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COLORADO RIVER IN THE GRAND CANYON

THREAT: Climate change, outdated water management

STATE: Arizona

AT RISK: Ecosystem health, reliable water delivery, regional economy

SUMMARY

The Colorado River's Grand Canyon is one of our nation's, and the world's, greatest natural treasures. A sacred place of deep cultural significance, it is also a beloved recreation and travel destination, and home to endangered plants and animals. But rising temperatures and severe drought driven by climate change, combined with outdated river management and overallocation of limited water supplies put this iconic river at serious risk. As it makes critical decisions about water management along the Colorado River, the Bureau of Reclamation must consider the environment a key component of public health and safety and prioritize the ecological health of the Grand Canyon.

THE RIVER

The Colorado River flows nearly 1,500 miles from the Rocky Mountains to the sea in Mexico. Along its way, the river traverses some of the driest and hottest areas of the country, providing drinking water to 40 million people, including some of the nation's largest cities including Los Angeles, Phoenix, Las Vegas, and Denver, as well as 30 federally recognized Tribes including the Navajo, Ute, Havasupai, and many others. The Colorado River provides irrigation water for nearly six million acres of ranch and farmland, including farms that grow 90 percent of this country's winter vegetables. The river is also the engine of a recreational economy dependent on adequate river flows and water supplies to operate. In all, the Basin feeds a $1.4 trillion economy integrally connected to the broader national economy.

The Grand Canyon is the iconic heart of the Colorado River. This 277-mile stretch of river in Northern Arizona is unmatched in nature. Recognized as a World Heritage Site, one of the Seven Natural Wonders of the World, and one of the most famous landscapes on earth, the Grand Canyon is the foundation of the Colorado River Basin's natural and cultural fabric, and the National Park draws millions of visitors each year.

The biodiversity of the Grand Canyon is astounding. From alpine meadows and soaring Douglas fir of the North Rim at over 8,000 feet to the stiff Blackbrush and fuchsia petals of the Pincushion cactus in a desert the same elevation as Tucson, the Grand Canyon is an ecological refuge. It is home to unique wildlife including bighorn sheep, mountain lion, elk, and beaver, as well as fish such as the endangered Humpback Chub and Colorado River Pikeminnow.

The Grand Canyon is the lifeline between the Upper and Lower Colorado River Basins and is bookended from above and below by two massive dams, forming the two largest reservoirs in the country. The Grand Canyon National Park starts 16 miles below the tailwaters of Glen Canyon Dam located in Page, Arizona.

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Construction on the dam was completed in 1963, and waters began to back up behind the dam, flooding the back country of Glen Canyon to create Lake Powell. Hoover Dam in Nevada was completed in 1936 and backs up water to form Lake Mead — the largest reservoir in the US — backing up the river 65 miles at its longest reach to Pearce Ferry at the western end of Grand Canyon.

THE THREAT

The Colorado River is on the brink of collapse, and the Grand Canyon is in the crosshairs as river managers make critical decisions about how to allocate dwindling water supplies. While the river originally terminated in Mexico's Sea of Cortez, it has been so over-tapped since the mid 1900s that it dries up 100 miles from its original end point. Over the past 20+ years, river flows have dropped precipitously, and water levels of Lake Powell and Lake Mead have fallen to historic lows, in large part driven by climate change.

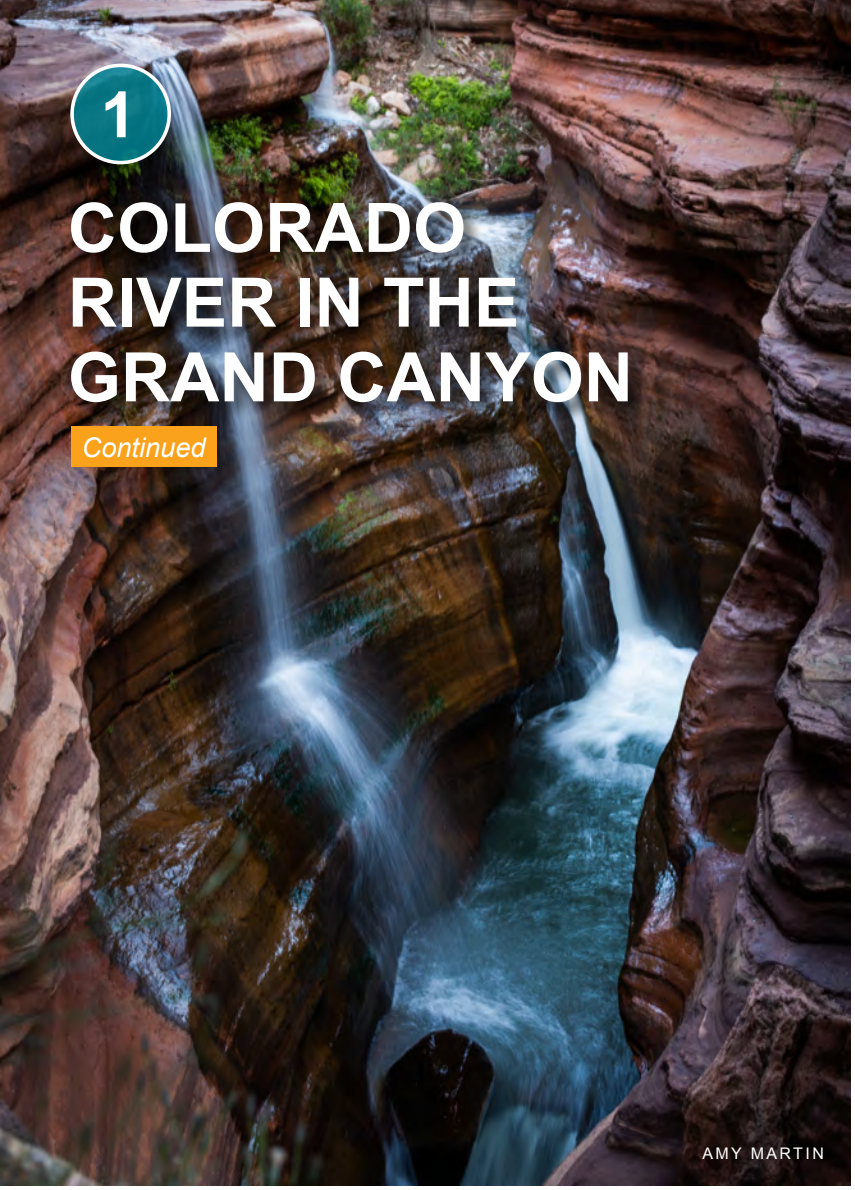
To protect critical infrastructure including dam integrity, hydropower generation and the ability to deliver water through the Grand Canyon to Nevada, Arizona, California and Mexico, the federal government and the 7 basin states must continue to modify the amount and timing of water allowed to flow through Glen Canyon Dam. The question before river managers is "will we attempt to solve the basin's water challenges by sacrificing the health of the Grand Canyon, or will we pursue lasting solutions that balance water demands with environmental health and safety?"

In response to more than two decades of dry years throughout the Colorado River basin, in 2022 the Bureau of Reclamation (BOR) took emergency actions to protect infrastructure at Lake Powell. Despite the prospect of an above average water year in 2023, which may buy a little time for the basin, reducing water deliveries and resulting changes in flows through Glen Canyon Dam into the Grand Canyon in the coming years is inevitable.

Altering flows from Glen Canyon Dam has significant impacts on the Grand Canyon. The prolonged drought and accelerating impacts from climate change triggering falling lake levels at Lake Powell has already caused significant harm to the canyon. If future flows are severely altered without consideration for the environment, it could further devastate the Grand Canyon's irreplaceable natural, cultural, and recreational values.

For many, the Grand Canyon and its surroundings are sacred. Reducing releases from the dam to turn the river into a mere trickle would not only impact native fish, plants, and wildlife, but also the health and well-being of those who are inextricably tied to this place. More than a dozen Native American Tribes and Pueblos revere the Canyon, and millions of people a year find awe, healing, and excitement by just being in and around this place. These challenges are serious threats to the health and well-being of both people and the environment, and if not solved, could do serious, lasting harm to arguably the most recognizable National Park in the country, and all people who love it.

Furthermore, with the rapid and consistent decline of water elevations at Lake Powell, Colorado River flows from Glen Canyon dam are warming. That is, the warmer layer of water in the top of the reservoir's water column has dropped to a level where that warm water is flowing through the dam's hydropower tubes. This situation has allowed high-risk, non-native fish such as smallmouth bass to pass



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through the dam into the Grand Canyon. Smallmouth bass are new to the Grand Canyon environment and biologists fear they will cause serious harm to both cold-water sport fish (rainbow and brown trout) and juvenile native and endangered fish such as the humpback chub. Without a mechanism to stop these and other types of non-native fish from getting into the Grand Canyon, cold-water and native fish populations that have been supported through long-term investments of millions of dollars and countless operational hours will once again be placed in serious jeopardy.

WHAT MUST BE DONE

We simply cannot allow the beloved Grand Canyon to become an ecological sacrifice zone as we work to solve the Colorado River basin's ongoing water crisis. The BOR is currently considering two federal actions where the public can participate and encourage the development of flow regimes that will incorporate and consider ways to protect the ecological, cultural, and economic values of the Grand Canyon.

Low flows in the river are creating a perception that we can no longer implement the types of flows needed to support environmental and natural resources in the Grand Canyon because there is not enough water. We can, however, both protect public health and safety and support the ecosystem by ensuring that water delivered through the Grand Canyon is released in a way that not only accounts for critical infrastructure and sustains the river's essential connection to the Lower Basin States and Mexico, but also protects the canyon's cultural heritage and the natural environment from extinction.

BOR is requesting public comments around a Supplemental Environmental Impact Statement (SEIS) to temporarily amend a set of rules known as the 2007 Interim Guidelines that could alter flows through Glen Canyon Dam in the short-term. BOR's purpose for this action is to address the immediate emergency to the Colorado River community's water supply and public health and safety for the Basin. It is critical that BOR recognize the environment as a key component of public health and safety.

The Grand Canyon's ecological stability is at stake and must be part of the calculations for operating the Colorado River system under the SEIS. That is, in determining the suitable range of flows to pass through Glen Canyon Dam in response to the emergency conditions in Colorado River Basin, it will be imperative to identify and assess the critical resource needs within the Canyon and the operational opportunities available to help sustain and improve physical conditions of the Colorado River in Grand Canyon. Specifically, BOR should consider how it can best utilize and time the altered flow volumes from Glen Canyon Dam to replicate natural flow dynamics through Grand Canyon.

Understanding the impacts from the range of possible flow options must be comprehensive to fully evaluate and prioritize the tradeoffs to the array of physical, biological, and cultural values and what adaptation or resilience strategies will be needed to protect and sustain these resources.

This future is not possible without leadership and representation of Colorado River Tribes. As sovereign nations, tribes must have an equal role in the deployment and implementation of federal infrastructure dollars and all future Colorado River management decisions. It is imperative that the seven Colorado River Basin states and the Biden administration establish a way to formally engage with Tribal Nations to address this river emergency. They must act with urgency to invest and implement equitable and proven solutions to reduce water risk in the Basin and build a stronger future centered around a healthy Colorado River.