



LONGFIN SMELT (*Spirinchus thaleichthys*)



Longfin Smelt are small silver fish with long thin bodies. They can be distinguished from other smelt species by their long pectoral fins. They are considered an anadromous species, meaning that they spawn in freshwater then move out to the ocean. However, there are landlocked populations that live entirely in freshwater lakes such as Lake Washington. They are also frequently found in estuaries.

OVERVIEW

- **Oregon Conservation Strategy Species**
- **Size:** Up to 8 inches long
- **Weight:**
- **Lifespan:** Up to 3 years, mostly to 2 years
- **Key Strategy Habitats:** Nearshore, Estuaries
- **Similar Species:** Night Smelt.

RANGE AND DISTRIBUTION

In Oregon: Longfin Smelt can be found in the state's marine waters. They have been recorded in the Columbia River, Tillamook Bay, Yaquina Bay, and Coos Bay estuaries.

Everywhere Else: Longfin Smelt range from the western Gulf of Alaska to Monterey Bay. They are more common from San Francisco Bay northward.

FUN FACTS

Favorite Food: Plankton.

- Longfin Smelt are what is commonly called a forage fish and as such are an important energy link from plankton to predators.
- Much of what we know about Longfin Smelt life history is from research done either in San Francisco Bay or Lake Washington.
- Longfin Smelt die after spawning, similar to many salmon species.
- Most fish spawn at 2 years of age, but some spawn at 1 year and some at 3 years of age.
- Longfin Smelt used to support a commercial fishery in San Francisco Bay.

LIFE HISTORY AND ECOLOGY

Most of what we know of their life history and ecology is from studies done on populations in the San Francisco Bay and in Lake Washington. Most Longfin Smelt live for 2 years and are thought to die after they spawn, but some Longfins Smelt spawn at age 1 and some at age 3 so the lifespan can vary. The largest specimens are the 3 year old females that can reach up to about 6 inches in length. A migration to spawning areas takes place from November through January and peak spawning takes place sometime between December and March. There is little information on the actual spawning locations



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other than for the landlocked population in Lake Washington, but those that live in the ocean and estuaries are thought to enter the lower portions of freshwater streams and rivers for spawning. However, recent work in San Francisco Bay indicates that successful spawning also occurs in tidal wetlands when there is sufficient freshwater input and persistent low-salinity conditions. Females lay eggs that stick to the bottom or vegetation and produce somewhere between about 500 to 23,600 eggs with larger fish producing more eggs. Embryos are thought to hatch sometime from January to March and development time is temperature dependent. Embryos develop more quickly in warmer temperatures and hatching occurs after 40 days in 45°F water and in 29 days in waters between 46 and 49 degrees. The newly hatched larval fish then move into low salinity estuarine waters for a brief period of several months before moving downstream to more saline waters in the bays for about a year. Fish then move out to the ocean before migrating back to the spawning grounds up river.

Known predators of Longfin Smelt include, Chinook Salmon, Cutthroat Trout, Striped Bass, Spiny Dogfish, Common Murres, seals, and porpoises. Humans also prey on Longfin Smelt. There used to be a commercial fishery for this species in San Francisco Bay and Longfin Smelt are currently taken in recreational fisheries.

DIET AND FORAGING

Longfin Smelt forage both on or near the bottom and in the water column. Their prey includes amphipods, krill, mysid shrimps, copepods, and insects.

HABITAT CHARACTERISTICS

Longfin Smelt live most of their lives in marine or estuarine waters, but freshwater is important for spawning. Longfin Smelt live in the water column. Spawning occurs on sand or pebble bottoms. Longfin Smelt seem to be restricted to waters with temperatures below 71°F and spawning of the San Francisco Bay-Delta population occurs in waters from 41 to 58 degrees.

CONSERVATION AND MANAGEMENT

Threats: Changes in freshwater river flows. Changes in prey abundance and species. Habitat loss or alteration. Toxic chemicals. Disease.

Conservation and management: Longfin Smelt, like all true smelt species, are included as a shared Ecosystem Component Species in all of the Fishery Management Plans administered by the Pacific Fishery Management Council (PFMC) as part of the Comprehensive Ecosystem Based Amendment 1 which prohibits development of new directed commercial fisheries for these species in federal waters. Commercial fisheries targeting true smelt in Oregon are currently prohibited. Longfin Smelt as well as other smelts, except Eulachon, can be taken by recreational fishermen up to current daily limits. Little is known about Longfin Smelt in Oregon waters. There is currently no information available about current distribution, population abundance, or trends in Oregon. They are listed as threatened under the



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California Endangered Species Act. The San Francisco Bay-Delta population of Longfin Smelt was added to the federal Endangered Species Act candidate species list in 2012 after a 12 month finding determined that protection of this Distinct Population Segment was warranted, but that listing was precluded at that time due to other priorities.

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