

### Elwha Ecosystem Restoration

## Freeing the Elwha

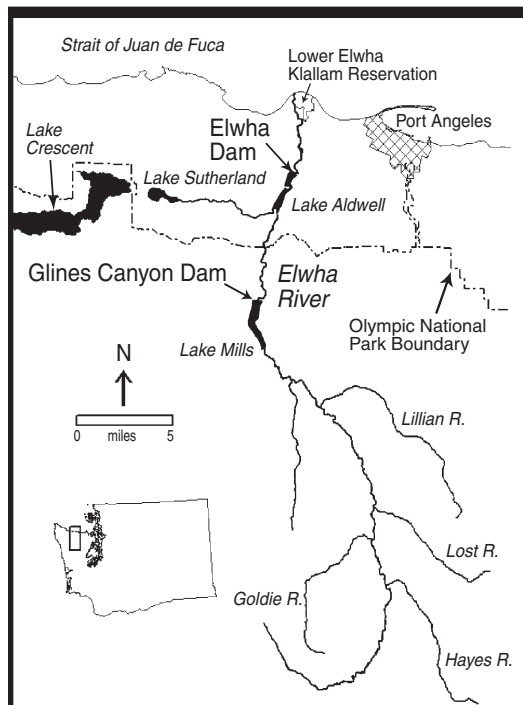
*Restoration in Olympic's Largest Watershed*

Long ago rich salmon runs crowded upstream to their spawning grounds in the wild Elwha River. The river ran freely through towering forests that sheltered a whole community of species including bears, cougars, elk, eagles and raccoons. For 10 different runs of anadromous fish—cutthroat trout, native char, winter and summer steelhead, coho, pink, chum, sockeye and spring and summer/fall chinook—this pristine valley was home. Generations of Klallam people have also lived in the Elwha valley, thriving on its wildlife and fish as well as shellfish harvested at the river's mouth.

But 100 years ago entrepreneur Thomas Aldwell saw the river and its narrow gorges as an economic opportunity. Between 1910 and 1913 Aldwell's Olympic Power and Development Company constructed the Elwha Dam, five miles from the river mouth. Despite a Washington State law requiring fish passage facilities, the dam was erected without them. An unsuccessful hatchery was built in lieu of fish ladders.

*"The Elwha was no longer a wild stream crashing down to the Strait; the Elwha was peace and power and civilization."* Thomas Aldwell

By 1927 Glines Canyon dam was completed eight miles upstream. Both dams originally powered growth as far away as the Bremerton naval shipyard. In later years they provided about 50% of the power for one paper mill.



## Natural Gifts From Land and Sea

The Elwha valley, the largest watershed in Olympic National Park, is a haven for countless plants and animals. Salmon runs that once ascended the Elwha were part of that community. Throughout their lifecycle, salmon nourish at least 137 species of wildlife, from tiny shrews nibbling bones or dippers snagging stray eggs, to bears gorging on the pink flesh or orcas pursuing fish in the ocean. Most Pacific salmon die after spawning and biologists estimate that historic Elwha runs provided over 800,000 pounds of nutrient-rich carcasses to terrestrial wildlife, birds, aquatic insects, the next generation of fish, and even surrounding forests. After the dams, that abundance dropped. Over 250,000 pink salmon were produced by the river before dam construction; by the 1980s that number fell to near zero.

Harnessing the river had other unforeseen impacts. Once rich shellfish beds at the river's mouth were starved of sediment, and are now dominated by large cobbles, unsuitable for clams. River meanders, fish sheltering log jams, and gravel spawning beds are degraded since gravel from above the dams has been eliminated and the passage of downed trees reduced.



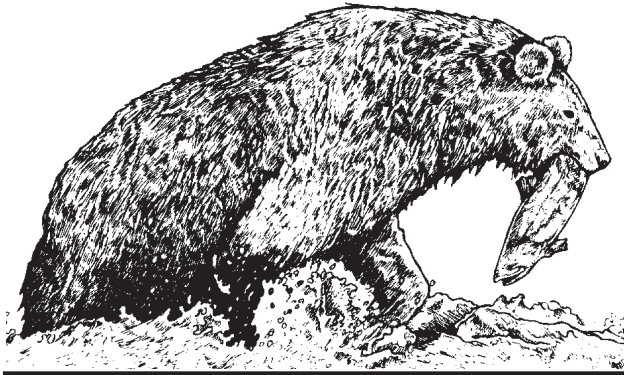
## Changing Values

During the federal licensing process in the 1980s legal challenges and policy questions about licensing a dam in a national park arose. Congress settled the issue by passing the Elwha River Ecosystem and Fisheries Restoration Act in 1992, with the support of the dams' owner, community leaders, the Lower Elwha Klallam tribe, the National Park Service, legislators, conservation groups and other agencies. The Act authorized the Department of the Interior to acquire and remove both dams if necessary to restore the fish and ecosystem. Years of research revealed dam removal is the only way to mend the valley's ecological health. The government purchased the dams in February 2000.

## The Mechanics of Restoration

To plan for restoration and gather public input, the park, tribe and cooperating agencies completed several Environmental Impact Statements. These documents examined how to meet Elwha Act goals; methods for dam removal, fish restoration, and sediment management; and ways to protect water supplies and downstream properties.

To remove the 210-foot arch of Glines Canyon Dam, engineers plan to draw down the lake and progressively notch and lower the dam. At the Elwha Dam a temporary coffer dam will redirect water down the spillway while the old dam is removed. Sediment built up behind the dams will erode downstream naturally, with releases timed to protect remnant fish runs in the lower river. Dam removal will begin after water treatment facilities are completed to protect area water supplies.



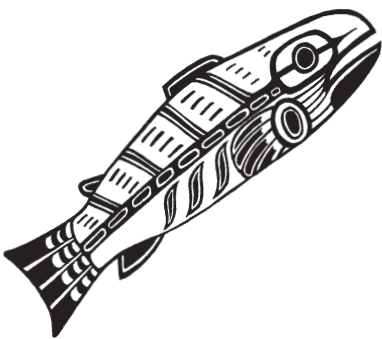
Biologists are planning varied techniques to restore fish, including planting young salmon upstream to imprint on the upper Elwha's waters. Fish that now gather below the lower dam will suddenly have over 70 miles of pristine habitat available. Their movement to historic spawning grounds, natural straying from neighboring watersheds, and harvest management will also help rebuild runs.

To restore formerly flooded lands, researchers have begun collecting seeds and propagating native plants. Work parties are also removing non-native plants to prevent their spread onto exposed reservoir silt.

## Looking Ahead

Elwha restoration is an investment in the future, bringing renewal to a natural system, as well as boosts to the local and regional economy in sectors such as tourism, recreation and fishing over the next 100 years.

Biologists estimate it will take 15 to 25 years for the salmon runs to fully recover. Complex forest communities will take longer, but returning fish will help. Their gift to the future is delivering ocean nutrients to Olympic National Park's wilderness haven—to the shrews, otters, raccoons, bears, eagles, insects and primeval forests of the Elwha valley. For details and updates on this remarkable process, please visit the Elwha Restoration Website: [www.nps.gov/olym](http://www.nps.gov/olym).



### What's Going On Now?

Some current projects are:

- A new phase, construction of water treatment facilities, will begin in late 2007 and is projected to take three years. Updates at [www.nps.gov/olym](http://www.nps.gov/olym).
- Native plant seed collection; removing invasive, exotic plants; revising revegetation plan for peer review.
- Baseline studies, including radio telemetry research on bull trout.
- Educational material available on a free CD or at [www.elwharivereducation.org](http://www.elwharivereducation.org).

