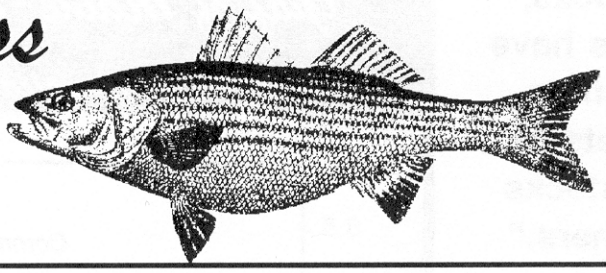
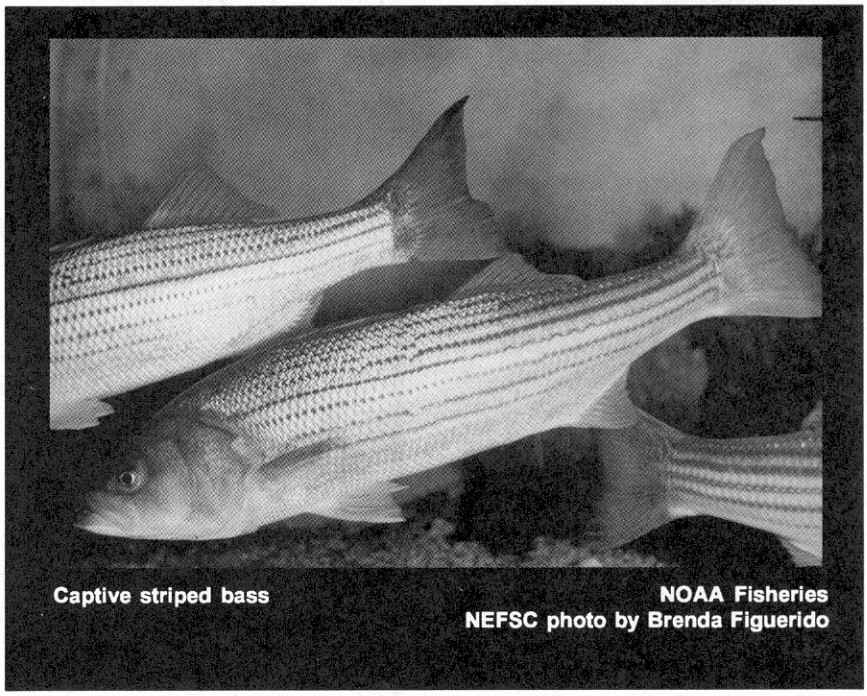
# Striped Bass



by G. Shepherd

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° to 23°C; peak spawning activity is observed between 15° and 20°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.



Captive striped bass

NOAA Fisheries
NEFSC photo by Brenda Figuerido

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 River 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 during the mid-1970s. Poor recruitment for Chesapeake Bay was probably due primarily to overfishing; but poor water quality in spawning and nursery habitats likely also contributed. During the mid-1980s, stringent management measures were adopted by states from North Carolina to Maine in an attempt to rebuild the Chesapeake stocks. These measures, aimed at protecting 1982 and subsequent year classes until females could spawn at least once, were effective in increasing spawning stock size and recruitment. Signs of improved recruitment in Chesapeake Bay have appeared as well. Since 1987, indices of juvenile production in Virginia's Chesapeake Bay tributaries have been at or near record high levels in all but one year. High juvenile production in Maryland has begun to occur at regular frequencies as seen during the 1960s and early 1970s. Maryland's 1989 index was the fourth highest on record, and exceeded management criteria for relaxing fishery regulations in 1990. The 1993 and 1996 indices were the two highest on record with good production throughout the Chesapeake Bay estuary. As recruitment has improved, stock biomass has increased substantially and is expected to increase further over the short term under current levels of exploitation.

In recent years, recreational landings of striped bass have substantially exceeded commercial landings. In 1996, the estimated recreational harvest (6,700 mt) was over 3 times the commercial landings level. During

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# Gulf of Maine - Middle Atlantic

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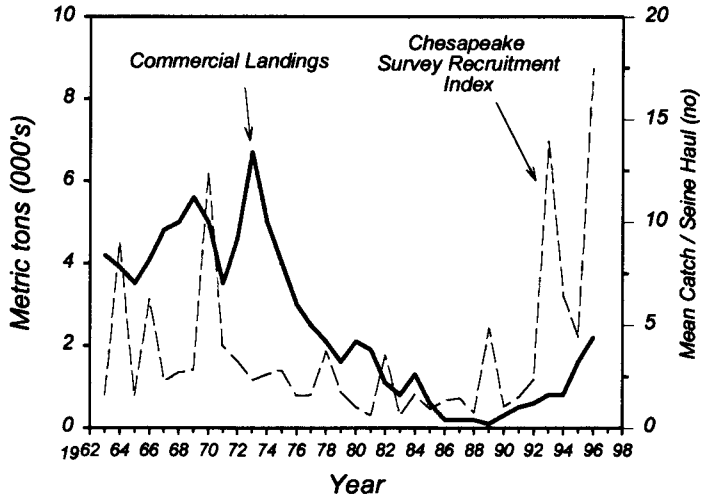


Table 36.1 Recreational harvest and commercial landings (thousand metric tons)

| Category | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1977-86 Average | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
| U.S. recreational | 1.2[1] | 0.4 | 0.6 | 0.3 | 1.2 | 1.6 | 2.2 | 2.7 | 3.3 | 5.5 | 6.7 |
| Commercial | | | | | | | | | | | |
| United States | 1.2 | 0.1 | 0.1 | 0.1 | 0.3 | 0.5 | 0.6 | 0.8 | 0.8 | 1.6 | 2.2 |
| Canada | - | - | - | - | - | - | - | - | - | - | - |
| Other | - | - | - | - | - | - | - | - | - | - | - |
| Total nominal catch | 2.4 | 0.5 | 0.7 | 0.4 | 1.5 | 2.1 | 2.8 | 3.5 | 4.1 | 7.1 | 8.9 |

[1]1979-1986

## Summary Status

| | | |
|---|---|---|
| Long-term potential catch | = | Unknown |
| SSB for long-term potential catch | = | Unknown |
| Importance of recreational fishery | = | Major |
| Management | = | Interstate FMP for Striped Bass |
| Status of exploitation | = | Fully exploited[1] |
| Age at 50% maturity | = | 2 years, males<br>6 years, females |
| Size at 50% maturity | = | 29.7 cm (11.7 in.) males<br>71.1 cm (28.0 in.) females |
| Assessment level | = | Age structured |
| Overfishing definition | = | $F_{msy}$ |
| Fishing mortality rate corresponding to overfishing definition | = | $F_{msy} = 0.38$ |

**M = 0.15** **$F_{0.1}$ = unknown** **$F_{max}$ = unknown** **$F_{1996}$ = 0.30**

[1]Fishing prohibited in EEZ

1996, an estimated 14.0 million striped bass were caught by recreational anglers; over 90 percent of these were released alive.

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 overfishing defined as $F_{msy} = 0.38$ (29% exploitation rate). Fishing mortality in 1996, as determined from aged based analyses and tagging data, was estimated as 0.30 (24% exploitation rate).

## 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. Woods Hole, MA: NOAA/NMFS/NEFSC. *NEFSC Ref. Doc.* 98-03.