

COMPREHENSIVE TRIBAL NATURAL RESOURCES MANAGEMENT 2011

AN ANNUAL REPORT FROM THE TREATY INDIAN TRIBES IN WESTERN WASHINGTON





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Map: Ron McFarlane/NWIFC. Cover: Quinault Indian Nation fisheries technician Steven Quilt resets a net to catch steelhead in front of the Lake Quinault Hatchery. Debbie Preston/NWIFC

FROM THE CHAIRMAN

We are the treaty Indian tribes in western Washington. We have always depended on the natural resources of the Pacific Northwest to sustain our way of life.

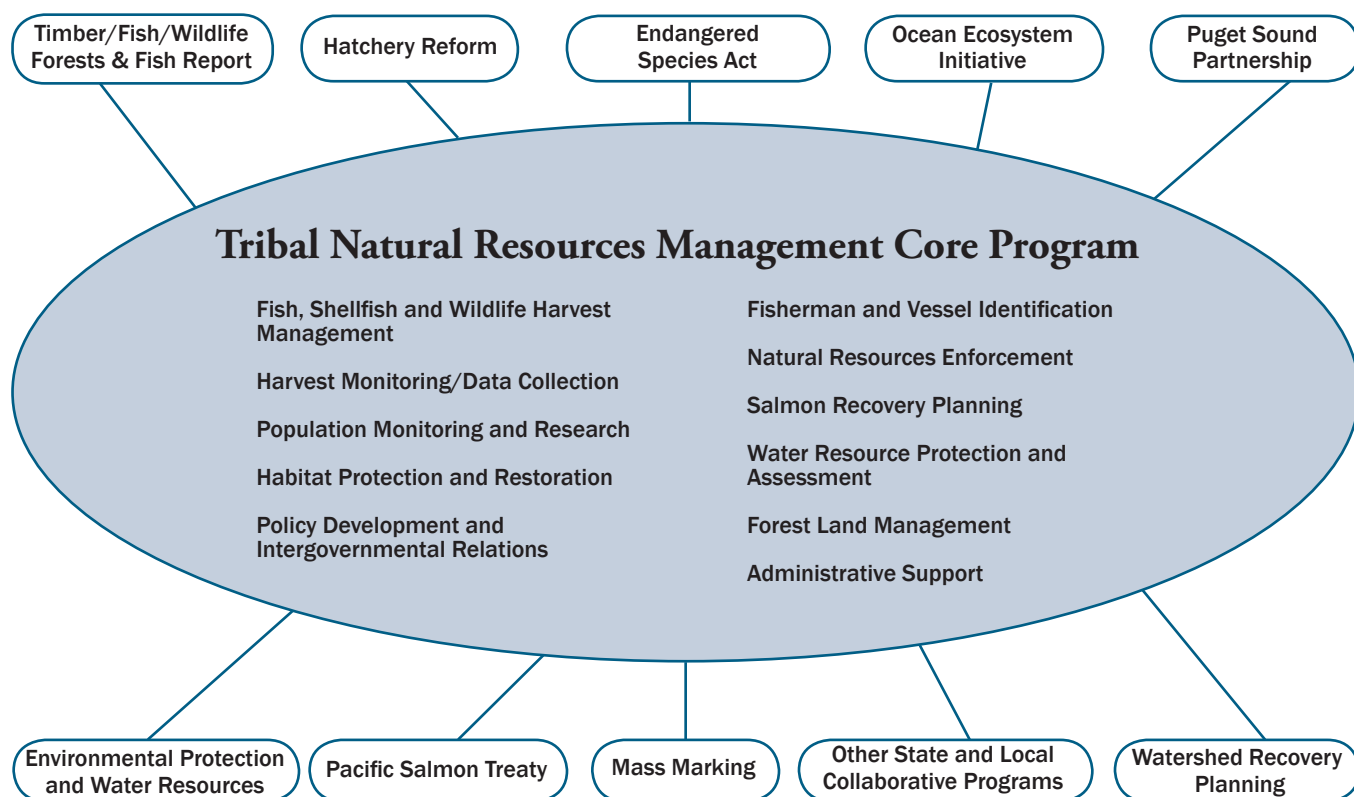
Because of our treaty-reserved rights, we are co-managers of natural resources with the state of Washington, and leaders in the effort to restore, protect and enhance those resources.

We believe that all of us and all of our natural resources are connected. Sustainability is our goal for all natural resources and our way of life. For salmon, we want to return all stocks to levels that can again support harvest, because that is the true measure of salmon recovery.

Cooperation is the key to success in any effort. We seek collaborative, consensus-based solutions because only by working together can we meet the many difficult natural resources management issues we face. We are guided by the belief that we must act in the best interests of generations to come.

This report outlines treaty tribal natural resources management activities assisted by the Northwest Indian Fisheries Commission for Fiscal Year 2010. More information is available at nwifc.org, including links to websites of member tribes.

– Billy Frank Jr.,
NWIFC chairman



YEAR IN REVIEW

Tribal cultures and treaty-reserved harvest rights continued to be threatened in 2010 by the effects of declining habitat and a state budget crisis, among other factors. While a huge run of Fraser River sockeye provided a bright spot for some tribal fishermen last summer, future returns look bleak. Tribes meanwhile continued their extensive involvement in collaborative natural resources management efforts.

Habitat

Lost and degraded habitat are the main causes for declining salmon stocks. State and tribal co-managers continue to implement salmon recovery plans in western Washington, but are frustrated in their attempts to achieve a net gain in habitat.

Tribes made big strides in 2010, however, in gauging the effectiveness of habitat restoration efforts. Following up on habitat inventories and assessments conducted in 2004-05, tribes are examining key indicators – such as water quality and quantity, land-use rules and harvest levels – to assess the results of the natural resources management decisions being made.

The tribes are asking, for example, whether threats such as development and water withdrawals in some watersheds are being balanced by responses through the federal Clean Water Act, state stormwater rules and other laws. While the answers to these questions may be difficult to hear, the tribes believe it is critical that progress be made toward achieving recovery goals for weak salmon stocks.

Also on the habitat front, tribes continue to wait for a final ruling in the Culvert Case. In 2007, the treaty tribes won a summary judgment in the suit over hundreds of failing, fish-blocking culverts under state roads. The final ruling will lay out a timetable for repairs. Nearly 2,000 culverts under state roads block more than 1,000 miles of salmon streams.

Harvest

Returns of Fraser River sockeye this summer provided a dream fishery for tribal fishermen, but didn't begin to make up for decades of poor returns that have devastated the tribal fishing economy.

The run of 34 million sockeye was the largest since 1913; the nine treaty sockeye fishing tribes harvested about 1.2 million fish. However, the run was not a sign of resurgence. Poor returns are expected for the next three years. In 2009, fisheries in the United States and Canada were canceled after only 1 million of the forecast 10 million Fraser sockeye returned.

Tribes spent considerable time and effort during 2010 on reauthorization of the Puget Sound Chinook Harvest Management Plan. The plan is designed to enable limited harvest of mostly hatchery chinook without impeding recovery of wild stocks. The plan received an initial one-year approval by NOAA Fisheries. Current discussions are aimed at acquiring multi-year approval.

Hatcheries

The treaty tribal and state co-managers continued efforts to improve salmon hatchery management practices during 2010, redoubling efforts to complete watershed-specific Hatchery Action Implementation Plans (HAIP) for the region. The plans are designed to support broad recovery objectives for healthy, harvestable popu-



Tribal fishermen on the Lummi purse seiner *Marathon* catch Fraser River sockeye.

Kari Neumeyer/NWIFC

lations of salmon and steelhead throughout Puget Sound and along the Washington coast.

These plans will reflect the priorities of co-managers for all hatchery operations within a watershed, including project priorities, timelines and costs. Genetic management plans prepared for each hatchery also will be incorporated into the plans. Consistent funding for plan priorities will be key to the effort's success.

State Budget Concerns Tribes

In 2010, all of the natural resources co-management work by the treaty Indian tribes in western Washington was conducted against the backdrop of a huge, ongoing state government funding shortfall. An estimated \$5 billion is needed to balance the projected 2011-13 biennial budget.

Annual state spending on natural resources management has declined steadily in recent decades. The treaty tribes are concerned that when combined with the current budget deficits, this trend could lead to non-functioning co-management and further decline of the very natural resources tribes are working to protect and restore.

Ongoing Cooperative Efforts

The tribes know that only by working together can they meet the challenges facing natural resources. In 2010, tribes continued their strong participation in regional cooperative management efforts such as the Puget Sound Partnership, Forests and Fish Agreement, Ocean Ecosystem Initiative and Coordinated Tribal Water Resources Program. Tribes are committed to these types of collaborative processes because they build strong working relationships between tribal, local, state and federal governments, environmental groups, industry and others. Such processes also create an economy of scale that enables limited funding to be used to its fullest.

TRIBAL SALMON MANAGEMENT

Integration of hatcheries, harvest and habitat (the three H's) at the watershed level is key to salmon recovery. Efforts must be coordinated and based on sound science. As co-managers, treaty tribes have worked with Washington state for decades to consider the needs of both people and fish in refining fishery and hatchery practices to ensure they contribute to salmon recovery. To make the most of these efforts, a similar commitment to habitat restoration and recovery is absolutely essential if we are to succeed in saving the salmon.

Hatchery Management

More than 100 salmon enhancement facilities are operated in western Washington by treaty tribes, the state Department of Fish and Wildlife, and U.S. Fish and Wildlife Service. It is the largest salmon hatchery system in the world. More than 100 million salmon and steelhead are released annually from western Washington hatcheries; more than 35 million of those by the tribes.

While tribal hatcheries have been producing fish for nearly 40 years, federal funding has not kept pace, threatening not only the ability of the tribes to implement essential hatchery reform projects, but also the tribes' basic ability to produce hatchery salmon for harvest. At the same time, budget pressures have resulted in hatchery production cuts by the state, leaving tribes as the only hatchery operators in some watersheds.

Hatcheries help meet treaty tribal harvest obligations when wild salmon stocks cannot sustain harvest. Hatchery-produced salmon relieve pressure on commingled wild stocks. The Fish Health Program at the NWIFC helps the tribes ensure their hatchery releases don't carry disease or infection.

Tribal hatcheries also provide additional fish for harvest by non-Indian fishermen, and help build natural runs that are culturally and spiritually important to the tribes.

Some hatcheries support wild runs through brood-stock programs in which native fish are captured and spawned. Their progeny then are released to help bolster naturally spawning salmon runs.

Since 2002, the tribal and state co-managers have been implementing hatchery reform efforts based on recommendations from an independent science panel. Some of the recommendations included making capital improvements to tribal hatchery facilities.

Tribes conduct extensive "mass marking" and operate a research-based coded-wire tag program for hatchery salmon. Young salmon are marked by removing their fleshy adipose fins at the hatchery before release. Tags are inserted into the noses of young salmon. When tagged salmon are harvested and sampled as adults, they provide important information about survival, migration and hatchery effectiveness.

The tribes annually mass mark more than 14 million fish and insert coded-wire tags into nearly 3.2 million fish.



Tiffany Royal/NWIFC

A coho smolt is transferred from the Gorst Hatchery to the Suquamish Tribe's Agate Pass net pens.

Suquamish Tribe Restarts its Agate Pass Coho Net Pens

Following a seven-year hiatus, the Suquamish Tribe restarted its Agate Pass coho salmon net pen operation in spring 2010. The program was discontinued in 2003 because of budget and rearing constraints.

"It's great to be able to re-engage this program because it provides a Kitsap-based coho fishery opportunity for tribal members, with benefits for non-treaty fishers as well," said Jay Zischke, the tribe's marine fish manager. "This has been a multi-year collaboration, which has involved working with our co-manager Washington state, the city of Bremerton and the U.S. Navy."

The tribe transferred 265,000 coho smolts from Gorst Hatchery to its net pen near Agate Pass, between Suquamish and Bainbridge Island. The smolt stage of a salmon's life cycle occurs when the fish is ready to transition from living in fresh water to salt water before heading out to sea.

Using Minter Creek Hatchery stock, the 1 1/2-year-old coho were transferred from the Gorst Hatchery to a dock at the U.S. Naval Undersea Warfare Center in Keyport using Washington Department of Fish and Wildlife fish transfer trucks.

At Keyport, the smolts were loaded onto a tribal barge, which took the fish out to the 70,000-cubic-foot net pen.

The fish spent nearly three months in the pen before being released. They were held in the net pen to acclimatize to the saltwater environment and to imprint on the area so they return to the Agate Pass area as adults.

Harvest Management

Conservation comes first.

More than 30 years ago, state and tribal salmon co-managers began sharply reducing harvest in response to declining wild salmon runs. Today's harvest levels are only 80-90 percent of those in 1985.

Under *U.S. v. Washington* (the Boldt decision), harvest can be shared only after sufficient fish are available to sustain the resource. Harvest management must be comprehensive and coordinated to limit mortality of weak wild stocks throughout their migratory range. While ensuring conservation, harvest management enables appropriate harvest of healthy stocks.

Harvest management must be based on the best available science and includes evaluating the status of stocks and impacts of fisheries, while helping inform future decisions.

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. Tribal and state managers work cooperatively through the Pacific Fishery Management Council (PFMC) and the North of Falcon process to develop fishing seasons that protect weak salmon stocks. Tribal and state co-managers also work with Canadian and Alaskan fisheries managers through the U.S./Canada Pacific Salmon Treaty (PST).

The PFMC is a public forum established by the federal government that develops a comprehensive ocean fisheries plan. While the PFMC is planning coastwide ocean fisheries, treaty tribes and the states of Oregon and Washington are outlining inshore and coastal fisheries. This North of Falcon process is named for the geographic region it covers – north of Cape Falcon, Ore., to the Canadian border.

The PST was created in 1985 to coordinate fisheries between tribes, state governments, and the U.S. and Canadian governments. The Pacific Salmon Commission implements the treaty and establishes fishery regimes, assesses each country's performance and compliance with the treaty, and is a forum for fisheries issues. The treaty was updated in 1999 and 2008.

All proposed fisheries must comply with requirements of the federal Endangered Species Act (ESA) to ensure protection of listed stocks. In western Washington, Puget Sound chinook and steelhead, Hood Canal summer chum and Lake Ozette sockeye are listed as "threatened" under the ESA.

The Treaty Indian Fishery Catch Management Program is a key part of tribal harvest management. Managed by the Northwest Indian Fisheries Commission, the program provides accurate, same-day catch statistics for treaty Indian fisheries in the *U.S. v. Washington* case area. The program enables close monitoring of tribal harvest levels and allows in-season adjustments.

Treaty Tribes Benefit from Resurgence of Baker Sockeye

About five times more sockeye salmon returned to the Baker River than expected, providing harvest opportunities for both tribal and non-tribal fishers. The Upper Skagit, Swinomish and Sauk-Suiattle tribes conducted fisheries on the Baker sockeye run in July.

"We really weren't expecting a fishery because our sockeye run forecasters severely underestimated the 2010 sockeye return based on previous years' poor ocean conditions," said Scott Schuyler, natural resources director for the Upper Skagit Tribe. "We will be doing inseason test fisheries in the future to catch run-size variances earlier. Our forecasters are finally beginning to understand that underestimating returns for all salmon species adversely affects the fishery planning process throughout the entire year."

At the time of the annual salmon season setting process last spring, the forecast was for fewer than 5,000 Baker sockeye to return. Fisheries managers had determined at least 6,300 fish needed to return to sustain the run. However, facing uncertainty due to varying ocean conditions that influence survival, the tribal and state co-managers modeled "placeholder" sockeye fisheries just in case a harvestable number of fish returned.

After enough sockeye returned to the Baker River to meet initial spawning needs, those placeholders became a reality and tribal net fishery and non-treaty sport fisheries opened in July. By August, the run size was estimated to be between 21,000 and 24,000 fish.

"This isn't the biggest run of sockeye we've ever seen come back to Baker Lake, but it's pretty big," said Lorraine Loomis, fisheries manager for the Swinomish Tribe. "It gives us more than enough sockeye to produce the next run of fish."



Upper Skagit tribal fishermen catch Baker River sockeye in July.

Karl Neumeyer/NWIFC

Habitat Management

Harvest management and hatchery practices aren't enough to sustain healthy salmon populations. To make the most of advances in harvest and hatchery management, the habitat must be improved. Protection and restoration of habitat quality and quantity are essential for salmon recovery.

Salmon habitat has degraded steadily for the past 150 years as the non-Indian population in western Washington has increased. Forests have been cleared, fish passage blocked by dams and culverts, and the entire region crisscrossed with roads. The tribes believe watershed- and stock-specific limiting factors must be addressed to restore and improve the productivity of naturally spawning salmon.

The treaty Indian tribes are working hard to restore some of that lost habitat, including building engineered logjams to return natural processes to rivers and streams and help form new spawning and rearing habitat.

Tribes extensively monitor water quality for pollution and to ensure factors such as dissolved oxygen levels are adequate for salmon and other fish. Tribes also collaborate with property owners to improve salmon-bearing stream habitat.

To make limited federal funding work to its fullest, the tribes partner with state agencies, environmental groups, industries and others through collaborative habitat protection, restoration and enhancement efforts.

Cooperation has been the keystone of natural resources co-management in western Washington for decades. Nowhere is the need for cooperation greater than in habitat restoration and protection, because of the enormity of the task.

One such cooperative effort is the Salmon and Steelhead Habitat Inventory and Assessment Program (SSHIA). This state and tribal partnership created in 1995 provides a "living" database for local and regional habitat analyses. The program documents and quantifies past and current habitat conditions, assesses the effect habitat loss and degradation have on salmon and steelhead stocks, and assists in development of strategies.

The federal government has aided tribes in their salmon recovery efforts through the Pacific Coastal Salmon Recovery Fund (PCSRF). These monies support projects that make significant contributions to the recovery of wild salmon throughout the region. In western Washington alone, the PCSRF has helped restore more than 300 miles of streamside habitat, remove more than 100 fish passage barriers and restore more than 100 acres of wetland and estuarine habitat. PCSRF funding for most of these projects goes further because tribes leverage the funding through cooperation with local governments, conservation groups and others.



Consultant Kyle Brakensiek snorkel surveys Mashel Creek to see how large woody debris has improved salmon habitat.

Nisqually Tribe's Mashel River Habitat Project Progresses

For a second year, the Nisqually Indian Tribe built logjams in the Mashel River that will provide habitat for fish and help protect property from bank erosion. Riverside property sustained heavy damage during a historic flood two years ago.

"When there isn't enough wood in a river, both people and salmon are in danger because the water flows too quickly during floods," said David Troutt, natural resources director for the tribe.

"Bank hardening with riprap increased the river's speed, while previous poor logging practices have reduced the ground's ability to soak up rain water and release it slowly. The logjams will protect the banks while also slowing the flow of floodwaters."

In 2009, the tribe completed a series of logjams along the town of Eatonville's Millpond Park that restored habitat while preventing the river from washing out the historic site.

The tribe expanded the project in 2010 to private property downstream where, in 2008, a 400-foot by 60-foot piece of property was lost to a flood.

"We used to have tremendous fish runs in here, but we haven't seen them in years," said landowner Richard Collins. "Anything that helps bring the fish back is important."

"The logjams that we've built will divert flow away from the at-risk property and into a side channel," Troutt said.

In 2011, the state Department of Transportation will further protect the eroding bank using a technique called "bank roughening," essentially replacing traditional riprap with log structures.

Logjams are important river features for salmon at all life stages because they create good habitat where fish can feed and rest.

"Over the years, logging near the stream channel took away most of the material that eventually would have formed logjams," Troutt said.

WILDLIFE

The treaty Indian tribes work cooperatively with the state to co-manage wildlife resources in western Washington. Together, the co-managers are developing regional hunting management agreements for animals such as deer, elk, bears, goats and cougars. The agreements coordinate hunting seasons, harvest reporting and enforcement. Other information crucial to wildlife management, such as herd size and mortality estimates, also will be shared under the agreements.

Western Washington treaty tribal hunters account for a very small portion of the total combined deer and elk harvest in the state. According to statistics for 2009-2010, tribal members harvested 317 elk and 606 deer, while non-Indian hunters harvested 8,086 elk and 33,778 deer.

Tribal hunters do not hunt for sport and most do not hunt only for themselves. Tribal culture in western Washington is based on extended family relationships. A tribal hunter usually shares his game with several families. In some cases, tribes may designate a hunter to harvest one or more animals for elders or families that are unable to hunt. All tribes prohibit hunting for commercial purposes.

As a sovereign government, each treaty tribe develops its own hunting regulations and ordinances for tribal members. Each tribe also maintains an enforcement program to ensure compliance with tribal regulations. The ratio of tribal enforcement officers to treaty hunters is higher than the ratio of state enforcement officers to non-Indian hunters.

Tribes set seasons based on the ability of the resource to support harvest. Before opening any area to hunting, many tribes forward their regulations to the state Department of Fish and Wildlife for review and comment. Tribes also share their harvest data with the agency. Tribal hunters are licensed by their tribes and must obtain tags for each big game animal they wish to hunt. All tribal hunters carry photo identification cards that include their name, date of birth and tribal affiliation.

If a tribal member is found in violation of tribal regulations, he is cited in tribal court. Penalties can include fines and loss of hunting privileges. In most cases, tribal hunting regulations address the same harvest and safety concerns as state rules, such as prohibiting the carrying of loaded firearms in vehicles.



Leading Edge Aviation

An elk is fitted with a GPS collar within Olympic National Park. The Lower Elwha Klallam Tribe and National Park Service are collaborating on a population study within the park.

Tribe, Park Service Collaborate on Elk Population Study

The Lower Elwha Klallam Tribe and the National Park Service collaborated recently to study elk in Olympic National Park.

The agency and the tribe worked with a helicopter crew to capture 18 elk and fit them with radio collars in fall 2010.

The collars will help biologists track migration patterns of herds within the Elwha River valley and around lakes Aldwell and Mills before and after the removal of the Elwha River's two dams. The dams will be removed starting in September 2011.

The tribe and park service are also interested in how the elk use the area for habitat, including feeding and resting.

Local U.S. Geological Survey and National Park Service offices are trying to get the most accurate counts of elk populations in the river drainages in the core area of the park, including the Queets, Quinalt, Hoh and Elwha. The Lower Elwha Klallam Tribe has been conducting its own elk population studies in the area, so the two entities decided to work together.

"We wanted to put radio collars on elk that reside in the high country during summer but who we hoped would use the shores of Lake Aldwell and Lake Mills during winter," said Kim Sager-Fradkin, the tribe's wildlife biologist. "Because the collars are expected to function for several years, we hope to monitor use by elk of the restored floodplains after dam removal. The tribe and the park are both interested in knowing how the elk will respond once the reservoirs no longer contain water, so it seemed natural that we work together."

Elk need habitat that includes plentiful water, grasses and woody plants.

"It's been a really positive collaboration with the park, with both of us having the same end goal of seeing how the elk use the areas around the lakes," Sager-Fradkin said.

SHELLFISH

Shellfish have been a mainstay of western Washington Indian tribes for thousands of years and remain important today for economic, subsistence and ceremonial purposes.

As co-managers of the shellfish resource, each treaty Indian tribe maintains a shellfish program and manages its shellfish harvest cooperatively with other tribes and the state through resource-sharing agreements.

Tribal shellfish enhancement results in higher and more consistent harvest levels and benefits both tribal and non-Indian diggers. Tribes also conduct research on underutilized species, such as Olympia oysters and sea urchins, to develop better management systems and a better understanding of the marine ecosystem.

Tribes have two distinct types of shellfish harvest – commercial and ceremonial/subsistence. Shellfish harvested during a commercial fishery are sold to licensed shellfish buyers who either sell directly to the public or to other distributors. Along with state co-managers, tribes closely monitor beaches to make sure harvested shellfish are safe to eat.

Preliminary data for 2009, the most recent data available, indicate that treaty tribes in western Washington commercially harvested more than 760,000 pounds of manila and native littleneck clams; 2.4 million pounds of geoduck clams; more than 720,000 pounds of oysters; 7.9 million pounds of crab; and 147,000 pounds of shrimp. These fisheries occur throughout Washington coastal areas and Puget Sound.

Ceremonial and subsistence harvests of shellfish, which have a central role in tribal gatherings and daily nutrition, are for tribal use only.

Squaxin Island Helps Populate Beaches with Native Oysters

The Squaxin Island Tribe spread oyster shells on a handful of intertidal beaches in 2010 in a hunt for the offspring of a tiny and rare native oyster. Tribal researchers since have been waiting to see if any young Olympia oysters have attached themselves to the shells.

Like other shellfish, Olympia oysters are broadcast spawners. Young oysters float on the tide until they settle on hard surfaces such as old oyster shells called cultch.

“There are a handful of areas on the island with small populations of Olympias, but we want to see where the oysters are spreading their seed,” said Eric Sparkman, shellfish biologist for the tribe. “We hope to find the beginnings of good natural production in some areas, meaning we can come back, expand our efforts and possibly kick-start a self-sustaining population out here.”

Olympia oysters are the only oyster native to Puget Sound and had been a mainstay in the Squaxin tribal diet until they largely disappeared almost 100 years ago. Pollution and competition from invasive shellfish species almost drove Olympia oysters to extinction.

“We have always depended on Olympia oysters,” said Andy Whitener, the Squaxin Island Tribe’s natural resources director. “Olympias made the most of our pristine bays and beaches for centuries, growing and evolving into an important food source.”

The tribe also is working with the Puget Sound Restoration Fund to restore Olympia oysters on Squaxin Island. The tribe and non-profit have spread thousands of oyster seed on the island’s tidelands.

“Over the past century, the Olympia oyster’s habitat has been hammered, and they almost disappeared,” Whitener said. “We want to save Olympia oysters and bring them back to harvestable levels.”



Emmett O'Connell/NWIFC

Eric Sparkman, shellfish biologist for the Squaxin Island Tribe, and Brian Allen of the Puget Sound Restoration Fund, spread oyster shells to attract juvenile Olympia oysters.

REGIONAL COOPERATION

Puget Sound Partnership

The tribes have a high standard for the recovery of Puget Sound – they want to clean it up enough so that they can harvest and eat fish and shellfish every day.

The Puget Sound Partnership was created by Washington Gov. Chris Gregoire in 2005 to recover Puget Sound's health by 2020. In 2007, the Partnership was established as a state agency.

Treaty tribes in western Washington have taken a leadership role in this effort, on top of other natural resources responsibilities. NWIFC Chairman Billy Frank Jr. co-chaired the development of the Partnership with former Environmental Protection Agency Administrator Bill Ruckelshaus, and serves on the Partnership's Leadership Council.

The Puget Sound Partnership's Action Agenda was adopted in 2008 to serve as a guide to Puget Sound restoration and protection efforts for years to come. Tribes were active participants in the development of this document.

The Action Agenda provides critical data and a strategy for tackling threats to the waters in and around Puget Sound.

The goals are to protect the last remaining intact places, restore damaged and polluted sites, stop water pollution at its source, and coordinate all protection, restoration and cleanup efforts.

Tribes always have had a presence in every major watershed in what is now the state of Washington. They have thousands of years of experience in the region, and a vested interest in the health of Puget Sound's natural resources.

As co-managers of the region's natural resources with the state, the tribes co-authored the Puget Sound Chinook Salmon Recovery Plan, which is being implemented through the Partnership. The recovery of summer chum in Puget Sound also is being implemented through the Partnership and incorporated in its Action Agenda.

Tribal involvement in the Partnership is vital to ensure the success of these salmon recovery efforts.



Tiffany Royal/NWIFC

An excavator removes dikes on Nalley Island, to allow historic salt marsh habitat and channel networks to return.

Nalley Island Dikes Breached for Skokomish Tidelands Restoration

Removing dikes around 214-acre Nalley Island will net a big payoff for fish and shellfish in the restored estuary.

"Restoring Nalley Island back to its original historic condition as part of an estuary will benefit everyone in the area – from our tribal members to the fish and wildlife that use the site for feeding and resting," said Joseph Pavel, the Skokomish Tribe's natural resources director.

Work included removing nearly 3 miles of dikes, filling ditches, removing tide gates and culverts, replacing Mason County PUD power poles and improving access to the Tacoma Power utility lines.

The island restoration was the second phase of the tribe's effort to restore the Skokomish River estuary. The first phase was completed in 2007, when dikes west of the island were removed to restore 108 acres of tidelands. This type of large-scale estuary restoration is a priority in the Puget Sound Partnership's Action Agenda.

A large portion of the Skokomish estuary was converted from a pristine estuary to Nalley Farm in the late 1930s. At the time, the area was a productive estuary with miles of branching tidal channels. Dikes and ditches were constructed to prevent tidal and river flows across the surface of the island and permanently drained the area.

"With the dike removed, we're reintroducing key physical, depositional and erosion processes that will allow the estuary to restore itself," said Alex Gouley, the tribe's habitat manager. "The salt marsh and channel networks that provided key habitat in the past will rapidly return."

Partners in the project include the Salmon Recovery Funding Board, Pacific Salmon Critical Stock funding, Mason County PUD 1, Tacoma Power, U.S. Fish and Wildlife Service National Coastal Wetlands Conservation Grant Program and Puget Sound Nearshore Ecosystem Restoration Project/Estuary and Salmon Restoration Program.

Ocean Ecosystem Initiative



Kenny McCoy, Quinault Indian Nation wildlife technician prepares to measure, identify and photograph a dead seabird as part of the Coastal Observation and Seabird Survey Team. Baseline data on dead seabirds allows QIN to know when something odd is happening in the ocean.

Coastal treaty Indian tribes always have relied on the ocean's resources. Salmon, groundfish, whales, clams and crab are central to tribal cultures. The treaty Indian tribes believe that these and all natural resources are connected. Only a holistic ecosystem management approach ultimately can meet the needs of those resources and the people who depend upon them.

The state of Washington, Hoh Indian Tribe, Makah Tribe, Quileute Tribe and the Quinault Indian Nation are working with the National Oceanic and Atmospheric Administration to integrate common research goals to understand changing ocean conditions and create the building blocks for marine spatial planning. The tribes and state support ocean monitoring and research leading to an ecosystem-based management of fishery resources.

Effective management of the ocean ecosystem requires development of basic baseline information against which changes can be measured. Achieving research goals will mean utilizing, expanding on and collaborating with existing physical and biological databases.

In recognition of the challenges facing the Olympic coast ecosystem, tribes and the state established the Intergovernmental Policy Council to guide management of Olympic Coast National Marine Sanctuary.

The tribes and the state already have developed ocean research and planning goals, many of which mirror recommendations of the U.S. Ocean Policy.

Transition to ecosystem-based management requires expansion of resource assessment surveys and ocean monitoring systems off the Olympic coast. This includes conducting a comprehensive assessment of the coastal ecosystem.

Another pressing need is to complete sonar mapping and surveying of the seabed off the Olympic coast. Less than 23 percent of the area's seabed has been mapped and surveyed to document species and habitat types. Acquiring this data is essential to effectively address groundfish conservation concerns and minimize interactions with deep-water sponge and coral species.

Mapping the Ocean Floor Key to Better Resource Management

Improving baseline information about the waters off the Washington coast continues to be a shared goal of the four coastal treaty tribes. The tribes cooperated and assisted with several research projects and consultation for future work in coastal waters.

In June 2010, a month-long hydrographic cruise was conducted by Olympic Coast National Marine Sanctuary (OCNMS) and National Oceanic and Atmospheric Administration (NOAA) Office of Coast Survey using NOAA's hydrographic research vessel, *Fairweather*. Two technical staff employees of treaty tribes assisted with the work, which is a shared priority of OCNMS and the Intergovernmental Policy Council.

Fairweather started gathering and processing hydrographic survey data for nautical charts and to provide quality backscatter data for seafloor habitat interpretation. Backscatter data provides information on the seafloor substrate types, such as rock, sand and mud. Combined with other metrics such as bathymetry, seafloor slope, rugosity, and curvature information, this helps create a profile of the seafloor that is useful for understanding and managing ocean resources.

Current nautical charts are based on data from the 1930s and the *Fairweather* cruise discovered a number of errors as well as new hazardous shallow areas. While 138 square nautical miles were added to the total mapped area of OCNMS, more than 80 percent remains to be mapped to support sound management decisions. An updated nautical chart is now available to the public and the final habitat map will be available in 2011 following ground-truthing exercises by USGS and OCNMS.

Meanwhile, coastal treaty tribes are negotiating the location of data collection buoys and research gliders in their traditional waters. In July, a glider was deployed by the NOAA-funded University of Washington Applied Physics Laboratory along with a 15-foot-tall research buoy about 15 miles off LaPush, the Quileute Tribe's traditional waters. The tribe conducted a contest to name the buoy that is now called *Cha ba*, meaning "whale tail" because, similar to a whale, a large percentage of its mass is hidden underwater.

Together the instruments will monitor such things as carbon dioxide in coastal waters. The chemistry of seawater is changing because of too much carbon dioxide. This increase in seawater acidity can harm ocean creatures that build calcium carbonate shells, such as oysters, mussels, butter clams and horse clams – all vitally important cultural foods to Northwest tribes.

Tribal Environmental Protection and Water Resources Program

EPA Partnership

Twenty years ago, Pacific Northwest tribes partnered with the federal Environmental Protection Agency (EPA) to address water quality issues under the Clean Water Act. The unprecedented relationship, called the Coordinated Tribal Water Quality Program, has improved tribal water quality management and protection of tribal lands and treaty-reserved resources.

Partnerships between the EPA and individual tribes have energized and focused meaningful environmental protection activities in watersheds throughout the region and enabled the leveraging and partnering of county, state and federal funds.

EPA's General Assistance Program (GAP) was established to build capacity for environmental protection programs at every federally recognized tribe in the country. Unfortunately, the availability of funding has not met the needs generated by these programs or the cost of accommodating growth toward implementation. Many tribes successfully have built basic operational capacity utilizing GAP funds and are ready to move to the next step of implementing those environmental programs.

Tribes in western Washington have proposed a pilot project, called "Beyond GAP." This effort aims to build on the investments of the past 20 years by providing leadership in shaping the next steps in EPA's Indian Program development.

Water Quality and Quantity

In 2010, the Northwest Indian Fisheries Commission launched the NWIFC Water Quality Exchange Network to store, share, manage and analyze tribal data. The network enables tribes to exchange water quality data with each other for regional scale analysis, send data to the EPA to meet grant obligations, and request data from EPA's water quality data warehouse, STORET.

For nearly 20 years, tribes also have partnered with the U.S. Geological Survey, which has a trust responsibility to tribal governments. It is the pre-eminent authority among governments for water resources, providing valuable expertise, oversight and guidance to the tribal effort toward data collection and resource management.

While much already has been accomplished, the tribes continue to address issues of water quality and quantity. In western Washington, climatic changes and urban development are having profound effects on water resources and aquatic ecosystems. This situation will worsen with an expected doubling of the population in the Puget Sound region during the next 20 years.

Goals of tribal water resources programs include establishing instream flows to sustain viable and harvestable populations of fish, identifying limiting factors for salmon recovery, protecting existing ground and surface water supplies, and participating in federal, state and local planning processes for water quantity and quality management.

Replicating Oakland Bay Conditions for Bacteria Investigation

The Squaxin Island Tribe is building two miniature models of Oakland Bay to understand persistent pollution in the vital Puget Sound shellfish growing area.

The tribe is trying to learn more about harmful bacteria from failing septic systems and livestock manure that may become trapped on top of tideland sediments in upper Oakland Bay.

"We think that instead of dying off like they usually do, the bacteria are surviving and amplifying the pollution, particularly during the summer months," said John Konovsky, Squaxin Island Tribe's environmental program manager.

"In a lab, we can recreate similar environmental conditions and track what the bacteria are doing more precisely," he said.

Fecal coliform bacteria come from human and animal waste, and can't usually survive long in salt water. But if bacteria become trapped on nutrient-rich sediment particles, they may undergo a physiological reaction that enables their survival, he said.

Tribal researchers are collecting polluted sediment from the bay for use in two 40-gallon aquariums. Twenty-four cups filled with sediment from the tidelands will be subject to conditions similar to the bay. Twice a day, water levels in the aquariums will rise and fall like the tides in Oakland Bay. The "tide" gradually will expose one set of cups, then the other.

"By recreating every aspect of the bay that would impact the bacteria, down to the temperature, sunlight and water quality, we hope we can get a better idea of how well these bacteria survive," Konovsky said.



Squaxin Island Tribe's John Konovsky and Rob Zisette of Herrera Environmental Consultants observe bacteria tanks.

Emmett O'Connell/NWIFC

Timber/Fish/Wildlife

The Timber/Fish/Wildlife Agreement (TFW) is a national success story that has provided a 23-year legacy of collaborative conservation. TFW brings together tribes, state and federal agencies, environmental groups and private forest landowners in a process that ensures protection for salmon, wildlife and other species while also providing for the economic health of the timber industry.

The timber industry's long-range goals of economic stability and regulatory certainty are shared by the tribes, who view the industry as a long-term partner in forest management. Through TFW, the timber industry has recognized its impact on water quality, fish and wildlife habitat, and other resources important to tribes' economic, cultural and spiritual survival.

TFW matches the collective experience and expertise of participants in a consensus decision-making process. The TFW Agreement is an organic process that yields to a changing environment. In this adaptive management system, participants understand and encourage evaluation and modification of the agreement to better protect natural resources and improve forest practices. Experience determines whether the needs of the parties are being met.

The tribes offer a centuries-old tradition of resource stewardship, practice state-of-the-art technological innovation, and are located strategically to respond to the critical management needs in their local watersheds.

A variety of factors – including the listing of several western Washington salmon stocks under the federal Endangered Species Act (ESA), ongoing statewide water quality degradation, and concern over the continued economic viability of the timber industry – brought TFW participants together in November 1996 to develop joint solutions to these problems. The result was a plan to update forest practices rules called the Forests and Fish Report (FFR), which was completed in April 1999 and later adopted by the state legislature.

This past year, tribes worked on several forest practices board rule-making efforts, including a time extension for the timber industry as it finishes the required Road Maintenance and Abandonment Plans. Tribes want to ensure enough safeguards to protect streams.



Kari Neumeier/NWIFC

A crew from SRSC removes an oversized but inadequate culvert from Tenas Creek.

Tenas Culvert Removed for Fish

Last March, the Skagit River System Cooperative (SRSC) removed an 80-foot-long, 8-foot-tall, 12-foot-wide culvert from Tenas Creek, a tributary to the Suiattle River.

The culvert had provided vehicle access across the creek on a U.S. Forest Service road, but it was a barrier to resident fish species and was at risk of failing and sending sediment to salmon habitat downstream.

Road surveys by SRSC's Forests and Fish staff identified Tenas Creek as a priority for repair.

"The culvert didn't contain streambed material and had a 3- to 4-foot outfall drop, so it likely prevented upstream passage for resident fish species," said Devin Smith, restoration ecologist for the SRSC, the natural resources arm of the Sauk-Suiattle and Swinomish tribes.

Tenas Creek is a productive tributary that is used by a number of fish species. The glacial-fed Suiattle River has very high sediment loads naturally, so spring chinook depend on cool, clear tributary streams like Tenas Creek for spawning and rearing.

The culvert removal was part of a three-year project in partnership with the Forest Service to upgrade and decommission approximately 18 miles of forest roads in the Suiattle River basin. The primary goal of the project was to improve habitat for spring chinook and other species by reducing landslides and other sediment impacts from poorly maintained forest roads.

Removing the large culvert on Tenas Creek had the additional benefits of restoring the floodplain to natural stream function and providing fish passage through the road crossing.

The Tenas Creek road project fulfills a priority in the tribal and state co-managers' Skagit Chinook Recovery Plan – to control sediment in the Suiattle River basin.

Sediment degrades salmon habitat by smothering spawning gravel, which reduces survival of salmon fry. It also can reduce the quantity and quality of rearing habitat.

NWIFC ACTIVITIES

“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

The Northwest Indian Fisheries Commission was created in 1974 by the 20 treaty Indian tribes in western Washington as a result of the *U.S. v. Washington* litigation that affirmed their treaty-reserved salmon harvest rights. The ruling established the tribes as natural resources co-managers with the state.

The NWIFC is an inter-tribal support services organization that assists member tribes with natural resources management. The commission employs about 70 full-time employees and is headquartered in Olympia, Wash., with satellite offices in Forks, Suquamish, Kingston and Mount Vernon.

In addition to providing high quality technical and support services, the NWIFC serves as a clearinghouse for information and data on natural resources management issues important to member tribes. The NWIFC also acts as a forum to address important issues identified by the tribes, and enables the tribes to speak with a unified voice on issues and efforts of shared agreement.

Member tribes select commissioners who develop policy and provide direction for the organization. The commissioners elect a chairman, vice chairman and treasurer. The commission’s executive director supervises the staff that implements the policies and fisheries management activities approved by the commissioners.

An overview of some NWIFC activities during Fiscal Year 2010:

Fisheries Management Planning

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

Quantitative Services

- Administering and coordinating the Treaty Indian Catch Monitoring Program that provides catch statistics critical for fisheries management planning and allocation;
- Providing statistical consulting services;
- Conducting data analysis of fisheries studies and developing study designs; and
- Updating and evaluating fishery management statistical models and databases.

Enhancement Services

- Coordinating coded-wire tagging of 3.2 million fish at tribal hatcheries to provide critical information for fisheries management;
- Analyzing coded-wire tag data;
- Providing genetic, ecological, and statistical consulting for tribal hatchery programs; and
- Providing fish health services to tribal hatcheries in the areas of juvenile fish health monitoring, disease diagnostics, adult health inspection and vaccine production.

U.S./Canada Pacific Salmon Treaty Implementation

- Facilitating inter-tribal and inter-agency meetings, developing issue papers and negotiation options;
- Informing tribes and policy representatives on issues affected by the treaty implementation process;
- Serving on the Fraser sockeye and pink, chum, coho, chinook, and data sharing technical committees, as well as other work groups and panels; and
- Coordinating tribal research and data gathering activities associated with implementation of the Pacific Salmon Committee.

Habitat Services

- Coordinating policy and technical level discussion between tribes and federal, state and local governments, and other interested parties;
- Coordinating, representing and monitoring tribal interests in the Timber/Fish/Wildlife process, Coordinated Tribal Water Quality and Ambient Monitoring programs;
- Monitoring, analyzing and distributing technical information on habitat-related forums, programs and processes; and
- Implementing the Salmon and Steelhead Habitat Inventory and Assessment Program.

Information And Education Services

- Providing internal and external communication services to member tribes and NWIFC;
- Developing and distributing communication products such as news releases, newsletters, videos, photos and web-based content;
- Responding to public requests for information on the tribes and tribal natural resources management activities; and
- Working with state agencies, environmental organizations and others in cooperative communication efforts.



Debbie Preston/NWIFC

Joe Hinton, left, Hoko Hatchery manager, sorts healthy steelhead eggs to give to Brian Russell, Bogachiel Hatchery manager, as part of a management decision by the Quileute Tribe and WDFW.

Tribes, State Work Together to Minimize Fish Virus Risks

Coastal treaty Indian tribes and the Northwest Indian Fisheries Commission are working with state and federal agencies to halt the spread of a deadly strain of virus that is threatening salmon.

Hundreds of returning adult steelhead infected with Infectious Hematopoietic Necrosis (IHN) had to be destroyed earlier this year when the virus was detected at the Washington Department of Fish and Wildlife's Bogachiel Hatchery. IHN attacks blood-forming tissues in fish such as the kidneys and spleen.

The IHN virus was first detected in Idaho hatchery trout in the 1970s and has killed hundreds of thousands of steelhead in the Columbia River watershed. The virus spread to the lower Columbia River by the 1990s.

"Salmon and steelhead are culturally and economically important to the Quileute Tribe," said Mel Moon, the tribe's natural resources director. "We don't want to see IHN get established here or spread into the Strait of Juan de Fuca and Canada."

Sparked by a tribal effort, the salmon co-managers are developing a better understanding of the virus and its possible origins. In 2009, the Quinault Indian Nation (QIN) teamed up with the U.S. Fish and Wildlife Service (USFWS) to fund research through the U.S. Geological Survey (USGS) that is examining key questions

about how the strain of IHN may affect wild and hatchery salmon and steelhead stocks on the Olympic coast. In the past decade, QIN has found IHN virus in the Queets River twice and in Quinault River hatchery steelhead once.

That work led to the discovery that the strain of IHN virus detected in Bogachiel steelhead. While similar to that found in the Quinault River fish, it is more closely related to a strain that is causing an epidemic at USFWS Dworshak National Fish Hatchery in Ahsahka, Idaho.

"That particular strain of IHN virus has never been found outside the Columbia River until now," said Bruce Stewart, fish health program manager for the Northwest Indian Fisheries Commission.

"The member tribes of the Northwest Indian Fisheries Commission have made it a priority to do whatever they can to minimize the risk of this strain of IHN virus from establishing itself up here," Stewart said. "Coming up with the research that can answer some of these questions is key. The tribes are leading the way on this effort and say that even when money is tight, this needs to be a priority."



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