Northwest Indian Fisheries Commission

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Being Frank

A New Look At Hatcheries

By Billy Frank Jr.
NWIFC Chairman

This is a time of great change in the management of the salmon resource in the State of Washington. Listings of several local salmon stocks under the Endangered Species Act have required us to re-examine many of our approaches to the way we manage salmon.

Our use of hatcheries is one example. Today the tribes, as well as state and federal agencies, are looking at salmon hatcheries in new ways.

Once viewed by many simply as "factories" for producing salmon, now we are reforming hatchery practices to help recover and conserve wild salmon populations while providing sustainable fisheries for Indian and non-Indian fishermen.

While the tribes have made efforts over the past decade to reduce impacts of hatcheries on wild salmon stocks – such as carefully timing releases of young hatchery salmon into rivers to avoid competition for food and habitat with young wild salmon – a lack of funding has prevented the tribes from applying a comprehensive, systematic approach to hatchery reform.

Now, thanks to the efforts of Washington's congressional delegation, the treaty tribes, Washington Department of Wildlife, U.S. Fish and Wildlife Service and National Marine Fisheries Service will share $3.6 million this year to conduct much-needed research, monitoring and evaluation of hatchery practices at the approximately 150 tribal, state and federal hatchery facilities in western Washington.

Federal legislation has created an independent Hatchery Scientific Review Group to provide scientific oversight for tribal, state and federal hatchery practices reform and to provide recommendations for implementation of scientific goals and strategies. A top priority of the tribal and state co-managers under the hatchery reform initiative will be to complete Hatchery Genetic Management Plans for each species at each hatchery on Puget Sound. The plans will provide a picture of how stocks and hatcheries should be managed, and will serve as a tool for implementing hatchery reform.

Already, some salmon enhancement facilities have been switched from producing hatchery fish to restoring wild fish through broodstocking and supplementation. Through these programs, wild salmon are captured and spawned at a hatchery. Their offspring are then reared in the facility

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On The Cover: A mass of sea cucumbers harvested by a Nooksack tribal fisherman await processing. Sea cucumbers, a delicacy in parts of Asia, are related to sea urchins and sand dollars. **See story on Page 4.** *Photo L. Harris*

Northwest Indian Fisheries Commission News

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Passages

Joe DeLaCruz


Joe DeLaCruz

Joe DeLaCruz died April 16 at the age of 62. Among many other distinctions, he had been President of the Quinault Indian Nation, the National Congress of American Indians, the National Tribal Chairmen's Association and the Affiliated Tribes of Northwest Indians. He made monumental contributions to tribal education, health care, economic development, natural resource management and self- governance.

"He was one of the greatest Indian leaders who ever lived in the United States," said Billy Frank, Jr. chairman of the Northwest Indian Fisheries Commission.

DeLaCruz served the tribes faithfully for more than three decades, amassing vast experience as a leader in natural resource management, health care, education, economic diversity, governance and tribal culture. He was a staunch supporter of the Northwest Indian Fisheries Commission, a founding member of the Northwest Renewable Resources Center, co-chair of the Commission on State-Tribal Relations, one of the creators of the Pacific Salmon Commission and member of the Washington State Historical Society.

The Centennial Accord, signed by Governor Booth Gardner and tribal chairs from throughout Washington in the state's centennial year of 1989, was Joe DeLaCruz's idea – an idea that has since captured the imagination of indigenous people and governments throughout the world. The Tribal Self-Governance Program, which he also helped originate, likewise converted the principles of tribal sovereignty and government-to-government relations into reality. These, and many other DeLaCruz achievements in the arena of tribal self-determination, were the manifestation of beliefs which he expressed as follows:

"No right is more sacred to a nation, to a people, than the right to freely determine its social, economic, political and cultural future without external interference. The fullest expression of this right occurs when a nation freely governs itself. We call the exercise of this right self-determination. The practice of this right is self-government."

More than 2,000 people – tribal officials from near and far, elected representatives, friends, neighbors and family members – commemorated the life of "Skinny Joe" DeLaCruz at services conducted April 22 at the new Quinault Tribal Resort in Ocean Shores.

"Joe DeLaCruz will always be a part of Washington state, just as this land was always a part of him," said Governor Gary Locke.

Younger brother Franklin DeLaCruz placed a wooden staff in the casket, adorned with carvings of a two-headed wolf, the DeLaCruz family crest, as well as a bear, an eagle, an orca and a spawning salmon, signifying the circle of life. "He needs to go to the other side with something like this powerful staff," he said.

DeLaCruz was buried on the Colville Reservation April 24 – an agreement between he and his wife, Dorothy, a Colville tribal member. Other survivors include three daughters, two sons, seven grandchildren and two great-grandchildren. – *S. Robinson*

Being Frank

Continued From Page 2

and later released in various locations within the watershed to increase their chances for survival.

Hatchery reform is part of an integrated strategy for salmon recovery.

The tribal and state co-managers are responding to declining wild salmon populations through improved planning processes like Comprehensive Coho and Comprehensive Puget Sound Chinook, which seek to protect and restore adequate freshwater habitat and to ensure that enough adult salmon reach the spawning grounds to recover the stocks. As part of the effort, recovery goals and comprehensive recovery plans are being developed for all salmon species in western Washington. Specific recovery plans are being developed for each watershed to guide how harvest, habitat and hatcheries will be managed.

The treaty Indian tribes in western Washington already have made significant harvest reductions to protect weak wild stocks. In fact, over the past 25 years, treaty tribal salmon harvests have been reduced by more than 90 percent. This has come at a great cost to the spiritual, cultural and economic well-being of the tribes.

For 2000, the tribes are planning conservative fisheries that are more restrictive than last year to protect weak wild salmon stocks. While recognizing there are some strong hatchery chinook returns expected, tribal fisheries will be designed to contribute to the rebuilding of Puget Sound chinook, which have been listed as threatened under the Endangered Species Act.

All of these steps will have little effect, however, if there are no similar efforts to protect salmon habitat. Lost and damaged salmon habitat has been, and continues to be, the main reason for the decline of wild salmon.

We are confident, however, that by working together we can achieve our goal of returning wild salmon stocks to abundance.

(See Related Story On Page 5)

Fishery Provides Extra Opportunity

Cool As A Sea Cucumber

Nooksack fisherman Mario Narte hauls up a catch of sea cucumbers north of Bellingham in March. *Photos: L.Harris*

Based on its unusual defense mechanism alone – expelling its internal organs to entangle or distract would-be predators – the homely, bottom-dwelling sea cucumber may test most Americans' idea of a tasty menu item.

But the leathery tube-shaped echinoderm is much loved in the Asian diet, which is why tribal fishermen looking for year-round harvest opportunities may increasingly pursue the spiny creatures in Puget Sound waters. Millions of the rust-colored sea cucumbers, ranging from roughly six inches to two feet in length and beyond, are available on the Puget Sound floor as they sluggishly move along while feeding on microscopic organisms.

Diving and trawling are the common sea cucumber fishing methods and Mario Narte, a Nooksack tribal fisherman, has fished both ways from his versatile 46-foot purse seiner, the Marysville.

"It's a way to keep fishing until shrimp season," said Narte, whose longest sea cucumber-fishing stretch surpassed 28 hours. "The more tows, the more pounds."

On his best day Narte said he brought up 2,300 pounds of sea cucumbers, but noted 900-pound days are more common. Narte said he was getting about $1.25 per pound from Orient Seafoods, a Vancouver, British Columbia, buyer. The tribes were allowed 314,000 pounds in the San Juans, only a percentage of which were available by trawl.

By regulation, Narte trawls at least 120 feet deep. He must move to another fishing spot if bycatch of any other commercially harvested species exceeds 10 percent. Trawling at only 1 knot, most species, such as crab, are able to avoid the trawling net. Bycatch is largely limited to clamshells, seaweed, a few flatfish, and small crabs, notes Nooksack harvest manager Gary MacWilliams.

MacWilliams said the fishery is closely monitored to ensure negative impacts to other species and sea-bottom habitat remain negligible. "We're seeing minimal habitat degradation with the manner restrictions currently in place," he said.

Like most tribal fishermen, Narte started out pursuing salmon, but with declining salmon runs and fishing closures he's had to hustle and diversify his business. A complete shutdown of sockeye fishing in the San Juans wiped out many tribal fishermen last year, but Narte hung on partly by fishing for shrimp, crab, sea urchins and sea cucumbers. He's even interested in fishing sea snails as he sees more opportunity in Asian markets.

"The big heyday of sockeye salmon fishing is just about over," Narte said. "You have to be creative and find other types of fishing if you want to survive. You have to diversify."

If not pretty, sea cucumbers can mean harvest opportunity for tribal fishermen.

Trawling in roughly hour-long intervals, Narte and crewmen Ed Gladstone, a Nooksack member, and Barry Westley, a Lummi member, haul up the catch. The cucumbers are separated from the rocks, weeds and bycatch and loaded onto a tray table where they are split and drained of water. Market weight is determined after the creatures are split and drained.

The sea cucumber is a prized food in the Asian market. It is sold in a smoked, dried form or as a powdered dietary supplement. It is sought for use in soups and even as an aphrodisiac. Though managed as a shellfish, the sea cucumber is an echinoderm and is closely related to the sea urchin, starfish and sand dollar. And while it may expel its internal organs to entangle or distract would-be predators, the organs are ultimately regenerated.

Sea cucumbers may possess strange habits and a less-than-picturesque profile, but with salmon seasons increasingly closed or restricted, the creatures can rate more beautiful than a dime-bright sockeye.

"It's a modern reality that if a tribal fisherman wants to make a living at fishing, he'll have to get creative and gear up for more than salmon," said Bob Kelly, Natural Resource Director for the Nooksack Tribe. "Fish managers are working hard to provide more opportunities and markets to keep fishermen working year round."

– L. Harris

Lummis Honor First Salmon

Not only did the Lummi Nation greet the first returning salmon of the year — they made sure future returning salmon would have plenty of company.

Using song, dance and ritual, the tribe welcomed the first returning salmon of the year recently. More than 350 people – from youth to elders – attended the ceremony that honors the fish and encourages the return of salmon runs.

Additionally, the tribe released 20,000 fall chinook from its Skookum Creek Salmon hatchery into the Nooksack River on the day of the ceremony. That's just a part of a larger program, where the tribe has released 500,000 fall chinook in conjunction with the State of Washington.

This year's ceremony was a special one for many reasons, including the dancing and participation of young people from Lummi Tribal School.

"This is a first for the tribal school, and it is a beginning for the Lummi Nation," said tribal member Jack Cagey. "From here on, as long as the river flows and the grass grows, this ceremony will go on."

This year's first salmon was carried respectfully into the tribal school gymnasium on a "slawen" – a mat woven from cattails – and welcomed into the room by the waving ferns of tribal school dancers. The young dancers' performances included a dance which symbolizes the life cycle of the remarkable fish, from the spawning of salmon parents to the returning creatures' upriver journey.

Cagey said that the dance honors the "miracle" that the salmon represents for native people.

"It's hard to describe how one feels in the heart about this," he said. "It's from this salmon that all living things make their lives."

Everyone in attendance was encouraged to take a piece of the ceremonial salmon for themselves. When all that remained of the fish was its skeleton, the bones were carefully nestled into the flow of the Nooksack River.

Lummi Director of Natural Resources Merle Jefferson said that the ceremony represents the tribe's commitment to the salmon, and to the biological health of the region's ecosystems.

"Everyone knows the Nooksack River is very stressed, ecologically speaking," said Jefferson. "We at Lummi Nation are doing all we can to help the river regain its health."

Tribal Hatcheries Release Nearly 43 Million Salmon

Puget Sound and coastal treaty Indian tribes released nearly 43 million healthy hatchery fish in 1999, according to recently compiled statistics.

Of the 42,782,792 fish released, most (16,050,951) were chum salmon. Substantial numbers of fall chinook (12,510,096) and coho (11,236,984) were also released. Releases also included 1,498,618 spring/ summer chinook and 1,186,284 steelhead. Additionally, 69,328 pink and sockeye salmon were released from the Makah tribal hatchery.

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.

Tribal hatchery programs are designed to minimize any potential impact on wild salmon stocks, said Northwest Indian Fisheries Commission chairman Billy Frank, Jr.

"The tribes, as well as state and federal agencies, are reforming hatchery practices to help recover and conserve wild populations while providing sustainable fisheries for both tribal and non-tribal harvest," Frank said.

While the tribes have made constant efforts over the past decade to reform hatchery management procedures – including carefully timed releases of young hatchery salmon, which help to avoid competition with wild salmon for food and habitat – new congressional funding has given these initiatives a serious boost.

"Hatchery reform is an important part of an integrated salmon recovery strategy, and we will continue to adapt our hatcheries to reflect the best available science," Frank said.

'It's Finishing What We Started

Makah High School Students Assemble Bones Of Historic Whale

Tribal students from Neah Bay High School say it is fitting that they are assembling the bones of the first whale harvested by the Makah Tribe in 70 years.

"It's finishing what we started," said senior Daniel Greene. "It fits in with the history of Ozette and it will be a good part of history itself. It established our treaty rights again," he said.

The finished skeleton will hang in the Makah Cultural and Research Center. It will join thousands of Makah whaling artifacts from the ancient Ozette village, an archaeological site just south of Neah Bay.

Daniel Greene's father, Dan, was a member of the whaling crew. The younger Greene was also an integral part of the celebration, welcoming guests and elders in the Makah language. He wants to get his college degree and return to teach the Makah language to the next generations of Makah children.

Patrick DePoe, 17, remembers May 17, 1999 vividly.

"I helped tow the whale to shore. It was a great day," said DePoe. "Working on this project feels really good. The museum is where it belongs. It was a historical moment," he said.

Two classes at the school are participating in the complex, often smelly job of preparing and assembling the bones.

"There has been a way for all the students to participate," said woodshop instructor Bill Monette.

"People immediately think about this only in terms of it being the whale that was harvested, but the school wanted to be sure there was a diverse educational component to this," Monette said. "There is math involved, understanding the biology and anatomy of the whale, how it's put together, problem solving, and of course, the cultural component. When the kids get to working on it, they are really into it," he said.

"It's really great that the kids are able to do this project," said Ben Johnson, Makah tribal chairman. "Having the skeleton hang in the museum and having it done by the kids brings everything full circle. Now, when people visit the museum, it's living proof that we're whalers — not only then, but now," Johnson said.

The students received help assembling the whale from the Museum of Natural History in Denver, the National Marine Fisheries Service, and a biologist from the U.S. Navy.

"Things that needed to happen in order for this to get done just sort of fell into place. It was meant to be," said Monette.

The students and Monette have put more than 1,000 hours of work into the project and hope to finish it before the end of the year. As part of the project, Ross Jimmacum, 18, has been drawing two huge whales on the walls

Upper left: Bill Monette, left, and Travis Butterfield, work to piece together part of the gray whale harvested by the Makah Tribe. The second skull is of a whale that washed ashore in Puget Sound. Above: Gordon Steeves III aligns rib bones and vertebrae. Left: Neah Bay High School students pose with the whale bones they are re-assembling for display at the tribe's cultural center. *Photos: D. Preston*

of the shop, one facing north and one facing south, for the two migration routes.

Amanda Jimmicum, disappointed that she was away the day the whale was brought to the village, is proud to work on assembling the bones. She plans to be on hand for the next successful hunt and looks forward to one day taking her children to the Makah Cultural and Research Center to show them the re-constructed skeleton of the first whale.

"I'm really proud I can say I helped put it together," said Jimmicum. – *D. Preston*

Suquamish Tribe, Navy Reach Accord

Demonstrating a commitment to solving problems through cooperation whenever possible, the Suquamish Tribe and the United States Navy reached a groundbreaking agreement on habitat restoration in Bremerton's Sinclair Inlet in May.

The tribe and the military settled a lawsuit filed by the Suquamish over the Navy's plan to dredge the inlet and construct a new pier in the body of water. The plans should create an effective port for the armed forces' huge Nimitz class aircraft carriers – but the tribe worried that construction processes might damage salmon habitat and destroy crucial fishing and shellfishing opportunities.

"This agreement reflects the Navy's recognition of its responsibility, as a federal agency, to protect our treaty-reserved fishing rights – rights which depend upon a healthy habitat," said tribal chairman Bennie Armstrong.

The accord, manifested in a memorandum of understanding, features both sides vowing to "plan and implement mutually acceptable habitat mitigation" together.

"The Suquamish Tribe always prefers to solve problems through cooperation, rather than litigation," tribal attorney Scott Wheat said. "Fortunately, we were able to come up with an arrangement that satisfies both parties and protects the regional environment as well."

The City of Bremerton issued the Navy a conditional use permit which authorized the dredging and construction. But the tribe worried that such an extensive undertaking could thwart cultural resource protection, hinder habitat preservation and harm fishing opportunities.

Under the new agreement, though, mutually acceptable mitigation measures will occur. Additionally, $1.4 million will be earmarked for habitat restoration in the area. – *J. Shaw*

Tribe Will Oversee Pulp Mill Cleanup

Y'innis means "good beach" in the Klallam language and was the name of a major tribal village that once thrived at the mouth of what is now Ennis Creek.

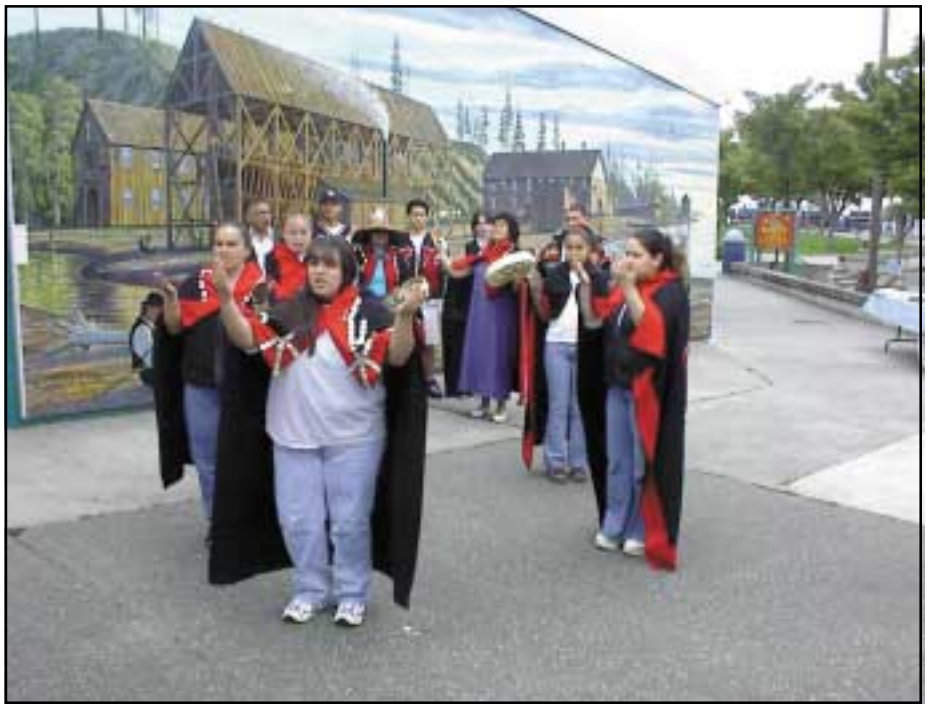
Today the "good beach" is poisoned by dioxin and PCBs contaminating its soil and groundwater. The now-closed and torn down Rayonier Inc. pulp mill — which operated at the site for seven decades — is responsible for toxic pollution that has also leached into Port Angeles Harbor.

Strong cultural ties — including an ancestral burial ground – and concern for its fishing resources in the creek and harbor are why the Lower Elwha Klallam Tribe signed a landmark agreement in May with state and federal agencies to clean up the site. Under the agreement — rare for the clout provided a tribe in an off-reservation cleanup — the state Department of Ecology (DOE) will lead the project conditioned upon a number of tribal requirements.

"We were pleased to get a seat at the table, especially since the site is off-reservation. It's the first time that has happened in the nation," said tribal Chairman Russ Hepfer. "It is important to have our deep cultural and fishing ties to this place recognized."

Four years of detailed studies to learn the extent of the pollution problem, along with public involvement and planning, will precede any cleanup. But that's fine with the tribe so long as the job is done right.

Sparked by environmentalists' concerns about contamination once the mill was torn down in 1998, the Environmental Protection Agency (EPA) took soil samples suggesting pollution levels were high enough to qualify the site for Superfund cleanup. Considered "moderately polluted," the EPA indicated the 75-acre site could be cleaned up under state laws.



The Lower Elwha Klallam Dancers perform before a mural of the Y'innis Village at a ceremony in May. The event celebrated the tribe's role in cleaning up pollution at the site of the former village. *(Photo: Lower Elwha Klallam Tribe)*

Local and state officials, and the mill owner, didn't want the stigma of a federal Superfund site in Port Angeles, and didn't want to cede control of the cleanup to a federal agency. But they needed tribal sign-off on a state deferral, because the fishery impacted by the pollution is considered a tribal property right.

The tribe initially supported Superfund status because deferring the cleanup to the state DOE might mean no tribal role or funding to ensure proper cleanup. The agreement worked because the state needed Lower Elwha's sign-off and was willing to negotiate, and because the mill owner, Rayonier, was willing to pay the cleanup costs. Rayonier will reimburse the tribe for its expenses up to $250,000 per year.

If tribal conditions aren't met, Lower Elwha essentially has veto power in the state deferral agreement and could again support Superfund listing.

"We got everything we wanted except for funding to restore Ennis Creek," said Hepfer. "We'll have to go elsewhere to find funding to restore the stream."

A large painted mural near the Port Angeles City Pier portrays early 19th century life in the wealthy, fortified Y'innis village. It was one of two large Klallam villages in the harbor. The Y'innis site was occupied by the Puget Sound Cooperative Colony in 1887 and some surviving Klallams continued to live on beaches of the harbor until the 1930s, when lands were purchased for a reservation on the Elwha River.

In 1917 the U.S. Government built a sawmill on the site for milling spruce wood. The sawmill was rebuilt into a pulp mill in 1929-1930. Rayonier operated the pulp mill from the 1930s until its closure in February 1997. Prior to closing it was the largest private employer on the North Olympic Peninsula.

– L. Harris

In Dungeness River Watershed

Jamestown S'Klallams, Agencies Working To Find Pollution Sources

As sediment and bacteria increasingly seep into the Dungeness River watershed, fewer salmon are returning and Dungeness Bay shellfish are becoming unsafe to eat.

Help may be on the way. The Jamestown S'Klallam Tribe is hoping a number of ongoing Dungeness River water quality studies will reveal relationships between the sediment, pollution and the tribe's fisheries, as well as pinpoint sources of the problems.

Included is a two-year, $125,000 sediment study that began in May. The tribe is splitting the cost of the study with the U.S. Geological Survey (USGS) after receiving a Centennial Clean Water Fund grant from the state Department of Ecology (DOE). Preliminary results are expected within a matter of months, with a final report on USGS survey work due in March 2001.

"This information is needed by federal, state and local agencies and the tribe to develop salmon recovery plans, as well as detailed plans to restore river and estuary functions, and to take actions necessary to reverse the shellfish closure (in Dungeness Bay)," said Ron Allen, Chairman of the Jamestown S'Klallam Tribe.

Increased levels of fecal coliform bacteria prompted the state Department of Health in April to close commercial shellfish harvesting on a portion of Dungeness Bay. The closure hit the tribe's shellfish operation hard, effectively reducing its oyster farm by one third.

Another study being carried out by DOE, in cooperation with the tribe, is monitoring freshwater for bacteria and flows to try to pinpoint sources of fecal coliform bacteria.

"By last summer, it was obvious the bacteria problem had spread out in the bay," said Lyn Muench, natural resource planner for the tribe. "We had a heads up, but the fix is not as easy as we had hoped. We're still trying to find the sources."

Tribal staff have battled the effects of low flows and sedimentation in the Dungeness River for many years as runs of pink and chinook salmon dwindled to a fraction of their former abundance.

Bacteria and sediment sources will be difficult to pinpoint until the tribe, DOE and USGS install and, over time, monitor a series of flow, sediment, temperature and water quality sampling stations along a 12-mile section of the lower river. Sampling, monitoring and an investigation of water circulation patterns will also take place in the bay as part of the study.

Debbie Sargent, water quality specialist for the Washington Department of Ecology, takes a water sample from the Dungeness River as part of a sediment study by the Jamestown S'Klallam Tribe. *Photo: D. Preston*

Poorly built and maintained logging roads are blamed for contributing large quantities of sediment into streams that feed the Dungeness River. Land clearing and historical logging practices along the river have also created erosion problems. Sediment can bury salmon eggs and spawning gravels. When sediment exceeds a stream's ability to transport it, salmon habitat is destroyed as channels shift, resting pools fill, streambeds rise and wetlands and estuaries are choked off.

The sediment study will also investigate whether silt is helping transport bacteria to the bay. "We want to know if there is a linkage – if the sediment coming down the river is playing a role in bacteria retention," Muench said.

No single polluter is suspected. Rather, farms with high numbers of livestock and poor waste management practices, and robust residential development — with its accompanying septic tanks and leaking drainfields — are suspected culprits in the climbing fecal coliform counts. Population numbers in the Dungeness River basin have more than tripled in the last 25 years.

"We can't address the threats to our watershed, salmon and shellfish until we find the specific source of those problems," said Allen. "This study will help us do that."

– L. Harris

Quileutes Aid Whale Behavior Research

Researcher Jay Mallonee scans the waters off LaPush. *Photo: D. Preston*

Gray whales are a common sight along the Washington coast during their spring and fall migrations. What isn't common is the opportunity to observe them from shore for long periods of time.

That rare opportunity is what is drawing one researcher to LaPush, home of the Quileute Tribe. The tribe is taking the lead in learning more about the gray whales that return to LaPush annually. They have invited researcher Jay Mallonee, who specializes in mammal behavior, to study in LaPush. Mallonee hopes to add to the body of knowledge about gray whale behavior through his own observations, those of his students, and by talking with Quileute tribal members.

'The behaviors were things I'd never seen before.'

– Jay Mallonee, Whale Researcher

"The tribe is establishing an information base about whales for scientific, educational and interpretive purposes," said Mitch Lesoing, marine biologist for the Quileute Tribe.

"Relatively little has been described about how the gray whales use the coastal habitat at LaPush during their unique migration. Quileute tribal members are experienced whale observers and much information has been passed along over the centuries. Jay's observations will shed more light on describing current whale behavior and he is anxious to exchange whale knowledge with tribal members," said Lesoing.

"I had known about the whales coming to LaPush from word of mouth, but when I got here, I was just amazed. The behaviors were things I'd never seen before," said Mallonee.

Stories passed down through hundreds of years link the birth of the Quileute Tribe to the whale. The sea and the food it provides still sustain the tribe and it is integral to their culture. Obtaining more knowledge about the gray whale and their required habitat is a necessary component for responsible resource management.

Every year, female gray whales and their calves stop at LaPush, apparently to feed. They can be seen where waves break off First Beach in LaPush, no more than 30 yards off shore. The behavior of "spy hopping," where the whales rise vertically to about one-third of their body length to take a look around, is also seen off the beaches of LaPush and neighboring beaches within Olympic National Park in the tribe's usual and accustomed area of fishing and gathering.

It's these kinds of behaviors that Mallonee wants to watch and catalogue. "You can actually put together a lot about what's going on underwater by meticulously recording what is going above the water," he said.

"Shore-based observation is very non-intrusive – it doesn't alter the whale behavior as a boat might. It's also cheaper. You can do scuba dives later, after you've established normal behavior patterns," Mallonee said.

The Quileute Tribe is interested in Mallonee's research for a number of reasons. As word has spread about LaPush as a refuge from a busy world, a surfing mecca for the hardy, and a whale-watching base, more and more tourists have come to visit.

"Along with the scientific knowledge, the tribal council is interested in knowing how more visitors and their activities might affect the whales. They are also interested in the future of having the students at the tribal school participate in some of the observations and establishing a curriculum," said Lesoing.

Mallonee also wants to develop a program partnering with the tribal school and natural resources program that will enable school students to participate in whale observations. The idea is to provide a hands-on approach through studies at the school that will inspire young students to continue on with careers in the natural sciences or the marine education/interpretive field.

The tribe is also looking at possibilities of creating careers for tribal members by providing wildlife observation opportunities and developing interpretive facilities that describe natural and cultural histories.

"There is a lot here in terms of the marine coastal environment, natural resource use and traditional tribal culture to interpret for students and visitors," said Lesoing. "We really like the idea of students and visitors learning hands-on about marine science and the coastal environment at the same time they are learning about Quileute tradition and culture." *– D. Preston*

On Sol Duc River

Cooperative Project Re-Opens Habitat

Salmon habitat that has been inaccessible for more than 50 years will soon open at a tributary to the lower Sol Duc River thanks to a cooperative project by the Quileute Tribe, Washington Department of Fish and Wildlife (WDFW), People For Salmon, and Pacific Coast Salmon Coalition.

The approximately $181,000 project can be found just off the Quillayute Prairie Road near its junction with Highway 110 near Forks.

"This project opens up an original side channel of the river that was closed around World War II when the U.S. Navy built the bridge over the Sol Duc River," said Adam Kowalski, Timber Fish and Wildlife biologist for the Quileute Tribe.

The bridge will not be altered, but a waterfall blocking the side channel will be eliminated by inserting a large culvert. Quileute tribal members Gene Gaddis and Eugene Jackson dug out a part of the old side channel by hand; water flow is expected to do the rest of the work. The waterfall blocking fish passage was created in the 1940s when the bridge was built for access to a military airport on Forks Prairie.

Suitable places for salmon to spawn and rear are key to their survival. Side channels such as the one being re-opened provide a place for young fish to escape high river flows during the winter and provide pools for adult fish to spawn.

"This project is one we identified in a ranking process when we conducted watershed analysis for the Sol Duc River in 1995-96," said Mel Moon, director of the Quileute Natural Resources department. Watershed analysis assesses current physical, biological and other conditions to identify and provide information to guide restoration activities within a watershed. The Sol Duc analysis was completed by a team involving the Quileute Tribe, Olympic National Forest Service, the Washington Department of Fish and Wildlife and US Fish and Wildlife Service and other state agencies.

Quileute tribal members Gene Gaddie, left, and Eugene Jackson excavate river mud from a side channel of the Sol Duc River near Forks. *Photo: D. Preston*

"People can see that the falls were a definite barrier to any fish movement. Now with the new gradual access route they should be able to see fish moving back into the creek. It may take awhile, but coho salmon are biologically well-suited to use the new route first. Chinook are a little more selective because of their size, but conceivably, all salmon will use that area," Moon said. – *D. Preston*

Awesome Angling

Jesse Bowen, 12, displays a rainbow trout he caught at the Upper Skagit Tribe's Kids Fishing Day. Over 100 young people ranging from pre-schoolers to teenagers tried their hand at snaring the wily fish from ponds at the tribe's hatchery. This is the third consecutive year the Upper Skagit tribal community has hosted the event. Photo: J. Shaw

Smolt Trap Gathers Fish, Information

As daylight fades over Monroe, a crew gracefully positions a contraption over the Skykomish River's fish run. Once the metal trap has reached the middle of the river, it will begin collecting salmon smolts from the water – and gathering data invaluable to salmon recovery efforts.

The Tulalip Tribes are undertaking the first comprehensive study of this type on the Skykomish River. Beginning April 4, scientists and technicians began capturing and releasing migratory fish – all to learn more about the unique life process and population size of the chinook salmon.

"It's been successful in other places," said Kurt Nelson, fish and water wildlife resources scientist with the Tulalip Tribes, "but nobody has tried this means to assess population size on the Skykomish before."

The equipment the tribal team uses – called a 'screw trap' – allows technicians to monitor fish without injuring them. Fish are drawn in through the trap's wide 'cone,' which is designed to safely capture the young salmon, and are funneled into an holding area. There, the juvenile salmon and trout will be counted, measured and set free.

The design of the trap, which was fine-tuned by Lummi natural resources biologist Mike MacKay, is spreading. On the lower portion of the Nooksack River, Lummi teams have operated a trap since 1994. A crew from the Nooksack Tribe currently operates one on the south fork of the Nooksack River. The Stillaguamish Tribe is going through the permitting process for a smolt trap of its own as well.

The research efforts have similar aims: to examine how many fish are traveling to the sea, how successful their migrations are, and the means the salmon use to survive.

"This is going to give us quite a bit of information on population size, behavior, migratory patterns, freshwater survival, and what kind of life cycle variations exist among chinook," Nelson said.

From left, Kurt Nelson, Miriam Bill and Gene Enick monitor the Tulalip Tribes' smolt trap on the Skykomish River near Monroe. *Photo: J. Shaw*

Harvest managers rely on that kind of data to forecast the sizes of fish runs. It should also prove useful to habitat managers who are working on a recovery plan for the Skykomish watershed.

This research effort is focused on the river's chinook run, but will also provide information on coho, chum, sockeye, and pink salmon, as well as cutthroat, steelhead, brown bull and Dolly Varden trout.

The Tulalip project is a cooperative effort with Snohomish County, and is fully funded over the next two years – through an Environmental Protection Agency grant during 2000 and a Bureau of Indian Affairs grant during 2001. The Tulalip Tribes are planning to undertake a similar research project on the Snoqualmie River next year. – *J. Shaw*

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