

California Sheephead (*Semicossyphus pulcher*)

Status of the Population:

Compared to some nearshore species, California sheephead have supported relatively minor sport and commercial fisheries. Sport landings through the 1980's and 1990s have consistently averaged between 40,000 and 70,000 fish annually. Most of this was from southern California. Commercial landings increased rapidly during the 1990s with the development of the live fish trap fishery. Landings reached a peak in 1997 at 366,000 pounds and declined through 1999, though value remained high. Since then landings have fluctuated annually around 150,000 pounds.

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 (Leet et al. 2001). 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) (Leet et al. 2001). 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 (Leet et al. 2001). 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 (Leet et al. 2001).

Home Range/Migratory Patterns:

Sheephead are a common inhabitant of reef/kelp areas. They can be found from shallow water to a depth of at least 280 feet, although they are most abundant in kelp bed depths. They range from Monterey Bay to the Gulf of California, but are not common north of Point Conception (Love, 1991). They are not migratory and are believed to be territorial and do not move far from their home reef.

Current Regulations:

Commercial fishermen must possess a nearshore finfish permit to take California sheephead. The minimum size limit is 13 inches total length. Sheephead may not be taken commercially north of Point Conception in March and April and south of that point in January and February.

The recreational minimum size limit is 12 inches total length. Five fish per day may be taken except that no fish may be taken in waters greater than 20 fathoms in the Cowcod Conservation Areas.

The Commission has established a combined recreational and commercial optimum yield for sheephead at 50 percent of recent catches as an interim precautionary measure because of the current data poor status of sheephead and to provide protection against overfishing. The optimum yield was set at 223,483 pounds for total allowable catches, with 135,524 pounds allocated to the recreational fishery and 87,959 pounds allocated to the commercial fishery. California sheephead is included in the Nearshore Fishery Management Plan. As noted above, the little data available suggest that current regulations are sufficient to protect California sheephead. Concern exists, however, for localized reductions of large individuals.

How MPAs May Help:

Sheephead may live for 50 or more years and attain a weight of 36 pounds. Few large individuals are found today due to fishing pressure. The California sheephead is a major predator of urchins and other invertebrates in the kelp bed community. Overpopulation of urchins has resulted in the loss of kelp in some areas. The protection of larger sheephead in MPAs might alter the relationship between urchins and kelp, resulting in significant changes to the dynamics of the local ecosystem. Since such reserves would protect other exploited species as well, the ecosystem functions of sheephead might be altered as a result of more intense competition and predator/prey interactions. Similarly, reserves would also protect habitats valuable to sheephead from a variety of potential fishing activity related impacts.

Studies on sheephead in the existing MPAs at Catalina and Anacapa Islands, and La Jolla have shown that size and abundance of sheephead are higher inside these reserves than outside (Beers and Ambrose In Prep.). It can be anticipated that relatively large reserves would allow for an increase in numbers and sizes of sheephead within the reserves.

Relatively large sized reserves can act to assure the continuing health of the sheephead population if changes in the exploitation levels occur, or if unforeseen environmental fluctuation results in a significant decline and sustainability of stocks. This insurance scenario would require that some significant portion of the stock is placed under reserve protection.

Sheephead are protogynous hermaphrodites; they begin life as females, with older, larger females developing into males. Female maturity occurs at three to six years, and fish may remain as females up to fifteen years. Timing of transformation involves

population sex ratios as well as size of available males and sometimes does not occur at all (Leet et al. 2002). It would be expected that large MPAs would protect populations of large adult sheephead and delay the metamorphosis of females to males. These larger individuals have significantly higher reproductive potential than smaller individuals. However, since there does not appear to be a deficit in recruitment potential under the present management, any potential benefit through increased larval reproduction might be outweighed by the loss to the fishery from closing large areas of fishing grounds.

Since sheephead are primarily territorial and do not display significant movement, movements of individuals outside of reserves should not be expected to contribute significantly to fishery catches in areas adjacent to reserves.