



CLUSTERING MAKES SENSE FOR COLORADO PLATEAU PARKS CONCERNED WITH WATER RESOURCES

By SUSAN DODSON

CENTRALLY LOCATED ON THE Colorado Plateau on the Utah-Arizona border, Glen Canyon National Recreation Area sports premier water resources and aquatic systems that include spectacular Lake Powell, and portions of the Colorado, San Juan, Escalante, Dirty Devil, and Paria Rivers. Adjacent upstream along the Colorado River lies Canyonlands National Park, Utah, another wonderland of Colorado Plateau and related water resources. Downstream along the Colorado River lies the Grand Canyon, Arizona, associated very closely with the national recreation area and the Glen Canyon Dam (photo) that controls river flow through the park.

The operation of the Glen Canyon Dam is the topic of an environmental impact statement (EIS) that is currently awaiting a record of decision by the secretary of the interior. Issues related to the Grand Canyon Protection Act and Endangered Species Act are considerations of the EIS. These issues are politically and environmentally complex; the new cluster park concept makes good sense for resource managers along the Colorado River corridor to work together to assess and manage the river resources and processes as one system. Aquatic ecology study at Glen Canyon is just one area that offers opportunities for cluster park co-operation and collective knowledge benefits that can aid many Colorado Plateau parks.

WATER QUALITY

Over three million visitors come to Glen Canyon National Recreation Area each year for a total of 2.4 million visitor days. The average stay of four nights on the Lake Powell shoreline results in wa-

ter quality impacts from improper human waste disposal. Glen Canyon staff presently monitor water quality

along Lake Powell and Colorado River shoreline sites for fecal coliform bacteria, the indicator organism for human waste. State and federal water quality standards for contact recreation include fecal coliform not to exceed 200 colony forming units per 100 milliliters of water (200cfu/100ml).

Lake Powell is so vast that the park operates two 1994 Utah Department of Health certified environmental laboratories, one at Bullfrog and one at Wahweap, in order to meet analysis holding times. During peak season, Memorial Day to Labor Day, the park samples 54 sites on Lake Powell every other Monday, and seven sites once a month along the river below Glen Canyon Dam to Lees Ferry. During winter months staff discontinue river sampling and scale back lake sampling to fewer sites once a month.

This year, above average precipitation caused Lake Powell to rise over 50 feet to within 5 feet of full! As rising lake waters inundated popular camping beaches, bacterial levels at eleven sites exceeded standards. To protect public health and safety, superintendent Joe Alston closed those beaches to swimming until bacterial levels became acceptable. Most of the closed sites are vehicle-accessible and experience heavy use; additionally, most closed sites have restroom facilities. Fluctuating lake levels dictate that bathrooms be located above high water, which can pose an inconveniently long walk to visitors when the lake is low. Misplaced *catholes*, RV dumping, and pets are other potential bacteria sources when water levels rise above recently contaminated beaches.

Media coverage and public concern prompted over 100 phone calls a day during beach closures. Overwhelming com-

munity and visitor support was channeled into a volunteer outreach program to educate visitors to the problem and proper human waste disposal practices.

In a water resources study of a different nature, park staff and USGS scientists sampled park springs for physical, chemical, and biological characteristics in 1994-95 in an interagency seep and spring monitoring program. The USGS will submit a final report to include a long-term monitoring strategy for seeps and springs within the unit.

FISH

Glen Canyon also has outstanding recreational fishing opportunities and complex management concerns due to the demise of native fishes. The native fish community in the Colorado River system has declined since the creation of Glen Canyon Dam. Most notable in their decline are the four endemic "big river" fish, which include the federally endangered Colorado squawfish (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). Some of these species still occupy habitats within the park.

One entity that focuses on the plight of the native fish is the Lake Powell Native Fish Group. Initiated in 1993, the group includes members from the National Biological Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, National Park Service, state game and fish departments, academia, and private environmental consulting firms. It acts as an ad hoc group of biologists who partner for the conservation and management of native fishes in Lake Powell and the recreation area. Using information pooled from the native fish group, the National Park Service, Arizona, and Utah are developing an interagency fish management plan for Glen Canyon National Recreation Area. This plan provides a forum

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for cooperative, integrated fisheries management as directed in the recent presidential order on recreational fishing.

MUSTERING THE CLUSTER

In recognizing that several parks are located along the Colorado River corridor, one must also recognize that the cluster park concept will allow aquatic ecology to expand beyond the lines on a map that we call boundaries. Clearly, the river and reservoir processes here are only a part of a larger system that affects water quality and fish movement among the several parks. This concept has been pioneered in recent years by regional fishery biologist Ed Wick. Wick's studies of native fishes have taken him to spawning bars in Dinosaur National Monument, Colorado, and through Canyonlands National Park as he followed the newly hatched larvae drifting with the current all the way into Lake Powell at Glen Canyon National Recreation Area. Researchers have also monitored adult endangered fish migrating hundreds of miles through this corridor of parks. Broadening our scope among cluster parks will offer the ability to share resources, expertise and management options.

Mandates of the Grand Canyon Protection Act require a long-term monitoring component to assess impacts of the operation of Glen Canyon Dam upon resources in Grand Canyon National Park and Glen Canyon National Recreation Area. An interagency monitoring group is organizing for the long-term, and NPS Colorado Plateau cluster parks are working together to identify issues and roles in this process. These mechanisms only help us to stand unified in our mission to preserve and protect our precious natural heritage, the national parks along the Colorado River on the Colorado Plateau.

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