

# 'If they can't make it, none of them will.' These Idaho salmon may hold key to survival

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In less than 20 years, wild Chinook salmon may disappear. But one group nestled in Central Idaho's rugged wilderness may be the key to the threatened species' recovery throughout the Northwest.

Protecting salmon in the Middle Fork of the Salmon River will be especially critical for species survival, several scientists told the Idaho Statesman. Chinook salmon born in the crystal-clear waters of the Middle Fork might be able to adapt to climate change, researchers say, and if bigger threats like hydropower systems are removed, [wild salmon](#) could have a fighting chance.

The Middle Fork is the "crown jewel" of salmon habitat in the Northwest, Idaho Fish and Game fisheries biologist Tim Copeland told the Statesman.

"Those are the best populations," Copeland said. "And if they can't make it, none of them are going to make it."

## **Middle Fork of Salmon River a critical habitat**

Sprawling through 2,800 square miles of nearly untouched wilderness, the Middle Fork remains home to almost all the species that were there when Lewis and Clark arrived in the early 1800s. And it's one of the most productive salmon habitats in the Pacific Northwest.

Almost all of the Middle Fork's Chinook are wild, which means they haven't bred with salmon released from hatcheries. The wild fish have high genetic diversity—a rarity in the Columbia River Basin, Scott Brandt, fisheries biologist at Boise National Forest, told the Statesman.

Genetic diversity is key to resiliency and thus key to the species' survival, Brandt said. With the highest number of returning salmon per spawning adult reported in scientific literature, Central Idaho's Chinook are quick to take advantage of favorable conditions.

The salmon also spawn at 6,000 feet, the highest elevations of any spring and summer Chinook salmon population in the world, Brandt said. The

frigid waters contribute to a large and dynamic landscape, with many habitats to support salmon throughout their life cycle, he added.

Even so, Middle Fork Chinook are in a precipitous decline, with low abundance and low productivity in the past five years, Russ Thurow, research fisheries scientist at the Rocky Mountain Research Station, told the Statesman. Scientists estimate Chinook populations in the region are 3% of what they were in the 1950s and 1960s, and that even these populations may have been about 30% of what they were in the 1870s.

## **Middle Fork can drive salmon survival**

For two million years, Chinook salmon have inhabited the Salmon River, Thurow said, and they have evolved alongside fire, storms, and debris flows. Thurow expects the Middle Fork's Chinook to be best positioned to adapt to future challenges, such as climate change.

Reductions in stream flow, rising [water temperatures](#), and unprecedented wildfires are the main climate impacts on Idaho's salmon, John Buffington, research geomorphologist at the Rocky Mountain Research Station, told the Statesman. Variability in stream flows, causing periodic droughts or floods that destroy fish nests, are another concern, Buffington added.

"In order to face what's coming with climate change, we really need those kinds of populations," Thurow said.

As other salmon in lower elevations and with less adaptability flounder with warmer temperatures from climate change, scientists could one day use the Middle Fork Chinook to replenish fishing areas in lower elevation habitats, Thurow said. This would require national and international climate change mitigation efforts, Thurow added, so that the fish aren't outpaced by their changing environment.

And the Middle Fork is best suited to maintain future populations, Thurow said, because it can support many more fish than currently live there.

## **Salmon most threatened by dams**

The cool waters of the salmon river do not help the Middle Fork Chinook when they migrate, however. Middle Fork Chinook remain threatened by out-of-basin challenges far from their spawning grounds, and their numbers may continue to diminish even if they adapt to [climate change](#).

"That's where the major bottleneck is," Thurow said.

Fisheries biologists use the "four H's" to define salmon recovery: habitat, hatcheries, harvest, and hydropower. In the Middle Fork, the fish are safe from three of those impacts—their habitat's intact, they're free from hatcheries and they have low harvest, Thurow said. The only impact is from hydropower.

Middle Fork Chinook encounter lethal obstacles while traveling to the ocean as young salmon and then back to their spawning grounds as adults, Thurow said. Studies suggest that dams and reservoirs hurt salmon numbers the most because they make it harder for the fish to pass through alive.

Dams do not allow for a free-flowing river, Kurt Tardy, anadromous fisheries biologist for the Shoshone-Bannock Tribes, told the Statesman. Dams back up water, create reservoirs, and slow the salmon travel times, Tardy said, which exposes fish to dangers such as heat or predators.

Before the dams were built, a drop of water took two days to move from where the Lower Granite Dam sits, in Southeastern Washington, to the

ocean, Thurow said. Now, that process averages almost 20 days.

The Shoshone-Bannock Tribes have been working on salmon restoration for 50 years, including in the Middle Fork. But it doesn't matter how good the habitat is if not enough adults can return from the ocean to occupy it, Tardy said. Knowing that Middle Fork habitat is relatively strong, people need to start looking toward out-of-basin factors like hydropower systems, Tardy added.

The [federal government](#) has spent more than \$17 billion on wild fish mitigation strategies that have not increased fish numbers, said U.S. Rep. Mike Simpson, R-Idaho, who last year proposed breaching four dams on the lower Snake River in Washington. Last month, The White House released two reports stating that removing those dams might be needed to restore salmon runs at an estimated cost of \$11 billion to \$19 billion.

Extinct Chinook salmon would be an ecological and recreational loss, especially for Idahoans who rely on these fish, Thurow said.

"It would be an almost inconceivable loss for us," he said.

For the Shoshone-Bannock Tribes, the river's [wild fish](#) are the community's culture and history, Tardy said.

Science and traditional ecological knowledge can drive programs that can make changes, Tardy said, but [salmon](#) need to return to a level at which tribal members can use them for subsistence while maintaining the species for future generations.

"It's a guarded hope," Tardy said.

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