



AQUATIC LANDS HABITAT CONSERVATION PLAN — **Species Spotlight**

Eulachon or Pacific smelt – *Thaleichthys pacificus*

Protection status: *Washington state candidate (Federal ‘Threatened’ species)*

Eulachon, also known oolichan or Pacific smelt, is a small fish in the smelt family *Osmeridae*. Their scientific name, *Thaleichthys pacificus*, comes from the Greek word *Thaleia*, which means rich, and *ichthys*, which means fish. *Pacificus* means they live in the Pacific Ocean. Eulachon range from Monterey Bay, California, to the Bering Sea and Pribilof Islands. In Washington, they occur in the nearshore and offshore marine waters from the Columbia River north to Bellingham Bay and the Canadian border and within the Straits of Juan de Fuca.

Life history

Eulachon are *anadromous*—living in saltwater but spawning in freshwater—and migrate into some of the major river systems along the west coast of North America to spawn in the early spring every year. Known spawning rivers in Washington include the Bear, Columbia (Lower and major tributaries), Cowlitz, Elochoman, Elwah, Grays, Kalama, Lewis, Naselle, Nemah, Quinault, Queets, Toutle and Wynoochee.



Eulachon have a lifespan of three to five years. This smelt species is a long and slender fish with no markings, reaching a maximum of 11.8 inches (30cm) in length and weighing 2.65 ounces (75 grams).



Eulachon (*Thaleichthys pacificus*) adults and eggs. Photos: WDFW and Flicker photos (top & bottom, respectively).

Eulachon larvae generally hatch within 2 to 4 weeks and then are washed downstream, where they may remain in lower-salinity estuarine waters for several weeks. They then move to nearshore waters, where they remain until they become sexually mature, at around 3 years.

Adult eulachon return to rivers between northern California and the eastern Bering Sea, spawning only in a limited number of rivers—mainly those with a pronounced spring runoff. The spawning period may be several weeks and usually begins in January or February in southern rivers, such as the Columbia River, and extends into June in northern Alaskan rivers.

Schools of eulachon in the ocean support a variety of ages, and the adult eulachon that reach sexual maturity in the late summer or early fall leave the schools of younger fish to swim to the rivers in preparation for spawning. Eulachon likely return to the estuary of their birth, but it is not known if they return to the same river from where they hatched.

Habitat use

Eulachon start and end their life cycles in fresh water. During their early life stage as larval fish, estuarine vegetation like sedge grasses provide shelter from predators and opportunities to forage for food. Eulachon typically enter their juvenile stage of life (8 weeks to 12 months) in this estuarine environment. After spending 1 to 3 years at sea and having gone through their physical and biological adaptations to survive in fresh water, the eulachon begin their trip upriver to spawning locations. At this time, the fish reabsorb minerals from their scales and teeth in order to develop eggs and milt for spawning.

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Importance in the Ecosystem Food Web

This forage fish is an important food source in both freshwater and marine systems, providing energy to fish, sea birds, marine and terrestrial mammals, including white sturgeon, halibut, harlequin ducks, eagles, orcas, belugas, bear and people. Eulachon have high levels of fatty acids and vitamins A and E and are a good source of calcium, iron and zinc. They have a high energy density, higher than herring, and some predators have been observed to be thin when not feeding on them.

Cultural and Socio-Economic Significance

Native Americans used and continue to use Pacific smelt for food, social and ceremonial purposes throughout the Pacific Northwest. British Columbia tribal members called the eulachon “salvation fish” because they return to rivers during bleak winter months and provide sustenance until spring and summer. Also called “candlefish,” eulachon have a high oil content and could be dried and burned like a candle. Until ESA listing in 2010, eulachon long supported a commercial and recreational fishery in the lower Columbia River and tributary rivers in Washington and Oregon.

Why are eulachon included in the Aquatic Lands HCP?

On November 8, 2007, the Cowlitz Indian Tribe requested the listing of eulachon as threatened or endangered under the Endangered Species Act (ESA). In response to the petition and subsequent analysis, NOAA Fisheries issued a final determination to list the southern Distinct Population Segment (DPS) of eulachon as a threatened species under the ESA on May 17, 2010. Critical habitat was then designated on October 20, 2011 for the southern DSP of eulachon. NOAA Fisheries released a Notice of Intent to prepare a recovery plan for eulachon on July 3, 2013.

The Aquatic Lands Habitat Conservation Plan (HCP) addresses 29 species of animals that depend on submerged or intertidal lands for either all or a significant portion of their life history. Specific threats that warrant protection of the eulachon include:

- Loss and modification of habitat.
- Poor water quality.
- Dams, culverts, tide gates, weirs and structures designed to divert water.
- Chemical treatments.
- Toxins in river-bottom sediment.
- Dredging operations.

The Aquatic Lands Habitat Conservation Plan

The Washington State Department of Natural Resources (DNR) is steward of more than 2.6 million acres of state-owned aquatic lands beneath Washington’s navigable lakes, rivers, marine waters, and estuaries. DNR sustainably manages these aquatic lands on behalf of the people of the state—to protect fish and wildlife and to provide opportunities for commerce, navigation, and public access.

The increased demand for the use of aquatic lands can be harmful to aquatic habitats and species. To encourage a balanced approach to managing and protecting these lands, DNR is developing an Aquatic Lands **Habitat Conservation Plan** (HCP). The HCP will provide a framework for managing the aquatic lands under DNR’s stewardship to ensure the continued health of our state’s marine and fresh waters and the species that inhabit them.

Learn more

For more information about DNR’s Aquatic Lands HCP and the other species covered in the plan, visit: www.dnr.wa.gov/aquaticHCP. More information about restoring Pacific smelt:

- The NW Power and Conservation Council Lower Columbia Province Plan, Volume III: Chapter 4, Eulachon: www.nwcouncil.org/fw/subbasinplanning/lowercolumbia/plan/2004_05/
- NOAA Fisheries Eulachon Recovery Outline and Critical Habitat: www.westcoast.fisheries.noaa.gov/protected_species/eulachon/pacific_eulachon.html

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