

Saving Washington's Salmon May Require Replacing Tens of Thousands of Culverts; Nobody Knows Where the Money Will Come From

BY ALEX BROWN
For Nisqually Valley News

When salmon begin their journey home from the Pacific Ocean, they swim up the mouths of Washington's rivers and begin making their way upstream to spawn and die. For many of them, the journey won't end in the Columbia or the Chehalis or the Nisqually, but in one of the thousands of creeks and streams that feed into those mighty rivers.

These smaller waterways are like the capillaries that supply the main veins running into the Pacific Ocean. Much of the water that runs through the river systems begins here, and many of the salmon that make up the seasonal runs need to return here to complete their life cycle.

That's a problem.

For decades, Washington's hydroelectric dams — such as those on the Columbia, Snake and Cowlitz rivers that supply much of the state's power and dramatically reshaped its landscape — have been the focus of stakeholders trying to solve the problem of dwindling salmon runs.

It makes sense. The massive dams not only present an impassable barrier for returning salmon, but also flooded the valleys behind them creating hundred-foot deep lakes instead of meandering rivers. Stakeholders have debated tearing down the dams, the merits of hatchery production and the effectiveness of fish ladders and other passage structures.

But as it turns out, it may not be the few massive barriers, but the thousands and thousands of

smaller pinch points causing the most problems for returning salmon.

Upstream from the dams, on the lesser-noticed tributaries, miles and miles of habitat have been choked off by the construction of roads. Every time a gray line on a map crosses a blue line, engineers need to figure out how to build the road over the waterway. For rivers, that usually means building a bridge. For creeks and streams, it often means a culvert — a narrow metal pipe installed under the road through which the water funnels.

Culverts are cheap and easy to replace, and they've enabled the road network we have today. They're also terrible for fish. When a stream runs into a culvert, it forces a waterway that may be a dozen or more feet wide into a pipe that might be just three feet in diameter. That pushes a tremendous amount of water pressure through the culvert, often to the point that fish can't swim upstream through it. Some culverts are also elevated, dumping water into a pool below at a distance too high for returning fish to jump.

For many salmon, the journey upstream ends below such a metal pipe. Even if there are miles of pristine habitat beyond, they'll remain barren unless the fish have a way to make it there.

For decades, Native tribes in Washington have been calling attention to this problem, saying the tens of thousands of culverts on state, county and local roads are preventing salmon from returning to their traditional spawning grounds — locations that the tribes have been promised by treaty the right to fish in perpetuity.



Eric Rosane / Nisqually Valley News

Buried in nearly 3-feet of stone, the new Toboton Creek culvert at Piessner Road will improve stream flows and allow improved fish passage conditions.



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Public Works director Josh Metcalf talks about what crews are doing at the Pigeon Springs fish barrier removal project Tuesday afternoon.

The Legal Cloud

Last June, a Supreme Court ruling settled a legal battle nearly two decades in the making in favor of the tribes. It affirmed that Washington state had an obligation to restore habitat access to meet its promises to the tribes. The state — particularly the Department of Transportation — will have to replace each fish-blocking culvert with a larger, exponentially more expensive design. In the 14-county injunction area covered by the case, it's estimated the ruling will require replacement of about 1,000 state-owned culverts at a cost of about \$4 billion to the state. The state has until 2030 to meet that requirement.

If that number seems daunting, it's a pittance compared to what may come. In the same Western Washington injunction area where the state will need to fix its roads, it's estimated that there are 3,000 or more culverts on county roads. At least 1,300 or so remain on city roads. Statewide, estimates range as high as 40,000 fish-blocking culverts across all jurisdictions — the replacement of which would cost untold billions of dollars.

While the state is taking a financial hit from its legal loss, a similar ruling — if applied to cities and counties — could mean budget doomsday for local governments across the state.

"We're sitting here going, 'We're next,'" said Lewis County manager Erik Martin. "With the

magnitude of work that needs to be done, I don't know where that money would come from. ... It's a huge dark cloud looming over us."

While the budget numbers are daunting, the alternative — replacing culverts at the current pace — is even more dire.

"There are a lot of transgressions to make up for," said Robert Markle, director of the Pacific Coastal Salmon Recovery Fund, a federal grant program that funds projects designed to help restore salmon populations. "Left to its own devices, if we're not restoring things, then we've pretty much sealed their fate. The status quo won't get us to recovery."

So far, the tribes have not moved to sue local governments for their treaty rights. However, they're confident they would win if they chose to do so local officials have no idea how to begin grappling with the scope of the problem.

In Lewis County alone, there are about 600 culverts on county roads. The cost to replace just one runs from \$300,000 to \$1.2 million. The county is currently replacing about two or three a year, mostly funded by state and federal money. At the current pace, it would take centuries to get to every culvert.

While no one has calculated a total cost for the county's culvert needs, it's clear they it would run many times more than the county's entire annual transportation budget of \$25 million. In fact, the

county could spend every dollar it had — money set aside for police, the court system, health inspections, building permits and trash collection — and still have plenty of culverts remaining. Even given a dozen years to deal with the problem, as the state was directed, it's hard to see how Lewis County could replace its culverts without slashing basic services to the bone.

That's the dilemma that could face many more cities and counties in the state. It's clear the culverts need to be removed, for the sake of the salmon that seem to be dwindling more each year — and for the tribes that depend on them as an economic, cultural and spiritual resource. It's also clear that investing enough to do so — and on a fast enough timetable to make a difference — would bankrupt many local governments.

"We do not know how we're going to pay for this," said Jane Wall, managing director of the Washington State Association of County Engineers. "Counties simply don't have the revenues locally to pay for this, and they don't have the ability to raise the revenues to pay for this. ... It would take hundreds of years if they continued to fund the issue the way they are now. The word urgency is a very fair term to use. We do feel a very real sense of urgency that not enough has been done. We are overwhelmed by it."

Lewis County, like many others, generally conducts culvert replacement projects as it gets funding from state and federal sources to do so — though it often puts in some of its own matching funds. County leaders say they're doing all they can to keep up with necessary maintenance of their roads, and there simply isn't enough money in the budget to provide dedicated funding for the replacement of culverts that aren't yet failing.

"(Culvert replacement) used to be a maintenance project that you'd plan the week before," said Martin, who served a long stint as the county's Public Works director. "Now we're spending a year in planning and permitting."

Josh Metcalf, the county's current Public Works director, said any work on an existing culvert is required to meet stringent fish-passage standards. That

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makes each project a painstaking exercise.

“You can’t really do repairs anymore, you can’t do a standard in-kind replacement,” he said. “It’s hard to believe what we used to do for \$20,000 or \$30,000 is now \$300,000 or \$400,000.”

As that cost has spiked, culvert replacements that counties used to handle locally have become projects that require state and federal funding. Much of that state money that helps local governments with their culverts is distributed by Washington’s Recreation and Conservation Office. Kaleen Cottingham, the agency’s director, acknowledged that the investment isn’t matching the need. In less than a decade, RCO has seen its federal funding shrink by nearly a third, meaning the state has less to pass on down to counties and cities.

Based on recovery plans she’s studied, Cottingham estimated the current funding available is only 12 to 15 percent of what’s needed to actually bring back the salmon.

“We’ve got a huge chore ahead of us and insufficient funding to get the job done,” she said.

Digging Out

Standing at the worksite of one of the county’s culvert replacement projects, it’s easy to sympathize with engineers on the headaches this issue is causing them. Lewis County has been working this summer to replace a culvert on Frase Creek, where it’s crossed by Pigeon Springs Road, just before its confluence with the South Fork of the Newaukum River. It’s the kind of project that previously would have entailed pulling out the old pipe and replacing it in a matter of days. That’s not the case anymore.

For projects like this, Lewis County often spends more than a year lining up state and federal dollars for funding. The Frase Creek work, about a \$1 million endeavor, is being backed by an state-run aquatic species fund set aside for work in the Chehalis River basin, as well as Washington’s Salmon Recovery Funding Board. Funding for the design of the project was provided by the U.S. Fish and Wildlife Service, and the county is chipping in some money as well.

Bringing together all those different funding sources — and their bureaucracy-laden requirements — takes time. And time is even more pressing when it comes to construction. Construction work in watersheds in Washington must take place during the “fish window,” the time of the year when salmon are least likely to be found in the stream.

For many of the waterways in Lewis County, that window is open for only a month or so, generally centered around the month of August. In addition to the lack of funding for the massive culvert backlog, for the vast majority of the year, the county can’t conduct work anyway, thanks to rules protecting the fish currently inhabiting the water.

Even before work can start, officials must inspect the creek to ensure there aren’t unexpected fish populations that would be disturbed by the project. Sometimes they must electrically shock the water to count the leaping fish.

The construction itself is an intensive process. At the Frase Creek job, workers had to build a temporary road to replace the existing drive that led over the culvert. They also relocated utility poles away from the site.

Above the worksite, a pipe has been placed in the creek. From there, a pump channels the water hundreds of feet, releasing it from a bypass tube below the project. In the now-dry creek bed, workers have torn out the road and culvert and gotten to work realigning the stream to create more favorable habitat. On projects like this, contractors must keep a worker on-site 24/7 in case the pump fails and begins flooding the project.

At the spot where the old culvert had been ripped out, a pair of excavators worked around a large concrete channel. The structure, still lacking the “lid”



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The Middle Fork Newaukum fish barrier removal project bypass pipe lets water flow while crews work on putting down fish rocks in the area where the water normally flows, Tuesday afternoon.



Eric Rosane / Nisqually Valley News

Piles of contorted metal lie alongside Piessner Road, remnants of a trio of culverts once intermingled within the road.

that cars will eventually drive over, will allow the creek to flow under the road at its normal width, an attempt to return the water to its natural state.

For engineers like Metcalf, there’s a lot more to worry about than just widening the point where the road crosses the stream. They must also work to restore the creek bed, culminating with a layer of spawning gravel for the salmon to lay their eggs. And they need to revegetate a large portion of the area around the water, well upstream of the crossing in question.

It’s no wonder the price tag for a project like this can run into seven figures, and make county officials wistful for the days when they could just swap in a new culvert pipe. But these requirements exist for a reason.

For salmon to have a chance, waterways have to be restored to as close to their natural state as possible — and decades of development have left most far from that condition. Efforts to undo that can be tedious, but they do pay off.

Last summer, Lewis County replaced an impassable culvert on Bunker Creek Road, which had been obstructing Prairie Creek for coho salmon and cutthroat trout. By pulling out the old culvert and replacing it with a larger structure, the county opened up nearly five miles of habitat upstream. The project cost nearly \$800,000, the majority of which was funded by the state.

Workers took out an old culvert and replaced it with a concrete structure twice as tall and nearly twice as wide, while enhancing the channel of the creek in the vicinity of the new structure. They added pools and riffles and native plants, all in an effort to replicate habitat that had been destroyed by the culvert and other development.

After construction, the county’s bridge inspector, Joe Byers, returned to the site to look over the infrastructure. He found the new bridge was in good condition, but he was surprised when he looked into the water.

“When I went there to do it, I actually counted seven salmon, and they were all spawning in-

side the (new) culvert,” he said. “It was pretty cool seeing all the fish in there. This work really does matter.”

“Open It Up”

If county workers are excited to see culvert work pay off, tribal members even more so. And for them the matter is urgent.

“At this point everybody should understand just how central the preservation of those fisheries is to those tribes’ existence,” said John Sledd, a lawyer with Kanji & Kantzen who helped successfully argue the culvert case against the state on behalf of 21 Washington tribes. “We’ve got a third of the (salmon) stock in the state that are

plummeting toward extinction ... The first thing is just get more habitat. Worry about the quality later, but open it up.”

Sledd and the tribes successfully argued that Washington was not fulfilling rights guaranteed by the treaty. When the state promised the tribes they could fish those waters in perpetuity, it also took on an obligation to keep those waters passable for fish, the court ruled.

Though the tribes and their allies praised the court decision that will force the state to replace many Western Washington culverts, all parties agree that it only fixes a fraction of the problem.

Because the ruling only applies to state-owned roads and

lands, it leaves in place culverts under county roads.

In other words, there are many places where the state may be required to replace a culvert that’s just upstream of an outdated county-owned culvert that remains in place — doing little to open more habitat.

And that’s why cities and counties are worried.

“Our big desire is that as the state looks forward to addressing this issue, to make sure that fish can get up and downstream and have access to the habitat they need,” said Carl Schroeder, government relations advocate with the Association of Washington Cities. “The state should not just focus on their narrow legal obligation, but instead focus on a comprehensive approach.”

State lawmakers are already facing criticism from Gov. Jay Inslee and others for underfunding state culvert projects. If the state won’t pay up for its own court-mandated culvert replacements, many local officials think, how are we going to get enough money from them to cover our much greater obligations?

“It’s just a huge winners and losers situation, depending on whether or not you have a lot of streams going through your community, are you a wealthy community with a strong tax base?” Schroeder said. “(Cities) don’t have dedicated funds that could come close to addressing this need, so we really do need a state solution.”

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Tribes aren't racing to return to court, but that's not because they don't believe cities and counties have the same legal obligations as the state.

"We have to tackle the county and local barriers as well," said Sledd. "In terms of how that's done, were the lawsuit to be brought in the same theory to local government, I have no doubt the tribes would prevail."

While county officials might see that as cause for fear, tribal leaders say they should see this as a moment of opportunity.

"This is a collective responsibility that everyone needs to prepare for," said Tyson Johnston, vice president of the Quinault Indian Nation. "We're also reasonable entities. We're governments too. We understand this is a huge issue that can't be fixed overnight. We will continue to work together, as long as we're able to be included in those key decision points."

That message was repeated by other local and statewide tribal leaders. Instead of looking to the state for funding to fix the problem — and hoping tribes won't sue them — they suggested that cities and counties should reach out to local tribes and begin collaborating on the issue.

"Tribes have always preferred cooperation to litigation," Lorraine Loomis, chair of the Northwest Indian Fisheries Commission, said in a statement provided to The Chronicle. "We are willing to sit down with counties for policy level discussions about solutions for replacing defective culverts. ... The path forward for counties is not with the state. It's with the tribes."

Jeff Warnke, director of government and public relations for the Chehalis Tribe, said that earning tribal buy-in on culvert projects would make local governments better-positioned to get funding from the state.

"Any time we can stay out of court and get things done by working together, that always makes sense," he said. "Coalitions are always a stronger voice in Olympia. ... If the counties and cities went to Olympia trying to get money in the budget for culverts, they would be more successful if they went saying, 'We've worked with the tribes and these are our priorities.'"

The Quinault Tribe was among those that sued the state for culvert removals; the Chehalis Tribe was not.

Meanwhile, Sledd noted, the state could join those coalitions to ask for more federal funding from Congress. The culvert battle with the state took nearly 20 years to resolve, and tribes would much rather see an all-hands-on-deck effort to deal with the problem than wage another extended legal fight that might not pay dividends until it's too late.

"Nobody is chomping at the bit to sue," he said. "They would much rather talk first."

While tribal leaders said they'd prefer for local governments to collaborate, some noted that they first tried to collaborate with the state before using the lawsuit as a last recourse.

"We always have the opportunity for diplomacy, partnership, negotiation and compromise," Johnston said. "When negative actions are made that impact our treaty rights and way of life, over our objection, a lot of times we're left with (legal action) as our only remedy."

Taking Stock

From the tribes' perspective,



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Prairie Creek flows under a new culvert on Bunker Creek Road. The concrete structure replaced a metal pipe that had been obstructing the passage of salmon.

cities and counties have much more work to do to engage with Native stakeholders and work on shared priorities. However, government leaders say they've been hard at work establishing a clearer picture of their culvert situation, information they intend to use to partner with the tribes and others and to strategize their replacement schedule.

Both the Washington State Association of Counties and the Association of Washington Cities are conducting inventories to get more information on the culverts owned by their members. They're looking at tens of thousands of culverts throughout the state, with the goal of using that data to help create a long-term plan to deal with the issue.

The city group has been working on its study since 2012 and has now inventoried a majority of its jurisdictions. The county group got to work this year, putting about \$1 million toward a two-year project to study the issue.

The inventories will do more than just identify the locations of culverts. They'll show which ones create the most severe barriers, which have significant fish populations and how different culverts within watersheds connect.

Rather than looking at individual culverts and what it will take to replace them, the studies will look at watersheds and what it will take to reopen their habitat. For example, fixing several culverts in the same creek — even if that means coordinating state, county and city projects — could open up miles of habitat, while working in isolation doing one random culvert at a time could prove less productive for each jurisdiction.

That's the ultimate goal. Rather than cities and counties begging the state for more money while hoping the tribes don't sue them, stakeholders say all parties involved need to sit down, take a comprehensive look at existing culverts and coordinate a plan to replace them that will have the greatest immediate impact.

"We have to show the tribes that there is a plan to systematically replace these culverts," said Eric Johnson, WSAC's executive director. "We need funding and we need to get ahead of it."

Metcalf, Lewis County's Public Works director, said the county's 600 culverts represent



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Public Works Director Josh Metcalf motions to an area at the Pigeon Springs fish barrier removal project Tuesday afternoon.

a daunting figure. But he's hopeful the studies currently being conducted will help highlight the joint responsibility and opportunity for collaboration ahead.

"That number sounds big and scary, and it is," he said. "Part of this study will help identify and prioritize locations. It's really an effort to partner with the state, (Washington State Department of Transportation), Fish and Wildlife and the tribes. ... The big point there is that we're looking at it from a system standpoint, so that we're spending money effectively and making holistic improvements to systems and tributaries and not just spot improvements."

At least internally, Lewis County has tried to take a similar approach, focusing efforts on tributaries like Scammon Creek, with multiple projects planned on the same waterway to open up as much habitat as possible. And the county's involvement with groups like the Office of the Chehalis Basin has brought leaders to the table with the state and area tribes to coordinate work throughout the watershed.

While the court mandate to replace culverts currently affects only the state, Wall — the managing director of the county engineers' group — said counties should act like the obligation applies to them. Adopting that sense of urgency could help governments avoid an actual crisis in

the future.

"This is an opportunity to work with the state to open meaningful habitat for salmon and other species," she said. "It doesn't make sense for the state to invest in a barrier (if local barriers remain). We want to make sure that we are being responsible, and even though we're not under that injunction, we are trying to meet the spirit of the case."

Schroeder, with the cities group, echoed that sentiment.

"In my mind, it's a unique opportunity here where you don't have the local governments under the same injunction," he said. "We can be a little more strategic and say what are the stream systems — which of those line up with where the state needs to make these investments and what can we build off of that? Rather than trying to eat the whole apple at once, take bites at it." For all the strategizing county and city leaders do, their success or failure will ultimately come down to money. Most don't have the budgets to take on this kind of work, and there's been little indication that Olympia or Washington, D.C. is ready to send more their way.

Cottingham, who leads the state grant program, said the uncertainty surrounding state and federal investment makes it difficult for smaller governments to spend time on culvert projects that may or may not get funded.

Most people involved are suffering from "salmon funding fatigue," she said. Having talked about the issue for so long, they're ready for it to be over with.

"It took us 100 years to get where we are now," she said. "It's going to take us longer than 15 to 20 years to fix it. We're in this for the long haul. We're seeing incremental improvements. We're not there yet."

One way or another, cities and counties will need to step up their culvert replacement, said Sledd, the lawyer for the tribes. That's the only way salmon populations will be restored.

"They're the keystone to correcting the problem," he said. "There's an enormous amount of habitat, and we can't get at all the habitat, which is essential, unless the local governments also participate."

He acknowledged that counties have serious financial burdens, but said they need to make painful decisions rather than avoid the problem.

"The counties are in a terrible position, because of their tax structure," he said. "There's a need to do some hard re-prioritization for a while. ... The tribes are perfectly willing to go a long way to accommodate the counties' needs, but we do need the data, we do need a solid commitment that we have a timeline to do what we agree on as priorities."

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