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EPA Sacrifices Human Health For Short-Term Profit

by Lorraine Loomis
NWIFC Chair

Treaty Indian tribes in western Washington are outraged that the Environmental Protection Agency is advancing the agenda of a small group of industrial polluters to undermine public health, science and decades of hard work by rolling back the water quality standards that we have been implementing for almost three years.

The 2016 standards were supposed to make sure that seafood from Washington waters was safe for everyone to eat. EPA’s reversal no longer ensures that the human health criteria adequately protect Washington fish and shellfish consumers – including tribal members – from exposure to toxic pollutants.

Our health should not be unjustly jeopardized by increased levels of known dangerous pollutants like PCBs and dioxins that accumulate in the environment and cause real harm to people, orcas, salmon and the entire ecology of the region. PCBs and dioxins are the source of many public health warnings in our state regarding fish and shellfish consumption.

The pulp and paper industry, oil companies and other polluters want to make this issue about select groups of people like tribes, Asian and Pacific Islanders and others who consume more fish and shellfish than other residents. The truth is that this issue is about all of us and everything we depend on.

Under the federal Clean Water Act, states are responsible for setting water quality standards under their jurisdictions. EPA is allowed to revise existing standards only when they are deemed not strong enough.

That’s not the case here because our current standards are among the most protective of human health in the nation. That’s why we will fight this move with everything we have. We will stand with all 29 federally recognized tribes in Washington, the entire Democratic congressional delegation, the governor, attorney general’s office, environmental groups and many others who oppose EPA’s actions.

Tribes applaud Washington Attorney General Bob Ferguson for filing a lawsuit challenging EPA’s decision to roll back our water quality standards.

“Trump’s EPA cannot change important water quality protections at the whim of industry interests. It’s not only disruptive to Washington’s environmental efforts over the past two years, it’s a clear violation of the Clean Water Act,” he said in announcing the lawsuit.

PCBs and dioxins are known carcinogens and we are going to have to deal with them one way or the other. The question is whether we want to do that when they’re still in the water or after they have entered our bodies and those of the fish, shellfish, orca and other species we are working so hard to protect.

Why are polluting industries trying to poison all of us?

Simply for their short-term economic profit. In the process, EPA’s decisions threaten the integrity of the entire Washington seafood economy.

These industries and EPA should be ashamed of their actions. It is unconscionable to knowingly allow more cancer-causing and other toxic chemicals to be released in our waters.

On the cover: Patrick Braese, Squaxin Island tribal member, harvests shellfish for commercial sale. See related story on page 14.

Photo: D. Preston
Skokomish, Tacoma Partner to Support Sockeye Salmon

The Skokomish Tribe and Tacoma Power are bringing back sockeye salmon to the North Fork Skokomish River and Hood Canal.

“Our goal is to restore a sustainable run that we haven’t seen since the river’s dams were built,” said Dave Herrera, the tribe’s fisheries policy representative. The Lake Cushman and Lake Kokanee dams were built in the 1920s to provide hydroelectric power for the city of Tacoma but lacked fish passage facilities and dewatered the North Fork.

A 2009 hydroelectric dam relicensing agreement between the tribe and utility led to river restoration, increased water flow, fish passage improvements, fish and wildlife habitat restoration, and salmon hatchery programs on the North Fork.

“The long-term goal is to pass fish around the dams between the upper and lower watersheds of the North Fork, but the population numbers need to increase first, so we’ve implemented recovery programs for chinook, coho, sockeye and steelhead,” said Andrew Ollenburg, Tacoma’s Cushman Fish Facilities manager.

Every fall since 2016, the sockeye hatchery on Hood Canal has incubated eggs from Puget Sound Energy’s Baker River stock. The following spring, sockeye fry are placed in rearing tanks until the summer when they are transferred to Lake Cushman to acclimatize. The fish are released into the river to out-migrate to the canal and ocean for three to four years before they come back to the river as adults.

The hatchery also makes a thermal mark on the fish ear bone, or otolith, by dropping the water temperature for varying lengths of time, so staff can later determine the age of returning fish. The fish are not clipped so they will not be harvested, allowing more sockeye to return to the river. Any sockeye that show up at the hatchery will be brought into the spawning program.

Sockeye returning this year from the 2016 release would be considered 3-year-olds, Ollenburg said, with more expected next year as 4-year-olds.

“After nearly 100 years of conflict over the Cushman dams, the settlement agreement has led to a real partnership between the utility and the tribe,” Herrera said. “The tribe took the lead in securing the broodstock for the hatcheries, supported the securing of federal energy funds to help pay for the construction of the fish passage facilities, and the tribe’s fisheries staff now do monitoring work for Tacoma in the North Fork and estuary of the Skokomish River.” – T. Royal

Skokomish Tribe/Tacoma Power Hatchery Programs:

Spring Chinook
Adult chinook are collected at the state’s Marblemount Hatchery on the Skagit River and spawned in August. The eyed eggs are taken to the Tacoma Power’s North Fork Skokomish Salmon Hatchery in October, tagged with coded-wire tags and raised to subyearling and yearling release groups.

Steelhead
The steelhead broodstock comes from the North Fork Skokomish River. Tribal biologists and technicians pump about 15,000 eggs from steelhead redds each spring and bring them to the hatchery for incubating and rearing. As juveniles, they are given coded-wire tags and clipped to distinguish them from the existing natural-origin steelhead population in the North Fork. They are released the following spring.

Coho
Tacoma brings in about 10,000 coho fry from a screw trap on the North Fork Skokomish River to supplement the run. The fry are brought in from the screw trap in May and released the following May as yearlings.
After a 25-year absence, tribal and nontribal fishermen can again harvest chinook in McAllister Creek, thanks to the Nisqually Tribe.

The headwaters of McAllister Creek, known historically to the tribe as Medicine Springs, were transferred back to the tribe in 2016 from the city of Olympia after decades of work by tribal and city staff.

The mouth of Medicine Springs Creek is the site where the Treaty of Medicine Creek was signed in 1854. Today it’s part of the Billy Frank Jr. Nisqually Wildlife Refuge.

The Washington Department of Fish and Wildlife (WDFW) closed its hatchery on McAllister Creek in the mid-1990s, ending fishing opportunities there.

Each year since 2016, Nisqually has transported up to 1 million chinook smolts to the springs from its Clear Creek Hatchery. They are held in a pond in Medicine Springs for several weeks before being released.

These hatchery fish already are providing a much-needed tribal fishing opportunity in the Nisqually watershed, where Nisqually River fisheries often are closed to allow weak salmon runs to recover.

“There are 2-, 3- and 4-year-old chinook returning to McAllister Creek this year,” said Bill St. Jean, the tribe’s enhancement program manager. “Access is a little tough for sport fishermen, but the guys getting under the bridge there are successful pretty quickly.”

Other fishermen are taking small boats out to the mouth of the creek, catching bright, shiny chinook up to 25 pounds.

The tribe is involved in a number of efforts to restore and protect habitat in the ocean, Puget Sound and the river delta to improve the health and long-term returns of these salmon.

Partners include Nisqually River Council, Nisqually Land Trust, the cities of Tacoma and Centralia, Eatonville, the Salmon Recovery Funding Board, WDFW and the South Puget Sound Salmon Enhancement Group. – D. Preston

Nisqually First Salmon

Joseph Squally hauls in his fishing net on McAllister Creek under the watchful eye of his grandfather, Albert “Chief” Squally. Tribal and nontribal fishermen are harvesting chinook from McAllister Creek for the first time in 25 years, thanks to the tribe’s reintroduction of the run.

Chay Squally, Nisqually dancer, singer and cultural center employee, dances during the tribe’s First Salmon Ceremony on the banks of the Nisqually River.
The Stillaguamish Tribe’s wildlife staff worked quickly to process more than two dozen juvenile mallards on a recent morning in Port Susan Bay. The live ducks had been captured in traps set the day before near the tribe’s zis a ba property, as part of a nationwide program to learn about waterfowl migration routes, distribution, survival and harvest rates.

Beginning in late July, tribal staff set traps in two locations. The sites and the trap designs were selected to maximize efficiency while ensuring the safety of the ducks.

After a 24-hour trapping period, the staffers recorded the sex and age of each captured duck before fitting a band around its leg, then releasing it.

Washington Department of Fish and Wildlife originally gave the tribe 100 numbered metal bands to affix to the mallards’ legs, but midway through the tagging period, the tribe asked for 100 more. The tribe’s goal had been to band 60 to 100 ducks, but the traps were so successful that by mid-August, they had banded 114 mallards and 2 gadwalls, and had recaptured 13 birds.

The banding effort is part of the U.S. Fish and Wildlife Service’s nationwide pre-season banding program. The statewide objective is to band at least 750 mallards a year to estimate survival and sustainably manage harvest. While Port Susan is designated as an Important Bird Area by the Audubon Society, this is the first effort to band ducks in the region.

“Information from these bands will improve our understanding of the area’s productivity and overall contribution to the population,” said Amanda Summers, Stillaguamish fish and wildlife biologist. The data also will enhance the tribe’s waterfowl and shorebird monitoring effort at zis a ba, where tidal flow was restored in 2017 to increase rearing habitat for juvenile salmon.

“The assumption among estuary managers is that restored mudflats, wetlands and riparian habitat also benefit migratory and resident birds, but little is known about the relationship between salmon-driven estuary restoration and bird response,” Summers said. “These data will help inform our efforts to better understand this question.”

The national Bird Banding Laboratory keeps track of the data from recovered bands, including how long the duck lived and where it traveled along the Pacific Flyway, which extends from Alaska to South America.

There is a website printed on the band with instructions on how to report it. Anyone who harvests or finds a dead mallard can keep the band, and the Bird Banding Laboratory will send them a certificate with information about the sex, age, species and where and when it was banded.

“Hunters are pretty excited when they recover a band,” said Jesse Pecor, Stillaguamish wildlife policy lead. “The information we get from them will help improve harvest management.”

Live banded ducks also contribute to the database when they are recaptured in future trapping efforts, or spotted with a scope.

“Bird banding has long been recognized as an important tool that has substantially improved our understanding of many aspects of avian biology and provides critical information for the management and conservation of bird populations,” said Jennifer Sevigny, Stillaguamish wildlife program manager. – K. Neumeyer

Wildlife Management

Stillaguamish Tribe
Traps, Tags Ducks

Top: Stillaguamish wildlife biologist Amanda Summers releases a mallard after placing a numbered band on its leg as part of a nationwide tracking effort. Above: Stillaguamish wildlife staff affix a numbered metal tag to a hatch-year mallard.
The Upper Skagit Tribe invited a group of chefs to watch the Baker River sockeye fishery in June, one of the first commercial fisheries to carry the Salish Sea Certified label. Fish buyer Lummi Island Wild developed the label to let consumers know the salmon was harvested sustainably in a terminal area of the river, well beyond orca feeding grounds. The tribe, like all treaty tribes in western Washington, manages fisheries conservatively in support of both salmon and orca recovery. “Our fisheries are not driven by consumer demand,” said Doreen M. Maloney, the Upper Skagit Indian Tribe’s general manager and treaty rights director. “We harvest a small percentage of returning salmon, and only when NOAA Fisheries determines that harvest will be sustainable, and that there will be prey available to the southern resident killer whales.”

NOAA Fisheries is the federal agency that monitors and protects marine and anadromous species listed under the Endangered Species Act. Upper Skagit fishermen harvest chinook salmon in the terminal area of the Skagit River, far from orca feeding grounds. More salmon are killed by pollution, seal and sea lion predation, and lost habitat than have ever been harvested. Seals and sea lions consume more than six times the chinook salmon than are harvested by fishermen.

The tribe is working in partnership with state co-managers and other agencies to recover and repair salmon habitat on the Skagit River. Stormwater runoff into Puget Sound needs to be addressed as well as other forms of pollution, such as PCBs, which are especially harmful for orcas, Maloney said. – K. Neumeyer

Upper Skagit Harvests Salish Sea Certified Salmon

The Upper Skagit Tribe’s indigenous science program is being expanded into a model other tribes can use to educate tribal members about food sovereignty. Since 2013, Swinomish has partnered with Oregon State University to create an informal environmental health education curriculum using indigenous knowledge. Named for the tribe’s 13 Moons calendar, the program incorporates cultural practices passed down from elders, and links them to relevant science, technology, engineering and math (STEM) curricula.

“One of the challenges of teaching environmental sustainability is that existing curricula are not culturally appropriate or relevant to tribal members,” said Jamie Donatuto, an environmental health analyst for the Swinomish Indian Tribal Community and the project’s lead investigator.

The 13 Moons curriculum used the calendar to plan lessons about first foods, such as digging camas bulbs, picking huckleberries or carving the ironwood sticks used to cook salmon. Activities were integrated into community events such as clam bakes, instead of offered in a classroom setting.

“Food and medicine provide an avenue for the elders and young people to maintain a connection that leads to health and well-being,” said Larry Campbell, Swinomish community health specialist.

The program was inspired by work pioneered by Valerie Segrest, who coordinated the Muckleshoot Tribe’s Food Sovereignty Project, and is now with Feed Seven Generations, an organization focused on revitalizing native food culture in the Northwest.

“Food sovereignty is at the core of tribal sovereignty,” Segrest said. “My ancestor who signed the Medicine Creek Treaty made sure that access to native foods was ensured for generations to come.”

The National Science Foundation recently awarded $1.6 million for Swinomish to work with multiple communities to assess existing environmental health curricula. The work will bring Coast Salish tribes together to develop a toolkit for environmental education in their communities. – K. Neumeyer
Traditional Foods

Camas Rebounds at Kukutali Preserve

Purple camas flowers are growing in surprising places on the Swinomish Reservation.

Camas bulbs were once a vital traditional food for Coast Salish people, but have fallen out of favor since treaty times for a variety of reasons. Among them, camas fields require maintenance that tribal members were unable to provide after being relocated from their ancestral lands.

On the Swinomish Reservation, however, camas is rebounding on Flagstaff Point and Martha’s Beach. The tribe is nurturing those fields, teaching the community how to harvest and prepare it, and finding ways to revitalize the first food.

Flagstaff Point is on the Kukutali Preserve, which was jointly purchased by the tribe and state of Washington in 2010 after having been in private ownership since the 1920s. Because few tribal members had been to Flagstaff Point during that time, they were unaware that camas grew there. The tribe has installed fencing to protect the fragile habitat from foot traffic.

On Martha’s Beach, camas had been crowded out by invasive Scotch broom and blackberries. After an extensive effort to remove the non-native species, the tribe replanted native species such as Garry oak and juniper. But the camas came back by itself from an existing suppressed population.

To ensure that the camas doesn’t disappear again, the tribe may reintroduce fire as a management tool.

“Our Generations Camas Project is researching and studying where we have camas and determining whether we can grow it on the reservation,” said Todd Mitchell, director of the Department of Environmental Protection (DEP). “We’re looking at different varieties, to see if we can get a larger bulb, and grow enough to bring to at least one or two cultural events a year.”

Small camas bulbs take three to five years to bloom, and that’s not even big enough to harvest yet, said Swinomish environmental health coordinator Myk Heidt, who plans an annual camas dig on the reservation.

The tribe’s Community Environmental Health Program reintroduced the first food to the Tribal Senate a few years ago, and has been serving it at a traditional foods table at the annual elders’ luncheon for the past three years.

“Camas today is little known in our community and yet it was as valuable as salmon in the past as a trades good, so it was highly sought after,” Heidt said. “They would dig the bulbs, boil them, dry them and use them in the winter time to add a much needed starch.”

Camas bulbs take a day or two to cook on very low heat, Heidt said. The texture and flavor has been compared to a baked pear or sweet potato.

“As part of the camas research, DEP organized a camas dig in south Puget Sound for tribal members to learn from our Chehalis relations how to gather the bulbs that are plentiful and still eaten around the Chehalis prairie,” Mitchell said.

Dean Dan Jr., a DEP environmental education intern, brought his son, who compared it to clam-digging, but easier.

“Camas was a staple food,” Dan said. “Being able to harvest, learn and share about this first food is an honor – learning how to give back to the community and practice these types of teachings that allow us to identify with our ancestors.” – K. Neumeyer
The Skokomish Tribe is making sure that the water emptying into Hood Canal is safe for tribal members and recreational users.

For years, the tribe has been testing for the presence of E. coli and fecal coliform in streams that empty into the Skokomish River and Hood Canal.

Nonpoint source pollution is the primary source, typically coming from failing septic systems, runoff from agriculture, pet waste and even human waste. Polluted water can contaminate shellfish beds along Hood Canal beaches, impeding tribal harvest opportunities, said Julian Sammons, the tribe’s water quality specialist.

Sammons samples numerous locations twice a month, year-round, on the Skokomish Reservation, in the Skokomish River Valley and in Hoodsport.

At each location, he collects a sample and measures temperature, dissolved oxygen and pH. The samples are sent to the water quality lab at the Thurston County Public Health Department.

The results are evaluated to assess the severity of pollution and potential cause, he said.

“High levels of pollution during a long dry period with no rain indicate a source other than surface runoff, such as a failing septic,” he said. “High levels after the first rain after a long dry period are a strong indicator of surface runoff pollution, which happens almost every time we have an event like that. There is a significant amount of runoff pollution from the land use practices in Skokomish Valley.”

The tribe’s natural resources department works with local and state governments to investigate these issues when they are outside of the reservation boundaries, which is often the case, Sammons said. – T. Royal

Ensuring Hood Canal Shellfish Is Safe to Eat

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The Jamestown S’Klallam Tribe wants to know how ocean acidification might be affecting shellfish in Sequim Bay.

Ocean acidification (OA), the decrease of the ocean’s pH level caused by the absorption of carbon dioxide from the atmosphere, can change marine water chemistry, affecting shellfish survival and growth at the microscopic larvae stage when they are the most sensitive.

Longer term effects of OA can reduce shell and body growth, and impact the resource as a whole, impeding the tribe’s ability to harvest.

The tribe also wants to know how ocean acidification could affect its shellfish aquaculture operations, said Liz Tobin, the tribe’s shellfish biologist.

On the Sequim Bay tidelands, the tribe manages more than 60 acres of shellfish cultivation for commercial, subsistence and restoration purposes, including geoduck, littleneck and manila clams, and Pacific and Olympia oysters.

“The tribe depends on natural and farmed shellfish to provide economic opportunities and maintain cultural harvest practices,” Tobin said. “The threat of ocean acidification in Puget Sound has the potential to greatly affect the availability and sustainability of tribal shellfish resources.”

The tribe is participating in the Washington Department of Natural Resources’ Acidification Nearshore Monitoring Network (ANeMoNe) – a network of sensors installed in several nearshore environments in Puget Sound and on the coast. The sensors measure changes in marine chemistry at different locations and can be used to evaluate potential impacts on marine organisms.

The work includes studying oyster spat (seed) population and growth, and how the local marine chemistry, including pH, is influenced by the presence of eelgrass beds.

“Taking part in the ANeMoNe network allows us to gather important baseline data on Sequim Bay seawater chemistry, such as time series data that would allow us to detect trends or events in declining pH,” Tobin said.

“There is evidence of increased seasonal declines in seawater pH on the outer coast,” she said. “Such corrosive waters have been detected on the coast but we don’t have a strong handle if similar events are occurring in nearshore environments of Puget Sound.”

~ T. Royal
The Makah Tribe hopes that water samples from the Pacific Ocean will help scientists develop forecasts for harmful algal blooms (HABs) on the Washington coast.

The purpose is to determine the early warning signs of a pending toxic bloom that would affect coastal shellfish.

Algal blooms are caused by a sudden increase of the *Pseudo-nitzschia* algae, which can produce domoic acid, a toxin that makes shellfish dangerous to eat, said Riley Smith, the tribe’s water quality specialist.

“Tribes are affected economically by closures due to blooms, so the forecasts will help with decisions about harvests for shellfish such as razor clams and Dungeness crab,” Smith said.

Since 2017, the tribe has been gathering water samples from the Juan de Fuca eddy, about 35 miles west of Neah Bay as a part of their Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program. The site has been identified by the National Oceanic and Atmospheric Administration as a source of the toxin-producing algae, which can reach local beaches depending on wind patterns.

Throughout the summer and fall, the tribe collects samples every month from 10 sites within the eddy. Data gathered include conductivity, salinity, temperature, depth, and water column and phytoplankton samples. The samples are analyzed by the tribe’s water lab for same-day results.

In addition to the Makah Tribe, the Hoh Tribe, Quileute Tribe and Quinault Indian Nation monitor weekly along the shore, as part of the Olympic Region Harmful Algal Blooms (ORHAB) partnership.

Other collaborators in the ORHAB partnership include University of Washington, National Centers for Ocean Sciences, Northwest Fisheries Science Center, Olympic Coast National Marine Sanctuary, Olympic Natural Resources Center, Washington Department of Fish and Wildlife and Washington Department of Health.

The partners have been studying blooms for more than a decade, developing “HAB Bulletins” for resource managers about potentially harmful algal blooms. – *T. Royal*
The Skokomish Tribe is concerned that the rich turquoise water showing up annually in Hood Canal is affecting the shellfish resource.

The colorful water is caused by blooming phytoplankton called coccolithophores, which are single-celled organisms covered in calcium carbonate coccoliths (similar to scales) that reflect light, creating the Caribbean blue color. The bloom also clouds the water, preventing light that algae need to photosynthesize, reducing the amount of food available to shellfish.

NASA satellite images have captured the brightly colored water on and off for more than a decade, but annually since 2016, said Blair Paul, the tribe's lead shellfish biologist. It typically starts in Dabob Bay in the summer and makes its way toward southern Hood Canal.

"It’s not toxic to humans but it could be affecting the food resource for the shellfish, and affecting the tribe’s treaty resource," said Seth Book, the tribe’s Environmental Protection Agency coordinator.

The tribe started to question the correlation between the water conditions and reduced shellfish survival after observing oyster mortalities in 2017. Also that year, Paul conducted a geoduck dive survey in the middle of the bloom. He noticed geoduck weren’t eating and the light levels within the bloom were darker than usual.

Paul started talking with shellfish farmers along the canal, discovering that their shellfish beds were having extremely high mortality rates at the same time as the bloom. In 2018, many farms took heavy losses in central Hood Canal.

“Now we want to know two things,” Paul said. “If there is a correlation between low crab and shrimp abundance when there is a coccolithophore bloom, and if there is reduction in food production in the water column for all shellfish nutrition.”

The tribe is looking at "light attenuation" – how much of the light is reflected out of the water by coccolithophores. They use a spectroradiometer to take light readings inside and outside the blooms, as well as water quality and plankton samples.

It’s difficult to determine whether the shellfish eat the coccolithophores.

"While this species of coccolithophores isn’t believed to be toxic, it may not be edible to shellfish because of the abrasive nature of the coccoliths,” Paul said.

The tribe received a Bureau of Indian Affairs grant to investigate coccolithophores. A report is expected in the fall, and the tribe also will write a mitigation plan for shellfish impacts.

“The tribes have been here thousands of years and will continue to be here,” Book said. “It could be a natural cycle, but what we’re seeing is having implications to shellfish and treaty resources. It could possibly spread to other parts of Puget Sound as well.” – T. Royal
Data from the Port Gamble S’Klallam Tribe’s 2014 intensive salmon habitat study helped get a $15 million Puget Sound nearshore restoration project off the ground this summer.

Since 1940, a causeway and two undersized culverts in the salt marsh between Kilisut and Oak harbors, near Marrowstone and Indian islands, have hindered salmon migration and restricted tidal flow.

From 2011-2014, the tribe conducted a multifaceted study of where and how juvenile salmon were using nearshore environments to spawn, rest and feed in Hood Canal and Admiralty Inlet.

Unexpectedly, juvenile salmon were found to be migrating away from large estuaries, like the Duckabush and Dosewallips, and into embayments such as Kilisut Harbor to hide, rest and feed, said Hans Daubenberger, the tribe’s senior research scientist.

“Restoring the connection between Kilisut Harbor and Oak Bay will allow outmigrating salmonids access to high quality coastal waters and nearshore habitat with abundant, energy-rich prey,” he said. “This reconnection will also likely improve shellfish habitat and water quality in Scow Bay.”

“The data provided by the tribe from that study is responsible for helping make this project happen,” said Rebecca Benjamin, executive director of the North Olympic Salmon Coalition (NOSC), which is spearheading the project.

As a result, a 450-foot-long bridge will replace the causeway and undersized culverts. The work also will open up 2,300 acres of new salmon habitat, improving fish passage, water quality and tidal flow.

It is expected that Puget Sound and Strait of Georgia coho salmon, Puget Sound chinook and steelhead, Hood Canal summer chum, and forage fish and shellfish will benefit from the new habitat.

The push for this restoration also came from longtime Marrowstone Island residents who have seen the bay change for the worse because of restricted flow through the causeway. Aside from the roadway, the harbor has been relatively undisturbed, with minimally developed adjacent shorelines from the U.S. Navy Base on Indian Island and nearby Indian Island County Park.

Channel grading on both sides of the causeway and construction of the bridge abutments and foundation started this summer. Bridge work will continue through the winter as weather allows, and the culverts will be taken out next summer, with an expected completion date of fall 2020.

NOSC was able to secure the $15 million in funding from more than 20 sources and partners. The Port Gamble S’Klallam Tribe supplied $2 million, of which $1 million was from U.S. Navy mitigation funds from the Port Gamble S’Klallam, Jamestown S’Klallam and the Lower Elwha Klallam tribes, and $1 million from the Port Gamble S’Klallam Tribe through a National Oceanic and Atmospheric Administration grant. Critical support also was provided by local landowners, the U.S. Navy and Marrowstone Island residents. – T. Royal
A large salmon restoration project on the North Fork Nooksack River is nearing completion as the Nooksack Tribe plans to install 50 logjams in a mile-long stretch of the river near Kendall.

The project is the fourth and final phase of restoration in the North Fork Nooksack’s Farmhouse Reach, where channel instability and a lack of large wood in the river have limited salmon recovery. The area is upstream from the state’s Kendall Creek Hatchery, which runs a supplementation program to help recover the native chinook population.

Salmon need stable spawning areas where their eggs can survive the high flows of fall and winter. Engineered logjams placed in the channel and across the floodplain help form and protect side channels that provide stable spawning habitat. Logjams also form pools and increase channel complexity, benefiting adult and juvenile chinook and other salmon species.

The tribe has done similar work elsewhere on the Nooksack River, where benefits were seen shortly after the restoration. The lack of channel stability in the North Fork Nooksack River has been attributed to wood removal, forest clearing and increased flooding. The tribe has been placing logjams to stabilize and restore habitat in the North Fork almost every year since 2008.

“The restoration approach is to restore the large stable logjams that historically formed and maintained forested islands, floodplain and associated side channels, while planting suitable areas to restore floodplain forest,” said Treva Coe, who manages the tribe’s habitat program.

North and Middle Fork Nooksack early chinook are a genetically unique population with low returning numbers of natural-origin fish. The Farmhouse Reach once was one of the most active spawning areas in the North Fork, but degraded habitat has diminished the salmon runs. The tribe hasn’t had a directed commercial fishery on early chinook in the Nooksack River since about 1980.

“The low natural-origin escapement, despite strong hatchery returns and careful fisheries management, indicate that habitat conditions are constraining natural-origin abundance and productivity,” Coe said.

“This project is essentially the meat in the sandwich for restoration of the Farmhouse Reach, filling the gap between previous phases both upstream and downstream,” said Lindsie Fratus-Thomas, who will be managing the project. “This habitat restoration project is an important step toward recovery of chinook in the North Fork Nooksack.”

The project also benefits steelhead, bull trout, cutthroat trout, and coho, chum and pink salmon. – K. Neumeyer

From left, Muckleshoot tribal members Frankie Sheldon, Delbert Starr, Donald “Butch” Allen and Gilbert “Hoagie” King George participate in a protest fishery on the White River in 1973 during the fish wars.

Like other tribes, the Muckleshoot Tribe orchestrated fish-ins to challenge the state’s refusal to recognize their treaty-reserved rights.
Squaxin Island Tribe’s shellfish biologist Rana Brown’s unofficial title could be principal diplomat.

Her job encompasses contacting numerous private property owners as well as commercial shellfish growers to plan shellfish surveys and harvests. This requires some delicate negotiation to access the tribe’s federally protected right to 50 percent of naturally occurring shellfish on privately owned tidelands.

“The funny thing is, I went into biology because I wanted to work with animals, not people,” Brown said, chuckling. On a sunny summer morning, Brown is laying out a survey grid for her crew while chatting with a commercial shellfish grower about when might be a better time to survey a neighboring beach where he is growing oysters.

“Oysters are on top of the clam bed and until their oysters are harvested or moved, we don’t want to be stomping all over his product to do our survey,” Brown said. “We’ll come back a little later in the season for that beach.”

The tribe has relied on shellfish culturally and economically for millennia. Shellfish are featured in tribal celebrations and stories, and used for subsistence and ceremonies. The tribe also runs the flourishing Salish Seafoods, which serves customers locally and around the world.

For private landowners, the tribe is required to give 30 days notice to survey a beach to assess the shellfish population. Most of the time however, the tribe sends out notices several months in advance to allow extra time to work individually with landowners and schedule specific days and times. The tribe notifies the landowner of the outcome after the survey is performed.

Next, the tribe schedules a time to harvest its 50 percent, and again notifies the landowner.

The tribe will also, if the owner desires, harvest the owner’s half and split the profits. While the tribe is allowed to access private tidelands every three years, it is common for several years to pass before they return to survey again. In some places where populations appear depressed, the tribe opts not to exercise its treaty right, to aid in natural recovery as a conservative measure to ensure sustainability of future shellfish populations.

On tidelands where shellfish are being grown commercially, the tribe agrees to a share of the resource based on what was there before the beds were cultivated by the owner.

“We are all working together for the same thing,” said Andy Whitener, Squaxin Island natural resources director. “We want healthy, harvestable and sustainable shellfish forever. That benefits everyone and is critical to our way of life.”

— D. Preston

Community Honors First Salmon

Squaxin Island tribal member Jim Peters talks with tribal singer and drummer Joe Seymour prior to the tribe’s First Salmon Ceremony.

Tribal members used to hold individual ceremonies at home. In the 1980s, the change was made to a more public ceremony, said Joseph Peters, Squaxin Island tribal natural resources policy representative and harvest manager.

“It’s a great gathering for us and a way to educate newcomers about us as a tribe — we’re more than the casino that most people associate with us,” Peters said.
The Quileute Tribe wants to know if two streams have improved since 2014 when biologists and volunteers gathered insects that provide a window into stream health.

Recently, a crew of Quileute Natural Resources staff, volunteers and biologists with several cooperating agencies sampled Bear Creek to gather all the water insects, or macroinvertebrates, in several sections of the stream.

Macroinvertebrates are food for salmon and an indicator of water quality health. Salmon require clean, cool water with diverse numbers of insects, along with adequate streamside shade.

“Bear Creek was rated as ‘good’ in our first studies in 2013 and 2014,” said Nicole Rasmussen, water quality biologist for the Quileute Tribe. “We’re interested in seeing if there are any changes.”

The labor-intensive sampling involves vigorously digging a 1-square-foot sample area in the stream, allowing all bugs, dirt, and rocks to flow into an attached collection bag.

The rocks are meticulously hand-scrubbed, and water is swished around in plastic tubs with the sample, then poured through a fine-mesh sieve to retain the insects. All the insects and some of the small organic matter are put in a sample jar to be identified by a taxonomist.

Bear Creek is part of the Quillayute River watershed that includes the Califowlah, Bogachiel, Sol Duc and Dickey rivers. By sampling the insect life as well as monitoring temperature and other water quality indicators, the tribe is looking at how well the stream is supporting fish.

The tribe also surveys these same rivers for salmon reds (nests) and carcasses.

The work is time-consuming and having many hands from volunteers and agencies allows the tribe to sample two sites each year.

“We would love to get back to sampling all 14 of the sites every year, but we just don’t have the funding and staffing to do that right now,” Rasmussen said. “The two we do maintain have data sets beginning in the 1990s, so we want to continue to provide the data for those.”

The crew includes two teens from the tribe’s Youth Opportunity Program, which pays tribal members who are 13 to 18 years old to participate in a variety of jobs. Mya Fisher and Ruby Sheriff, both Hoh tribal members, sampled streams most of the summer with Quileute Natural Resources. Each of their fathers has worked in natural resources for the Hoh Tribe. They enjoy intently scrutinizing the gravel for insects, some smaller than a grain of rice.

“It’s a lot of work, but it’s interesting,” Sheriff said.

“By tracking the changes in all of these stream indicators, it helps us know conditions that fish are returning to and gives us information to use in managing habitat,” said Quileute Natural Resources director Frank Geyer. – D. Preston
Yvonne Marguerite “Tootie” Inman Hudson, 75, a resident of Hoh River since April 1960, died July 19 at Port Angeles Memorial Hospital.

Hudson was born April 25, 1943, in Memphis, Tennessee, to John Inman and Marguerite McMinds.

She served as chairman of the Hoh River Indian Tribe during the early 1980s, the Hoh v. Baldridge era. She was a master basket weaver who learned from her grandmother, Ida Law and her mother-in-law Pansy Hudson. She often assisted her mother-in-law and other elders in the gathering of basket-weaving materials. She was a provider, like her husband Howard Hudson, fishing tirelessly on the Hoh River.

She was one of the best at pole net fishing and had many 200-plus fishing days. She also was skilled with a rod and reel. She and husband taught their kids how to fish and passed along other cultural skills.

Brothers Frank McMinds and Guy R. McMinds preceded her in death.

Survivors include son Joseph Dean Hudson Sr. of Hoh River; and siblings William E. Johnstone of Cosmopolis, Edward E. Johnstone and Lillian Ida Johnstone of Taholah. She also is survived by numerous grandchildren, great-grandchildren, nieces, nephews, cousins and friends.