

# Fisheries Research Summary

Division of Inland Fisheries

N.C. Wildlife Resources Commission



## Striped bass population of the lower Neuse and Trent rivers

The N.C. Wildlife Resources Commission has sampled the Neuse River striped bass spawning population annually since the mid 1990s. During these annual surveys, adult striped bass are collected in the upper Neuse River between Goldsboro and Raleigh, and each fish is tagged with an internal anchor tag to track their movements.

This year, staff from the Commission and the N.C. Division of Marine Fisheries (NCDMF) expanded the survey for the first time to the lower Neuse and Trent rivers near New Bern. This area was included in the survey to increase numbers of tagged fish in the population, to collect information about immature fish in the population (only mature fish are usually collected in the upper river), and to estimate population size in the Neuse River.

All striped bass were collected using electrofishing boats around bridges and railroad trestles in the New Bern vicinity (Figure 1). Areas were sampled monthly from April to December of 2010. Staff collected fish lengths, weights, and scale samples for age determination. Most fish were tagged with yellow internal anchor tags provided by NCDMF.



During 2010, 847 striped bass were collected in the New Bern area and 647 were tagged with new tags. Twenty-seven fish were recaptured. Of the recaptured fish, three were tagged earlier in the year at New Bern, while the other recaptures were either tagged on the spawning grounds, tagged at a hatchery before stocking, or during other tagging efforts throughout the coastal region.

In contrast, only 152 striped bass were collected in the upper river during March and April. Of these fish collected, 146 were tagged with new tags and six were recaptured.

A population estimate for the New Bern area could not be generated because of the low number of recaptures as of December 2010 (only three fish). However, by including the lower Neuse and Trent rivers in the annual striped bass survey, we were able to increase the number of tags in the population and will gain information about striped bass movement through tag return information.

*(continue)*



The view below the U.S. Highway 17 bridge on the Neuse River, one of the several bridges near New Bern that provide structure for striped bass.



# Striped bass population of the lower Neuse and Trent rivers



Catch-per-unit-effort (CPUE), a measure of striped bass abundance, was highest during May (66 fish/hr) and October (50 fish/hr), while CPUE was lower during summer and winter (Table 1).

Month	Effort (hrs)	Number Collected	CPUE (fish/hr)	Average Water Temperature (°F)	Average Salinity (ppt)
April	6.5	104	16	68	0.2
May	4.1	271	66	75	0.6
June	3.8	96	25	87	1.9
July	5.5	54	10	87	2.7
August	4.5	85	19	83	2.2
September	3.7	57	15	a	a
October	3.5	177	50	65	0.0
November	4.1	2	1	57	3.0
December	1.6	1	1	42	4.7

<sup>a</sup> Water temperature and salinity not available for September sampling date.

Table 1. Monthly totals for electrofishing effort and number of striped bass collected, average CPUE, water temperature, and salinity among all sites for each month on the lower Neuse and Trent Rivers during 2010.

This trend may be related to fish using the shallow areas around the bridges more during spring and fall as well as effectiveness of the electrofishing boat. Fish are more vulnerable to electrofishing in fresh water (0.1 parts-per-thousand, ppt) due to the flow of electrical current through the fish.

In saltier water, the electrical current flows around the fish and they stun less easily. Most of our higher catch rates occurred when salinities were low (< 1 ppt, Table 1). Salinity of water can range from 0 ppt for fresh water to about 30 ppt for full strength sea water. The highest salinity measured by a U.S. Geological Survey gage in the New Bern area was 21.8 ppt in August of 2002.

Striped bass collected from the lower Neuse and Trent rivers were between 0 and 7 years old. The lone age 0 fish was collected in December 2010 and was hatched the spring of 2010. Based on growth calculations, striped bass in the lower Neuse River reach 17 inches by age 2 and 22 inches by age 4 (Figure 2). (continue)

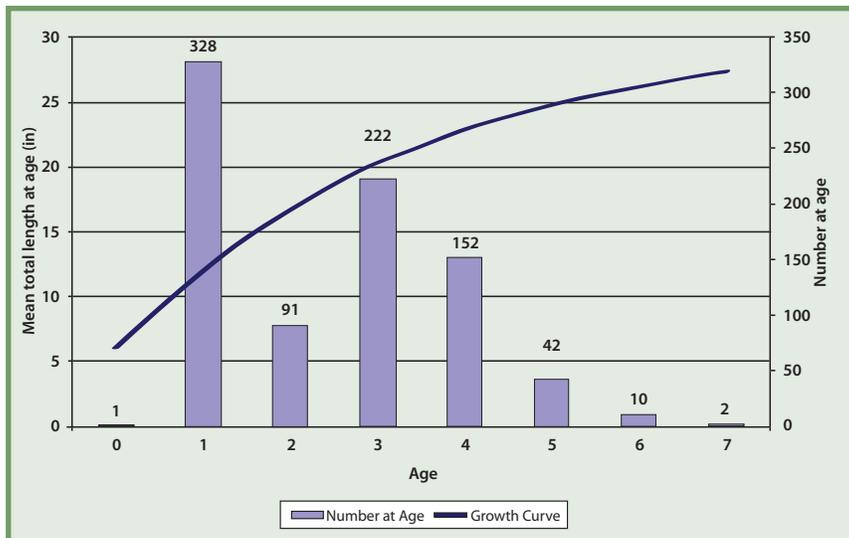


Figure 2. Number at age and growth curve of striped bass in the lower Neuse and Trent rivers



# Striped bass population of the lower Neuse and Trent rivers



By tracking the mean length of age 1 fish during each month, biologists determined that age 1 fish can grow about 5 inches between April and October (Figure 3). This is an impressive amount of growth over the summer months.

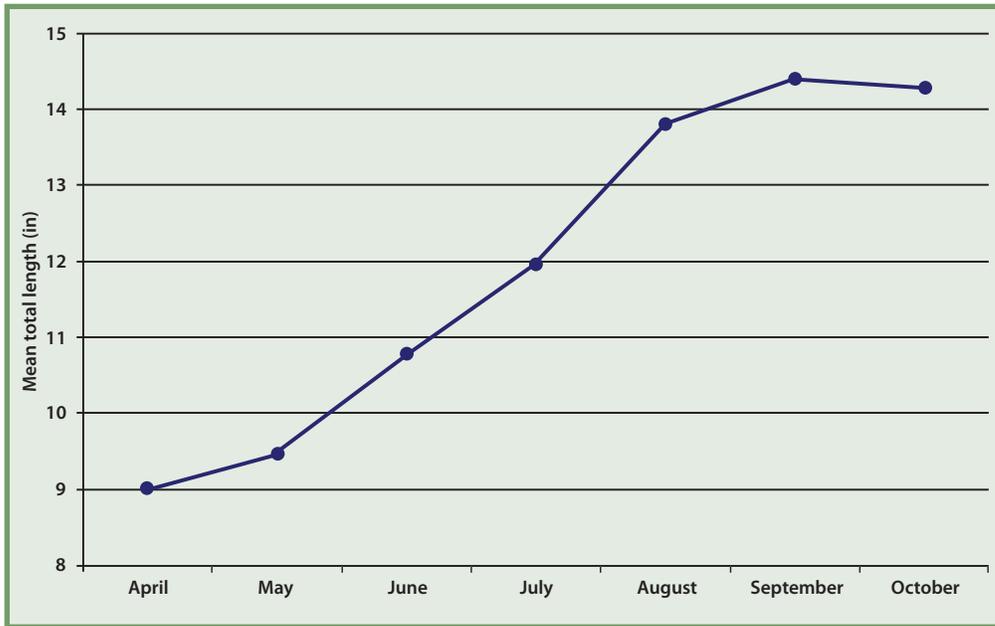


Figure 3. Mean total length by month of age 1 striped bass in the lower Neuse and Trent rivers during 2010.

Biologists plan to continue the survey into 2011 along with the annual survey work in the upper river during the spring of 2011. Through their work at New Bern, they were able to gain information about growth rates and numbers of immature fish (Age 0–2) and tag nearly 650 fish. Through tag return information from these fish, they will be able to learn more about movement of striped bass within the Neuse River basin and coastal North Carolina.



Biologists tagged striped bass with a yellow or pink, internal anchor streamer tag, on the left side of the fish just behind the pectoral fin.

If you catch a tagged striped bass and would like to report your catch or for more information about striped bass tagging in North Carolina, please click [here](#).

