

River Report

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GLEN CANYON DAM AT A GLANCE: Forever changed, just how is the river adjusting to this dam?

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If you could climb aboard a boat on Lake Mead and power upstream along the Colorado River, you would pass through what is arguably one of the greatest natural wonders known the world over: the Grand Canyon. And as you continued upstream, sandwiched between walls of metamorphic and sedimentary rocks, admiring the layer upon layer of different colors, the towering, carved cliffs above, the trickling waterfalls, the white sand bars and the vegetation along the riverbank, 278 miles into your journey you would have to stop. Standing before you, right below the state line between Arizona and Utah, 710 feet tall and 1,560 feet wide, is a marvel in its own right: Glen Canyon Dam.

Historically, the flow of the Colorado River has varied dramatically from season to season and year to year, sometimes overflowing its banks and other times reduced to a mere trickle. (Though flows still fluctuate, they are far less extreme than what historically occurred.) Overall, the popular sentiment at the time Glen Canyon Dam was built was to harness the power of the river, not only to prevent flooding, but to create a stable water supply for a rapidly growing human population in a semiarid region at the mercy of droughts.

Holding an average of 26 million acre-feet (enough water to supply one quarter of the United States for a year, or about two years of total average flows for the Colorado River), Lake Powell, named after famed Colorado River explorer John Wesley Powell, is the second-largest (the first is Lake Mead at over 28 million acre-feet) artificially created body of water in North America. Extending 186 miles up the Colorado River and 75 miles up the San Juan River, the reservoir boasts 1,960 miles of shoreline – a haven for recreational boaters, campers, hikers and fishermen. But more importantly, it serves as a way for the Upper Basin states of Colorado, Utah, New Mexico and Wyoming to meet their obligations under the 1922 Colorado River Compact that divides the river among seven states.

“Glen Canyon Dam is an insurance policy for the Upper Basin,” said Larry Anderson, director of the State of Utah’s Division of Water Resources. “It allows us to meet our downstream commitment without having to cut off any of our water users.”

The dam also provides another benefit: electricity. With a capacity for nearly 1300 megawatts of electricity, enough power for about a quarter-million homes, the dam provides power to rural electrical co-ops, municipalities, irrigation and electrical districts, Indian reservations and governmental facilities throughout the southwest. This power, produced by the U.S. Bureau of Reclamation (Bureau) and marketed by the Western Area Power Administration (WAPA), an agency of the Department of Energy, is the primary source of revenue for paying back the dam’s capital costs, and operation and maintenance costs.

Until 1991, water releases out of Glen Canyon Dam for downstream users were orchestrated to maximize power production. However, there were drawbacks. The trade-off for this on-demand power production was a river that fluctuated heavily in the course of a day, even hourly. In the late-1970s, scientists began to notice the impacts the dam and the high-low flow regiment were having on the downstream environment. Water, once warm and silty that flowed unregulated and powerful during the spring and early summer, was now clear and cold and flowed as power needs dictated.

With passage of the National Environmental Policy Act (NEPA) in 1969 and the Endangered Species Act (ESA) in 1973, a new era of environmental conservation and protection was ushered in, mandating an obligation to improve the natural environment. Some might argue that science, in some instances, has become as formidable as political policy in governing how water flows through Glen Canyon Dam. The Adaptive Management Program (AMP), started in 1996, integrates stakeholders from federal, state, environmental, recreation, power and Tribal levels to discuss, experiment, study, monitor and advise the Secretary of the Interior on both the policy and science surrounding Glen Canyon Dam.

“I don’t think it’s the case that we can re-create the Grand Canyon before Glen Canyon Dam was in place, but I think it’s possible to satisfy a vision that all AMP participants will agree to,” said Dennis Kubly, lead scientist for the Bureau in the AMP. “But that vision has to be flexible.”

Despite flexibility, in the nearly five years since the AMP was institutionalized, power providers have had to soak up all the costs for both the program and the modified operations at the dam.

“People need to understand that Glen Canyon Dam has gone from a 1,300 megawatt resource, to a 900 megawatt resource and even down to 330 megawatts this past summer,” said Leslie James, executive director of the Colorado River Energy Distributors Association, an organization representing over 130 power providers in the Colorado River Basin and member of the Adaptive Management Work Group. “You take that amount of capacity out of the western wholesale market and its going to have a serious impact on prices.”

Others suspect that the new operating requirements are not solely responsible for the higher power prices this past summer and that other reasons for higher power prices include power shortages in California due to deregulation, bottlenecks in power distribution, and an already below-average water year on the system.

Since implementation of new operations at the dam, power interests have paid millions of dollars annually for the AMP. However, those championing the environment counter that money spent by power interests towards the AMP is subtracted from repayment obligations on the dam, a point rarely emphasized when the price tag of revised operations is calculated. Additionally, some feel that not enough action is being taken through the AMP to save the environment.

“I’m not seeing evidence of increasing evidence of flexibility to conduct experiments,” said Geoffry Barnard, president of the Grand Canyon Trust and a member of the AMP’s workgroup. “I’m seeing ossification.”

For the most part, stakeholders have tried to coexist and determine how best to operate the dam for the benefit of all. But tensions still exist between parties and a recent development in the AMP is considered, by some, to be an indicator that turmoil still exists in the program.

From power and water users, to environmentalists and recreational users, all agree the future of operations at Glen Canyon Dam will play a pivotal role in the management of the Colorado River. This issue of *River Report* examines the history, controversy and progress that surround Glen Canyon Dam.