

Spotted Sand Bass

History of the Fishery

The spotted sand bass (*Paralabrax maculatofasciatus*) has quickly gained popularity with nearshore anglers for its aggressive behavior and fighting ability. Recreational angling for the spotted sand bass has seen a dramatic increase in the last 10 years, resulting in angling tournaments that target spotted sand bass exclusively.

Not considered quality-angling fare in the 1930s and the early 1940s, the spotted sand bass began to gain in popularity with shore and bay anglers in the mid-1950s. During that period, almost all landings were made from shore or by small skiff anglers fishing within the bays of southern California. Concern regarding the growing pressure on this little-known resource by sport anglers resulted in the formulation of conservation measures for the spotted sand bass. These measures include the restriction on commercial exploitation of the genus *Paralabrax* in 1953, and in 1959, the adoption of a 10-fish bag-limit and a 12-inch size-limit on kelp bass and barred sand bass, as well as the spotted sand bass. Unfortunately, early landing data of spotted sand bass were either lumped in with the other *Paralabrax* landings or not adequately reported. For these reasons, accurate landings numbers for this species are difficult to obtain and no substantial data were recorded until the mid-1970s.

Surveys conducted by the Department of Fish and Game on skiff fishing estimated that the annual catch of spotted sand bass in southern California waters ranged from 12,790 to 23,933 fish between 1976 and 1981. Additional estimates of sport catch, based on data from boat and shore fishing, indicated that between 53,000 and 170,000 spotted sand bass were taken per year from 1980 to 1989. No landing data were recorded from 1990 to 1993; however, from 1994 to 1999 between 37,000 to 347,000 spotted sand bass were landed either by shore or small skiff fishermen, a substantial increase from the landings numbers recorded in the 1980s. This rise in landings can be attributed to an increased interest in recreational fishing in shallow nearshore waters and consequential increase of angling pressure on the resource. Additionally, with the introduction of float-tube technology and the popularity of ocean

kayaks, the accessibility to spotted sand bass habitat has opened up dramatically. This accessibility has generated interest in the spotted sand bass as a challenging recreational fishery.

Although the annual catch of spotted sand bass for the record keeping period has been considerably lower than the catches of the kelp bass and the barred sand bass, the increase in fishing pressure and landing numbers is cause for concern due to their restricted habitat in southern California waters. Early DFG shore surveys revealed that due to its restricted bay habitat and geographically localized populations (San Diego Bay, Mission Bay, Newport Bay, Anaheim Bay), the spotted sand bass fishery may have been viewed as a less important sport fishery by the public. However, recent increases in landing numbers, indicate that this view may be changing.

Status of Biological Knowledge

The spotted sand bass has an historic range from Mazatlan, Mexico to Monterey, California. However, this species is rarely seen north of Santa Monica Bay. Included within that range are substantial populations in the Gulf of California. Southern California populations are typically restricted to sandy or mud bottom habitat within shallow bays, harbors and coastal lagoons that contain eelgrass, surfgrass and rock relief. These areas act as warm-water refuges for this generally subtropical species.

Spotted sand bass grow rapidly during their first two years. Some specimens may reach as much as 8.8 inches at the end of their first year and there is no significant difference in growth rates between males and females.

Spotted sand bass spawn in the warm summer months, from late May to early September and the presence of multiple sized oocytes in gravid females indicates that this is a multiple spawning species.

During the spawning season, spotted sand bass form breeding aggregations at or near the entrances of bays in southern California. Observations on spawning in the wild have shown that females initiate the spawn by leaving the bottom and entering the water column to release eggs. At the time of release, multiple males may dart in to fertilize the eggs. The observed episode was extremely brief and once completed all participants return to the bottom.

The eggs and larvae are pelagic and enter the plankton in the coastal waters, settling out of the water column at 25 to 31 days. Juvenile spotted sand bass (greater than two inches) have several dark stripes running longitudinally along their sides, making them similar in appearance to juvenile barred sand bass. Juveniles of this species occupy eelgrass beds and can share these nursery environments with their sympatric juvenile relatives, the barred sand



bass and the kelp bass. Adults usually occupy a depth of two to 30 feet, however specimens have been taken from waters as deep as 200 feet in the Gulf of California.

The spotted sand bass appears to have a complex mating system. Individual populations within southern California display varied patterns of reproduction. In San Diego Bay, protogynous hermaphroditism, where individuals start their lives as females and after a period of time change to males occurs. In Anaheim and Newport Bays, gonochorism, a pattern where the individuals do not change sex is found, resulting in an essentially equal distribution of males and females throughout the age and size class in the population. During the spawning season, male and female spotted sand bass exhibit a definite sexual color dimorphism. Males will display a whitish chin color and an overall high-contrast, body coloration, while females will display a yellow chin and a darker body. Male spotted sand bass mature at 7.8 inches and about 1.4 years and females mature at about 6.7 inches and about one year of age. The impact of potential sex change, if any, on these values is unknown.

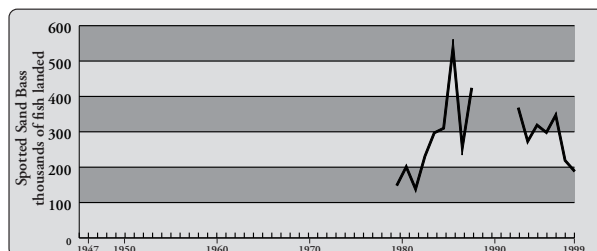
In California waters, adult spotted sand bass have a diet that consists primarily of crabs and clams, with fishes forming a relatively small component of their overall food compliment. The crab component consists of brachyuran crabs, and the dominant bivalve in the diet is the jack-knife clam.

While spotted sand bass can reach 14 years-of-age, most have a maximum life span of about 10 years. The current world record spotted sand bass is an individual caught in 1995, which measured 23 inches and weighed 6.7 pounds. This record fish was 10 years old.

Significant morphological and genetic differentiation has occurred among spotted sand bass populations throughout their geographic range. The Gulf of California populations appear to be distinct from those on the Pacific coast. Those populations in southern California also appear to be genetically distinct from those in the mid-Baja, Pacific coast. This subpopulation structure indicates that spotted sand bass exhibit limited dispersal from their restricted habitats.

Status of the Population

The spotted sand bass fishery has received a dramatic increase in angling pressure in the last 10 years, and it is unclear how the increased pressure will effect the limited, and genetically distinct, southern California populations. Studies indicate that most of the spotted sand bass caught by recreational anglers are released. The restrictive, limited environment inhabited by spotted sand bass tends to amplify the adverse effects of environmental changes and of recreational fishing pressure. Factor in



Recreational Catch 1947-1999, Spotted Sand Bass

Data Source: RecFin data base for all gear types; catch data not available for 1989-1992

sporadic recruitment by spotted sand bass, and the future of this fishery may depend on such a policy.

What effect ever-increasing development in the attractive bay communities will have on the spotted sand bass populations is unknown. Waterfront development may permanently alter nursery habitat, water quality and may negatively impact recruitment, resulting in a negative impact on certain populations.

Environmental conditions such as sea surface water temperatures may influence recruitment as well. Spotted sand bass have been shown to have a substantial increase in recruitment success during elevated sea surface temperatures occurring nearshore in southern California just after El Niño episodes. In other years, recruitment has been poor. This sporadic recruitment pattern may have an adverse effect on a population that is subjected to an increase in angling pressure.

Management Recommendations

See the Management Considerations Appendix A for further information.

Tim E. Hovey

California Department of Fish and Game

Larry G. Allen

California State University, Northridge

References

- Allen G. L., T.H. Hovey, M.S. Love and J.T.W. Smith 1995. The life history of the spotted sand bass (*Paralabrax maculatofasciatus*) within the southern California bight. CalCOFI 1995: 193-203.
- Hovey T.E., and L.G. Allen 2000. Reproductive patterns of six populations of the spotted sand bass, *Paralabrax maculatofasciatus*, from Southern and Baja California. Copeia 2000(2): 459-468.
- Miller J.D., R.N. Lea 1972. Guide to the coastal marine fishes of California. Calif. Dep. Fish and Game Bull. 157, 249 pp.