

Removing Washington salmon barriers surges to \$1M a day, but results are murky

March 11 2024, by Mike Reicher, The Seattle Times



Coho salmon, Tillamook State Forest, Oregon. Credit: Oregon Department of Forestry

The coho salmon has already conquered the Ballard Locks fish ladder, swum 17 miles through urban Seattle waterways and powered through a tunnel under nine lanes of Interstate 405.

It faces a gantlet of pipes and concrete tunnels ahead, the legacy of human development over once-pristine habitat. Next up is a nearly 300-foot pipe beneath an indoor shooting range and a parking lot.

If the coho makes it through, all the way to the upper reaches of this obscure stream in Bellevue, it will find the single most expensive construction project in the state's costliest-ever [salmon](#)-recovery undertaking: \$110 million for new bridges to carry Interstate 90 and local traffic high above a restored creek.

But just a third of a mile farther upstream, the fish will slam into a pile of boulders and junk metal, before confronting two concrete pipes perched 5 feet above the streambed. Surveyors determined no salmon could make that leap.

Yet the Washington State Department of Transportation ignored those barriers on Sunset Creek and hundreds of others like them across Western Washington in its massive effort to restore salmon habitat. And the estimate has now doubled to as much as \$7.8 billionâ€the cost of replacing the Highway 99 viaduct along Seattle's waterfront, twice over, plus change.

WSDOT greenlit the Sunset Creek project anyway in its race to comply with a federal court order won a decade ago by Northwest tribes. By 2030, the state is required to tear out hundreds of poorly designed concrete or metal pipes called culverts that block fish passage under state highways.

WSDOT and Gov. Jay Inslee's administration aren't factoring in "because the court order doesn't require it" the countless other culverts owned by municipalities, railroads, homeowners and others that block salmon migration.

A Seattle Times analysis of available project design reports found that for every barrier WSDOT fixes, nine others upstream and two downstream partially or fully block fish migration. The state or other owners may fix some of them, but most are not scheduled for removal.

The pace of construction has picked up dramatically in the past few years, which drivers can see in snarled traffic and torn-up roadways. Washington is now spending about \$1 million a day to meet the deadline.

In some cases, the work has restored good salmon habitat.

In many others, WSDOT and the Inslee administration have narrowly focused on fulfilling the terms of the court order and haven't seized opportunities to prevent their investments from being ineffective or even worthless.

Now the state needs \$3.5 billion to \$4 billion more than the Legislature previously allocated "more than half of WSDOT's annual budget. But the doubling costs would buy a relatively small amount of habitat and require construction on Interstate 5, I-90 and other major highways.

Western Washington tribes are willing to wait generations for the current state investments to pay off "the long game. The tribes, as well as the state, contend that removing these man-made stream barriers now is essential for salmon recovery.

However, as the state barrels toward the court deadline, and key salmon

and steelhead trout species continue to decline, the Inslee administration isn't asking one simple question:

Is all this construction actually helping salmon?

When salmon return from the ocean to spawn, some species swim high into streams and tributaries, passing through road culverts. Young salmon also traverse culverts while rearing.

But because of flawed design or poor maintenance, many culverts impede salmon. They can be too narrow and create a "fire hose" effect, or too steep for juveniles. Orâ€"like the one on Sunset Creekâ€"they are so high that even the most athletic fish can't make the leap.

WSDOT is now targeting some culverts that the state itself acknowledges may be "stranded investments," on streams where consultants noted "poor quality" habitat. Salmon recovery experts have scratched their heads, wondering why the state chose some streams.

"Does the public know we're spending billions on culverts that fish won't be able to reach?" said Carl Schroeder of the Association of Washington Cities. "I don't think so."

The state doesn't really know if fish are even getting through its new stream crossings, nor is it required to by the court order. It could try, by studying salmon returning to those streams, but it rarely even counts them.

WSDOT surveys streams for spawning fish once or twice after a project's completion, providing only a snapshot that could miss salmon returning days or even years later.

Over the past decade, surveyors hiked upstream of 84 completed projects and counted a total of 834 fish, though one project accounted for 495 of them. More than half of the surveys found no fish.

The Inslee administration hasn't asked for more funding for fish counts. Instead, WSDOT says it is focused on construction and making sure the new projects are not barriers to salmon.

Inslee blames the court order for the state's predicament.

"There is a federal judicial decisionâ€"which is the supreme law of the landâ€"which has ordered the state of Washington to do this work on a designated number of culverts," Inslee said in an interview. "If you want to criticize the prioritization of these investments, you need to focus your criticism on the federal judicial systemâ€"not the state."

Some culvert replacements are bringing salmon back to long-lost spawning grounds. Like dogs rushing through a new gap in a backyard fence, salmon have quickly repopulated some streams after barriers were removed. Other projects help with water quality or protect roads from damage as climate change intensifies storms. But those aren't the goals of the court orderâ€"or the gusher of taxpayer money.

"You have to start somewhere," said Kim Rydholm, WSDOT's fish-passage project manager. "Some of these sites we get immediate fish use and immediate benefit, but for others it's part of a bigger picture."

Many in salmon recovery, including tribal leaders, say the WSDOT work will unlock other investments in salmon habitat in the future.

"They are opening up very needed and critical habitat," said Ed Johnstone, chair of the Northwest Indian Fisheries Commission, which

represents tribes in ongoing discussions with WSDOT. "Our salmon are in trouble for many reasons. Culverts are chief among them."

Others agree that replacing barrier culverts is critical but say the state needs a smarter approach.

"Salmon recovery funding is not limitless," said Jessica Helsley, government affairs director at the nonprofit Wild Salmon Center, which works on salmon protection and restoration in Pacific Rim countries. "At the end of the day, when money runs out, we want to be sure it actually benefits fish."

'Salmon are our buffalo'

At the beginning of the 20th century, white industrialists overfished salmon, built hydroelectric dams, straightened streams and botched hatchery practices. Salmon runs collapsed.

The state Department of Fisheries called out road culverts as culprits as early as 1949 in a pamphlet called "The Salmon Crisis." The next year, the state attorney general found that fish-blocking culverts violated state law.

Despite knowing about the barriers, engineers over the last century continued to use crude designs to pass water under roads, the fish an afterthoughtâ€"if considered at all.

Salmon runsâ€"and the tribes' catchâ€"kept dropping. Yet fishing was their right. The tribes in present-day Western Washington signed treaties in the 1850s that ceded millions of acres of land, but they retained their "right of taking fish" where they always had.

In 2001, a group of 21 tribes sued the state to repair or replace its fish-

blocking culverts. WSDOT had been fixing some culverts, but slowly. The tribes built their case on the landmark 1974 federal court Boldt decision, which affirmed the tribes' treaty right to fish and split the catch 50-50 with non-Indians. It also established tribes as co-managers of the fisheries.

"Salmon are our buffalo," Johnstone said during the ensuing trial. "It is intertwined within our culture. Our songs, our ceremonies, our subsistence coincide with the salmon. When salmon are not plentiful, we suffer."

The state argued that replacing its culverts alone wouldn't necessarily bring back salmon. Other landowners had barriers downstream of the state highways, lawyers and state witnesses pointed out.

"So we have to replace culverts even where no salmon can reach them," state Solicitor General Noah Purcell told the U.S. Supreme Court during appeals. "And that is an utter waste of public funds."

That was an excuse, lawyers for the tribes argued: "The fact that someone else may have done wrong does not relieve the State of its own obligations under the treaty." The tribes also showed that many of the other barriers only partially blocked fish.

Federal district court Judge Ricardo Martinez sided with the tribes. He noted that the tribes were assured that their fishing rights were secure, and "these assurances would only be meaningful if they carried the implied promise" that white settlers wouldn't harm then-plentiful salmon stocks.

In 2013, he issued an injunction requiring the state to make its culverts passable for salmon and steelhead.

First, Martinez ordered the state "in consultation with the tribes" to compile a list of all fish-blocking culverts under state-owned roads in the tribes' fishing areas, which cover territory west of the Cascade Mountains and north of the Columbia River watershed.

The most impactful part of the order was its schedule: WSDOT had to identify its culverts with 200 meters or more of upstream habitat, then by 2030 repair or replace enough of them to open 90% of the potential habitat above.

The quality of the salmon habitat didn't matter. That list is still the basis for WSDOT's construction plan.

The 9th U.S. Circuit Court of Appeals upheld Martinez's injunction, and it was affirmed by the U.S. Supreme Court in a tied vote, with no written opinion.

The injunction requires the state to count every foot upstream of the WSDOT culvert, including tributaries, as "potential habitat" "until the next natural barrier, such as a waterfall, or the end of potential fish use.

That means the state ignores non-state-owned culverts and dams on the stream "whether or not those have replacement plans" as it adds mileage toward the 90%.

Because the state assumes the other barriers will eventually be fixed, "we turn a blind eye" when assessing a stream for its potential habitat gain, said Christy Rains, a former fish passage manager for the Department of Fish and Wildlife.

Sunset Creek, for example, has five fish-blocking culverts upstream of I-90. Yet the Department of Transportation counts almost all of the

creek as "potential" salmon habitat and says its project will open up more than 1.5 miles' worth, despite the impassable blockage one-third of a mile above its massive project.

"Are they just concerned about scoring points with Judge Martinez's injunction order, or are they really concerned about recovering salmon?" said Paul Simmerly, who has lived by Sunset Creek since 1958 and, after learning of the WSDOT project, has drawn maps of the stream's barriers. "Yes, we owe it to the tribes, but what is the best way to spend the money to create the most salmon?"

Tribes, though, see the longer-term value in WSDOT projects. The agency's culverts are typically the most expensive barrier to replace in a watershed, so the state and tribes believe the WSDOT spending will kick-start other habitat improvements in the same area, eventually creating near-ideal salmon streams.

"Maybe there are certain streams or projects that don't have immediate benefits we'd like to see," said Brett Shattuck, a senior scientist at the Tulalip Tribes. "But it is that linchpin;" "you've just removed the biggest impediment."

A salmon 'moonshot'

In the years following Martinez's decision, the Inslee administration made little progress. By June 2021, WSDOT had repaired or replaced just 86 of the roughly 430 barriers needed to meet Martinez's 2030 deadline.

Construction ramped up dramatically in the past two years, after the Legislature finally funded the program. As of this year, WSDOT had fixed 146 injunction barriers, and it has identified 281 more (some of which are under construction) that would bring it to 90% of total habitat

by 2030.

Roger Millar, the head of WSDOT, said the task is monumental. "It's equivalent of a moonshot," he said. "I mean, we've been askedâ€"we've been directed toâ€"remediate generations of environmental damage in a very short period of time.

"And are we going to make mistakes?" he added. "Yeah. Have we made mistakes? Probably. But you know, you've got a team that's gone from zero to being within reach of the moonâ€"of really opening this habitat up, and meeting the letter and the intent of the injunction. And that frankly should be celebrated."

Last fall, the state took a closer look at its remaining culverts, and WSDOT revealed it had a problem. By the end of 2024, the department will have committed all \$3.8 billion previously pegged for culverts, but that amount will only open up 80% of the habitat.

To reach the last 10%â€"replacing about 100 culvertsâ€"WSDOT estimates it could cost up to \$4 billion more. For context, \$4 billion would buy a whole new electric ferry fleet.

Washington lawmakers are growing skeptical. Sen. Curtis King, R-Yakima, the ranking Republican on the Senate Transportation Committee, hopes the state goes back to court for relief.

"To spend \$4 billion to fix 10% of your culvertsâ€"to have a minimal effect of what you're going to accomplish hereâ€"something needs to be done differently," King said. "We ought to go talk to the tribes and file suit, and explain to them the situation. They're rational people. Let's talk to them and figure something out."

The new price tag, and the pending deadline, will likely force a conversation about trade-offs. Martinez's clerk said he declined to comment due to the potential for "future proceedings." Attorney General Bob Ferguson, whose office represented the state in appealing Martinez's order, also declined an interview request "due to ethical and legal reasons," his spokesperson said.

John Sledd, who represented the tribes in the culverts case, said at a recent tribal conference that the mounting costs could have "real political consequences" as funds are potentially shifted from other programs, some of them "programs that the tribes care about."

"So there are some really tough choices that need to be made," he said.

A focus on mileage

In pristine salmon habitat, lush plants shade a stream and keep it cool. Logjams and gravel bars slow the water, creating pools for salmon to rest. The stream bends and curves, and side channels form nurseries for young salmon.

But Duffner Ditch in Whatcom County is another story. Beginning north of the Canadian border, it shoots straight for 4 miles through farmland, gathering agricultural runoff from smaller ditches. It flows under driveways and roads, and fish might get blocked at multiple crossings.

Its bottom is sandy or muddy, and some stretches are full of invasive weeds. It can run dry in summer months. It lacks oxygen, but does have crappie and other exotic fish species that prey on juvenile salmon.

When part of Duffner Ditch was targeted by WSDOT, a consulting firm considered whether it could support salmon at any stage of life. It determined the chances were "severely limited by these conditions."

Downstream, a privately owned tide gate blocked fish from even entering Duffner Ditch.

Yet the Department of Transportation replaced not one barrier on Duffner Ditch, but twoâ€"for more than \$4.5 million. They landed on the list created after the 2013 injunction, and WSDOT said the projects would open up more than 5 miles of "potential habitat."

"It's almost laughable," said David Beatty, a retired professor who has worked on salmon restoration in the area for decades. "Just because a stream has been designated a tributary of a larger creek, it doesn't mean that is the type of habitat you'd invest a lot of money to get fish to."

On some projects, "the habitat might not be the best place to propagate salmon," Tom Jameson, the fish passage division manager at the state Department of Fish and Wildlife, acknowledged. "Some of those might be stranded investments right now." But he emphasized other projects have outsized benefits for salmon.

Meanwhile, other salmon recovery projectsâ€"even those that help Chinook salmon, the food source for endangered southern resident orcasâ€"struggle to secure state funding. The WSDOT projects don't benefit Chinook as much as other species because they typically spawn in sections of streams too wide for culverts.

In the early years of the culvert replacement program, WSDOT relied on a scoring system, developed by the state Department of Fish and Wildlife, to weigh costs and benefits of projects, including whether they would help endangered salmon.

But it has now largely abandoned the scoring systemâ€"and its focus on quality of the habitat. Instead, in a race to hit Martinez's 2030 deadline, the state is focusing almost entirely on how much mileage is

upstream.

"Are we prioritizing for the ecological needs of salmon first, or are we prioritizing for places where WSDOT is already doing work?" said Helsley, from the Wild Salmon Center. "Why not say, OK, here are the top, highest priority culverts ... and go tackle those ones, because that is what the fish need now? That's not what Washington does."

Since Martinez issued his injunction, the state knocked off the most cost-effective projects first before turning to increasingly complex ones: those requiring the construction of multiple bridges, relocating on-ramps and off-ramps, and extra engineering to deal with poor soil conditions. Some are in dense urban areas. One in Port Angeles might require the state to buy a hotel to secure property rights.

Costs have skyrocketed in recent years as crews are stretched thin amid a nationwide surge in transportation construction. All this leads to the astonishing run-up in costs to get the last 10% of habitat.

"As you go down the list, you're getting less and less habitat," said Rydholm, the WSDOT manager.

Missed connections

Last year, Christian Berg, who evaluates the city of Bainbridge Island's culverts, was working on a grant application for a key salmon stream while WSDOT replaced a culvert for \$13 million on the other side of the island.

The project brought traffic to a standstill on Highway 305, the island's main artery. Drivers could see dozens of mature trees' upturned roots, some as wide as a semitruck, ripped out to make way for a new bridge and to remove the culvert that had been deemed nearly impassable for

salmon.

Months after WSDOT began construction, Berg said he wasn't sure if the state had reached out to the city about that creekâ€"or the city-owned culvert just 200 yards downstream. That culvert lets some fish pass but blocks others, depending on the creek's flow level, according to a city report.

"It wouldn't have been our top choice islandwide where we're trying to restore fish passability," Berg said of the WSDOT project site. "I've been curious myself about how they picked that stream."

Across Western Washington the same conundrum plays out: The WSDOT projects are being built on streams that may or may not make sense for the local groups engaged in salmon restoration. In the 11 years since Martinez's order, WSDOT has primarily acted alone.

Millar, the state Transportation secretary, said the agency is doing its best to work with other groups but acknowledged it may have missed opportunities.

"Collaboration is a priority for the DOT, but our role is not to be responsible for restoring all of the habitat in the Pacific Northwest. We are a partner in that," he said. "When you're addressing 430-plus barriers and a multibillion-dollar program all over Puget Sound, on both sides, are we going to miss something? Absolutely."

The state Department of Fish and Wildlife has identified more than 17,000 fish-blocking culverts across the state, the vast majority of them not owned by WSDOT. Private parties, such as railroads and homeowners, are responsible for the largest number, followed by county governments. Local governments are potential targets of future litigation by tribes enforcing their treaty fishing rights.

At Sunset Creek in Bellevue, the city has considered fixing the section upstream of the WSDOT culvertâ€"the barrier requiring the 5-foot leap. But so far, the city project hasn't ranked high enough for funding in its capital budget, Bellevue Utilities Planning Manager Eric LaFrance said.

The disconnect between WSDOT and projects prioritized by cities and counties is due to a lack of coordination by the Inslee administration. As WSDOT spends billions fixing its culverts, an alphabet soup of state agencies is also distributing more than \$25 million a year for locally owned fish-blocking barriers, but the state is not ensuring a portion of those projects are even in the same watersheds.

In 2020, the Legislature called on departments within the administration to fix that disconnect with a statewide strategy. After four years, including a delay during the pandemic, they're still working on it and expect to finish a draft by the end of this year, said Jameson, the fish passage manager.

Inslee said the state can't always fix other habitat problems on the streams where WSDOT is working.

"I think most of the, quote, 'misprioritizations' are the result of two things: one, people refusing to accept the fact that we're stuck with the federal decision, and two, a lack of recognition that we don't have infinite resources," Inslee said.

The federal government has also steered more than \$1 billion to state and local governments, tribes and nonprofits around the country for removing fish barriers in the 2021 Bipartisan Infrastructure Law.

But because the state's long-delayed strategic plan wasn't ready, it has been a scattershot of applications from Washington cities, counties and

others. In the first round of a major grant program, 23 projects were funded in Washington, but only one was tied to a WSDOT projectâ€"missing an opportunity to fix barriers upstream and downstream of the big state investments.

"It's a bit frustrating when, on the federal side, we have a once-in-a-generation opportunity," Helsley from the Wild Salmon Center said. "Yet when that funding hit the ground, we weren't ready."

'Unbelievably expensive'

Doug MacDonald, who was the head of WSDOT until his retirement in 2007, has watched with increasing frustration as the department implements the federal injunction. He sees rigid compliance with the [court order](#)â€"without considering if the work is actually recovering salmon.

Construction companies and consultants are getting hundreds of millions of dollars of work, as politicians hail culvert projects throughout Western Washington.

"The only thing that's not being asked is, 'Where are the fish?'" MacDonald said. "The injunction is not inscribed on a tablet. It's just the beginning of the story."

The parties in the caseâ€"the state and the tribesâ€"could come together to negotiate changes that could make the state spending more effective. Indeed, during appeals, U.S. Supreme Court Justice Stephen Breyer asked what would happen if the state found it would be "unbelievably expensive" to replace five culverts that "would really save only three fish."

A tribal lawyer told the court that the state could ask Martinez to modify

the terms of the injunction. That hasn't happenedâ€"yet.

2024 The Seattle Times. Distributed by Tribune Content Agency, LLC.

Citation: Removing Washington salmon barriers surges to \$1M a day, but results are murky (2024, March 11) retrieved 29 April 2024 from <https://phys.org/news/2024-03-washington-salmon-barriers-surges-1m.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.