

California Sheephead

History of the Fishery

Although the commercial catch of California sheephead (*Semicossyphus pulcher*) dates back to the late 1800s, a renewed interest in this fishery has developed only recently. Today, it is exploited by sport divers, anglers, and especially by a growing live fish commercial industry. In the late 1800s, Chinese fishermen took large quantities of sheephead for drying and salting. Since that time, except for brief periods, sheephead was not a targeted species until the 1980s. In the recently developed live fish fishery, the fish are trapped and taken live to supply Asian seafood restaurants. Because small fish, usually females, are easier to keep alive in small aquaria, prereproductive individuals have often been taken. A recent minimal size limit of 12 inches should reduce this possibility.

The largest commercial catches of California sheephead were from 1927 to 1931, peaking in 1928 at more than 370,000 pounds. During and shortly after World War II (1943-1947), the sheephead catch increased from 50,000 to 267,000 pounds, probably because of easy availability close to port. Since the 1940s and until the late 1980s, the average annual landing has been about 10,000 pounds and the price of this catch was under \$0.10 per pound. During the 1980s, the price and catch increased slightly until the live fish market began in the late 1980s. The price of live fish has reached as high as \$9 per pound. Between 1989 and 1990, the catch quadrupled and reached a peak in 1997 of 366,000 pounds and a market value of \$840,176. During 1994 to 1999, the live catch varied between 87.8 percent and 73.7 percent of the total sheephead landings. The catch has decreased from 1997 to 1999, but the market value has remained high.

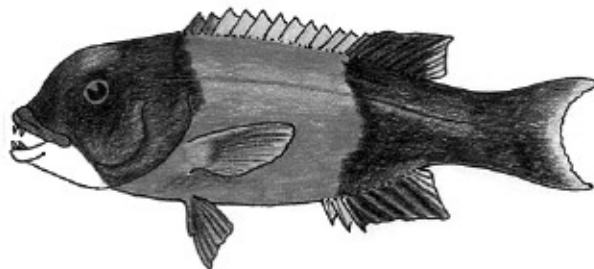
The estimated recreational catch of sheephead between 1983 and 1986 averaged 312,400 pounds with a maximum estimate of 448,800 pounds for 1986. Commercial passenger fishing vessel data from 1947 to 1998 indicate an average take of 28,030 fish per year with a maximum in 1983 of about 69,000 fish. Using an average weight of two pounds per fish (a low estimate) the sport catch, except in the cited maximal periods, often exceeds the commercial catch. During the 1930s, sheephead were considered "junk fish" by most recreational anglers and were not kept because of their soft flesh. However, the large size, fine flavor, and use as a lobster substitute in salads and other recipes has more recently made them a preferred and even targeted species by anglers and divers.

Status of Biological Knowledge

The California sheephead and two other common Southern California species, the rock wrasse and the senorita are members of the mostly tropical, worldwide wrasse

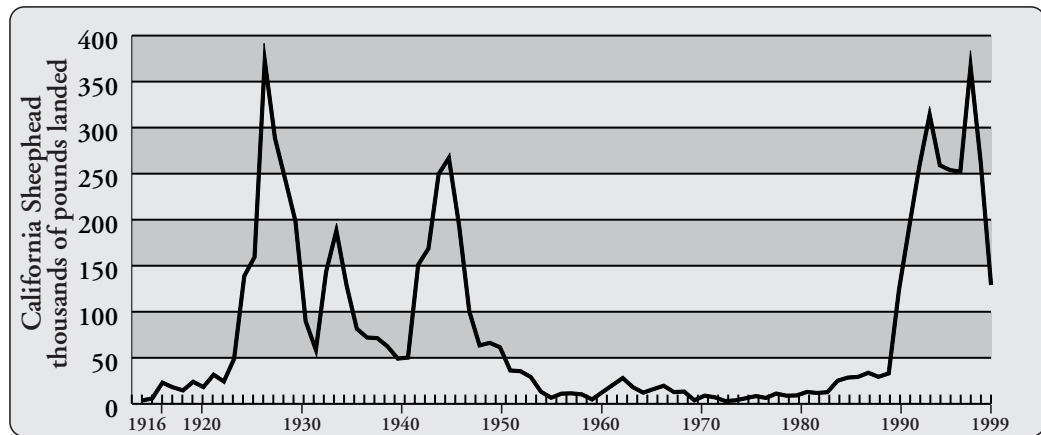
family Labridae. All have protruding canine-like jaw teeth and large cycloid scales. The sheephead is easily distinguished from the others by its color pattern, greater body depth, and large size. Males have a black head and tail separated by a reddish middle section. The chin is white in both sexes but females are uniformly pinkish. Young-of-the-year are bright reddish orange with a lateral longitudinal white stripe and large black spots at the rear of the dorsal fin and upper caudal. Although the sheephead ranges from Monterey Bay, California to the Gulf of California, it is not common north of Point Conception. It is a protogynous hermaphrodite, beginning life as a female with older, larger females developing into secondary males. Female sexual maturity may occur in three to six years and fishes may remain female for up to fifteen years. Timing of the transformation to males involves population sex ratio as well as size of available males and sometimes does not occur at all.

Males have been aged at around 50 years, and can achieve a length of three feet and a weight exceeding 36 pounds. As growth rates are higher and mortality lower at the northern end of the range, the sexual transformation occurs later there and the males are larger. Batch spawning occurs between July and September, and estimates of yolky oocytes present in the ovary vary from 36,000 to 296,000 for fish from eight to 15 inches. Larval drift ranges from 34 to 78 days with two settlement patterns. Most larvae settle at about 37 days, but some slow their growth at this time and may continue as pelagic larvae for another month. Settlement size remains between 0.5 and 0.6 inches. The sheephead has a broad diet with crabs, barnacles, mollusks, urchins, polychaetes and even bryozoa occasionally dominant. There appears to be no evidence of its preference for abalone and lobster as cited in earlier literature. Because of its large size of adult males, there are few known predators. The sheephead is a rocky reef, kelp bed species found to depths of 280 feet. Adults are usually solitary, but sometimes are seen in large schools, perhaps associated with spawning aggregations.



California Sheephead (male), *Semicossyphus pulcher*
L. Sinclair
Miller & Lea

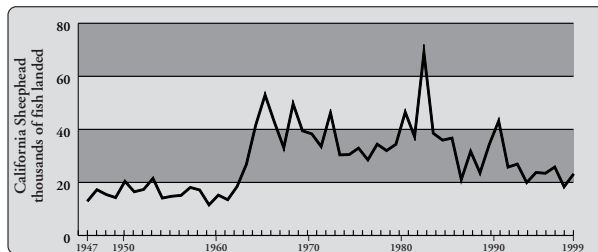
**Commercial Landings
1916-1999,
California Sheephead**
Data Source: DFG Catch
Bulletins and commercial
landing receipts.



They are considered resident species and no systematic movements have been described.

Status of the Population

There has been no ongoing analysis of the status of the California sheephead. Long-term studies at two localities in southern California, Palos Verdes Point and the King Harbor breakwater, have shown that the species was not abundant in the cool period of the early 1970s. The population increased at both sites with the onset of the little El Niño of 1977-1978. At King Harbor, the population peaked in 1978, decreased through the end of the great El Niño of 1982-1983, and remained low until the early 1990s when it again reached a large size (1994 and 1998). With the exception of 1982-1983 El Niño, the population seems to increase during El Niño conditions and this is reflected in increased recruitment. At Palos Verdes, the population peaked in 1981, then declined until 1983, but has remained relatively stable since. At maximum, the density of sheephead at the Palos Verdes kelp bed was three times that of the King Harbor breakwater. There is no evidence from these very limited data that the population is threatened by existing fishery practices. The projected decrease in landings during 1999 may reflect the imposition of a minimum size limit.



Recreational Catch 1947-1999, California Sheephead

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

Management Considerations

See the Management Considerations Appendix A for further information.

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References

- Cowen, R.K. 1991. Variation in planktonic larval stage duration of *Semicossyphus pulcher*. Mar. Ecol. Prog. Series 69, 1-2:9-15.
- Cowen, R.K. 1990. Sex change and life history patterns of the labrid *Semicossyphus pulcher* across an environmental gradient. Copeia 1990(3):781-795.
- Cowen, R.K. 1985. Large scale patterns of recruitment by the labrid *Semicossyphus pulcher*; causes and implications. J. Mar. Res. 43(3):719-742.
- Victor, B.C. 1987. Growth, dispersal, and identification of planktonic labrid and pomacentrid reef fish larvae in the Eastern Pacific ocean. Mar. Biol. 95(1):145-152.
- Warner, R.R. 1975. The reproductive biology of the protogynous hermaphrodite, *Pimelometopon pulchrum* (Pisces:Labridae). Fish. Bull. U.S. 73:262-283.