A publication of the Northwest Indian Fisheries Commission **Northwest Treaty Tribes** Protecting Natural Resources for Everyone

Winter 2020/21 nwtreatytribes.org

Inside:

- Chum Returns Low Again This Year
- Hundreds of Logs Make Rivers Salmon Friendly
- Hydroelectric Dams Threaten Salmon
- Invasive Green Crab Infest Sea Pond
- Beaver Relocation Program Grows
- Fine-tuning Coho Counts

DS CYPRES

MONROVIA IMO 9461477

BEING FRANK

Tribes Report on the State of Our Watersheds



by Lorraine Loomis NWIFC Chair

I wish there were better news in our 2020 State of Our Watersheds Report, but at best we are treading water on a few indicators of the overall health of our region's environment, while losing ground on most others.

This update of our 2016 report provides a watershed-by-watershed look at conditions resulting from our land and water use choices. The aim of the State of Our Watersheds Report is to maintain an assessment of the health of our watersheds and to gauge progress toward salmon and ecosystem recovery.

Each chapter focuses on impacts that habitat loss and degradation have on salmon populations in relation to our tribal communities, economies and treaty-reserved rights. A wide range of science and data are used to document salmon and shellfish habitat trends and our efforts to resolve the most pressing problems created by population growth, polluted stormwater runoff, climate change and other factors.

Among the findings:

• Shoreline armoring continues to threaten salmon and forage fish spawning and rearing habitat throughout Puget Sound. Of the total 2,460 miles of shoreline within Puget Sound, 715 miles – about one-third – is armored with bulkheads and other structures. Between 2015 and 2018, there was a net reduction of about 1 mile of armoring. This small gain is a positive sign, but we must increase it and restore the damage caused by past shoreline armoring practices.

• We remain concerned that the state of Washington is not providing adequate funding for removal of fish-blocking culverts under state roads as required by a 2018 U.S. Supreme Court ruling. The court upheld tribal treaty-reserved fishing rights in a ruling requiring the state to correct 450 of its 800 most significant salmon-blocking culverts by 2030. Current budget projections make it unlikely the state will meet the court's mandate. Every year that the state Legislature delays adequate funding for barrier culvert removal creates larger problems for future legislative efforts as costs rise and deadlines loom. • Despite the knowledge that surface water and groundwater are connected, more than 67,000 wells have been drilled in our region since 1980, and almost 6,000 of them between 2015-2019. The increase in wells threatens groundwater supplies affecting instream flows and overall ecosystem health across the region.

• The amount of impervious surfaces like parking lots and roads has increased along with polluted stormwater runoff. Meanwhile, forest cover has continued to disappear, which increases water temperatures that can kill salmon.

While the report's findings remain grim, there is still cause for hope.

At the urging of tribes, Washington Gov. Jay Inslee in late 2019 directed his state natural resources agencies to develop uniform, science-based management for riparian (streamside) habitat. Tribal and state natural resources managers have been meeting to develop a joint workplan for the effort because riparian habitat is among the most important to salmon in all life stages.

It's clear that the only way we are going to recover salmon is by restoring and protecting their habitat.

Only properly functioning habitat can support the natural salmon production we need for recovery. Unfortunately, we continue to lose that habitat faster than we can restore and protect it. That has to change, and Gov. Inslee's cooperative approach can help us do that.

The 2020 State of Our Watersheds Report is available at *nwtt.co/sow*.



Northwest Treaty Tribes Protecting Natural Resources For Everyone

Northwest Indian Fisheries Commission 6730 Martin Way E. Olympia, WA 98516 (360) 438-1180

Northwest Treaty Tribes is a publication of the Northwest Indian Fisheries Commission and published quarterly. Free subscriptions are available. This edition is online at *nwtreatytribes.org*. Articles in Northwest Treaty Tribes may be reprinted.

NWIFC Chairman Emeritus Billy Frank Jr.

> NWIFC Chair Lorraine Loomis

Executive Director Justin Parker

Communication Services Division Manager Tony Meyer

Regional Information Officers Debbie Preston Tiffany Royal Kari Neumeyer

NWIFC Member Tribes: Hoh,

Jamestown S'Klallam, Lower Elwha Klallam, Lummi Nation, Makah, Muckleshoot, Nisqually, Nooksack, Port Gamble S'Klallam, Puyallup, Quileute, Quinault Indian Nation, Sauk-Suiattle, Skokomish, Squaxin Island, Stillaguamish, Suquamish, Swinomish, Tulalip and Upper Skagit

Tribal contact information is available under Member Tribes at *nwtreatytribes.org.*

Follow us: Facebook: facebook.com/ nwtreatytribes Twitter: @nwtreatytribes Instagram: @nwtreatytribes

On the cover: Muckleshoot tribal fisherman John LaClair checks his net in the mouth of the Duwamish River where container ships load and unload. D. Preston

Low Chum Returns Shorten Fisheries, Reduce Egg Take

South Sound and Hood Canal chum salmon returns were lower than expected last fall.

While enough chum reached the spawning grounds to meet fisheries managers' escapement goals, there was almost no opportunity to fish, said Squaxin Island Tribe biologist Daniel Kuntz.

"We had hoped we might get escapement early and be able to schedule some longer fisheries, but we had to wait through most of the season to meet escapement goals based on our counts of returning adults to streams, and that meant just a couple of short openers in inlets that would allow it," Kuntz said.

Some tribal hatcheries made only 3 percent of their egg-take goal.

The Skokomish Tribe's Enetai Creek Hatchery was planning to take 5 million eggs from chum salmon returning to the hatchery.

"We ended up with 177,000 eggs from only a couple hundred fish," said Robert Blankenship, the tribe's hatchery manager. "The egg take also was two weeks later than usual. We normally start taking eggs by November 1, but we only had three days of egg take – November 19, 23 and 30."

The strange thing is that the fish looked better and healthier this year, compared to last year, when they looked weak, he said.

The local state hatcheries fared a little better with egg returns, Blankenship said, and he has put in a request for eggs from the Hoodsport and McCurren hatcheries, which is not an uncommon request.

"We're just trying to request help to help prevent a blank year in a few years," he said. "In the meantime, we're concentrating on upgrades to our facility, such as a new circular tank project and spawning channel upgrades."

Bill Patton, South Puget Sound biologist for the Northwest Indian Fisheries Commission, said that chum test fishery returns in South Sound showed catches only a little better than last year, which meant most tribes either didn't fish or only fished a few days.

"Between the test fishery and what the survey crews were seeing in the watershed, it just wasn't that much better, though not quite as horrible as last year, which was the second worst in at least 40 years," Patton said.

In North Sound, Patton said there was projected to be a fishable return of Fraser chum, but the fish did not return in expected numbers and catches remained low. – *T. Royal and D. Preston*



D. Preston (2



Top: A chum spawns in McLane Creek. Above: Squaxin Island fisheries staff Danny Snyder, front, and Keenon Vigil-Snook count spawning fish in McLane Creek in early December.

Counting Coho in Turbid Waters



Lower Elwha Klallam tribal member and natural resources technician Wilson Wells, left, and scientist Keith Denton measure a coho salmon in the Elwha River under the supervision of river dog Ginger.

Coho Returns Meet Hatchery Goals

At the Lower Elwha Klallam Tribe's hatchery, which focuses on coho, chum and steelhead populations, the tribe met its coho egg-take goal of 475,000 eggs, while also moving excess adults to Indian Creek, a tributary of the Elwha River, to encourage natural spawning.

"We kept the trap to the hatchery closed most of the season to encourage coho to move upriver and spawn, opening it as needed to allow in fish that we need for the hatchery program," said John Mahan, the tribe's hatchery manager.

The expectations for the returns were good, and the number of eggs per female was above average, he said.

The fish raised from these eggs will be moved to the tribe's hatchery ponds in March 2021 and then released to the river in April 2022.

The Lower Elwha Klallam Tribe has determined the most accurate method of counting coho salmon that return to the Elwha River during the intense rainy season.

Coho come back when the river runs high and turbid, making it difficult to count salmon egg nests by walking along the river or snorkeling.

In 2019, the tribe added coho to its chinook and steelhead monitoring program that uses a sonar camera and species composition (capturing and releasing fish from the river to sample) from January through September.

The tribe extended the monitoring period through early December to generate estimates of the number of returning adult coho.

"This is a huge breakthrough, as other methods to generate adult coho salmon numbers have been problematic," said Mike McHenry, the tribe's habitat program manager. "We can do surveys in the tributaries, but not in the mainstem because of visibility, so the sonar and species composition tools help."

Between August and December 2019, the tribe used the sonar and species composition program to estimate that 3,140 coho salmon returned to the Elwha River to spawn, a mix of both hatchery fish and natural origin fish.

Both tools give the tribe a good idea of when the runs start, peak and end each season, as well as how many fish are returning to the Elwha, especially since the river has been undergoing restoration following the 2011 and 2014 removal of two fish-blocking dams.

"Before dam removal, coho returns were 90-95 percent hatchery returns, so we were able to meet egg take and hold a fishery," McHenry said. "Now as we try and build natural populations of fish, being able to measure how they perform becomes really important."

Monitoring the run also allows the tribe to determine where the fish are going and how far up the watershed they get. The fish aren't going past Grand Canyon right now and the tribe is trying to figure out why, McHenry said.

"We're starting to put the pieces together of a long-term monitoring program with sonar, species composition, smolt trapping and spawning ground surveys, and the potential for the Elwha to produce a lot of coho is there," he said. "In fact, we are already seeing huge production occurring from Indian Creek which has amazing habitat potential." – *T. Royal*

NWIFC veterinarians Nora Hickey, left, and Katharine Onofryton sample coho at the Lower Elwha Klallam Hatchery.



Beaver Relocation Boosts Surface Water, Resilience to Climate Change

Tulalip wildlife staff and volunteers from Beavers Northwest lined up five cages in a Skykomish mountain stream in September, counting down to a synchronous opening of the gates.

From the cages, six beavers – a breeding pair, three kits and a subadult – took a moment to get their bearings, then scurried off in all directions, including one that took a wrong turn onto the streambank. The last beaver waddled around the cages before swimming over the wading boots of its captors and making its way to freedom.

The beavers were the latest participants in Tulalip's program to relocate beavers from places where they interfere with human activity to watersheds where their industriousness can be appreciated.

In the well-populated lowlands, beaver dams cause expensive flooding on private property. In the mountains, on the other hand, beaver activity has the potential to increase the habitat's resilience to climate change, according to a 2019 doctoral dissertation by Ben Dittbrenner at the University of Washington.

Dittbrenner, the co-founder of Beavers Northwest, partnered with the Tulalip Tribes in 2014 to develop the relocation program. His research found that beaver activity can lower water temperatures and increase summer water availability by up to 20 percent in some Pacific Northwest watersheds where salmon survival is threatened by the effects of climate change. "It's about so much more than increasing surface water," said Tulalip wildlife biologist Molly Alves.

Wildlife biologists make every effort to allow the animals to remain in familiar territory.

"We don't want to relocate beavers just because they can benefit habitat, even when they're considered nuisance animals," Alves said. "It's our last resort. The first thing we do is an assessment to make sure it's really the beavers that are causing the problem."

The next step is to try to find a solution, such as installing devices that prevent beaver activity from flooding property. In the past, when all else failed, the only option was lethal removal.

"We get a lot of calls about problem beaver, but now people are willing to wait a few months until we're able to relocate them, instead of just wanting them killed," Alves said.

Tulalip's wildlife department has relocated more than 200 beavers since the program began. At the time, only tribal entities could legally relocate the animals west of the Cascade Mountains. The law was changed in 2017, and now the state Department of Fish and Wildlife is running its own pilot project that issues relocation permits to selected volunteers.

A week after the six beavers were released in the Skykomish watershed, Tulalip Chairwoman Teri Gobin signed an agreement with the Mount Baker-Snoqualmie National Forest to expand the tribes'

Above: A beaver swims over Tulalip wildlife biologist Molly Alves' boot after being released into the Skykomish watershed. Right: A beaver finds its way to its new habitat.



program to the Stillaguamish watershed.

"Tulalip has been working collaboratively with the Mount Baker-Snoqualmie National Forest to steward our ancestral lands for quite a few years," Gobin said. "The beaver reintroduction effort is our first project under the Tribal Forest Protection Act." In addition to expanding their range to include the Snoqualmie and Stillaguamish watersheds, Tulalip has worked with the Cowlitz Tribe and South Sound Beaver Recovery, which is coordinating with the Puyallup Tribe, to set up beaver relocation programs in other regions.

- K. Neumeyer



K. Neumeyer (2)

Selling Shellfish During a Lockdown



Stuart Thomas (2)

Swinomish Shellfish Co. offices are at 11455 Moorage Way, beside the Swinomish marina. Order online at *swinomishshellfishcompany.com* for pickup Friday afternoons from 3 to 6 p.m.

Like many businesses during the pandemic, the Swinomish Shellfish Co. has pivoted to stay afloat.

Purchased in 2013, the Swinomish Indian Tribal Community's 55-acre shellfish farm in Similk Bay is more to the community than a commercial operation, but selling oysters was always part of the plan.

Unfortunately, Washington's "Stay Home, Stay Healthy" order, beginning in March 2020, kept customers from dining out, leading to a drop in oyster sales to restaurants.

The Swinomish Shellfish Co. redirected its focus on retail sales – out of the warehouse at the Swinomish marina, at the market beside the Swinomish Casino Chevron station in Anacortes, and through partnerships including the Seas the Day traveling oyster bar.

The Swinomish shellfish farm grows a variety of oysters, including Pacific, Kumamoto and Olympia oysters, which are the only native species to the region.

"Native oysters, grown in native waters, by a native tribe. These are the OG of Oysters," boasts the Swinomish Shellfish Co. website about its Olympia oysters. "These special little critters are unique in the oyster world for many reasons. Fished to near extinction during the Gold Rush, commercial aquaculture as well as restoration efforts have ensured that the Olympia Oyster is still with us, and thank goodness."

Swinomish also is working on mail-order oyster delivery, said Stuart Thomas, the



Left: Oysters are harvested at the Swinomish Tribe's shellfish farm in Similk Bay. Above: Swinomish Shellfish Co. crew boss Willie Hunt tends to the harvest.

company's director and aquaculture specialist.

"The pivot to retail is only so effective, but between that and planning a shipping service, it's a struggle to make much cash flow," he said. "The retail is very up and down, peaking around holidays."

For special occasions, the Shellfish Co. partners with other growers, such as Penn Cove Shellfish, to sell clams and mussels.

More important than retail sales, however, is what the shellfish company provides to the tribal community. Oysters have been served at elders lunches and the annual clambake, and have been distributed to the community on a number of occasions during the pandemic, Thomas said.

"Our shellfish farm is a source of food security, providing traditional food to tribal members," said Swinomish Fisheries manager Lorraine Loomis. "Our goal is to make sure these tidelands continue to support harvest for future generations." – K. Neumeyer

Traditional Foods Build Community

With a sharp knife and two quick flicks of his wrist, Chris Tipton shaved off the tough green ends of a leek and tossed it into a produce box.

"It's all about the wrist action," said Tipton, the Jamestown S'Klallam Tribe's community garden manager.

Garden assistant Eli Smith looked on, then tried it with her knife and a leek.

They were harvesting the strong-smelling onions for a tribal citizen. Their job is to grow, prepare and provide food for the Jamestown community.

The tribe's Traditional Foods Program started a community garden in January 2020 within a 30-acre lot owned by the tribe off Marinas Way, which includes an orchard and a berry farm. The tribe also constructed a small building that includes a kitchen where harvested food can be cleaned and prepared.

Tipton, a local farmer hired to oversee the garden, and Smith, a tribal citizen, along with Jessica Johnson, another garden assistant and tribal citizen, have been working the quarter-acre plot this year, bringing in mulch and soil to fortify the dirt, and planting seeds gathered from local farms and gardens.

In addition to strawberries, fava beans, onions, kale, collards, beets, broccoli, cucumbers and potatoes, Tipton and Smith also planted the "Three Sisters" combo: corn, squash and beans. These are known as companion plants; each plant benefits the others. Corn takes up nutrients from the soil, beans put nitrogen back in the ground, and squash plants help shade the dirt and keep out weeds.

They also planted a hedge of sunchokes, tall green leafy plants that peak at about 10 feet, topped with a little bright yellow flower. Sunchokes, a traditional native food from central North America, have the same carbohydrate content as camas plants, a traditional food for Coast Salish tribes.

The Traditional Foods Program is using the garden to feed the community and as a tool to teach food sovereignty, healthy lifestyles, and diabetes and obesity prevention, said Mackenzie Grinnell, the program's assistant manager.

"We wanted a place to gather, just to get people out on the land, to build community, especially intergenerational, while also encouraging gathering and harvesting," Grinnell said.

Despite struggling through a pandemic, Tipton and Grinnell found ways for tribal citizens and descendants, both locally and out of the area, to connect with the garden. Classes were taught from the



Eli Smith, Jamestown S'Klallam tribal citizen and community garden assistant, harvests and prepares leeks from the tribe's garden last fall.

garden via Zoom, including courses on nutrition, diabetes, exercise and gardening. Volunteers pulled weeds, and food was harvested and given to local chefs who held online cooking classes. Food was given to the elders weekly meal program and to health clinic staff. "People like to use what they grow," Tipton said. "It's been great to see how much the community has been involved, even with COVID. That's been the heart of this and it's been nice to see their relationship with the food." – *T. Royal*



Seven Generations

A Quileute tribal member heads out seal hunting in this undated photograph.





Top: Muckleshoot tribal fisherman John LaClair checks his net in the mouth of the Duwamish River where container ships load and unload. Above: John LaClair prepares to pull his boat away after a lunch break with his cousin Leo and his daughter Makenzi while waiting for a ship to pass.

Muckleshoot Fishe

For decades, Muckleshoot tribal fishermen in the mouth of the Duwamish River had no warning when 30-story-tall container ships came in to dock, a dangerous situation that threatened fishermen's safety and their gear.

After years of negotiations regarding the tribe's treaty-reserved right to fish, the Port of Seattle and the tribe developed an agreement and monitoring program where fishermen get a cell phone call about incoming ships. The vessel coordination program monitors traffic around the clock during each of the tribe's fishing seasons.

Muckleshoot tribal fisherman Leo LaClair can still remember his adrenaline flowing years ago when a container ship the size of a football field closed in as he was trying to pull his net out of the way.

"We just got the net pulled back, but then, after he was already docked, he unexpectedly fired up that huge 27-foot diameter prop for some reason, and the wave shot my boat into a piling, crumpling the front of my boat and narrowly missed injuring my fishing partner," LaClair said.

The phone calls have improved safety dramatically.

"Sometimes it is still only half an hour of notice, but at least we know," he said. "Just about all of us have a story about close calls."

During a recent coho fishery, LaClair and his daughter, Makenzi, 15, set nets in the shadow of several massive container ships. After about an hour of fishing, a call came in that a ship was coming through.

LaClair got assistance from his cousin, who was fishing nearby, to rearrange his net so the ship could get past.

While salmon populations have dwindled, mostly due to disappearing habitat, LaClair believes the Duwamish River's health has improved a little over the last 30 years.

"The health of the river still isn't great, but it's surely better than when I was a kid and if it wasn't for hatcheries and our net pens supplementing fish returns, there probably wouldn't be any harvest for anyone," LaClair said.

The Duwamish River was once counted as one of the most polluted in the country. The tribe has worked tirelessly to get the industrial waterway cleaned up, but there is still much work to do.

LaClair was taught to fish starting at the age of 10 by an uncle on the White River and then began commercial fishing. Now he is teaching his daughter to fish.

"I enjoy being out here and it's even better being out here with my daughter. She's a great help."

– D. Preston

eries Endure Seattle's Industrial Waters





D. Preston (4)

Left: Makenzi LaClair rinses a coho that suffered seal damage before she puts it on ice. Above: Leo LaClair works with his daughter Makenzi to remove a sport fisherman's lure from his net.

"I really enjoy looking at the city and I think about what it looked like long ago all the time."

> Makenzi LaClair, fisherman, Muckleshoot Tribe

The Next Generation

Makenzi LaClair, 15, muscles a 26-pound fishing net anchor and chain over the side of the boat, pushing it away and into the Duwamish River, setting the net during a coho salmon fishery.

The wiry teenager is comfortable handling big, slimy fish all day in a small, rocking boat and repeatedly chucking the anchor overboard to reset the net. She works in tandem with her father, Leo, as she has for the past two years, when school allows.

"I actually like being more buff because

of the work," she says laughing. "But mostly, I like working with my dad and just being out here."

When she looks at the Seattle skyline from her father's fishing boat, she often envisions what it looked like 100 years ago to be fishing in these same waters.

"I really enjoy looking at the city and I think about what it looked like long ago all the time," she said.

Makenzi takes each fish her father tosses back to her as he reaches below the bow to pull them from the net. She deftly bleeds out the fish before rinsing them in the salt water. The fish are stored on ice in a tote, which keeps the fish in the best possible shape for market.

At the end of the day, her face and rain gear are splattered with a sticky mud that comes off the net as it's hauled in and reset. The mud renders the net visible to fish, so it has to be cleared.

"It's a huge help to have her out here," her father said. "It's getting harder to do this by myself and it's just great to have this time with her." – D. Preston

HABITAT RESTORATION

Landowners Support Little River Restoration



Natural Systems Design, Inc.

Above: Logs and rock collars were installed upstream from where Little River meets the Elwha River mainstem. Below: A memorial site on Little River dedicates the project to Rick Skelly, a landowner who supported the project. He passed away during the second year of construction.

The Lower Elwha Klallam Tribe recently completed a two-year restoration project of Little River, making it more salmon friendly as part of the tribe's Elwha River watershed restoration work.

Little River is one of the first streams that salmon and other fish recolonized after swimming past the old Elwha Dam site following its removal in 2013. The dam blocked fish passage for nearly 100 years. Since 2013, Puget Sound chinook, steelhead, coho and pink salmon, plus bull trout, have been seen spawning in Little River.

To further support salmon spawning efforts, with \$1.5 million in funding from the state's Salmon Recovery Funding Board, the tribe placed more than 200 logs in a 1.2-mile stretch of the tributary using helicopters and excavators, then secured them with about 330 rock collars, each of which are made up of two boulders connected with a high-strength cable.

The logs and boulders provide natural features that salmon need to survive, slowing water velocity and creating pools for salmon for resting, feeding and spawning.

Prior to dam removal, salmon habitat had degraded in the watershed because of historic logging practices, said Mike McHenry, the tribe's fisheries habitat manager. These logging practices removed large trees and triggered a process called channel incision.

Without the wood, the fast-flowing water scoured fine gravel needed for spawning while leaving behind larger rocks and in some extreme cases, bedrock.

The tribe has been working with various partners including Olympic National Park and supportive private landowners, including Rick Skelly, who passed away during the second year of construction. In Skelly's memory, the tribe has dedicated the project to him.

"Rick Skelly was so supportive of the restoration work and loved nature and Little River," McHenry said. "Rick was so excited to see the project implemented and the tribe is saddened that he did not get to see it completed."

This project would not have been possible without Skelly's

support, as well as the Wagner, Fink, Freed, Gray, Johnson, Worthington and Malcolm families, and Green Crow Timber, McHenry said.

"These private property owners all deserve credit and the tribe thanks them for supporting this important restoration work," he said. – *T. Royal*





Engineered Logjams Create Habitat in Dungeness River

The Jamestown S'Klallam Tribe constructed more than a dozen engineered logjams in the upper Dungeness River last fall to support salmon recovery.

Historic removal of wood in the upper watershed stripped the river of the habitat salmon need for spawning, especially chinook salmon, said Hilton Turnbull, the tribe's habitat biologist.

"We found a 14-acre floodplain in the river that was sitting high and dry but had once been an integral part of the river system," Turnbull said. "Big logs with root wads that naturally fall into the channel help harness the river's energy to form deep pools of slower moving water, create and sustain side channels, and hold back spawning-size gravel – all of which salmon need to thrive."

Lack of wood in a river system means that high flows can wash out salmon egg nests (redds), which has a devastating effect on the chinook salmon population in the river, Turnbull said.

These disconnected floodplain reaches used to provide off-channel habitat that sustained salmon runs, the same runs that are now listed under the Endangered Species Act, he said.

Over the course of three days in late September, heavy-lift helicopters built 13 engineered logjams within a 1-mile reach, using logs with root wads, anchoring them with rock collars and bundles composed of smaller diameter wood and tree limbs. Excess woody materials were placed throughout side channels to create more fish habitat.

The tribe partnered with the U.S. Forest Service to build the project on federal land, and Olympic National Forest donated all the trees. Another key project partner was the Washington Department of Natural Resources, which allowed the tribe to stage materials, such as the rock collars, as close as possible to the project site to allow for the most efficient use of the helicopter's time to transport materials. – *T. Royal*

An aerial photo shows about half of the engineered logjams that the Jamestown S'Klallam Tribe constructed last fall in the Dungeness River to support salmon habitat.

Online Tool Helps Prioritize Salmon Projects

The Tulalip Tribes have created an online mapping tool to prioritize salmon habitat conservation and restoration projects.

One of the hurdles habitat managers face is a limited time frame to use grant funding. Projects can be held up during the time it takes to acquire property. The Snohomish Floodplain Acquisition Strategy tool is a story map meant to facilitate that process, while protecting the floodplain from development and preserving treaty resources.

"The tool is a great resource to help point us in the direction to use acquisition funding most efficiently and effectively, and so that conservation and restoration partners throughout the Snohomish basin can work collaboratively to make the greatest impact with the least cost," said Tulalip restoration ecologist Brett Shattuck.

The online geographic information

system (GIS) tool ranks floodplain units based on importance, acquisition feasibility and amount of degradation. It also determines whether a site is a better candidate for restoration or conservation.

"All of the floodplain units in the analysis are considered high priority areas for acquisition, and the GIS tool merely differentiates among this overall high priority area," Shattuck said.

So far, the tool includes the Skykomish River basin, the Pilchuck River and the mainstem Snohomish River upstream of the Pilchuck River. Eventually, it will include the Snoqualmie basin, and the Snohomish mainstem and estuary downstream of the Pilchuck River.

"The long-term goal is a corridor of protected lands along the Snohomish and its major tributaries where floodplain and riverine processes are allowed to function naturally," Shattuck said. "The corridor will also provide increased flood storage The story map can be found at *nwtt.co/ snohomishacquisition*.

and conveyance, reduce infrastructure in the floodplain, increase human safety, and decrease flood damage claims along the Snohomish."

So far, the tool has helped obtain around \$600,000 in grants for acquisition projects for floodplain natural process function and salmon habitat enhancement, as well as a Salmon Recovery Funding Board grant to extend the tool to the Snoqualmie watershed.

"We are already working with Snohomish County who plans to adapt the strategy for specific acquisition areas in the Skykomish with multiple benefits," Shattuck said. – *K. Neumeyer*



The Tulalip Tribes' Snohomish Floodplain Acquisition Strategy ranks habitat projects based on importance, acquisition feasibility and amount of degradation, as well as whether a site is better suited for restoration, as seen above, or conservation.

Action Needed to Fix Fish-Killing Dams



Courtesy of the Puyallup Tribe

Turf Spill a Disaster in Puyallup River

The treaty tribes in western Washington have called for the removal of the Electron Hydroelectric Dam on the Puyallup River.

The dam has been killing salmon, steelhead, bull trout and other fish for more than a century. In July, the dam's owners, Electron Hydro, placed nearly 2,500 yards of old, degraded and unapproved artificial turf in the river to cushion the liner of a new diversion channel.

High flows ripped open the liner and scattered the artificial turf downriver. Crumb rubber came loose, dumping cubic yards of toxic plastic pellets into the river that have traveled far downstream, threatening human health, fish and wildlife. The spill could be especially damaging to threatened spring chinook and harm the tribe's treaty-protected fishing rights.

In July, dam operators killed hundreds of salmon, bull trout and other fish, when they dewatered the dam's forebay to remove accumulated silt.

Stop work orders have been issued requiring Electron Hydro to clean up the debris and stabilize the site for winter.

The Puyallup Tribe has given notice that it intends to sue Electron Hydro over its intentional ongoing violations of the Clean Water Act and Endangered Species Act. In November, the U.S. Environmental Protection Agency filed a civil suit against the company.

"We've been fighting this battle for a very long time," said Puyallup Tribal Council Vice Chairwoman Sylvia Miller. "We will always be here to protect these resources, no matter what. Our goal is to recover that habitat and preserve it for our children and their children. That's what we fight for." – *NWIFC Staff*

Above: A 2001 photo of the Electron Dam on the Puyallup River. Right: The Gorge Dam blocks prevents fish from reaching spawning habitat.

Utility Asked to Resolve Skagit Fish Passage

North Sound treaty tribes were joined by county, state and federal agencies in persuading Seattle City Light to take stock of how the Skagit Hydroelectric Project blocks fish passage.

In December, the utility added fish passage to the study proposal for its relicensing process with the Federal Energy Regulatory Commission (FERC). The 1995 license expires in 2025.

Seattle City Light operates the Ross, Diablo and Gorge dams on the Skagit River, where salmon, steelhead and bull trout populations have continued to decline despite being listed under the federal Endangered Species Act (ESA).

Letters to FERC from the Upper Skagit, Swinomish and Sauk-Suiattle tribes, as well as multiple groups and government agencies called for the fish passage study.

The Upper Skagit Indian Tribe also has requested that analysis be done for Gorge Dam removal, returning the Skagit River to the Gorge bypass reach and transporting fish into all three of the project reservoirs.

"The ongoing blockage of fish passage and lack of flow in the Gorge bypass is a severe harm to the Tribe's Treaty rights and culture," said Upper Skagit Tribe Chairwoman Jennifer Washington in a letter to FERC.

Seattle City Light and FERC told the Skagit Valley Herald that removing the Gorge Dam is not within the scope of relicensing.

Letters from the Swinomish and Sauk-Suiattle tribes, state and federal agencies, and conservation groups requested additional studies about water quality, fish and wildlife mitigation lands, climate change and cultural resources, among other topics.

"(A)ll wild salmon populations spawning in the Skagit River, including ESA-listed Chinook and Steelhead, are not recovering, and key types of habitat for Chinook and Steelhead recovery have suffered and continue to decline as a result of ongoing Project operations," said Swinomish Chairman Steve Edwards in a letter to FERC. "We view the relicensing process as an opportunity to correct these harms before it is too late."

Both the state Department of Fish and Wildlife and Skagit County Commissioners expressed support for the tribes' requests. – *K. Neumeyer*



European Green Crab Invade North Sound

In the year since the first invasive European green crab were found on Lummi Nation beaches, thousands more have been trapped in the aquaculture pond near the tribe's fish and shellfish hatchery.

"They just arrived in our sea pond last year," said Lummi Nation biologist Nick Jefferson. "Go figure, the aquaculture pond would be able to grow things."

At this point, trapping and removing live crabs is the only way to slow down the growth of the invasive population. The goal is to prevent them from destroying salmon estuary habitat, preying on native shellfish such as juvenile clams and oysters, and competing with juvenile Dungeness crab. On the East Coast, European green crab are blamed for the collapse of the eastern softshell clam industry in Maine.

In 2015, Washington Sea Grant's Crab Team began a coordinated regionwide early detection effort in partnership with the state, several tribes and volunteers. Until now, the largest numbers were found near the Makah Reservation.

"The numbers that have been captured at Lummi Bay this year – and the particularly large boom of young of the year – far, far surpass any other site along inland Washington shorelines," said Emily Grason, Crab Team program manager.

Lummi Nation began trapping and removing European green crab in October 2019, after they were found in nearby Drayton Harbor. Natural resources staff began the 2020 season with about 50 traps per night, trapping twice a week, and increased to an average of 70 traps per night by the end of the season.

"At first we would catch 15 to 20 a week, but then it jumped to 100 to 125 a week," Jefferson said. The increase likely coincided with the young of the year reaching the life stage where they could forage for food, finding themselves in the baited traps, he said.

The numbers led the tribe to partner with the Crab Team, Washington Department of Fish and Wildlife, and the University of Washington for the largest trapping effort since the invasive species was found in this part of the country.

"The sea pond appears to be, in some ways, a nearly perfect incubator for green crabs," Grason said. "The enclosure protects the site in such a way that it creates conditions we don't really see on that large of



Karl Mueller, Lummi Natural Resources (2)

A small, male European green crab captured in the Lummi Sea Pond in September 2020.

a scale anywhere else. It's quite shallow but retains water all of the time, and it's very protected from a lot of other conditions that might make it hard for green crabs to survive."

The team set 290 traps over two nights in early September 2020 and caught 989 European green crab in the Lummi sea pond alone. By November, they had caught 2,600 crabs.

Not only is Lummi Bay home to the 750-acre sea pond where the tribe cultivates shellfish and juvenile salmon but it also is surrounded by the most productive natural shellfish beds on the reservation. A green crab infestation in Lummi Bay threatens both hatchery operations and tribal shellfish harvest.

Alternate measures have been considered to get the European green crab out of the sea pond. But draining the pond would be difficult and seining is too labor intensive.

Trapping continues to be the most effective removal tool, Grason said. After increasing numbers were found on Dungeness Spit, the U.S. Fish and Wildlife Service began aggressively trapping there. After four years, trapping brought the number down to only three European green crab in the 2020 season.

"Once they take hold, like any other invasive species, it's really hard to do anything," Jefferson said. "We're not going to be able to eradicate the population with trapping and removing, but we may be able to slow the invasion and get them out of the aquaculture pond at least." – K. Neumeyer



Taylor Solomon and Derek Vilar of the Lummi Natural Resources Department haul a beach seine among traps to capture invasive European green crab in the Lummi Sea Pond.

Search Continues for Tulalip Fish and Wildlife Officer



In November, an enforcement boat for the Tulalip Police Department's Fish and Wildlife division was capsized by a rogue wave, throwing the two officers on board into the water. Officer Shawn Edge, boat operator and captain, was located and rescued a few hours later near Hat Island by Tulalip fishermen. Officer Charlie Cortez, 29, was not found as of press time and is presumed deceased.

"As our search and rescue effort transitioned to a search and recovery, we are heartbroken," said Chairwoman Teri Gobin. "Our people are connected to the water and we know what we risk when we go out. We lost a good man, a father, brother and son. "Our hands go up to the many fishermen and rescue workers who continue to answer the call to find our missing officer. In the face of tragedy, our community came together and we will continue to come together as we take care of his family."

A coordinated search and recovery effort continued for weeks with multiple agencies in addition to numerous tribal fishing vessels from Tulalip and neighboring tribes.

"Charlie was a wonderful man and officer. We are devastated by this loss," said Chief Chris Sutter. "Tulalip Fish and Wildlife are often called upon to conduct searches such as this one. I know Charlie would have been there for you, and I can't say thank you enough to the many individuals and agencies that came together to be there for him. The search for our missing officer will continue until he is brought home." – *Tulalip Tribes*



D. Preston (2)

Smokin' Coho Giveaway

Robert McGee, Nisqually tribal fisheries technician, picks out some coho for a tribal member during a community giveaway of the Kalama Creek Hatchery returns. Returns were better than last year and the tribe made their egg-take needs for both the Clear Creek and Kalama Creek hatcheries.



WALKING ON



Cheryl Barth

She has many family members already on the other side, including her grandmother Mary George, her mother Mabel George Jackson and father Johnny Jackson. There to greet her also is her husband Jack Loudon, son Michael Saul Jackson, brothers David, Eddie, Leonard George, Greg and Johnny Jr., and sisters Margaret, Mary and Freida.

Beverly was a kind, smiling Quileute ambassador, capturing life as she saw it with her camera. From gatherings in La Push to trips she took, and volunteer work in Forks, she loved to take pictures.

Beverly Loudon

Quileute tribal

member Beverly

May 5, 1943, has

gone to be with

the ancestors'

drum group,

leaving for her

sacred sign-in

2020.

table on Nov. 13,

Loudon, born

She was a Head Start cook for many years, touching many young lives with food cooked from the heart. She was a big part of Cherish Our Children, an annual fundraising event that made the holidays brighter for kids in La Push and Forks.

Beverly could be found greeting visitors to the Quileute's weekly drum group and ensuring everyone signed in. She was a longtime member of the La Push Assembly of God Church. She enjoyed traveling for events and nothing stood between her and ice cream.

She leaves behind her brother Roger Jackson and sister Lorrain Judy Jackson.

There will be a small family ceremony to bless the remainder of her journey. The family hopes to celebrate her life at a later date. The best way to honor Beverly would be to make a donation to Cherish Our Children.

We know the big drum group in the sky has sign-in sheets an eternity long and that Beverly will make sure that even Jesus signs in!