Northwest Indian Fisheries Commission

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Being Frank

Don't Be Fooled By Larger Salmon Returns

By Billy Frank Jr.
NWIFC Chairman

It sounds great. Record returns of chinook to the Columbia River. Good returns of coho to coastal and Puget Sound waters.Salmon crisis? What salmon crisis?

In all of the recent hoopla about improved returns of salmon to Washington waters this summer and fall, it's easy to forget that salmon are still in trouble. While salmon populations have been declining for decades, from time to time a number of factors come into play that result in temporary peaks in the overall downward trend.

Ocean conditions were unfavorable to salmon survival for most of the 1990s. El Nino and La Nina conspired to reduce food supplies for salmon. Several years of severe flooding scoured salmon eggs from their nests, in some cases nearly wiping out entire age classes of salmon from some rivers.

Several years ago, ocean and freshwater conditions improved. The influence of El Nino and La Nina subsided, paving the way for some of the higher returns of salmon expected this summer and fall.

But the recent upswing in returns means little, really. In some ways it is even harmful, because it encourages people to think that we are now out of the woods. They think that if more fish are coming back, then our efforts to recover salmon must be working. They forget that the bulk of these higher returns is composed of hatchery salmon. Most wild salmon stocks – especially Puget Sound chinook – continue to struggle to rebuild their populations.

While we have indeed made some progress on salmon recovery, we are a long way from reaching our goal.

So far, our main solution to wild salmon recovery has been to reduce harvest. Over the past 25 years, tribal and non-Indian fishermen have voluntarily reduced their salmon harvests by up to 90 percent. Still, salmon populations have continued to decline.

That's because loss and degradation of habitat are the primary cause for the decline of wild salmon stocks. Yes, past overharvesting of the resource – primarily by non-Indian commercial fisheries – had a severe impact on the resource. But if harvest restrictions alone were the key to salmon recovery, we would be much closer to our goal today. The reason we aren't reaching that goal is because we cannot

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On The Cover: Nano Perez, a Nisqually tribal member and fisheries technician, adjusts structures being used to create a semi-natural rearing environment for young chinook salmon being raised at the tribes' Clear Creek Hatchery. See story on page 4. *Photo: T. Meyer*

Northwest Indian Fisheries Commission News

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In 2000

Tribes Release 33 Million Salmon

Young chinook salmon await release from a tribal hatchery. *Photo: T. Meyer*

Treaty Indian tribes in western Washington released about 33 million healthy young salmon from tribal hatcheries in 2000, according to recently compiled statistics.

The figure represents a decrease of about 10 million fish from 1999. The reduction was largely the result of poor chum returns in 1999, which led to fewer eggs being available for hatcheries. Chum production at tribal facilities dropped from 16 million in 1999 to 7 million in 2000.

Of the 33 million salmon released in 2000 from tribal hatcheries, fall chinook totaled 12.5 million and coho topped 12.3 million. Chum production was 7.3 million. Releases also included about 1.7 million spring/summer chinook; 1 million steelhead; and nearly 300,000 sockeye salmon. Some of the fish were produced through cooperative enhancement efforts of the tribes, the Washington Department of Fish and Wildlife, state regional enhancement groups, U.S. Fish and Wildlife Service, and sport or community organizations.

The treaty Indian tribes are active participants in the Hatchery Reform Project now being implemented in the State of Washington. As wild salmon stocks have declined, tribal, state and federal governments have become dependent on hatcheries to provide meaningful levels of harvest. The combined tribal and state hatchery system in Washington is the largest in the world.

The listing of several Puget Sound and coastal wild salmon stocks under the Endangered Species Act has put a new spotlight on all activities that may harm wild salmon, including hatchery programs. In response, Congress adopted and funded the Hatchery Reform Project in 2000. The project is a systematic, science-driven effort to address how hatcheries will be used to achieve their goals while helping to recover and conserve naturally spawning salmon populations and support sustainable fisheries.

A diverse panel of independent scientists has been established to develop the scientific framework to guide hatchery reform programs. Hatchery Genetic Management Plans have been developed for all tribal facilities to guide how salmon stocks and hatcheries will be managed to protect wild salmon. New hatchery management software also has been developed to enable electronic transfer of key hatchery information directly to tribal, state and federal agencies. Tribes also are identifying and implementing changes to salmon rearing and release strategies to reduce impacts to wild salmon.

"There is a clear sense among fisheries managers that with an understanding of the history and roles of hatcheries – and a comprehensive strategic plan based on solid science – there is good cause for optimism about the benefits of hatchery reform," said Billy Frank Jr., chairman of the Northwest Indian Fisheries Commission.

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Being Frank

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restrict harvest adequately to make up for loss and degradation of salmon spawning and rearing habitat.

There is a point of diminishing returns that is quickly reached when it comes to salmon habitat. Putting more salmon back on the spawning grounds won't result in more fish if that habitat is of poor quality, or is inadequate for the number of salmon using it.

'We must have the courage to reduce salmon habitat loss...'

As long as we continue to rely primarily on harvest restrictions to achieve salmon recovery, we will never achieve our goal. We must have the courage to reduce salmon habitat loss and degradation in the same manner that we have restricted and eliminated harvest. If we don't, the salmon will not survive.

For 2001, tribal and state co-managers have adopted a conservative package of fisheries that will provide for rebuilding of depleted salmon stocks – especially Puget Sound chinook – while allowing sustainable harvest of other healthy stocks. Time, area and gear restrictions enable Indian and non-Indian fishermen to be highly selective in their harvest. Tribes, for example, fish mainly in terminal areas where stronger returns of hatchery salmon can be harvested with minimal impacts on weaker wild stocks.

Yes, more salmon are returning to western Washington waters this summer and fall, and that is good. But don't be lulled into thinking that our battle to restore wild salmon populations is nearing its end. We are just getting started.

Hatchery Experiment Aims To Increase Salmon Survival

Bill St. Jean, Clear Cree
used to create a semi-n
rearing pond at the Nisq

Two concrete rearing ponds at the Nisqually Tribe's Clear Creek Hatchery are a study in contrast.

Each pond contains 700,000 young fall chinook, or about one-fourth of the hatchery's annual production of chinook salmon. But that's where the similarities end.

One pond is like a swimming pool: Nothing but fish and water. The other contains a few extra features: Brown and green plastic lattice – the kind you might use to skirt your deck – and black plastic hoops float on the surface of the pond. Camouflage netting attached to the lattice and hoops dangle in the water like seaweed, creating a semi-natural environment for the young salmon.

Even though they are the same species, the fish inhabiting the two ponds are different, too.

"They spook easier and hide quicker, " said enhancement biologist Bill St. Jean of the juvenile fish being reared in the semi-natural pond. "All young salmon like shade. We are providing shade and structure like these fish would see in nature."

Fish being reared in the plain pond have nowhere to hide. They are attracted to shade, too, but most often that shade comes in the form of a shadow cast on the pond by the hatchery workers who feed and care for them. As a result, the fish associate a shadow on the water with food. That could result in a short life span if, after being released, the young fish are attracted to the shadow of a predator – such as a heron – standing alongside a stream.

Not only do the fish being reared in the semi-natural pond behave differently than their plain-pond counterparts, they look different, too.

Color analysis by the National Marine Fisheries Service has shown that semi-naturally reared fish are darker than those reared in traditional ponds, St. Jean said. The extra shade in the semi-natural rearing pond encourages the young salmon – which are able to change color to mimic the environment in which they are living – to turn more black in color, while those in the plain pond tend to be more brown, he said.

"Darker is better. It helps them hide from predators more easily," St. Jean said. "Most hatchery salmon mortality occurs early after release. We hope that the fish raised in the semi-natural ponds will be able to hide better and behave better so that they survive at a higher rate."

After being reared for about nine months, the fish are allowed to leave the rearing pond anytime the urge strikes. Usually, they will trickle out in groups of 100 to 300 or so at a time. "They know there is safety in numbers," St. Jean said.

Each of the fish has had the fleshy adipose fin on its back removed to distinguish it as a hatchery-produced salmon. Twenty-five percent of each group also carries a tiny coded-wire tag in its nose to note where it came from, when it was released, and whether it was reared in the semi-natural or plain pond at the Clear Creek facility. The fish will turn up as 3- to 5-year-old adults in tribal, sport and commercial fisheries throughout the region, which are regularly sampled to determine which stocks being harvested at a particular place and time. Some of the fish also will return to the hatchery as adults and will be used to produce the next generation of fall chinook at the hatchery.

Nano Perez, hatchery technician, nets young chinook from a traditional rearing pond at the Clear Creek Hatchery.

atchery manager removes camouflage netting
ral environment for young chinook salmon in a
y tribal facility. *Photos: T. Meyer*

St. Jean said the semi-natural rearing method is not new. The Yakama Indian Nation in eastern Washington has been experimenting with the approach for a number of years, and early results are encouraging. The Nisqually project, which is being conducted in cooperation with the Washington Department of Fish and Wildlife, is funded by a $19,000 federal grant as part of hatchery reform in Washington. The Hatchery Reform Project is a systematic, science-driven effort to determine how hatcheries will be used to achieve new purposes by helping to recover and conserve naturally spawning salmon populations and supporting sustainable fisheries.

"This is a practical and inexpensive approach to possibly increasing survival rates. I'm optimistic it will make a difference, " said Georgianna Kautz, Nisqually tribal fisheries manager. "If these fish survive at a higher rate, that means more fish for everyone."

– T. Meyer

Culvert Removal Opens Up Habitat For Salmon

A stretch of Fossil Creek roughly the size of 13 football fields will be opened to salmon and other fish on the Olympic Peninsula through a project being completed by the Quileute Tribe.

A contractor is putting the finishing touches on a bridge over Fossil Creek that replaces a fish-blocking culvert. The creek, located southeast of Forks, is part of the Tassle Creek stream system. The area above the new bridge is excellent salmon spawning habitat, while an adjacent wetland provides a good nursery for young fish to grow and stay protected during high flows in winter.

Vern Wilson, left, a private contractor, and Eugene Jackson, Quielute tribal fisheries technician, guide a bridge support into place on Fossil Creek on the Olympic Peninsula. *Photo: D. Preston*

"This is one of two projects that will eliminate the last man-made barriers to fish passage on the Tassle Creek system," said Adam Kowalski, Timber, Fish and Wildlife biologist for the Quileute Tribe. The bridge is portable and could be moved should the creek begin to cut around the bridge in the future.

"The bridges are a lot easier to get permits for and, certainly, fish like them better," said Vern Wilson, one of the two owners of Wilson Construction. Bloedel Timber Company donated large pieces of wood that the tribe placed in the creek to create pools for the young fish. The firm also donated fill dirt for bridge construction.

"This will benefit coho, steelhead and trout. They were using the stream all the way up to the culvert in the past, and now they will have access to the large wetland above the bridge as well as more of the stream area," said Kowalski. The project was funded by a $51,000 federal grant from the Bureau of Indian Affairs.

– D. Preston

To Protect Resource

Tribes, State Track Crab Shell-Shedding

Determining when Hood Canal Dungeness crabs shed their shells, or "molt", is the focus of a study that will give local crabbers a better shot at the delicious resource. Shellfish biologists with the Point No Point Treaty Council and the Washington Department of Fish and Wildlife have been conducting monthly surveys at several sites along the Hood Canal to determine if Hood Canal crab molt at a different time than crab in other parts of the region.

"Pulling up a crab when it is too soft is rough on it and can kill it," said Randy Hatch, senior shellfish biologist with the Point No Point Treaty Council. "The purpose of this study is to give us a better idea of when to close the fishery in order to reduce that kind of mortality."

Tamara Gage, Port Gamble S'Klallam shellfish biologist, tests crab shell hardness during a recent survey in the Hood Canal.
Photo: E. O'Connell

Biologists think that Hood Canal crab could be on a different molting cycle than crab in other parts of the Puget Sound. In the northern Puget Sound crab molt between April and June and in the central Sound molting occurs generally in the winter. But early results indicate Hood Canal crab could start molting as soon as March.

"An earlier molting season could mean an earlier opening for both treaty and non-treaty crabbers," said Hatch. If early results bear out, the crab season on the Hood Canal might open as early as June.

Once the molting period is determined, tribal and state managers will use that information to determine the annual 2-4 month closure to protect the molting crab. "By closing the fishery at the right time, during the molting season, we can lessen the number of crab that die during the molt, meaning more crab for everyone," said Hatch.

Each month state and tribal fisheries personnel catch crab at six different locations in the canal. While checking the status of the molt, biologists collect other data as well – including size and ovigery (whether they've produced eggs). By collecting data other than molt status, biologists also put together a picture of the overall health of the population. Each location includes more than ten pots, so as to ensure a comprehensive look at the populations.

Why Hood Canal and Puget Sound crab molt at different time isn't known, said Hatch. Factors could include a difference in water temperature or food, or that the populations of crab in either area might not mix and have then developed different life patterns.

"As co-managers of the resource, the tribes believe in providing the greatest protection possible to Dungeness crabs in Hood Canal," said Randy Harder, executive director of the Point No Point Treaty Council. "This joint project is a good example of how cooperative management is working to sustain the resource for harvest."

Hood Canal Dungeness Crab Fast Facts

- Scientific name: *Cancer magister*
- The range of the Dungeness crab extends from Alaska to the southern coast of California.
- Its habitat consists of eel-grass beds and muddy to sandy bottoms from the low inter-tidal zone to depths in excess of 600 feet.
- Adult Dungeness crab usually measure about 7 inches wide but have been found as big as 10 inches.
- The diet of the Dungeness crab includes clams, fish, crabs, starfish, worms, squid, and snails.
- In the first two years of their lives, crab molt several times. By the time they are 3 years old, or measure 4 inches, molting occurs only once each year. Dungeness crab grow about 1 inch annually.
- Male crab begin to breed at 3-4 years old.
- A female produces up to 2.5 million eggs yearly.

– E. O'Connell

Tribal Geoduck Enforcement Ensures Sustainable Resource

One by one, boats owned by Lower Elwha Klallam and Jamestown S'Klallam tribal members head out of John Wayne Marina on Sequim Bay. Before the geoduck fishery opens at 8 a.m., a half dozen are already floating off Protection Island, waiting for their chance to get a crack at the lucrative clam.

Accompanying the tribal vessels is a boat carrying tribal enforcement staff and divers from the Jamestown S'Klallam and Lower Elwha Klallam tribes and the Point No Point Treaty Council. The Treaty Council is the natural resources consortium of the Jamestown, Lower Elwha, Port Gamble S'Klallam, and Skokomish tribes.

These enforcement officers will check the sea bottom for evidence of resource wastage, weigh out each boat's catch and tag the harvest before they return to the docks.

"We have to account for the geoduck from the time they are taken by divers from the sea floor to the point where they are weighed out for sale to an authorized buyer," said Ann Seiter, natural resources director for the Jamestown S'Klallam Tribe. "The officers watch the geoduck fishery very closely so that the catch is accurately reported and incorporated into management of the resource."

A major focus of enforcement is the prevention of "high grading." High grading is a process in which lesser quality geoducks, once harvested, are discarded.

A recent incident, which amounted to less than 50 pounds of geoduck, was discovered on the tribal sections of a geoduck tract off Protection Island, east of Sequim. In accordance with a tribal/state geoduck agreement, this small amount of high graded clams will be deducted from this or next year's harvest quota.

"It is a credit to our enforcement efforts that we can bring this incident to light," said Randy Hatch, senior shellfish biologist for the Point No Point Treaty Council. "We found high grading because our divers are constantly in the water. Unfortunately, high grading still occurs, but with our enforcement measures, we can make sure we find it before it gets out of hand."

"Our fishermen don't know who we might be looking at, they don't know when we're looking and they don't mind," said Tom O'Rourke, geoduck enforcement officer for the Jamestown Tribe. "If someone is breaking the rules, our fishermen want it to stop as much as we do. This is a good group of fishermen."

Because geoducks can't burrow back into the mud after being extracted or having their habitat disturbed, they become easy prey for crabs and starfish, leading to 100 percent mortality. High grading also makes managing the resource harder, as inaccurate catch reports usually result.

Enforcement divers routinely observe tribal divers while they are harvesting as well as checking for other indications of high-grading. Seiter points out that because tribal regulations require that enforcement officers weigh out the catch, no geoduck can be offloaded before they are recorded. At weigh-outs, the enforcement staff looks for higher than usual percentages of good quality geoducks in a diver's daily harvest as well as performing surprise hold inspections to determine that no geoduck are hidden for sale to unauthorized fish dealers.

"They can't hide it from us, because we know the tricks of the trade," said O'Rourke. "I feel very confident about the effectiveness of this compliance and monitoring program." – *E. O'Connell*

Joe Turrey, Lower Elwha Klallam fisheries enforcement officer, examines the geoduck harvest on board a tribal vessel. *Photo: E. O'Connell*

Blackcod Farming Grows Opportunity F

Gone are the days when most tribal fishermen could make a living from fishing for salmon alone. Dwindling stocks of salmon and other important fish species and low prices are forcing tribes to look into new ways of doing business.

For the Makah Tribe, one of those ways is learning to farm blackcod, an important bottom-dwelling fish that commands better prices for fishermen because of demand in Japan and increasing interest by upscale U.S. restaurants. Unfortunately, harvest quotas of wild blackcod have been dropping because of concern about stock health.

That is why the Makah Tribe, in a joint project with National Marine Fisheries Service (NMFS), Ocean Spar Technologies, Supreme Alaska Seafoods, Aqua Seed and the University of Washington, is learning the art and science of farm-raising blackcod, from beginning to end.

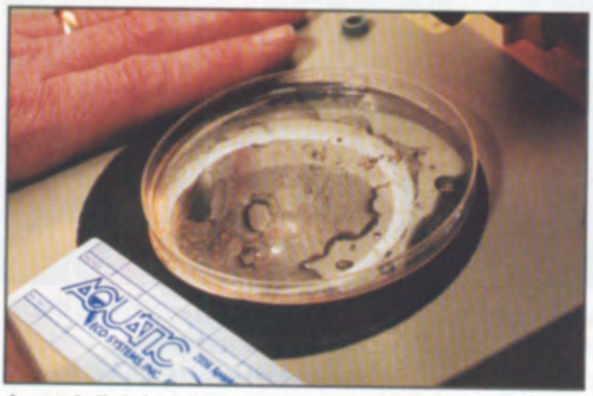
"The benefits of raising them ourselves include keeping harvest levels at a predictable level and producing a higher quality, fresher product more desirable to the Japanese market," said Steve Joner, chief biologist for the Makah Tribe.

Bill Lawrence, Makah fisheries technician, has been learning how to grow small blackcod to adults. *Photos: D. Preston*

The only other place in North America where blackcod are being raised is British Columbia, where the Makah Tribe and NMFS are getting pointers on how to build their own programs.

"To keep demand up for your product, you have to maintain your place in the market," said Joner. "In the case of blackcod, if you are going to have fewer fish because of limits, then you need to make what you do have special. Otherwise, the consumers will just move on to something else."

For the past two years, Bill Lawrence, Makah tribal fisheries technician, has been spending five days a week at the NMFS research facility at Manchester near Bremerton. He's learning the whole process of farming blackcod, from creating the conditions that allow them to spawn to what and how much to feed them as they grow.



A petri dish holds tiny brine shrimp that are fed to the fish.

An adult blackc

Once the program is up and running in Neah Bay, Lawrence will not only help grow young blackcod, but be on call to help any fisherman with problems. The key difference between the Makah blackcod aquaculture and other aquaculture is that the fishermen are the owners of the product, not a competing aquaculture company, said Joner.

"People are always asking us what the fishermen think about it. Well, it's for them. They are the producers of the product. They can fish for wild blackcod and supplement that with farm-reared blackcod," he said.

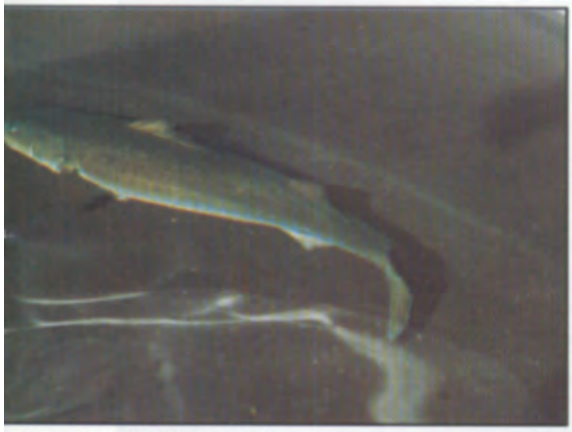
Joner added there is little likelihood of flooding the market with blackcod. The total catch for blackcod is still exceeded by demand. Additionally, harvest limits for wild blackcod are likely to continue to go down to protect the stocks. "And we can always move to a different species. There are many, many desirable fish, such as lingcod, that we can raise in similar ways," he said.

"Eventually, we will have the whole program here in Neah Bay, but right now, we're aiming at just getting the facilities to raise young fish into big fish. In the future, we plan to spawn our own blackcod here in a hatchery."

Later this year, other Makah tribal members will learn the work necessary to maintain the ocean-going net pens where the blackcod will be reared. The nasty winter storms that often

Lawrence hold
lingcod and bla

r Makah Tribe



swims in a holding tank.

pummel the Washington Coast aren't likely to cause problems for the net pens, Joner said. "They've survived typhoons in other parts of the world. The fish growers just lowered the pens deeper in the water until the storm passed and the fish and pen survived just fine," he said.

"Our goal is to develop economically and environmentally sustainable aquaculture that supplements the harvest of wild stocks. This program allows us to maintain the tribe's cultural and economic dependence on fish while taking some pressure off depressed wild stocks which will require many years to rebuild as they are a long-lived species," said Joner. – *D. Preston*

one of the outdoor pens used to hold growing kcod.

Smolt Traps Help Gauge Project Effectiveness

Keith Charles, Lower Elwha Klallam Tribe, constructs a smolt trap. *Photo: E. O'Connell*

By using series of smolt traps, two Washington tribes are assessing recent habitat restoration work on the Skokomish River and North Olympic Peninsula streams. These traps, safe and effective devices for catching and counting young fish, will help determine if the habitat recently opened up by the Lower Elwha Klallam and Skokomish tribes is being used.

Over the past century the productivity of the Skokomish watershed has declined because of the effects of projects such as the Cushman hydroelectric dam, large-scale flood prevention, timber harvesting, farming and numerous road crossings and culverts.

One of the tribe's premier restoration projects involved the connection of an historic channel to the mainstem of the Skokomish River. The newly opened channel used to be the primary channel until several decades ago a flood control project created a nearly straight bypass channel, disconnecting the sinuous channel from the main flow of the river. The Bourgault/north channel is a series of oxbow ponds and sloughs where young salmon can rear and escape high winter flows.

A smolt trap installed at the Bourgault site last spring collected approximately 2,000 coho and 50 chinook smolts, indicating salmon were already using the newly opened habitat.

In addition to assessing recent habitat projects, the Lower Elwha Tribe's smolt trap initiative in western Olympic Peninsula streams will help the tribe manage the recovery of Strait of Juan de Fuca coho populations. The tribe's efforts are in cooperation with the Makah Tribe, which is setting traps on the Hoko and Little Hoko rivers and Lake Ozette.

"The type of information we'll get from these traps is critical," said Mike McHenry, habitat biologist with the Lower Elwha Klallam Tribe. "It can give us a idea of whether the combination of habitat restoration and decreased marine mortality are effective in rebuilding coho populations."

The tribe's restoration projects, which have been running for eight years, have included adding large woody debris that will help create calm pools, and planting new trees along the stream bed to add shade and to create diverse habitat.

Before the tribe began setting traps on these streams, there was little information on how many fish were using the creeks on the western stretch of the strait. "With this new information, we can not only gauge our restoration efforts, but we can also manage Strait of Juan De Fuca fisheries based upon it," said McHenry. – *E. O'Connell*

Elder, Youth Clam Digs Build Community

Nothing builds community quite like shared food. Perhaps there is no better example of this than the shellfish digs in which treaty Indian tribes in western Washington take part.

When the tide is out and the season has turned, tribal members relish the opportunity to bring home bountiful portions of clams. These are chances to feed family members, supply shellfish to friends, and enjoy tasty morsels from the sea – but also to contribute to community among tribal members. That's one stated purpose for an Elders' Clam Dig organized by the Upper Skagit Tribe in May.

"These digs are a great opportunity to get our tribal members together, participating in an activity that reflects our culture," said Scott Schuyler, NWIFC Commissioner and Natural Resources Policy Director of the Upper Skagit Tribe.

Several tribal elders turned out for the dig, which attracted about two dozen members total to Camano Island. Younger tribal members were in attendance to dig for elders who could not attend, and to help carry the overflowing buckets of clams that were gathered home from the rocky beach.

"Our elders live this culture every day of their lives," Schuyler said. "It's important that we honor them and treat them with respect. Holding a dig that focuses on getting clams for them shows that respect."

Upper Skagit elder Sherman Williams Sr. points the way to a spot filled with clams. *Photos: J. Shaw*

On the other end of the age spectrum were dozens of Tulalip Elementary students – mostly fifth graders – who trekked out to tribal property on Camano Head for a clam dig.

On the final low tide before the school's annual barbecue, more than 50 students roamed the beach under sunny skies, gathering steamer clams and other treasures while an eagle flew overhead.

Keeping with the theme of food and community, the students were in charge of gathering clams for the barbecue – which would be used to feed their parents, their classmates and school community members.

"This is the first time a lot of them have gone clam digging. It's the first time for some teachers, too, so that's exciting," said Nessie Aguilar, Native American liaison with Tulalip Elementary. "They need this experience of getting out, getting in touch with Mother Nature."

Each year, the Tulalip Tribes organize a trip for younger students at the local Montessori School. This is the first year elementary school students have embarked on such an endeavor.

Mark Hale, vice-principal of Tulalip Elementary, said that the dig was a great opportunity for kids to learn while at the same time enjoying time outdoors. Besides the harvest itself, kids took time to examine moon snails, crab and other wildlife scuttling along the beach. This can only help contribute to real-world education for the students, he said.

"It's healthy for kids to get out onto the beach this time of year, and it is important for them to visit their traditional clamming grounds," Hale said.

– J. Shaw

Jessica Oldham delivers a clam to the bucket while HoneyKwa Williams digs on a Tulalip Elementary trip to Camano Head.

Nooksack Tribal Fishermen Work To Restore Habitat

Tom Cline plants a tree during one of the Nooksack Tribe's riparian restoration projects along the Nooksack River. *Photo: J. Shaw*

Once, work harvesting salmon was plentiful. But with dwindling salmon runs, former tribal fishermen have been forced to choose other occupations.

In response, tribal natural resource departments have sought to provide new opportunities for those displaced workers – restoring habitat for the very salmon that they once fished for, the very salmon that they want to return so they can again harvest salmon sustainably.

Already a success, the Nooksack Tribe's natural resources worker retraining program – which builds career skills while assisting essential salmon recovery projects – will double in size this summer.

Currently, five tribal members formerly employed in the fishing and forest products industries are learning while working full-time on the Nooksack Natural Resources Department's extensive habitat restoration programs. The workers plant trees in riparian areas, maintain sites near the Nooksack River and local creeks in an ecologically sound manner, and address critical salmon habitat needs in their local watershed.

"Unfortunately, salmon runs are dwindling because of habitat destruction," said Bob Kelly, director of the Nooksack Natural Resources Department. "In order to remedy the situation, the Nooksack Tribe has decreased our fish harvests by more than 80 percent. This job skills program is a way to give displaced workers more opportunity while addressing the root cause of declining salmon runs – the loss and degradation of quality habitat."

"Through our retraining program, we hope to help tribal members who have been displaced by dwindling salmon runs and diminished logging opportunities," said Kelly. "By building their skills in a variety of areas, the program can help these workers choose from many different new careers."

The Nooksack Tribe's two restoration crews are presently working on sites in East Acme and on tribal property, focusing on riparian work along the Nooksack River and along Todd Creek and Terhorst Creek. The retraining programs continue year-round. – *J. Shaw*

Land Purchase Advances Restoration Project

A unique restoration project passed a vital crossroads recently when the Jamestown S'Klallam Tribe finished the purchase of an eight-acre log dump near the mouth of Jimmycomelately Creek. In conjunction with two smaller nearby land purchases by the State of Washington, the tribe's purchase completes an important part of a 10-year process to begin comprehensive restoration on Jimmycomelately Creek.

"Without this land, it would be impossible to restore Jimmycomelately Creek," said Lyn Muench, natural resources planner for the S'Klallam Tribe. "This is the most critical piece of the project." By purchasing the log dump and surrounding properties, the tribe and state agencies have control of much of the land near the mouth of the creek, allowing them to reroute the creek to the lowest part in the valley, said Muench. Early in the century, Jimmycomelately, which lies just yards from the Jamestown tribal center, was rerouted and diked by farmers to free up more of the valley for farming.

The Jimmycomelately project, which the tribe hopes can serve as a model for other river restoration projects, will remove sediment that over the years has filled the creek, ruining miles of summer run chum habitat.

Other groups that will be involved in the Jimmycomelately project include Clallam County, the county conservation district, state departments of Ecology and Natural Resources, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency and about five local non-profit organizations. Funding for the land purchase was provided by the state Department of Natural Resources, the state Salmon Recovery Funding Board, and the U.S. Fish and Wildlife Service. – *E. O'Connell*

Cooperation Key To Peninsula Elk Study

Makah tribal member Leroy Dalos and volunteer John Wilson stare intently at the dry ground before them looking for elk tracks. They are tracking a tranquilized cow elk that dashed into the forest on the North Olympic Peninsula before the drug took effect.

It's important to get to the female elk quickly. The drug suspends her body's natural cooling mechanism. The longer she remains tranquilized, the higher her body temperature can go. Keeping to a minimum the time that the elk is exposed to high temperatures reduces the after-effects of the drug and susceptibility to predators.

Despite dry conditions and confusing tracks from other elk, Dalos and Wilson are able to locate the downed cow. They take samples of hair, fecal matter, parasites, blood, and a tooth for later analysis as part of a joint study project led by the Makah Tribe.

Both Dalos and Wilson are hunters and volunteers for the project that is shedding light on the overall health of elk herds in the Hoko, Sekiu and Ozette river drainages. The study is also giving clues to what natural and human-made factors affect elk behavior and survival. The men fit a radio collar on the elk and she is revived with a reversal drug that counters the tranquilizer. With a snort and a look of indignation, the cow lumbers off to look for the rest of her herd.

This is the second year of a long-term Makah study in cooperation with WDFW, Rocky Mountain Elk Foundation and landowners Crown Pacific, Merrill and Ring, Green Crow, Rayonier, Olympic National Park, and the state Department of Natural Resources. In March, the tribe added seven more collars for a total of 19 collared elk in 9 herds.

An indignant cow elk gathers her wits after receiving a radio collar from volunteers working on a Makah Tribe project. *Photo: D. Preston*

The tribe's long term study goals include identifying calving areas, investigating long term home range use, identifying sources of mortality for cow elk and investigating annual survival rates of cow elk. – *D. Preston*

NWIFC Officers Re-Elected

Billy Frank Jr. was unanimously re-elected chairman of the Northwest Indian Fisheries Commission at the organization's annual meeting in May at the Quinault Beach Resort and Casino in Ocean Shores. Frank, a Nisqually tribal member, has chaired the NWIFC for 19 years.

Lorraine Loomis, Swinomish, was re-elected vice-chair of the commission. Bob Kelly, Nooksack, was re-elected treasurer.

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