

Species Profile: Atlantic Striped Bass

Assessment Finds Resource Not Overfished or Experiencing Overfishing: Board Initiates Addenda to Adopt New Reference Points & Consider Management Measures to Address Declines to Spawning Stock Biomass

Introduction

Ardent anglers will brave the cold in the coming months heading to the oceanic waters off of the Chesapeake Bay where Atlantic striped bass have been known to spend their winters in recent years. These fish that tend to aggregate in large schools are part of the migratory stock that provides so many great recreational opportunities along the Coast. Soon enough spring will be here and the stripers will be on the move again making a spawning migration from the ocean to freshwater rivers. Atlantic striped bass are not the only species that has this unique life history as it shares coastal rivers with shad, river herring, and sturgeon every spring.

Although the 2013 stock assessment indicates Atlantic striped bass are not overfished and are not experiencing overfishing, female spawning stock biomass (SSB) has continued to decline since 2004. As a result, the Commission has initiated a draft addendum to consider management options to reduce fishing mortality for the 2015 fishing year. Additionally, the Commission continues to address existing and emerging challenges such as illegal harvest, disease, species interactions, and the possible contraction in the species' northern range.

Life History

On the Atlantic coast, Atlantic striped bass range from the St. Lawrence River in Canada to the St. John's River in Florida. The migratory stock under Commission management ranges from Maine through North Carolina. Atlantic striped bass can live up to 30 years. The majority of their adult life occurs in estuaries or the ocean, where striped bass tend to aggregate by size. Mature males and females ascend freshwater rivers to spawn in the spring months, releasing millions of eggs into the ecosystem. The fertilized eggs flow downstream eventually hatching into larvae, which begin feeding on zooplankton. The larvae mature into juveniles and remain in coastal sounds and estuaries for two to four years before joining the coastal migratory population in the Atlantic Ocean.

In the ocean, fish tend to move north during the summer and south during the winter, but these migrations can be influenced by their age, sex, degree of maturity, and the river in which they were born. Important wintering grounds for the mixed stocks are located

from offshore from New Jersey to North Carolina. In general, Chesapeake Bay spawning areas produce the majority of coastal migratory striped bass.



Atlantic striped bass tagged and ready for release as part of the 2013 Hook and Line Tagging Survey. Photo by Tom Crews, USFWS

Species Snapshot

Atlantic Striped Bass *Morone saxatilis*

Management Unit:
Maine - North Carolina

Interesting Facts:

- Striped bass tagged in Chesapeake Bay have been recaptured as far away as the Bay of Fundy.
- Striped bass don't have eyelids; when the sun comes up they retreat to deeper water to avoid bright light.
- Females grow larger than males; fish larger than 15 lbs are most likely female, with the potential to produce a million eggs/10 lbs of body weight.
- US striped bass regulations date to pre-Colonial times, when striped bass were prohibited from being used as fertilizer (c. 1640).
- In 1669, the 1st public school in North America (MA) was financed with taxes imposed on striped bass harvest.

Largest Recorded: New world record was caught in CT (2011), weighing 81.88 lbs. Historic records confirm a 125 lb female caught off on NC in 1891.

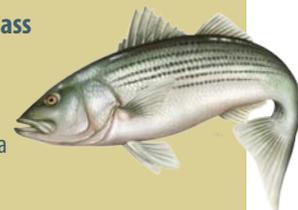
Age at Maturity

Females - 50% mature at age 6 (25-26");
100% at age 9 (32")
Males - 100% mature at age 3 (18")

Age at Recruitment into Fishery

Chesapeake Bay Fishery = age 4 (18")
Coastal Fishery = age 8 (28")

Stock Status: Not overfished or experiencing overfishing



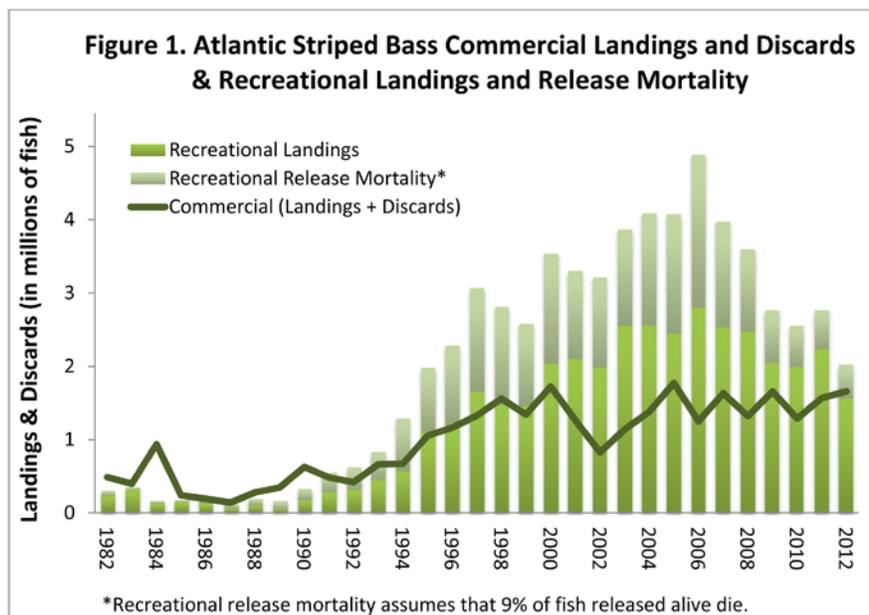
Recreational & Commercial Fisheries

Atlantic striped bass have supported one of the most important fisheries on the Atlantic coast for centuries. Currently, commercial fisheries operate in eight Atlantic coastal jurisdictions, while recreational fisheries operate in 14. Commercial fishermen harvest Atlantic striped bass with a variety of gears including gillnets, pound nets, haul seines, trawls, and hook and line, while recreational

Why Change Biological Reference Points?

The biological reference points for Atlantic striped bass used in the previous assessment and by the Commission for management use are based on fishing mortality at maximum sustainable yield (FMSY = 0.34) and an SSB proxy which is equivalent to the 1995 SSB level. The SSB target was calculated as 125% of the 1995 SSB, and the fishing mortality target was defined as an exploitation rate of 24% or $F=0.3$.

For the 2013 assessment, the basis for deriving the SSB target and threshold remain the same, but the values have been updated. However, the method of estimating the fishing mortality reference points was changed so that the fishing mortality reference points are calculated to be consistent with the SSB reference points. In prior years, fishing mortality reference points were calculated independently of SSB reference points and led to inconsistencies. This new method resulted in a fishing mortality target of 0.180, corresponding to the SSB target of 159 million pounds (72,032 mt), and a fishing mortality threshold of 0.219, corresponding to the SSB threshold of 127 million pounds (57,626 mt).



fishermen use hook and line almost exclusively. Commercial landings peaked at almost 15 million pounds in 1973 before declining below two million pounds by 1983 (Figure 1).

During the mid-to-late 1980s, a number of states closed their Atlantic striped bass fisheries in order to initiate stock rebuilding. The commercial fishery grew slowly under a partial reopening of state waters in the early 1990s, with coastwide landings rising from about 800,000 pounds in 1990 to two million pounds in 1994. Under Amendment 5, striped bass harvest grew from 3.8 million pounds in 1995 to 6.3 million pounds in 2002. Since the passage of Amendment 6 in 2003, commercial harvest has been managed through a quota system and landings have averaged just over seven million pounds annually. Commercial landings in 2012 (6.51 million pounds) were dominated by Chesapeake Bay fisheries, which made up approximately 64% of the total commercial landings.

Between 1982 and 1989, recreational anglers landed an annual average of 1.4 million pounds due to a combination of low stock abundance and strict regulations. Under Amendment 4, recreational landings grew from 2.2 million pounds in 1990 to 6.8 million pounds in 1994. With the declaration of restored status, landings increased from 12.5 million pounds in 1995 to a record 29.2 million pounds in 2006. Since 2006, recreational landings have declined annually, with 19 million pounds landed in 2012 (Figure 1). Of those coastwide recreational landings, New York landed the largest percent in number of fish (27.5%), followed by Massachusetts (24.5%), Maryland (17%), New Jersey (10%), and Virginia (8.7%). The remaining states each landed less than 5% of the 2012 recreational landings by number of fish. Anglers continue to release the vast majority (72-90%) of striped bass they catch. The number of released fish peaked in 2006 at 23.3 million fish. Total numbers of releases have declined since then, with 5.2 million fish released in 2012.

Stock Status

The 2013 Atlantic striped bass benchmark assessment indicates the resource is not overfished or experiencing overfishing relative to the proposed new reference points. Although the stock is not overfished, female SSB has continued to decline since 2004 and is estimated at 128 million pounds just above the SSB threshold of 127 million pounds, and below the SSB target of 159 million pounds (Figure 2). Additionally, total fishing mortality is estimated at 0.20, a value that is between the proposed new fishing mortality threshold (0.219) and fishing mortality target (0.18) (Figure 3).

Atlantic striped bass experienced a period of strong recruitment (number of age-1 fish entering the population) from 1993-2003, followed by a period of lower recruitment from 2004-2009 (although not as low as the early 1980s, when the stock was overfished). The 2011 year-class was strong (i.e., abundant), but early observations from several states' juvenile indices indicate the 2012 year class was very weak (i.e., low abundance).

Projections of female SSB and fishing mortality suggest if the current fishing mortality rate (0.20) is maintained during 2013-2017, the probability of the stock being overfished (SSB less than the SSB threshold) is high and increases until 2015-2016, but declines thereafter. This trend is driven by the lack of strong year classes currently in the fishery, and the emergence of the strong 2011 year class that matures into the spawning stock in three to four years. Despite recent declines in SSB, the stock is still well above the SSB during the moratorium that was in place in the mid-1980s.

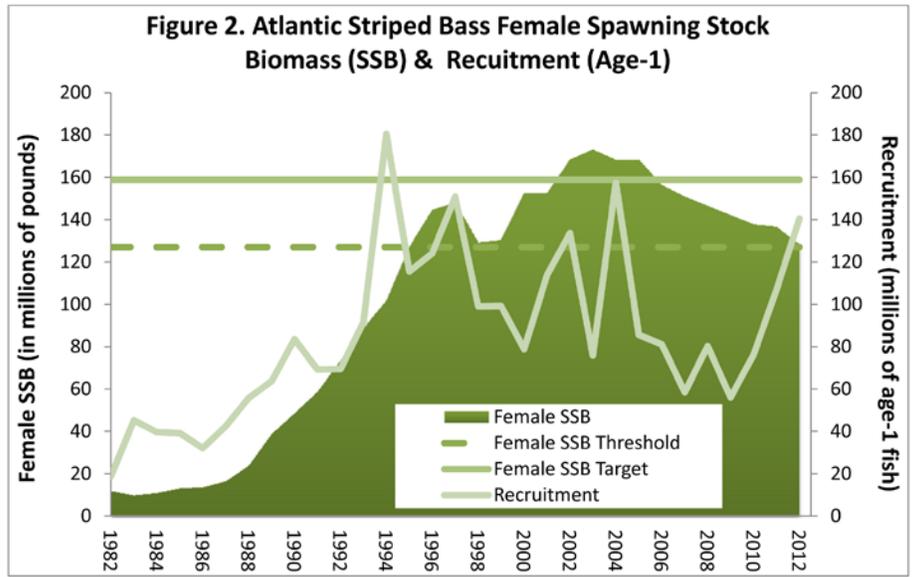
Atlantic Coastal Management

Before approval of the Atlantic Striped Bass Interstate Fishery Management in 1981, states independently promulgated regulations to constrain the fishing mortality on the Atlantic coast striped bass population. However, it was not until passage of the 1984 Atlantic Striped Bass Conservation Act, the precursor to the Atlantic Coastal Fisheries Cooperative Management Act, that the Atlantic coastal states gained the necessary tools to cooperatively and more effectively conserve and manage striped bass stocks. Through a stringent management program begun in 1985, the population began to rebuild, such that in 1995 the Commission declared Atlantic coastal striped bass stocks fully recovered.

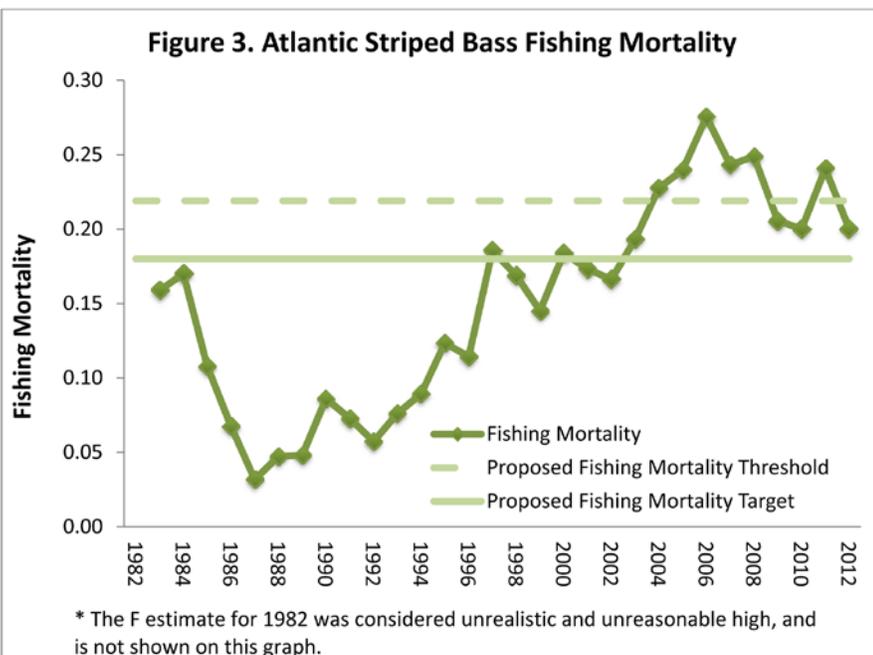
Since Amendment 4, the foundation of the striped bass management program has been to maintain harvest below a target fishing mortality rate. Amendment 6, approved in 2003, modified the fishing mortality targets and thresholds, and also introduced a new set of biological reference points based on female SSB. On a regular basis, SSB and fishing mortality are estimated and compared to target and threshold levels. These reference points, as well as new management triggers, have enabled the Management Board to be more responsive to changes in the stock.

In addition to the control rule, Amendment 6 phased in new regulations for both the commercial and recreational fisheries. In 2003, the coastal commercial quotas for striped bass were restored to the states' historical average landings during the 1972-1979 base period, a 43 percent increase from the 2002 coastal commercial quotas. In the recreational fisheries, all states were required to implement a two fish bag limit with a minimum size limit of 28 inches, except for the Chesapeake Bay and Albemarle-Roanoke fisheries, and states with approved conservation equivalency proposals. The Chesapeake Bay and Albemarle-Roanoke regulatory programs differ from the coastal migratory stock because these programs are predicated on a more conservative fishing mortality target than the coastal migratory stock. The independent fishing mortality target allows these jurisdictions to implement separate seasons, harvest caps, and size and bag limits as long as they remain under that target.

Addendum III (August 2012) outlined measures to address illegal harvest of striped bass. States



Timeline of Management Actions: Amendments 1 & 2 (1984); Amendment 3 (1985); State Moratoria (1984/1985); Amendment 4 (1990); Amendment 5 (1995); Amendment 6 (2003); Addendum I (2007); Addendum II (2010); Addendum III (2012)



* The F estimate for 1982 was considered unrealistic and unreasonable high, and is not shown on this graph.



and jurisdictions are required to implement a tagging program for all commercially harvested striped bass within state or jurisdictional waters. Addendum III was developed in response to the Interstate Watershed Task Force's multi-year, multi-jurisdictional investigation conducted within Chesapeake Bay. This investigation resulted in over \$1.6 million dollars in fines levied against 19 individuals and 3 corporations for more than one million pounds of illegal striped bass harvested estimated to be worth up to seven million dollars.

In response to the results of the 2013 benchmark assessment, the Board initiated the development of two draft addenda at its October 2013 meeting (Addenda IV and V). Draft Addendum IV will propose adoption of the new fishing mortality reference points recommended by the benchmark assessment. These include fishing mortality reference points for the coastal stock as described in the stock status Section, as well as stock-specific reference points for the Chesapeake Bay and Albemarle/Roanoke stocks. The second addendum, Draft Addendum V, will propose a range of commercial and recreational management measures for the coastal, Chesapeake Bay, and Albemarle/Roanoke stocks to reduce fishing mortality to at least the target with a proposed implementation date of January 2015.

The Board intends to consider approval of the first draft addendum for public comment in February 2014, at the Commission's Winter Meeting, and consider approval of the second draft addendum for public comment in May at the Commission's Spring Meeting. For more information, please contact Mike Waine, FMP Coordinator, at <mwaine@asmfc.org> or 703.842.0740.