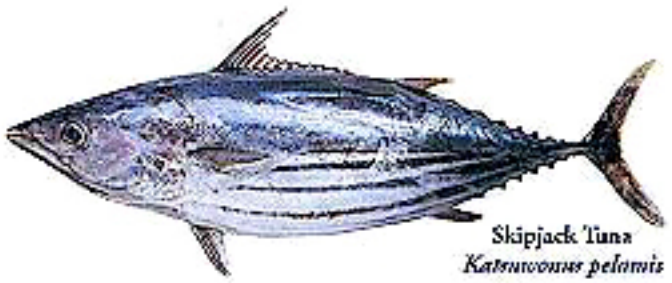
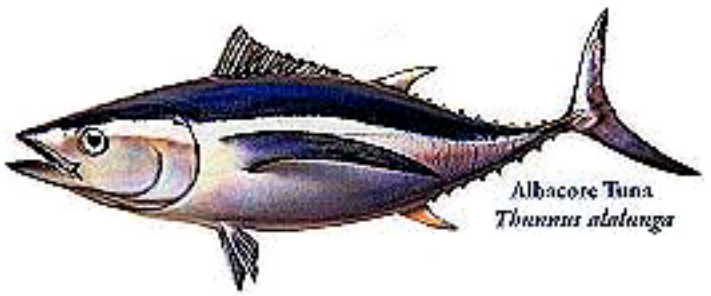
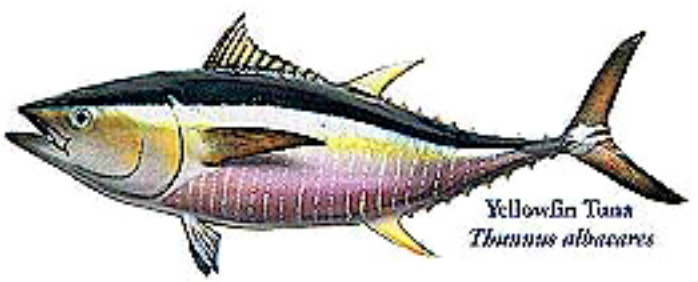
# TUNAS



Skipjack Tuna
*Katsuwonus pelamis*



Albacore Tuna
*Thunnus alalunga*



Yellowfin Tuna
*Thunnus albacares*

Bluefin Tuna
*Thunnus thynnus*

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Western United States Seafood
PROMOTION PROGRAM

# PACIFIC BONITO

*Sarda chiliensis*

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CALIFORNIA SEAFOOD

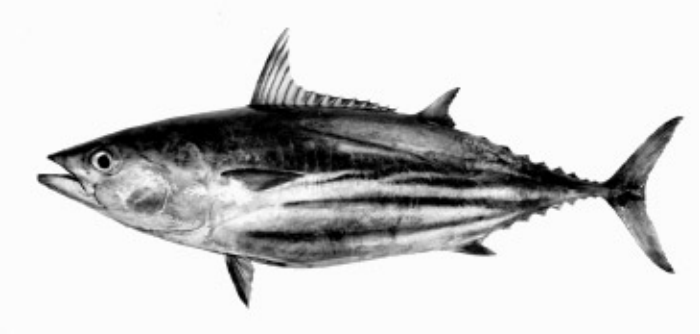
Western United States Seafood PROMOTION PROGRAM

# Skipjack Tuna

## History of the Fishery

Skipjack tuna (*Katsuwonus pelamis*) have been harvested in the eastern Pacific by commercial bait boats since the early 1900s, and later by commercial purse seine, gillnet, troll fisheries and recreational fisheries. Skipjack tuna mixed with yellowfin tuna are frequently caught by these fisheries. Skipjack tuna are highly migratory and have been fished by many different countries such as the U.S., Mexico, Ecuador, France, and Spain. Landings from these countries are marketed throughout the Pacific Rim, Puerto Rico, and the European Community. Fisheries landing skipjack tuna in California operate between 150°W longitude and the coast of the Americas and between 40°N and 20°S latitude. California landings of skipjack tuna are important to both commercial and recreational fisheries.

Commercial landings of skipjack tuna in California started in 1918, and mainly supplied canneries where skipjack tuna were processed as light meat tuna. Small quantities of skipjack tuna were also sold to local markets. Commercial landings of skipjack tuna in California increased from three million pounds in 1918 to 156 million pounds in 1954. The landings, while fluctuating considerably, then decreased to a low of 30 million pounds in 1973 before peaking again at its highest level (174 million pounds) in 1980. Since 1976, skipjack tuna landings in California declined to average 10 million pounds from 1985 to 1999. The decline in commercial landings in California can be attributed to the relocation of cannery operations to American Samoa and Puerto Rico and the re-flagging of some vessels. Currently, only one cannery is operating in California. Prices paid by the canneries for skipjack tuna are based on fish size and market conditions and from 1990 to 1994 varied from $200 to $1,000 per ton. Based on a cannery price of $900 per ton, the 1999 California landings of skipjack tuna was worth approximately $4 million. The majority of the commercial skipjack tuna landings in California are from the purse seine and bait boat fisheries. Some fish are also caught in troll, gillnet, and longline fisheries.



Skipjack Tuna, *Katsuwonus pelamis*
Credit: DFG

Before the 1960s, bait boats supplied the majority of the commercial skipjack tuna landings in California. The first bait boats operated in coastal waters off southern California and Mexico. They could only make short trips because they used ice to preserve catches and relied on catching bait close to the coast and offshore islands. In the 1930s, with the development of new refrigeration techniques and construction of larger vessels, the fishery expanded to areas farther south and offshore. Bait boats ranged from 30 to 200 tons of carrying capacity. The U.S. fleet that operated in the eastern Pacific decreased from 75 vessels in 1976 to one in 1999. From 1984 to 1999, bait boat landings averaged 12 percent of the total skipjack tuna landings in California.

Purse seiners started to replace bait boats in the late 1950s and by 1961 supplied the majority of the commercial skipjack tuna landings in California. Purse seiners usually catch skipjack tuna in sets on free-swimming schools or in sets on schools associated with floating objects. Skipjack tuna are usually caught mixed with yellowfin and bigeye tunas. The carrying capacity of purse seiners ranged from 150 tons to 2000 tons. The U.S. fleet operating in the eastern Pacific decreased from 141 vessels in 1976 to nine in 1999. From 1984 to 1999, purse seine landings of skipjack tuna accounted for 80 percent of the total commercial skipjack tuna landings in California.

From 1991 to 1999, other commercial fisheries, troll, longline, and gillnet, landed less than one percent of the annual skipjack tuna landings in California. These fisheries catch skipjack tuna incidentally while targeting other tunas, sharks or swordfish.

California recreational fisheries for skipjack tuna typically operate in waters off southern California and Mexico. The duration of trips is usually one to seven days. The fleet consists mainly of commercial passenger-carrying fishing vessels (CPFV) and some private fishing vessels. Recreational anglers use rod and reel fishing gear. Skipjack tuna landings from the CPFV fishery reached highs of 103,000 fish in 1983, and 52,000 fish in 1990. Since 1990, skipjack tuna recreational landings have generally decreased to 14,000 fish in 1998.

U.S. commercial vessels that fish for skipjack tuna in the eastern Pacific must comply with all state and federal regulations and regulations proposed by the Inter-American Tropical Tuna Commission (IATTC) and any other international regulatory agency to which the U.S. is a member. These include compliance with the Marine Mammal Protection Act and a mandatory logbook program under the High Seas Fishing Compliance Act of 1995 that requires a license and submission of the IATTC logbook.

Recreational fishermen must carry California state fishing licenses, comply with state regulations, and purchase Mexican fishing licenses while fishing in the Exclusive Economic Zone (EEZ) of Mexico. Currently, California limits the recreational take of skipjack tuna to 10 fish per day.

## Status of Biological Knowledge

Skipjack tuna occur throughout the tropical, subtropical waters and warm temperate waters of all oceans. There are two stock structures hypothesized for Pacific skipjack tuna, a single stock with isolated subgroups or two or more different stocks. This description considers skipjack tuna in the eastern Pacific east of 150° W longitude.

In the eastern Pacific, skipjack tuna are generally distributed between 40°N and 40°S latitude and between 150°W longitude and the coastlines of the U.S., Mexico, Central and South America. During El Niño events skipjack tuna may be found as far north as 50°N along the U.S. West Coast. Fishing concentrations are located in the northeastern Pacific near Baja California, the Revillagigedo Islands, and Clipperton Island, and in the southeastern Pacific near Central America, northern South America, Cocos Island-Brito Bank, and the Galapagos Islands and offshore south of 10°N. Skipjack tuna migrate from the equatorial spawning grounds in the eastern Pacific in two migrating groups, one migrates to the Baja California fishing grounds and the other to the Central and South American fishing grounds. The groups remain on the fishing grounds for several months before returning to the equatorial spawning grounds

Skipjack tuna typically prefer sea surface temperatures between 59° F and 86° F. Aggregations of skipjack tuna tend to be associated with convergence zones, boundaries between cold and warm water masses (*i.e.,* the polar front), up welling zones, and other hydro-graphical discontinuities. Skipjack tuna are found in surface waters and to depths of 850 feet during the day, but seem to stay closer to the surface at night than during the day. Skipjack tuna are most frequently found in surface schools aggregated around floating objects in the eastern Pacific. The larger fish are found in free-swimming unassociated schools. Smaller yellowfin and bigeye tunas (less than 40 inches) are frequently found in schools mixed with skipjack tuna.

Skipjack tuna spawn throughout the year in equatorial waters of the eastern Pacific, and from spring to early fall in subtropical waters. The spawning season is abbreviated as distance from the equator increases. Females mature at about 16 inches. However, in some areas of the eastern Pacific, the minimum size at maturity has been noted at 20 to 22 inches. Egg production is estimated between 0.1 to 2.0 million eggs per spawning.

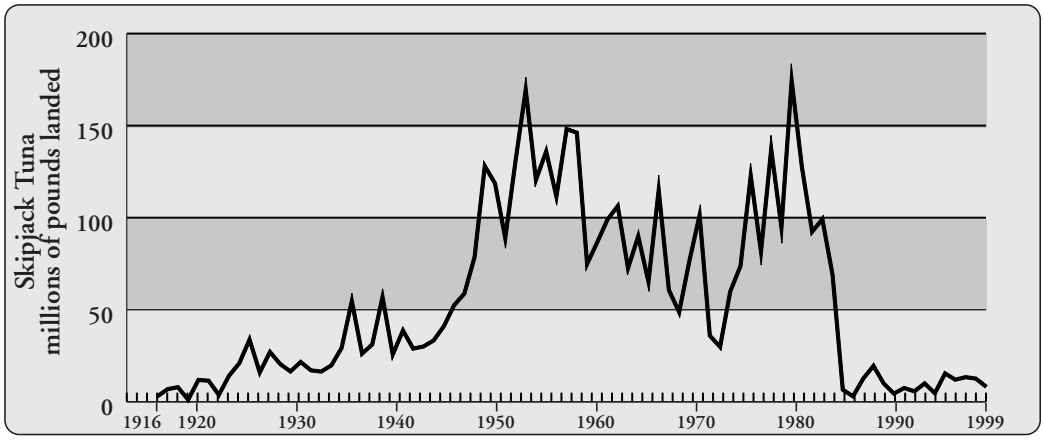
Skipjack tuna can grow to approximately 42.5 inches or 77 pounds. They have dark purplish-blue backs and, silvery sides with four to six longitudinal dark bands. They have a strong keel on each side of the caudal fin base between two smaller keels. Skipjack tuna enter surface fisheries at approximately 10 inches (0.5 pound) and commonly reach lengths up to 31.5 inches (26 pounds). Some longline fisheries also catch large skipjack tuna. Skipjack tuna growth is rapid and approximate sizes at age are: one year, 12 inches, 1.1 pound; two years, 20 inches, six pounds; three years, 25 inches, 12.8 pounds; four years, 20 inches, 19 pounds. Maximum age is probably around seven years.

Skipjack tuna feeding is opportunistic on fish, crustaceans and cephalopods. Stomach samples of skipjack tuna in the eastern Pacific contained 59 percent pelagic crabs, 37 percent fish, and three percent squids. A high percentage of stomach samples were empty. Larger fish tended to have higher percentages of crustaceans and lower percentages of fish in their stomachs. Predators of skipjack tuna include billfish, sharks and other large tunas, including skipjack tuna.

## Status of the Population

In general, the population of skipjack tuna in the eastern Pacific is underutilized by fisheries operating in the area and is well above levels that are needed to produce maximum sustainable yield (MSY). The apparent abundance of skipjack tuna in the eastern Pacific is highly variable. This variability is apparently caused more by effects of environmental conditions than by the effects of the fishery. The simplest estimate of abundance can be obtained from trends in catches. Catches peaked at 186,800 tons in 1978, and decreased to 54,500 tons in 1985. During the period from 1986 to 1994, catches varied between 69,000 and 100,000 tons before increasing to 266,000 tons in 1999. Other abundance estimates for skipjack tuna, standardized catch per days fishing (CPDF), have been developed by the IATTC. However, these estimates are not considered satisfactory and indicate that further studies are needed. In general, the estimates show CPDF in the 1960s, between nine and 15 tons per days fishing, and fluctuating between two and seven tons per day fished from 1972 to 1996.

The status of skipjack tuna in the eastern Pacific is monitored annually by the IATTC. They are reasonably certain that skipjack tuna stocks in the eastern Pacific are under fished. Traditional age-based analyses and production models cannot be used to verify this conclusion




**Commercial Landings 1916-1999, Skipjack Tuna**
Data Source: DFG Catch Bulletins and commercial landing receipts. Data includes shipments and landings from areas south of the state between 1916 and 1969.

due to the violation of the unit stock concept. However, skipjack tuna catches in the western Pacific are near one million tons, and tagging studies there have shown that catches could easily double without adversely affecting the stock. Based on this, it seems that further increases in the eastern Pacific skipjack tuna catch could be attained. However, caution should be exercised until the exchange between the eastern and western Pacific is fully understood. The IATTC also notes that its assessment of skipjack tuna in the eastern Pacific could change and studies to learn more about this species and its relationships to the environment are needed.

## Management Considerations

See the Management Considerations Appendix A for further information.

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National Marine Fisheries Service

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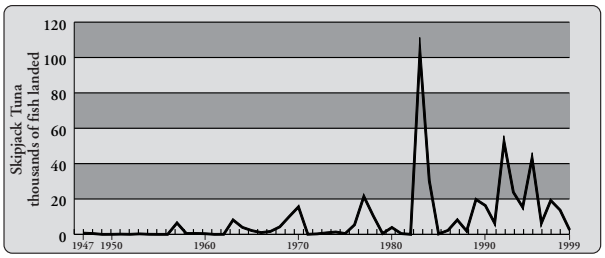


**Recreational Catch 1947-1999 , Skipjack Tuna**
Data Source: DFG, commercial passenger fishing vessel logbooks.