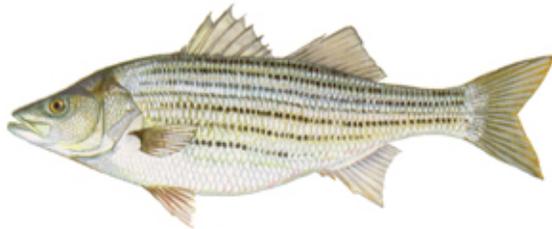


ESTUARINE STRIPED BASS, *Morone saxatilis*

Albemarle Sound/Roanoke River



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Life History

Striped bass (*Morone saxatilis*) are an estuarine dependent species found from the lower St. Lawrence River in Canada to the west coast of Florida through the northern shore of the Gulf of Mexico to Texas. In North Carolina, the species is also known as striper, rockfish, or rock. The only stocks considered migratory are the stocks from Maine to the Albemarle Sound/Roanoke River in North Carolina. These migratory stocks are under the management authority of the Atlantic States Marine Fisheries Commission. Striped bass are anadromous, meaning they spend the majority of their adult life in the waters of the estuaries and nearshore ocean, migrating to fresh water to spawn in the spring.

Females in the Albemarle Sound/Roanoke River stock start maturing at age 3 and produce large quantities of eggs which are broadcast into riverine spawning areas and fertilized by mature males, age 2 and older. Fertilized eggs drift with the downstream currents and continue to develop through a larval stage for several days, eventually arriving in river mouths and the inland portions of coastal estuaries where they develop into juveniles. Striped bass require flowing, freshwater habitats in order to spawn successfully, allowing the eggs to remain suspended until they hatch, and to transport larvae to the nursery areas. Environmental conditions including temperature, rainfall and river flows are important factors in determining the number of juveniles produced annually. Spawning takes place from late March until early June. Peak spawning activity for Albemarle/Roanoke striped bass occurs when water reaches 62 to 67 degrees Fahrenheit on the Roanoke River.

Striped bass are relatively long-lived and capable of attaining moderately large sizes. Fish weighing 50 or 60 pounds are not exceptional. In general, females grow larger than males with reported maximum lengths of 60 inches and 45 inches. In recent years, the oldest striped bass caught in the Albemarle Sound/Roanoke River system was 17 years old and taken from the Roanoke River spawning grounds. The largest striped bass on record are two females caught in the early 1900s in Albemarle Sound which weighed 125 pounds each. Estuarine striped bass from the Albemarle/Roanoke stock contribute minimally to the coastal migratory stock when compared to the contributions from larger systems like the Chesapeake Bay, Delaware and Hudson rivers.

Striped bass can form large schools feeding on whatever fishes are seasonally and geographically available. They also feed on a wide variety of invertebrates. In general, oily fish such as menhaden, herrings and shads are very important prey items, but they will also readily eat spot, mullet, croaker, American eel, and various invertebrates like blue crabs.

Fisheries

The Albemarle Sound Management Area commercial harvest is currently constrained by a 137,500 pound quota, and an 18 inch minimum total length size limit. The majority of harvest occurs as bycatch in the spring American shad gill net fishery. Harvest has fluctuated over the past 10 years and has averaged 117,073 pounds with a peak in 2010 (Figure 1). Since the peak in 2010, harvest declined to a low of 68,338 pounds in 2013 and has risen each year since. Harvest in 2016 was 123,111 pounds and had a dockside value of \$362,759 (Figure 1).

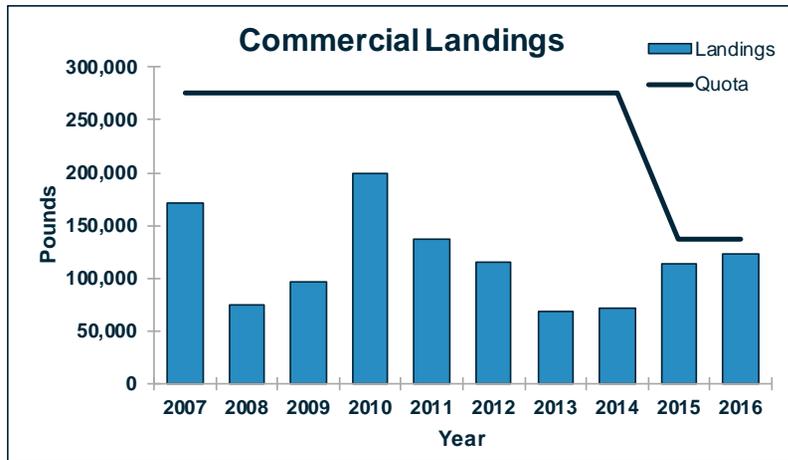


Figure 1. Annual commercial landings of striped bass in the Albemarle Sound NC, 2007-2016.

The Albemarle Sound and Roanoke River Management Area’s recreational harvest is constrained by a 68,750 pound quota each, and a minimum total length size limit of 18 inches, a two fish per person daily possession limit. The Roanoke River has an additional constraint prohibiting possession of striped bass between 22 and 27 inches. Angling methods used to catch striped bass vary depending on time of year and location, but include conventional, spinning and fly tackle gear, using live, dead and artificial bait. Harvest during the past 10 years has fluctuated without apparent trend, averaging 33,730 pounds (10,317 fish) kept in the Albemarle Sound and 57,976 pounds (18,655 fish) kept in the Roanoke River (Figures 2 and 3). Many more striped bass are caught and released by recreational anglers each year than are harvested, especially in the Roanoke River where concentrations of fish on the spawning grounds can be dense. Annual releases during the past 10 years have averaged over 25,000 fish in the Albemarle Sound and over 105,000 fish in the Roanoke River. (Figure 3)

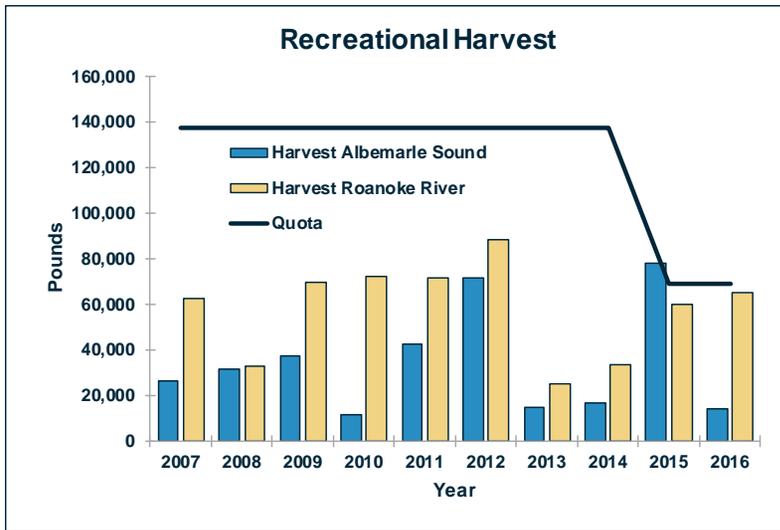


Figure 2. Annual recreational harvest of striped bass in Albemarle Sound Management Area and Roanoke River Management Area North Carolina, 2007-2016.

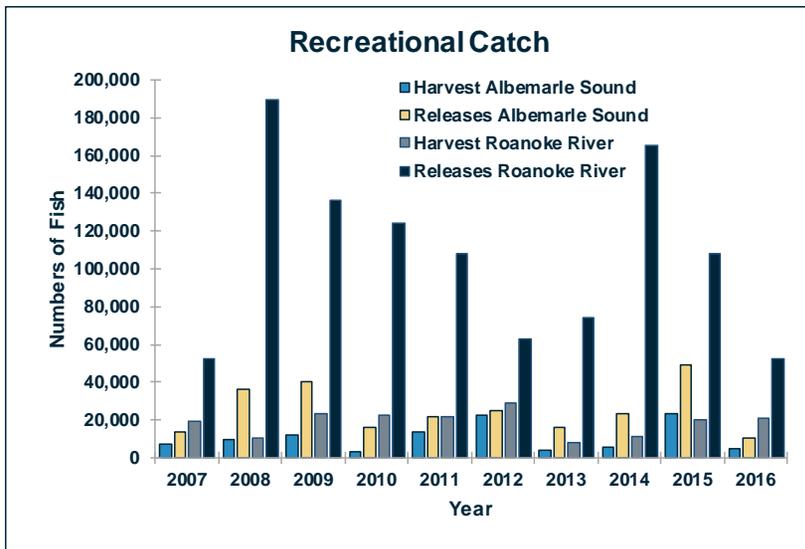


Figure 3. Annual recreational catch of striped bass in Albemarle Sound Management Area and Roanoke River Management Area North Carolina, 2007-2016.

Management

The Albemarle/Roanoke striped bass stock is managed under both the North Carolina Fishery Management Plan for Interjurisdictional Fisheries (Amendment 6 to the Atlantic States Marine Fisheries Commission Atlantic striped bass plan) and a state plan (Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan). Addendum IV to the Atlantic States Marine Fisheries Commission plan deferred management of the Albemarle/Roanoke stock to North Carolina using Atlantic States Marine Fisheries Commission approved biological reference points (fishing mortality and spawning stock biomass targets). Albemarle/Roanoke striped bass are managed jointly through the state plan by the North Carolina Marine Fisheries Commission and the North Carolina Wildlife Resources Commission. The November 2014 revision to Amendment 1 to the state plan updated the quota to reflect the results from the most recent stock assessment. Commercial and recreational regulations, including maximum gill net yardage amounts, season and area closures, and daily harvest limits are implemented to ensure fishing mortality for the Albemarle/Roanoke stock is maintained at its target level.

Stock Status Overview

The Albemarle/Roanoke stock is currently listed as “Concern.” Results from the 2016 stock assessment update indicate that Albemarle/Roanoke striped bass are not experiencing overfishing (the rate of removal of fish from the population is not too high) and are not overfished (the number of mature females in the population is not too small). Fishing mortality has also declined in recent years. Caution should be used however, when evaluating the estimate of spawning stock biomass (amount of mature female striped bass) and fishing mortality in the last year of the assessment. The estimated biomass value in 2014 is the largest value in the entire time series and is likely an overestimate, as estimates of abundance and fishing mortality in the final year of stock assessment models are always the most uncertain. Subsequent assessments, incorporating additional years of data, will likely reduce the magnitude of the 2014 biomass estimate. The fishery management plan review for estuarine striped bass is currently underway and results from a benchmark stock assessment are expected late this year.

Division staff conduct juvenile striped bass sampling with beach seines and trawls from the beginning of June to the end of October. The North Carolina Division of Marine Fisheries’ juvenile abundance trawl survey has seven stations in western Albemarle Sound, the primary nursery area for Albemarle/Roanoke juvenile striped bass. The results from the survey provide the Albemarle/Roanoke juvenile abundance index, an indicator of annual spawning success. The juvenile abundance index has been variable from year to year with large spikes in 2011, 2014 and 2015 and a spawning failure in 2009 and 2013 (Figure 4). Even with a large amount of mature spawning females in the stock, environmental conditions must be favorable to have a successful spawn and produce large numbers of juveniles as in 2014 and 2015.

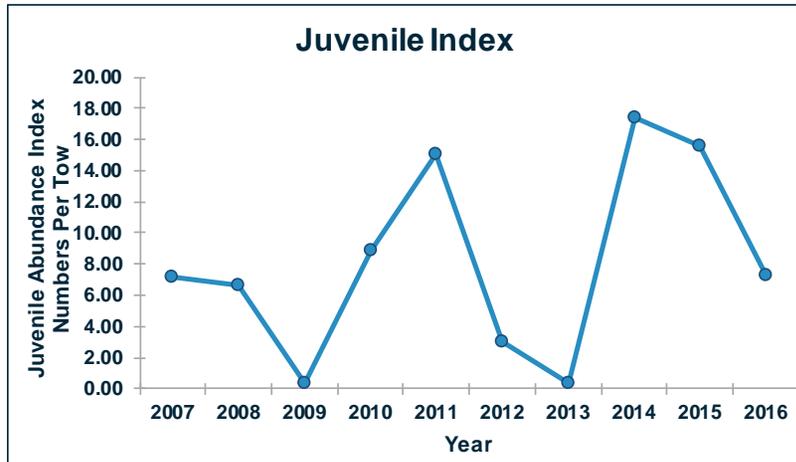


Figure 4. Annual index of relative juvenile abundance of striped bass in the N.C. Division of Marine Fisheries Western Albemarle Sound Hassler Trawl Survey, 2007-2016.

Research Needs

Research needs include collecting data through high reward (\$100) tags and determining tag return rates; improving estimates of commercial discard losses from the Albemarle Sound Management Area; reevaluating hook and release mortality rates from the Albemarle Sound and Roanoke River recreational fisheries; and improving estimates of hook and release discard losses in the recreational fishery during the closed harvest season.

Links

Management Agencies

[North Carolina Division of Marine Fisheries](#)

[Atlantic States Marine Fisheries Commission](#)



Fishery Management Plans, Amendments, Revisions, & Supplements

[North Carolina Fishery Management Plan](#)

Stock Assessment Reports

Link to stock assessment coming

Contacts

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