

History of the Fishery

Evidence exists for subsistence use of cabezon (*Scorpaenichthys marmoratus*) by prehistoric native Americans along the central California coast. Cabezon represented five percent of the fish remains taken from exposed rocky coastal archaeological sites.

As game fish, cabezon are prized by sport divers for edibility, size, and ease of capture. The recreational take aboard commercial passenger fishing vessels (CPFVs) does not comprise a large proportion of the catch, but those that are taken are usually of a good size, averaging around 3.5 pounds. In central California, cabezon generally account for less than one percent of observed annual CPFV catches. Recreational landings data are available from 1980 to 1999 for CPFV and private boat anglers as well as shore and pier anglers from the National Marine Fisheries Service Recreational Fisheries Information Network (RecFIN). RecFIN data from 1982 to 1999, for all four modes of recreational fishing showed a 40 percent decline in average annual landings between the 1982 through 1989 and 1993 through 1999 periods, from 122 to 74 tons. Data from RecFIN also suggest that cabezon are more common in catches north of Point Conception and more frequently caught by anglers fishing on private boats and from shore than on CPFVs.

Cabezon were taken incidentally in commercial catches by boats fishing for rockfish using hook-and-line or gillnets until 1992. From 1916 to 1992, commercial landings only exceeded 30,000 pounds in 1951 and again from 1979 to 1982, when reported landings reached 62,614 pounds. Development of the live/premium fishery in the late 1980s resulted in increasing commercial catches of many species occupying the nearshore environment in and around kelp beds. The commercial catch of cabezon started increasing in 1992 with the expansion of marketing live fish to markets and restaurants in California's Asian communities. Most of the initial increase in landings was from the Morro Bay area, but by 1995, landings in most central and northern California ports had increased dramatically. Sampled catches from the Morro Bay area from 1995 to 1998 suggested a large proportion of landings were immature fish.

Commercial landings continued to increase through 1998 with over 373,000 pounds reported, then declined slightly in 1999 but remained over 300,000 pounds. Live fish are taken primarily by trap and hook-and-line gear. About 90 percent of the catch is landed live. Markets demanded top quality live fish, and fishermen received premium prices for their catches evidenced by the increase in average price per pound from \$0.85 in 1990 to \$3.30 in 1998. The estimated value of reported landings in 1998 was \$1,231,700.

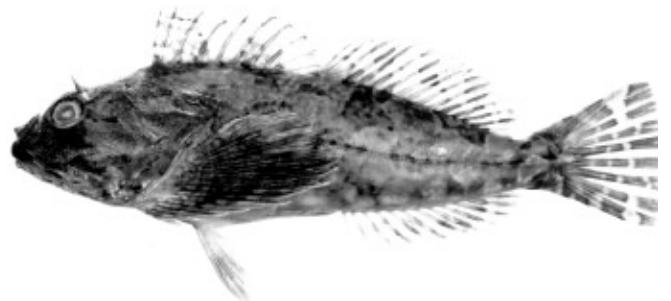
Concerns over the increased harvesting of nearshore species and potential impacts on fished populations led to passage of legislation known as the Marine Life Management Act of 1998 (MLMA) which was enacted in January of 1999. Within the MLMA, minimum commercial size limits were implemented for several nearshore species including a 14-inch size limit for cabezon. Implementation of the size limit may have been responsible for the decline in landings between 1998 and 1999.

Status of Biological Knowledge

The cabezon is the largest member of the cottid family. In Spanish, *cabezon* means bigheaded or stubborn and, proportionally, the massive head is definitely the largest feature of this fish. The specific name *marmoratus* refers to the marbled or mottled appearance of the body, which can be reddish, greenish, or bronze. Generally the belly is a pale turquoise or white, and there are no scales on the body.

Populations range along the eastern Pacific coast from Point Abreojos, Baja California to Sitka, Alaska. They are found on hard bottoms in shallow water from intertidal pools to depths of 250 feet. Fish frequent subtidal habitats in or around rocky reef areas and in kelp beds.

Cabezon may reach an age in excess of 20 years. The largest recorded size is 39 inches in length and over 25 pounds. Limited information available on age at sexual maturity in published literature suggests that in central California males begin to mature in their third year and all are mature by their fourth year. Average size of males in their fourth year is 17 inches. Some females begin to mature in their fourth year between 16 and 20 inches in length, and all females are sexually mature by the sixth year when they are 19 to 23 inches in length. These data collected from 1950-1951 suggest a size of female 50 percent maturity greater than 16 inches. Unpublished DFG data collected in the Morro Bay area from 1996 to 1999 indicates that half of females are mature at 14 inches.



Cabezon, *Scorpaenichthys marmoratus*
Credit: DFG

In California, spawning commences in late October, peaks in January and continues until March, whereas in Washington, the spawning season begins in November and extends to September with a peak in March and April. There is some evidence that females may spawn more than once in a season. Females spawn their eggs on subtidal, algae-free rocky surfaces, which can be horizontal or vertical in orientation. Up to 152,000 eggs can be expected from a large female (30 inches, 23 pounds). Masses of the pale green or reddish eggs are up to 18 inches in diameter and up to two to four inches thick. As the eggs develop they change to an olive green color.

There have been several reports on the toxicity of cabezon roe. In the 1950s, the well-known ichthyologist Carl Hubbs published a personal account of eating cabezon roe. As part of an ongoing search for another caviar, Hubbs and his wife consumed the roe and flesh of a cabezon for dinner. Four hours later they "... awoke in misery ... and were violently ill throughout the rest of the night." Laboratory evidence indicates that the roe is lethal to mice, rats, and guinea pigs. Anecdotal information on egg masses exposed at low tide suggests they are not preyed upon by natural predators such as raccoons, mink, or birds. Observations of captive cabezon have documented a female eating her own eggs with no resulting ill effects.

Males fertilize the eggs after spawning by the female, and the male guards the nest. Apparently the same nest sites are used from year to year. Fish are very protective of the nests for the two to three weeks it takes the eggs to develop and hatch.

Pelagic juveniles are silvery when small, spending their first three to four months in the open ocean feeding on tiny crustaceans and other zooplankton. At a size of about 1.5 inches, juveniles leave the open water and assume a demersal existence. They appear in kelp canopies, tide pools, and other shallow rocky habitats such as breakwaters from April to June in California.

Cabezon can be aptly described as "lie-in-wait" predators. Their mottled coloration lets them blend in with the surroundings, as they lie motionless to wait for their next meal. With large, robust pectoral fins set low on the body and a powerful tail, they quickly lunge after unwary prey, engulfing it in their large mouth.

Their diet consists mainly of crustaceans, although large and small cabezon have different diets. Adult fish eat crabs, small lobsters, mollusks (abalone, squid, octopus), small fish (including rockfishes), and fish eggs. Small juveniles depend mainly on amphipods, shrimp, crabs, and other small crustaceans.

Juveniles are eaten by rockfishes and larger cabezon, as well as by lingcod and other sculpins. Large cabezon may be preyed upon by harbor seals or sea lions.

Cabezon normally occur nearshore, except as larvae. Usually solitary, juveniles and adults are common on rocky bottom areas with dense algal growth. They are often in the vicinity of kelp beds, jetties, isolated rocky reefs or pinnacles, and in shallow tide pools.

Most of their time is spent lying in holes, on reefs, in pools, or on kelp blades beneath the canopy. As fish get older and larger they tend to migrate to deeper water. In shallower water, they migrate in and out with the tide to feed. Their habit of lying motionless makes them an easy target for sport divers.

Status of the Population

Limited information is available on population biology or changes in biomass over time. Recent increases in commercial fishing pressure on cabezon have intensified efforts to learn more about their life history characteristics, population biology, and to assess stock size. Recreational landings have declined concurrent with the increase in commercial fishing efforts and reported commercial landings. As fishing effort increases, it is likely that populations living in heavily utilized areas will decline further.

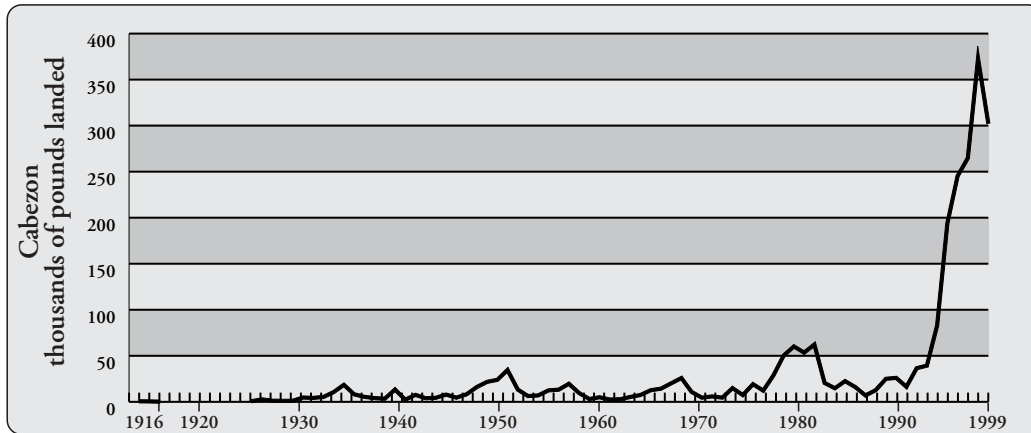
Management Considerations

See the Management Considerations Appendix A for further information.

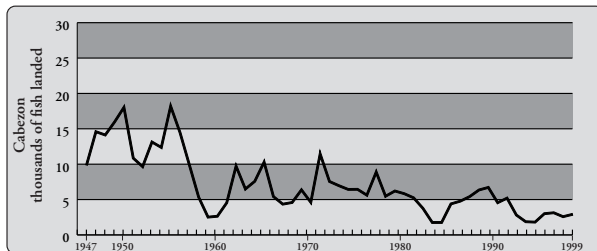
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Commercial Landings 1916-1999, Cabezon
 Data Source: DFG Catch Bulletins and commercial landing receipts.



Recreational Catch 1947-1999, Cabezon

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