

Opinion: The massive dam removal on the Klamath may save salmon but can't solve the West's water crisis

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Sheldon SmilingCoyote locked his eyes on the push and pull of the waves in front of him, suddenly slashing the tip of his handheld hook through the water, pulling out a slimy prehistoric fish.

Lassoing the lamprey over his head to keep it from squirming off the hook, he ran to a hole he'd dug in the sand and released the fish on a pile of its relatives. SmilingCoyote tallied two dozen in his catch on a late February day.

These nutrient-rich fish, a wintertime staple for the Yurok people, lost 400 miles of their historical spawning habitat to four dams that transformed the churning upper reaches of the Klamath River into slack water, threatening the lamprey and other [native species](#). But that's set to change.

This year, Yurok and Karuk [tribal members](#) began pressing the roots of native plants like Oregon ash and Klamath plum into the fluffy volcanic soil surrounding the Iron Gate Reservoir, some 200 miles east of the free-flowing water at the river's mouth. It's the first in a series of three pools that will be reverted to those lush flows when the dams are destroyed in what may be the nation's largest planned [dam removal project](#), already underway.

The Yurok and Karuk tribes have been connected to the Klamath River for thousands of years, but that relationship was disrupted by the construction of dams more than 100 years ago. Following the largest fish die-off in U.S. history, the tribes launched a decadeslong fight to remove the dams, a nearly complete effort that is poised to restore the lower Klamath River back to "the creator's country." Watch the short documentary below.

The Seattle Times traveled from the Klamath's mouth, among the towering redwood forests of Northern California, through the ancestral

lands of the Yurok, Karuk and Hupa, to the concrete dams set to come down and to the farmland and ranches the basin supports. The stories told along the way not only paint a picture of a decadeslong fight to restore a river's flow and a way of life but also the distinct challenges of finding enough water to go around amid a changing climate. The dam's removal won't resolve a growing water crisis. Yet what happens on the Klamath has implications for dammed rivers across the American West.

The Indigenous people of the Klamath have worked from a blueprint drawn by the Northwest's Lower Elwha Klallam Tribe, which successfully fought for the removal of two dams on the Elwha River of the Olympic Peninsula. They seek to heal the damage done over the last 150 years of colonization. Restoring balance in the river could mean the return of food sovereignty and a repaired relationship with the land for a Salmon People.

It could serve as an example for the Salmon People of the Columbia Basin, who have been fighting for a similar future for the Snake River that once teemed with Chinook. But one bigger barrier stands in their way—the support of Congress.

In the West, a region plagued by drought, it's a massive undertaking to bring back rivers' historical flows. These freshwater highways are being sucked dry to support government-subsidized farms, cattle ranches and everything that remade the identity of these places.

While Indigenous people were promised the right to continue their subsistence life in exchange for their vast homelands, the federal government also promised settlers water to begin a new tradition: draining and filling wetlands to plant foreign crops, taming the rivers and valleys.

Now, a political tug-of-war is playing out in an attempt to mend broken

promises.

In the coastal town of Klamath, at the westernmost edge of the Yurok Reservation, there are no grocery stores. Instead, there's a gas station minimart that smells of evergreen-tree-shaped car air fresheners. Behind refrigerator doors are few meal options—Hot Pockets, frozen burritos and some TV dinners.

Here, the lamprey are known as "salvation fish." After adult salmon have spawned and died off in the fall, the Yurok people rely on the long, ugly fish for sustenance in the winter months. SmilingCoyote learned to hook them when he was 5 and started making his way to the mouth of the river on his own as a 12-year-old.

"It's just as important as anything else that swims in the river," SmilingCoyote said. "Everything is valuable here. Even if it's not edible, it's sustainable to the earth. If this river was to ever dry up and go away, we wouldn't be the people that we are. The river is everything."

A century of strife

The Yurok creation story, in short, says the creator made the land, the water, the creatures and last, the Yurok people. If the people took care of the land, water and creatures, and never took more than they needed, they would always have enough.

Susan Masten's grandmother lived in a redwood plank house overlooking the mouth of the Klamath, its boards now in a pile on the family's property. She gathered roots and berries, fish and mussels.

Before colonizers trampled the Klamath watershed during the gold rush, the Yurok people had lived in this same area for tens of thousands of years and upheld their end of the creation-story bargain. But for years,

"the only people bearing the burden of conservation were the Indian people on the river," said Masten, former chair of the Yurok Tribe.

It was here in 1969 that California game wardens arrested her uncle, Raymond Mattz, and confiscated his and his friends' gillnets. So began the fishing wars.

In 1973, the U.S. Supreme Court recognized the rights of Yurok people to fish on the reservation. A few years later, the California Department of Fish and Wildlife closed tribal fishing on the Klamath under the auspices of conservation while the sport and commercial fisheries carried on.

Intense clashes between protesters and federal officials ensued. Law enforcement agents wore bulletproof vests and helmets, Masten recalled. They rammed Yurok boats and ripped up nets. One officer told Masten they were there to "protect the salmon."

The only thing that landed in the newspapers was the "Indians taking all the fish," she recalled.

Bill Bowers, a Yurok elder and tribal court judge, learned to fish these waters when he was 5, just as SmilingCoyote did. In late February, he sat in The Historic Requa Inn, looking out as fat raindrops filled the teal, fast-moving Klamath just beyond the window pane. He wished he could instead tell his story from a boat.

Each year, the Bowers family heads to Brooks Riffle, a fishing hole named after their family.

Bowers recalled the fishing trips of his youth on the river, often riddled with misadventures: his tent catching fire, frightening encounters with bears and going to extreme lengths—fishing in the dark without

flashlights—to avoid getting caught by law enforcement.

"The salmon that come in here ... have been feeding the Yurok people's genetics for thousands of years," Bowers said. Their DNA is intrinsically linked, he said. That relationship, he added, should trump all other claimed rights to what the river provides; it's something he raised his children to understand.

The dust began to settle on the fishing wars in the early '80s when Bowers started a family.

"My introduction to Yurok country and my spirit coming here to this world was I just saw this great, beautiful fishery on this beautiful, fun river," said his daughter, Amy Cordalis. "We were exploring the beach below my grandma's house. There were ceremonies down there too. It was gorgeous and beautiful and felt safe and special."

"There still was all that trauma there," she said, of the fight over fishing rights. "But of course, as a kiddo, I didn't really see that."

When Cordalis came back to the reservation for a college internship with the tribe's fisheries department in 2002, the river was teeming with Chinook.

Then, the Bush administration authorized a diversion of Klamath Lake water to irrigate farms in the basin, rather than feed the river. The administration reacting to a bucket-brigade protest led by farmers who were denied their usual water allocation a year earlier.

As Cordalis made her way down the river in an aluminum fisheries boat that year, she saw—and smelled—thousands of dead fish.

Fishers and [environmental groups](#) went to federal court in Oakland,

Calif., saying the Bush administration gave too much water to farmers and ranchers at the risk of thousands of Chinook and coho, both threatened with extinction.

Several years later, a scientific report affirmed the salmon would have survived if managers had kept water in the river. It is still considered to be the biggest fish kill in U.S. history.

"I just remember being in a tribal fisheries boat and thinking: My great-grandmother is rolling over in her grave right now," Cordalis said, "and I've got to do something about it. And I instantly thought, I'm going to go to law school and devote my life's work, my life force to try to prevent this kind of thing from ever happening again. And so that's what I did."

Cordalis had just begun practicing law as the negotiations on the Klamath intensified.

Yurok, Karuk, Hupa and Klamath people traveled to Edinburgh, Scotland, in 2004 to tell Scottish Power shareholders what their hydroelectric dams were doing to California rivers and their fish. For many of the more than two dozen people in attendance, it was their first time on a plane.

When PacifiCorp, the company operating the Klamath dams, was sold to Warren Buffett's Berkshire Hathaway, people from the Yurok, Karuk, Hoopa and Klamath nations descended on the headquarters in Omaha, Neb. They came back year after year.

In 2006, PacifiCorp's licenses to operate the dams were set to expire, and company officials knew either costly fish passage would be needed or the dams would come down.

In the Klamath Basin, the aging structures could power fewer than

100,000 homes on a good day. They were never used for watering crops or drinking, so it made economic sense to remove the dams.

Cordalis, as the Yurok Tribe's general counsel, in 2016 helped shepherd a landmark settlement agreement to remove the dams after a decade of negotiations among PacifiCorp, the states of California and Oregon, local and tribal governments, conservation groups and commercial and recreational fishing organizations.

The utility's cost was capped at \$200 million, with an additional \$250 million from a California voter-approved water bond.

Signatories navigated the regulatory process from there, and in November 2022, the Federal Energy Regulatory Commission approved the removal of the four dams making up the Klamath Hydroelectric Project. Dam removal is underway and will conclude in 2024, reopening 400 miles of habitat—much of which has been inaccessible for over a century.

When the dams fall

On an early March day, pickups blazed down crumbling county roads atop the sticky volcanic muck leading to two dams on the Klamath: Copco 1 and Copco 2. Trucks towed side-dump trailers around the winding bends dozens of feet above the glassy surface of the Iron Gate Reservoir.

Crews contracted by the dam removal nonprofit, a coalition of signatories of the amended Klamath Hydroelectric Settlement Agreement, were piecing together temporary housing and offices.

Steep rapids once carved through the canyon here. Now, power lines hum nearby. Copco 2 diverts the river through tunnels to a powerhouse

about a mile and a half away. Copco 1, built in 1918, is the oldest dam on the Klamath and cut the river in half when it was built.

Upstream, the river hits the J.C. Boyle Dam, a roughly 60-foot diversion dam that dried up more than 4 miles of the river after it came online in 1958.

Below the Copco dams is Iron Gate, the lowest of the four dams set to come down. It stands 173 feet tall and is made of an iron-rich chalky rock that blends with nearby cliff sides. Below, the river returns to swirling flows, reminiscent of its formerly freed state.

In May, construction crews replaced 3,300 feet of drinking water line for the city of Yreka. Other pre-removal work includes installing a massive culvert at Fall Creek, placing a bridge over the river at Daggett Road, and drilling and blasting a 90-foot-long tunnel at the base of Copco 1.

By the end of September, Copco 2 will be gone.

J.C. Boyle, Copco 1 and Iron Gate will be removed simultaneously, and all of the dams' bits and pieces will be trucked out or buried in the ground by the end of 2024. With a combined height of more than 400 feet, the Klamath dam removal would be the largest in the U.S.

The three reservoirs need to be drawn down simultaneously to limit the effects on salmon, according to planning documents. The four Klamath dams hold back about 15 million cubic yards of sediment. While the river will naturally flush much of that, crews will also dredge to make way for the sediment flows.

Observations from the late 1800s to early 1900s suggest an estimated 650,000 to 1 million adult salmon used to make the sprint from the mouth of the river to Upper Klamath Lake and beyond to spawn.

The river used to see more than 100,000 spring-run Chinook return each year, but in the past decade, fewer than 2,000 adults have made the annual trek back. Meanwhile, poor water quality as a result of low flows and warming water kills an estimated three-quarters of out-migrating young salmon on their way to the ocean.

The Yurok Tribe has not seen a profitable commercial fishery in more than a decade.

Removing the dams is only the first step in the restoration effort.

The next five years will be a delicate balance of human intervention and allowing the river to take its course, said Gwen Santos, lead ecologist on the Klamath River renewal project for Resource Environmental Solutions, the company tasked with the restoration and monitoring after the dams are gone.

While the focus of the project is fish passage in the river, Santos said, crews have been working since 2019 to create restoration plans. The Yurok Tribe hired Josh Chenoweth, the director of the revegetation effort for the Elwha dams, to clear the land of invasive plants.

Chenoweth and his crews have sown the rich soils with native grasses and flowers. Now, they're reintroducing native buckbrush, serviceberry, Oregon ash and Klamath plum to the landscape.

More than 15 billion seeds are being cultivated in nurseries like BFI Native Seeds, a Moses Lake farm irrigated by the Columbia River.

The goal is to disperse nearly 17 billion native plants from more than 90 species across the 2,200 acres of newly exposed ground at the reservoirs. Crews from Resource Environmental Solutions and the tribes will restore some 22 miles of tributaries and river habitat.

They'll take water quality samples, monitor stream velocity and mitigate as needed.

The downstream habitat is already falling into place as the Yurok Tribe has invested millions in recovering rearing habitat for young salmon. Each project has helped inform the recovery work around dam removal.

At the site of a former mill in the redwoods, a channeled creek has been restored to its historical meandering path, and a flood plain has been freed from asphalt and fill. Native trees and shrubs anchor the banks, and otters dive under logs as they twist and play in the stream's churning waters.

Dams diverting rivers for hydropower, drinking water or to water crops were built before modern environmental laws and before tribal consultation was a consideration, so water allocations from these rivers are largely based on century-old compacts drawn up by white settlers. Now the effects of climate change have rendered many obsolete.

"We can't manage water in the 21st century like we did in the 20th because there's simply not as much water," said Craig Tucker, environmental policy advocate for the Karuk Tribe.

Above the Klamath dams set for removal are irrigated lands that face an uncertain future, where choices over water use could determine the success of the Lower Klamath's unprecedented restoration.

A future with less water

About a 20-mile drive down the highway from the J.C. Boyle Reservoir, a black heifer lying on her side in the dusty brown earth heaved a tiny head sticky with amniotic fluid from her birth canal.

She stood up, and a calf clumsily fell from her body onto the earth. She licked it clean.

It was calving season for Tim O'Connor, a third-generation rancher in the Klamath Basin. He separated the first-time mamas into one pasture and kept an eye on them as they went into labor for up to 10 hours. His only goal was ensuring they survive.

O'Connor's grandfather left Ireland for the U.S. more than a century ago, and his family has been raising cattle since. But it's getting increasingly hard to make a living, he said.

The hydropower dams are just one piece of the machine that settlers built from the Klamath. Upstream, two other dams were built and miles of irrigation canals were dug to feed thousands of acres of farmland.

Crops in the Klamath Basin were valued at about \$200 million in 2019; that's roughly 7% of the output of Washington's Columbia Basin farms.

In the heat of the summer, a cow or bull needs about 1 gallon of water a day per 100 pounds of body weight. On average, that translates to 20 gallons per cow or 730,000 gallons of water to raise 100 cows for one year, not factoring in the water it takes to grow their food.

After an uncharacteristically wet winter, the federal Bureau of Reclamation allocated 260,000 acre-feet, or over 8 million gallons of water, from Upper Klamath Lake to be used for farms and ranches in the area this year.

Water allocations to farmers over the past year caused river flows to drop below requirements set by the Endangered Species Act for the first time since the 2002 fish kill, which left hundreds of salmon eggs exposed without water.

This spring's allocation announcement is a little more than half of the historical demand from the Klamath Water Users Association, an agricultural lobbying group representing about 175 million acres of crops in the basin. Last year's allocation was less than one-fourth of this year's.

In April, officials voted unanimously to shut down California's commercial and recreational salmon season. The decision was largely informed by alarmingly low salmon runs as a result of heavily dammed, diked and channeled streams struggling to maintain healthy flows in the face of droughts and warming summers.

"Our water challenges and shortages in the West are not driven by the Endangered Species Act or radical environmentalists or the deep state," said U.S. Rep. Jared Huffman, D-Calif., at a subcommittee meeting on water resources earlier this year. "In fact, the principal driving force is climate change. That's, of course, the case with a historic drought in the West and other threats to our water supply."

The Klamath has evolved to be a prime example of this.

Tracey Liskey's family laid claim to 1,000 acres in the Klamath Basin in the early 1900s. Back then, it was a vast wetland.

When the Bureau of Reclamation dammed the river at Klamath Falls, it diverted some of the wetlands' flow downriver, and the railroad tracks cut off the rest of the marshy basin. Around the 1920s, the valley was drained, and the Liskeys began building out their feedlot where they'd eventually grow hay for the hundreds of cattle roaming their acreage

On an early March day, Liskey's boots kicked up dust as he led a tour of his property.

The land was dry.

The river was flowing at about 870 cubic feet per second below Iron Gate Dam, slightly lower than a year prior, despite the heavy rains and snow the region saw this winter.

In 2001, the Bureau of Reclamation shut off the water to the farms and ranches in the basin for the first time. For Liskey, it was a life-changing moment.

"My son had just graduated ... and decided he better go find a job he could afford or that maybe could support him and the family," he said. "We have nobody else to take over the ranch."

Now, he rents pieces of his land to other young farmers and ranchers. If you came to Liskey's, or any other Klamath Basin farm 20, 30, or 40 years ago, the people would probably look the same. But today, Liskey's property is divided into small subplots.

Liskey, clad in a flannel shirt and Wrangler jeans, led a tour of his farm in a pickup, swinging in and out of the cab while holding a handle above the door.

Steam spilled out as he opened the door to one of the many greenhouses on his property. Inside, pink, orange and tan fish, each no bigger than a slice of bread, gasped at the surface of their burbling tanks filled with water from a natural geothermal hot spring under Liskey's land.

These tilapia will soon be scooped out and shipped off to grocery stores. Nearby, tomatoes, onions and herbs grow in soil enriched with the tilapias' waste.

Liskey's land is a hodgepodge of geothermal energy production, greenhouses full of exotic plants, vegetables and fish, and some traditional feedlots and cattle pastures.

As farmers are forced to sell off bits of their less-profitable lands, the agriculture in the basin might look a bit more like this.

Water will certainly be harder to come by, but it still links the basin and the lamprey fishing grounds hundreds of miles away and nourishes the futures of animals and humans alike.

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