

History of the Fishery

Bocaccio (*Sebastes paucispinis*), sometimes called red snapper, rockcod, grouper, salmon grouper, or tomcod (as juveniles), was the dominant rockfish in California's early longline fishery. It was the most abundant rockfish in the bottom trawl fishery from Morro Bay to Fort Bragg until the mid-1980s. In the late 1980s, two-thirds of the bocaccio landed were taken by trawl, with the remainder being taken by set net, longline, and the recreational fishery. Before 1970, estimated landings by all fisheries averaged approximately six million pounds per year. Following 1970, combined landings increased, peaking in 1983 at over 15 million pounds. Landings have declined steadily since then, and fell below 0.5 million pounds in 1998. In 1978, nearly 40 percent of the sampled trawl landings contained half or more bocaccio by weight, but this value has declined to a very small percentage of landings in recent years.

Recreational catches of bocaccio are generally made on rocky reefs by party boat fishermen at depths of 250 to 750 feet. In some years, however, juveniles concentrate in shallow sandy areas near piers off central and southern California, where they are easily taken on small baited hooks. Estimated catches for the recreational fishery are available from 1980 onward and averaged 15 percent of the total landings in recent years. Recreational catches since 1984 have shown the same decline as the trawl fishery.

Status of Biological Knowledge

Bocaccio range from central Baja California to Kodiak Island, Alaska, and are common from northern Baja California to the Washington-British Columbia border. Genetic studies indicate partial separation between the bocaccio population off the Pacific Northwest and that off California.

Among rockfishes, bocaccio are noted for their relatively rapid growth, large adult size, and high variation in year-class strength. They are known to attain a length of 36 inches, a weight of 15 pounds, and a maximum age of about 50 years. Some fast growing individuals are caught with trawl gear at age one, and substantial numbers are landed by age two at lengths of about 16 inches.

Bocaccio are live-bearing fish. At extrusion (release), larvae are about 0.25 inch in length and absorb yolk from the egg stage during the first eight to 12 days. They grow rapidly to about seven inches by the end of their first year. A few mature when they are three years old, about 14 inches long and one pound. Fifty percent are mature at 16.5 inches and four years. Males mature at a slightly smaller size than females. By the time they are 10 years old, they average over 24 inches and weigh five pounds.

The number of developing eggs increases from 20,000 in a 15-inch fish to about 2.3 million in a fish 30.5 inches long.

Off central and northern California, larval release occurs from January through May, peaking in February. In southern California spawning takes place from October through July, peaking in January. In central California, most larvae that survive to the juvenile stage are born in January and February, but months of successful reproduction can shift substantially from year to year. In southern California, some females produce as many as three broods in a season, but multiple brooding is uncommon farther north.

Larval bocaccio are initially pelagic and are most common within 100 feet of the sea surface, where they feed on plankton. Larval bocaccio have been captured in plankton nets as far as 300 miles from shore. By late May or early June, they settle to the bottom at lengths of 1.5 to 2.5 inches, often in kelp beds. Before completing their first year of life, these fast growing young-of-the-year start eating the young of other rockfishes, surfperch, jack mackerel, and various small inshore fishes. Adults are found from depths of 60 to 1550 feet. They feed on smaller rockfishes, sablefish, anchovies, lanternfish, and squid.

Status of the Population

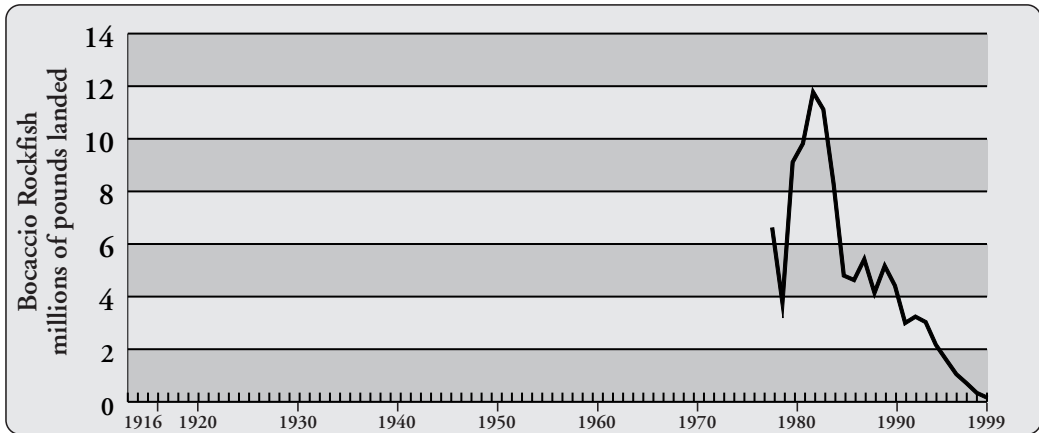
During the past two decades bocaccio landings have been dominated by the 1977, 1984, and 1986 year classes. A long string of recruitment failures occurred from 1989 to 1998, which under intense fishing led to a severely depleted population. By 1999, abundance had fallen to about three percent of the level seen in 1969, and the Pacific Fishery Management Council declared the population as "overfished." Evidence from entrainment of young fish at the San Onofre Nuclear Generating Station indicates that the 1999 year class is large.



Bocaccio, *Sebastes paucispinis*
Credit: DFG

**Commercial Landings
1916-1999,
Bocaccio Rockfish**

Data Source: CalCom, a cooperative survey with input from Pacific Fisheries Information Network (PacFin), National Marine Fishery Service (NMFS), and California Department of Fish and Game (DFG). Data are derived from DFG commercial landing receipts with expansions based on port samples collected by PacFin samplers. Expansion data not available for years prior to 1978.



Management Considerations

See the Management Considerations Appendix A for further information.

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References

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Historic photo of a catch of bocaccio and chilipepper being unloaded from a trawler.
Credit: DFG