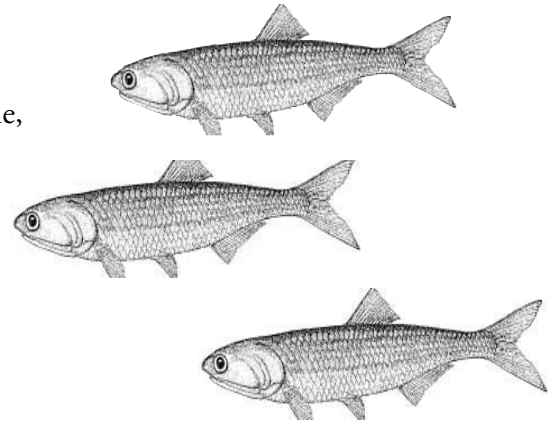
Backgrounder: Coastal Pelagic Species

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). These fish are described below.

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.

Acronyms

CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CPS	coastal pelagic species
CPSAS	Coastal Pelagic Species Advisory Subpanel
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
STAR	stock assessment review
SWFSC	Southwest Fisheries Science Center (National Marine Fisheries Service)

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

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the tip of Baja California to southeastern Alaska 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 www.pcouncil.org/cps/cpssafe/0603safe.html or 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 murres. 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, the Philippines, Japan, Spain, and Venezuela. 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. Mackerel are exported to Japan, the Philippines, and Malta for human consumption.

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 (www.pcouncil.org).

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; and Amendment 10, which establishes a maximum fleet capacity for the CPS fishery, went into effect in 2003. This amendment

allows the transfer of limited entry permits to vessels and/or individuals as long as the second vessel is of comparable capacity, and establishes criteria for issuing new permits if economic or resource conditions indicate that such permits would be beneficial. Amendment 10 requires specific actions to maintain the fleet capacity. Transferability gives holders of limited entry permits flexibility in their fishing operations. The amendment also defines maximum sustained yield (MSY) for market squid.

Recent Amendments

Amendment 11 - Long Term Sardine Allocation

In 2003, the Council began developing options for a new allocation framework for the coastwide Pacific sardine fishery. This revision will occur through Amendment 11 to the CPS FMP in 2006. The amendment is intended to achieve optimal use of the resource and equitable allocation of harvest opportunity.

In June 2005, the Council adopted a long-term framework to allocate the annual Pacific sardine harvest guideline among the various non-tribal sectors of the sardine fishery. The Council followed the unanimous opinion of the Coastal Pelagic Species Advisory Subpanel (CPSAS) to provide the following allocation formula:

(1) January 1, 35% of the harvest guideline to be allocated coastwide;

(2) July 1, 40% of the harvest guideline, plus any portion not harvested from the initial allocation, to be reallocated coastwide; and

(3) September 15, the remaining 25% of the harvest guideline, plus any portion not harvested from earlier allocations, to be reallocated coastwide.

To address the dynamic nature of the Pacific sardine resource and uncertainties inherent in long-term projections, the Council scheduled a formal review of the allocation formula in 2008. This review will compare the performance of the fishery in the first two years to the projections used to evaluate the adopted allocation scheme, and will include any new information from Pacific sardine research.

Amendment 12 - Krill Harvest Ban

In March 2006, the Council adopted a complete ban on commercial fishing for all species of krill in West Coast federal waters and made no provisions for future fisheries. They also specified essential fish habitat for krill, making it easier to work with other federal agencies to protect krill. This broad prohibition will apply to all vessels in Council-managed waters and will take form as Amendment 12 to the CPS FMP when fully implemented in 2006.

A krill harvest ban was first proposed for West Coast National Marine Sanctuary waters by the National Marine Sanctuary Program and was expanded to the entire EEZ by the Council in recognition of the importance of krill as a fundamental food source for much of the marine life along the West Coast. State laws prohibit krill landings by state-licensed fishing vessels into California, Oregon, and Washington, respectively. Thus, the action could provide for consistent federal and state management.

Krill (euphausiids) are small shrimp-like crustaceans that serve as the basis of the marine food chain. They are eaten by many species of fish managed by the Council, as well as by whales and seabirds. Although there was no fishery for krill in Council waters, krill are fished in Antarctica, Japan, and off the west coast of Canada. They are used in aquaculture and livestock feed and for fish bait and pet foods.

Hot Topics

Bycatch. Bycatch is generally low in CPS fisheries because most CPS vessels fish with roundhaul gear, which encircles schools of fish with nets. This gear targets a specific school, which usually contains only one species. The most common incidental catch in the CPS fishery is another CPS species (for example, Pacific mackerel may be caught along with Pacific sardines). Larger fish can usually be released alive by lowering a section of the net or using a dipnet.

However, bycatch of Pacific salmon listed under the Endangered Species Act has been a concern for the sardine fishery off Oregon and Washington. Based primarily on observer data collected by Washington and supported by logbook and observed trips in Oregon, National Marine Fisheries Service (NMFS) issued a Biological Opinion on March 10, 2006 that determined that fishing activities conducted under the CPS FMP are not likely to jeopardize the continued existence of any endangered or threatened species. Specifically, ESA-listed chinook and coho were deemed not likely to be jeopardized by the Pacific sardine fishery.

In California, NMFS initiated a pilot observer program for California-based commercial purse seine fishing vessels in July 2004, hoping to learn more about bycatch rates derived from dockside sampling by the California Department of Fish and Game. Initial results are under review and can be found in the CPS Stock Assessment and Fishery Evaluation document. Although funding is limited, NMFS plans to continue the program in 2007.

Coastwide Sardine Research Cruise. In April 2006, NMFS conducted the first coastwide assessment of the Pacific sardine resource on the West Coast. The cruise was an extension of a long-standing survey conducted in California. Interest in a coastwide assessment grew as Pacific sardine populations grew and fisheries once again started in the Pacific Northwest. It is hoped that continued research coordination with Mexico and Canada at this year's Trinational Sardine Forum will provide an opportunity for survey data throughout the stock's range.

Tribal Pacific Sardine Fishery. Tribal fisheries on sardine may evolve in tribal usual and accustomed fishing grounds in waters north of Point Chehalis, Washington. The CPS FMP recognizes the rights of treaty Indian tribes to harvest Pacific sardine and provides a framework for the development of a tribal allocation. The Makah tribe informed the Council of their intent to enter the sardine fishery in 2006. In response, the Council created the Ad Hoc Sardine Tribal Allocation Committee, made up of state, federal, and tribal representatives. At this time, the tribes are continuing to explore participation in the Pacific sardine fishery, but the ad hoc committee has not met.

How Do I Get Involved?

- Contact: Mr. Mike Burner, Staff Officer for coastal pelagic species, at 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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