeting adjourned at 2:50 p.m.

Attachments

1. List of Attendees
2. Presentation of Long-Term Plan (Draft #2)
3. Executive Summary, Long-Term Plan
4. Prospectus for Assessment of Impacts of GCD Operations on Water Quality Resources
5. Cover Letter for Biological Opinion Attachment, last mtg.
6. Summary of Results of 1996 Experimental Flood