

# Striped Marlin

## History of the Fishery

Striped marlin (*Tetrapturus audax*) support important commercial and recreational fisheries in the central and eastern Pacific and in the Indian oceans. They were directly targeted by high seas fisheries in the 1960s and 1970s, although today most are taken as incidental catch in tuna longline fisheries. Pacific-wide landings currently average near 26.5 million pounds per year and represent about 86 percent of world landings.

Striped marlin are seasonal visitors to southern California waters providing recreational billfish anglers an opportunity to fish for local large gamefish during summer and fall. Recreational and commercial fishing for striped marlin began off southern California in the early-1900s using hand-held harpoons or rod-and-reel. The California Legislature banned the use of harpoons to take striped marlin in 1935 and further curtailed the sale and import of striped marlin in 1937 thus preserving the southern California fishery entirely for recreational anglers. Currently, most striped marlin fishing is from privately owned boats based in local southern California marinas. Generally, fish begin arriving in the coastal and insular waters off southern California in June and remain until at least October. The number of fish moving into the Southern California Bight during any particular year is associated with water temperatures. Warmer water generally means more fish, better catches and higher catch rates. The colder water north of Point Conception usually limits their northward distribution, although during El Niño years they commonly range north to San Francisco and persist for extended periods. A 31-year-long angler survey indicates fairly low, but steady, catch rate averaging 0.10 fish per angler fishing day but ranging to 1.0 or greater during El Niño periods. The southern California catch of striped marlin taken by the commercial passenger fishing vessel (CPFV) fleet averages six striped marlin per year. Commercial landings in Oregon and Washington are legal but rare.

In Mexican waters, striped marlin are taken for local markets and export to other countries. These fisheries include both artisan, using hand-hauled gillnets and longlines, and larger drift net vessels targeting swordfish and sharks. The water off the southern tip of the Baja California peninsula to Manzanillo, Mexico, is an area of high striped marlin abundance, which supports a large recreational fishery. Mexican tourist enterprises aggressively advertise to attract billfish anglers to the area. The striped marlin catch rate is greatly improved off Baja where anglers average 0.3 to 0.65 striped marlin per day of fishing. Estimated recreational catches of striped marlin off Los Cabos, Baja California Sur, averaged 12,000 fish annually between 1992 and 1996, but only averaged 260 fish off Mazatlan. The estimated incidental catch from the longline shark fishery in Mazatlan averaged 680 striped marlin over the same period.

Interest in angler-based tagging and survey programs have intensified greatly in recent years. The trend toward catch and release and tagging of striped marlin has also increased as anglers became more aware of perceived conservation needs. Current estimates of striped marlin released off southern California have exceeded 80 percent of those captured. Annual marlin tournaments now award points to anglers for releasing fish and the first all-tag and release marlin tournament was held in San Diego in September 2000.

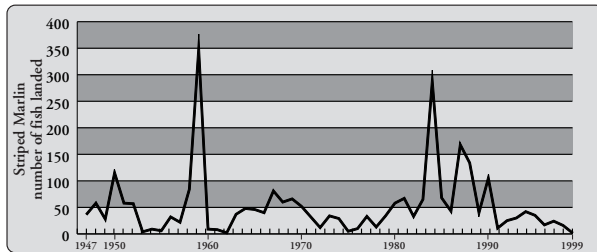
## Status of Biological Knowledge

The striped marlin (family Istiophoridae) is a large, oceanic fish with a long, round bill, small teeth and tall dorsal fin which decreases in height ending just before the second dorsal fin. The species is widely distributed throughout most tropical, sub-tropical and temperate waters of the Pacific and Indian oceans but does not occur in the Atlantic except for occasional strays off western South Africa. Japanese longline data indicate a horseshoe-shaped distribution across the central North and South Pacific with a continuous distribution along the west coast of Central America. It is apparently more abundant in eastern and north central Pacific than elsewhere.

Movements tend to be diffusive, as this species does not undertake annual migrations as seen in some tunas. Striped marlin do not form dense schools but rather occur singularly or in groups of several fish, usually segregated by size. Adult fish are found in the north and south central Pacific where spawning occurs. Larvae are recorded from North Pacific west of 150° W, in the South Pacific and more recently have been found off central Mexico. Sub-adult fish move east toward the coast of Mexico where they are found in high abundance around the tip of the Baja peninsula. Tag-recapture data indicate movement



Striped Marlin, *Tetrapturus audax*  
Credit: DFG



**Recreational Catch 1947-1999 , Striped Marlin**

Data Source: DFG, commercial passenger fishing vessel logbooks.

from southern California to Baja California Sur but show little or no movement in the reverse direction. Also, tag-recapture data reveal movements from off Mexico and southern California to near Hawaii, Peru, and the South Pacific near the Marques Islands. Striped marlin are epipelagic, and are commonly bounded by 68° to 78° F temperature regime during all stages of their life-cycle. Acoustic telemetry studies indicate they spend 86 percent of their time in the mixed layer above the thermocline and avoid temperature changes greater than 14° F.

Stock structure in the Pacific is unclear. Current evidence indicates striped marlin are probably a single Pacific-wide stock because of the continuous distribution throughout the Pacific, spawning in the south and northwest Pacific and eastern Pacific off Mexico, and from tag-recapture studies. The possibility of separate North and South Pacific stocks does exist and is based on catch-per-unit effort (CPUE) analysis, temporal and geographically separate spawning areas, and morphological differences. Genetic data further indicate some population structuring in the Pacific which implies discrete spawning areas for fish from Hawaii, Australia, and the eastern tropical Pacific.

Striped marlin mature between 55 and 63 inches eye-to-fork length (EFL) and reach a maximum size of nearly 12 feet and more than 450 pounds. The International Gamefish Association all-tackle record is for a 494-pound fish caught near New Zealand in 1986. Most striped marlin caught in the southern California sport fishery are three to six years old, and weigh 120 to 200 pounds. Examination of gonad material from the recreational and drift net fisheries indicates that striped marlin off southern California are not reproductively active while in residence.

Striped marlin are opportunistic feeders primarily on epipelagic fishes including mackerel, sardine, anchovy, and will take invertebrates including squid and red crab when available. Off southern California, they are often seen feeding at the surface on these small coastal fish. Predation on adult marlin has not been documented but may occur from large pelagic sharks or toothed whales.

## Status of the Population

The Pacific striped marlin resource appears healthy regardless of whether a single Pacific-wide stock or two separate north and southern stocks are assumed. The relationship between catch and fishing effort in the Japanese longline fisheries show sustained catches over a wide range of fishing intensities, suggesting Pacific-wide catches are below the estimated maximum sustainable yield of 53 million pounds. Catches are fairly stable at around 25 to 30 million pounds. Angler catch and effort surveys indicate CPUE off California and Mexico has changed little since 1985.

## Management Considerations

See the Management Considerations Appendix A for further information.

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## References

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