



A publication of the Northwest Indian Fisheries Commission

Northwest Treaty Tribes

Protecting Natural Resources for Everyone

Summer 2020

nwtreatytribes.org

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Habitat is Key to Salmon Recovery



by Lorraine Loomis
NWIFC Chair

Until we take real action to protect and restore salmon habitat, we are looking toward a future with more tightly restricted fisheries for everyone.

That's the lesson after treaty tribal and state fisheries managers reached an agreement in April through the North of Falcon process on a package of salmon fishing seasons for the 2020-21 season that provides greatly reduced harvest opportunity compared to recent years while still contributing to ongoing salmon recovery efforts.

The main reason for the decline of salmon throughout western Washington is that their habitat is being lost faster than it can be restored and protected, and the trend shows no signs of improvement.

We plan fisheries based on impacts to individual salmon stocks depending on their overall abundance and how many are needed to escape harvest and spawn. Treaty tribal and nontribal sport and commercial fisheries are structured to limit impacts on stocks of concern that are not expected to reach spawning goals.

Anticipated weak returns of chinook to the Stillaguamish River and mid-Hood Canal this year required extensive closures to protect dwindling populations. Coho returning to the Queets and Snohomish rivers also were stocks of concern.

We also are challenged by increasing predation by seals and sea lions, and the food needs of endangered southern resident orcas. Meanwhile, the ongoing effects of climate change threaten salmon and their habitat with drought, low streamflows and higher water temperatures.

The reductions we had to make this year are painful for both tribal and nontribal fishermen and fishing communities.

We already have steadily reduced tribal fisheries over time in response to declining salmon runs. Depressed chinook stocks mean there will be no tribal fishing on river systems in the Strait of Juan de Fuca, such as the Hoko, Elwha and Dungeness.

Unfortunately, the state had to substantially reduce its popular winter chinook recreational fishery in the Strait of Juan de Fuca, San Juan Islands and Hood Canal areas, to protect imperiled Stillaguamish chinook.

Stillaguamish chinook presented a management constraint greater than usual this year because only 990 total fish were forecast to return: 363 natural origin and 627 hatchery fish.

Under Endangered Species Act guidelines, the National Marine Fisheries Service determined that we need at least 400 returning Stillaguamish chinook to reach spawning grounds. That decision made the returning hatchery salmon especially important because they are produced for escapement, not harvest. They are key to an integrated recovery program that uses both hatchery and natural origin salmon to increase the abundance of adults returning to the spawning grounds.

Tribes rely on ceremonial and subsistence fisheries to feed our families and preserve our cultures. The Stillaguamish Tribe hopes to harvest just 30 chinook from the river this year for its annual First Salmon Ceremony and other traditions. Many tribal chinook fisheries have disappeared altogether. Tribal fishermen haven't had a directed salmon harvest on chinook in the Nooksack River for more than 40 years.

We won't be able to manage our way around the ongoing loss of salmon habitat much longer, but hope may be on the horizon.

A bright spot appeared this year when – for the first time – treaty tribal and state salmon co-managers included habitat recovery as part of fisheries management planning. Washington Department of Fish and Wildlife director Kelly Susewind pledged to work with the tribes to address habitat issues in the watersheds that are limiting natural production of salmon. Part of that effort will include a science-based instream flow assessment from a salmon point of view.

This is cause for hope because habitat protection and restoration – and cooperation – are the keys to salmon recovery. Working together to address habitat is the most important thing we can do to help salmon. We know what the future holds if we don't.



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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.

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On the cover:
Swinomish tribal member Ben James carries a bucket of butter clams across the shellfish beds at Lone Tree Point. See story, Page 12. D. Preston

Decades of Data Support Fisheries Planning

For more than 38 years, Quinault Indian Nation fisheries crews have counted Queets River coho in several stages of life to assist the management of commercial and recreational fisheries on the Washington coast and beyond.

Quinault's smolt trapping and tagging program provides the only long-term continuous data set for coho freshwater production and marine survival on the north coast of Washington. The data also is critical to planning fisheries through the Pacific Salmon Treaty (PST) between the U.S. and Canada. Funding for the program comes from the PST.

The goal each year is to capture, tag, clip and release 35,000 coho smolts from the Queets River basin, including the Clearwater River. Smolt traps also recapture fish downstream to shed light on survival rates and how smolts stay upstream before beginning the journey to the ocean.

"We don't always get the 35,000 because excessive storms mean we have to pull traps until flow waters come down, or the opposite problem can happen with not enough water," said Catrina Bean, Quinault fisheries biologist. "But we also exceed that number many times. Again, it just depends on the weather."

The traps usually are installed in early March with trapping continuing until the end of June. A crew also recaptures a percentage of smolts with a seine near the mouth of the Queets and Clearwater rivers.

The data helps estimate the number of juvenile coho out-migrating to the ocean each spring and, along with adult coho abundance data, enables managers to estimate marine survival. In addition, smolt estimates also are used to forecast ocean abundance each year for planning ocean and terminal (in-river) fisheries in the U.S. and Canada.

Despite reduced fishing and studies showing that harvest does not inhibit the stock, coho have not exceeded the minimum return goal for 27 years of the data set. – D. Preston



D. Preston (2)

Top: Quinault Indian Nation fisheries personnel, left, Catrina Bean, fisheries biologist, and fisheries technicians Jordan Curley and Austyn Davis count and tag young coho on North Creek, a tributary of the Queets River. The fish are released after receiving a coded-wire tag in the nose. Above: A coho fin is clipped to identify it as a Queets River smolt versus a Clearwater River smolt to help with recapture data.

Puyallup Spring Chinook Fishery

The Puyallup Tribe of Indians holds a ceremonial and subsistence fishery for elders in late spring. Elders can be assisted by a younger tribal member. Left: Chris Phinney, harvest management biologist for Puyallup, checks for a coded-wire tag in the head of a chinook. Below right: Jay Dillon, father, and son Myron Dillon, fillet their chinook salmon to take home. Bottom left: Arnie Williams drifts through a stretch of river called Arnie's drift, named after his father. Bottom right: Fishing was slow, despite heavy rain and a friendly tide that led fishermen to expect better luck. Williams had time to check his email, catching only one fish all day. The tribe closed the fishery recently based on their return data.



D. Preston (4)



Lummi Nation Revives Mother's Day Fishery

Lummi tribal fishermen donned protective masks in May to harvest Nooksack River spring chinook in the *Paq wet sut* Mother's Day spring fishery.

The fishery was named for Randy Kinley Sr., Lummi Nation policy representative, who passed away in 2017.

Under Kinley's guidance, Lummi worked with the state to create a 10-year plan to increase hatchery production to mid-1980s harvest numbers, said Lisa Wilson, Lummi ESA manager.

"He saw a need to create a task force to protect our hatchery fish. From there a coalition was created that included the Upper Skagit, Tulalip and Lummi tribes," Wilson said. "Randy's vision was timely in the sense that five years later during one of our most troubling times with the COVID pandemic that we would bring back hope to our people by getting our fishermen out on the river to fish for our sacred spring chinook."

Lummi Natural Resources (LNR) drew names for 20 fishermen to participate in the fishery on May 8, and another 20 on May 21. The fish were taken home for subsistence.

In addition to the Mother's Day fishery, LNR conducted its annual tangle net fishery this spring, harvesting hatchery chinook for cultural events, and gathering information about salmon recovery efforts.

This year, LNR staff and fishermen all wore gloves and masks in accordance with the Centers for Disease Control

and Lummi Public Health guidelines for limiting the spread of coronavirus. They also reduced the number of people on each boat and in the small airplane used to track the radio tags in aerial surveys.

In past years, natural-origin fish were anesthetized before being radio-tagged and released, but staff adjusted their procedures this year, making sure none of the fish harvested by tribal members contained trace amounts of anesthesia.

"Since we couldn't use anesthesia, we worried about how we could insert tags without causing the fish stress," said Devin Flawd, Lummi stock assessment manager.

Some of the elder fishermen suggested holding the fish still in the dip net while tagging the fish.

"We found that the fish were able to be processed and released as efficiently as when using anesthesia, and in some cases even more quickly," Flawd said.

The radio tags are tracked by aerial and ground surveys that tell fisheries managers how long the chinook spend in the Nooksack River before spawning or returning to the Skookum Creek Hatchery.

Midway through the 2020 tangle net fishery, early data indicated that the tagged fish showed a high degree of survival.

"We're seeing the fish still alive in the river, and hope to track them up to the spawning grounds," Flawd said.

— K. Neumeyer



Lisa Wilson, Lummi Nation (2)



Lummi fishermen Jeremiah Shanburn, top, and Alfonso Washington, bottom, display the spring chinook harvested during the Mother's Day fishery in May. To protect the community from the coronavirus, fishermen were required to wear masks when within six feet of each other.

Herring Bloom Gives Hope for Population

What was thought to be a dwindling herring population made a surprising appearance this spring in Puget Sound and the Strait of Juan de Fuca.

Schools of the silver forage fish were found along shorelines, filling eelgrass beds with translucent golden eggs in March and April, creating a mighty buffet for marine life.

The feeding frenzy caught the attention of Jon Oleyar, the Suquamish Tribe's fish biologist, who soon began receiving reports of herring swimming by the dock in downtown Suquamish. Tribal fishermen then started reporting catches of herring, ranging from 500 to 2,000 pounds, he said.

"During my 20-plus years working here, I have never had a tribal fisherman fish for herring on or around the reservation until this year," he said. "Many elders I spoke to don't recall seeing anything like this during the last 50 years or so."

The herring spike is important, as it was recently believed that the population might be heading for extinction due to lack of herring in areas that were once abundant, Oleyar said.

Herring lay their eggs on eelgrass and other underwater vegetation. Coincidentally, the tribe and the state have been improving eelgrass beds and habitat on private and state beaches for the past decade.

"We hope some of this

is starting to pay off and benefit some of the locally important wildlife," he said.

The resurgence of herring has cultural importance too, as younger tribal members have only heard stories of how their grandparents used to harvest herring and herring roe from the waters and beaches surrounding the Port Madison Reservation. Now there could be possibilities for them to harvest in the future as well.

This herring spike emphasizes several important points in the Puget Sound ecosystem, said Steve Todd, the tribe's salmon recovery biologist.

Herring populations are considered one of the Puget Sound vital signs, an indicator of the sound's health, and an important part of the food web as a source for salmon and other wildlife.

"If we see consistently bigger herring spawning events, does that cascade up the food web to have benefits for salmon throughout Puget Sound as well?" he said.

As for reasons for the big spike, it's speculative within the region's science community, Todd said.

"It gave me a sense that if we can continue monitoring and have a few more of these abundant events, in addition to the other food web research going on in Puget Sound, we might be able to piece together why this is happening and what we could expect in the future."

— T. Royal



Jon Oleyar, Suquamish Tribe (2)

Top: Herring eggs cling to eelgrass in Puget Sound. Above: Herring fertilization clouds the water along the nearshore of Bainbridge Island, across from Suquamish.

Improved Elwha River Habitat Results in More Eulachon

The Lower Elwha Klallam Tribe is learning more about the eulachon that keep showing up in the Elwha River, even more so since removal of the river's two fish-blocking dams.

"Since 2005, we've been catching a handful of them in our out-migration rotary screw traps, but we aren't sure if they are an ancient Elwha run or strays from the Fraser River in British Columbia," said Rebecca Paradis, a Lower Elwha Klallam Tribe project biologist.

The forage fish population, also known as smelt, oolichan and candlefish, was thought to have been extinct by the 1970s. In 2010, the National Marine Fisheries Service listed the southern Distinct Population Segment (DPS) eulachon as threatened under the Endangered Species Act.

For the next two years, with funding from the National Oceanic and Atmospheric Administration's Species Recovery Grant to Tribes, the tribe will be sampling both larvae and adults from the Elwha, Lyre and Dungeness rivers for genetic and population studies.

The tribe is using screw traps to capture

adults, plankton tow nets to catch larvae, clam guns to collect sediment samples to find eggs, and observing possible sampling sites. So far, the tribe has found larvae in all three rivers, and adults in the Lyre.

"The state biologists and technicians at Jamestown told me they hadn't seen eulachon in the Dungeness for years and didn't think they were there anymore," Paradis said. "They could be strays from another river system, but no other smelts are spawning that high in the river that we know of."

Eulachon came into the river systems to spawn in March, at the time the coronavirus shut down most surveying operations. The tribe had to reconfigure its field team of several people to just one technician sampling weekly in the three rivers with a plankton tow net.

Similar to salmon, eulachon spawn in fresh water. A river's current carries larvae out to the Strait of Juan de Fuca, where they develop into adults before swimming up river in late winter to spawn again, then die.

Listed as threatened under the federal Endangered Species Act, the eulachon is an important food source for both the tribe and salmon runs in the Elwha River.

The river also is considered critical habitat for this population of eulachon, Paradis said. While there are no historic quantitative data, eulachon have been reported anecdotally to spawn in the Elwha River.

"Beyond that, we don't know much about them such as their life history or their preferred habitat," Paradis said. "The dams in the river likely negatively affected the species."

For nearly 100 years, two hydroelectric dams on the Elwha River prevented salmon and other marine life from swimming upstream into the upper reaches of the river, where there is pristine spawning habitat.

However, after the dams were removed, the reconfiguring of sediment in the lower river may have helped improve spawning habitat for eulachon, Paradis said.

- T. Royal



Mike McHenry, Lower Elwha Klallam Tribe



Justin Stapleton, Lower Elwha Klallam Tribe

Left: In 2015, Lower Elwha Klallam Tribe natural resources technician Sonny Sampson holds a eulachon sampled from the Elwha River. Above: A sediment sample from the Elwha River that will be examined for eulachon eggs.

Tribal Fishermen, Natural Resources Staff Face

When the novel coronavirus hit western Washington this winter, shutting down just about everything, tribal fishermen quickly had to figure out how to protect themselves while continuing to harvest.

The Upper Skagit Indian Tribe's council, for example, realized it would be impossible for fishermen to keep six feet apart from their deckhands on their small boats during a spring chinook fishery in May.

The tribe tested all fishermen and deckhands for COVID-19, and asked them to wear masks. They also were told to stay home if they were experiencing symptoms. No one got sick. As of mid-June, the tribe had no confirmed cases of COVID-19.

"We had 18 to 20 boats fishing," said Scott Schuyler, the tribe's natural resources director. "Everyone was going COVID crazy and wanted to get out on the river after sheltering in place so long while the reservation is on lockdown."

The tribe had a buyer for the spring chinook, but the fishers were paid about 50 percent of what fishermen usually get, due to the economic effects of the ongoing pandemic, Schuyler said.

The tribe also shut down the natural resources department offices, including field operations and test fisheries to protect tribal members and staff.

"I'm sure other tribes are in the same boat," Schuyler said. "We are continuing to take a very cautious approach in the name of safety."

In addition to requiring masks during its spring chinook fishery, the Lummi Nation tested all 37 divers and hose tenders participating in a commercial geoduck dive fishery in May, said Karl Mueller, Lummi shellfish biologist.

The participants also wore

gloves and masks during the fishery, and sold only to a single buyer, instead of the usual four or five, to limit the number of contacts with people outside the reservation.

The COVID health restrictions were developed by the Lummi Public Health Team in conjunction with the Lummi Natural Resources department and Fisheries and Natural Resources Commission.

The Swinomish Tribe is offering COVID testing to anyone who wants it, and as of mid-June had no confirmed cases on the reservation. The tribe's departments of Fisheries and Environmental Protection established social distancing protocols to continue field work safely, such as collecting nearshore data, sampling water quality and surveying eelgrass, crab and clams.

Some tribes picked up the state's field work when the Department of Fish and Wildlife shut down operations. Natural resources staff from the Skokomish and Lower Elwha Klallam tribes conducted salmon and shellfish surveys and test fisheries in addition to their own field work.

Rough Markets

Starting in February, Port Gamble S'Klallam Tribe fishermen noticed markets disappearing as the virus spread, said Matt Ives, a Port Gamble S'Klallam Tribe fisherman and tribal council member.

When the outbreak began, crab prices plummeted.

"We never got the price we wanted and it makes a difference on the guys who do winter fisheries since they're not big fisheries to begin with," he said.

The price for crab from winter harvests plummeted to \$3-\$4 a pound, instead of the normal \$6 a pound, he said.

Prawn fisheries didn't re-

ceive the typical prices at first either, starting at \$3 a pound; shrimp usually sell for \$7 a pound, Ives said. But by early June, markets were back at their normal price.

Shrimp harvests also started a month late.

Point Elliott Treaty tribes agreed to fish in groups of 50 for spot prawns, to avoid flooding the market.

"This was a way to get all our fishermen from the Point Elliott Treaty on the water and get them making money," said Jonathon Lane, Lummi Fisheries and Natural Resources commissioner. "That was all based on the market and the coronavirus."

Harvests for manila clams were minimal while restaurants were shut down, but interest in clams and oysters picked up in mid-May as the state started to reopen, Ives said.

Shellfish harvesters from the Skokomish Tribe also felt the effect of the pandemic on their harvest efforts, said Skokomish fisherman Kevin Cagey.

"It definitely had an effect all the way around," he said.



Real Impact of COVID on Harvests, Culture



D. Preston



Justin Stapleton, Lower Elwha Klallam Tribe



T. Royal

“Even the oyster harvests weren’t what they used to be. In April, the markets were 10 percent of regular volume.”

Buyers were only taking oysters that were about 4 inches or bigger for grocery retail, he said. The restaurants that prefer smaller to medium sizes were shut down.

“As restaurants reopen, the market will likely pick up again,” he said. “But at least it gives the shellfish a chance to spawn and grow.”

Reduced markets meant tribal geoduck harvests also were down, as well as the price. But as of June, markets were opening again and demand and price were increasing. Tribes can roll over some of their 2020 geoduck harvest to 2021 if needed, said Sandy Zeiner, shellfish and enforcement policy analyst for NWIFC.

In addition to commercial fishing, ceremonial and subsistence fishing was an important source of food for many tribal members, with fishermen catching and dis-

tributing fish in a number of tribal communities.

Salmon Ceremonies

Spring is the time for First Salmon ceremonies and tribes were creative with their annual celebrations.

Instead of a community Blessing of the Fleet, Swinomish distributed take-home meals to the community.

Lummi Natural Resources commissioners and community members held a small First Salmon Ceremony to honor the ancestors and traditional way of life, and are planning to hold a community event later this year.

The Puyallup Tribe of Indians held their First Salmon Ceremony over Memorial Day weekend, with some modifications to keep tribal members safe.

Puyallup Tribe Chairman David Bean said the council outlined the protocol to make the event safe and still be able to honor the

Far left: Junior Miss Puyallup Princess Taiah Mitchell dishes up salmon that was cooked on site at the tribe’s First Salmon Ceremony in Tacoma. Boxed meals were given to tribal members via a drive-through system after tribal members watched the ceremony from their cars. Left: Andrew Pavone, Skokomish shellfish biologist, surveys oysters at Belfair State Park. Bottom: Lower Elwha Klallam Tribe natural resources technician mcKenzi Taylor helps install a smolt trap on Indian Creek.

salmon and culture.

Attendees watched from their cars with masks as the first fish was brought from a tribal canoe. Drummers and singers sang and danced while the fishermen cut the first salmon to cook and share, leaving the head and bones intact to return to the sea along with huckleberries and camas bulbs to welcome fish home.

Salmon was cooked on site and packaged with huckleberry muffins, camas bulbs and salad with huckleberry balsamic vinaigrette dressing. The meals were distributed to tribal members drive-through style after the ceremony.

“We’ve done this for thousands of years. We have survived challenges like this before,” said Connie McCloud, culture director for the tribe. “We celebrate the births, how we have grown as a people, and remember those who have been lost and the families who are grieving.” – D. Preston, K. Neumeyer and T. Royal

Tulalip Tribes Donate Salmon to Navajo Nation

A Tulalip Tribes' seafood wholesaler used the economic challenges of the coronavirus pandemic as an opportunity to help out another tribal nation.

With restaurants closed and residents of Washington state ordered to stay home to stay healthy, Tulalip tribal member Rudy Madrigal of Coast Salish Seafood found himself with a freezer full of fish and no one to sell it to.

Meanwhile, COVID-19 was ravaging the Navajo Nation, whose reservation crosses three state borders – Arizona, New Mexico and Utah.

As of mid-June, there were more than 6,800 cases of COVID-19 and more than 300 deaths within the Navajo Nation, according to the Navajo Nation Department of Health.

Even before then, Madrigal's brother, Michael "Big Mike" Frease, told him, "I'm going to gather up food and different things and drive down to Navajo where the people are starving. They need it. They're calling for me."

Frease, from Pomo Wintun in Northern California, is an activist, Madrigal said.

"He wants to bring seafood to people who can't get it. It doesn't matter the



Courtesy of Michael Frease

Members of the Navajo Nation in Arizona receive frozen and canned salmon from Tulalip Tribes' seafood wholesaler Rudy Madrigal.

struggle. Fishing opportunities have disappeared for so many different reasons."

Madrigal donated everything in his freezer: about 1,000 pounds of halibut, cod, tuna, swordfish, fresh salmon and smoked salmon.

"I probably had 20 to 30 cases of jarred smoked salmon," he said.

They loaded the seafood, along with other donations of food and clothing from Tulalip tribal members into a U-Haul that Frease drove to Arizona with friends.

The coronavirus quarantine worsened

the nation's food insecurity, Frease said. With minimal electricity, some on the Navajo Reservation had no freezers, and no place to store food.

"Sometimes they have to travel two hours to get to the store," Frease said. "So us being able to give them jars of fish allowed them to stay at home a little longer."

Frease said that Madrigal doesn't give himself enough credit.

"Rudy is a very humble man. He's business-oriented, but he believes in food sovereignty." – K. Neumeyer

SEVEN GENERATIONS

Port Gamble S'Klallam Tribe members laid out salmon and clams on the beach where they were harvested or brought home to Point Julia, as seen in this 1923 photo.



Burke Museum, Erna Gunther collection

Studying Toxin Levels in Fish for Human Health

With warming ocean temperatures and more frequent and intense harmful algal blooms occurring, the Makah Tribe wants to better understand how toxins travel through the food chain to marine life and humans.

“We are looking at several types of fish to see if and at what levels domoic acid and saxitoxin exist in their systems and how those levels change throughout the season as algal blooms take place,” said Adrienne Akmajian, the tribe’s marine ecologist. “We are also looking for the toxins in gray whales since they feed in the nearshore and lower on the food web.”

The toxins are known to cause shellfish poisoning in humans when ingested. Domoic acid causes amnesiac shellfish poisoning, and saxitoxin causes paralytic shellfish poisoning.

Akmajian has studied the levels of both toxins in sea lions.

“Domoic acid in particular is well known in California for causing sea lions to have seizures and aggressiveness,” she said. “In other parts of the world, saxitoxin has caused respiratory paralysis in several species of whales and seals.”

Now she wants to target fish and study the potential exposure to human health.

Since 2018, the tribe has been sampling fish caught by several of the tribe’s commercial fishermen and analyzing toxins in fish stomach contents and in fillets.

Fish tested include chinook salmon, yellowtail rockfish, petrale sole, walleye pollock, spiny dogfish, arrowtooth flounder



Adrienne Akmajian, Makah Tribe

Lora Halttunen, Makah Tribe marine ecology technician, prepares to transfer diluted toxin samples into tubes to be spun in the centrifuge.

and skate. The tribe samples fish monthly from May to November, with increasing frequency when active algal blooms are detected in routinely monitored shellfish.

Based on other studies, Akmajian says she does not expect the toxins to make their way into the fish muscle tissue, but if there is a big bloom, they could see higher levels of toxins in the fillet.

“By analyzing for toxins in both fish muscle and internal organs, our results may inform fish catch practices, such as how to quickly clean and gut fish or to quickly place them on ice so the toxins cannot leach out of the stomach and into the fillet tissue that humans consume,” she said.

The tribe also is studying the toxins in gray whales by sampling

their scat.

“This is done by following the whales closely in our research boat and watching for the whale to poop,” she said. “When we see the water discolor, we rush in and use nets to scoop out the material.”

Gray whales feed in the nearshore and on the sea floor and may be more exposed to the blooms that produce saxitoxin, which typically occur in nearshore bays. In the summer of 2019, shellfish harvests were closed around the Makah Reservation for several months due to high levels of saxitoxin in monitored shellfish.

“We will be interested to see if some of the saxitoxin made its way into the whales as well,” she said.

– T. Royal

“By analyzing for toxins in both fish muscle and internal organs, our results may inform fish catch practices, such as how to quickly clean and gut fish or to quickly place them on ice so the toxins cannot leach out of the stomach and into the fillet tissue that humans consume.”

Adrienne Akmajian
Makah Tribe
Marine Ecologist



Left: Swinomish tribal member Ben James tosses a clam into a bucket on Lone Tree Point in May. Below left: James' mother, Bernie Stone, harvests clams. Below right: A sign about the importance of Lone Tree lagoon is one of several interpretive signs where locals and visitors can learn about the history of the area and the plants and animals that call the surrounding beach home.

Lone Tree Clam Harvest Brings Back Memories

“My chest remembers that tree,” Swinomish tribal member Bernie Stone said with a chuckle as she dug for butter clams at Lone Tree Point, named for the singular tree there.

The tribal elder, in her 70s, came to the beach every year with her father during the summer “until the cold forced us back into town,” she said. “We had a rope swing on the tree and I would sometimes bang into it with my chest. Knocked the wind out of me.”

On this hot day in May, as on most

days that she harvests, Stone was accompanied by her oldest son, Ben James. He was taught by Stone how to harvest treaty resources at Lone Tree.

“We came out here so many summers. When other kids had candy in their pocket, I usually had something from the beach or forest in my pocket, like jerky or dried fish,” James said.

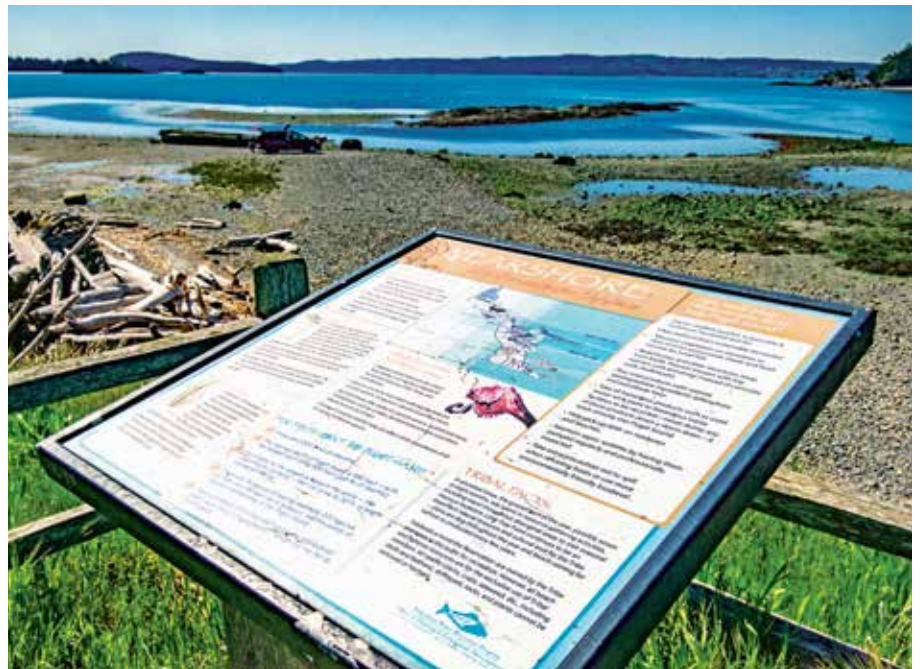
Following a windstorm that damaged the lone tree, Swinomish bolstered the health of the tree with additional soil. They also took seeds from the tree and

planted them on the point and gave away the seeds to create the next generation.

During COVID-19 restrictions, tribal members all over western Washington have relied even more on the ceremonial and subsistence resources to feed their families.

“Mom makes a delicious chowder out of these butter clams,” James said, as he helped his mother finish her bucket. The pair finished their afternoon at the beach by rinsing the clams and their gear before heading home. – D. Preston

D. Preston (3)



Cockles Raised in Floating Nursery

Suquamish Tribe shellfish biologist Elizabeth Unsell was nervous about spreading several years' worth of work on a beach recently, in the form of thousands of thumb-sized cockles.

"This is the first batch of these juveniles that we're putting out in the real world," she said. "So much work has gone into making sure they survived spawning and their time in our shellfish nursery in the past year."

The tribe has been working with the Puget Sound Restoration Fund (PSRF) to establish a cockle broodstock program as part of the tribe's effort to reestablish a population on its reservation.

This has been a controlled and monitored grow-out trial, to avoid interactions between wild and hatchery populations, said Ryan Crim, PSRF's hatchery director.

Adult cockles were collected from the beaches at Kiana Lodge and George Lane in 2019 and taken to the federal Kenneth K. Chew Center for Shellfish Research and Restoration in Manchester for spawning and rearing.

After the adults were spawned and the offspring were reared to juvenile sizes, the cockles were transferred to the tribe's floating shellfish nursery (a floating upwelling system called a FLUPSY) in Brownsville last summer. They stay in the FLUPSY feeding on plankton until they are big enough to be relocated to the tribe's beaches.

On the beach, clams are divided up into plastic mesh bags that are clipped to an anchor line, protecting them from predators.

The first transfer was successful, Unsell said, with only a handful of mortalities out of the more than 3,000 that were placed in the bags in May. More than 80,000 were added to the bag system in early June.

"The shellfish feed on algae and plankton, and there is a lot of food in the water right now, which helped their growth in the FLUPSY," Unsell said. "We hope the clams will continue to grow quickly in the bags on the beaches."

The shellfish is a delicacy for tribal members, with older generations remembering harvesting them by the dozens. But tribal members have observed a significant decline the past few decades, Unsell said.

The tribe and PSRF also are learning more about the cockle's life cycle and genetics, testing them for diseases and determining best hatchery practices.

— T. Royal



T. Royal (2)

Top: Suquamish shellfish biologist Elizabeth Unsell examines cockle broodstock that was grown in partnership with the Puget Sound Restoration Fund. Right: Suquamish tribal members check the tribe's shellfish nursery at the Brownsville Marina, where the tribe is keeping its cockle broodstock. The tribe will plant the baby cockle seeds on its beaches over the summer.



Mason Conservation District

The redirected Weaver Creek, left, now flows into Purdy Creek. The Skokomish Tribe and Mason Conservation District also installed logjams and planted native vegetation to improve salmon habitat.

Relocating Tributary Improves Salmon Habitat

The Skokomish Tribe and the Mason Conservation District have relocated a small tributary to the Skokomish River that has suffered water quality and salmon habitat problems for decades.

The simple redirecting of Weaver Creek created much needed floodplain and streamside habitat for salmon, said Joseph Pavel, the tribe's natural resources director.

Weaver Creek used to empty into the southern oxbow curve of the Skokomish River in the early 20th century. In the 1940s, the river was straightened to aid navigation, disconnecting it from the creek.

At the time, a new channel was excavated to reconnect the creek to the river, but without the original functions such as proper gradient and water flow that salmon need.

As a result, a sediment plug formed in the new channel, creating water quality

issues for salmon for decades, such as standing water in the creek and low dissolved oxygen levels.

"The old channel would have served as rearing and refugia habitat for multiple species of fish throughout the year but because the water was stagnant, the conditions were lethal to fish in the summer, and fish access was limited during certain flows," said Evan Bauder, the conservation district's habitat program manager.

To fix the problem, in 2017 the tribe and conservation district created a new channel redirecting Weaver Creek to nearby Purdy Creek, bypassing the sediment plug, installed 25 logs for salmon habitat and established a 100-foot riparian buffer on both sides of the new channel. Native vegetation was planted along the banks and in an adjacent former farmland to expand the floodplain.

"Now the cold water from Purdy Creek is flowing in there, so the area should be a

viable rearing area since the water quality issues are fixed," Bauder said.

"The mounds we created near the banks using the excavated material from the new creek channel establishes higher ground that will support conifers in the floodplain," Pavel said. "This increases floodplain complexity and reduced project costs because we didn't have to transport and dispose of the material."

This kind of restoration improves the riparian habitat function that salmon need to survive, including shade from trees to keep water temperatures cool, preventing streambank erosion which can smother fish egg nests, and provides recruitment of prey and nutrients to the stream.

This project builds off other efforts in the valley, such as building a new salmon-friendly bridge over Purdy Creek to help with the overall effort to improve salmon habitat in the Skokomish River valley. – T. Royal

Nest Platforms Protect Heronry from Displacement

Right: Stillaguamish wildlife biologists Amanda Summers, left, and Jennifer Sevigny, and Cynthia Easterson of the Puget Sound Bird Observatory assemble a wooden platform to provide an alternative place for herons to nest and roost after saltwater intrusion compromised their nesting trees. Below left: A nesting platform is erected by a Monroe corrections crew, Puget Sound Bird Observatory volunteers and Stillaguamish staff. Below right: Five poles supporting artificial nesting platforms are installed adjacent to the heron rookery at *zis a ba*.



Elaine Chuang, PSBO Board of Directors (3)

Estuary restoration on the Stillaguamish Tribe's *zis a ba* property improved habitat for salmon as well as migratory and resident birds, but unfortunately also put an active heronry at risk.

The tribe partnered with the Puget Sound Bird Observatory (PSBO) and a Monroe Corrections Complex work crew to protect the herons from being displaced.

While monitoring the avian response to estuary restoration, PSBO observers noticed that saltwater intrusion had compromised the structural integrity of the trees supporting heron nests.

"Many of the existing nests and roosts are disintegrating as the limbs they rely on for support are breaking from the tree," said Cynthia Easterson, PSBO secretary and volunteer engagement coordinator.

Easterson suggested artificial heron nesting platforms as a temporary solution.

"We decided to combine the platforms with some revegetation work to see if we could provide an alternative nesting area until new saltwater-tolerant trees establish," said Stillaguamish wildlife biologist Jennifer Sevigny.

"It will be a number of years before they are ready to hold nests," she said. "However, the plantings will provide a benefit before they are large enough for nests because they will provide habitat complexity and vegetation density around the artificial platforms that could make them more appealing for herons."

In March, PSBO volunteers, tribal staff and a work crew from the Monroe Corrections Complex installed five 25-foot poles, buried 6 feet deep for stability, with 10 nest platforms beside the heron rookery. In addition, the Monroe crew provided weed control and planted 2,500 native trees, shrubs and groundcover plants.

"Logistics for this project were complicated due to high tides and a narrow tidal range throughout the month prior to nesting," said Stillaguamish wildlife biologist Amanda Summers. "The poles were towed to the site by boat and hand set."

The tribe restored approximately 100 acres of tidal wetland in 2017, naming it *zis a ba* for a tribal chief. The area contains bird habitat for a variety of waterfowl, shorebirds and songbirds, as well as the heronry of up to 26 active nests. Large numbers of herons nest there seasonally while a smaller group roosts there year round.

"PSBO will provide monitoring of the heron colony to assess the use of artificial nest platforms with an eye toward other declining heronry sites, particularly in restoration areas, that may benefit from a similar approach," Easterson said.

- K. Neumeyer



WALKING ON



William A. James
Chief *Tsi'li'xw*

Lummi Nation Hereditary Chief *Tsi'li'xw*, William A. (Bill) James, walked on June 1 at his home surrounded by family.

He was born Oct. 20, 1944 in Bellingham to Frances (Auntie Fran) Lane James and Norbert James Jr. He was a proud member of the Lummi Nation and

descendant of the Duwamish people and Penelakut Kuper Island people.

James was recognized as Lummi hereditary chief in 2010. As a respected *Oksale* (teacher), he lived up to his responsibilities as chief every day, responding with kindness to each request for time, information and guidance.

He cared deeply for the Lummi Nation and its people. He ded-

icated his life to learning from his elders about Lummi history, language, culture and *schelangen* (way of life). He was a fluent speaker of the Lummi language and a master weaver, along with his late mother.

He considered Michael Lane and Laura Williams as his son and daughter, respectively. He is survived by numerous relatives and friends.

NWIFC OFFICERS



Elections for NWIFC officers took place at the May 2020 Commission meeting.

Lorraine Loomis, far left, received a vote of confidence as chair, Shawn Yanity, middle, retained his position as vice-chair, and Ed Johnstone was re-elected as treasurer.