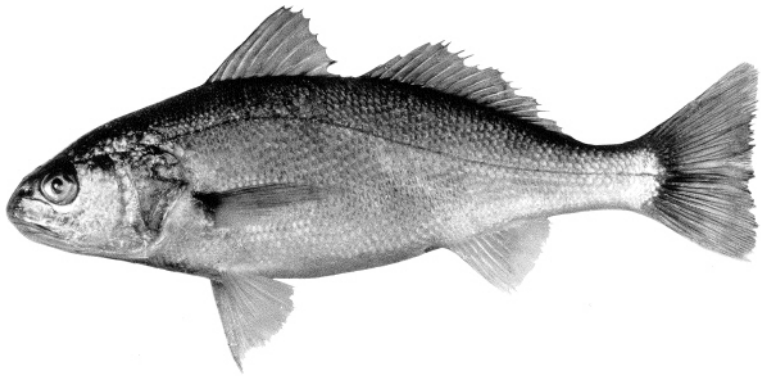
10 White Croaker, *Genyonemus lineatus*



White croaker, *Genyonemus lineatus*. Photo credit: Department archives.

History of the Fishery

White croaker, *Genyonemus lineatus*, is one of several species of sciaenids that is commonly fished for in the nearshore waters of California. It has both a commercial and recreational fishery. Between 1996 and 2011 the main gear type used to catch white croaker in both of these fisheries has been hook-and-line. During this time period white croaker have been taken predominately in southern California.

According to California Department of Fish and Wildlife (Department) landings data, white croaker commercial landings averaged 154,000 pounds (70,000 kilograms) annually between 1996 and 2011. The largest annual landing occurred in 1996 at 529,000 pounds (240,000 kilograms) with an ex-vessel value of $305,000. Landings have steadily declined since that time to an all time low of 6000 pounds (2700 kilograms) in 2011 with an ex-vessel value of only $3400 (Figure 10-1). Part of the decline in landings may be due to the banning of gill nets in southern California waters (within 3 miles [4.8 kilometers] along the mainland coast and within 1 mile [1.6 kilometers] around the offshore islands) in 1994 (FGC §8610.3 (b)). In addition, since 1990 it has been illegal to commercially fish for white croaker in a specific area of water within 3 nautical miles (4.8 kilometers) of shore off of the Palos Verdes Peninsula in southern California due to contamination issues (FGC §7715; Title 14, CCR, §104). Since 1996, the majority of commercially-caught white croaker have been taken by hook-and-line and trawl gear, at 51 percent and 19 percent, respectively (Figure 10-2). Most of the commercial catch is sold in the fresh fish market, although a small amount is used for live bait. “Kingfish” is the most common name seen in markets.

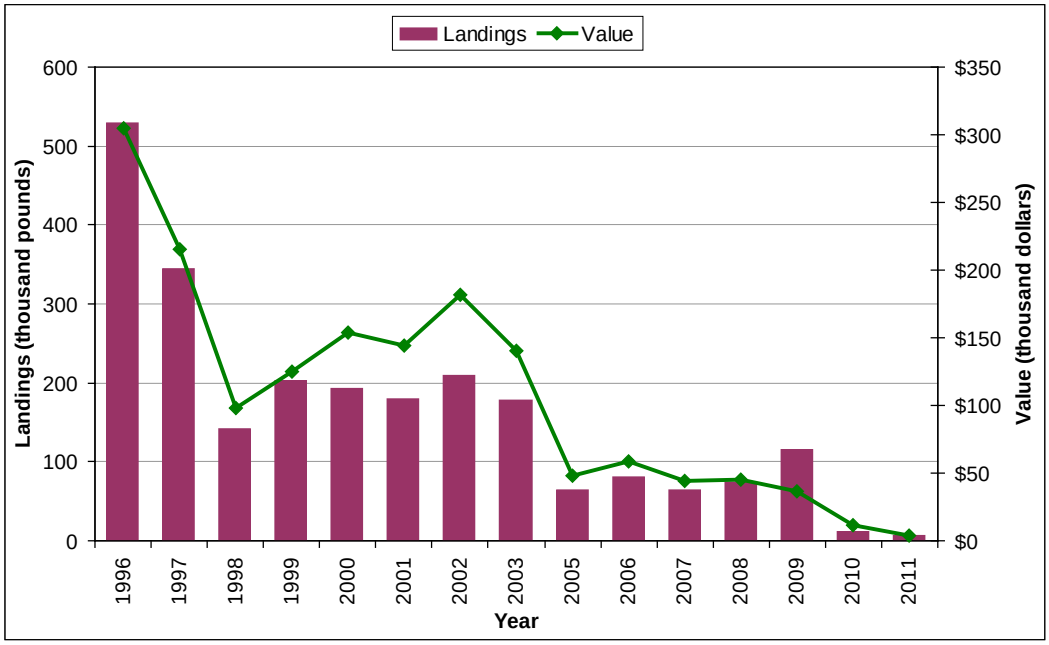


Figure 10-1. White croaker commercial landings and value, 1996-2011. Data Source: Commercial Fisheries Information System (CFIS) data, all gear types combined.

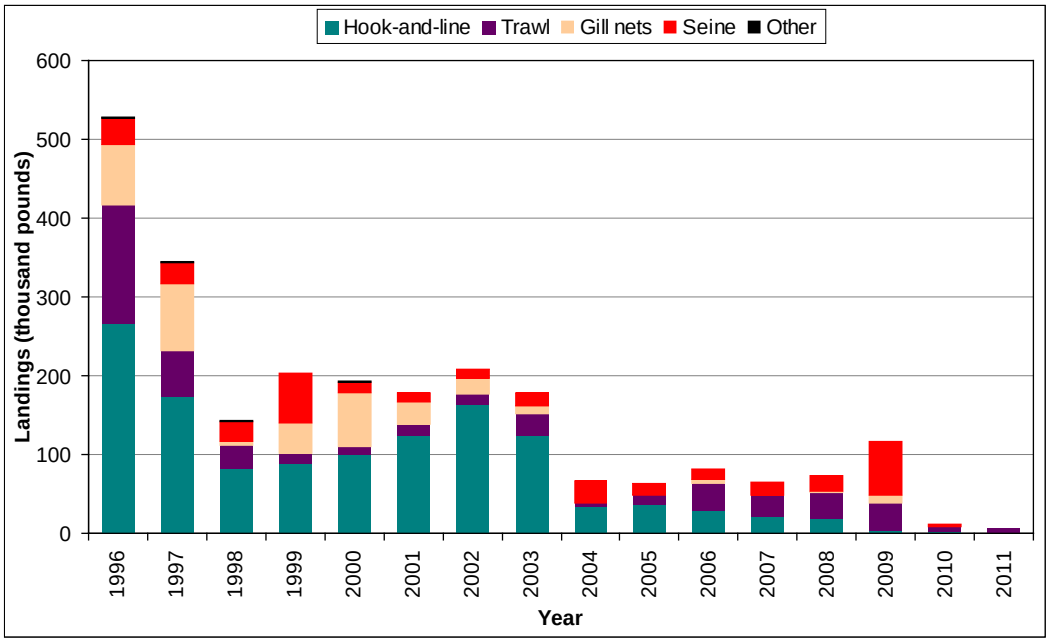


Figure 10-2. White croaker commercial landings by gear type, 1996-2011. Data source: CFIS data.

In the recreational fishery, white croaker were added to the list of species covered under the general recreational daily bag and possession limit regulation of 10 fish in 1998. This change in the regulations was due to concern that white croaker were being taken under the authority of a sport fishing license and subsequently sold in the commercial

markets. Before this change, recreational anglers were allowed to take an unlimited number of white croaker.

Estimates of recreational catch were generated by the Marine Recreational Fisheries Statistics Survey (MRFSS) from 1981 to 1989 and from 1993 to 2003. From 2004 to the present, catch estimates are produced by the California Recreational Fisheries Survey (CRFS), which benefits from an improved sampling design. Both surveys rely on an angler-intercept method to determine species composition and catch rates, coupled with a telephone survey to estimate fishing effort. Though similar methodology in general was used for each, the two sampling designs are sufficiently different that catch estimates generated from MRFSS and CRFS are not considered comparable and will be provided in separate graphs and tables below.

White croaker is a very easy fish to catch with hook-and-line gear and for this reason they are a mainstay of pier and small vessel anglers. According to Marine Recreational Fishery Statistical Survey (MRFSS) estimates, landings of white croaker by recreational anglers between 1996 and 2003 averaged 520,000 fish per year; 42 percent taken by shore modes (beach/bank [BB] and manmade [MM]), 50 percent taken by private/rental mode (PR), and 8 percent taken by party/charter mode (PC) (Figure 10-3).

According to California Recreational Fisheries Survey (CRFS) estimates, landings of white croaker between 2004 and 2009 averaged 195,000 fish per year; 67 percent taken by the shore modes, 31 percent taken by PR mode, and 2 percent taken by PC mode (Figure 10-4). CRFS reduced sampling levels for the BB mode in 2010 and BB and MM in 2011; therefore, the estimates for 2010 and 2011 are not comparable with the 2004-2009 estimates.

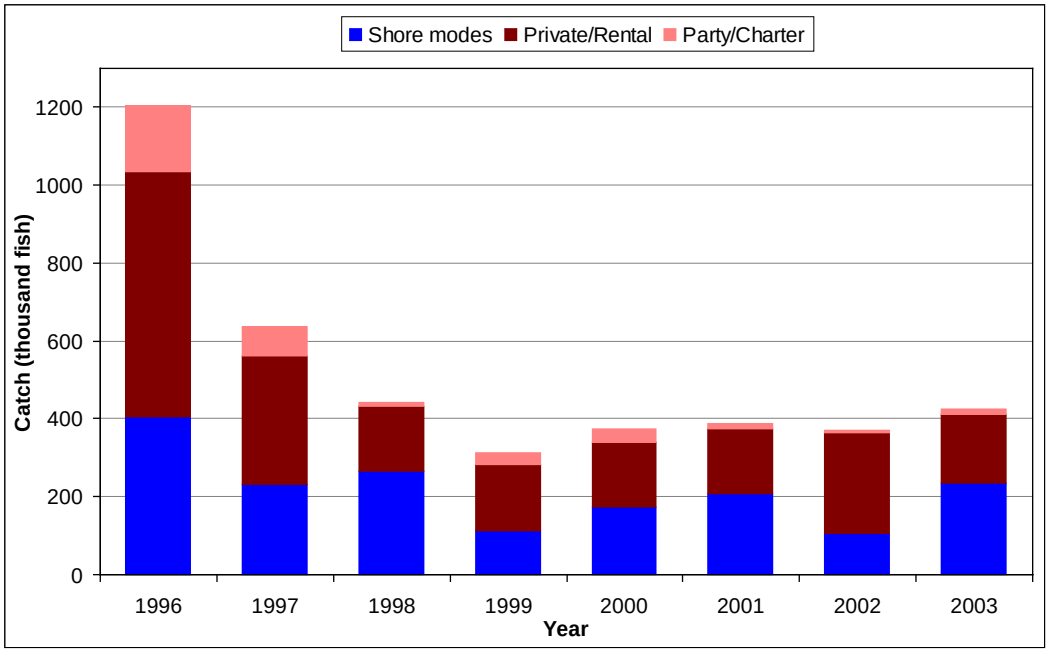


Figure 10-3. White croaker recreational catch by fishing mode, 1996-2003. Data source: MRFSS data, all gear types combined.

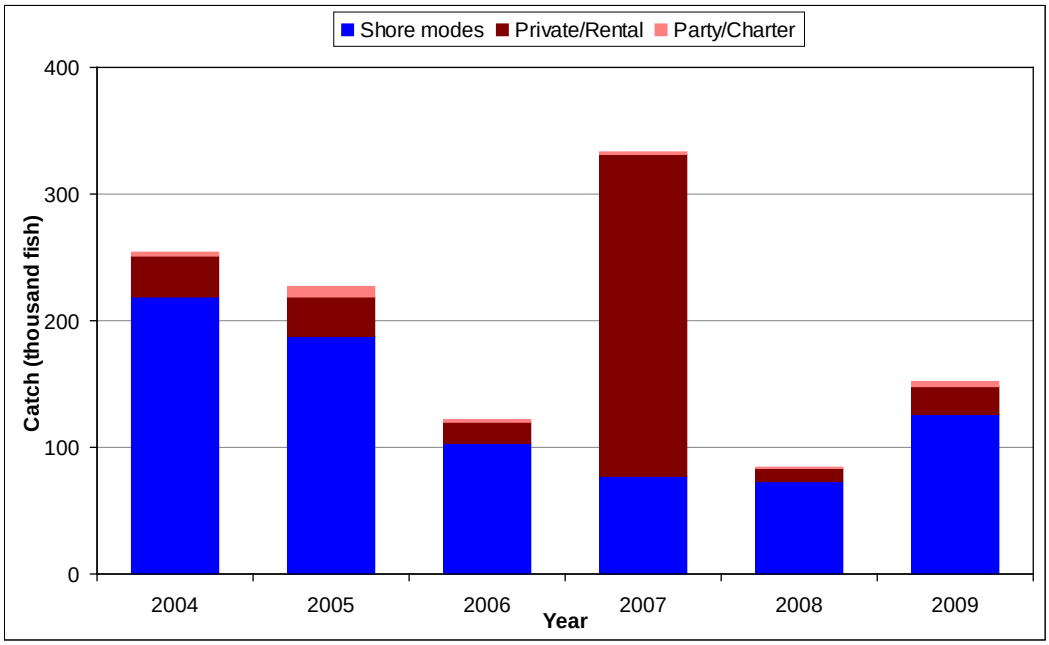


Figure 10-4. White croaker recreational catch by fishing mode, 2004-2009. Data source: CRFS data, all gear types combined. Data for 2010-2011 are not available.

Status of Biological Knowledge

White croaker is one of eight species of drums or croakers from the family Sciaenidae recorded off of California. *Genyonemus* is a combination of two Greek words, genys,

meaning lower jaw, and nemus, meaning barbel. The species name lineatus is a Latin word meaning striped. White croaker are often sold in fish markets under the name kingfish, and they are also known as wongfa, chogy, tomcod, tommy, roncador, or ronkie by recreational anglers.

White croaker have subfusiform (spindle-shaped) compressed bodies, with the snout projecting beyond the mouth and the upper jaw extending beyond the lower. The pectoral are sickle-shaped, the pelvic fins are under the pectoral, and the caudal fin is truncate or straight. They are typically silvery to brassy colored, with a small, but prominent black spot at the base of each pectoral fin and a cluster of minute barbels on the membranes underneath the lower jaw.

White croaker is an abundant nearshore species in California, usually found over soft, sandy-mud substrate. They range from Barkley Sound, British Columbia, Canada, to Bahía Magdalena, Baja California, Mexico. They are reported to be common in Humboldt Bay in northern California, and are abundant from San Francisco southward to at least Bahía de Sebastian Vizcaino, central Baja California, Mexico. They usually swim in schools and are found from the surf zone to depths as great as 780 feet (240 meters) and in shallow bays, sloughs, and lagoons. Most of the time, they occupy nearshore areas at depths of 10 to 100 feet (3 to 30 meters), but sometimes are fairly abundant to a depth of 300 feet (90 meters).

The maximum recorded length for white croaker is 16.3 inches (41 centimeters) total length (TL); however, fish larger than 12 inches TL (30 centimeters) rarely occur. Fish up to 4 pounds (2 kilograms) have been reported, but those weighing over 2 pounds (1 kilogram) are extremely rare. White croaker live to about 15 years and over 50 percent of both sexes are sexually mature by 1 year. At 1 year, males are about 5.5 inches TL (14 centimeters) and females are about 6 inches TL (15 centimeters). By 3 or 4 years white croaker are about 7.5 inches TL (19 centimeters) and both males and females are mature.

In southern California, white croaker spawn mainly from November through May, with peak months being January through March. In central California, they spawn all year and may have winter and summer spawning peaks (ovary weights were found to be highest in January and September, and lowest in May). Females spawn 18 to 24 times each season with individual spawning events occurring about every 5 days, depending upon their size and age. Batches of eggs range from an estimated 800 eggs in a 6 inch TL (15 centimeter) female to 37,200 in a 10 inch TL (25 centimeter) female. The fertilized eggs are pelagic and occur in depth ranges from about 25 to 120 feet (8 to 37 meters). The larvae initially are pelagic and most abundant in ocean depth ranges from about 50 to 75 feet (15 to 23 meters). As the larvae grow, they descend toward the ocean floor and migrate towards shore. Juveniles occur near the bottom at ocean depths of 10 to 20 feet (3 to 6 meters). As they mature, they migrate to somewhat deeper water.

White croaker are omnivores; their diet may include a variety of worms, shrimps, crabs, squid, octopuses, clams, small fishes and other items, living and dead. They feed primarily at night and on the bottom, although some midwater feeding occurs during the day. They are preyed upon by Brandt's and double-crested cormorants, seals, sea lions, dolphins and many fish species (e.g., barred sand bass, California lizardfish, California halibut, giant sea bass, Pacific bluefin tuna, and various sharks).

White croaker that live near marine waste discharges may concentrate toxic materials such as pesticides (DDT, DDE, etc.), polychlorinated biphenyls (PCBs), metals (zinc, selenium, mercury, etc.), and petroleum products in their bodies at levels that are considered hazardous for human consumption. Some white croaker in these areas are diseased and malformed and some show reproductive impairment. Current health guidelines advise against human consumption of white croaker caught from southern California waters between the Santa Monica Pier and the Seal Beach Pier. It is recommended consumption of only one serving per week (skinless fillet) of white croaker caught between the Ventura Harbor and the Santa Monica Pier and the area from the Seal Beach Pier south to San Mateo Point (just south of San Clemente). Eating fish contaminated with pesticides and PCBs does not make people sick right away. The more contaminated fish you eat, the greater the amount of chemicals that build up in your body over time. Health problems associated with increased exposure to these chemicals include cancer, liver disease, and developmental effects, as well as effects on the immune and endocrine systems.

Status of the Population

The population size of white croaker is not known. A beach seine haul study by the Department along the open coast in southern California from 2007 through 2009 yielded a much lower catch-per-unit-effort than another similar Department study conducted from 1953 through 1956. Catch declines are also evident in other longer term datasets. Power plant entrainment studies have shown a declining trend in white croaker abundance since the late 1970s. This trend has primarily been influenced by warmer water and other associated environmental factors. White croaker egg hatching is also poor during very warm water years. However, white croaker catches have not increased during the more recent cooler water years. Many other variables may also be affecting catch rates such as regulation changes, pollutants affecting reproductive output, changes in angler attitudes/fishing effort, or changes in fishing locations.

Management Considerations

Future management considerations should include continual monitoring of the commercial and recreational fisheries, environmental factors, and the status of contaminant levels in areas of concern. Studies to determine population size of white croaker would aid fisheries managers in making more informed decisions regarding this species.

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White croaker commercial landings and value, 1996-2011.

Year	Pounds	Value	Year	Pounds	Value	Year	Pounds	Value
1996	528,786	$305,228	**2002**	209,309	$182,008	**2008**	73,469	$45,251
1997	345,034	$215,622	**2003**	178,037	$140,559	**2009**	116,042	$36,718
1998	142,441	$97,777	**2004**	67,261	$50,005	**2010**	11,846	$11,296
1999	203,161	$125,442	**2005**	63,669	$48,298	**2011**	6,833	$4,140
2000	192,764	$154,180	**2006**	81,057	$58,216			
2001	179,214	$143,899	**2007**	65,048	$43,965			

Data Source: CFIS data, all gear types combined.

White croaker commercial landings (pounds), by gear, 1996-2011.						
Year	Hook-and-line	Trawl	Gill net	Seine	Other	Total
1996	266,721	148,638	78,019	33,220	2,188	528,786
1997	174,080	58,248	84,030	27,958	719	345,034
1998	82,355	28,741	4,686	24,919	1,740	142,441
1999	89,018	12,527	38,353	62,930	333	203,161
2000	99,603	10,033	68,033	14,140	954	192,764
2001	123,875	15,327	27,088	12,580	344	179,214
2002	163,996	13,446	18,682	11,815	1,369	209,309
2003	122,506	29,198	8,745	17,588	0	178,037
2004	33,263	6,397	321	27,280	0	67,261
2005	36,827	11,199	652	14,992	0	63,669
2006	29,275	34,701	4,664	12,417	0	81,057
2007	22,129	26,786	26	16,107	0	65,048
2008	17,883	32,776	2,186	20,625	0	73,469
2009	3,197	35,856	9,955	67,035	0	116,042
2010	1,564	6,547	469	3,267	0	11,846
2011	56	6,077	35	98	65	6,331

Data Source: CFIS data.

White croaker recreational catch (number of fish), by fishing mode, 1996-2003.				
Year	Shore modes	Private/Rental	Party/Charter	Total
1996	404,600	631,019	170,391	1,206,010
1997	230,262	332,258	75,476	637,996
1998	263,774	166,961	13,005	443,740
1999	113,052	170,021	29,564	312,637
2000	172,538	168,055	34,353	374,946
2001	207,732	168,302	11,031	387,065
2002	105,469	258,575	6,225	370,268
2003	236,071	174,955	13,557	424,584

Data Source: MRFSS data, all gear types combined.

White croaker recreational catch (number of fish), by fishing mode, 2004-2009.				
Year	**Shore modes**	**Private/Rental**	**Party/Charter**	**Total**
2004	218,557	31,501	3,405	253,462
2005	187,743	30,672	7,799	226,215
2006	102,784	16,606	2,497	121,887
2007	77,370	254,411	2,256	334,036
2008	72,634	9,947	1,318	83,899
2009	126,325	22,022	4,373	152,721

Data Source: CRFS data, all gear types combined. Data for 2010 and 2011 are not available.