

Tribal Natural Resources Management

A report from the Treaty Indian Tribes
in Western Washington
2016



We, the Indians of the Pacific Northwest, recognize that our fisheries are a basic and important natural resource and of vital concern to the Indians of this state, and that the conservation of this natural resource is dependent upon effective and progressive management. We further believe that by unity of action, we can best accomplish these things, not only for the benefit of our own people, but for all of the people of the Pacific Northwest.

- Preamble to the NWIFC Constitution

Member Tribes of the Northwest Indian Fisheries Commission



Map: Ron McFarlane. Cover: Quileute tribal member John Penn fishes for coho and chinook near the mouth of the Quillayute River in LaPush. Photo: Debbie Preston

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From the Chair



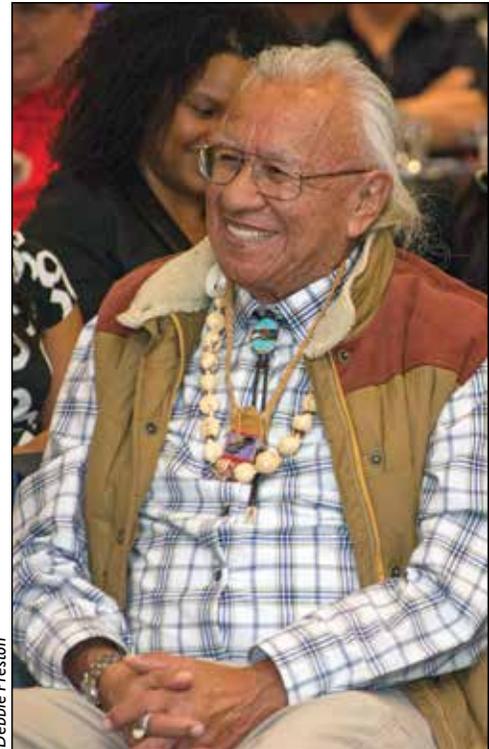
On May 5, 2015 we marked the first anniversary of the passing of Billy Frank Jr., our longtime leader and good friend. It has been a difficult year because we miss him very much. We remain committed, however, to his direction to “stay the course” to protect tribal treaty-reserved rights and resources.

During the past year, Billy’s life has been honored widely by tribal, state and federal governments, conservation organizations and others.

His March 9 birthday has been declared a holiday by many of the treaty Indian tribes in western Washington as well as the Northwest Indian Fisheries Commission. The state of Washington honored Billy with a Medal of Merit. The Nisqually National Wildlife Refuge is being renamed the Billy Frank Jr. Nisqually National Wildlife Refuge. In November 2015 he was awarded the Medal of Freedom from President Barack Obama. It is the nation’s highest civilian honor.

These honors are important because they help us to remember Billy and what he stood for. Much work remains, but we are strengthened by our memories and the examples he set for us.

Lorraine Loomis
Lorraine Loomis
NWIFC Chair



Debbie Preston

Billy Frank Jr.
March 9, 1931 – May 5, 2014

Year in Review

Treaty Rights at Risk

Tribes continued the Treaty Rights at Risk initiative begun in July 2011 by Chairman Frank and other tribal leaders. The tribes are asking the federal government as trustee to align its agencies and programs, and take charge of a more coordinated salmon recovery effort. It is a call to action for the federal government to ensure that the promises made in the treaties are honored and that tribal treaty-reserved resources remain available for harvest.

Since the initiative began, tribes have met often with federal agency officials and others to work toward a coordinated approach to implementing effective recovery plans. Progress has been slow, but tribes remain optimistic.

An important goal is to institutionalize the Treaty Rights at Risk initiative in the federal government through the White House Council on Native American Affairs, created by President Obama in 2013.

Tribes want a natural resources subgroup created to provide an avenue to address the protection and management of the resources that are critical to tribal rights, cultures and economies. Subgroups already have been created to address tribal economic development, health, energy, environmental protection, climate change and education.

Climate Change

With no snowpack, record warm weather and little rain, western Washington rivers ran low, slow and hot for much of the spring and summer. Salmon depend on cool water for their survival. Water temperatures 70 degrees and higher can be lethal to salmon. High water temperatures also cause stress for salmon, making them more susceptible to pathogens.

Many returning adult salmon died last year before they could reach spawning grounds or a hatchery. Thousands of young salmon died before they could out-migrate to the ocean.

In light of the drought and forecasts for low returns, tribal and state fisheries managers planned highly conservative fishing seasons. Still, a number of tribal fisheries closed early because of poor returns and conservation concerns.

Poor returns also reduced egg take at some hatcheries, while low streamflows required some facilities to release young salmon early.

On top of the low numbers, many returning fish were smaller than normal. Biologists think the cause is a growing “blob” of warm water off the Washington coast, which contains fewer nutrients for salmon. Reduced upwelling of cold, nutrient-rich water off the Washington coast has also resulted in fish kills from low

oxygen levels. Meanwhile, ocean acidification continues to threaten shellfish and other resources important to the tribes.

Water Quality Standards

The federal Clean Water Act requires states to develop standards that ensure our waters are clean enough to provide healthy fish and shellfish that are safe to eat. More than 20 years ago, when the state failed to do so, the Environmental Protection Agency (EPA) had to step in to develop human health standards for Washington.

Since then, the state has tried for years to revise its standards, but repeatedly started, stopped and delayed the work. At the request of tribes, EPA has stepped in again to revise those standards to make sure they are fully protective of all Washington residents.

In addition to increasing the fish consumption rate to 175 grams per day and keeping the current cancer protection rate of one in one million, EPA’s proposal also would further regulate some of the most toxic chemicals such as PCBs, arsenic and mercury.

It is uncertain when or if the state will complete its update of water quality standards, but tribes doubt any state proposal is likely to be as protective as the rules proposed by EPA.

Hatcheries

Hatcheries designed to mitigate for lost natural salmon production are essential to fulfilling tribal treaty rights, but federal funding has not kept pace with needed repairs and replacement of aging tribal facilities.

The National Marine Fisheries Service continues to provide inadequate resources to complete timely review of permits required for hatchery operations under the Endangered Species Act. The delay has placed state and tribal hatcheries in legal jeopardy for third-party lawsuits by hatchery opponents.

Hatcheries and the salmon they produce are absolutely necessary as long as lost and damaged habitat prevent salmon recovery. Today, most of the chinook and coho harvested by Indian and non-Indian fishermen come from hatcheries. Tribes produce about 40 million salmon and steelhead annually.

Hatcheries showed their importance during the 2015 drought by providing sanctuaries to help salmon survive and acting as gene banks to preserve salmon for the future.

Fossil Fuel Transportation

Proposals to build coal and oil export terminals and increase train and ship traffic in western Washington continue to

be major concerns. The proposals threaten the health and safety of tribal members as well as treaty-protected rights and resources.

A number of tribes have been active participants in efforts to block all proposals for expanded fossil fuel transportation in western Washington.

Coal export terminals proposed for Cherry Point near Bellingham, and Longview on the Columbia River would be fed by hundreds of trains daily from Montana and Wyoming. Coal dust from each train would be spread all along the route, and train derailments are another threat.

Also proposed is a plan to use mile-long crude oil trains to feed massive new oil terminals in Grays Harbor. As with increased coal train traffic, tribes are deeply concerned about health, safety and environmental issues associated with trains and ship traffic transporting the oil.

Culvert Case Appeal Heard

Once again denying tribal treaty-reserved fishing rights – and the many federal court rulings that have consistently upheld those rights – the state of Washington appealed its latest defeat in the culvert case. The case was brought by western Washington tribes in 2001 to force the repair of hundreds of salmon-blocking culverts under state roads.

Blocking culverts deny salmon access to more than a thousand miles of habitat in western Washington streams, affecting the fish in all stages of their life cycle and reducing the number of returning adult salmon by hundreds of thousands of fish.

Oral arguments were heard in October. The appeal stems from a 2013 ruling by Judge Ricardo Martinez, who issued a permanent injunction requiring the state to repair more than 800 state-owned fish-blocking culverts over the next 15 years. We hope the Ninth Circuit will fully uphold the district court ruling and we can move beyond litigation to work cooperatively with the state to protect the salmon resource.

Northwest Treaty Tribes

Despite many years of tribal efforts to protect and restore natural resources, research has shown that many people in western Washington are unaware of treaty tribes' commitment and contributions to natural resources management.

In 2015, we launched a new communications effort called *Northwest Treaty Tribes: Protecting Natural Resources for Everyone*. The name makes it clear that the tribes are using our treaty rights to restore, protect and enhance not only our cultures and way of life, but those of everyone who lives here. More information is available at nwtreatytribes.org.

The Northwest Treaty Tribes effort is reflected in all communications from the NWIFC, such as the quarterly magazine, website and social media. Organizational and other information about the NWIFC will continue to be available online at nwifc.org.

Core Program



Habitat Management

Habitat protection and restoration are essential for recovery of wild salmon in western Washington. Tribes are taking action to recover salmon in each watershed, and have restored thousands of miles of habitat.

- The tribes continue to advocate for the Treaty Rights at Risk initiative, calling on the federal government to align its agencies and programs to better meet salmon recovery goals, particularly those for habitat protection and restoration. The initiative calls on the federal government to lead a more coordinated salmon recovery effort because it has both the obligation and authority to recover salmon and protect tribal treaty rights.
- The NWIFC Salmon and Steelhead Habitat Inventory and Assessment Program (SSHAP) provides a “living database” of local and regional habitat conditions. SSHAP has launched an interactive map to track repairs to state-owned culverts; a tool to map potential steelhead habitat; and a data exchange for research about the nearshore environment.

- Tribes are updating the 2012 State of Our Watersheds report, which documents ongoing loss and damage of salmon habitat. For more information, visit nwifc.org/sow.
- Tribes conduct extensive monitoring of water quality for pollution, and ensure factors such as dissolved oxygen and temperature levels are adequate for salmon and other fish. To make limited federal funding work to its fullest, tribes partner with state agencies, industries and property owners through collaborative habitat protection, restoration and enhancement efforts.
- In western Washington, the National Oceanic and Atmospheric Administration’s Pacific Coastal Salmon Recovery Fund has supported projects that have restored thousands of acres of forest, protected hundreds of acres of habitat and removed hundreds of fish passage barriers.

Levee Breach Gives Fish Access to Entire Snohomish Watershed



Kari Neumeyer

Tulalip field specialist Michael Abrahamse collects fish from a beach seine in the newly restored Qwuloolt Estuary.

After 20 years of planning and \$20 million invested by a number of partners, the Ebey Slough levee was breached in August 2015, restoring tidal flow to the 400-acre Qwuloolt Estuary in Snohomish County.

Named for the Lushootseed word for “marsh,” the Qwuloolt restoration was led by the Tulalip Tribes and is one of the largest in Puget Sound. A lack of quality spawning and rearing habitat is the main reason for declining salmon populations in the region.

Ebey Slough was diked and drained 100 years ago to create farmland, cutting off fish access to the valuable salt marsh habitat. Efforts at watershed management began in the late 1980s, with the formation of the Puget Sound Water Quality Authority under then-Gov. Booth Gardner.

Tulalip tribal member Terry Williams, who is now the tribes’ natural resources commissioner, was part of that process.

“While creating the watershed program, we realized that

at the time, it was legal to build dikes in the estuary, but it was illegal to use funding to tear them down,” he said. “We set out in that first plan to change that and we did.”

The Water Quality Authority evolved into the Puget Sound Partnership, setting a goal of restoring Puget Sound by 2020. So far, the tribes and Snohomish County have accomplished their 10-year goal, Williams said.

“Originally in the Puget Sound Partnership, we said we’d get about 1,100 or 1,200 acres restored in the estuary and we’re now at over 1,500,” he said.

Tulalip natural resources staff is monitoring changes to water quality and fish use of the restored habitat before and after the breach.

“It’s the intent of this project to increase production and quantity of those salmon that are extremely important to the tribe for cultural and economic purposes,” said Kurt Nelson, manager of the Qwuloolt Estuary project for Tulalip.

Harvest Management

Salmon

Treaty Indian tribes and the Washington Department of Fish and Wildlife co-manage salmon fisheries in Puget Sound, the Strait of Juan de Fuca and nearshore coastal waters.

- Low flows and high temperatures in rivers, along with the Pacific Ocean's "blob" of warm water, led to fewer numbers of salmon returning in 2015. As a result, several tribes closed or shortened fisheries. The Pacific blob also may have led to smaller-than-usual coho and pink salmon, because the warmer water lacks adequate nutrients.
- For decades, state and tribal salmon co-managers have reduced harvest in response to declining salmon runs. Tribes have cut harvest by 80 to 90 percent since 1985.
- Under *U.S. v. Washington* (the Boldt decision), harvest occurs only after sufficient fish are available to sustain the resource.
- The tribes monitor their harvest using the Treaty Indian Catch Monitoring Program to provide accurate, same-day catch statistics for treaty Indian fisheries. The program enables close monitoring of tribal harvest levels and allows for in-season adjustments.
- Tribal and state managers work cooperatively through the Pacific Fishery Management Council and the North of Falcon process to develop fishing seasons. The co-managers also cooperate with Canadian and Alaskan fisheries managers through the U.S./Canada Pacific Salmon Treaty.



Emmett O'Connell

Vince Henry, a Squaxin Island fisherman, pulls a beach seine during a chum fishery on Arcadia Beach.

Tribe Limits Fishing on Coho to Protect Chum

For several years, the Squaxin Island Tribe has limited coho fishing at a popular spot to protect a wild chum run.

The tribally owned Arcadia Beach boat launch is one of the most accessible fishing areas for tribal members. But the beach also is where chum returning to Kennedy Creek congregate during coho fishing season.

"Usually, chum and coho migrate during different time windows, but Kennedy Creek chum tend to show up early, so they can be caught during coho season right around Arcadia," said Joe Peters, Squaxin Island harvest management biologist.

Several years ago, after an unusually high number of chum were caught at Arcadia during coho season, the tribe began closing the coho fishery for a couple of weeks each November.

"Arcadia is a very small area to close during coho, and the benefits to the chum run outweighed the cost," Peters said.

Returns to the spawning grounds are closely monitored to aid in-season fisher-

ies management. By keeping a close eye on the salmon in the streams, the tribe can decide whether to open other fisheries.

"If the tribe wants to open a chum fishery in Totten Inlet, we need to make sure enough chum salmon are making their way onto the spawning grounds on Kennedy Creek," Peters said.

Other fisheries management decisions made decades ago by the state and tribal co-managers are still paying dividends for the Kennedy Creek chum run.

"The most drastic step was that the tribe stopped fishing for four years in the early 1980s to help build the run back up," Peters said. "Such a drastic step wouldn't work everywhere, but there was habitat for the chum to return to on Kennedy Creek."

The state also stopped mining chum eggs out of Kennedy Creek to support their hatchery programs.

"Kennedy Creek has become a place with these massive yearly runs because it's a great place for chum habitat-wise, but also because we manage fisheries well," Peters said.

Harvest Management

Marine Fish



WDFW

Jennifer Lanksbury, left, and Laurie Niewolny, right, WDFW biologists, prepare a herring cage to be deployed in Port Gamble Bay.

Tribe, State Study Declining Herring Population in Port Gamble Bay

Up until the early 21st century, Port Gamble Bay was home to one of the largest herring populations in Puget Sound.

From 1978 to 1995, an average of 2,205 tons of herring spawned annually. In 2003, there were 1,064 tons of herring in Port Gamble Bay, but by 2013, that number had decreased to 273 tons. Meanwhile, the herring population in nearby Quilcene Bay has increased from 916 tons in 2003 to 2,072 tons in 2013.

What is not known is whether contaminants in Port Gamble Bay are responsible for the decrease in herring

population, if the population is moving to Quilcene Bay, or if some combination of both factors is affecting the population, said Hans Daubenberger, the Port Gamble S'Klallam Tribe's fisheries biologist.

The Washington Department of Ecology is funding two studies on herring embryo mortality and genetics to figure out which factors are responsible for the dramatic decrease in the Port Gamble Bay population. The tribe and Washington Department of Fish and Wildlife (WDFW) are conducting most of the work.

“By collecting samples and

counting herring, we want to determine if the bay and canal populations are the same fish or not, and determine what contaminants the fish are taking in,” Daubenberger said.

Herring embryos are hard to study because spawning takes place during the darkness of winter and eggs are a food source for predators.

WDFW and the tribe captured ripe adult herring, which were taken to a lab to be spawned. The fertilized eggs were allowed to adhere to plastic strips. The egg-covered strips were then placed in protective cages throughout Port Gamble Bay from December

2013 to February 2014.

Scientists also deployed plastic membranes to see if they absorb contaminants the same way as embryos. If effective, these plastic membranes could provide an alternative to using embryos to monitor pollutants such as polycyclic aromatic hydrocarbons. Genetic samples also were collected from the captured adult herring.

“This study will give a good baseline of the health of the current herring stock, as well as give an idea of how the pollution in the bay is affecting the marine life,” Daubenberger said.

Treaty tribes are co-managers of the marine fish resource, working closely with the state, federal agencies and in international forums to develop and implement species conservation plans for all marine fish stocks in Puget Sound and along the Pacific coast.

- Many areas of Puget Sound have experienced a stark drop in marine fish populations. Herring and smelt, historically the most plentiful forage fish, have sharply declined over the past two decades. Several species of rockfish are listed as threatened or endangered under the federal Endangered Species Act. Human activity, such as pollution and development, is believed to be a leading cause of the overall decline.
- The Pacific Fishery Management Council, which includes the tribal and state co-managers, regulates the catch of black cod, rockfish and other marine fish. Halibut are managed through the International Pacific Halibut Commission, established by the U.S. and Canadian governments. Tribes are active participants in season-setting processes and the technical groups that serve those bodies.
- Treaty tribes manage marine fisheries that include purse-seining for sardines and anchovy, midwater fisheries for rockfish and Pacific whiting, and groundfish fisheries that include sole, Pacific cod and rockfish.
- The coastal tribes and state support ocean monitoring and research leading to ecosystem-based management of fishery resources. This includes integrating all coastal ocean research into a common database called the Habitat Framework Initiative. The initiative puts available habitat data into a common catalog for state, federal and tribal managers who often share jurisdictions and manage resources jointly.

Shellfish



Tiffany Royal

Suquamish shellfish biologist Paul Williams secures mesh bags of oysters to an anchored structure in Dyes Inlet for the tribe's new tumble-bag project.

Treaty tribes harvest native littleneck, manila, razor and geoduck clams, Pacific oysters, Dungeness crab, shrimp and other shellfish throughout the coast and Puget Sound.

- Tribal shellfish programs manage harvests with other tribes and the state through resource-sharing agreements. The tribes are exploring ways to improve management of other species, including sea cucumbers, Olympia oysters and sea urchins.
- Tribal shellfish enhancement results in bigger and more consistent harvests that benefit both tribal and non-tribal diggers.
- Shellfish harvested in ceremonial and subsistence fisheries are a necessary part of tribal culture and traditional diet.
- 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.
- Tribes continue to work with property owners to manage harvest on non-tribal tidelands.
- During the 2014-2015 season, the Quinault Indian Nation harvested 340,000 pounds of razor clams for commercial, ceremonial and subsistence use. However, high domoic acid levels closed the season early, preventing the tribe from accessing the full share of the harvest.
- In 2014 (the most recent year for which data is available), treaty tribes in western Washington commercially harvested more than 900,000 pounds of manila and littleneck clams; more than 2.6 million pounds of geoduck clams; more than 2.7 million oysters; 7 million pounds of crab; nearly 339,000 pounds of sea cucumbers and more than 324,000 pounds of shrimp.

Tumble-Bag System Smooths Shell, Improves Oyster Quality

The Suquamish Tribe is experimenting with a tumble-bag system that grows high-quality Pacific oysters.

“We’re trying to grow single oysters as a pilot project initiated by Suquamish Seafoods,” said Viviane Barry, the tribe’s shellfish program manager. “The tribe’s seafood company has an interest in utilizing tribal beaches to cultivate clams and oysters and perhaps other shellfish as well.”

Staff from both Suquamish Seafoods and the tribe’s fisheries department, plus local volunteers, installed anchor

systems to secure 500 plastic mesh bags that each hold approximately 200 oysters about 1 inch long.

The bags were split up between two beaches, one behind Suquamish Seafoods’ processing plant, and one in Dyes Inlet.

The tribe is trying two methods. The bags at Suquamish Seafoods are resting on the beach while the bags in Dyes Inlet are suspended off the ground. Both will rise and fall with tides.

The oysters tumble in the bags to erode the sharp lip of

the shell, creating a deeper cup and high-end oyster, Barry said.

Coast Seafoods provided the seed, which was put into the tribe’s floating upwelling shellfish system at the Brownsville Marina. The seeds grew there for up to eight weeks until they were transferred to tidelands in late August.

The oysters will be monitored for fouling and growth during the next 12-18 months, after which they’ll be removed from the bags.

“Several growers in the Northwest have adopted

this tumble-bag method and Suquamish wants to see how it would work on its beaches,” Barry said.

“In today’s economy where our fish runs have been decimated, focusing on shellfish is a big part of our plan to help support not only the economic arm of the tribe but also help tribal members with another source of income,” said Suquamish Seafoods general manager Tony Forsman.

Hatchery Management

Hatcheries must remain a central part of salmon management in western Washington as long as lost and degraded habitat prevent watersheds from naturally producing abundant, self-sustaining runs of sufficient size to meet tribal treaty fishing rights.

- Treaty Indian tribes released more than 40 million salmon and steelhead in 2014, including 13.7 million chinook, 16.9 million chum and 8.6 million coho, as well as pink and sockeye salmon.
- Most tribal hatcheries produce salmon for harvest by both Indian and non-Indian fishermen. Some serve as wild salmon nurseries that improve the survival of juvenile fish and increase returns of salmon that spawn naturally in our watersheds.
- Tribes conduct an extensive mass marking and coded-wire tag program. Young fish are marked by having their adipose fin clipped before release. Tiny coded-wire tags are inserted into the noses of juvenile salmon. The tags from marked fish are recovered in fisheries, providing important information about marine survival, migration and hatchery effectiveness.

Tribal Hatcheries Save Fish from High Temps, Low Flows in Drought

In 2015, tribal hatchery managers worked to save salmon from potentially deadly water temperatures and low flows.

Temperatures higher than 60 degrees are bad for salmon because pathogens such as *ichthyophthirius multifiliis* (ich) and *columnaris* (gill rot) thrive in warm water. The diseases spread more quickly when the rivers are crowded by low flows, and can lead to increased pre-spawn mortality.

“Returning adult fish will find pockets of cool water to hold in if river temperatures are not favorable,” said Bruce Stewart, NWIFC fish health program manager. “They will hold in these pockets as long as they can. However, if they

have to hold for any length of time in temperatures as high as 70-75 degrees, they will have to deal with fish pathogens that like that temperature range. Egg production in a compromised fish probably will be lower.”

Several hatcheries, including the Makah Tribe’s Hoko Hatchery and Lummi’s Skookum Creek Hatchery, released juvenile fish earlier than usual to beat declining flows.

Many rivers set records for low flows. In the Snohomish watershed, fish initially were unable to return to the state’s Wallace River Hatchery in the shallow water. They held in the lower pools of the Skykomish and Snohomish mainstems.

“They don’t want to come



Kari Neumeyer

Andy Williams, Tulalip hatchery technician, collects adult chinook from a fish ladder in Tulalip Bay.

into Tulalip Bay even, because it’s too warm,” Mike Crewson, Tulalip salmon enhancement biologist, said at the time.

Normally, chinook salmon that return to the Wallace River Hatchery are spawned for the Tulalip Tribes and state’s joint hatchery program. Fry released from Tulalip’s Bernie “Kai-Kai” Gobin Hatchery provide fishing opportunities for both tribal and sport fishermen in the bay, but the Wallace River releases are essential to keep the run going.

To collect broodstock, the tribe opened its fish ladder in Tulalip Bay in July. A week

later, slightly lower temperatures and a small amount of rain brought about 90 chinook through the ladder, still far too few to yield enough eggs for the hatchery program.

A series of rainstorms in late August improved the year’s egg take by bringing more chinook into the bay and upriver.

“We got bailed out at the very last second, considering how low the river was,” Crewson said. “The trend is alarming. The drought is extending later and later, where it might extend into chinook spawning season.”

Wildlife Management

The treaty Indian tribes are co-managers of wildlife resources in western Washington, which include species such as deer, elk, bear and mountain goats.

- Western Washington treaty tribal hunters account for a small portion of the total combined deer and elk harvest in the state. In the 2014-15 season, treaty tribal hunters harvested a reported 382 elk and 603 deer, while non-Indian hunters harvested a reported 6,966 elk and 35,216 deer.
- Tribal hunters hunt for sustenance and most do not hunt only for themselves. Tribal culture in western Washington is based on extended family relationships, with hunters sharing game with several families. Some tribes have designated hunters who harvest wildlife for tribal elders and others unable to hunt for themselves, as well as for ceremonial purposes.
- As a sovereign government, each treaty tribe develops its own hunting regulations and ordinances for tribal members. Tribal hunters are licensed by their tribes and must obtain tags for animals they wish to hunt.
- Many tribes conduct hunter education programs aimed at teaching tribal youth safe hunting practices.



Debbie Preston

Kristen Phillips, Quinault wildlife biologist, collects samples of bear hair from a strand of barbed wire.

Tracking Bears to Minimize Damage, Manage Population Sustainably

The Quinault Indian Nation is evaluating black bear populations with the goal of developing harvest models to minimize commercial tree damage while maintaining the population sustainably.

The black bear, or *chitwin*, has been a mainstay of Quinault Indian Nation (QIN) culture for centuries. However, a dense population of the bears caused significant damage to commercial trees, one of the economic anchors for the nation.

When bears emerge from their dens, trees are one of

the first foods available to them. They strip the bark to get to sugar in the inner layers, affecting growth and sometimes killing the tree. An attempt was made to lure the bears away from the trees with other food, but it failed to reduce damage sufficiently.

In 2004, QIN established hunts for non-tribal hunters led by tribal guides. Damage to trees has been significantly reduced and now QIN wants to know how many bears are on the reservation, and create a management plan.

QIN has finished a hair

sampling study, funded by the federal Bureau of Indian Affairs, that non-invasively snags bear hair on barbed wire, allowing genetic identification of individual bears.

“This begins to give us an idea of population size,” said Kristen Phillips, wildlife biologist for QIN.

Now the tribe is working to trap and radio-collar bears to get an idea of home range sizes and how bait stations for the guided hunts are changing bear behavior.

“We have four collars and

six more on the way,” Phillips said. “If we are successful in obtaining additional funding, the goal is to collar a minimum of 20 bears.”

The research goals are to learn more about denning behavior, cub survival rates, reproductive rates, home ranges and whether there are seasonal influxes of bears from outside the reservation.

“This research will give QIN a much better understanding of current populations and behavior to allow informed management decisions,” Phillips said.

Regional Collaborative Management



Emmett O'Connell

Jed Moore, biologist for the Nisqually Tribe, prepares a temperature monitor to be installed in the lower Nisqually River.

Tribal Environment and Water Resources Program

The Coordinated Tribal Water Quality Program was created by the Pacific Northwest tribes and the federal Environmental Protection Agency (EPA) to address water quality issues under the Clean Water Act.

- EPA's General Assistance Program (GAP) was established in 1992 to improve capacity for environmental protection programs for all tribes in the country. After more than 20 years of this partnership, Northwest tribes participated in "Beyond GAP" pilot projects to demonstrate what they could do with adequate implementation resources. In 2015, NWIFC released the *Walking Together* report to advance the relationship with EPA and develop a path forward to best fit the needs of individual tribal programs. The report can be viewed at go.nwifc.org/beyondgap.
- Tribal programs are essential to combat threats such as declining water quality and quantity. In western Washington, climate change and urban development negatively affect water resources and aquatic ecosystems, and will get worse with the state population expected to rise by 1 million in the next decade.
- Tribal water resources program goals include establishing instream flows to sustain harvestable populations of salmon, identifying limiting factors for salmon recovery, protecting existing groundwater and surface water supplies, and participating in multi-agency planning processes for water quantity and quality management.

Tribe Monitors Water Temperature to Track Drought Impacts on Salmon

By closely monitoring river temperatures during a hot summer, the Nisqually Tribe was able to make quick decisions to protect fish health.

The tribe deployed six temperature monitors throughout the watershed.

"Tribal staff regularly download data from the monitors to give tribal and state co-managers a clear picture of temperature conditions," said David Troutt, natural resources manager for the tribe.

If a stream's water gets too

warm, juvenile salmon have to expend more energy to survive, which can often lead to starvation. Diseases that kill salmon are also more virulent and spread easily in warm water.

Low snowpack in the upper watershed coupled with a warm, dry summer led to low flows and high temperatures in the Nisqually.

"Even as Tacoma Power lets more water through their reservoir in the upper watershed to help, we're facing

lower water and warming stream banks," Troutt said. "These worsening conditions mean that near real-time data is important, to give us the ability to make quick decisions to protect fish."

For example, the tribe closed down a weir to allow free migration of salmon through the warmer sections of the river. The tribe has been operating the weir since 2011 to separate hatchery-produced chinook salmon from naturally spawning fish migrating upriver.

"The long-term goal of creating a self-sustaining population of chinook has to take a back seat to the deteriorating conditions we're seeing on the river," Troutt said.

The tribe also worked with the city of Centralia, which shut down hydroelectric operations on the river. The city operates a diversion dam, so shutting down power production last summer allowed more water to reach a vital stretch of river for chinook.

Forest Management

Two processes – the Timber/Fish/Wildlife (TFW) Agreement and the Forests and Fish Report (FFR) – provide the framework for an adaptive management process that brings together tribes, state and federal agencies, environmental groups and private forestland owners to protect salmon, wildlife and other species while providing for the economic health of the timber industry.

- Treaty tribes in western Washington manage their forestlands to benefit people, fish, wildlife and water.
- Reforestation for future needs is part of maintaining healthy forests, which are key to maintaining vibrant streams for salmon and enabling wildlife to thrive.
- Forestlands are a source of treaty-protected foods, medicine and cultural items.
- A tribal representative serves on the state’s Forest Practices Board, which sets standards for activities such as timber harvests, road construction and forest chemical applications. Tribes also are active participants in the FFR Cooperative Monitoring, Evaluation and Research Committee (CMER).



Kari Neumeyer

Pacific Tonewoods general manager Eric Warner describes the figures on the maple back of a guitar.

Sustainable Tribal Forestry Program Turns Maple Trees into Guitars

Two maple trees harvested from Upper Skagit Tribe timberlands have a musical future ahead of them.

The trees were sold to Pacific Rim Tonewoods, a specialty sawmill upriver from the Upper Skagit Reservation that sells lumber to guitar makers Taylor and Martin, among others. While most guitar tops, sound boards and braces are made from spruce, maple is often used for the back, in part because of its decorative figuring. Figures are not the same

as a wood’s grain; they are the distinctive pattern trees have when cut perpendicular to the grain direction.

The mill’s owner, Steve McMinn, toured a parcel of timberland that the Upper Skagit Tribe owns near its casino off Bow Hill Road. Among several hundred trees, he found one that had the fiddleback, or flame, figures popular on guitar backs. When the parcel was harvested, he discovered another maple with a quilt pattern.

The trees sold for two to three times more than other maples sell to a regular sawmill. The lucrative sale is part of Upper Skagit timberland services manager Robert Schuyler’s plan to develop a sustainable forestry operation.

The tribe purchased the parcel in 2014. Two-thirds of the trees are cedar, which sells for more than maple, and the rest is hardwood.

“I’ve asked the tribe to acquire sustainable timberlands,” Schuyler said. “With

the sale of this harvest, the tribe can offset some of the land acquisition cost.”

Sustainable forestry is a better use for the land than development, Schuyler said. And it suits the tribe’s role as natural resources co-manager.

With the first harvest done, the parcel will be planted and maintained for future harvest.

“This will keep the forestry crew busy,” Schuyler said.

Regional Collaborative Management

Ocean Resources

The state of Washington, the Hoh, Makah and Quileute tribes, and the Quinault Indian Nation work with the National Oceanic and Atmospheric Administration to integrate common research goals to understand changing ocean conditions and create the building blocks for managing these resources.

- In recognition of the challenges facing the Olympic coast ecosystem, the tribes and state of Washington established the Intergovernmental Policy Council to guide management of Olympic Coast National Marine Sanctuary. Many of the research and planning goals established by tribes and the state mirror the recommendations of the U.S. Ocean Policy.
- Climate change and ocean acidification have been top priorities the past three years. Because of their unique vulnerability, coastal indigenous cultures are leaders in societal adaptation and mitigation in response to events driven by climate change. As ocean conditions change due to climate change and disruptions such as the Pacific decadal oscillation, El Niño and seasonal upwelling, it will be important to understand the



Debbie Preston

Waves roll where the Strait of Juan de Fuca meets the Pacific Ocean. Tribal fishermen have crossed these waters for centuries on their way to fishing grounds far at sea.

- changes that are occurring and how they affect the ecosystem.
- Last summer's historically unprecedented *Pseudo-nitzschia* bloom off the Washington coast halted razor clam and Dungeness crab harvest, demonstrating the need for coastal communities to understand the cause and better prepare for such events.
- The tribes continue to work with the state of Washington and federal partners to respond to the findings of the state's blue ribbon panel on ocean acidification.

Puget Sound Partnership

The Puget Sound Partnership (PSP) was created in 2007 to recover Puget Sound's health by 2020. Tribes are actively involved in leadership and participation in a wide range of projects to improve the health of Puget Sound.

- In September 2015, U.S. Reps. Denny Heck and Derek Kilmer proposed the "Promoting United Government Efforts To Save Our Sound" (PUGET SOS) Act, to enhance the federal government's role and investment in Puget Sound. The bill would add a new section to the Clean Water Act, recognizing the Puget Sound as a waterbody of national significance, and designating a Puget Sound Recovery Office at the Environmental Protection Agency.
- The partnership is at work developing the 2016-17 Action Agenda, focusing on near-term actions to address three of the most critical issues for Puget Sound: stormwater pollution, protecting and restoring habitat, and protecting and recovering shellfish beds.
- Tribal representatives are active in partnerships to protect salmon habitat. One approach seeks improved habitat protection through review and improvements to current regulatory processes.

NWIFC Functions, Programs and Activities

The Northwest Indian Fisheries Commission (NWIFC) was created in 1974 by the 20 treaty Indian tribes in western Washington that were parties to *U.S. v. Washington*. The litigation affirmed their treaty-reserved salmon harvest rights and established the tribes as natural resources co-managers with the state.

The NWIFC is an inter-tribal organization that assists member tribes with their natural resources co-management responsibilities. Member tribes select commissioners who develop policy and provide direction for the organization. The commission employs about 70 full-time employees and is headquartered in

Olympia, Wash., with satellite offices in Forks and Burlington.

It provides broad policy coordination as well as high-quality technical and support services for its member tribes in their efforts to co-manage the natural resources of western Washington.

The NWIFC serves as a clearinghouse for information on natural resources management issues important to member tribes. The commission also acts as a forum for tribes to address issues of shared concern, and enables the tribes to speak with a unified voice.

Habitat Services

- Coordinate policy and technical discussion between tribes and federal, state and local governments, and other interested parties.
- Coordinate, represent and monitor tribal interests in the Timber/Fish/Wildlife Forests and Fish Report process, Coordinated Tribal Water Resources and Ambient Monitoring programs. Analyze and distribute technical information on habitat-related forums, programs and processes.
- Implement the Salmon and Steelhead Habitat Inventory and Assessment Project.

U.S./Canada Pacific Salmon Treaty

- Facilitate inter-tribal and inter-agency meetings, develop issue papers and negotiation options.
- Inform tribes and policy representatives about issues affected by the treaty implementation process.
- Serve on the pink, chum, coho, chinook, Fraser sockeye and data-sharing technical committees, and other work groups and panels.
- Coordinate tribal research and data-gathering activities associated with implementation of the Pacific Salmon Commission.

Quantitative Services

- Administer and coordinate the Treaty Indian Catch Monitoring Program.
- Provide statistical consulting services.
- Conduct data analysis of fisheries studies and developing study designs.
- Update and evaluate fishery management statistical models and databases.

Fisheries Management

- Long-range planning, wild salmon recovery efforts and federal Endangered Species Act implementation.
- Annual fisheries planning: developing pre-season agreements; pre-season and in-season run size forecasts; monitoring; and post-season fishery analysis and reporting.
- Marine fish management planning.
- Shellfish management planning.

Enhancement Services

- Assist tribes with production and release of 40 million salmon and steelhead each year.
- Coordinate coded-wire tagging of more than 4 million fish at tribal hatcheries to provide information critical to fisheries management.



Tiffany Royal

Sandy Zeiner, NWIFC shellfish and enforcement policy analyst, talks with Lummi fisherman Hank Hoskins Sr. following a geoduck harvest.

- Analyze coded-wire data.
- Provide genetic, ecological and statistical consulting for tribal hatchery programs.
- Provide fish health services to tribal hatcheries in the areas of juvenile fish health monitoring, disease diagnosis, adult health inspection and vaccine production.

Information and Education Services

- Provide internal and external communication services to member tribes and NWIFC.
- Develop and distribute communication products such as news releases, newsletters, videos, photos and web-based content.
- Respond to public requests for information about the tribes and their tribal natural resources management activities.
- Work with state agencies, environmental organizations and others in cooperative communication efforts.



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