



*A publication of the Northwest Indian Fisheries Commission*

# **Northwest Treaty Tribes**

*Protecting Natural Resources for Everyone*

Summer 2021

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- New Efforts to Restore Olympia Oysters
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# What Hydropower Costs Salmon



by Lorraine Loomis  
NWIFC Chair

**I**t is time for Seattle City Light to address the damage its three hydroelectric dams have caused over the past 100 years to the Skagit River, the tribes who have always lived here and their treaty-reserved fishing rights.

The utility has begun the process of relicensing the Skagit River Hydroelectric Project for 30-50 more years. A coalition of tribes, state and federal agencies, environmental groups and others have joined the Swinomish, Sauk-Suiattle and Upper Skagit tribes in demanding that Seattle City Light study the impact the dams have had on fish passage.

The Gorge, Diablo and Ross dams were constructed from the 1920s to the 1950s and provide about 20 percent of Seattle's electricity while blocking 40 percent of the Skagit River. The dams also disrupt the river's natural functions by choking off downriver transport of spawning gravel and woody debris that help create diverse salmon habitat.

Not surprisingly, salmon, steelhead and bull trout populations in the Skagit River have declined despite some being listed as threatened under the federal Endangered Species Act. The decline of summer and fall chinook are especially worrisome because they are the most abundant and healthiest naturally spawning chinook in Puget Sound. Chinook are also the preferred food of endangered southern resident orcas.

Seattle City Light claims that the dams were built above natural barriers that prevented fish passage upstream, but that's not the case, especially with the Gorge Dam, according to the Upper Skagit Tribe. The dam's reservoir provides no flood storage. It dewater a nearly three-quarter mile reach of the Skagit River – referred to as the Gorge bypass reach – cutting salmon off from miles of spawning and rearing habitat. The Upper Skagit Tribe calls the area its Spirit Valley.

For many years, Seattle City Light has relied on one historical account as its basis for claiming that salmon were never able

to reach the upper Skagit watershed. But the Upper Skagit Tribe has documented steelhead and coho fry in the Gorge Dam bypass.

The Upper Skagit Tribe says that all options – including removal of the Gorge Dam – should be on the table as Seattle City Light seeks to relicense the project.

Upper Skagit tribal member Janelle Schuyler has started a petition, "Return the Sacred Skagit, Remove the Gorge Dam," which has nearly 50,000 signatures, encouraging Seattle to begin the Gorge Dam removal assessment study. (Read the petition at [nwtt.co/sacredskagit](http://nwtt.co/sacredskagit).)

Besides improving fish access to habitat, removing the dam would improve the river's water quality and ecosystem. The remaining two dams would still meet Seattle's electricity needs.

After months of foot-dragging and denial of the dams' impacts, Seattle City Light yielded recently to public, political and media pressure and agreed to re-water the Gorge bypass reach, but did not provide details. The utility also agreed to conduct 33 studies to address water quality and flow, fish habitat, cultural protection, wildlife and other issues. It further plans to establish a \$2.5 million initial investment and provide \$500,000 annually to benefit ESA-listed species in the watershed that would be overseen by a board that includes tribal, state and federal representatives.

We don't know how the hydroelectric project relicensing process will play out, but we're encouraged that Seattle City Light – one of the nation's largest publicly owned utilities – may be beginning to see the light when it comes to the true costs of Seattle's progress. That progress has been paid by the Skagit River, its people and natural resources for the past 100 years.



**Northwest Treaty Tribes**

*Protecting Natural Resources For Everyone*

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**On the cover:**

Upper Skagit Tribe fishermen Larry Peterson and Tara Rodriguez gillnet for spring chinook salmon during a brief fishery on the Skagit River.

# Olympia Oyster Restoration Shows Promise

Squaxin Island tribal member Mike Peters recalls processing Olympia oysters in a floating hut in Eld Inlet decades ago for the family shellfish business.

“It was a lot of work, but that was my job, helping get the oysters ready for market,” Peters said. His great-grandmother, Molly Peters, taught many others how to raise shellfish.

The small native oyster is prized for its distinctive taste compared to the larger Pacific oyster found in most commercial shellfish beds. The Olympia oyster was shared at many tribal gatherings for hundreds of years before its near extinction.

Peters still lives on the property that has been in the family since before Washington statehood.

“My grandparents took those oysters to market every week, and places like The (Olympia) Oyster House were big customers,” he said.

But along came extensive logging, rapid suburban growth and Highway 101 construction that brought heavy siltation to Eld Inlet. Olympia oysters were smothered in silt and nearly eliminated from South Sound.

“There were fewer and fewer oysters to provide the spat to continue the next generations,” Peters said.

The tribe has spent several decades working to restore Olympia oysters, said Eric Sparkman, Squaxin Island shellfish biologist.

“We know that there were Olympia oysters in all the bays around Squaxin Island in the past,” he said.

In Palela Bay, chemicals in the effluent from the pulp mill in Shelton also contributed to the demise of Olympias around Squaxin Island.

To jump-start natural production of Olympia oysters in 2010, the tribe and Puget Sound Restoration Fund (PSRF) spread Pacific oyster shells over 2.2 acres in Palela Bay and a site on the east side of Squaxin Island. The shells from the more common oyster provided a substrate for new Olympia oysters to grow above the mud. Funding came from a U.S. Fish and Wildlife grant.

“Those shells are still there and providing a place for Olympia oysters to set and survive,” Sparkman said. The tribe also worked to attract Olympia oysters in areas where natural production was known to occur.

Unfortunately a 2011 effort around Palela Bay failed to attract the spat that becomes young oysters, and until 2018,



Squaxin Island tribal member Mike Peters still lives on the Eld Inlet property where his family made a living harvesting Olympia oysters. Below: Eric Sparkman, Squaxin Island Tribe shellfish biologist and Molly Borgeberg, marine and coastal conservation specialist for The Nature Conservancy, spread Olympia oysters onto Squaxin Island tidelands.



D. Preston (2)

the Olympias largely were left to repopulate naturally.

This year, The Nature Conservancy (TNC) and Pew Charitable Trusts’ Supporting Oyster Aquaculture and Restoration (SOAR) program provided the tribe with adult Olympia oysters. They were spawned at the National Oceanic and Atmospheric Administration’s Manchester facility and nursed at Chelsea Farms on Eld Inlet in Olympia.

“The SOAR program’s focus is helping oyster farmers harmed by little to no sales during COVID, while at the same time

benefiting oyster reefs,” said Tiffany Waters, TNC global aquaculture manager.

In April, Squaxin Island, TNC and PSRF staff surveyed Palela Bay and an additional site before spreading about 71,000 adult oysters.

“The new oysters will join the previously planted seed and natural recruits that are resting on the foundation of shell laid down a decade ago,” Sparkman said. “This will put us one step closer to our goal of a robust Olympia oyster bed on the island that is self-sustaining.” – D. Preston





T. Royal (2)

Left: Kevin “Ubba” Cagey, Skokomish Tribe shellfish technician, sorts through Olympia oysters from the shellfish farm Set and Drift in Hood Canal. Above: A bag of adult Olympia oysters.

“It’s great to place these oysters in different areas so we can see how they respond in terms of spawning and growth.”

*Blair Paul*  
Skokomish Tribe  
Shellfish Biologist

## SOAR Program Replenishes Native Oyster Beds

The Skokomish Tribe partnered with The Nature Conservancy (TNC) and Pew Charitable Trusts this spring to participate in a national oyster restoration program, Supporting Oyster Aquaculture and Restoration (SOAR).

The SOAR program is part economic relief and part habitat restoration: the goal is to support local growers by purchasing native oysters to be used in nearby restoration projects that benefit shellfish habitat and water quality.

The tribe received adult Olympia oysters from Set and Drift, a Hood Canal shellfish farm. The majority of the oysters were spread on the tribe’s tidelands near the mouth of

the Skokomish River. A subset was placed in a bag on the tidelands with a water temperature monitor, which will be checked in a year.

“It’s great to place these oysters in different areas so we can see how they respond in terms of spawning and growth. It allows us to determine where Olympia oysters do best on the Skokomish tidelands and southern Hood Canal,” said Blair Paul, a Skokomish Tribe shellfish biologist. “We know already they prefer to be further out on the tidelands while Pacific oysters prefer to hang out closer to shore.”

This project is just one of many in a nationwide effort

by TNC and Pew to purchase more than 5 million surplus native oysters from farmers that have been impacted by pandemic closures, and use them in nearby restoration projects, said Molly Borgeberg, the Washington state lead for TNC’s SOAR project.

The native Olympia oyster is important to the tribe as a traditional food source, while the shell is used in traditional clothing. These shellfish also are important to Puget Sound as they create a unique habitat for intertidal species and are prey for crabs, juvenile salmon, seasonal birds and small marine life.

Pollution and overharvest since the late 1880s nearly

destroyed the population, in addition to being crowded out by Pacific oysters, Paul said.

For the past few years, the tribe has been restoring the Skokomish tidelands to support the Olympia population, in partnership with the Natural Resource Conservation Service and Puget Sound Restoration Fund, Paul said.

The tribe spread clean oyster shell across the tidelands in 2017 to evaluate movement of substrate and establish a hardened surface for future seeding. In 2018, they spread 400 bags of seeded oyster cultch in the same area to monitor population growth. – T. Royal



# Pacific Oyster Harvest Sustains Tribal Way of Life



Squaxin Island tribal member Natasha Bush harvests Pacific oysters in Hammersley Inlet.  
D. Preston

An audiobook plays just loud enough for Squaxin Island tribal member Natasha Bush to hear as she picks Pacific oysters during a commercial oyster harvest.

She and three other tribal members fill metal cages with the bivalves on Hammersley Inlet near Shelton.

"I like thinking about my ancestors picking oysters when I'm out here," Bush said.

While clam harvesters can kneel, these oyster pickers had to bend over repeatedly for more than three hours. The sharp, barnacle-covered shells are too sharp to kneel on and are lower in the tidal zone, making speed a priority over comfort.

A barge outfitted with a crane from the tribe's seafood business, Salish Seafoods, retrieves the estimated 1,200-pound cages, each filled with about 200 dozen Pacific oysters. A good picker can fill a cage in less than an hour, sorting and removing empty shells from the live oysters as they go.

The tribe has the federally upheld treaty right to harvest 50 percent of naturally occurring shellfish on privately owned tidelands. If the owner desires, the tribe will harvest the owner's half and split the profits. In recent years, the tribe has successfully developed a cooperative program to work with private tideland owners on individualized management of their tidelands and shellfish populations. This benefits both parties and strengthens the relationship the tribe continues to develop with tideland owners.

The tribe has relied on shellfish culturally and economically for millennia. Shellfish are featured in tribal celebrations and used for subsistence and ceremonies. Salish Seafoods serves customers locally and around the world. Demand for shellfish has surged as restaurants and their customers emerge from COVID-19 quarantines.

For more information about the tribe's seafood enterprise, visit [salishseafoods.com](http://salishseafoods.com). – D. Preston

## OYSTER BOUNTY

Port Gamble S'Klallam tribal member Charin Godbolt harvests Pacific oysters at Anderson Landing off Hood Canal.

The tribe had scheduled a five-hour commercial oyster dig in May, but the harvesters worked so quickly that they met their quota in two hours.

Shellfish harvested in commercial fisheries are sold to licensed buyers. For the protection of public health, shellfish are harvested and processed according to strict state and national standards.



T. Royal



# Efforts Continue to Recover Diminished Stillaguamish Chinook

The Stillaguamish Tribe's Brenner Creek Hatchery is home to several generations of chinook salmon.

The chinook are part of a captive broodstock program the tribe started in 2010 to help recover the declining Stillaguamish River fall chinook run. Too few adult fish were returning to the river for the tribe to operate a conventional hatchery program.

"We tried and tried and tried to capture the adults, with only about 50 to 100 fish spread out over miles," said Kip Killebrew, the tribe's fisheries enhancement biologist. "We have a lot less access on the South Fork. It's much more canyonized. So that's why we had to catch the juveniles as they come out of the gravel and are getting ready to migrate downstream."

The tribe's natural resources staff collects juvenile chinook from the South Fork Stillaguamish River and raises them in a hatchery until they are mature enough to spawn. The goal is to bring back 900 fish each spring, and hope half of those are fall chinook, and not the genetically distinct summer chinook. The summer fish are part of a longer running hatchery program operated out of the tribe's Harvey Creek Hatchery on the North Fork, where enough adult fish return to spawn.

At the Brenner Creek Hatchery, the newest arrivals are housed in individual condominiums until their DNA tests determine which run they belong to. The summers are returned to the river, and the fall chinook are moved to an indoor raceway.

As the fish grow, they are moved into circular tanks

according to size, and ultra-sounded when they reach three or four years old, to determine when they are ripe for spawning. Fertilized eggs are held in trays and fry are raised in raceways until they reach smolt size and can be fin-clipped and coded-wire tagged before release into the South Fork Stillaguamish River.

In May, the tribe clipped and tagged about 30,000 juvenile fall chinook before releasing them into the South Fork. When the fish return, the coded-wire tags give fisheries managers vital information about migration patterns and survival.

This captive broodstock program is modeled after a similar program on the South Fork Nooksack River that supplemented the spring chinook run until enough adults returned to the Lummi Nation's Skookum Creek Hatchery. All of the fish released from Skookum Creek since 2017 have been spawned from returning adults, and not captive juveniles. In addition, some of the chinook spawned from captives have successfully spawned in the river and produced natural-origin offspring.

"We hope to get there within the next four to five years, start seeing enough adult returns from what we release out of the tanks and go back to just broodstocking the adults and not have to have a captive brood program," Killebrew said.

Low returns of Stillaguamish chinook to both the South and North forks of the river result in fishing closures across the region to protect the weaker stock. The main reasons for the declines are degraded habitat



K Neumeyer (2)

and poor ocean conditions.

"There are questions of food limitations," Killebrew said. "Ocean conditions that have been really bad – the blob, the

son of blob – just really bad ocean conditions for survival. All those variables come into play." – K. Neumeyer

Above: Stillaguamish natural resources technician Kevin Graybill, left, and biologist Anya Voloshin collect juvenile chinook salmon from the South Fork Stillaguamish River for the tribe's captive broodstock program. Below: Juvenile salmon wait in "fish condos" until they are DNA-tested to find out which genetically distinct stock they belong to.







K. Neumeyer (2)

# What Salmon Do Before They Spawn

Lummi Nation fisheries managers took to the air to learn more about chinook migrating up the Nooksack River.

In 2019 and 2020, Lummi Natural Resources staff placed radio transmitters in returning adult chinook and then monitored them in aerial surveys and by boat.

The fish were caught during the tribe's annual spring tangle net fishery. In that fishery, all captured chinook are sampled, but usually hatchery fish are retained for tribal ceremonies and subsistence, while natural-origin salmon are released.

For the radio-tag survey, some of the hatchery salmon were tagged and released as well.

The expectation is that North Fork hatchery chinook enter the river first, on their way to the state's Kendall Creek Hatchery. Tribal fishermen typically target these fish, so fisheries are scheduled before most of the natural-origin fish enter the river, as well as the South Fork hatchery chinook on their way to the tribe's Skookum Creek Hatchery.

"We wanted to look at entry timing," said Devin Flawd, stock assessment manager. "Can we time the fishery to reduce impacts on natural-origin fish and better manage their recovery?"

While the tangle net fishery has provided data about the timing of each stock's entry into the river, the radio tags tell fisheries managers how long it takes the fish to migrate all the way upriver, and where they go along the way.

"Are they using deeper pools and hold-

ing in certain areas or just going upriver as fast as they can?" Flawd said. "This effort gave us a good bit of information on a lot of those questions."

Another goal of the survey was to assess release survival.

"Are we making reasonable assumptions about how these fish are being affected by getting caught and released?" Flawd said. "We thought this would be a good opportunity to directly assess that. We did see high survival post release. The fish had the ability to migrate up to spawning grounds."

Within 24 hours of tagging and releasing a fish, tribal staff tracked them by boat with a radio antenna. Weekly aerial surveys were conducted with a radio receiver on a two-seater airplane flown by retired Lummi fisheries biologist and pilot Mike MacKay.

"With one fish in particular, we did in-river tracking and we got a ping right by the release site," Flawd said. "We went out a few times and kept getting pings in the same location. We thought maybe it regurgitated out the tag or died, but then we found the fish in an aerial flight many miles upriver. Sometimes the release event can be stressful, but this showed the fish are resilient."

Natural Resources staff tagged 52 chinook in 2019 and 89 in 2020. Most made it upriver, although some of them did not make it to the spawning grounds. A handful returned to hatcheries, and two were caught by Nooksack tribal fishermen.

One carcass was pulled from the water showing evidence of predation, although the tag was still inside.

Another tag led a Lummi biologist to the base of a tree, strongly suggesting the carcass had been carried back to a nest by an eagle.

"Our biologist was fairly certain the tag was at the top of that tree," Flawd said.

— K. Neumeyer

Above: Lummi Nation fishermen Steven Solomon Sr. and Taylor Solomon pull in a tangle net during the tribe's 2021 fishery. Below: A jaw tag is placed on a chinook salmon implanted with a radio transmitter in 2019, which helped fisheries managers study migration patterns with aerial and boat surveys.



# Safety First on Marine Boats

When your fishing boat is on fire, it can be hard not to panic and make a crucial mistake. White smoke often means an electrical fire. One of the most important first steps is to turn off the electrical systems of the vessel so there is no additional spark.

A fishermen's safety class can help the captain and crew remember to take that critical step because they have practiced the scenario.

"I had one fisherman tell me they were using fire extinguisher after fire extinguisher on a fire because they had not turned off the electrical systems and so it kept reigniting," said Joe Petersen, a marine safety course instructor. Another captain said the class helped him recognize an electrical fire and take the proper steps to minimize damage to his boat.

Petersen, who also is an NWIFC marine resource specialist, has been teaching Alaska Marine Safety Education Association (AMSEA) drill classes for the last three years.

"On the Washington coast, if you are going to be fishing beyond three miles, the U.S. Coast Guard requires at least one person on the fishing vessel to take the course and be certified," Petersen said. Frequently, all crew members take the class, which is best because they can practice working together to deploy the emergency raft, use flares and retrieve a person overboard.

The course also covers the use of a pump provided by the U.S. Coast Guard when responding to a flooding event, how to use ordinary items on the boat to stop leaks and how to put out fires. They practice getting into survival suits within a minute, and safely getting into the life raft.

Basic first aid also is covered, tailored to marine emergencies where someone might need to be stabilized for a period of time.

Classes often are either free or subsidized to commercial fishermen thanks to grants from Washington Sea Grant and AMSEA. Demonstration support is provided by the U.S. Coast Guard.

Petersen averages five classes a year.

"With COVID restrictions, we can schedule classes with as few as five people, but hope to be back to an average of 10 as health and safety allow," Petersen said.

– D. Preston

Top: A marine safety student turns his head from a punishing wind while practicing with a flare. Left: Joe Petersen, marine safety instructor, bobs in the water at the Quileute Tribe's marina during an overboard simulation.



D. Preston (2)







D. Preston (2)

## Steep Slopes Restored to Improve Habitat

The Quileute Tribe, Rayonier Inc. and volunteers have worked to improve fish habitat on a tributary of Cedar Creek since January 2019, culminating in tree planting in spring 2021. Cedar Creek drains directly to the Pacific Ocean on the North Olympic Peninsula near Forks.

After decommissioning a stream crossing, Rayonier pulled a large, fish-blocking culvert out of the tributary and regraded slopes leading down to the stream to align with natural grades. The Quileute Tribe obtained funding to add woody debris to the stream and plant trees.

On a sunny day earlier this year, tribal employees, Rayonier silviculturist Neris Biciunas and volunteers planted 750 trees on the precarious slopes. The trees were a combination of cedar and Sitka spruce planted in the same hole. It's thought that the prickly spruce will help keep deer and elk from feeding on the young trees.

"It's been a while since we were able to get everything aligned to do one of these cooperative projects, so it's great to get this one knocked out," said Nicole Rasmussen, water quality biologist for the Quileute Tribe.

By removing the culvert and restoring the natural grade, coho salmon and steelhead will have access to an additional half mile of spawning and rearing habitat while the dangerous buildup of sediment behind the culvert has been removed.

The Quileute Tribe paid for the placement of the woody debris and the planting with Salmon Recovery Funding Board money. Rayonier Inc. donated the trees and paid for removing the culvert, including the grade work.

"Every bit of fish habitat matters if we're going to recover salmon populations," Rasmussen said. – D. Preston

Top: Nicole Rasmussen, Quileute water quality biologist, plants native trees along the regraded slope. Right: Rayonier silviculturist Neris Biciunas digs a hole behind a pair of cedar and spruce seedlings planted together.





## Fishing the Sacred Skagit



K. Neumeyer

Upper Skagit tribal fishermen Scott Schuyler, left, and Jason Fernando fish a slow day on the Skagit River. The tribe has been calling for Seattle City Light to address the damage that has been done to salmon populations as a result of the Skagit River Hydroelectric Project. See related column on page 2.

### SEVEN GENERATIONS

Sauk-Suiattle Indian Tribe guides Sally Sauk, Mary and Jimmy Smith, and Willie Price lead a goat hunt in Darrington in 1907.

The caption on the photo reads: "Goat hunters ready for a hunt in the Cascade Mts. — showing how camp supplies are 'packed in.' Darrington, Wash."

The mountain goat is a culturally significant species to the Sauk-Suiattle Tribe. Its image sits atop the tribal logo.

Mountain goat wool traditionally has been used in clothes and regalia. In times when mountain goat populations were too sparse to hunt, tribal members collected the wool from places where it had snagged on trees.



Photo courtesy of Sauk-Suiattle Indian Tribe



# Razor Clams Finally Back on the Menu

After months of toxin-related closures, Quinault Indian Nation (QIN) diggers got a chance to harvest razor clams during brief openers in April, May and June.

Domoic acid, a naturally occurring toxin in shellfish that doesn't harm the clam but can sicken or kill humans, was present in unsafe amounts for most of the harvest year that began in fall 2020.

"It's great to see the community out here again, enjoying each other's company and connecting with the culture," said Sonny Davis, Quinault Pride Seafood manager.

Tribes have a reserved treaty right to 50 percent of the razor clam harvest on the beaches north of Grays Harbor. During a late May commercial dig, some tribal members were there to make extra money while others taught youth how to dig clams.

"It's slow teaching them, but they are old enough now and you just have to be patient," said Lloyd Saunders. He and his wife took four kids out on a tempestuous day with high winds and occasional showers.

"It's just nice to get out here and exercise our treaty right," Saunders said. Muddy but giggling, the kids were happy to warm up inside the van and eat some snacks.

Diggers are paid at the scales when they exit the beach. Their catch is weighed and assigned to their tribal member identification number.

Quinault Pride Seafood has one of the only commercial packing plants for razor clams on the West Coast, outside of Alaska. On a day with nice weather when participation is high, plant employees put in about 12 hours processing the clams.

The temperature of the clams is taken frequently, as required by state health guidelines, to ensure the product remains at or below the safe maximum temperature.

Knife-wielding employees cut away the shell, grading the steaks either as crab bait for commercial fishermen or high-end meat that will be vacuum-packed and sold in markets. There is a live market demand in Asia, said plant manager Shane Underwood.

Clams also are smoked and canned in a separate room.

The tribe has a store next to the plant stocked with all manner of seafood as well as shirts, mugs and COVID masks, plus items fishermen and diggers might need such as dry bags, mud boots and shovels.

A new store in Amanda Park opened in early June to better serve the tourist market on the Olympic Peninsula. Quinault Pride Seafood products also can be found at [quinaultpride.online](https://quinaultpride.online). – D. Preston



D. Preston (2)



Top: Quinault Indian Nation member Calvin Frank harvests razor clams during one of the few commercial digs QIN scheduled this year amid persistently high levels of toxins in the clams.

Right: Shane Underwood, plant manager at Quinault Pride Seafood, checks the temperature of the razor clams during processing. The temperature is taken frequently and at different points in the process to make sure the clams stay at safe temperatures. Thermometers are calibrated each year.





Skokomish Tribe

The water quality in the outlined area in front of Hoodsport has been upgraded to Approved by the state Department of Health.

## Water Quality Partnership Benefits Community

The Skokomish Tribe and partners are celebrating years of hard work to improve water quality in Hood Canal.

The water quality status of 66 acres of shoreline in Hoodsport was upgraded from Prohibited to Approved by the Washington Department of Health's Shellfish Program (DOH) on Jan. 31. This means the water has been proven clean enough to allow for commercial shellfish harvest. The tribe conducted two commercial oyster harvests in the area in early April.

"The work done between the tribe and

the partners to get this done has resulted in a win-win for everyone involved," said Seth Book, the tribe's Environmental Protection Agency (EPA) grants coordinator. "There will be clean water for residents, tourists, shellfish and marine life in Hood Canal."

To get to this point, it's taken a multi-agency and multi-year effort between the tribe's water quality program, Mason County Public Health, DOH and Hood Canal Coordinating Council, with funding from the EPA.

The work involved collecting and

analyzing water samples since 2014, and conducting shoreline and sanitary surveys to identify known and potential sources of fecal pollution. Once these sources were identified, Mason County Public Health worked with property owners to fix failing or inadequate septic systems.

Hood Canal has been plagued for years by water pollution from failing septic systems and low dissolved oxygen issues. The tribe will continue to monitor water quality and work with partners to control and mitigate pollution in the future, Book said. – T. Royal

### NWIFC OFFICERS

Elections for NWIFC officers took place at the May 2021 Commission meeting.

From left: Lorraine Loomis, Swinomish, received a vote of confidence for chairperson. Vice Chair Shawn Yanity, Stillaguamish, was re-elected. Patrick DePoe, Makah, was voted in as the new treasurer.





# Tribes, State: Water Belongs to the Public

Long-simmering conflicts over water use in the Nooksack River basin could be resolved through a legal process known as adjudication.

The Washington state 2022-2023 budget allocated \$1 million for the state Department of Ecology to adjudicate water rights in the Nooksack River, along with Lake Roosevelt near Spokane. In addition, Whatcom County will receive \$250,000 to develop planning and technical work to support the adjudication process.

The Lummi Nation and Nooksack Indian Tribe have pushed for decades for a legally binding determination of water rights. Ecology estimates the process will take 10 to 20 years to complete.

“Water in the Nooksack basin is a limited resource and will only become more so with the increasing demands of a growing human population and the impacts of climate change,” said Lummi Nation Chairman Lawrence Solomon.

From the tribes’ points of view, water does not belong to any one person.

“Everything belongs to future generations,” said George Swanaset Jr., Nooksack Tribe natural and cultural resources director. “We are only the caretakers.”

State law agrees: water belongs to the public.

“We don’t own water just because we bought land, just because we can drill a well or install a pump to a stream that might go next to or even through our land,” said Robin McPherson, Ecology’s water resources adjudications assessment manager. “It is a public resource.”

Legally, the right to use water is first-come, first-served, but there’s never been a court ruling that inventoried how much water there is in the Nooksack basin, and who is using how much, which is the only means to achieve certainty.

“Without adjudication, we can’t simply decide that a senior water user that’s been there for a long time is being impaired by a junior water user,” McPherson said.

Nobody disputes that the tribes hold the senior water rights.

“As the first people of this land, tribes have first rights,” Solomon said. “It is our inherent and sacred responsibility to uphold our treaty rights to ensure our children and the next generation may maintain our ancestral way of life with the Nooksack River.”

Key among tribal treaty-protected rights is the continued right to harvest salmon, which need plenty of cold, clear water to survive. Unfortunately, Nooksack River salmon populations have declined because of degraded habitat, poor water quality and insufficient streamflow.

The tribes and state are working to restore salmon habitat, but without water adjudication, it is impossible to protect the water.

“Too many illegal water users are sucking water out of the Nooksack River during the critical spawning season and that must stop,” said Lummi Nation fisherman Frank Lawrence III, who has worked for the tribe’s natural resources department for 17 years.



An aerial view of the Nooksack River.

K. Neumeyer

“In recent years, I have had to adapt to the degradation of the Nooksack River’s habitat, and no fish. So, no more fish stories and no abundance of fish to harvest,” he said. “It makes me think, how do the salmon feel every year upon returning home to the low-flowing Nooksack River and having to rub their bellies on every corner? Dirty, warm water that we as a local population should be ashamed of.”

Adjudication will not take away anyone’s legal right to water. The court will look at historic water use to find out how much water everyone should be using.

“We are working hard to protect the water that salmon need – not just for ourselves, but for our kids, our grandkids and for future generations,” said Nooksack Chairman Ross Cline Sr.

“Adjudicating water rights allows us to live here sustainably,” said Katherine Romero, Nooksack general manager. “We have listened to farmers, and they have said they need a water bank, or exchange, to move water rights where they are needed. Adjudication is how that happens.” – K. Neumeyer

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Want to learn more? Visit [salmonneedwater.org](https://salmonneedwater.org), a joint effort between the Lummi Nation and Nooksack Tribe, and Ecology’s website: [nwtt.co/waterrights](https://nwtt.co/waterrights).



# *Tidal Seafood Garden Planted in Sequim Bay*

Standing in ankle-deep mud on Sequim Bay, Jamestown tribal citizen Mackenzie Grinnell slams a double-faced sledgehammer on top of an 18-inch-long PVC pipe, driving it only a few inches at a time into the tideland.

With 200 more pipes to install as part of a new geoduck bed for the Jamestown S’Klallam Tribe’s latest traditional foods project, preparing the site was going to take longer than he expected.

The laborious effort is the first step in creating a tidal seafood garden for tribal citizens, said Grinnell, the tribe’s traditional foods program coordinator.

The geoduck bed is part of a ¼-acre plot on the tidelands that was planted this spring for the seafood garden, which also includes manila clams and Pacific oysters. The PVC pipe protects three to five geoduck seeds planted in each one; the pipes will be removed in several years as the geoduck grow.

“This addition to the traditional foods program helps us continue to teach our commu-

nity about traditional foods and harvesting, while adding to the seafood resources instead of taking away from them,” Grinnell said.

The goal of the program, which also includes managing the tribe’s community garden, orchard and berry farm in Sequim, is to promote community, traditional culture, nutrition and exercise.

“It’s a good feeling to continue in my mother Edith Cusack’s footsteps,” said Lisa Barrell, the tribe’s cultural program supervisor. “She instilled in me the drive to get our foods to our people. With guidance from ancestors, and the help of our community, we are creating a space to grow foods for our citizens and for future generations.”

The tribe received a Wellness for Every American Indian to Achieve and View Health Equity grant from Northwest Portland Area Indian Health Board to start the shellfish garden and the tribe’s community wellness garden. – *T. Royal*



*T. Royal (2)*

Above: Several geoduck seeds are planted in one of several hundred PVC pipes in Sequim Bay for Jamestown S’Klallam Tribe’s tidal seafood garden. The pipes eventually will be removed as geoduck increase in size. Below: The tribe’s traditional foods program coordinator Mackenzie Grinnell pounds PVC pipe into the tidelands for geoduck seed.







Above: Emily Buckner, Pacific Northwest Crab Research Group coordinator, left, and Neil Harrington, Jamestown S’Klallam Tribe environmental scientist, check a light trap for crab larvae in Sequim Bay. Right: Harrington returns the cleaned trap to the water.



T. Royal (2)

## Counting Dungeness Crab Larvae Regionwide

Northwest treaty tribes and other members of the Pacific Northwest Crab Research Group (PCRG) have been learning more than expected about Dungeness crab larvae migration patterns over the past few years.

The overall goal of the work is to better predict adult crab populations by determining the relationship between larval crab abundance and adult crab harvest four years later.

While scientists believe that goal could take at least 10 years, PCRG members are learning when and where crab larvae are present across the inland waters of Washington and British Columbia. Using light traps, scientists have found a larger abundance of larvae in traps in North Sound and Strait of Juan de Fuca, while just a few crab show up in the South Sound and southern Hood Canal traps.

In addition to counting crab larvae, also called megalopae,

scientists hope to determine whether populations are specific to certain sub-basins of Puget Sound, such as South Sound and Hood Canal.

“We’re seeing different-sized megalopae throughout the region – sometimes really big ones early in the summer, and much smaller ones later in the summer,” said Emily Buckner, PCRG program coordinator. “That makes us wonder if they’re coming from different places and are experiencing different kinds of conditions that are influencing their size.”

The traps are made from 5-gallon water jugs with lights inside that attract the tiny crab. More than a dozen traps are actively fishing off docks throughout Washington’s coastal waters, Puget Sound, the Strait of Juan de Fuca and the Strait of Georgia. The traps are checked every other day to better understand when and where crab larvae show up.

Water temperature record-

ers were added this year to collect more data on the water conditions the young crab are exposed to, Buckner said.

Data gaps about Dungeness crab in Puget Sound, and in the Pacific Northwest as a whole, led to the formation of the PCRG back in 2018.

The group is composed of representatives from state and federal governments, academia, nonprofits and industry, plus 18 treaty tribes. The goal of the group is to promote the sustainability of Dungeness crab populations and build a stock assessment of the species by understanding the early life stages. Tribes currently participating in the larval crab work are Jamestown S’Klallam, Port Gamble S’Klallam, Nisqually, Quileute, Skokomish, Suquamish and Swinomish.

“Dungeness crab are a really, really important resource in the region and yet they are quite understudied,” Buck-

ner said. “What’s cool to see is this expansion of interest with all these partners getting involved, and this recognition that all these data gaps exist and how important it is for us to start filling those.”

There are ecological and oceanographic questions that can only be answered by monitoring for a long period of time, she said.

“The overall goal is to gather data on crab larvae behavior and abundance and share that information with fishery managers to help inform their decision-making regarding crab populations,” Buckner said. “Going forward, as we figure out the patterns of these larvae, we might not need as many traps in the water and may be able to be more strategic about which sites keep collecting the data. Right now, we’re just working with anyone who will let us put a trap off their dock.” – T. Royal



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## WALKING ON



Kurt Grinnell

Kurt Grinnell, Jamestown S’Klallam Tribe citizen, passed away in Port Angeles on April 20.

Grinnell was born to Fred and Elaine Grinnell in Port Angeles in November 1963.

Married to Terri in 1999, he was a kind, loving and faithful husband. Their priority was raising two daughters and they enjoyed it to the fullest. They were front-row parents at every school and extracurricular activity. After their children left home, the fun did not stop – the couple continued adventures in travel, motorcycle rides, camping, attending Seahawks games and so much more.

A devoted father, Grinnell supported his daughters in their ambitions. He instilled in them from a young age the knowledge that with hard work and determination, they could reach any heights to which they aspired. He was always a wise counsel.

Adored by his three grandsons, Grinnell was a loving and

attentive grandparent, and he naturally demonstrated a balance between doing activities with them and being in companionable silence.

Graduating with the class of 1982 from Port Angeles High School, Grinnell was a talented wrestler, football player and motocross racer. After his attendance at Haskell Indian Nations University and the University of Washington, he returned to his community as an Indian Child Welfare Case Worker and Chemical Dependency Counselor.

A devoted citizen of the Jamestown S’Klallam Tribe, Grinnell was intimately involved in making sure his tribal community and resources were self-sustaining and long-lasting for many generations to come. At different points in his life, he was a gillnet fisherman, geoduck diver, shellfish farmer, tribal councilman, entrepreneur, visionary, a member of many local and state committees and boards and many other roles.

Grinnell was a bridge-builder. He brought many people together, was a peacemaker, and touched the lives of so many throughout his life. His legacy will be the innumerable relationships he forged, and those relationships will carry forward for generations. His trustworthiness, empathy, leadership and steadfast resolve earned him the respect of people too numerous to count.

Grinnell leaves behind his wife Terri (Horstman) Grinnell; daughters Loni Grinnell-Greninger (Eric) and Jaiden Bosick (Gregory); grandsons Brock, Colt and Grant; parents Fred and Elaine Grinnell; siblings Jack (Michelle) and Julia (Brian); Terri’s siblings Carol Mortensen and Rod Horstman (Deborah); and many nieces and nephews and their children: Hawk Grinnell (Martha), Nick Grinnell, Mack Grinnell, Khia Grinnell (Jon), Michael Donahue (Molly), Sarah Klostermeier (Jake), Jon Donahue (Justine), Kelly Mortensen and Garrett Horstman (Paige).