



*A publication of the Northwest Indian Fisheries Commission*

# Northwest Treaty Tribes

*Protecting Natural Resources for Everyone*

Spring 2019

[nwtreatytribes.org](http://nwtreatytribes.org)

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# Puget Sound is Not a Sewer



by Lorraine Loomis, NWIFC Chair

**W**e must stop treating Puget Sound like a sewer if we are going to restore the fish, shellfish, wildlife and other natural resources it supports. That's why we are urging the U.S. Environmental Protection Agency (EPA) to stand strong in the face of challenges to water quality improvements.

We were disappointed to learn that tugboat companies, cruise lines and other marine industries recently filed suit against the EPA claiming that complying with a new no-discharge zone for human waste is too expensive.

If this sounds familiar it's because the move comes on the heels of another industry challenge that claims our state's new water quality standards – the most protective of human health in the nation – are also too costly to implement.

The state Department of Ecology worked to establish the no-discharge zone to protect an area of more than 2,300 square miles in Puget Sound and lakes Washington and Union. It was the first established in Washington, although there are more than 90 in 26 other states.

There are more than 150,000 recreational boats and more than 3,500 commercial vessels in the Puget Sound region. Most already have holding tanks for sewage, and the EPA has determined that there are enough shore-based and mobile sewage pump-out services to provide for the region. Vessel owners were given five years to comply with the new no-discharge rules.

It takes only a small sewage leak to force closure of a shellfish bed or make people sick. Before the zone was established, boats could dump partially treated sewage anywhere in the sound. Raw sewage could be flushed from vessels at least three miles from shore.

Meanwhile, the EPA is considering an industry trade group petition claiming that complying with the state's new water quality standards will increase their cost of doing business.

The idea that the solution to pollution is dilution is outdated. Our waterways are not an out-of-sight, out-of-mind solution

for industrial waste. It's time we stop balancing the pollution ledger with our health and future.

It's been a couple of years since the EPA stepped into the state's rule-making process to ensure that our water quality standards are based on the best available science. The federal Clean Water Act requires states to develop rules that ensure our waters are clean enough to provide healthy fish and shellfish that are safe to eat.

The updated water quality standards were the result of years of extensive public processes at the state and federal levels, involving tribal governments as well as industry representatives, environmental groups and other stakeholders. The standards are based on science that accurately reflects what happens when we are exposed to pollution in our waters. They also include a wide range of implementation tools and generous timelines for industry to comply.

There is no new science or law that justifies the EPA's reconsideration of industry's pleas that their short-term profits outweigh the long-term health of our communities and resources. Politics, not science, is the only factor that would lead to a different result. It would simply be a rehashing of issues that were discussed, debated and resolved through a lengthy public process that spanned decades.

We believe that human health and environmental quality are the keys to economic health and prosperity for our region. We don't believe you can put a price on clean water, our health or the health of our natural resources.

A pollution-based economy is not sustainable, but cooperation is. We must work together if we want healthy waters, healthy people and a thriving economy.



**Northwest Treaty Tribes**  
*Protecting Natural Resources For Everyone*

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**On the cover:** Upper Skagit tribal fishermen Tara Rodriguez, front, and Larry Peterson pull in a gill net during the tribe's steelhead fishery in February. See related photo on page 15.  
*Photo: K. Neumeyer*

# Tribes Support State Hatchery Emergency

Two treaty tribes gave hundreds of thousands of chinook fry to the state's hatchery program this winter to help defray losses from an extended power outage at the Minter Creek Hatchery in December.

The Nisqually Indian Tribe donated 500,000 chinook fry from its Clear Creek Hatchery, and the Suquamish Tribe provided 250,000 from its program.

"We help each other out in these situations," said James Slape, Nisqually Natural Resources manager. "They have given us fish when we needed them in the past."

Minter Creek lost 6.2 million chinook salmon fry following a windstorm and the failure of a backup generator.

Salmon are the most vulnerable in the fry stage when they are just over an inch long, said Bill St. Jean, Nisqually hatchery operations manager.

"We're all in the same business and we all benefit from raising these fish to release," St. Jean said.

With the tribal donations and fish received from other state hatcheries, more than half of the lost fish have been replaced and will be released this spring.

All hatchery chinook in Puget Sound originated from the Green River hatchery stock. – D. Preston

Top: Lee Pilar of the Washington Department of Fish and Wildlife, Nisqually biologist Tom Friedrich and Nisqually hatchery operations manager Bill St. Jean load chinook fry into a tanker truck. Bottom: Clear Creek Hatchery chinook fry are gathered for transport to Minter Creek.

D. Preston (2)

## Hatchery Salmon Benefit Fisheries, Guide Management

Treaty tribes in western Washington released more than 41 million hatchery salmon in 2018.

Of the salmon released, 13.1 million were chinook, 19 million were chum and 8 million were coho. Additionally, nearly 660,000 steelhead and 836,000 sockeye were released.

Some of the salmon released by the tribes were produced in cooperation with the state Department of Fish and Wildlife, U.S. Fish and Wildlife Service, state region-

al enhancement groups, or other sport or community groups.

A map and table of tribal hatchery releases are available at [nwtt.co/2018releases](http://nwtt.co/2018releases).

Nearly all of the chinook and coho salmon produced at tribal hatcheries were mass-marked by removing the adipose fin – a fleshy extremity just behind the dorsal fin on the fish's back. Clipping the fin makes for easy identification when the hatchery fish return as adults and are

harvested. Many of the fish also were implanted with a tiny coded-wire tag that identifies their hatchery of origin. When recovered on the spawning grounds or when the fish are harvested, data from the coded-wire tag are used to determine migration patterns, contribution rates to various fisheries, and other information important to fisheries management.

– E. O'Connell



# Measuring Sediment to Protect Salmon

The amount of sediment flowing down the Calawah and Bogachiel rivers – tributaries to the Quillayute River – has a huge bearing on salmon survival. Too much fine sediment can smother fish redds, damage fish gills, degrade habitat and starve fish of oxygen.

That's why the Quileute Indian Tribe is using a 7-foot-tall crane to suspend a 30-pound submarine-shaped weighted sediment sampler from a bridge into the Bogachiel River.

The design of the sampler keeps it vertical in the river while a glass bottle inside fills with water.

"We have to wait for high water, which means we're normally working in a rainstorm or just after a storm has passed through," said Nicole Rasmussen, water quality biologist for the tribe.

The team operates the crane by hand and takes 10 measurements at equal widths across the river channel to collect a complete sample.

It is essential for the scientists to collect a consistent amount of water throughout the water column.

"We use a metronome so when we hand crank the weight up and down in the water, we're going at a steady pace," Rasmussen said.

Suspended-sediment concentrations were last measured in 1978 when the amount of sediment that flowed down the Bogachiel River in a year weighed as much as the Empire State Building.



"A lot of the land upstream of where we're taking samples is active forestland, including clearcutting along almost 7 miles of the upper Bogachiel," Rasmussen said.

The investigation will eventually lead to the development of a model that should predict the sediment load in the two rivers.

"With the model, we can quickly look at the flow and turbidity at any point and figure out what is going on with the suspended sediments, and calculate annual sediment load," Rasmussen said.

Turbidity is a measure of how light passes through water but doesn't necessarily tell the tribe what kind or quantity of sediment is in the river.

"You can have the same level of turbidity in the river, but the level of suspended sediments could be different," Rasmussen said. "When you're talking about fish, it is the fine sediments that matter."

– E. O'Connell



E. O'Connell (2)

Top: Perry Black, Quileute Timber/Fish/Wildlife technician, opens the sampler to retrieve a sediment sample. Above: Nicole Rasmussen, Quileute water quality biologist, observes the sample collected from the Bogachiel River.

## Tribe Helps With River Rescue

Quileute tribal staff helped rescue a woman and her dog from the Bogachiel River during a flood event in December.

Tribal natural resources staff were taking water samples when they saw a woman jump into the river. Heidi Wenberg had been playing with her dogs when one of them was swept downstream.

"We were watching her run down the river after her dog," said Nicole Rasmussen, Quileute water quality biologist. "Then she jumped in after the dog. She went in up to her neck."

Rasmussen called 911, dispatching Clallam County Sheriff's deputies, Forks and La Push police, Quileute tribal wildlife officers, two local fire crews and Forks ambulance personnel.

The ambulance crew immediately found Wenberg and her dog. Wenberg had scrambled out of the river to search for her dog. Both were found less than a mile downstream.

"It was pretty intense," Rasmussen said. "Even though she was all right, I'm still glad we were there. When you're working out in the field, sometimes you're really the only people there that can respond to emergencies."

Northwest Fisheries Indian Commission biologist John Hagan and Quileute natural resources technicians Perry Black and Jeremy Payne also assisted. – E. O'Connell





## *New Habitat Improves Access for Salmon, Harvest*



*E. O'Connell (2)*

Top: Nicole Rasmussen, Quileute water quality biologist, looks at the streambed inside the new culvert. Above: Rasmussen and John Hagan, habitat biologist with the Northwest Indian Fisheries Commission, inspect a new bridge over Smith Slough, a tributary to the Quillayute River.

Salmon leaving the Quillayute River watershed now have access to 22 acres of habitat that had been blocked for decades.

The Quileute Indian Tribe restored the connection between a tributary slough and four streams with wetlands last fall by replacing a series of culverts under a road with three larger culverts and a bridge.

"Juvenile salmon can now use these wetlands to grow and feed before they head out to the ocean," said Nicole Rasmussen, water quality biologist for the tribe.

Since the completion of the project, tribal staff have observed coho, stickleback and cutthroat trout using the wetlands.

"You can really see when the slough starts to flood during these big winter storms how salmon are getting into the wetlands," Rasmussen said.

Small side channels, tributary creeks and wetlands are vital places for juvenile fish to escape the river's flow.

In addition to replacing the culverts, the tribe removed the invasive species English ivy, which outcompetes native plants, reducing habitat for wildlife and fish.

The project also provided an opportunity to improve tribal access to treaty-protected natural resources.

"To treat the road for water quality issues and access the culverts with equipment and dump trucks, we had to add a lot of gravel to the existing road," Rasmussen said.

Access to the river is now easier to reach for tribal fishermen, and tribal members use the road to access traditional plants like Indian tea, thimbleberry and elderberry.

*– E. O'Connell*





Nora Hickey, NWIFC

Above: Wildlife managers take samples from a bull elk that suffered from a hoof ailment. Right: Leslie Parks, Swinomish wildlife technician, samples an elk to test for hoof disease.

## 'Hoof Rot' Affecting Regional Elk Herds

Wildlife managers are sampling elk to learn more about the hoof disease proliferating across the region.

Often referred to as "hoof rot," cases of treponeme-associated hoof disease (TAHD) have increased among elk in Southwest Washington since 2008. The disease has been seen in the Olympic Peninsula and North Cascades herds over the past three years.

Biologists from the Swinomish Tribe and NWIFC are sampling diseased elk from the North Cascades herd for analysis at Washington State University's (WSU) Washington Animal Disease Diagnostic Lab.

The disease likely is transmitted via the soil from bacteria that sheds from the hooves of infected elk and is transmitted to others in the herd.

"Euthanizing elk with hoof disease may help stop the spread of the disease," said NWIFC veterinarian Dr. Nora Hickey. "This strategy has been tried with wildlife diseases in other regions, such as chronic wasting disease in deer in the Midwest, with fairly good success."

There is no vaccine against hoof disease and there is no proven way to treat free-ranging animals.



Chris Madsen, NWIFC

In January, the biologists collected hooves, antlers, liver, blood and feces from a bull elk with a hoof ailment, as well as an apparently healthy cow elk.

Dr. Margaret Wild of WSU's Department of Veterinary Microbiology and Pathology at the College of Veterinary Medicine in Pullman is researching hoof disease. She is trying to determine if whether one strain of hoof disease has spread across the region, or whether these are independent outbreaks.

The disease causes sores and lesions leading to significant pain and suffering. Afflicted elk can lose the hard capsule covering their hooves and have difficulty walking, which makes them unable to find food and escape predators.

Washington state recently passed a law aimed at limiting the spread of hoof disease by requiring hunters in areas where it is present to remove hooves and leave them where the elk was killed. The public can help by reporting limping elk or hoof deformities to the state at [nwtt.co/hoofdisease](http://nwtt.co/hoofdisease). – K. Neumeyer



# Otter DNA to Help with Ozette Sockeye Data

The Makah Tribe is collecting river otter scat, hair samples and habitat data to learn more about the population in the Lake Ozette watershed and its influence on the lake's sockeye salmon population.

The tribe's wildlife staff has been working along the shores of the lake and on the banks of the Ozette River, Umbrella Creek, Big River and other smaller tributaries that feed into the lake.

The staff has partnered with researchers from the University of Wyoming for a three-year study to monitor more than 40 otter latrines and set 35-40 hair snares seasonally. Otters use the same locations for latrines, typically on logs, rocks, beaches or river banks, making it easy for scientists to track them.

Latrines and snares are monitored up to 14 days during specific sampling sessions. The hair snares are mod-

ified otter traps that allow the otter to pass through, snagging a small sample of hair before releasing the animal.

A dab of biodegradable glitter is used to mark latrine sites where scat has been sampled.

"The idea is to determine the impact otters have on Lake Ozette sockeye by looking for salmon bones and other prey species in the scat samples," said Shannon Murphie, a Makah wildlife biologist. "The hair samples will provide DNA to give us an idea of where individual otters are going. Are they staying in one area to feed or do they move throughout the watershed, depending on prey availability?"

Sampling occurs three times a year: during otter mating season in the spring; when sockeye return to the lake in the summer; and when the sockeye spawn in the fall.

— T. Royal



Makah wildlife biologist Shannon Murphie sets up an otter hair snare near Lake Ozette.

## Wildlife Workshop



E. O'Connell

Swinomish game manager Valentino Villaluz participates in a necropsy workshop organized by the Northwest Indian Fisheries Commission's wildlife department this winter.

Participants learned how to perform necropsies on an elk, two deer and a cougar. Legs and heads of deer and elk also were available to practice sampling for hoof disease and chronic wasting disease.

They also learned about zoonotic diseases and how to prevent contracting infectious diseases from wildlife.

The NWIFC wildlife department plans to hold future necropsy workshops annually or biennially, with different focuses each time. Proposed topics include marine mammals, birds and small mammals.

Carcasses were provided by the Swinomish and Muckleshoot tribes, and state departments of Transportation, and Fish and Wildlife. The Nisqually Tribe's Clear Creek Hatchery volunteered freezer space for holding the carcasses and also buried the carcasses after the workshop.



# Helping Shellfish Adapt to Climate Change

Adding crushed shells to the beach might help offset the impacts of climate change on shellfish, according to research published recently by the Swinomish fisheries department.

Increased carbon dioxide in the environment gets absorbed by the ocean, raising the acidity and impeding the ability of shellfish to grow shells.

“Shellfish have historically been able to pull the building blocks for their shells directly out of the sea water that surrounds them in order to form the hard structures necessary to protect them from predators,” said Swinomish marine ecologist Courtney Greiner. One of those building blocks is calcium carbonate.

Greiner designed an experiment to look at two possible ways to help growth and survival of juvenile clams affected by ocean acidification.

The first is to increase the amount of algae and eelgrass, which should absorb carbon dioxide in the water column. The second is to add crushed shells to the substrate. Previous studies have shown that beach coarsening with shell hash and gravel can promote natural recruitment and growth in hardshell clams.

At the test sites in Fidalgo Bay and the Skokomish delta, juvenile clam growth was greater and the water was more acidic when aquatic vegetation was absent. While the crushed shell also did not increase clam growth, its presence did reduce acidity and raise the amount of aragonite, a form of calcium carbonate, in the sediment.

“Our results do suggest that the addition of shell hash might help provide chemical refugia for clams and promote growth and survival under future ocean conditions,” Greiner said.

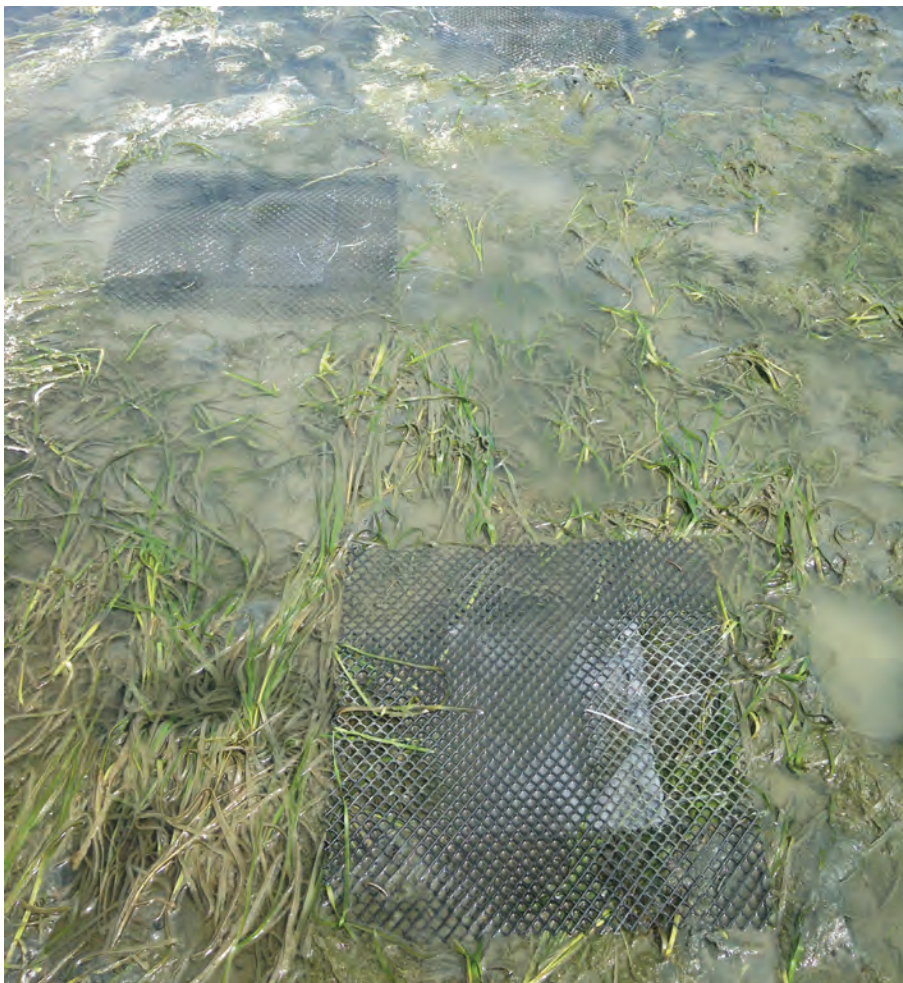
Under moderate carbon emission projections, pH is expected to decline by 0.2–0.3 units by 2100, making it twice as acidic as it is now. Swinomish, like other resources managers, is developing strategies to reduce the impacts of ocean acidification on culturally, economically and ecologically important marine organisms such as shellfish.

“Harvesting shellfish is essential to the tribal way of life,” said Lorraine Loomis, fisheries manager for the Swinomish Tribe. “We need to find ways to adapt to the changing climate so that these resources will be available for future generations.”

Read the paper:

[nwtt.co/shellfishclimatechange](http://nwtt.co/shellfishclimatechange).

– K. Neumeyer



Courtney Greiner, Swinomish Tribe (2)

Swinomish shellfish scientists studied whether crushed shells or eelgrass could help offset the effects of climate change on shellfish. Increased carbon dioxide affects the ability of shellfish to grow their shells. Algae and eelgrass absorb carbon dioxide from the water column.



# European Green Crab Explode on Coast



Zach Moore, USFWS

Above: A European green crab trapped by the Makah Tribe in 2017. Right: The Jamestown S’Klallam Tribe set traps in a channel in the Jimmycometely Estuary in 2017.



Neil Harrington, Jamestown S’Klallam Tribe

Northwest treaty tribes are continuing to keep a careful eye on the European green crab that has infiltrated Puget Sound and the Washington coast.

Invasive European green crab could threaten Dungeness crab, oyster and clam fisheries because they feed on clams, oysters, mussels, marine worms and small crustaceans. In large numbers, they could also damage eelgrass beds by eating them and degrade near-shore habitat by burrowing into the mud.

The Makah Tribe, which has seen the biggest influx of crab, is monitoring a population that could be establishing itself in two coastal rivers that empty into Makah Bay.

Staff from Makah Fisheries set a total of 2,228 traps between April and September 2018 in the Wa’atch and Tsoo-Yess Rivers, and in nearshore areas of Neah Bay. They trapped 1,029 green crabs in those rivers alone, said Adrienne Akmajian, the tribe’s marine ecologist.

Around the corner in Neah Bay, no live green crab were found but a few molts, or dis-

carded shells, were discovered.

“We trapped some very large crabs, at least 3 to 4 years old, suggesting an invasion as early as 2014 or 2015,” she said. “At the end of season, we had very small young-of-the-year crabs, suggesting we already have a new base of crabs establishing for 2019.”

The tribe set a handful of traps through the winter and caught an additional 30.

“The catch definitely goes down in the winter as we would expect because of lower salinity and colder temperatures, and winter tides make it difficult to set out traps, but we still caught a few in the lower rivers,” Akmajian said.

For 2019, the tribe plans to continue trapping every two weeks from April to September, Akmajian said.

“We hope to be able to study individual crab health and condition including limb damage and regrowth, and evidence of reproductive behavior, such as males clasping females,” she said. “We’ll continue to look for females holding eggs.”

Other tribes, including Lower Elwha Klallam, Port Gam-

ble S’Klallam, Stillaguamish and Suquamish, are trapping green crab in partnership with Washington Sea Grant’s Crab Team. But the numbers found inland are minimal compared to the coast.

In 2018, 69 green crab were found in Dungeness Bay, four were trapped at Westcott Bay off San Juan Island, two were found in Port Townsend Bay and one on Whidbey Island. No new crab were found at the monitoring sites in Fidalgo Bay or Padilla Bay. On the strait, the Pysht River estuary continues to show no signs of crab.

In January 2019, three adult crabs, including an egg-bearing female, were captured in Samish Bay by shellfish growers working for Taylor Shellfish Farms.

The Stillaguamish Tribe will begin its third year of monitoring in April at a couple of sites in the North Sound area.

“We have millions of pounds of eastern softshell clams and miles of muddy sloughs that crabs would thrive in if they make their way here, so the early warning system is very important for us,” said

Francesca Perez, Stillaguamish shellfish biologist.

The Jamestown S’Klallam Tribe partnered with others to conduct intensive trapping throughout the northeast Olympic Peninsula in 2018. The tribe focused on Sequim Bay, Jimmycometely Estuary and Washington Harbor. They set 254 traps but did not find any crab, said Neil Harrington, the tribe’s environmental biologist.

The tribe and the Washington Department of Fish and Wildlife monitored bays from Discovery Bay to Hood Canal Bridge and around Marrowstone and Indian islands.

In addition, the tribe conducted follow-up trappings in Dungeness Landing, Kilisut Harbor and Kala Point after the state and Crab Team found a single crab at each location.

“For 2019, we plan on continuing exploratory trapping in areas that aren’t trapped on a regular basis or haven’t been looked at yet,” said Harrington. “You look at a lot of our salt marshes around here and think ‘there is a lot of good habitat for green crab.’”

— K. Neumeyer and T. Royal





K. Neumeyer (2)

Left: Edgecomb Creek in Snohomish County is one of the sites where the Tulalip Tribes has worked with the state to restore fish passage. Below: A large concrete box culvert, resembling a bridge, replaced inadequate culverts along Highway 531. A year after the restoration was completed, more than 100 coho salmon spawned in the creek.

# Coho Spawn in Restored Creek

The Tulalip Tribes are collaborating with the state of Washington to fix some of the fish-blocking culverts that were the subject of a U.S. Supreme Court case last year.

The Supreme Court affirmed in June that state blockages of salmon habitat violate tribal treaty rights. These rights require that fish be available for harvest. The decision upheld a lower court ruling that ordered the state Department of Transportation to restore fish access to about 450 of its 800 most significant barrier culverts in western Washington. So far, nine out of 138 barriers have been fixed in Snohomish County.

For the past six years, Tulalip's Natural Resources Department has been working with the state on all phases of barrier removal and habitat restoration in the tribes' area of interest in the Snohomish and Stillaguamish watersheds.

"The court case has been decided and now it's time for all of us to work together to help recover salmon habitat," said Tulalip Chairwoman Marie Zackuse.

In November and December, more than a hundred coho salmon returned to a stretch of Edgecomb Creek that was restored in 2017. The creek, which provides spawning grounds for both coho and chum salmon in the Quil Ceda basin, was rerouted to the south side of Highway 531, a well-trafficked route through Smokey Point. Two inadequate culverts were replaced with a concrete box culvert, and the stream was relocated.

"Some coho returned that year, but any time you move a stream, it's inherently unstable," said Derek Marks, Tulalip's timber, fish and wildlife manager. Natural resources staff assisted in the stabilization of the new creek bed with

riparian plantings.

One of the keys to successful restoration is post-construction monitoring.

"It's important to pay attention to what happens after the excavators leave," Marks said.

The new meandering creek saw so much spawning activity in 2018 that salmon eggs could be seen on top of the gravel, meaning the coho were creat-

ing redds (egg nests) on top of redds.

"It's in unanimous agreement that we've done good work out here," Marks said. "The creek will only get more productive over time as the vegetation grows and helps to create cool, clean water for the fish to survive and thrive."

– K. Neumeyer





# Chum Carcasses Nourish Habitat

Juvenile salmon leaving the Puyallup River this spring will eat better because of a donation of several hundred chum carcasses.

After returning adult chum were spawned at the Puyallup tribal hatchery, Port of Tacoma staff spread the carcasses at a habitat restoration site on Clear Creek near the lower Puyallup River.

“Nutrients from decaying salmon are a key part of salmon productivity,” said Blake Smith, Puyallup enhancement manager.

Salmon carcasses provide ocean nutrients and feed more than 150 species of fish, plants and wildlife. Small animals, such as stream insects, feed on the carcasses and also are food for young salmon.

“One of the key limitations to salmon recovery in the Puyallup is the loss of habitat in these formerly plentiful off-channel areas,” said Russ Ladley, the tribe’s natural resources director. “By adding nutrients to this part of Clear Creek, we’re making it even more useful to salmon.”

Off-channel habitat gives juvenile fish a place to get out of the river’s flow to rest and feed. Small side channels, tributary creeks and wetlands all provide important off-channel habitat.

More than 20 years ago, the Port of Tacoma opened 8.5 miles of salmon habitat on Clear Creek. The port replaced an old tide gate under a state highway that restricted fish access into the creek. The port also restored salmon habitat behind the tide gate by planting trees and adding logs.

“Historically, the Puyallup wasn’t constricted by dikes and was able to carve new paths and create new off-channel habitat,” Ladley said. “Since diking and building in the floodplain started, a lot of off-channel habitat has been lost.”

The Puyallup Tribe began spreading surplus salmon carcasses in the upper Puyallup watershed 25 years ago.

“We recognized pretty early on that the ecosystem benefits exceeded any money the tribe would be getting for the fish,” Smith said. – E. O’Connell



E. O’Connell

Jen Stebbings, a Port of Tacoma employee, helps distribute chum carcasses to provide nutrients to Clear Creek, a tributary to the Puyallup River.

## GENERATIONS

Lummi Nation fishermen demonstrate how to use a reef net to harvest fish. Traditionally, the reef net, known in the tribal language as *sxwo’le*, was suspended between two canoes.

After the Lummi Nation signed the Point Elliott Treaty in 1855, tribal fishermen continued to reef net until about 1894, when non-Indian fish traps out-competed them.

A 1934 ban on fish traps in Puget Sound gave tribal fishermen renewed access to their traditional sites, but the 1939 opening of a cannery brought more competition from non-Indian fishermen who were able to reef net in more profitable locations.



Lummi Nation Archives



# Makah Tribe Decontaminates Brownfield Site

The Makah Tribe is cleaning pockets of its reservation, damaged from historic industrial use, one parcel at a time.

Since 2016, the tribe has been restoring a 1-acre site that was developed in 1968, originally intended to be a hake fish processing plant. The site turned into an oil facility used for transferring and storing oil for ships.

There were three aboveground tanks on site, including a 300,000-gallon tank, plus plumbing and a pump station.

The facility was shut down in the 1980s and the site was identified as a cleanup project in 2005, as part of a reservation-wide Environmental Protection Agency Brownfields Program assessment.

“Our initial concern for this site was potential contamination of nearby Agency Creek from leaking oil from the facility,” said Angela McMurphy, Makah Fisheries watershed scientist. “We were also concerned about the shellfish at the mouth of Agency Creek, which is a common spot for tribal members to harvest shellfish.”

The tanks and residual oil were removed in 2016, and groundwater and soil samples were taken in 2017.

Surprisingly, the samples showed no contaminants in the water, McMurphy said, and there was minimal contaminated soil around the supply pipe, where a small leak may have occurred.

In March 2019, contractors removed the contaminated soils and the pipe.

The property belongs to the tribe so it will be up to tribal council to determine the future use of the property after it is restored, said Stephanie Martin, Makah Fisheries habitat manager. The project was funded by federal Environmental Protection Agency.

– T. Royal



T. Royal



Angela McMurphy, Makah Fisheries

Top: A contractor prevents asbestos from spreading from an old oil pipe by cleaning it within a plastic barrier before cutting it up for removal. Left: A 300,000-gallon oil tank is cleaned before being dismantled.



Lori DeLorm, Jamestown S’Klallam Tribe natural resources technician, samples water from Lotzgesell Creek to test for fecal coliform bacteria.



T. Royal

## Frequent Sampling Leads to Cleaner Water

The recent partnership of the Jamestown S’Klallam Tribe, Clallam County Environmental Health (CCEH) and Clallam Conservation District has led to cleaner waters in the Dungeness watershed.

Staff from the tribe and CCEH sample water monthly and collect water temperature data year-round from nearly two dozen sites along Matriotti and Lotzgesell creeks, major tributaries to the Dungeness River, which drains into Dungeness Bay. The bay has a long history of fecal coliform pollution.

“Monitoring the water quality of these streams has helped us focus on problem areas that

have contributed to the pollution levels,” said Lori DeLorm, a Jamestown tribal natural resources technician.

The work paid off in the first focus area, Golden Sands and Meadowbrook sloughs, which had extremely high bacteria levels. After working with property owners on their septic systems, bacteria levels were reduced drastically.

The tribe started monitoring water quality in the watershed in the early 2000s after the bay was closed to shellfish harvest because of fecal coliform bacteria. For centuries, the tribe has relied on shellfish as a source of sustenance, even more so as fishing populations

have declined.

The tribe and the county joined forces in 2015 under the county’s Pollution Identification and Correction program (PIC), which was designed to improve the water quality of Sequim and Dungeness bays by investigating sources of bacterial pollution over 215 square miles.

The PIC program consists of two groups collecting data. The Streamkeepers of Clallam County collect data monthly at all stream mouths in eastern Clallam County.

If a stream is polluted, DeLorm and Andy Gosnell, a CCEH environmental health specialist, collect water quality

samples upstream to identify pollution sources.

When a source is detected, PIC partners connect landowners with resources to help correct the problem. This includes technical assistance with livestock management and financial assistance for repairing a failing septic system. Sometimes a correction is as simple as bagging and throwing away dog and cat waste, DeLorm said.

“The PIC program has been an excellent example of how tribes, counties and private landowners can work together to find water quality problems and fix them,” she said.

– T. Royal

## Skokomish Tribe’s Enetai Hatchery Triples in Size



T. Royal

A new support building for the Skokomish Tribe’s Enetai Creek Hatchery increases the facility to more than 2,200 square feet.

The Skokomish Tribe recently expanded its Enetai Creek Hatchery facility for the first time in more than 40 years.

A new 1,582-square-foot support building has been constructed up the hill from the tribe’s existing facility.

Since 1976, the tribe has been using a 684-square-foot garage as an office, workshop and incubation room for production of up to 3.5 million chum salmon eggs every year.

The new building primarily will be used for offices, meetings, equipment repair and a wet lab.

“By moving a majority of those day-to-day functions into the new

building, we’ll be able to use the old building much more efficiently as a dedicated incubation room,” said Dickie Adams, a Skokomish hatchery technician.

In addition, the hatchery has 14 raceways and circular tanks for rearing fish, plus a spawning facility across the highway at the mouth of Enetai Creek.

Hatchery manager Robert Blankenship plans to bring in more incubators and increase the egg take. The tribe also is considering plans to produce additional salmon species and operate the hatchery year-round. – T. Royal



# Nisqually Tribe Opens Retail Seafood Store

The Nisqually Tribe and Medicine Creek Enterprise Corp.'s She Nah Nam Seafood recently opened a store on the tribe's reservation, across the street from the Red Wind Casino.

"This outlet is allowing us to expand beyond our casino and other wholesale and distribution customers," said Rick Thomas, general manager of She Nah Nam. In addition to Nisqually salmon, the store also stocks seafood products from tribes across the country.

"We're building a sustainable market for tribal fishermen, so fishing can continue to be an economic cornerstone of the tribal community," Thomas said. "Making sure that our neighbors can easily access tribally caught salmon is key to raising the profile of the entire venture."

She Nah Nam Seafood was launched in 2012 as a buying program to support tribal fishermen. In its early years, the program opened a buying station near the Nisqually River, as well as a processing plant.

She Nah Nam Seafood received a grant from the state Department of Commerce's Community Economic Revitalization Board to consider creating a co-op with Northwest tribes. Under a cooperative model, tribes and their tribal fishers would be stakeholders in the organization. The mission of the program always has



*E. O'Connell*

Nisqually tribal member Monty Sison prepares food at She Nah Nam Seafood, which recently opened across from the Red Wind Casino.

been to sustain tribal treaty rights and keep more of the economic value of tribal fishing inside tribal communities, Thomas said.

"Our goal is to make sure that fishermen take home the largest share of the money in the fishery," he said.

Tribally caught fish are sent directly to She Nah Nam Seafood's processing plant.

From there, the fish are either sold to tribal casinos, wholesalers, or through the tribe's new retail outlet.

"Tribal fishermen aren't limited to just selling to us, but if we're out there, we can make sure everyone is getting a fair premium price throughout the season," Thomas said. – *E. O'Connell*

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## Billy Frank Jr. Day



*D. Preston*

Emily McGee dances during the Nisqually Canoe Family program at a community event for Billy Frank Jr. Day. Treaty tribes celebrate the day every March to honor the longtime NWIFC chairman who lived from March 9, 1931 to May 5, 2014.

About 150 people attended the event at Nisqually Middle School, co-hosted by the North Thurston School District and Nisqually Tribe.



# Marsh Restoration Protects Salmon, Farm Resources

The Swinomish Tribe is moving to the next phase of a restoration project that balances salmon needs with agricultural ones.

Previous work opened up fish habitat in the Smokehouse floodplain and tidelands by replacing fish-blocking culverts with bridges and installing self-regulating tide gates in place of outdated models. The upcoming work will add 120 more acres of wetland habitat with a dike setback along the Swinomish Channel.

“While fish-friendly tide gates certainly improve the movement and use of the once-isolated habitats for salmon, they are far from being as productive as more aggressive restoration actions such as dike setbacks,” said Steve Hinton, restoration director for the Skagit River System Cooperative, the natural resources extension of the Swinomish and Sauk-Suiattle tribes. “Dike setbacks enjoy broad support from a spectrum of the community who seek the most effective restoration actions supporting salmon recovery.”

The setback will follow a historic channel, allowing for the removal of a dike that was built when the Skagit Valley was settled and the tidelands were drained for agricultural use.

The new dike is expected to offer long-term protection for the

farmland. Since the property was returned to tribal ownership in 2000, project partners have aimed to restore the habitat for salmon on tribal lands while maintaining the land for farming.

While some of the land continues to be farmed for potatoes, project partners have planted about 54,000 native plants along more than 83 acres of the riparian corridor for wildlife and future tribal traditional plant projects. An additional 37 acres have been passively revegetated with salt marsh species and the tidal channels are again being used by juvenile chinook, Dungeness crab and other species that had been unable to access the site.

“We intend to continue to tell the story of the site’s evolution for generations to come and will eagerly engage those who wish to learn about our efforts,” said Todd Mitchell, the tribe’s environmental protection director. “This area provides a great example of a large experimental site that can frame beautifully the discussion of working lands and the power of managing land and water resources in concert with community needs.”

Ongoing site monitoring is tracking anticipated effects of climate change. So far, natural marsh growth is keeping pace with sea level rise. – K. Neumeyer



K. Neumeyer

Todd Mitchell, Swinomish environmental protection director, checks out a tide gate in the Smokehouse floodplain.

## A Brief Steelhead Fishery



K. Neumeyer

Upper Skagit fisherman Darryl Schuyler harvests steelhead on the Skagit River during a brief fishery in February. It was the first commercial steelhead fishery since 2015 when a moratorium was placed on hatchery releases in the Skagit River following a lawsuit filed by the Wild Fish Conservancy.

The steelhead fishery is culturally significant to tribal members because historically it sustained them through the long winter months when other fish weren’t available.

Tribal fishers caught 65 fish during the eight-hour fishery. A catch-and-release fishery opened on Feb. 1 for non-tribal anglers, with a limit of 660 fish.



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## WALKING ON

### David E. Lopeman

David E. Lopeman, longtime chairman of the Squaxin Island Tribe, walked on Jan. 9 at his residence in Kamilche. He was 75.

Lopeman was born in Shelton on Sept. 27, 1943 to Ernest (Osage) and Mary Whitener Lopeman (Squaxin Island). He was raised and lived most of his life in Kamilche.

He married the love of his life, Shirley Ann Rogers, in 1967.

Lopeman served on the Squaxin Island Tribal Council for 30 years, 24 of those as chairman.

He fought for tribal fishing rights as far back as the late 1960s and was first elected to tribal council in 1981.

He led the tribe through turbulent times working with federal, state and local governments to uphold federal treaty rights and responsibilities.

He was chairman during the implementation of the shellfish ruling and repatriation laws, the transition into tribal self-governance, tribal/state tax agreements, resurgence of Canoe Journeys, development of the Northwest Indian Treatment Center, and expansion of Island Enterprises and its many branches of business.

Lopeman was a commercial treaty fisherman. He and longtime friend Mike Brownfield also had a business making fire trails for the U.S Forest Service, and an automobile repair business.

He had many adventures hunting, providing for his family. One of his most memorable times was hunting buffalo with his grandson, David (they each got one!). He showed great pride in both of his grandsons, and was very happy when Steven was elected to the Tribal Council.

Lopeman was preceded in death by his parents; wife Shirley; and granddaughter Cynthia.

He is survived by daughter Donna Baker; grandsons Steven Dorland and David (Melanie) Dorland; brother Billy Lopeman; and five grandchildren, Owen, Zane, Finn, Lilly and Totten, all of Kamilche.

