



Lake Tillery Striped Bass Population Assessment

March 2020



The N.C. Wildlife Resources Commission recently conducted a gill net survey at Lake Tillery to determine the status of the Striped Bass population and to evaluate the management of the fishery. Lake Tillery is located on the Yadkin-Pee Dee River chain of reservoirs in Stanly and Montgomery counties. The reservoir is 5,261-acres and is a popular destination for North Carolina anglers with many species of interest, including Largemouth Bass, Striped Bass, White Bass, White Perch, Black Crappie, Bluegill, Flathead Catfish and Blue Catfish. Lake Tillery generally produces a quality Striped Bass fishery, and the population is surveyed every three years by Inland Fisheries Division staff. The Striped Bass population is not self-sustaining and is managed as a put-grow-and-take fishery. Approximately 27,000 fingerling (1–2 in) Striped Bass are stocked into Lake Tillery annually. The minimum size limit for Striped Bass at Lake Tillery is 20 inches and the daily creel limit is four fish.



Lake Tillery is located in Stanly and Montgomery counties.

Project Objective:

- Determine the status of the Striped Bass population by analyzing relative abundance, length distribution, age distribution and growth.
- Compare these parameters with those from previous surveys to monitor population trends and develop potential management actions to maintain or improve the fishery.



Duane Raver

Methods:

- In December 2018, eight gill nets with mesh sizes ranging from 2–3.5 inches were suspended at depths of 10–25 feet, usually on a shoal or point. The gill nets were checked daily over a four-day period to remove any fish collected.
- Striped Bass were collected, weighed and measured. Otoliths (ear stones) were removed from all fish collected to assess age.

Results:

- Overall, Lake Tillery continues to produce a good Striped Bass fishery. Measures of relative abundance, length distribution, age distribution and growth calculated from the 2018 Striped Bass survey are considered to be average for Lake Tillery, as compared with data from previous surveys (Table 1).
- Fisheries biologists collected 97 Striped Bass over 32 net-nights for a catch rate of about three fish per net-night (Table 1).

Year	Fish per net night	% Harvestable (over 20 in)	% Age 3 and older	Mean length at age 3 (in)	% 5 lb and larger
2018	3	70	31	23.5	35
2015	1	66	22	24.4	17
2012	2.7	77	48	22.8	22
2009	1.7	59	44	23.9	43
2006	3.2	50	48	24.8	47

Table 1. Mean number of fish caught per net night, percent of fish that were 20 in and longer, percent of fish that were age 3 and older, mean total length of age-3 fish at time of capture, and percent of fish that were greater than five pounds, Striped Bass collected from Lake Tillery with gill nets, November 2006, 2009, 2012, 2015 and 2018.



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Although gill net sampling in the Yadkin-Pee Dee River chain of reservoirs can be problematic, with low targeted catch and high bycatch a common occurrence, biologists have consistently been able to capture Striped Bass at Lake Tillery.

- Length distribution analysis indicates that 70% of the population was larger than the minimum length limit of 20 inches (Figure 1). This is excellent and reflects the fast growth at Lake Tillery.
- Striped Bass up to age 6 were sampled and 31% were age 3 or older (Figure 2).
- Several age classes were present in the sample which suggests that harvest is not excessive.
- Growth values for Striped Bass were excellent in 2018 at Lake Tillery. Growth curve analysis indicated that Striped Bass surpassed the minimum length limit just after reaching age 2 (Figure 3). Age-3 Striped Bass averaged 23.5 inches in length. Growth rates remained high before leveling off after age 5.
- Over 35% of the fish collected weighed 5 pounds or more and the largest Striped Bass weighed 9 pounds. Although factors such as high temperature, low dissolved oxygen, and poor forage availability can reduce growth and thus limit the maximum attainable size for Striped Bass in a reservoir, smaller fish are less impacted and typically exhibit fast growth and good body condition. This scenario is typical for Lake Tillery and other Yadkin-Pee Dee River reservoirs.

What's Next:

- Lake Tillery will continue to be stocked with 27,000 Striped Bass fingerlings annually.
- Future gill net surveys will be important to help guide management actions. Currently, the reservoir is sampled every three years and the next survey is planned for fall 2021.

For more information, contact:

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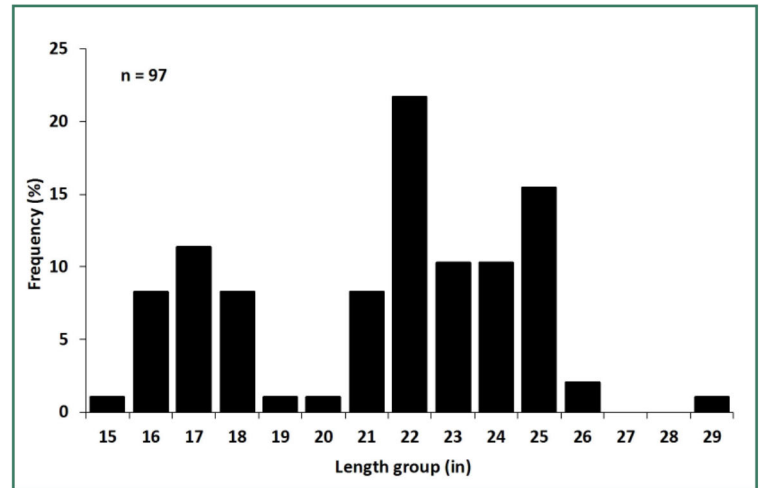


Figure 1. Length frequency distribution of Striped Bass collected from Lake Tillery with gill nets, December 2018.

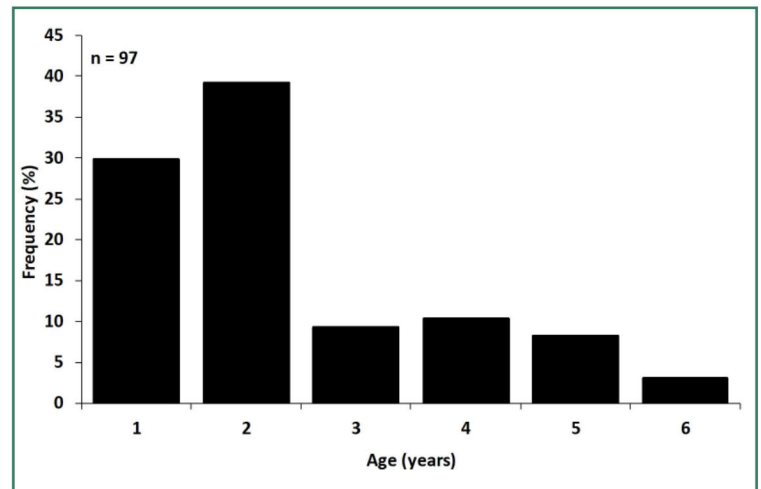


Figure 2. Age frequency distribution of Striped Bass collected from Lake Tillery with gill nets, December 2018.

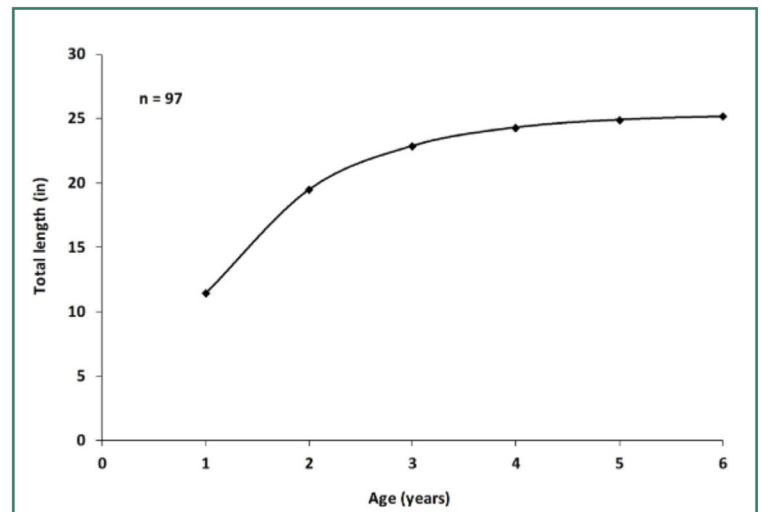


Figure 3. Growth curve for Striped Bass collected from Lake Tillery with gill nets, December 2018.