EULACHON (*Thaleichthys pacificus*)

Eulachon are in the smelt family. They are small fish that are silvery-blue on their backs and silver below. They have small black dots on their backs and sometimes on their tail fin. They also have ridges on their gill plates. Eulachon are one of about 30 species of what are called forage fish that are key components of the California Current ecosystem. These forage fish eat plankton and are preyed upon by a wide variety of fishes, birds, and marine mammals. These species provide the key trophic link from primary and secondary production to higher tropic order consumers.

OVERVIEW

- **Oregon Conservation Strategy Species**
- **Federal ESA Listing Status: Threatened – Southern Distinct Population Segment (DPS)**
- **Size:** Up to 10 inches long
- **Weight:** Up to 5 ounces
- **Lifespan:** Up to about 9 years
- **Key Strategy Habitats:** Nearshore, Coast Range, Klamath Mountains, Willamette Valley and lower Columbia River tributaries.
- **Similar Species:** Night Smelt, Longfin Smelt.

RANGE AND DISTRIBUTION

In Oregon: Eulachon can be found throughout the state's marine waters. They also utilize estuaries and rivers as part of their life history.

Everywhere Else: Eulachon range from the southeastern Bering Sea to northern California.

FUN FACTS

Favorite Food: Plankton. Eulachon eat both plant (phyto) and animal (zoo) plankton.

- Eulachon spawn in fresh water rivers; this is called an anadromous life history.
- They are sometimes called candlefish because dried Eulachon are so oily that they will burn like a candle, and they were used as candles by Native Americans.
- Eulachon have a long history of human harvest going back to Native Americans.
- Eulachon are an important component of the California Current ecosystem, consuming plankton and providing energy rich food for a large number of species that prey on them.

LIFE HISTORY AND ECOLOGY

Eulachon spawn in rivers sometime between December and June. Some rivers have yearly runs and other rivers are only occasionally used. They spawn over sand or gravel. The eggs stick to the bottom once they are fertilized and usually hatch in about 2 to 4 weeks. The larvae then move quickly downstream to the ocean. Juvenile Eulachon will school near the bottom in the ocean and older Eulachon tend to move to deeper waters over the continental shelf. Eulachon mature sometime

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between about 2 and 4 years of age and maturity seems to be size dependent with fish generally growing more slowly and maturing later at higher latitudes. They often spawn within the tidal reaches of rivers but are known to go almost 100 miles up the Columbia River and into some of its tributaries to spawn. Stocks from each river system are thought to be genetically isolated. Eulachon sometimes mix with other small schooling forage fish such as Northern Anchovy and Pacific Herring. All of these forage fish species are plankton eaters consuming both phytoplankton and zooplankton. In turn, these forage fish are preyed upon by a wide variety of fishes, birds, and marine mammals. Thus they are an important trophic link in the food web transferring the energy up the food web. Some predators of Eulachon specifically target the large spawning runs and there can be thousands for predators taking advantage of this rich food source.

Predators of Eulachon include Chinook and Coho salmon, Pacific Halibut, Lingcod, Sablefish, Spiny Dogfish, and White Sturgeon. There are at least 34 species of birds that eat Eulachon as well as harbor seals, California sea lions, Steller sea lions, a variety of whale species and terrestrial mammals such as minks, bears and wolves among others. Of course humans eat Eulachon too and Native Americans historically have used them for a variety of other purposes including as candles!

DIET AND FORAGING

Eulachon eat a wide variety both phytoplankton and zooplankton.

HABITAT CHARACTERISTICS

Eulachon juveniles and adults live near the bottom of the ocean. Juveniles are generally found in shallower waters closer to shore than adults which can range out to depths of about 500 feet. They are most frequently found over sandy or muddy bottom types in the ocean. They go up rivers with large spring runoff for spawning.

CONSERVATION AND MANAGEMENT

Threats: The southern DPS of Eulachon, defined as those from the Naas River in British Columbia southward to northern California, are listed as Threatened under the Endangered Species Act. Climate change impacts to ocean conditions and freshwater habitats pose the greatest threats to Eulachon. Bycatch in the pink shrimp fishery was also listed as a major concern at the time of listing.

Conservation and management: The southern DPS of Eulachon are managed under the federal Endangered Species Act by the National Marine Fisheries Service. Eulachon, like all 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. The Oregon Department of Fish and Wildlife works in concert with the federal government and manages fisheries within state waters. The Department has undertaken

extensive research to reduce bycatch of Eulachon in the fishery for pink shrimp. Light-emitting diode (LED) lights placed on footropes of shrimp trawl nets reduced bycatch of Eulachon by more than 90%. The majority of the shrimp fishery vessels voluntarily started using these lights to reduce Eulachon bycatch before the Department required their use in addition to bycatch reduction devices, which are essentially rigid grates fixed inside the net.

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