



# NORTHERN ANCHOVY (*Engraulis mordax*)



Northern Anchovy are small silver fish with long thin bodies. They are green or blue on their backs and silvery below. They look somewhat similar to many other forage fish species. One distinguishing feature of Northern Anchovy is their mouths. Their lower jaw opens extremely wide which helps them feed on a wide variety of plankton. Northern Anchovy are an energy rich food source for many ocean predators including at least 90 species of birds, fishes, and marine mammals. They are an important link in the marine food web off our coast.

## OVERVIEW

- **Oregon Conservation Strategy Species**
- **Size:** Up to about 9.8 inches long
- **Weight:** Up to about 2 ounces
- **Lifespan:** Up to 7 years
- **Key Strategy Habitats:** Nearshore, Estuaries
- **Similar Species:** Deepbody Anchovy, Slough Anchovy.

## RANGE AND DISTRIBUTION

**In Oregon:** Northern Anchovy can be found throughout the state's marine waters and in estuaries.

**Everywhere Else:** Northern Anchovy range from British Columbia to Baja Mexico and into the Gulf of California.

## FUN FACTS

**Favorite Food:** Plankton.

- Northern Anchovy are what is commonly called a forage fish and as such are an important energy link from plankton to predators in the ocean food web.
- Northern Anchovy are a schooling fish that can form very large schools that are preyed upon by birds, fishes, marine mammals, and humans.
- Northern Anchovy were the focus of major commercial fisheries in the U.S., Mexico and to a lesser extent Canada.
- Peak commercial catches were over 316 million pound in California, over 569 million pounds in Mexico, and over 13 million pounds in British Columbia.

## LIFE HISTORY AND ECOLOGY

There are three recognized subpopulations of Northern Anchovy along the Pacific coast of North America. The northern subpopulation spawns mainly during the summer off Oregon in the waters of the Columbia River plume. The central subpopulation spawns mainly in winter and spring off southern California in the California Bight. The southern subpopulation spawns mainly in the waters off Punta



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Eugenia, the western most point on the Baja peninsula, and Magdalena Bay in southern Baja, Mexico. Although there are peak spawning times, both the southern and central subpopulations spawn throughout the year and the northern subpopulation has also been observed to do so under certain conditions. The range of the central subpopulation overlaps with both the subpopulation to its north and to its south, but any actual mixing of these subpopulations may be limited by seasonal movements.

Northern Anchovy can live for up to 7 years, but they rarely make it past about 4 years. They mature at between 1 and 4 years of age. Spawning for Northern Anchovy means releasing eggs and sperm into the water. They spawn multiple times each year. The number of eggs produced and released may change year to year depending on ocean productivity that affects food supply available to adults. The drifting eggs develop and hatch in about 2 to 4 days depending on water temperature. The larvae are born with an egg yolk still attached that is absorbed within about 36 hours. Larvae start feeding on their own 4 days after hatching when their mouth becomes functional. The larvae and young live near the surface of the water for about a year. Northern Anchovy populations have naturally occurring boom and bust cycles that appear to be related to ocean conditions and productivity. This species is one of the dominant forage fish in the very productive California Current ecosystem along with Pacific Sardine. Both species are important links in the marine food web. They both eat plankton and are preyed on by a wide variety of predators including birds, fishes and marine mammals. Northern Anchovy have been the target of commercial fisheries in the U.S., Mexico, and Canada with peak annual catches recorded in the 20<sup>th</sup> century of over 316 million, 569 million, and 13 million pounds, respectively. Catch levels have been much lower in recent years. Abundance appears to have declined then increased for at least the central subpopulation over the years, but information on trends in abundance and population estimates are more limited for the other two subpopulations.

Northern Anchovy abundance is tied to the conditions in the ocean that may include temperature, food abundance and predator abundance among other things. Populations of anchovy are known to undergo extreme population fluctuations.

Predators of Northern Anchovy include more than 90 species of birds, fishes, and marine mammals. Northern Anchovy is an important food source for these predators, but not their only one. These predators eat many other prey and switch prey based on their relative availability. Humans also prey on Northern Anchovy and use them for a variety of purposes. Native Americans caught and utilized northern anchovy in Oregon.

## DIET AND FORAGING

Northern Anchovy forage in the water column. Their prey includes a wide variety of plankton that included both phytoplankton (plants) and zooplankton (animals). Warm ocean conditions can affect both prey availability and diet.



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## HABITAT CHARACTERISTICS

Northern Anchovy live in marine or estuarine waters. Their entire lifecycle is pelagic, meaning they live in the water column not on the bottom. Northern anchovy can be found in waters with surface temperatures from about 50-79° F, but temperatures for successful spawning are generally from about 57-61° F.

## CONSERVATION AND MANAGEMENT

**Threats:** Changes in ocean productivity, currents and water masses may affect their abundance and distribution. Changes in prey abundance and species. Habitat loss or alteration.

**Conservation and management:** Northern Anchovy are included in the Coastal Pelagic Species Fisheries Management Plan administered by the Pacific Fishery Management Council (PFMC). The Oregon Department of Fish and Wildlife works in concert PFMC and manages fisheries within state waters. The management goal is to maintain a sustainable fishery resource and annual catch limits for fisheries are in place.

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