



# Background: Coastal Pelagic Species

## What are Coastal Pelagic Species?

Coastal pelagic species (CPS) include northern anchovy, market squid, Pacific bonito, Pacific saury, Pacific herring, Pacific sardine, Pacific (chub or blue) mackerel, and jack (Spanish) mackerel. “Pelagic” means these fish live in the water column as opposed to living near the sea floor. They can generally be found anywhere from the surface to 1,000 meters (547 fathoms) deep. Five of these species are managed under the Pacific Council’s CPS fishery management plan (FMP).

Northern anchovy (*Engraulis mordax*) are small, short-lived fish that are typically found in schools near the surface. They are found from British Columbia to



Baja California and have recently appeared in the Gulf of California. Northern anchovies are divided into northern, central, and southern sub-populations. The central sub-population used to be the focus of large commercial fisheries in the U.S. and Mexico. Most of this sub-population is located in the Southern California Bight, between Point Conception, California and Point Descanso, Mexico. (The Southern California Bight is an indentation along the coast of southern California that includes coastal southern California, the Channel Islands, and a section of the Pacific Ocean.) Northern anchovy are an important part of the food chain for other species, including other fish, birds, and marine mammals.

Pacific sardine (*Sardinops sagax*) are also small schooling fish. At times, they have been the most abundant fish species in the California current, a highly productive current that extends up to 1,000 kilometers offshore from Oregon to Baja California. When the population of Pacific sardine is large, it is abundant from the tip of Baja California to southeastern Alaska

### Acronyms

CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CPS	coastal pelagic species
CPSAS	Coastal Pelagic Species Advisory Sub-panel
CPSMT	Coastal Pelagic Species Management Team
EEZ	Exclusive Economic Zone
FMP	fishery management plan
MSY	maximum sustainable yield
NMFS	National Marine Fisheries Service
SAFE	Stock Assessment and Fishery Evaluation

and throughout the Gulf of California. In the north, sardines tend to appear seasonally. Sardines also form three (and possibly four) sub-populations. The northern sub-population of sardines is most important to U.S. commercial fisheries. Sardines may live as long as 13 years, but they are usually younger than five years old. Like anchovies, they are taken by a wide variety of predators. More information on current Pacific sardine abundance and population trends is available in the current CPS Stock Assessment and Fishery Evaluation (SAFE) Report. The report is online at <http://www.pcouncil.org/cps/cpssafe.html> and is available from the Council office.

Pacific (chub) mackerel (*Scomber japonicus*) range from Mexico to southeastern Alaska. They are most



abundant south of Point Conception, California and usually appear within 20 miles offshore. The “northeastern Pacific” stock of Pacific mackerel is harvested by fishers in the U.S. and Mexico. Like sardines and anchovies, mackerel are schooling fish, and they may school with other pelagic species such as jack mackerel and sardines. They are also heavily preyed upon by a variety of fish, mammals, and sea birds.

Jack mackerel (*Trachurus symmetricus*) are a schooling fish that range widely throughout the northeastern Pacific. They grow to about 60 cm and can live 35 years or longer. Much of their range lies outside the 200-mile U.S. Exclusive Economic Zone (EEZ). Small jack mackerel (up to six years of age) are most abundant in the Southern California Bight, where they

are often found near the mainland coast and islands and over shallow rocky banks. Older, larger fish range from Cabo San Lucas, Baja California to the Gulf of Alaska, where they are generally found offshore in deep water and along the coastline to the north of Point Conception. Large fish rarely appear close to the southern shore. In southern California waters, jack mackerel schools are often found over rocky banks, artificial reefs, and shallow rocky coastal areas. They remain near the bottom or under kelp canopies during daylight and venture into deeper surrounding areas at night. Young juvenile fish sometimes form small schools beneath floating kelp and debris in the open sea. Jack mackerel in southern California are more likely to appear on offshore banks in late spring, summer, and early fall.

Small jack mackerel taken off southern California and northern Baja California eat large zooplankton, juvenile squid, and anchovy. Larvae feed almost entirely on plankton. The spawning season for jack mackerel off California extends from February to October, with peak activity from March to July. Little is known about the maturity cycle of large fish offshore, but peak spawning appears to occur later in more northerly waters.

Large predators like tuna and billfish eat jack mackerel, but adult jack mackerel are probably a minor forage source for smaller predators. Older jack mackerel probably do not contribute significantly to food supplies of marine birds because they are too large to be eaten by most bird species, and they school too deep for birds to reach them. They do not appear to be an important food source for marine mammals.

Market squid (*Loligo opalescens*) appear from the southern tip of Baja California to southeastern Alaska. They are most abundant between Punta Eugenio, Baja California and Monterey Bay, California. They are harvested near the surface, but they can appear to depths of 800 meters or more. They prefer the salinity of the ocean and are rarely found in estuaries, bays, or river mouths. Squid are short-lived (up to ten months). They are important as forage foods to many fish, birds, and mammals, such as king salmon, coho salmon, lingcod, rockfish, seals and sea lions, sea



otters, porpoises, cormorants, and murre. For more information on market squid life history, contact the Council office for a copy of the market squid Stock Assessment Review (STAR) report.

### The Fishery and Gear

In the 1940s and 1950s, about 200 vessels participated in the Pacific sardine fishery. Some of these boats are still fishing today.

Coastal pelagic species are harvested directly and as bycatch in other fisheries. Generally, they are targeted with “round-haul” gear including purse seines, drum seines, lampara nets, and dip nets. These species are also taken incidentally with midwater trawls, pelagic trawls, gillnets, trammel nets, trolls, pots, hook-and-line, and jigs.

Market squid are fished at night with the use of powerful lights, which attract the squid to the surface. They are either pumped directly from the sea into the hold of the boat or caught with an encircling net.

Coastal pelagic species are found in the EEZs of Canada, Mexico, and the U.S., as well as in international waters outside the U.S. EEZ. Within the U.S. EEZ, sardines are caught by U.S. commercial fisheries, by party and charter boats, and by anglers. Beyond the U.S. EEZ, sardines are caught in Mexican and Canadian fisheries.

Most processors and buyers of CPS on the West Coast are located in California, mainly in Los Angeles, Santa Barbara-Ventura, and Monterey. Some are also located in the Columbia River port areas of Oregon and Washington. Most of the market squid and Pacific sardines caught in the U.S. are exported. Market squid are mainly exported to China, Japan, Mexico, Spain, and the United Kingdom. Sardines are mainly exported to Japan, where they are used for human consumption and as bait for longline fisheries; and Australia, where they are used to feed farmed bluefin tuna. A very small amount of sardines landed in Oregon and Washington are sold to Portland-area restaurants.

### Management Cycle

Under the annual management cycle for CPS, every June a SAFE document is presented to the Council along with the current stock assessment for Pacific mackerel. At the June meeting, the Council adopts a harvest guideline for the fishery, which runs from July 1 through June 30. In November, as a supplement to the SAFE document, the current stock assessment for Pacific sardine is presented to the Council, and the Council adopts a harvest guideline for the January 1 through December 31 fishery. Detailed information on CPS fishery statistics, management history, harvest policy, and economics can be found in the SAFE document on the Council web page (<http://www.pcouncil.org/cps/cpssafe.html>).

## Plan History

The current CPS FMP evolved from the Northern Anchovy FMP, which went into effect in 1978. In 1995, the Council decided to develop a plan for the entire CPS fishery. The new plan went into effect in 1999. Amendment 9, which dealt with bycatch and Indian fishing rights, went into effect in 2001; Amendment 10, which establishes a maximum fleet capacity for the CPS fishery, went into effect in 2003; and Amendment 11, which implements long-term allocation of Pacific sardine, went into effect in 2006. Amendment 12, approved in 2009, prohibits the harvest of krill.

## How Do I Get Involved?

- Contact: Mr. Mike Burner, Staff Officer for coastal pelagic species, at [mike.burner@noaa.gov](mailto:mike.burner@noaa.gov) or 503-820-2280 (toll free 866-806-7204).
- Read the fishery management plan or its summary at <http://www.pcouncil.org/cps/cpsfmp.html>.
- Comment via email, mail, or at a Council meeting.
- Contact members of the Council, the CPSMT or the CPSAP, or attend their public meetings. The CPSMT and the CPSAS are the two Council advisory bodies responsible for monitoring and developing options for CPS fisheries. Please see the Council Roster (on our website) for the composition of these committees.

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