



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

MEMORANDUM
SEP 18 2012

To: AMWG Members and Alternates

From: Anne J. Castle, Secretary's Designee 
Glen Canyon Dam Adaptive Management Work Group

For several years, tribal representatives to the Glen Canyon Dam Adaptive Management Work Group (AMWG) have been requesting that AMWG members take a multiple-day river trip with tribal leaders so that managers, decision makers, and stakeholders would be able to develop a better understanding of tribal perspectives on the significance of the Colorado River, the Grand Canyon, and the area downstream of Glen Canyon Dam. Other stakeholders have also identified a need for the group to have a better understanding of both dam operations and the impact of those operations on river processes and riparian resources in the Colorado River reaches below the dam within Glen Canyon National Recreation Area and Grand Canyon National Park. Many AMWG members had never been on the river or toured the dam, and many more have not had benefit of visiting these locations with their tribal, state, and other colleagues from the AMWG with an opportunity for interaction and dialogue. Although budget constraints precluded a multiple-day trip, we were able to combine a low-cost, one-day field working session with the regularly scheduled AMWG meeting, and kicked it off after the formal meeting adjourned on August 30, 2012.

After a wonderful and congenial riverside dinner on Thursday night hosted by the Grand Canyon River Guides, the morning of August 31, 2012 started off at Lees Ferry, where members of the AMWG gathered to board a bus for the trip to Glen Canyon Dam. At the dam's Carl B. Hayden Visitor Center, Facility Manager Jason Tucker gave the group an overview of the dam and the plans for the day. Leigh Kuwanwisiwma of the Hopi Tribe also spoke in detail about the Hopi perspective on the changes to areas held sacred by the Tribe associated with the construction of the dam, especially areas now inundated by Lake Powell.

The group then split into two separate tours that began at the top of the dam. This gave us a perfect view of not only Lake Powell upstream and the Colorado River downstream, but also the Glen Canyon Bridge, which was built before the dam. One of the original buckets used to hold 24 tons of damp concrete during the construction of the dam has been preserved and currently resides on the top of the dam. It took over 400,000 buckets of concrete to build the dam, and according to our tour guide, that volume could build a four-lane highway from Phoenix, Arizona to Chicago, Illinois. An original turbine also sits on top of the dam for visitors to see. After viewing Lake Powell and discussing the history of the dam, we headed to the elevator and went down 528 feet into the interior.

Once in the dam, the temperature dropped to a cool 55° F. Leslie James from Colorado River Energy Distributors Association (CREDA) and LaVerne Kyriss from Western Area Power Administration (Western) gave informal presentations about the dam and how Western's operations relate to the interests of CREDA and other power distributors, including the limitations of the distribution system and the impacts on various customers who receive power from the Colorado River Storage Project system. Some of the mysteries of spinning reserves, power purchase agreements, and a Temperature Control Device (TCD) were also discussed. Mike Yeatts addressed the TCD concept as originally envisioned, and explained that while the concept of a TCD had initially been developed to provide warmer downstream flows, new concerns associated with long-term drought and the potential impacts of climate change prompted consideration of a TCD that could provide both warmer and cooler downstream flows. Then it was on to the powerplant, where there are four 118,750 kilowatt and four 136,562 kilowatt generators driven by eight turbines.

After the tour of the dam, all attendees gathered on the deck overlooking the jet tubes to talk about the likely upcoming fall high flow release under the newly-adopted High Flow Protocol. Tribal nation representatives gave blessings and offerings for safe travel down the river. For her continued support and help to the Tribes and members of the AMWG, Anne Castle was presented with an offering of ceremonial tobacco, harvested salt, and red hematite by Loretta Jackson-Kelly of the Hualapai Tribe. Following a tribal tradition, Charley Bullets from the Southern Paiute Consortium gave everyone a small amount of ceremonial tobacco to place in the Colorado River as an offering for a safe and productive journey.

Splitting into three groups, participants traveled downstream on large motorized rafts operated by Colorado River Discovery. The rafts carried geomorphologists, biologists, and archaeologists, as well as tribal representatives, and informal discussion about the history of Glen Canyon operations and the impacts on resources were highlights as the groups floated along the river corridor.

Quietly floating down the river, the tall, red-hued sandstone canyon walls were mixed with black coloring, which according to tribal oral history is said to be the remaining evidence of the water catching fire. We viewed successful native vegetation restoration taking place on a selected terrace on the right bank through the work of Grand Canyon Wildlands Council, a bright green highlight against the red and orange sandstone. Also notable was the obvious defoliation of tamarisk trees bordering the river from the work of the tamarisk beetle. The beetle, introduced in Utah as a bio-control for non-native tamarisk, is spreading rapidly along the Colorado River.

Our first stop was at minus 9-mile bar (also known as the Descending Sheep Petroglyph Panel site) where we viewed prehistoric petroglyphs. Charley Bullets discussed the importance of the petroglyph panel to the Paiute, graced everyone with a song, and conveyed his deep disturbance by the desecration of the panel with graffiti. Loretta Jackson-Kelly and Tony Joe also spoke movingly about the meaning of petroglyphs to their people, and Mike Yeatts described the importance of petroglyphs to the Hopi. These tribal presentations gave the group a special insight into the perspectives of the Tribes.

After the presentations from the Tribes, everyone found a spot on the beach to enjoy lunch. Lori Caramanian, Jane Lyder, Paul Grams, and Bryan Carey were the bravest of the group and decided to cool down by dunking themselves—fully clothed—in the frigid Colorado River. As soon as lunch was over, we all jumped back on the boats to continue the journey to Lees Ferry. Small lizards climbed the hot sandstone walls, great blue herons soared overhead and stood along the river, a golden eagle flew above our heads, and many fish were swimming below the boats, including native flannelmouth suckers, which were visible through the crystal clear blue-green water.

Our second stop was a large gravel bar at minus 4-mile. We saw several groups fishing along the way, and it was almost impossible not to witness a fish being reeled in. Bill Persons and Seth Felder from the U.S. Geological Survey's Grand Canyon Monitoring and Research Center (GCMRC) were awaiting our arrival to show the group several rainbow trout caught the previous night. This allowed everyone to take a close look at the species that dominates the Colorado River fish community between Glen Canyon Dam and Lees Ferry, as well as see the range of size and condition of the fish present in this reach. We also viewed some of the fauna and food base that are helping the rainbow trout to proliferate in the Glen Canyon reach.

Around 3 pm, we docked at Lees Ferry where we disembarked. Following a brief, but intense monsoonal rainstorm, the group gathered just downstream of the Paria Riffle to close the day with discussion of the physical and biological processes that affect key resources in this reach of the river as well as downstream in Grand Canyon. We were able to see the huge sediment load being provided further by the Paria River and the demarcation between the turbid and the clear water which continues for a surprising distance below the Paria confluence. Jack Schmidt, Ted Melis, and Paul Grams from GCMRC discussed physical processes including sediment transport and the formation of rapids and backwaters and their importance to ecological and biological processes in the aquatic and riparian ecosystems of the Colorado River. In addition, Larry Stevens from the Grand Canyon Wildlands Council spoke about the composition and importance of Grand Canyon riparian ecosystems and how the existence of Glen Canyon Dam has altered that ecosystem. Finally, the group moved just upslope to see an example of gullying and erosion that can threaten archaeological resources and discussed the influence of the dam and dam operations, relative to this issue.

Every participant really enjoyed and benefited from their time on the river, and we were very pleased to provide the opportunity for this experience. Having scientists and tribal nation representatives provide their insights on each boat proved quite valuable. Participants were able to not only learn about the physical, biological, and cultural resources of Glen Canyon, but also how the Tribes view and value this unique landscape. We're hopeful that we will have more opportunities like this so that all AMWG members have the transformative physical experience on the River to help inform and guide their advice to the Secretary.