

KELP GREENLING

History of the Fishery

Kelp greenling (*Hexagrammos decagrammus*) are fished primarily for sport, but there is a small commercial fishery based largely on catch incidental to the lingcod or inshore rockfish fisheries. Because of their abundance in nearshore rocky areas, they are frequently caught by people fishing from shore or small boats and are a common target for spear fishermen underwater. Sport fishing surveys made from 1958 to

1961 showed that kelp greenling were the most frequent catch of shore fishermen north of San Francisco, where in some areas they made up more than 30 percent of the total catch. In each of those years in California, an average of 54,000 kelp greenling were caught by hook-and-line fishermen and another 2,000 by spear fishermen. In later surveys from 1979 to 1986, the estimated sport catch averaged 116,000 fish per year, with 109,000 of these taken between Monterey County and the Oregon border. It should be noted that the two sport fishing surveys used different sampling designs, and so results may not be comparable. By comparison, the commercial catch reported from 1987 to 1989 averaged about 5,000 fish per year. Most of these were sold in the fresh-fish market. Though fillets from kelp greenling are not as large as those from their more popular relative the lingcod, texture and taste are comparable.



Kelp greenling, *Hexagrammos decagrammus*.

Status of Biological Knowledge

Kelp greenling range from San Diego to the Aleutian Islands, but are common only north of Morro Bay. Here they are one of the most conspicuous fishes in rocky nearshore habitats often in and around kelp beds. The male and female look so different that they were first described as separate species. The body color is variable in both sexes, ranging from light gray to brown. Males, however, have large irregular blue patches anteriorly, while females are uniformly covered with smaller dark spots.

These solitary fish are common at depths between 10 and 60 feet, and range down to 150 feet. Sport catches indicate that larger fish live in deeper water. For example, fish caught at 80 to 100 feet range from 12 to 18 inches long while those caught at 20 to 40 feet tend to be eight to 13 inches long. Kelp greenling grow faster than most nearshore fishes during their first three years. After the third year, growth slows, especially in males (as it does in lingcod), so that by the fifth or sixth year males are smaller than females. The maximum reported age and size is 16 years and 21 inches. At age 3, males average 10.6 inches and females 9.1 inches. By age 5, the males average 12.6 inches while females are 14.7 inches. Ten year olds average 15.5 and 16.4 inches, respectively. These studies were done in Puget Sound, Washington.

The reproductive behavior of greenling is similar to that of the lingcod. Females are mature by their fourth year and spawn adhesive egg masses on the seabed and encrusting biota within the territories of courting males. In Puget Sound, females deposit egg masses that range from golf-ball to tennis-ball size, with an average of about 4,000 eggs per cluster. Males fertilize

the eggs and guard them until larvae about one third of an inch long emerge four to five weeks later. Often, males guard more than one egg mass at a time, each possibly produced by a different female. Hatching occurs from December through February in northern California and gets progressively earlier to the north, November through January in Puget Sound and August through September in Alaska. Larvae and early juveniles feed on small copepods and spend about one year in the pelagic environment before entering the nearshore benthic community.

After they settle in the nearshore environment, kelp greenling have flexible food habits. During most of the year, they consume a variety of prey that is consistently available in the habitat, including crabs, amphipods, polychaetes and ascidians. There are brief periods when organisms such as juvenile fishes or herring spawn become exceptionally abundant, and kelp greenling shift their food habits to take advantage of these opportunities.

The primary predators of adult greenling are lingcod, and the harbor seal. As juveniles they probably are prey of many nearshore predators.

Status of Population

There are no estimates of abundance for kelp greenling in California. The yearly sport catch remained relatively constant during the eight years (1979-1986) it was surveyed. Since decline in catch is one symptom of overfishing, there is no indication that current levels of fishing are having adverse effects on the population. Spear fishermen may overfish local populations, however, because they can select individual targets, and greenling are particularly vulnerable to spears when guarding their nests. Other data that could reveal changes in the population structure are not available.

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References

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