

White Seabass

History of the Fishery

White seabass (*Atractoscion nobilis*) have been favored by California anglers and consumers for at least a century. Coastal Indian middens have yielded many seabass ear bones (otoliths) suggesting that this fish was highly regarded for food and possibly used for ceremonial purposes.

Commercial landings of white seabass have fluctuated widely over the nearly 85 years of record keeping. Almost three million pounds were reported in 1922, 599,000 in 1937, 3.5 million in 1959, and 58,000 in 1997. Since 1959 the trend has been one of decline, although landings have been over 100,000 pounds for the years 1984 through 1991 and 1998-1999. Although there was a commercial fishery in the San Francisco area from the late 1800s to the mid-1920s, landings of fish caught north of Point Conception rarely exceeded 20 percent of the total California catch.

Today, catches of white seabass are concentrated along the coast from Point Conception to San Diego and around the Channel Islands. The frequency of fish caught north of Point Conception has increased in the past few years, although the pounds landed still represent less than 20 percent of the total California catch. Before 1982, California commercial fishermen landed thousands of pounds of white seabass taken in Mexico. Often these landings comprised more than 80 percent of the annual catch. Since then, the Mexican government has denied access permits to U.S. fishermen, and the fishery is concentrated in California.

During the early years of the fishery, commercial catches were made using gillnets, hook-and-line, and round haul nets such as lamparas and purse seines. Purse seining was curtailed in the late 1920s because decreasing catches made it uneconomical. Since all round haul nets were prohibited in the early 1940s, gillnets have been the major commercial fishing gear. Set gillnet fishing for white seabass within state waters was completely disallowed beginning in 1994. Therefore, drift gillnetting is the primary fishing method utilized today. Some commercial hook-and-

line fishing takes place during the early spring, when large seabass are available.

Although the legal size limit for white seabass is 28 inches (about seven pounds), the average commercially caught fish is nearly 40 inches (about 20 pounds). Because of consumer demand, seabass has always commanded relatively high prices. In 2000, commercial fishermen were typically paid \$2.25 per pound for whole fish. At the retail level the fish are sold fresh, primarily as fillets and steaks.

Recreational fishing for white seabass began around the turn of the century. Because of their size and elusive nature, seabass are popular with anglers. Historical records show that anglers on commercial passenger fishing vessels (CPFVs), fishing in California waters, landed an average of 33,400 fish annually from 1947 through 1959. The catch steadily declined to an average of 10,400 fish in the 1960s, 3,400 fish in the 1970s, and 1,200 fish in the 1980s, but increased to 3,000 fish in the 1990s. In fact, the 1999 recreational catch of white seabass from California waters was greater than 11,000 fish and appears to be as high for 2000. Additional seabass are caught by anglers aboard private boats, but accurate catches by private boat anglers are difficult to estimate.

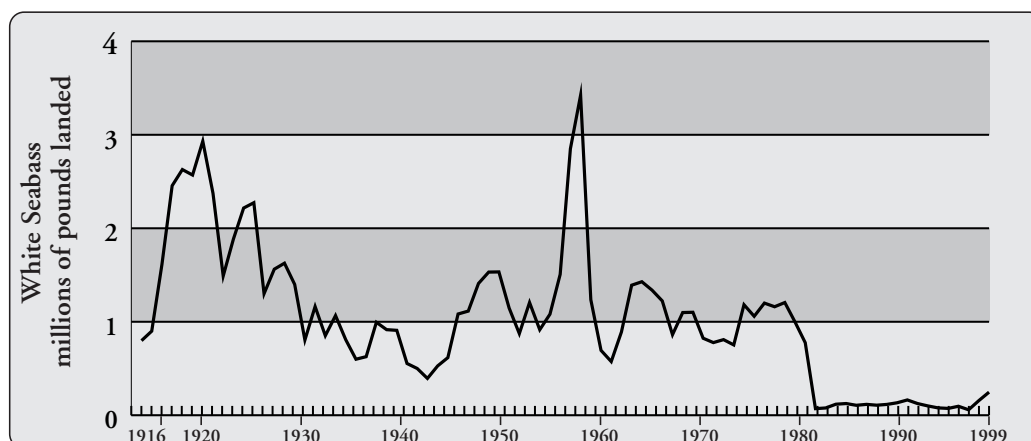
Today, sport anglers catch white seabass that are generally between seven and 25 pounds. This was not true in the past. While the 28-inch size limit also applies to recreational anglers, most of the catch prior to the 1990s (kept and released) was between 20 and 24 inches. In a survey of private boaters at launch ramp facilities from 1978 through 1982, biologists found that only six to 16 percent of the white seabass kept were of legal size. In a similar survey aboard CPFVs from 1985 through 1987, biologists reported that 16 to 25 percent of the seabass caught were legal. However, this has changed dramatically with the apparent increase in the abundance of legal-size white seabass. During the period from 1995 through 1999, data collected from private boat anglers revealed 77 percent of the fish were legal size while data from CPFV anglers showed 80 percent of the fish were legal size.

White seabass are more often caught with live bait than with dead bait or lures, but all are effective when the fish are actively feeding. Seabass can sometimes be brought to the surface by heavy chumming with live bait. Anglers fishing around Santa Catalina Island have reported consistently good catches using blacksmith and silversides as bait. However, when available, live squid and Pacific sardines are popular baits. Spearfishing for large seabass by free divers (without SCUBA) is successful in kelp beds.

Regulations covering white seabass have been in effect since 1931, and have included a minimum size limit, closed seasons, bag limits, and fishing gear restrictions. Such regulations are in effect today, with slight variations. A



White Seabass, *Atractoscion nobilis*
Credit: DFG



Commercial Landings 1916-1999, White Seabass
Data Source: DFG Catch Bulletins and commercial landing receipts.

fishery management plan for white seabass is presently being adopted and the need for additional regulations will be considered.

Status of Biological Knowledge

White seabass is the largest member of the croaker family (Sciaenidae) in California. Fish weighing nearly 90 pounds with lengths of five feet have been recorded, but individuals larger than 60 pounds are seldom seen. White seabass range from Magdalena Bay, Baja California, Mexico to the San Francisco area. They are also found in the northern Gulf of California. During the strong El Niño of 1957-1959, seabass were reported as far north as Juneau, Alaska and British Columbia, Canada.

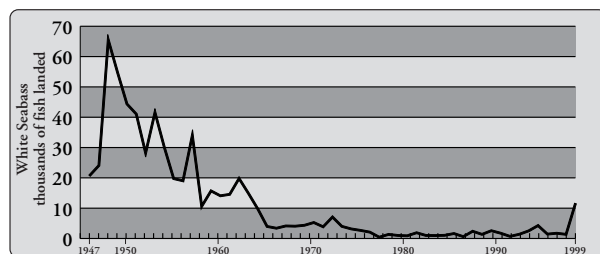
The center of the white seabass population presently appears to be off central Baja California. Recent genetic research of seabass populations shows that some mixing of fish from California and Mexico does occur. However, there may be local subpopulations of fish that do not mix regularly. While the question of population continuity remains unresolved, there is evidence that each summer the fish move northward with warming ocean temperatures (as demonstrated by catches). Biologists believe the movement is probably spawning-related.

Spawning occurs from April to August, with a peak in the late spring to early summer. Fecundity (egg productivity) for this species has not been determined, but a maturity study in the late 1920s reported that females begin maturing when four years old (nearly 24 inches), and some males were sexually mature at three years (20 inches). All white seabass have probably spawned at least once by age six (nearly 32 inches).

The eggs, which are the largest of any croaker on the west coast (approximately 0.05 inch in diameter), are planktonic. The larvae, which are darkly colored, have been collected from Santa Rosa Island, California to Magdalena Bay, Baja California. Most are found in the inshore areas of Sebastian Viscaïno and San Juanico Bays, Baja California, indicating that major spawning occurs off central Baja California.

Young-of-the-year white seabass, ranging in length from 0.25 inch to 2.25 inches, inhabit the open coast in waters 12 to 30 feet deep. They associate with bits and pieces of drifting algae in areas of sandy ocean bottom. Some time between the ages of one and three years old, they move into protected bays where they utilize eelgrass communities for cover and forage. Older juveniles are caught off piers and jetties and around beds of giant kelp. Adult seabass occupy a wide range of habitats including kelp beds, reefs, offshore banks, and the open ocean. Adult white seabass eat Pacific mackerel, Pacific sardines, squid, pelagic red crabs, and Pacific herring.

Laboratory spawning of white seabass was first induced in 1982. Beginning in 1983, the California Department of Fish and Game initiated the Ocean Resources Enhancement and Hatchery Program (OREHP) to test the feasibility of raising seabass for population enhancement. That goal was achieved in the first 10 years of the program and the goals of the program have been expanded to test the feasibility of enhancing marine fish populations through the stocking of cultured fish. By 1999, more than 375,000 juvenile



Recreational Catch 1947-1999, White Seabass

CPFV = commercial passenger fishing vessel (party boat); Recreational catch as reported by CPFV logbooks, logbooks not reported prior to 1947.

white seabass had been released off southern California, and it is estimated that 17,500 of those may have survived to legal size or larger. Additionally, valuable life history information has been gathered during this program through ecological surveys, tagging, and genetic studies. However, more work is necessary to determine if artificial propagation is successful in enhancing the seabass population.

Status of the Population

The range of the white seabass population has contracted since the early part of this century, and few are found regularly north of Point Conception. Few data are available concerning the status of seabass in Mexico, and it is difficult to determine whether the decline in California waters indicates an overall population decline.

Population estimates have not been made. Fishery biologists have been concerned about the decline in landings since the late 1920s. Today, this concern still exists within the scientific community, commercial fishing industry, and with the angling public. Human-induced changes, such as pollution, overfishing, and habitat destruction have probably contributed to this long-term population decline. However, natural environmental changes can also influence the population. The large numbers of small seabass caught in recent years suggests that the warm water period beginning with the 1982-1983 El Niño helped to increase young fish survival. Young fish surveys conducted in southern California, as part of OREHP, showed a dramatic increase in the number of fish taken in research gillnet sets. During research work in 1997 over 600 juvenile fish were captured, in 1998 approximately 700 fish were taken, and in 1999 slightly over 1,300 juveniles were captured. Anecdotal evidence from commercial and sport fishers confirms this dramatic increase in juvenile white seabass. It is unknown whether this increase in juveniles will subsequently enhance the adult spawning population.

Marija Vojkovich and Steve Crooke
California Department of Fish and Game

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