

Yellowtail

History of the Fishery

Sport and commercial fisheries for yellowtail (*Seriola lalandi*) have existed off California since the late 1800s. Commercial or subsistence fishing is the older of the two, with modern hook-and-line sport fishing getting its start in 1898 at Santa Catalina Island. Prior to 1898, sportsmen used handlines, a practice which faded with the advent of hickory rods, functional reels, and linen line. Both the sport and commercial fisheries in California are confined to the area south of Point Conception. The fishery usually occurs in nearshore areas, often adjacent to kelp beds. During the summer, fish may be found offshore under floating mats of kelp.

Commercial landings of yellowtail have fluctuated greatly in the past, ranging from a high of 11.5 million pounds in 1918 to a low of 9,769 pounds in 1995. Market conditions appear to dictate landings more than does the health of the resource. When market demand for fresh yellowtail was high or the canneries needed fish because tuna were unavailable, the price to the fisherman was great enough to encourage trips for the fish.

The commercial fishery for yellowtail was restricted to small live bait boats working off southern California or the Coronado Islands, Baja California, Mexico, until 1933. At that time, purse seiners began fishing in Mexican waters, as the supply of yellowtail off California had decreased and it was illegal to seine them north of the international border. Gillnet boats also started landing yellowtail taken incidentally to white seabass landed commercially in California. However, nearshore gillnet fishing was banned beginning in 1994. This greatly reduced the amount of fish landed by commercial fishers since only hook-and-line gear and gillnets fished outside three miles are legal methods of take.

Data from commercial passenger fishing vessel (CPFV) logs provide a general indication of the magnitude of the sport fishery for yellowtail in southern California. During years when the water was warm, CPFVs have landed over 450,000 fish. When the water was cold, yellowtail catches were sometimes less than 10,000 fish. Prior to the early 1950s, CPFVs were responsible for most of the sport

catch. However, in the 1950s private boaters began taking a significant number of fish. During some years, private boaters land more yellowtail than do CPFV anglers. For instance, during 1997, private boat anglers fishing off California, landed 472,000 fish compared to 163,000 recorded by CPFV anglers. The increase in the number of private boat anglers may impact the yellowtail resource more than continued effort by CPFV anglers or commercial fishermen.

Major fishing areas for CPFV and private boat anglers include the Channel Islands, Santa Monica Bay, Dana Point to Oceanside, La Jolla, San Clemente Island, Santa Catalina Island, and the Coronado Islands. Long-range CPFVs fish primarily from Cedros Island south. They often concentrate on the offshore banks, especially in the Magdalena Bay area. The commercial fishery is conducted in the same areas as the sport fishery.

Status of Biological Knowledge

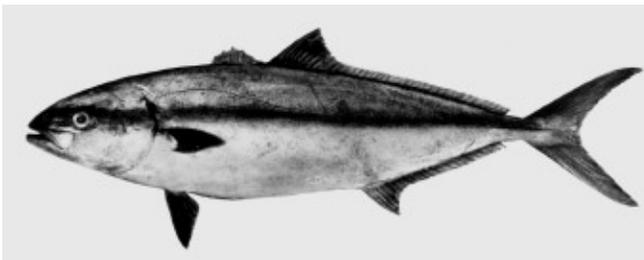
Yellowtail are found from British Columbia, Canada to Mazatlan, Mexico. They are present in the Gulf of California, occurring as far north as the Bay of Los Angeles.

Most yellowtail spawn during the summer months, June through September. During this period, adults move offshore and form spawning aggregations. Some two-year-old females may spawn, but all females over three years of age are capable of spawning. Young fish spawn only once during the season, while those seven years of age (20 pounds) and older are capable of multiple spawnings. A 20-pound fish is capable of producing 940,000 eggs during a single season.

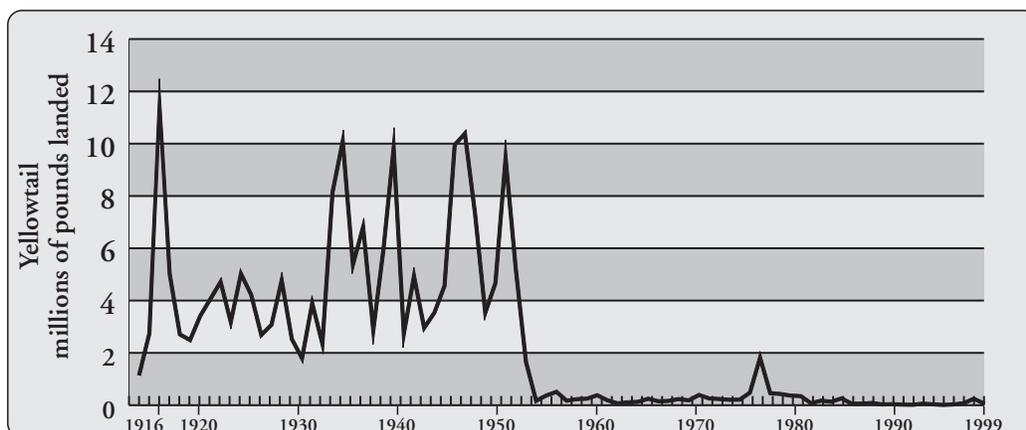
Yellowtail are opportunistic daytime feeders. Off southern California, yellowtail stomachs contain sardines, anchovies, jack mackerel, Pacific mackerel, and squid. Fish taken off Mexico frequently are full of pelagic red crabs.

Age and growth studies conducted on yellowtail indicate the fish are relatively slow growing. They gain approximately three to four pounds a year during most of their lives, although very large individuals may gain only one to two pounds per year. Growth can vary considerably from year to year and also between and within geographical areas. The largest recorded individual weighed 80 pounds. The average sizes at selected ages are: age one, 20 inches and 3.8 pounds; age two, 25 inches and 7.4 pounds; age three, 28 inches and 9.9 pounds; age four, 31 inches and 13.2 pounds; age five, 33 inches and 15.9 pounds; age 10, 44 inches and 35 pounds.

Within southern California and at the Coronado Islands, sport anglers generally land yellowtail that weigh four to 12 pounds. Long-range CPFV anglers fishing off central Baja California usually catch 12 to 18 pound fish. Com-



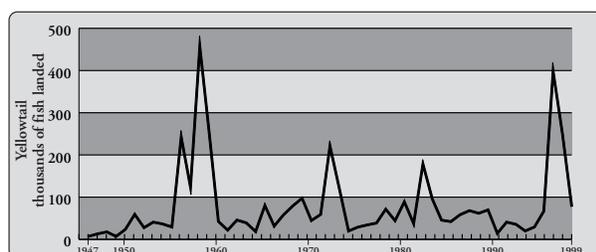
Yellowtail, *Seriola lalandi*
Credit: DFG



mercial gillnet fishermen generally land 10 to 20 pound yellowtail because of the selective nature of the nets. Commercial hook-and-line fishermen usually land four to 12 pound fish, although none can be less than 28 inches long, measured in fork length.

Results of a tagging study conducted by the California Department of Fish and Game indicate there are two stocks of yellowtail off Baja and southern California. One group occurs south of Cedros Island, Baja California, while the second group occupies the area from Cedros Island northward. There is some interchange of fish between the two groups around Cedros Island. Because of limited mixing between the two stocks, the southern California fishery is wholly dependent on fish recruited from the northern population.

The number of yellowtail available to southern California fishermen in any given year is dependent on whether warm water conditions exist off northern Baja California. Excellent yellowtail catches have occurred during years when water temperatures were at least three to five degrees F above normal in the spring. Conversely, periods of cool water produce low catches. When fish are available, they usually are found nearshore in the spring and fall but offshore during the summer months.



Status of Population

While no population estimate is available for the northern stock of yellowtail, the resource appears to be healthy. The stock is probably not as large as it was in the early 1950s, but it can support significant sport and commercial fisheries when oceanic conditions are favorable.

Data collected during the 1970s and early 1980s indicate that the northern population has undergone a shift in fish size. Two and three year olds now dominate the catch, whereas six to nine year olds made up the majority of the catch in the past. The shift in size could be an indicator of either population stress or good recruitment.

Because more of the northern stock is available to sport anglers during warm water conditions, CPFV catches during El Niño events provide an indication of the health of the resource. The El Niño event of 1997, which proved to be the strongest of many events beginning with 1983, pushed many young yellowtail north into southern California. The 1996 year class dominated the sport fishery during the summer of 1997 as one-year-old fish. The 1996 year class remained off southern California during the winter of 1998 and again dominated the fishery as two-year-olds. During 1998, the commercial fishery harvested almost a quarter million pounds of yellowtail since most of the 1996 year class fish reached legal size midway through the summer. This commercial catch represented a four-fold increase from 1997. With the cooling of ocean waters off southern California in 1999 and 2000, sport and commercial yellowtail catches dropped. However, the 1996 year class continued to dominate the sport fishery during both years. Based on data from the MRFSS, the 1996 year class was the strongest in recent history. Over 1.0 million yellowtail from the 1996 year class were landed by CPFV and private boat anglers between 1997 and 2000.

The department initiated a minimum size limit on sport caught yellowtail during 1998 in an effort to reduce the catch of one-year-old fish. The 10 fish limit was retained, but a 28-inch FL size limit was adopted with sport anglers allowed to retain five fish less than 28 inches FL.

Management Considerations

See the Management Considerations Appendix A for further information.

Stephen J. Crooke
California Department of Fish and Game

References

- Baxter, J.L. 1960. A study of the yellowtail *Seriola dorsalis* (Gill). Calif. Dept. Fish and Game, Fish Bull. 110. 96 p.
- Crooke, S.J. 1983. Yellowtail, *Seriola lalandei* Valenciennes. Calif. Coop. Oceanic Fish. Invest. Rep. 24:84-87.
- Radovich, J. 1961. Relationship of water temperature to marine organisms of the northeast Pacific, particularly during 1957 through 1959. Calif. Dept. Fish and Game, Fish Bull. 112. 62 p.