



Last Revised: January 2000

[Summary Status](#)

[Landings and Abundance Trends](#)

[Landings Data](#)

## Striped Bass

by  
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The striped bass, *Morone saxatilis*, is an anadromous species distributed along the Atlantic coast from northern Florida to the St. Lawrence estuary. It has been successfully introduced in numerous inland lakes and reservoirs and to the Pacific coast, where it now occurs from Ensenada, Mexico to British Columbia. Striped bass spawn from mid-February in Florida to late June or July in Canada. Spawning occurs at or near the surface in fresh or slightly brackish waters at temperatures ranging from 10<sup>o</sup> to 23<sup>o</sup> C; peak spawning activity is observed between 15<sup>o</sup> and 20<sup>o</sup> C. Larvae range from 2.0 to 3.7 mm in total length at hatching and initiate feeding after 4 to 10 days. At about 13 mm in length, larval striped bass form small schools and move inshore; juvenile striped bass move downriver into higher salinity waters during their first summer or autumn.

Most striped bass along the Atlantic coast are involved in two types of migrations: an upriver spawning migration from late winter to early spring, and coastal migrations that are apparently not associated with spawning activity. Coastal migrations may be quite extensive; striped bass tagged in Chesapeake Bay in winter and spring have been recaptured during the summer in the Bay of Fundy and fish tagged in the Hudson in spring have been recaptured off the coast of North Carolina during the winter. Coastal migratory behavior appears to be limited to stocks north of Cape Hatteras and is related to sex and age.

Atlantic coastal fisheries for striped bass rely primarily on production from populations spawning in the Hudson and Delaware rivers and in tributaries of Chesapeake Bay. Chesapeake Bay has historically produced most of the striped bass found along the coast. However, during most of the 1970s and 1980s, juvenile production in the Chesapeake Bay was extremely poor, causing a severe decline in commercial and recreational landings. Poor recruitment for Chesapeake Bay was probably due primarily to overfishing; but poor water quality in spawning and nursery habitats likely also contributed.

Since 1990 total landings have increased steadily from 1,300 mt to 9,900 mt in 1997; 1998 landings were 8,700 mt. Commercial landings are attributable primarily to gillnets, hook and line, and pound nets. In recent years, recreational landings have accounted for 75% of total

landings. In 1998, the estimated recreational harvest was 5,800 mt compared to 2,900 mt of commercial landings, although the two fisheries landed nearly the same number of fish (1.22 million fish landed by commercial fishermen vs. 1.36 million fish landed in the recreational fishery). During 1998, an estimated 16.3 million striped bass were caught by recreational anglers; 92% of these were released alive.

Striped bass are managed under a fishery management plan developed by the Atlantic States Marine Fisheries Commission under the authority of the Striped Bass Conservation Act. Management measures include size limits, seasonal closures, recreational daily bag limits and annual commercial catch quotas. Fisheries are limited to state waters due to the continued moratorium on fishing for striped bass in the EEZ.

During the mid-1980s, stringent management measures were adopted by states from North Carolina to Maine in an attempt to rebuild the Chesapeake stocks. Recruitment in Chesapeake Bay has improved and moderate to strong year classes have begun to occur at regular intervals similar to the 1960s and early 1970s. The 1993 and 1996 year classes produced the highest juvenile indices in the time series. Similarly, the Delaware and Hudson stocks have produced moderate to strong year classes in recent years. As recruitment has improved, stock biomass has increased substantially and is expected to increase further under modest levels of exploitation.

In 1995, Atlantic striped bass were formally declared to be a restored stock, and commercial and recreational management restrictions were relaxed somewhat. The stock has been managed at a target fishing mortality of 0.31 (25% exploitation rate), with  $F_{\text{THRESHOLD}}$  being defined as  $F_{\text{MSY}} = 0.38$  (29% exploitation rate). Fishing mortality in 1998, as determined from aged based analyses, was estimated as 0.38, about 20% above the target. The ASMFC Striped Bass Management Board has therefore taken action to reduce fishing mortality in the year 2000.

### **For further information**

Richards, R.A., and D.G. Deuel. 1987. Atlantic striped bass: Stock status and the recreational fishery. *Mar. Fish. Rev.* 49(2):58-66.

USDOI and USDOC. 1996. Striped bass research study. Report for 1994. U.S. Department of the Interior, U.S. Department of Commerce, Washington, D.C.

NEFSC [Northeast Fisheries Science Center]. 1998. [Report of the] 26th Northeast Regional Stock Assessment Workshop (26th SAW): Stock Assessment Review Committee (SARC) consensus summary of assessments. *Northeast Fish. Sci. Cent. Ref. Doc.* 98-03: 283p.

### Summary Status

Long-term potential catch (MSY)	=	Unknown
Biomass corresponding to MSY	=	Unknown
Minimum biomass threshold	=	Unknown
Stock biomass in 1998	=	61,800 mt
$F_{MSY}$	=	0.38
$F_{TARGET}$	=	0.31
Overfishing definition	=	$F_{THRESHOLD} = 0.38$
$F_{1998}$	=	0.38
Age at 50% maturity	=	2 years, males 6 years, females
Size at 50% maturity	=	29.7 cm (11.7 in.) males 71.1 cm (28.0 in.) females
Assessment level	=	Age structured
Management	=	Interstate FMP for Striped Bass

$M = 0.15$        $F_{0.1} = \text{Unknown}$        $F_{max} = \text{Unknown}$

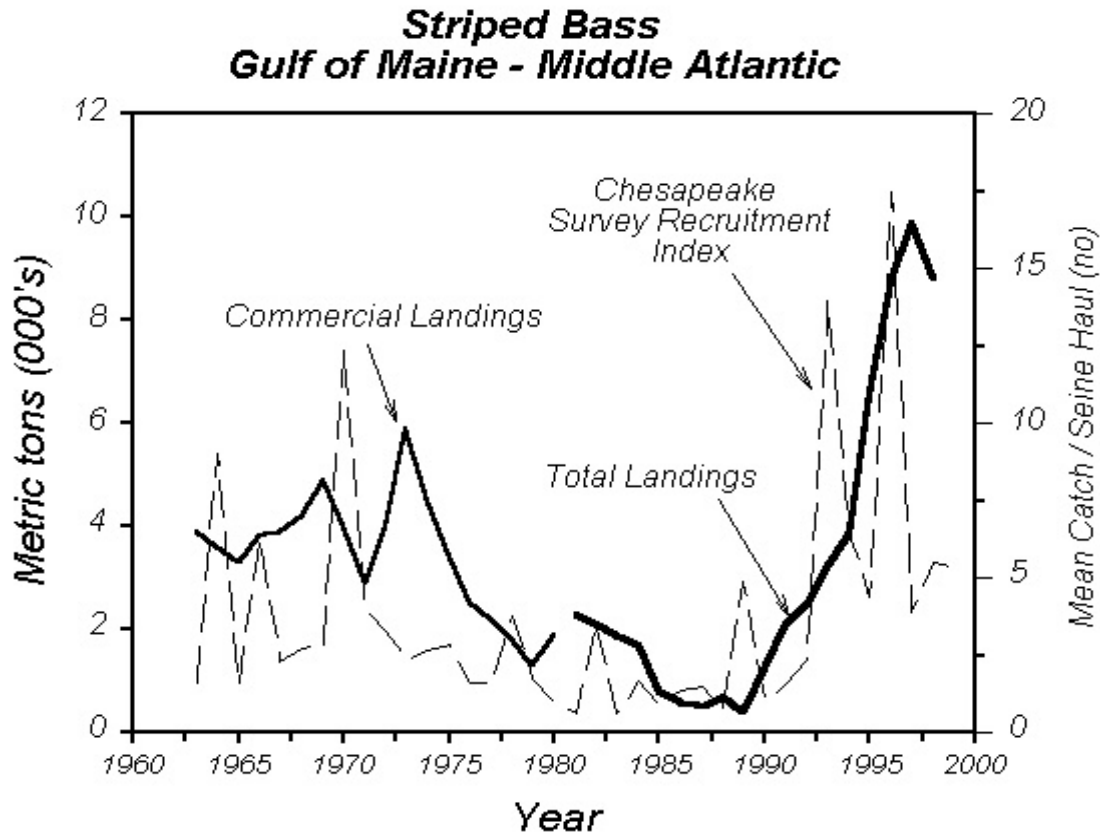


Table 36.1 Recreational harvest and commercial landings (thousand metric tons)

Category	Year										
	1981-88 Average	1989	1990	1991	1992	1993	1994	1995	1996	1997	1999
U.S. recreational	0.7	0.3	1.0	1.7	1.8	2.6	3.1	5.1	6.6	7.2	5.8
Commercial											
United States	0.6	0.1	0.3	0.5	0.6	0.8	0.8	1.6	2.2	2.7	2.9
Canada	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	1.3	0.4	1.3	2.2	2.4	3.4	3.9	6.7	8.8	9.9	8.7