

# **A dam blocking 348 miles of salmon streams hasn't generated electricity since 1958. But who will take it down?**

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Credit: CC0 Public Domain

It has no license to produce electricity, hasn't generated a kilowatt since 1958, and provides no benefits for irrigation or flood control.

But one thing Enloe Dam, built 100 years ago, still does very, very well: block fish from reaching more than 340 miles of high-quality, cold-water habitat upstream in the Similkameen River.

The dam is of no use to anyone, not the small rural public utility district (PUD) that owns it, and not to tribes longing to bring salmon back to this river. Obstacles of cost, liability and a quest by the PUD to revive the dam for more than a decade stood in the way of removal.

But now new efforts are underway to take down Enloe Dam.

"It's got to go," said Rodney Cawston, chairman of the business council of the Confederated Tribes of the Colville Reservation, as he watched the river crash in a 53-foot white cascade over the spillway of the dam. "Our people have lived off salmon for thousands of years. This is of just huge importance to us."

Taking down Enloe Dam is crucial for rebuilding steelhead, lamprey and chinook salmon in this river, said Cody Desautel, natural resources director for the tribes. The question isn't whether this dam in their traditional territory should come down. But how, and at what cost, and who pays.

"This is a mathematic and engineering question, and a question of where the sediment (behind the dam) goes," Desautel said. "But the question of whether to remove it or not, that is a no-brainer."

Tribal business council member Andrew Johnson's Indian name is badger—an animal whose ferocious determination well matches the tribes' efforts to restore salmon where dams have long been a barrier.

In 2019, the tribes even began reintroducing salmon above Grand Coulee and Chief Joseph dams.

Here, on the Similkameen River, a tributary of the Okanogan, which flows into the Upper Columbia, the tribes see a chance for restoration that is one of a kind.

"There is nothing else like it in the entire upper Columbia," said Chris Fisher, principal fish biologist for the Colville tribes.

Estimates in a 1983 report to the Bonneville Power Administration compiled by snorkel surveys of the Similkameen system reported 1.2 million square yards of spawnable habitat for steelhead trout and 439,000 square yards for chinook that could accommodate 98,000 spawning steelhead and 55,000 chinook.

Estimates are just that. But there is no question that taking down the dam, built just west of Oroville, would open passage to an entire system of wilderness tributaries in upstream, precious, high-elevation, cold-water habitat. Dam removal could add decades to the survival of upper Columbia chinook and steelhead, Fisher said, cold-water species listed for protection under the federal Endangered Species Act.

As climate warming heats both air and water temperatures downstream, cold-water refugia such as the Similkameen are more important than ever for salmon survival.

Dam removal could help the Okanogan Public Utility District too.

The utility already is battling \$40 million in costs from wildfires that since 2014 have burned down utility poles and destroyed other critical power-supply infrastructure. Now the dam just keeps piling on costs—and likely will never produce power again.

It's not for lack of trying. The PUD for more than a decade pursued reelectrification of the dam, pouring money into engineering designs and

schematics, relicensing costs and litigation. Only to discover it would cost at least \$87 million to reenergize the plant, delivering power at about \$150 per megawatt hour. That's more than 10 times the cost of power from the local mid-Columbia PUD.

Given the cost, the Okanogan PUD in 2019 voted to cease any further effort to rejuice the plant, after 13 years of study at a cost of about \$15 million.

"That money was just wasted on lawyers and bureaucracy, every little study you had to do," said Scott Vejraska, a rancher, utility lineman and secretary of the three-person board of the Okanogan PUD.

Now the utility has to pay for a dam-safety study demanded by the state Department of Ecology—at an estimated cost of \$7 million.

By now, the utility is happy to part ways with the dam, if someone—anyone—would assume the cost and liability for dam removal.

"I used to say we'd sell it for a dollar," Vejraska said. "But now I'd say 50 cents. And I'd take payment plans. Somebody, sign on the dotted line. Just take it from us. Do whatever you want—we will be fine with that."

A mural in the heart of downtown Oroville, just south of the U.S.-Canada border on Highway 97, depicts the town's proud history in this country of big, blue skies and sagebrush, basalt cliffs, apple orchards and ranches, all threaded through with rivers with names as beautiful as their waters: Similkameen, Okanogan, Columbia.

In one mural panel, a miner pans gold. The profile of an Indian woman graces another, and the Great Northern Railroad and orchards also are depicted. Enloe Dam gets a panel all its own, awash in golden colors, and



standing tall between cliffs of basalt, its powerhouse chugging away. "Honoring our past, celebrating our future," the mural, commemorating a town centennial in 2008, proclaims.

But that mining past also complicates the future for Enloe Dam.

Built originally as a wooden structure in 1906 to power mining camps, it was rebuilt as a concrete dam at a cost of about \$125,000 from 1920 to 1923. The dam generated only about 3 megawatts, depending on river flows.

When cheaper power became available in 1958, the Okanogan PUD decided the costs of the dam were no longer economical and shut down generation. The dam hasn't made a kilowatt since.

Today the powerhouse—listed on the National Register of Historic Places—is a spooky mess of broken glass and ruin. Vandals, it's said, long ago chopped the copper windings out of the generators with axes.

Now the dam that helped power the mining boom for which the town of Oroville was named is a burden, weighing all the more heavily because of the industry it helped power.

In the removal of Enloe Dam, no question is bigger than what is in the approximately 2.4 million cubic yards of sediments backed up behind the dam.

Contamination in the sediment from 100 years of mining upstream would increase the cost and complicate dam removal. Just what is in the sediment, and how much sediment is impounded by the dam, is under active study.

Results are due this winter from a sediment survey done by the U.S.

Geological Survey (USGS), from analysis of sediment coring done last year. More survey work also was underway at the dam in October.

Inter-Fluve, a Hood River-based consultant, was reviewing the dam for a report due in February on possible removal strategies.

And on a recent afternoon, hydrologist Chris Curran with the USGS was tracking slowly back and forth across the dam's reservoir, in an open skiff piloted by Arnold Abrahamson, a fisheries technician for the Colville tribes.

Two truck batteries powered a sonar device and laptop the team was towing across the lake in transects. The readings from their sonar survey, combined with a second assessment with ground-penetrating radar, would be used to determine the volume of the sediment.

Together with the coring survey, the data will help inform the task of creating a price tag and a possible removal scenario, Fisher, the fisheries biologist for the Colville tribes, said.

The possible benefits are enticing.

Chinook have been filmed jumping at the face of the dam, which means steelhead—better jumpers—likely also are ascending a natural falls just downstream of the dam. Coyote Falls, as the picturesque cascade is called, has itself been part of the long and storied history of Enloe Dam.

Coyote is a key figure in tribal teachings for people of the Lower Similkameen Indian Band, just across the border in Canada, and for the Colville tribes. Legends and stories and traditional laws laid down by Coyote have influenced just how backers of restoring the natural flow of the Similkameen have made their case.

According to traditional tribal stories, Coyote denied salmon passage to the upper watershed as punishment for a Lower Similkameen woman who denied him when he sought her as a wife. Because of this teaching, the Lower Similkameen Indian Band has long opposed providing a fish ladder or other artificial passage for salmon beyond the falls.

But both the Colville and Similkameen tribal governments have adopted resolutions in favor of restoring the river to its natural state, with removal of Enloe Dam.

"We have never opposed that," said Lauren Terbasket, one of the signers of the resolution when she was on the council for the Lower Similkameen Band. For the Lower Similkameen it's just a question of how dam removal would be done, to prevent release of any contamination, Terbasket said.

Another concern for the Colville tribes is protection of spawning habitat for downstream salmon.

Sediment management also was the largest question in the dam removal project on the Elwha River, still the biggest dam removal project in the world.

From initial plans to truck and haul the sediments—more than 10 times the volume behind Enloe—a plan eventually emerged to gradually take down Glines Canyon dam, the upper of the two, and let the river do the work of sluicing most of the sediment to sea. Today, that gift of sediment long locked up behind the dams is rebuilding the river's ability support salmon and a menagerie of life, from the mountains to the sea.

After the \$325 million federal project, completed in August 2014, salmon and steelhead and bull trout are surging back in a river reborn.

Compared with 70 miles of habitat unlocked on the Elwha, taking down Enloe Dam would open 348 miles of mainstem and tributaries.

"There just isn't anything else you could do that would generate that much benefit for salmon," Fisher, the tribal fish biologist said. "It is an order of magnitude of habitat opened, like adding another Methow Basin, all by removing that dam."

At 33 years old, Jarred-Michael Erickson is the youngest member of the business council for the Colvilles, and as the head of the fisheries committee for the council, he takes an intense interest in the Enloe.

He is part of a new generation of tribal leaders, partnering with NGOs, utilities and other governments using dam removal to solve community problems.

The Tulalip Tribes were instrumental in working with the nonprofit American Rivers with backing from the state Legislature and other funders to take down the Pilchuck Dam when the structure, built 100 years ago, had become too costly to operate for water supply for the city of Snohomish.

The tribes helped spearhead the \$2 million project to remove the 10-foot high water diversion dam on the Pilchuck last August.

The Nooksack Tribe and Lummi Nation supported removal of the dam on the middle fork of the Nooksack last July, when the city of Bellingham needed to blow up its 25-foot-high water diversion dam that was also no longer providing benefits for ratepayers, and just piling on costs. The \$17 million dam removal project restored 16 miles of chinook spawning habitat.

As dams across the country age past their useful lives, the pace of dam



removal is accelerating. In all, 1,722 dams have been demolished through 2019 across the country. Of those, 114 dams were in the Pacific Northwest, including 33 in Washington. No state has taken down more big dams than Washington, for the benefit of salmon as well as the endangered southern resident orcas they feed.

Enloe Dam isn't a behemoth like Glines Canyon, at 210 feet tall, or Elwha at 108 feet, but it is classified as a medium-hazard dam by the state, and at this point, is just blocking fish passage and costing ratepayers money.

"I'm why I wanted to be a tribal leader ... to weigh in on things like this, that help people everywhere," Erickson said.

"A more natural system here would be a beautiful thing."

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