

Elwha Fishery Restoration Project Reviewed

By John Aho and John Meyer

"Ladies and Gentlemen, it is time."

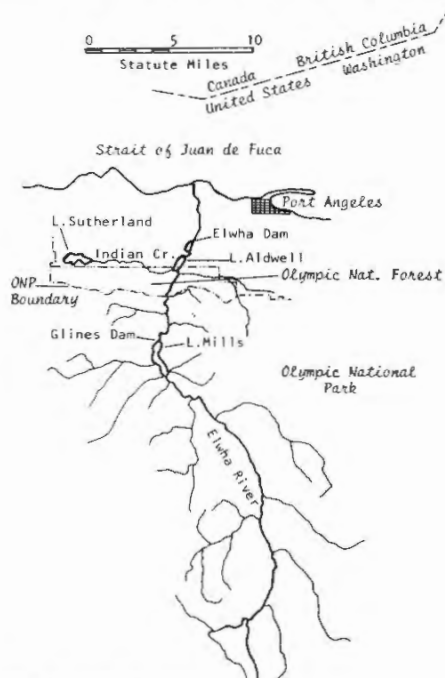
The simple words struck the delegates to the 1983 Olympic Wild Fish Conference as probably the most eloquent statement made on behalf of restoring wild salmon and steelhead trout to the upper Elwha River. The speaker was Dick Goin, a respected friend, a sportsman, and a lifelong resident of the Olympic Peninsula. His subject was the restoration to a majestic river of fish runs that ended nearly 80 years ago.

Yes, after 80 years, it is time, and time and opportunity coincide in the next few years. The dams, which produce hydroelectric power and block fish passage, require a license from the Federal Energy Regulatory Commission (FERC). Previous licenses and permits have expired. A new license is being sought by the James River Corporation, owner of the two dams. The fishery management agencies in the State of Washington, which include the NPS, have an opportunity to recommend to FERC that certain conditions accompany any license granted. Such conditions include mitigation measures to restore the upper Elwha ecosystem. These would include restoring the anadromous fish runs.

Chinook salmon fingerlings have been planted recently in the upper Elwha watershed to start again their ancient cycle, highlighting the current effort to restore salmon and steelhead runs above the two dams. Picture an early spring on the Elwha, the ice-green waters the color of glaciers. The meltwaters seep from alder bottoms and spruce terraces, gush from valley walls and side canyons, augmented by hundreds of tributaries. As the waters mix and swell, their chemistry creates a unique pattern of scents that characterize their origin. To fish, this is the smell of home and is imprinted upon every fingerling salmon. Three or four years later, after emigrating downstream and roaming the Pacific Ocean, the surviving adults will return to the Elwha. The survival of these salmon as they pass the dams, both downstream and upstream as adult spawners, is largely what the Elwha Restoration Project is about.

The effort began in 1983 at the conference, which renewed public interest and management attention to the issue of fishery restoration. The subject has recurred periodically during the preceding several decades, but like the salmon themselves, futilely attempting to leap the 100 foot high Elwha Dam, past efforts failed, leaving but a few fertile eggs to keep alive the hope of the next generation.

Most of the watershed lies within the park and has never been logged. The single development, the Glines Hydropower Project, was built in 1926-27 to enhance power production from the Elwha Project, constructed earlier between 1911 and 1914, below the boundary of today's national park. The Lower Elwha Band of the S'Klallam Tribe had long used the fishery to sustain a community at the Elwha's mouth. A treaty won for the new settlers the right to fish in common with the S'Klallams. Implied in the treaty is the belief that there were and would continue to be plenty of salmon to satisfy all needs. Much later, harvest disparity and the states' refusal to recognize treaty fishing rights (particularly for steelhead), precipitated an historic civil court case — the Boldt decision — adjudicating a 50-50 split of the harvestable fishery resource, and affirming the right of native Americans, in this case, the S'Klallams, to fish in their usual and accustomed places using their customary methods.



Elwha River drainage.

The S'Klallams contend that a major cause for the loss of their fishery was the construction of the two dams. Neither has provision for fish passage, either upstream or down. The sole mitigation for the loss of the fishery was negotiated by the State of Washington Department of Fisheries. It resulted in funding for construction and operation of a rearing channel to produce chinook on the lower river, at a cost of about \$90,000, annually, to the hydro operation.

No dollar value has been generated for the lost fisheries. However, an annual value just for chinook of about \$800,000 is reasonable, based on minimum pristine production estimates and combined sport and commercial catch values in 1988.

The Washington State mitigation settlement is significant, for it maintains the critically important chinook gene stock that may be used to restore this species to the upper river. While some of the Elwha spring chinook were the stuff of folk tales, their large size and stamina ensuring a place in the sporting annals, the higher value of such animals lies in their contribution to ecosystem restoration. Spring chinook stocks enter early and probe the highest reaches of the rivers, seeking the cool headwaters and shaded canyons within the park. The Elwha stock had a unique place in the ecosystem the agencies seek to restore. While the stock available from the lower river today has been changed to the introduction of non-Elwha genes, it remains the sole genetic reservoir of the original Elwha stock. When one observes these chinook massed in the cramped pool at the base of the Elwha dam, one cannot doubt that the instinct to search out the headwaters remains strong.

Early settlers shared the fishery with the S'Klallams. At Indian Creek, which enters the Elwha at the head of Lake Aldwell, the Indians traditionally had maintained a fishing camp. Thousands and thousands of pink salmon, a species noted for its mass spawning, congregated every other year. The settlers drove buckboard wagons into the creek, speared salmon with

pitchforks, and loaded their wagons till they sagged deeply onto their springs.

With construction of the first dam the fishery was devastated. No longer could the many unique genetic stocks of salmon and trout reach the upper river and tributaries. This was an environmental catastrophe. At the time the dams were constructed, the economic benefit of electric power generation was the single focus. That economic base has sustained industry through today, but now proposed expansion of the Daishowa America paper mill will depend to a much greater extent on BPA power, making the two dams' importance questionable.

While restoring a "fishery" implies harvest, the park manager views the larger task of ecosystem restoration. Harvest is secondary to the objective of restoring ecosystem elements, community structure, and processes that existed prior to the dams. However, fishery restoration is a first, major step. Fishery restoration might be accomplished without removing the dams, but only dam removal will restore natural hydrologic processes and habitat conditions that affect populations of beaver, river otter, elk, and bald eagles. With or without the dams, restoration alternatives include using a mixed stock management approach (both hatchery and wild stocks), or wild stocks only. In stock rebuilding should hatchery outplants of fingerlings be preferred over adults? Should rebuilding rely upon natural spawning escapement? The answers to these and other questions depend on NPS management policies, park management objectives, and fishery management goals, policies and objectives of our cooperators — the USFWS, the Washington Departments of Fisheries and Wildlife, the National Marine Fisheries Service, the U.S. Bureau of Indian Affairs, and the S'Klallam Tribe.



Airlifting "fish totes" carrying fry for release in the upper Elwha River.



Inclined plane smolt trap operates below the Elwha dam to sample smolt survival.



Glines Dam impounds Lake Mills within the boundary of Olympic NP. (Photo circa 1950, courtesy of USFWS archives.)



Elwha Dam impounds Lake Aldwell outside the boundary of Olympic NP. (Photo circa 1950, courtesy of USFWS archives.)

The restoration alternative with the best chance of success is dam removal. A combination of upstream and downstream passage facilities and operational accommodations would allow restoration to begin with the dams in place.

At the Glines Dam all spawners entering the trap will be grouped as up-river stocks and moved to a release site on Lake Mills, from which they will continue their migration. The Federal Energy Regulatory Commission (FERC) license applicant, James River Corporation, proposed trap and haul facilities for upstream passage at only Elwha Dam. Such an operation would involve human selection of spawners for the middle reach between the dams, confounding natural instincts of the fish to return to the reaches or tributaries upon which they were imprinted. It is generally assumed that natural selection will best produce and sustain viable genetic stocks over time. If the dams remain, the Agencies recommend a fish ladder at Elwha Dam that will accept all species and permit volitional distribution of spawners throughout the middle reach at all times of the run return.

The downstream passage alternative preferred at Glines Canyon Dam is to attract smolts over the spillway, maintaining sufficient flow during outmigration to entrain the fish, carrying them safely into the plunge pool at the dam's base. The constant attraction of the turbine intake presents a problem to be resolved by screening or turbine shutdown during periods of outmigration. New studies indicate problems also in passing fish safely over Glines Dam spillway. Some structural modification may be required there, too.

The Elwha Dam turbine intake must be screened, and the spillway presents another unique passage problem. Instead of a smooth crest-to-plunge-pool flow, the water leaves the spillway at the bottom of the gates and explodes into a raceway with exposed rock outcrops and a bend in the middle. Fish entering this flume are tossed and battered. Injury during spillway passage must be reduced. A combination of flow manipulation and spillway restructuring is planned. If screening is not used, turbines must be shut down during periods of smolt outmigration.

As several species are involved, downstream passage strategies are further complicated. Managers lack specific data about timing of smolt emigration and other behavior of the stocks currently found in the watershed and available to the project.

Support by Washington State and federal agencies, tribal governments, industry, sports clubs and other conservation organizations for restoration of the Elwha River fisheries has coalesced into a committee, the Elwha Restoration Steering Committee, which serves to communicate technical and other information to all groups affected by or interested in the restoration project. Thirteen feasibility studies carried out between 1954 and 1988 are available on the subject.

The chinook smolt emigration described at the beginning of this article is based on a plant of over 400,000 fingerlings widely distributed in the upper river in the spring of 1989. The objective is to refine information about outmigrant timing and exit selection for this stock, progeny of chinook that returned to the Elwha Spawning Channel and the lower river.

The present is a time of waiting. The agencies and the tribe are waiting for FERC to respond. Hosey and Associates, the consultant for the license applicant, and the James River Corporation are also waiting for FERC to respond. Conservation and recreation organizations are waiting for the government to act. The fish are waiting for passage to the upper river.

"Ladies and Gentlemen, it is time."

Aho and Meyer are biologists at Olympic NP.