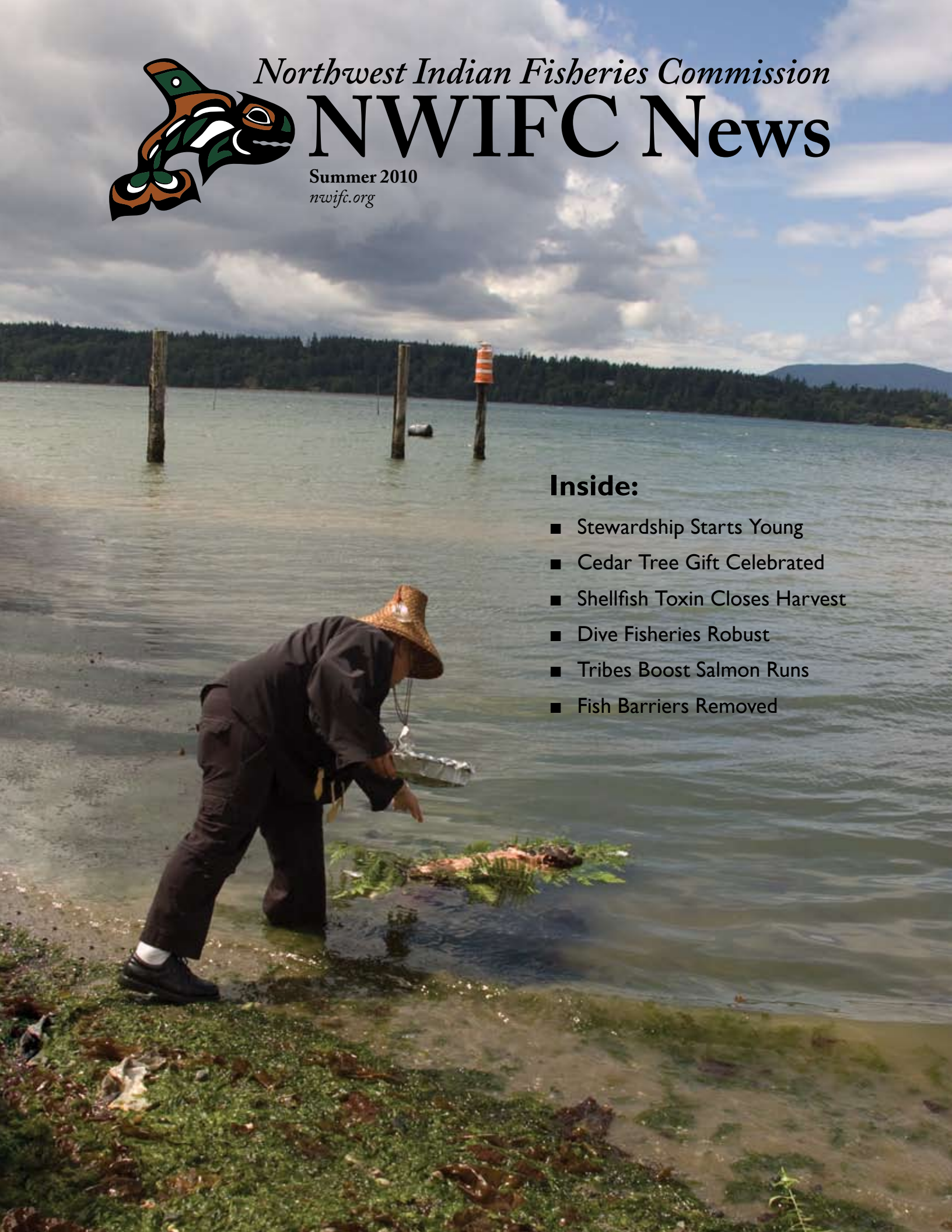
Northwest Indian Fisheries Commission

NWIFC News

Summer 2010
nwifc.org



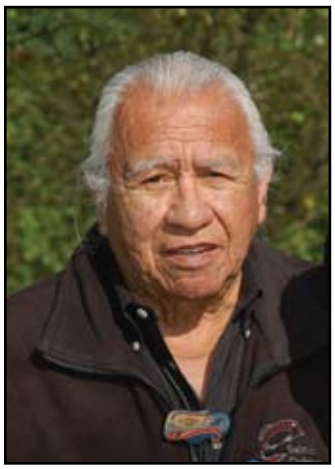
Inside:

- Stewardship Starts Young
- Cedar Tree Gift Celebrated
- Shellfish Toxin Closes Harvest
- Dive Fisheries Robust
- Tribes Boost Salmon Runs
- Fish Barriers Removed

Being Frank

Harvest Holds the Line

By Billy Frank Jr.
NWIFC Chairman



Treaty tribal and state co-managers wrapped up their annual process of setting salmon fishing seasons this spring and I was again reminded of those who say that a total ban on fishing is the only path to salmon recovery.

They don't truly mean a total ban though – just one on Indian and non-Indian fishermen. They don't want to talk about all of the fish lost to dams, poisoned stormwater runoff and low stream flows. Those environmental factors impact salmon just like any fishery. A dead fish is a dead fish, no matter how it dies.

The tribes and state work to provide limited fishing opportunities that target healthy, mostly hatchery-raised fish. Most wild stocks are too weak to support harvest – there would be no fishing at all in western Washington without the salmon produced by tribal and state hatcheries.

The combined state, tribal and federal hatchery system in western Washington is science-driven and finely tuned to produce enough fish for harvest. Most of these hatcheries were built to make up for lost habitat. Those hatchery fish provide meaningful harvests to many, but they can also hide the true health of the habitat in our watersheds.

While the total number of chinook returning to Puget Sound has remained steady for the past decade at about 200,000, the percentage of wild fish in that figure has been shrinking. It tells me that we are holding the line on harvest, but we are losing the fight on habitat. We are putting tighter and tighter controls on how we fish, but each year we lose more and more natural productivity from the little good habitat we have left.

All of the fishing cutbacks, changes in hatchery operations and habitat restoration work of the past 20 or 30 years can't begin to make up for the centuries that this region's environment has been assaulted. Habitat loss and damage alone are driving the decline of wild salmon. We are at the end of an era and we have no choice but to change if the salmon are going to survive.

The treaty tribes have a higher standard for salmon recovery than the federal Endangered Species Act. For us, salmon recovery means restoring all salmon stocks to populations that can support sustainable harvest. It's about our culture, our way of life. It's about honoring our treaties. It's about continuing to be who we've always been: fishermen.

NWIFC News

Northwest Indian Fisheries Commission
6730 Martin Way E.
Olympia, WA 98516
(360) 438-1180

NWIFC News is published quarterly. Free subscriptions are available. This edition is also online at *nwifc.org*. Articles in *NWIFC News* may be reprinted.

NWIFC Chairman
Billy Frank Jr.

Executive Director
Mike Grayum

Information and Education Services Division Manager
Tony Meyer

Regional Information Officers
Debbie Preston, Coast
Emmett O'Connell, South Sound
Tiffany Royal, Hood Canal/Strait of Juan de Fuca
Kari Neumeyer, North Sound

Editorial Assistant
Sheila McCloud

NWIFC Member Tribes: Hoh, Jamestown S'Klallam, Lower Elwha Klallam, Lummi Nation, Makah, Muckleshoot, Nisqually, Nooksack, Port Gamble S'Klallam, Puyallup, Quileute, Quinault Indian Nation, Sauk-Suiattle, Skokomish, Squaxin Island, Stillaguamish, Suquamish, Swinomish, Tulalip and Upper Skagit

Tribal contact information is available under *Member Tribes* at *nwifc.org*.

Follow us on Facebook: *facebook.com/nwifc* and on Twitter: @NWIFC



On the cover: Harlan James, Lummi Nation, returns the remains of a chinook salmon to the water during Lummi Nation's First Salmon Ceremony. *Photo: K. Neumeyer*

Old-Growth Cedar Tree Is Gift to Tribal Culture

A 600-year-old cedar tree began contributing to the cultural traditions of the Makah people even before it was cut down in May. Ancient songs filled the air in celebration and gratitude at the site of the 140-foot-tall tree measuring about 8 feet at its base.



Makah forester Stephanie Peterson-Martin, left, Councilman Micah McCarty, inside tree, and Donnie Secor inspect the harvested tree.



D. Preston (2)

Micah McCarty, Makah tribal councilman, pulls cedar bark from a 600-year-old cedar tree donated to the tribe for cultural use.

Bark was stripped in the traditional manner from the standing tree. Tribal weavers created cedar "roses" from the bark and gave them to those who helped the tribe acquire the tree.

It took nearly five years for the Makah to obtain the tree through a partnership with the Washington Department of Natural Resources (DNR) and the Potlatch Fund, a nonprofit organization aiding tribal communities in the Pacific Northwest and Montana.

The Potlatch Fund purchased the tree and gifted it to the Makah Tribe, bridging an impasse between the tribe's treaty right to gather cultural materials within their traditional territory and DNR's governing legislation that requires the tree to be sold.

"While we take the life of this tree today, it will live on in the future in the lives of our children and our village," said Makah tribal chairman Michael Lawrence.

The tree was acquired too late to provide a canoe for this summer's Tribal Canoe Journey, which the Makah Tribe will host. The tree will nonetheless provide raw material for many other cultural items such as regalia and carved gifts that will be given away in July to the thousands of guests and canoe families.

Obtaining cedar of any size on the Makah reservation is difficult, said Stephanie Peterson-Martin, forester and acting forest manager for the Makah Tribal Forestry Department.

"Historically, there have always been large volumes of cedar here, but the Bureau of Indian Affairs operated timber harvest on the reservation beginning in the 1920s," she said. "Trees were not replanted after the old growth was harvested and the natural regeneration in this area produced a landscape that is nearly 80 percent hemlock."

> *'This cedar tree will be a welcome sight to many of our carvers.'*
>
> **STEPHANIE PETERSON-MARTIN,**
> Acting Forest Manager,
> Makah Tribe

The tribe manages its own land today and requires extensive reforesting of multiple species, including cedar, but it takes many years for a cedar to reach a significant size.

"We have a forest reserve area that has some bigger cedar trees for cultural use, but it's in the middle of the reservation and the only way to get that wood out is with a helicopter. Since that cost has to be paid by the tribal member, it's financially difficult for a lot of people," Peterson-Martin said.

"This cedar tree will be a welcome sight to many of our carvers who have been waiting to get their hands on suitable material," she added.

Due to the amount of heart rot in the tree, creating a traditional dugout canoe is questionable.

"We have evolved with what's available and if it is not possible to make dugout canoes, then we can make strip canoes with this tree," Peterson-Martin said. Strip canoes are made by wrapping and gluing cedar wood strips around a canoe-shaped form. It also may be possible to create a smaller traditional halibut or salmon dugout canoe that holds two or four people.

"Our weavers are excited that they will be able to make baskets from the boughs higher up on the tree, which they haven't been able to make for a long time," said Micah McCarty, tribal councilman.

– D. Preston

Welcoming the Whales





D. Preston (4)

Above: Quileute tribal members and guests sing and chant in the whales off La Push Beach. Several gray whales passed by in the surf zone during the annual Welcoming of the Whales ceremony. Above right: Quileute tribal members wearing traditional attire perform the whale ceremony in honor of the tribe and its ancestors.

Right: Tribal member Tah ahawat Payne, 7, feels the chill while watching others in the surf during the welcoming of the whales. Below: Tribal members Bryson King, left, Justin Hatch and Jonah Black offer salmon to the whales.







Squaxin Island elder Del Johns Sr. harvests clams at an easily accessible beach in Little Skookum Inlet.

E. O'Connell (2)



Tribal member Nancy Moore gathers shellfish at Little Skookum Inlet.

Shared Beach Gives Elders Access to Shellfish

Squaxin Island tribal elders have their very own beach where they can harvest shellfish in Little Skookum Inlet.

"Most of our other commercial shellfish beaches are either accessible only by boat or down a steep cliff," said Andy Whitener, the tribe's natural resources director. "We are working with a local shellfish grower to provide our elders with a beach that is much easier to access."

The arrangement between the tribe and Taylor Shellfish was set up within the framework of a legal settlement between the state and federal governments, private shellfish growers and treaty tribes. The agreement resolved thorny legal issues stemming from a 1994 federal court ruling that upheld the tribes' treaty-reserved right to half of the harvestable shellfish in intertidal waters.

As part of the agreement, the tribes agreed not to harvest naturally occurring shellfish on commercially operated shellfish beds in exchange for funding to aid them in acquiring their own beds.

In a twist on the agreement, Taylor Shellfish agreed to swap harvest with the tribe for easily accessible tidelands it leases on Little Skookum Inlet. "We have a great working relationship with the Taylors; we've been sharing the beaches with them for decades," Whitener said.

Little Skookum Inlet is the closest bay to the tribe. "Little Skookum is a very special place for the Squaxin Island Tribe," Whitener said. "It is the backyard for many of our tribal members."

Nearly one-fourth of the 1,000 Squaxin Island tribal members are active shellfish harvesters.

"A lot of our tribal members make a good portion of their income harvesting natural resources like shellfish," Whitener said. "For many of our elders, this harvesting opportunity helps make ends meet."

It also provides a source of traditional food that is important to tribes.

"We live in one of the most productive shellfish areas in the world, so we've always depended on shellfish as a vital part of our culture and economy," Whitener said. "Working with our neighbors not only makes us better managers, but also protects our treaty rights."

– E. O'Connell



University of Washington, Special Collections, NA1253

Generations

A large basket is found inside a Hoh tribal member's home in this 1905 photograph taken by Edmond Meany.

The photo is part of the Meany Collection held by the University of Washington.

Tribes Teach Environmental Lessons in School



T. Royal

Above: High school student Calina Lawrence, Suquamish, takes a portion of tiny oyster larvae to set on mature oyster shells in the Suquamish Tribe's saltwater shellfish tanks.

Below: Students from Presidents Elementary School plant native trees at the Stillaguamish Tribe's Pilchuck Park.



K. Neumeyer

High school students plant oysters

Port Gamble S'Klallam and Suquamish tribal students recently learned how easy it is to grow their own shellfish, just like a garden.

Viviane Barry, a Suquamish tribal shellfish biologist, showed students from the Suquamish-based tribal high school how Pacific oysters are seeded.

"This type of hands-on stuff is relevant to what is going on in their tribes," said teacher Bob Kirk. "These students often have clam and oyster bakes with their families and during ceremonial events, but it's important to understand where the resources come from."

With 500,000 tiny oyster larvae donated by Taylor Shellfish, Barry placed a few hundred under a microscope for the high school students to examine. Students saw that the wriggling oyster larvae had a foot, which the oyster uses to attach itself to hard objects as it metamorphosizes into the final oyster stage.

After examining the larvae, the students took turns dispersing them into a large seawater tank filled with empty oyster shells. The larvae attached to the shells and stayed in the tank for about a week, while the students fed them a concentrated algae solution.

"I've never seen this kind of set-up before for oysters," said Ricky Sullivan, 17. "I've planted seeds for clams but never for oysters."

Toward the end of June, students helped spread the oysters on the beach by the old tribal center where they will be able to watch the progress.

"It's beneficial to teach students that they can easily grow food that the tribe depends on, while also learning about shellfish and the importance of water quality," Barry said. "If they can grow oysters themselves, it's like growing a garden." – *T. Royal*

Students bring Pilchuck Park to life

Elementary school students were invited to help landscape the Stillaguamish Tribe's new Pilchuck Park this spring, as part of their studies in salmon stewardship.

Franchesca Perez, the tribe's education and outreach biologist, visited 16 fifth-grade classes throughout the academic year to teach them about salmon, habitat, water quality and other environmental lessons.

"Today is your chance to be stewards of the land," Perez told a group from Presidents Elementary School in Arlington. The students planted native species such as black twinberry, western red cedar and alder, and learned to identify the different plants.

Three years ago, the tribe purchased the land near the creek's confluence with the Stillaguamish River.

"The land near Pilchuck Creek is very sacred to the Stillaguamish Tribe," said Shawn Yanity, the tribe's fisheries manager. "It was one of the oldest native villages in the state of Washington."

The tribe has restored the habitat by building logjams and creating ponds.

Earlier in the day, natural resources staff seined one of the new ponds and discovered a variety of creatures that had moved in, including a few yearling coho salmon, red-legged frogs, salamanders and a variety of bird life.

Once Pilchuck Park is complete, it will be open to the public, featuring trails, an observation deck over the pond and interpretive signs.

"The tribe is really happy to bring the public onto tribal land in this capacity," Yanity said. "Working together and engaging the community in a positive way helps protect the natural resources that belong to everyone."

– *K. Neumeyer*

Tribal Voice

Makah Tribe: We Must Preserve Living Culture



Micah McCarty

The treaty tribes are finding it increasingly difficult to access culturally important natural resources that are part of what defines us as Indian people.

Recently, the Makah Tribe was grateful to receive a 600-year-old cedar tree from the Department of Natural Resources (DNR) through a partnership with the Potlatch Fund. It took nearly five years to process our request.

Part of the reason it took so long is that while the tree was situated on lands within the Makah traditional gathering areas outside the reservation, DNR is bound by legislation to receive payment for the tree. To allow the project to move forward, the Potlatch Fund purchased the tree and gave it to the Makah Tribe.

Historic poor management of Makah tribal forestlands by the Bureau of Indian Affairs meant trees were not replanted. This led to a forest favoring hemlock rather than diverse native stands that include old-growth cedar. Even though we are now managing our own forestlands and replanting thousands of trees, there are few older trees available for our cultural needs.

As a council, we believe that to keep our living culture strong and vital in perpetuity, we must continue to work both on our own lands and with other governments within our traditional harvest areas to sustainably manage culturally significant natural resources. We also need to restore those resources that have been damaged or diminished. We are a place-based people. Our traditions and language come from the natural world around us. This is our home and has been since time began.

It was a deeply spiritual experience to hear the ancient songs – not sung for a long time – during the blessing of the cedar tree before it was harvested. The upper boughs of this giant will be woven into baskets that have not been made in years because branches from old-growth cedar are rarely available to tribal weavers.

Moments like this allow us to come together and bring our shared knowledge that has been passed down to each of us. We learn more about who we are and where we come from and we become better teachers for our children.

Micah McCarty is a Makah tribal councilman.



Patricia Valentine, courtesy of the Trust for Public Land

Deception Pass Bridge is seen from the shore of Kiket Island, recently acquired by the state Parks and Recreation Commission and Swinomish Tribe.

Partnership Creates State Park on Swinomish Land

After more than 50 years, Kiket Island has been returned to the Swinomish Tribe, thanks to a partnership between the tribe and the state Parks and Recreation Commission.

The small island in Similk Bay is within the boundaries of the Swinomish reservation. It was allotted to a tribal member in the late 1800s and passed out of tribal ownership in the 1950s. A nuclear power plant was planned for the site in the late 1960s, but concerns about the environment and fisheries won out and the plans were scrapped.

In June, the Swinomish Tribe and state Parks and Recreation Commission bought Kiket Island with state and federal grants, and private donations. The state and tribe have a joint interest in preserving the island's old-growth forest and intact shoreline inhabited by eelgrass and a variety of shellfish, fish and crustaceans.

The tidelands around the island will continue to be owned by the United States in trust for the tribe. Only tribal members will be able to harvest shellfish there.

"Generations of Swinomish tribal members haven't been able to harvest shellfish from Kiket Island," said Lorraine Loomis, fisheries manager for the tribe. "This partnership will allow us to practice our treaty rights and also share a part of our reservation as a state park."

The newly acquired 84 acres on Kiket Island, which includes the tiny peninsula Flagstaff Island, and 9 acres on Fidalgo Island will be jointly managed by the tribe and state and will be part of Deception Pass State Park. – *K. Neumeyer*



K. Neumeyer

Robert Skoog, Tulalip natural resources specialist, prepares a gel for an electrophoresis genetic test.

Tulalip Fish Lab Adds Genetic Tests

The Tulalip Tribes Natural Resources Department is taking its fisheries stock assessment lab to the next level.

The tribe has acquired genetic testing equipment so that lab technicians can determine onsite whether a chum salmon originated from the tribal hatchery.

Tulalip has genetically marked its chum salmon since the 1990s, but didn't have the ability to test for the markers. Samples had to be sent to Washington Department of Fish and Wildlife (WDFW) or National Oceanic and Atmospheric Administration (NOAA) labs for protein electrophoresis. However, with advances in DNA technology, those agencies have started using different genetic tests that do not test for the unique protein markers in Tulalip chum.

WDFW and NOAA donated equipment that was no longer in use, and now the Tulalip lab is one of the only facilities on the West Coast using electrophoresis for genetic stock detection.

"NOAA and WDFW really helped us get this going," said Mike Crewson, salmon enhancement scientist for the tribe.

"One of the first things we will do is take duplicate tissues from the same set of 144 fish and analyze them to see if DNA can be used to test for Tulalip chum," he added. "Since everyone else has converted from electrophoresis to DNA, without a new stock assessment tool, we could lose the ability to detect our chum whenever DNA is being analyzed."

The result could be the development of a new stock assessment tool to detect Tulalip chum with DNA, but the tribe will continue to use electrophoresis for routine testing because it is less expensive than DNA testing.

– K. Neumeyer

Deadly Toxin Found in Shell

Recent lethal levels of a biotoxin in California mussels from the Olympic Coast highlighted an emerging trend. Shellfish harvest closures due to the risk of paralytic shellfish poisoning (PSP), historically low on the coast, may become more frequent because of a change in microscopic plants in the ocean.

As a participant in the Olympic Region Harmful Algal Bloom (ORHAB) partnership, Quinault Indian Nation (QIN) collects and analyzes seawater samples. For many years, the main concern for QIN has been levels of the plankton species *pseudo-nitzschia*. It causes the production of the biotoxin domoic acid in shellfish such as razor clams and Dungeness crab.

"*Pseudo-nitzschia* is a diatom. Diatoms were the dominant type of plankton in the waters off QIN's coast up until about two years ago," said Joe Schumacker, QIN marine scientist. The balance has shifted to different species of plankton, such as the PSP-causing *Alexandrium catenella*.

"It's a dinoflagellate that used to be relatively rare in our coastal water, but for the first time in modern memory, we had to close razor clam harvest last year because of a large bloom of *Alexandrium* and resultin
els," Schumacker said.

"We increase sampling of muss
zor clams when we see Californi
with high levels of the biotoxin,"
Borchert, of the Office of Shellfish
Protection in the Washington Sta
ment of Health.

Eighty micrograms of toxin per
of tissue is the limit for human he
sels sampled June 1 by the Quil
near Second Beach showed levels
3,601 micrograms per 100 grams
Samples collected June 7 by the Ma
registered nearly 2,000 microgra
beach sites. Prior to this year, the
corded level on the coast was 832 i

"At those higher levels, a per
die after just a couple of bites," Sc
said.

Hoh, Makah, Quileute and Quina
Nation all harvest mussels as part o
ditional diet.

"For Quinault, it will be an ongo
issue as well as a cultural issue w
fects the harvest of these importan
Schumacker added. *– D. Preston*

Quinault Harmful Algal Bloo



D. Preston

Quinault Indian Nation tribal member Jonnette Bastian-James, harmful algal bloom specialist, prepares a seawater sample for viewing under a microscope.

Jonnette Bastian-James wasn't
any recognition for her work as a h
gal bloom specialist for the past
walking day and night into the
ocean surf to gather water sample
protect human health.

The Quinault Indian Nation (Q
member was still in a bit of a daze a
ing that she would receive a Nation
and Atmospheric Administration
Excellence in Promoting Diversity
and Ocean Resource Manageme
The honor, conferred at a June ce
Washington, D.C., is one of only s
uted by NOAA each year to hon
and organizations for outstanding
tions in helping the country mainta
coastal and ocean resources.

"I'm just doing what it takes to
people and the non-tribal commu
becoming ill from toxic shellfish,
James said. While QIN has had a
sampling program for many years
James took the Olympic Region
Algal Bloom (ORHAB) partnersh
that certified her to identify and qu
croscopic plant life that help indica

lfish

g PSP lev-

els and ra-
ia mussels
said Jerry
and Water
te Depart-

100 grams
alth. Mus-
eute Tribe
as high as
of tissue.
akah Tribe
ms at two
highest re-
n 1997.
rson could
chumacker

ault Indian
f their tra-

oing health
when it af-
t species,"



D. Preston

Paralytic Shellfish Poisoning

- **Early symptoms of PSP are a tingling of the lips and tongue.**
- **Tingling can appear within minutes of eating poisonous shellfish or may take an hour or two to develop.**
- **Depending on the amount of toxin a person has consumed, symptoms may progress to tingling of fingers and toes and then loss of control of arms and legs.**
- **Difficulty breathing follows, and death can occur in minutes.**
- **Mussels, cockles, clams, scallops, oysters, crabs and lobsters all have been known to carry PSP.**

om Specialist Honored

expecting
harmful al-
five years,
pounding
s that help

QIN) tribal
after learn-
al Oceanic
(NOAA)
in Coastal
nt Award.
remony in
six distrib-
nor people
contribu-
ain healthy

protect my
unity from
," Bastian-
a seawater
s, Bastian-
Harmful
ip training
uantify mi-
te whether

a harmful algal bloom is likely. She also gathers samples of clams for toxin analysis.

"Jonnette takes a lot of pride in her work and we're really happy for her," said Joe Schumacker, marine scientist for QIN. "She goes out in horrible weather and makes sure she gets the samples."

By analyzing her water samples, Bastian-James can give the alert when certain kinds of microscopic plants are on the rise, which can mean razor clams are developing more marine toxin in their tissue than is safe for humans to eat.

QIN is one of several coastal tribes that participate in ORHAB, a partnership formed in June 1999 by local residents and coastal communities in response to shellfish harvest closures due to outbreaks of marine biotoxins such as paralytic shellfish poison (PSP). The ongoing research efforts have been funded by NOAA and participating partners since the summer of 2000.

"I'm honored to do this work and I appreciate that the QIN council believes in this program and supports it," Bastian-James said.

– D. Preston


D. Preston

Quinault Indian Nation fisherman Chester Frank uses streamer lines to keep birds off his longline bait.

New Gear Deters Birds

Quinault Indian Nation (QIN) tribal fishermen are among the first in Washington to use new gear that keeps birds away from baited longline hooks, protecting the birds and improving the fishermen's bottom line.

A line strung with evenly spaced, brightly colored tubing is deployed above the baited longline gear as it enters the water. The tubing prevents sea birds from taking the bait or becoming entangled in the longline gear.

The gear is not mandatory on the West Coast except in Alaska where the short-tailed albatross is listed as an endangered species.

"Bottom line, the gear works and keeps more bait on the hooks, and that means more fish coming into the boat," said QIN fisherman Chester Frank.

Washington Sea Grant provided the gear to fishermen for free.

"We had a demonstration of how the gear worked last year," said Scott Mazzone, marine fish and shellfish biologist for QIN.

"A fisherman who attended started using the gear and told everyone how well it worked," he added. "Now, most Quinault fishermen are using it."

Frank said there is a short learning curve on how best to deploy the line, but it's a simple method to keep birds off his bait.

"It was a little bit of a hassle at first, but now I wouldn't leave the dock without it," said Frank, who has been fishing for 15 years.

The streamers may become mandatory in the future because the black-footed albatross, a bird encountered by California, Oregon and Washington fishermen, is being considered for listing under the federal Endangered Species Act.

"The effectiveness of the gear has been shown to last," said Troy Guy, marine fisheries research associate for Sea Grant. "The birds don't figure out a way around it. It's great to hear the gear is being used successfully."

– D. Preston

Bringing Back the Chinook

For more than a decade, the Puyallup Tribe of Indians has been trying to jump-start natural salmon production in the upper Puyallup watershed.

The tribe is raising 200,000 juvenile chinook this year in an earthen rearing pond on Rushingwater Creek, a tributary to the Puyallup River as it flows through the foothills of Mount Rainier. The tribe will place young chinook in the pond until they are acclimated to the creek, and then release them.



E. O'Connell (2)

Dan Sandstrom, fisheries technician for the Puyallup Tribe, cleans the screen at a chinook acclimation pond in the upper Puyallup River watershed.

"After three or so years in the ocean, a portion of these fish will come back to the upper watershed and spawn," said Blake Smith, the tribe's enhancement biologist.

For almost 100 years, a low-lying dam prevented chinook and other salmon from accessing the last 30 miles of habitat in the watershed. But when a fish ladder was built around the dam, the tribe started taking steps to boost natural salmon production in the upper watershed.

In addition to releasing juvenile fish, the tribe takes surplus adult chinook and coho salmon from a state hatchery in the watershed and releases them in upper river tributaries.

"The majority of the fish find each other and spawn. Every little bit we can do contributes to a robust run up here," Smith said. "The state's salmon hatchery in this part of the watershed was damaged in a flood, so they're producing fewer chinook than they used to."

Compared to the rest of the watershed, which has been significantly harmed by development, the upper watershed's salmon spawning and rearing habitat is relatively undisturbed.



Rebecca Murdoc, fisheries technician, fills an automatic fish feeder in an upper watershed pond.

"The great habitat in the upper watershed means it shouldn't take long for salmon to re-establish themselves," Smith said. "One of the key elements to strong salmon runs is healthy habitat." – *E. O'Connell*

Radio Tags Help Track Steelhead Population Levels

The Puyallup Tribe of Indians is tracking steelhead fitted with radio tags to learn more about a recovering stock.

"We want to keep a close eye on where these fish migrate and spawn," said Russ Ladley, the tribe's resource protection manager. The small population of steelhead in the Puyallup watershed, listed as "threatened" under the federal Endangered Species Act, is difficult to track because the fish don't migrate in large numbers like salmon. Steelhead also don't always die after spawning like salmon, but can make multiple annual migrations between the ocean and river.

So far this year, about 300 steelhead from a genetic broodstock program have returned, almost twice as many as the amount of wild fish. For four years, the Muckleshoot and Puyallup tribes and the state Department of Fish and Wildlife have spawned about 20 wild steelhead taken each year from an adult trap on the White River. Their offspring are raised in tribal hatcheries and eventually released into the White River.

Half of the tagged steelhead will be the offspring of the steelhead broodstock, the other half will be wild steelhead.

"Seeing a high return of broodstock fish is encouraging because the program goal is to put more adults on the spawning grounds," said Blake Smith, the tribe's enhancement biologist. "Even though we're seeing encouraging returns from our broodstock fish, the overall population is still perilously small."



E. O'Connell

Blake Smith, enhancement biologist for the Puyallup Tribe of Indians, tracks a migrating adult steelhead near the White River.

For the next few months, tribal staff will attach small radio tags to about 40 adult steelhead caught at the Buckley Diversion Dam fish trap on the White River, a tributary to the Puyallup. Tribal staff will use radio telemetry to track the fish.

"With the data we collect during our surveys, we can find what parts of the river they use to rest during their migration and where important spawning areas are," Ladley said. – *E. O'Connell*

Nisqually Tribe

Salmon Watchers on Lookout for Steelhead

The Nisqually Indian Tribe is using a network of volunteers and expanded surveys to gather more information about a greatly diminished wild steelhead run in the Nisqually River.

Several participants in the tribe's Salmon Watchers program are staking out small creeks throughout the watershed to keep an eye out for steelhead. Salmon watchers typically work throughout the fall and winter to watch for more plentiful chinook, fall coho and chum salmon.

"This year, we're asking them to stay out longer to watch for steelhead," said David Troutt, the tribe's natural resources director.

In addition to the volunteers, the tribe is expanding its own surveys beyond the mainstem of the Nisqually River to other small creeks and side channels.

"We've been surveying the mainstem by boat and helicopter for years, now we're trying to get the true geographic scope of these fish," Troutt said. "We've doubled the amount of walking surveys we're doing, so we're going to get a better idea of the number of steelhead in the watershed."

The Nisqually Tribe's Salmon Watchers program has grown in the last five years.

"This is a very direct way I can help restore these fish," said Deena Johnson, a volunteer who watches Muck Creek, a tributary to the Nisqually, several times a week. "This is such a great way to get involved in salmon recovery."

Salmon watchers are trained to identify salmon at sessions offered by the Nisqually Tribe, which include a trip to the tribe's two hatcheries. Volunteers are expected to watch their assigned stream section for at least 15 minutes each time, even if they don't spot any fish. A count of zero fish can still provide important information about salmon habitat health and accessibility for salmon.

"Salmon watchers give us a heads up when something, like a malfunctioning culvert, needs attention," Troutt said. "We take the information collected by the watchers seriously." – *E. O'Connell*

Deena Johnson, a volunteer with the Nisqually Tribe's Stream Watchers program, watches Muck Creek for adult steelhead.



E. O'Connell



E. O'Connell

Emiliano Perez, natural resources technician for the Nisqually Tribe, handles a fyke net in a slough of the Nisqually River estuary.

Ear Bones Reveal Salmon's Life History

Tiny structures in salmon ears are telling the Nisqually Indian Tribe how salmon are benefiting from restoration of the Nisqually River estuary.

Salmon otoliths are bone-like structures in the inner ear that record important life events of salmon almost the same way rings tell the life story of a tree. For example, when a salmon moves into salt water and starts to grow faster, the otolith reflects that growth.

"If you take a look at the otolith, you can tell a lot about a salmon," said David Troutt, the tribe's natural resources director. "You can see when they ate their first bug, when they entered the estuary, and when they left for the open ocean."

The tribe has been collecting the otoliths for five years since it began removing dikes around former pastures near the mouth of the Nisqually River. Together with the 140 acres of estuary restored by the tribe, the Nisqually National Wildlife Refuge opened more than 700 more acres of estuary last fall.

"We're seeing pretty clearly that the estuary is the key to chinook populations in the Nisqually watershed," Troutt said.

"We typically find two groups of juvenile chinook leaving the watershed," Troutt said. The earlier, smaller group of chinook doesn't stay in the estuary very long. Instead, they leave quickly and probably rear in small pocket estuaries at the mouths of small creeks feeding into Puget Sound. A larger group of fish spends at least a few weeks in the estuary, feeding and growing before heading out to sea.

"When the adult salmon returned a few years later, we found exclusively the group that reared in the estuary," Troutt said.

"The fish that stayed and fed in the estuary survived while those with other life history strategies did not," he said. "This speaks to the importance of the big river estuaries but also the need to restore pocket estuaries and other nearshore habitat if we are to successfully recover wild chinook in Puget Sound." – *E. O'Connell*

Tiny Pink Salmon Get Clipped

The Jamestown S'Klallam Tribe and Washington Department of Fish and Wildlife are working together to boost pink salmon populations in the Dungeness River watershed near Sequim. The supplementation program is now in its second year.



T. Royal (2)

Natural resources volunteer Denise LaCross clips the adipose fin of a pink salmon.

"The late run of Dungeness pink salmon limits its use of the river to the very lower reaches and is in need of a boost," said Scott Chitwood, the tribe's natural resources director. "This area has poor habitat and the salmon that spawn in the lower river don't do well there."

Much of the problem is caused by dikes that constrain the river's tendency to move around within its floodplain. Dikes increase the velocity of the river, causing the gravel to scour, which destroys salmon eggs located in shallow nests.

Pink salmon from the lower Dungeness River were collected and spawned last fall at the state's Hurd Creek Hatchery. This spring, 120,000 of those progeny were reared and released into the lower river. These "supplemental" fish were identified by having their adipose fins clipped before being released. When the fish return as adults in two years, the co-managers will assess the relative proportions of naturally produced and supplemented late-timed pink salmon spawning in the lower Dungeness River.



A pink fry has its adipose fin removed.

"Our goal is to create a better balance between the highly sustainable early run of pink salmon that spawn throughout the watershed and this less-productive late run that spawns in the lower river only," Chitwood said. – *T. Royal*

Revegetation Important in Elwha Dam Removal

While the Lower Elwha Klallam Tribe has been working diligently to protect salmon and their habitat in the Elwha River watershed, there's another part of prepping the area for the 2011 removal of the river's two fish-blocking dams that is just as important: controlling invasive plants.

"These plants quickly spread, preventing native plants from thriving," said Mike McHenry, the tribe's habitat manager. "It's bad for the existing river habitat and if it's not taken care of, there could be bigger problems after dam removal."

For the past five years, the tribe's revegetation crew has been working throughout the river valley, identifying and removing invasive plants, such as Scotch broom, knotweed, canary grass and sweet peas.

"This spring alone we've treated 10 acres of Scotch broom with herbicide," said Floyd Cooke, the crew's field supervisor. "But that's just barely scratching the surface."

The tribe also has planted more than 20,000 native conifers and deciduous trees, including Douglas fir, western red cedar, grand fir, red alder, black cottonwood, big leaf maple and Sitka willow.

In addition to the valley, the tribe's revegetation efforts have focused around manmade lakes Aldwell and Mills. The biggest concern is what the reservoirs are going to leave behind after they are drained following dam removal.

"Everything that drains into those reservoirs right now might carry invasive seeds," McHenry said. "Taking care of the plants surrounding the dams now will help prevent their further spread."

McHenry also is working with the Olympic National Park on a revegetation plan for the reservoirs after they are drained.

– *T. Royal*



T. Royal

Lower Elwha revegetation crew member Wilson Wells cuts back a grassy area near the Elwha River.

Sea Cucumber Harvest Robust



K. Neumeyer (2)

Lummi fisherman Cliff Cultee cleans sea cucumbers. The tribe had a record sea cucumber dive fishery this year.

It's been a good season for tribal dive fishermen.

This year, tribes reached the harvest goal of more than 300,000 pounds of sea cucumbers in the San Juan Islands for the first time since a 1995 court ruling that upheld their treaty shellfish harvest rights.

For the Lummi Nation, the sea cucumber harvest provides some relief from the impact of having salmon fisheries closed because of declining runs.

The Lummi Nation's *schelangen*, or "way of life," has always centered around the natural resources of the sea. The harvest of fish, shellfish and other ocean-dwelling creatures not only is an important part of tribal members' income, but also their culture.

"Crab, prawn and salmon seasons are short, so dive fisheries are a more stable source of income for Lummi tribal members," said Cliff Cultee, a fisherman, tribal councilman and member of the Lummi Fisheries Commission.

It has taken some time for Lummi to develop the skills and obtain the equipment to participate fully in the dive fisheries.

Sea cucumbers harvested by tribal members are predominantly exported to Asia, where they are a delicacy. Known as "namako" in Japan, sea cucumbers are related to starfish and sea urchins, and occupy a niche in the Japanese culture.



A sea cucumber has its viscera removed before it is sold to a seafood buyer.

This year, the tribes thought they might have to close the fishery early because of strong markets and an increased number of divers. The harvest limit had been set artificially low in recent agreements as a precaution, in the absence of specific information on sustainable harvest levels.

"We do need to safeguard the population, but there's not a lot of knowledge about how sea cucumbers age or repopulate," said Elden Hillaire, chairman of the Lummi Fisheries Commission. "We've been giving back to the resource by not harvesting our entire quota all these years."

The Lummi Nation has more than 500 fishermen, and 18 of those are registered dive fishermen.

"Our whole fleet is diversified into a lot of different fisheries," Hillaire said. "We've seen crab fishermen try out dive fisheries and stick with it." – *K. Neumeyer*

Commission Re-elects Officers

At the annual election in May, NWIFC Chairman Billy Frank Jr., left, was re-elected to continue in his long-time role as chairman of the Board of Commissioners. Frank, a Nisqually tribal member, was elected to another three-year term.

The board also re-elected Swinomish fisheries manager Lorraine Loomis as vice chair and Quinault Indian Nation policy representative Ed Johnstone as treasurer. Both officers hold one-year terms.







Amphibian Habitat Monitored

In the springtime, frogs and salamanders busily lay eggs in a 5-acre wetland behind tribal members' homes on the Sauk-Suiattle reservation near Darrington.

Tribal natural resources staffers have been monitoring the hundreds of egg clusters, along with the live amphibians they find in the wetland, between February and May for the past four years.

Because amphibians are thin-skinned and sensitive to disturbances in their habitat, they are good indicators of wetland health. The tribe's survey could reveal a pattern of mutations or changes to amphibian populations that indicate increased pollution or effects of climate change.



K. Neumeyer (2)

A Pacific chorus frog is counted during an amphibian survey.

The most common species in the wetland are Pacific tree frogs, red-legged frogs and northwestern salamanders. Surveyors also have seen eggs of long-toed salamanders and a few western toads.

Each week, the survey team marks the locations of new egg masses and checks the status of the older ones, noting larvae that have grown tails and those that have floated to the surface or hatched.

Last year, the team found and flagged 1,500 egg clusters.

"It was a two-day event to monitor them last year," said Kevin Lenon, natural resources technician.

"We bit off more frogs than we could chew," joked Scott Morris, watershed manager for the tribe.

About a month into the survey this year, Morris and Lenon, along with natural resources technicians Eugene Edwards and Michael Wolten, had flagged about 350 egg masses.

"It can be kind of peaceful out here," Lenon said. "Last week, the Pacifics in that pond were making all kinds of noise."

A quick check of the pond confirmed what he expected – many new egg masses waiting to be counted.



Sauk-Suiattle natural resources technician Kevin Lenon examines a northwestern salamander egg mass in a wetland on the tribe's reservation.

The Sauk-Suiattle reservation, at the foothills of the Cascade Mountains, is far from the large cities where water quality has been degraded. The amphibian survey is one way to make sure the wetland remains uncontaminated.

"If anything, this survey will show that we have a healthy wetland," Morris said.

– K. Neumeyer

Culvert Removal Restores Fish Passage to Creek

The Skagit River System Cooperative (SRSC) removed an 80-foot-long, 8-foot-tall and 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 downstream to salmon habitat.

"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 SRSC is 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, including chinook, pink and coho salmon, native char and steelhead. Spring chinook populations have especially low numbers and are a high priority for recovery efforts. The glacial-fed Suiattle River has very high sediment loads naturally, so its population of spring chinook depends 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 is to improve habitat for spring chinook and other species by reducing landslides and other sediment impacts from poorly maintained forest roads. *– K. Neumeyer*



Courtesy of Nora Kammer, SRSC

SRSC crew members remove a large, yet inadequate, culvert from Tenas Creek.

Massive Restoration Effort Planned

Habitat to be restored, stream flow protected on Goldsborough Creek

The Squaxin Island Tribe will use a nearly $1 million federal grant to restore Goldsborough Creek, one of the largest and most important salmon streams in deep South Sound.

"This grant gives us the ability to address the health of Goldsborough Creek on several fronts," said John Konovsky, the tribe's environmental program manager.

The grant will fund a project with three goals: restoring and protecting habitat in the creek, protecting stream flows, and restoring habitat in the creek's estuary while preserving a working port.

"We want to balance the health of the watershed and bring salmon back to strong levels, while also sustaining the strength of the local economy," said Andy Whitener, natural resources director for the tribe.

Goldsborough Creek was the site of a 34-foot-high dam that was removed almost 10 years ago, opening 25 miles of salmon habitat. Since then, the tribe has tracked an increase in juvenile coho production despite an overall decline in wild coho populations in the region.

"There is great potential in Goldsborough to protect and restore habitat, and increase coho populations even more," Konovsky said. "Because they spend more than a year in fresh water before out-migrating, coho are especially vulnerable to changes in freshwater habitat."

The project will focus on restoring and protecting habitat in the creek around the former dam site. The first step will be for Capitol Land Trust to complete the purchase of a stretch of the creek that already contains good salmon habitat. Habitat work also will include constructing logjams and reconnecting the creek to several wetlands, which will provide additional habitat for juvenile and adult fish, and help control fine sediment in the creek.. – *E. O'Connell*



E. O'Connell

Joe Peters and Sarah Haque, biologists with the Squaxin Island Tribe, count and measure migrating juvenile salmon near the mouth of Goldsborough Creek.

Old Farm to be Restored as Forest for Fish

Salmon will benefit from newly created soft ground along Little Skookum Creek.

The Squaxin Island Tribe used heavy equipment to "rip" former farmland along the creek to promote natural recruitment of trees and shrubs.

"After being used first as a farm and then a ranch, the soil around the creek is extremely compact," said Sarah Haque, habitat biologist for the Squaxin Island Tribe.

The tribe has been restoring reaches of the creek since 2005, adding wood structures to the creek and replanting a historic streamside forest.

Ripping will create healthier soil because it aerates, allows water to seep in quicker and lets microorganisms thrive.

"Plants will have a much easier time once the soil is restored," Haque said. After the ripping process, the tribe also will plant a few thousand shrubs and trees to jump-start the streamside forest.

The restored forest will complement more than a dozen logjams that the tribe already has built in Little Skookum Creek.

"Logjams are important for salmon because they give them a place to feed and rest," Haque said. "Normally, logjams are naturally occurring, but we built new ones because many of the trees had been cut down along the creek and existing logjams were removed." – *E. O'Connell*



E. O'Connell

The Squaxin Island Tribe used an innovative "ripping" technique to ensure a recent habitat project was successful.

Walking On



Ed Claplanhoo

Edward Eugene Claplanhoo, a revered Makah elder, veteran and former tribal chairman, died March 14.

Claplanhoo served three terms as the Makah tribal chairman in the 1970s when the archeological dig of Ozette started. He helped establish the Makah Cultural and Research Center.

Since the 1960s, Claplanhoo was the emcee of the annual Makah Days festival. He was a graduate of Washington State University and named an honored graduate. He worked to recognize and help military veterans. He served in the U.S. Army after college and was stationed at Fort Worden in Port Townsend and Fort Lewis near Tacoma. He donated land for the Fort Nunez Gaona-Diah Veterans Park.

In addition to his wife, Claplanhoo is survived by daughter Karen (Jack) Werkau of Lake Tapps; son Vern (Marla) Tolliver of Neah Bay; five grandchildren and eight great-grandchildren.

He was preceded in death by his parents, grandson Ronnie Scroggins and an infant child.



Harry B. Cooper Jr.

Nooksack tribal leader and former NWIFC commissioner Harry B. Cooper Jr. passed away March 26. Cooper was born May 7, 1953 in Forks.

Cooper was a proud Nooksack tribal member who dedicated many years of work to the tribe as Nooksack tribal chairman, police officer, tribal fisheries director and Nooksack Tribal Works laborer.

He enjoyed spending time with his friends and family, nieces and nephews, and his beloved dog Princess. He also enjoyed dancing, making people smile and laugh, watching NASCAR and fishing.

He is survived by his mother LaVerne Cooper; brothers Kim and Bryson Cooper; sons John and Alex Cooper; stepdaughter Brandy Cline; and many nieces and nephews.

He was preceded in death by his father Harry (Spud) Cooper Sr.; and sisters Cathy Cooper, Lorraine (Cooper) Babcock and Tina (Cooper) Wolfe.



Vernon Lane

Former Lummi Nation chairman Vernon A. Lane Sr. passed away April 21.

He was born June 13, 1930 and grew up with eight brothers and sisters on the Lummi reservation's Portage Island. He married Nancy A. (Solomon) Lane and raised 12 children.

Lane served 35 years on the Lummi Indian Business Council, with 12 years as tribal chairman. He influenced the landmark Boldt decision of 1974, and helped create the Lummi aquaculture project.

He also was a commercial fisherman and a journeyman carpenter.

He is survived by his wife, Nancy; daughters Laverne, Marcy, Vernell and Doreen Lane, and Christine Julius; sons Vernon Jr., Galen, William, Patrick, Freddie and Michael Lane; and numerous grandchildren, great-grandchildren, nieces and nephews.

Lane was preceded in death by his parents, Arthur Sr. and Christine (Placid) Lane; brothers Virgil and Arthur Jr.; sisters Violet Hillaire, Viola Robideau and Gladys Cultee; and daughter Joanne M. Lane.