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# Glen Canyon Dam full of use, conflict after 50 years



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By **Brandon Loomis**

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years ago. There wasn't much, period.

A dam changed all that.

In the late 1950s, the U.S. Bureau of Reclamation built a one-bowling-alley town and a bridge to support construction of Glen Canyon Dam, which would create America's second-largest reservoir and fuel a postwar boom in the Southwest. Before the dam, there was no Page, no Lake Powell, no neon-buzzed loop of motels for the water skiers and houseboaters who would one day skitter across a huge new lake.

On Sept. 13, 1963, the last bucket of concrete tipped 583 feet above the Colorado River, spilling both prosperity and perpetual controversy. Glen Canyon Dam was completed, and the newly plugged Lake Powell was on a 17-year rise toward 9 trillion gallons.

"It was huge," recalled Page Mayor Bill Diak, then a Southern California teen who camped here often with his parents just to gawk as man conquered nature. "It was impressive to see those big concrete buckets go over and dump."

Of the waterway to come — the 254 square miles he would explore every summer weekend while raising four kids, the dozens of mysterious and freshly accessible side canyons, the non-native fish that were introduced, the American Indian artifacts that were submerged — "I had no idea."

These are all part of the landscape now, for more than 2 million visitors each year. Yet Lake Powell's story — one of boisterous boosterism and environmental destruction, of a glorious future and a lost past — still flows down an uncertain channel.

**For and against**

Today, after the Colorado River watershed's driest 14-year run on record, the reservoir is less than half-full. The prospect of a shortage that could cut into Arizona's take of the river's water looms. Fans of the reservoir say it's a natural cycle that will soon end. Opponents say it's time to think about pulling the plug. They've never liked how the dam drowned a canyon and changed the river's ecology, and they see an opening presented by climate change.

"Whether it's extreme droughts or extreme floods," said John Weisheit, a Utah environmentalist who expects both conditions to occur as climate variability grows, "you're going to lose this (dam) system."

His organization, Living Rivers, sings in a growing chorus clamoring to "Fill Mead First" by draining Lake Powell unless the larger downstream reservoir is full. They believe a drying climate won't keep both reservoirs full, and draining Powell would effectively restore a free-flowing river past Glen Canyon and into the Grand Canyon.

Page resident and Friends of Lake Powell member Paul Ostapuk sees it differently. Pacific Ocean patterns dictate snowfall cycles that feed the Colorado River, and they have swung wildly before. Ostapuk finds it ironic that those who swore high water would topple the dam in the early 1980s (when huge releases of water dangerously ripped rock from dam-bypass tunnels) now are saying drought spells doom.

"It's hard for me to believe that right at 2000, when (Lake Powell was) basically full, that a permanent climate switch happened," he said. "Don't give up on the Colorado River. It could come roaring back, and I think people will be surprised how much water comes down."

The river is erratic, draining anywhere from 5 million acre-feet in a drought year to 20 million after an epic winter. Each acre-foot supplies roughly enough water for two Southwestern households for a year. Without both Lake Mead and Lake Powell, Ostapuk said, a water shortage already would be drying up Arizona farms. California has older, superior rights to Colorado River water that would trump Arizona's during a crisis.

"You have to have the ability to catch the wet years so you can ration it out in the lean times," he said. "If you'd only had Lake Mead (during the current drought), it would be totally empty. Lake Powell's what's getting us through this."

The Bureau of Reclamation concurs. It calls Lake Powell critical to the mix of water-supply options already projected to fall short — barring extensive conservation and reuse efforts — over the coming half-century.

"Drawing down Lake Powell would result in reduced yield to the system," bureau spokeswoman Lisa Iams

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said in an e-mail. "Losses due to evaporation would increase if additional water currently stored in Lake Powell were released to Mead," because Mead is at a lower, hotter elevation.

"The option to remove Lake Powell altogether would have significant negative impacts to the system because system storage would be dramatically reduced."

Lake Powell can hold up to 24million acre-feet, while Lake Mead can hold nearly 29 million. Some Lake Powell opponents have recently pointed to studies suggesting that seepage in Glen Canyon's porous sandstone is siphoning water away.

Water politics are far out of mind at Bullfrog, one of three main marinas on the reservoir. Tucked away down a desert road behind Utah's Capitol Reef National Park, this arm of water teems with speedboats and houseboats. The ramp is a constant procession of pickups and trailers.

On a late August afternoon, 18-year-old Garrett Funk of Colorado lashed windsurfers atop a sport-utility vehicle trailing Jet Skis. With family and friends, he had boated to the San Juan River and back, a family tradition.

"Pretty much grew up here," he said. "I've been on this lake pretty much since I could walk."

His 22-year-old brother, Geoffrey, recounted their father's tales of high water in the 1980s, when it was possible to swim under the towering rock formation that is now a high-and-dry Rainbow Bridge.

He pointed to the white "bathtub ring" about 100 feet up an orange rock wall.

"We've been coming up here since the water was above that mark," he said.

These days, with the water's surface at 3,600 feet above sea level — down from a peak of 3,700 feet — it's a strenuous hike to reach the parking lot from a docked boat.

## Boating and fishing

The low water and what it leaves behind — especially mud flats for river runners to slog past — can create a nuisance, and even a stench in side canyons.

Fluctuating water levels force marinas to keep chasing the shoreline — extending boat ramps and, in at least one case last month, moving one altogether. This is part of the routine of a fluid system, Glen Canyon National Recreation Area interpretation chief Denise Schultz said. All floating structures, including docks, are routinely moved even when the reservoir isn't pushing historic lows.

Fishermen love the low water. It forces the fish out of the brushy tamarisk trees that are submerged during wetter times.

"Now, with the lake low, you don't have to fish in the trees," Page resident Kevin Campbell said on a recent morning after landing and releasing more than 40 striped bass just upstream of the dam.

Stripers. Largemouth and smallmouth bass. Walleye. Crappie. Sunfish. Channel catfish. Lake Powell offers more variety than an Arizona angler could have dreamed of before 1963. Campbell capitalizes at least 30 days a year. "It's just the scenic beauty of the whole place," he said, "and the variety of species is a big thing for me."

Below the dam, the aquatic legacy is mixed. Water gushing through the hydropower turbines comes from deep in the reservoir and is colder than native fishes such as the endangered humpback chub evolved to withstand. As chubs and other species declined downstream in the Grand Canyon, non-native cold-water trout thrived and created Arizona's finest trophy rainbow fishery at Lees Ferry.

The dam also blocked the sand that had flowed through the Canyon for ages, altering fish and wildlife habitat while depleting beaches used by river rafters. Smaller beaches support less windblown sand to root mesquites and other vegetation, or to cover and preserve archaeological sites from erosion.

"The Colorado River Storage Project Act passed in '56, and the big dam-building era was on us," said Jan Balsom, Grand Canyon National Park's deputy chief of resource management. "It wasn't until years later that we realized what was happening environmentally."

## Economic powerhouse

By then, the dam was an entrenched economic engine.

Visitors to Glen Canyon National Recreation Area pump some \$400 million into northern Arizona and southern Utah, according to Friends of Lake Powell. That figure is similar to a \$380 million estimate that Northern Arizona University researchers made in 1999.

The dam generates hydropower to supply cooperatives that have 4 million customers spread from Arizona to Wyoming. It generates less power now, when the water is low.

There are eight turbine units, each capable of producing 165megawatts. A single megawatt is enough to power 250 homes at a given moment. But that capacity is available only when the reservoir is full. Plant supervisor Roger Williams said the water pressure now yields 135 megawatts per unit. Another water-level drop of 100 feet and the dam would have to cease hydropower production or risk damage to the turbines. By

that time, the units would be producing just 75 megawatts apiece.

These economic drivers are apart from the development and crops grown through the reservoir's water deliveries, or its cooling of the nearby Navajo Generating Station, the West's largest coal-fired power plant.

Growing awareness of the damage to the Grand Canyon led to an environmental-protection act in 1992, mandating dam releases that take river ecology into account. Since then, the Interior Department has sought to restore something of the river's past characteristics. Since 1996, and most recently last fall, the department has loosed four huge water flushes from the dam to mimic historic floods and churn up sandbars.

The experiments built new sandbars and beaches in the short term, but eroded a smaller number of existing ones. In the long term, routine water releases have eroded the gains.

The National Park Service supports frequent high releases, perhaps even annually if rains bring enough sediment — as Balsom believes late-summer rains did this year. Interior officials have not said whether they will authorize a high flow this fall. Balsom thinks it could help build on last year's.

"We may actually start seeing restoration of those resource values," she said. "We've never done them back to back, so we'll see."

The program remains controversial, both for power cooperatives that bypass their opportunity for electricity when the floodgates open and for environmentalists who say only draining the reservoir and restoring the sand will do. Tributaries downstream of the dam supply only about one-tenth of the sand that the pre-dam river carried through the Canyon.

### **Sacred sites ruined**

Where Native Americans are concerned, the dam desecrated more than a canyon or even ancient burial grounds. It flooded sacred sites, both with water and people.

The confluence of the Colorado and San Juan rivers was a place of spiritual offerings before it was swamped.

"We consider the San Juan River male and the Colorado female," said Adair Klopfenstein, a Navajo and cultural-studies director for Tuba City schools. "Where these two met, it's kind of like they mated. Offerings were left for different kinds of moisture and rain clouds.

"A lot of places like that were destroyed when Lake Powell came in."

Most prominent among them, and the subject of an unsuccessful lawsuit by those who wanted to keep Powell from filling, is Rainbow Bridge. A sandstone arc standing 290 feet tall and 275 across, it traditionally is considered a "rainbow turned into rock," Klopfenstein said.

"In the same way that we respect and use rainbows in our prayers and songs," he said, "that rainbow we respect, so we don't pass under it."

Rainbow Bridge is a national monument separate from but administered through Glen Canyon National Recreation Area. In high-water years, it is inundated up to the gap beneath the arc. These days, the water is a half-mile away. Tour boats deposit visitors willing to take a short hike to see it. The National Park Service says 200,000 to 300,000 people visit in a year.

"It's incredible that nature makes such a thing," Swiss tourist Mariann Rothe said when she saw Rainbow Bridge in late August.

Out of respect for Native American traditions, the Park Service asks people to refrain from walking under the arc. Interpretive ranger Mike Young said that of the 250 or so people he advised of the sensitivity each day this summer, about 50 went to stand beneath the rock. "It is an outstanding view from right under it," he conceded.

### **Benefits and costs**

The dam has irked old-time boatmen from the beginning. A few who scraped together surplus military equipment to float the relatively calm water of Glen Canyon in the 1950s had learned and loved what the dam would kill.

It was a place both horizontally and vertically far removed from roads. Richard Quist of Salt Lake City fondly remembers rafting the wilderness with his dad, which led to a family rafting business that continues on the Southwest's rivers.

"Everything about it was just a magical place," Quist said. "Talk about a place to turn a kid loose to wander, to play and swim and hike the side canyons and find amazing things."

There were petroglyphs. Pictographs. Pit houses and rock-walled granaries from Anasazi days.

"There were more archaeological treasures lost in the flooding of Glen Canyon than probably you'd see in a hundred well-stocked museums," Quist said.

The dam brought new, motorized recreation for thousands of people who never would have visited

otherwise, he said, but at a painful cost. "It made a hell of a lot better river than it does a reservoir."

For rafters who don't mind starting below the dam, though, there's an argument to be made for corralling the Colorado. The dam evens out the peak flows each spring and keeps the river a little higher through fall, said Korey Seyler of Colorado River Discovery tours in Page. He has paying customers from March through November. Without the dam? He figures he'd close shop in September when river rocks emerged.

Ostapuk, the Friends of Lake Powell member, said Glen Canyon remains wild, with uncrowded side canyons requiring no permit to explore. "It's just pure, raw adventure out there," Ostapuk said.

Fifty years after that last bucket of concrete, when Page Mayor Diak stops to look at the dam and the high-voltage lines spreading from it across the Colorado Plateau, he still sees the future. Whether building a dam here was ideal is now pointless to argue, he said.

"You can't live in the 15th century and expect to have the things that we have now."