Northwest Indian Fisheries Commission

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Being Frank

Don't Water Down Shoreline Rules

By Billy Frank Jr.
NWIFC Chairman

Let's face it. The State of Washington has failed to protect the natural resources of our region.

Nowhere is this more evident than on our shorelines. Damage caused by everything from jetties and bulkheads to gravel mining and dredging has been permitted to run rampant for generations. Even with the existence of a Shoreline Management Act, the state has failed to prevent gross destruction of uplands, marine resources, vegetation, fish and wildlife.

One of the results of these failures, of course, is the listing of several species of salmon as threatened or endangered under the federal Endangered Species Act (ESA).

The Washington State Department of Ecology, led by Director Tom Fitzsimmons, has offered two new options to address this regulatory failure, being referred to as "Path A" and "Path B." Forget Path A. It fails to address the achievement of ESA-related objectives. "Path B," on the other hand, states the achievement of ESA-related objectives as one of its purposes.

The state should follow Path B – with certain amendments. This path leads to state and local adoption of shoreline master programs that actually mean something. This could, at long last, begin to curb the adverse impacts of development and other activities on habitat needed by threatened and endangered species.

As might be expected, those who do the damage are squawking about Path B. Public meetings on the issue have been a nightmare. I applaud Mr. Fitzsimmons for weathering the abuse of those who, after all these years, still fail to comprehend the long term economic and cultural importance of natural resources and a healthy environment.

It takes guts to do the right thing in the face of threats and extreme political pressure. Anyone who doubts such pressure exists doesn't have to look any farther than the state's legislature to find it. One state senator – a candidate for governor no less – strayed far enough off the path of responsibility to say Path B could soon lead to shooting. A group of eight legislators joined the fray recently when they publicly expressed opposition to the draft Shoreline Guideline rule. They claim such rule adoption is premature, and that such rules would have a tremendous impact on rural landowners and economies—impacts that

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On The Cover: Quinault tribal members dig razor clams in a ceremonial and subsistence harvest near Pacific Beach. See related story on Page 12. *Photo: D. Preston*

Northwest Indian Fisheries Commission News

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'Tangle Net' Being Studied

Suquamish fisherman Armand "Shorty" Chavez checks a tangle net before trying out the experimental gear. The net's smaller, looser weave is designed to capture fish alive.
Photos: L. Harris

Suquamish tribal fisherman Armand "Shorty" Chavez likes the idea of netting live fish, both to protect endangered species and because he thinks there could one day be a terrific market for live salmon.

But whether an experimental "tangle net" touted by the Washington Department of Fish and Wildlife can accomplish those tasks and still be effective at catching salmon remains to be seen.

"If it allows us to release natural runs and keep hatchery fish, I think it's a good idea," said Chavez. "But it's got to catch fish."

Unlike a traditional net, which compresses a salmon's gills once it swims into the net, a tangle net is designed to entangle the salmon's mouth parts in smaller, looser weave so that it can be captured or released alive. If endangered fish can be released back into the water live, fisheries managers are hopeful the nets can be used as a tool to protect depleted salmon stocks while harvesting healthy runs.

Chavez is among several fishermen from the Suquamish, Puyallup and Squaxin Island tribes that the state has contracted with to fish with the experimental nets. The 150-foot net is fished side by side with a traditional 150-foot gill net, with salmon captured, tagged and released.

To date in the studies, the catch rate of fish in the tangle nets has been limited. At Squaxin, conventional gill nets in Budd Inlet near Olympia are yielding as much as three times the number of fish the green tangle nets are catching. Chavez says that may be explained by a number of factors. For example, the gear might be more effective in a larger mesh size, or different color to improve invisibility.

"It could be the fish are just seeing the net better," Chavez said. "If it continues to be slow, I would suggest increasing the mesh size, and changing the color from green to glass."

Other problems Chavez has encountered are large concentrations of jellyfish, and algae and plant material clogging the smaller-mesh net.

The study, utilizing a grant from the National Marine Fisheries Service, will continue through September 2001. – *L. Harris*

Being Frank

Continued From Page 2

have not been fully identified or discussed.

Let's think about that for a moment. Careless violation of nature by developers has gone on for generations. Yet the legislators say they need to have more time to review the situation. How much time? Another generation?

Continued failure to act is not just a violation of treaty-protected rights. It is a violation of the rights of every citizen in this state with a stake in clean water and healthy natural resources.

Path B isn't perfect. For one thing, it ignored meaningful consultation with the tribes. Tribes have the inherent and legal right to co-manage many of the species of fish and wildlife whose habitat is addressed by these rules. Disregarding tribal input is unacceptable. The new guidelines also fail dismally to address agricultural activities, and that is unacceptable. The simple fact is that if existing agricultural practices do not improve, habitat needed by fish and wildlife will continue to degrade. In addition, the new rules fail to provide an adequate adaptive management and monitoring framework for shoreline management programs.

With these very serious shortcomings, it is particularly bothersome that the Department of Ecology is facing such difficulty getting even these rules adopted. At this point in our history, it would be good to see stronger resolve in the effort to take care of the resources so desperately needed by our future generations.

No, Path B isn't perfect. Not by a long shot. It needs to be strengthened, and it needs to be worked out with the tribal co-managers. But it is clearly the best option currently available to help turn the tide on environmental destruction in this state.

Cooperation Keys Tribal Shellfish Harvest

David Pulsifer peered through the fog on September 11 and smiled as he watched 18 fellow Skokomish tribal members digging clams and picking oysters on a southern Hood Canal beach. It was only a few miles east of the Skokomish reservation, but the tribe hadn't harvested here in nearly a century.

That's because the beach has been privately owned since the State of Washington sold off tidelands to private landowners many decades ago. Tribal members were accused of trespassing if they harvested in traditional areas and weren't allowed to return until a 1994 federal court ruling – the Rafeedie Decision – affirmed the tribes' right to harvest shellfish on private tidelands. September's harvest was the tribe's first commercial harvest on private tidelands since the court's ruling.

Skokomish tribal member David Pulsifer picks oysters on a private beach on southern Hood Canal. In September, the tribe conducted its first commercial shellfish harvest on private tidelands. *Photo: L. Harris*

"Salmon and shellfish are the backbone of our tribe – it's in our blood." said Pulsifer, the tribe's shellfish monitor. "To see my people come down here, where we haven't harvested since the early 1900s – it fills me with pride."

> 'I thought they went about it very responsibly. I was amazed at the background work that went into it.'
>
> – *Carol Wentlandt, property owner*

Private landowners of the roughly 300-foot beach section, about five miles west of Belfair on Highway 106, were cooperative. The five landowners were notified by the tribe more than 30 days in advance of both the biological population surveys and harvest. The beach was surveyed in July.

"I thought they went about it very responsibly," said Carol Wentlandt, one of the beach owners. "I was amazed at the background work that went into it."

Wentlandt said learning details of the tribal biological surveys and harvest made a big difference in her attitude. "I was reacting (negatively) like a lot of people, so I called the tribe and asked questions and really felt better afterward," she said.

"Most landowners don't have a problem once they understand the harvest is biologically sound and realize how little they are actually impacted," said Skokomish Fisheries Manager Dave Herrera.

The details, said Herrera, include the fact that most harvests occur in just a few hours during low tide, perhaps once or twice a year, and that tribal members access private tidelands by water or by public access whenever possible. A tribal harvest monitor and tribal fisheries enforcement officer are always present to ensure regulations are followed.

Most importantly, the tribes can harvest only half of the "harvestable" amount of shellfish available, which is the surplus beyond what is needed to sustain healthy shellfish populations. Wentlandt said she initially believed the tribe was allowed 50 percent of the entire shellfish population.

In fact, Skokomish members harvested only 1,180 pounds of clams (or about 10 percent of the clam population in the surveyed area) and 10,020 oysters (only about 2 percent of the oyster population in the surveyed area.).

Despite its shellfishing history, the Skokomish Tribe has no tidelands of its own. Tribal members have harvested on state Parks and state Department of Natural Resources tidelands until now.

"One of the biggest goals of the Skokomish shellfish department is to acquire our own piece of land to enhance and to have for tribal members to harvest," Skokomish shellfish biologist Eric Sparkman said.

Until then, the tribe is pleased with the cooperation it is getting from landowners. Sparkman said the increased access to historical shellfishing sites will decrease pressure on public areas to which the tribe was previously limited.

– L. Harris

Site Yields Clues To Tribe's Past

The place is called q^{w} ug^{w}es. Pronounced quote-gwaus, it means to gather, collect and unite in the language of the Squaxin Island Tribe. For the past two years the tribe, in cooperation with South Puget Sound Community College anthropology faculty and students and volunteers, has been excavating the site in the Mud Bay area near Olympia.

Among their discoveries is a portion of a cedar bark gillnet – the only one found in the Puget Sound region – believed to be about 600 to 1,000 years old. Nearby, remains of a weir stand as evidence that the tribe's ancestors also trapped salmon in the bay's shallows. Woven cords, arrowheads and tools are among the other artifacts that have been recovered at the site. Organic items such as the net were especially well preserved because a spring ran through the site, encasing the items in mud and denying oxygen to bacteria that normally would destroy them.

"This is a great team effort. We are using this site to educate many people," said Rhonda Foster, director of the tribe's Heritage and Culture Department. "A number of Native American students participated here during the summer and are learning skills to protect their own cultural sites." Students from the Squaxin Island, Nisqually, Quinault and Skokomish tribes were a valuable resource in assisting with cultural education to non-Indian students and faculty, she said.

The large number of fish and animal bones, oyster and clam shells, and the discovery of the remains of permanent dwellings clearly demonstrate the site was inhabited for a long time. "The scientific component of what we are finding here is strengthening the oral tradition we have always known," Foster said.

The property owner on whose land the site is located was instrumental in helping to make discovery of the site on his property possible, Foster said, and has worked closely with the tribe and college. "The property owner has been such a help in teaching the community and neighborhood that these sites belong to everyone and that we should all try to protect them," she said.

The tribe and college plan to explore the site for at least another five years. Discoveries at the site currently are being housed at the Burke Museum at the University of Washington, but will be moved to a museum, library and research center that the tribe is building. Donations can be made by contacting the Heritage and Culture Department at the tribe (360) 427-2072.

Students excavate an archaeological site on Mud Bay near Olympia. *Photo: T. Meyer*

"This project is important because rarely can you find a cultural component in an archeology class. Here the tribal people are right there providing education on the cultural component." Foster said. – *T. Meyer*

Broodstocking

Shawn Yanity, assistant fisheries manager for the Stillaguamish Tribe, captures a wild coho for spawning at the tribe's hatchery. The offspring are then reared in the facility and later released in various locations within the watershed to increase their chances for survival. *Photo: J. Shaw*

Tribes, State Protect Nooksack Elk Herd

Wild elk are proud, defiant creatures. Even when a mysterious visitor checks in on them from above the animals are not intimidated, instead choosing to display their horns and snort a warning.

This time, however, animals in the Nooksack elk herd have nothing to fear from their aerial guest. It's a helicopter carrying representatives of western Washington treaty Indian tribes and the Washington Department of Fish and Wildlife (WDFW) in an effort to study the herd's population levels.

Faced with a dramatic decline in elk numbers, tribes responded by stepping up conservation efforts. When WDFW's budget was no longer able to fund these necessary aerial surveys, the Upper Skagit Tribe secured a $10,000 grant from the Bureau of Indian Affairs to save the program.

"With the herd in decline, we saw a need to formulate a recovery plan," said Scott Schuyler, Upper Skagit Tribe natural resources policy coordinator. "This helps us achieve that goal."

During the 1980s, the Nooksack elk herd was comprised of nearly 2,000 animals. Due to a variety of factors – habitat destruction and poaching included – the population has dwindled to around 300.

"Aerial surveys help us determine what it will take to get the population up to where it needs to be," explained Chris Madsen, a habitat biologist with the Northwest Indian Fisheries Commission.

Until that occurs, hunting won't resume. Both tribal and non-tribal hunting has been closed for the past five years to protect the herd.

Instead of hunters tracking the animals for food, biologists follow them for surveying purposes. Radio collars will be placed on elk so their location can be tracked throughout the year. Then, yearly aerial surveys will be conducted to visually document the number of bulls, cows and calves in the area.

Historically, members of the Nooksack, Lummi, Swinomish and Upper Skagit tribes all hunted animals in this particular elk herd. Ultimately, returning the herd to levels which can support sustainable harvest is the aim.

"Elk is important nutrition," said Harlan James, policy representative for Lummi Nation natural resources. "Without it, you bite your bottom lip and hope for better luck in the future." – *J. Shaw*

Fishermen Harvest Succulent Sockeye

Call it making the most of a rare opportunity: tribal fishing crews from Muckleshoot, Tulalip and Suquamish spent two days in mid-July harvesting sockeye salmon from Lake Washington.

"This year, we finally get to bring home some sockeye," said pleased Tulalip fisherman Glen Gobin. Tulalip tribal members last harvested sockeye from Lake Washington in 1996.

Sockeye fisheries are also rare for Muckleshoot and Suquamish, noted Jay Zischke, the Suquamish Tribe's marine fish program manager.

"It's exciting to see guys out fishing," he said. "Sockeye fisheries for the mid-Sound tribes only come about once every four years."

That made this year's fishing sessions crucially important. Tribal crews joined non-Indian anglers in pursuing the succulent sockeye.

The 2000 run size was the largest in Lake Washington since 1996. The Lake Washington harvest is believed to be the largest urban salmon fishery in the country: the tribal and non-tribal share of the fishery amounted to 62,500 fish each. Tribal harvests and non-Indian sport fishing are each allocated 50 percent of the allowed fish take.

When the run began to dwindle on July 11, state and tribal officials revised the run size estimates from 520,000 down to 475,000. At least 350,000 fish must be counted through the Ballard Locks before a fishery of any kind can be opened.

A catch of Lake Washington sockeye.
Photo: J. Shaw

"These are some of the best take-home fish around. It's the kind of salmon we wait for," said Gobin.

– *J. Shaw*

Over-Wintering Ponds Provide Rest For Weary Young Salmon

Quileute TFW biologist Kris Northcut, left, and fisheries technician Gene Gaddie maneuver a log into position to create a resting place for young salmon on the Bogachiel River. *Photo: D. Preston*

Fish and fishermen will reap the benefits from improved habitat on the Bogachiel River thanks to the Quileute Tribe.

As part of a watershed inventory of the Bogachiel River, the Quileute Tribe identified a number of areas where over-wintering ponds for salmon could be created or enhanced.

The inventory was funded by a $150,000 grant from the Bureau of Indian Affairs in connection with President Clinton's Northwest Forest Plan.

"We're mostly targeting areas to be used by young coho, but all species of fish will use these areas," said Adam Kowalski, timber, fish, wildlife biologist for the Quileute Tribe.

One project is located approximately three miles east of the Three Rivers Junction near Forks. A second over-wintering pond is scheduled for completion next year in cooperation with a private landowner. The over-wintering ponds are created by placing large trees in strategic places in the river. The ponds give young salmon places to escape high winter flows.

An inventory and assessment of culverts throughout the Bogachiel River watershed was the other major task accomplished with the grant. Culverts under roads were surveyed to determine if they blocked fish passage. The culverts were also evaluated for how much sediment they contributed to streams. High sediment can smother salmon eggs or contribute to young salmon deaths. Results of the surveys were forwarded to the Washington Department of Fish and Wildlife.

As an example of the scope of the problem for fish, of 20 culverts surveyed on one section of road running parallel to the Bogachiel River, none met the state criteria for fish passage.

The tribe has also inventoried the Sol Duc and Calawah rivers.

"This project is just one part of our overall fisheries management program to protect and increase fish habitat," said Mel Moon, Quileute Natural Resources director. – *D. Preston*

Prayers For Fishermen Safety Offered At Annual Ceremony

Chet Cayou Sr. addresses those in attendance at the Swinomish Tribe's annual Blessing of the Fleet. *Photo: J. Shaw*

From any perspective, safety on the water is an important issue in the tribal fishing community. That's why nearly 50 people from a number of different faiths gathered along the Swinomish Channel – in full view of the docked boats with crab pots at the ready – to pray that no harm would come to the Swinomish Tribe's fishermen.

"Our prayers are very important," said speaker Chet Cayou, Sr. "We want to make sure our people are safe on the bay when they go out to fish."

Besides praying for the safety of fishing crews, speakers reminded the crowd to honor and respect the world's bounty.

Past tribal chairman Robert Joe Sr. said it was crucial to preserve the environment's blessings. Many people today, he said, have strayed from that path.

"Maybe that's why things are beginning to diminish," Joe said. "It's our responsibility to take care of what God gave us. We've got to look at replenishing Mother Earth today, or else we're not going to have anything to eat tomorrow." – *J. Shaw*

Better Water Quality Aim Of Tribal Program

An old West African proverb holds that "filthy water cannot be washed," expressing the fact that preventing damage to ecosystems is the only sure way to maintain environmental health.

Through recent water quality efforts, though, the Stillaguamish Tribe is attempting to monitor the health of regional bodies of water – with a long-term view that will, perhaps, help prevent degradation of the area's lifegiving fluid.

For the better part of two decades, clam harvests at Port Susan have been impossible due to severely polluted water. Through an intensive monitoring program, though, the Stillaguamish Tribe hopes to bolster cooperative cleanup efforts that have paid dividends for the entire community.

With an eye to making area shellfish again safe for human consumption, the tribe is monitoring 14 sites for degraded water, fecal coliform bacteria and other ecosystem health indicators at Port Susan and in the surrounding areas. The initiative will help assess the status of local waterways – and perhaps lead to the opening of previously closed shellfish beds.

"It is in everyone's best interests to have high quality, safe water," said Shawn Yanity, assistant fisheries manager and vice chair of the Stillaguamish Tribe. "A good, healthy water source is essential to fish management as well as public health."

It has taken years of work to improve conditions in the area.

From the mid-1980s until today, high levels of bacteria have forced the State of Washington Department of Health to close Port Susan's potentially bountiful shellfish beds. Dairy farms, hobby farms, failing septic systems, municipal sewage treatment plants and other factors swelled fecal coliform levels in the water – which made the region's many clam species unfit for harvest.

"These could be very productive shellfish areas," said Don Klopfer, the Stillaguamish Tribe's water quality biologist. "But the resources were so degraded, utilizing those clam beds was impossible."

A cooperative effort over the past several years has diminished pollution sources in Port Susan, and cleanup projects have improved water quality.

The extent of improvement is the question this study aims to answer. The state Department of Health ended their monitoring program years ago. By surveying land and water sites in Snohomish and Island Counties, Stillaguamish fisheries staff hope to document the positive effects of pollution-control efforts – and identify the best way to approach those efforts in the future.

Stillaguamish tribal member Pat Brown checks water clarity near Port Susan. *Photo: J. Shaw*

One possible impact of the three-year study, which concludes in 2001: some of those productive shellfish beds, currently closed, might be opened to tribal and recreational harvest.

"We've designed our study so that we're monitoring near shellfish beds, and near potential sources of pollution," Klopfer said. "This will help us determine which areas are safe for harvest while also pinpointing areas where fecal coliform gets into the water system."

Additionally, the tribal team gathers data on water clarity, salinity, temperature and other important elements of freshwater and marine ecology. Learning more about the watershed can only help habitat preservation and recovery efforts.

The tribe has a strong cultural connection to the region and its resources. If certain areas are opened to shellfish harvest, Stillaguamish tribal members will be able to utilize Port Susan's clam populations for ceremonial and subsistence purposes.

Contributing to the well-being of Stillaguamish Basin waterways, though, is something that all people have a stake in.

"Local landowners and community members have shown their support: some have even volunteered to collect water samples for us," said Yanity. "We believe they recognize that healthy rivers and clean water are important to everyone." – *J. Shaw*

Project Assesses Oakland Bay Watershed Habitat

A watershed's ability to produce salmon is limited mainly by the quality and quantity of available spawning and rearing habitat. Assessing the condition of that habitat – and the ability of salmon to access it – is the aim of a yearlong study being conducted by the Squaxin Island Tribe.

The focus of the study is the Oakland Bay watershed near Shelton in Mason County. The 5,600-acre watershed drains about 163 square miles of land that includes over 83 miles of fish-bearing streams.

There are three parts to the study, which began in early summer, and is scheduled to be completed in December.

The first is a survey of in-stream and streamside temperatures to determine if land-use practices are affecting a stream's ability to remain cool. Salmon thrive in cold, clear water. Streamside vegetation is important to help keep stream temperatures low.

The second – and largest part of the study – is a culvert inventory to identify fish passage problems. Culverts under county roads and private road crossings are being examined to determine if they pose barriers to adult salmon trying to reach spawning grounds, or to young salmon trying to migrate out to sea. Data obtained from the study will be shared with Mason County and the Washington Department of Fish and Wildlife for possible use in planning culvert repairs and replacement. So far, tribal crews have surveyed over 200 culverts, but the information has yet to be analyzed to determine how many of the culverts might be blocking salmon passage.

Tribal fisheries technician Mike Foster measures the depth of a pool at the outlet of a culvert in the Oakland Bay watershed. *Photo: T. Meyer*

The final portion of the study looks at erosion and other factors in the basin contributing to sedimentation. Fine sediments fill gravel spawning beds and bury salmon eggs, killing them. Sites where land-use practices may be contributing sediment to streams in the watershed are being identified and assessed. Stabilization plans will later be developed for the sites.

"High water temperatures, fine sediments and loss of large woody debris in streams are the primary limiting factors to salmon production in most watersheds," said Andy Whitener, assistant tribal natural resources director. "Through this study we are trying to identify these main sources so that we can focus restoration and rehabilitation efforts to achieve the greatest benefit for each dollar of restoration funding spent." – *T. Meyer*

Sharing A Culture

Lummi tribal members share part of their culture with members of the audience at the eighth annual Salmon Homecoming Celebration in Seattle.The event includes a forum on salmon recovery, exhibits, demonstrations, a fun run and many other activities. *Photo: D. Preston*

Tribes Inventory Shoreline Resources

Those dealing with Endgangered Species Act (ESA) listings and salmon recovery – from tribes to local governments – are finding that solutions are elusive without better knowledge of shoreline habitat or the extent to which it should be protected.

That's why a gaggle of rubber boot-clad volunteers organized by the Point No Point Treaty Council (PNPTC) descended on eastern Strait of Juan de Fuca and Hood Canal beaches in June and July to collect data on eelgrass and other intertidal vegetation.

The PNPTC is the fisheries management consortium of the Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam and Lower Elwha Klallam tribes. The volunteers' hands-on, painstaking work – which included counting individual blades of eelgrass in sample plots – is being combined with high resolution aerial photographs to develop a detailed inventory of shoreline resources.

Counties are currently updating shoreline management plans in response to ESA, and the data collected should help in developing regulations to better protect shorelines and salmon habitat.

"The idea is to collect baseline data on nearshore habitat, for which we don't really have much," said PNPTC habitat biologist Ted Labbe, lead coordinator for the study.

Ted Labbe, Point No Point Treaty Council habitat biologist, trains volunteers to collect eelgrass information on Hood Canal. *Photo: L.Harris*

The field work will "ground truth" the aerial imagery, with the combined information creating a set of map overlays charting types and distributions of intertidal vegetation, particularly eelgrass, along with descriptions and locations of shoreline structures such as docks, marinas and bulkheads.

The importance of eelgrass to Hood Canal summer chum salmon, which along with Puget Sound chinook were recently protected under ESA, sparked the study by PNPTC. Life history research into summer chum shows that juveniles entering saltwater for the first time feed on small invertebrates found in eelgrass beds. And to keep from becoming a meal themselves, young salmon hide in the beds from predators. Eelgrass beds also serve as a nursery for herring – a favorite food of salmon – which lay their eggs on the slender green blades. – *L. Harris*

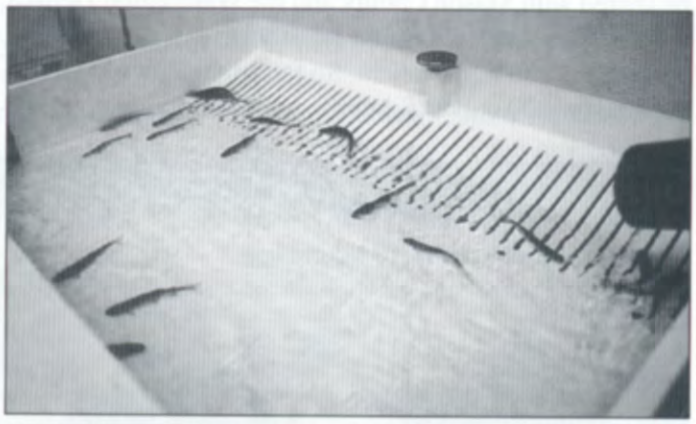
Lummi Nation Keeps Hatchery Practices On The Cutting Edge

Using a new high-technology approach, the Lummi Nation's Skookum Creek Hatchery is streamlining an already successful fish production process.

The nation is contracting with World Mark, Inc. – an Olympia-based fisheries corporation – to mark it's Skookum Creek Hatchery fish. Hatchery-reared salmon commonly have their adipose fins removed to enable fishermen to quickly identify them from their wild cousins.

Traditionally, human workers have clipped the fins by hand – but the mechanized method is less tiresome, more efficient and does not require the salmon to be anaesthetized. While the approach is futuristic, its principles are rooted in the natural world. Water flows guide the fish through the machine.

"The machines are actually gentler on the fish than human hands are, because they're constantly moving through water – as opposed to being handled, or being drugged," said Rob Darting, fisheries technician with World Mark.



Water flow guides young salmon into an automatic fin-clipping machine. *Photo: J. Shaw*

"Just like people, fish are more subject to disease and fatigue when they're under stress."

The new program is part of Lummi Nation's larger effort to constantly improve hatchery management techniques, said hatchery manager Bill Finkbonner.

"We're going to do whatever we can to keep our hatchery practices on the cutting edge," Finkbonner said. – *J. Shaw*

Lake Ozette Sockeye Focus Of Makah Study

Despite being listed as a threatened species, the historical abundance, population trends and life history of Lake Ozette sockeye are not well known. The Makah Tribe, in conjunction with other partners, is trying to change that.

"We know a lot about the sockeye runs in Alaska and the Lake Washington run. And we know the general life cycle of the Ozette run, but we don't know much about what the adult fish are doing while they spend six to eight months in the lake," said Kirt Hughes, project biologist for the Makah Tribe.

The Lake Ozette watershed is located near the northwestern tip of the Olympic Peninsula. Lake Ozette and the lands immediately surrounding it fall within Olympic National Park.

Lake Ozette is the source of the Ozette River, which drains into the Pacific Ocean. Of the approximately 450 miles of tributaries to Lake Ozette, an estimated 150 miles contain fish habitat, most of it east of the lake and largely contained on industrial timberlands.

Historic sockeye returns were huge, but have dwindled over the years as a variety of factors have taken their toll.

Since 1998, the Makah Tribe has been collecting video data at a weir on the Ozette River to develop more accurate run size estimates. The use of video cameras enables the tribe to more accurately count returning fish.

The video has already shown previous attempts to count returning fish were highly inaccurate. There appear to be more fish returning to the lake than originally estimated when the stock was listed as a "threatened" species several years ago.

As part of restoring the run, biologists need to know what happens to the fish once they enter the lake. "We have x-number of fish come up the river, but a significant percentage of those fish are unaccounted for at the spawning beaches," said Mike Haggerty, habitat manager for the Makah Tribe. "We want to know where those fish go. Is it up tributaries to spawn? Is there a high mortality and if so, what is the cause? That's the kind of answers we're looking for," he said.

Makah Fisheries Department personnel head out on Lake Ozette to track sockeye. *Photo: D. Preston*

Biologists also want to know what the fish do for the time they are in the lake before they spawn. Fish begin entering the lake in April, and have been observed spawning through February. Lake Ozette has one of the longest known freshwater phases for sockeye.

"It would be interesting to know if they are feeding during this time because there is such a long freshwater phase. Most other sockeye runs don't feed, but they spawn much sooner," said Hughes.

The tribe is combining the information from the weir with data collected from tracking the fish this year to learn more about what happens after they enter the lake.

"This will allow us to see if the fish are grouping up in significant numbers at any time before and during spawning and if this seems to be a factor in attracting predators," said Hughes. At high flows, seals are regular visitors to the Ozette River and Lake Ozette, and they have been observed on the spawning beaches, where they are likely feeding on the sockeye. River otters have also been observed preying on adult sockeye on numerous occasions in the Ozette River.

To track the fish, the Makah Tribe implanted transmitters in 29 sockeye during the summer when they moved into the lake. Hughes and his crew track the fish regularly using electronic locating devices. The fish are tracked for their lifetime in the lake.

The research is a cooperative effort with the National Marine Mammal Laboratory, a branch of the National Marine Fisheries Service. These research projects, which specifically address only the freshwater holding period of the adult sockeye, are only a part of the Makah Tribe's overall recovery plan efforts for Lake Ozette sockeye in the basin. It is being funded by federal Coastal Salmon Recovery funds as well as the Makah Tribe. Several hundred hours of volunteer Makah fisheries staff time have also gone into the project. – *D. Preston*

State, Tribe Foresee Better Razor Clam Harvest This Season

Razor clam populations are up slightly from last year on beaches in the vicinity of Ocean Shores and that means more opportunities for recreational and tribal harvesters.

It's a sign of success to the Quinault Indian Nation and the Washington Department of Fish of Wildlife, the co-managers of the razor clam resource.

"That's good news for everyone," said Joe Schumacker, marine shellfish biologist for the Quinault Indian Nation (QIN).

The QIN and the state work together to assess the clam populations on off-reservation beaches. They work side by side, using the same survey methods and splitting the tasks. Harvest limits developed from the surveys are a percentage of the available clams. The harvests are shared equally between recreational and tribal diggers as outlined by treaty and affirmed by the courts.

Tribal members dig more often because there are fewer tribal members compared to recreational diggers.

"It's simple numbers. If you have 8,000-10,000 non-tribal members harvesting in one day, there will be fewer days to harvest their 50 percent. We have roughly 250 tribal members total who may participate in the digs, so it may take us ten times as many days to get what non-tribal harvesters get in one day," said Schumacker. For instance, non-tribal members harvested more than 169,000 clams during a two-day dig in 1999.

Joe Schumacker, marine biologist for the Quinault Indian Nation, records razor clam information while technicians (from left) Ernie Taylor and Bruce Wagner pump clams from beneath the sand. *Photo: D. Preston*

The beaches are surveyed during the months when harvest is not occurring. A computer randomly selects where the surveys will be taken on a particular beach. "That way, no one can say that anyone is targeting an area where they know there are a lot of clams which might artificially make harvest limits higher," said Schumacker. "Randomization is a necessity for proper sampling."

Harvests had been restricted for several years to allow the resource to recover after the appearance of a disease that destroyed a large part of the clam population. The managers have increased the number of clams available for harvest as the health of the resource has improved. The presence of domoic acid, a naturally occurring toxin that can cause illness or death in humans, has also limited harvest in past seasons.

"Barring problems with domoic acid, this season should be a good one for everyone," said Schumacker. – *D. Preston*

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