



# Long-term Assessment and Adaptive Management of Sutton Lake Largemouth Bass

July 2018



Sutton Lake is a 1,100-acre power plant cooling reservoir in New Hanover County. Constructed in 1972, the reservoir has long been a popular destination for Largemouth Bass anglers. The N.C. Wildlife Resources Commission (NCWRC) has conducted shoreline electrofishing assessments since 1990 to both monitor the Sutton Lake Largemouth Bass population and to assess the usefulness of Largemouth Bass harvest regulations. These assessments have documented a dynamic Largemouth Bass population that experiences considerable fluctuations in abundance.

Equally important to monitoring the Largemouth Bass population is assessing Largemouth Bass angling practices at Sutton Lake. Two angler surveys were conducted (1994–1995 and 2015–2016) to evaluate angler behaviors and attitudes regarding management practices at Sutton Lake. These angler surveys have been instrumental in quantifying angler preferences and incorporating those preferences into adaptive management strategies.

In response to angler concerns documented in the 1994–1995 creel survey, NCWRC enacted a winter (Dec 1–Mar 31) Largemouth Bass harvest prohibition in 1996. Additionally, various slot and minimum length limits have been utilized to manage the population. A 5-fish per day bag limit and 14-inch minimum length limit have been in effect since 2005. The conclusion of the most recent creel survey, as well as analysis of long-term biological data, enables NCWRC to adaptively manage Sutton Lake so that it best meets the needs of anglers. To that end, biologists present some recent findings and propose altering Largemouth Bass harvest regulations.

### Objectives:

- Document biological characteristics of Largemouth Bass and angler trends at Sutton Lake.
- Assess the efficacy of Largemouth Bass regulations.



Map of Sutton Lake, adjacent to Cape Fear River in New Hanover County

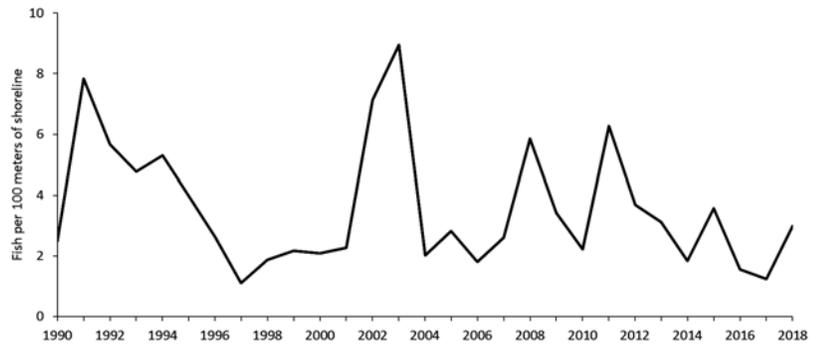
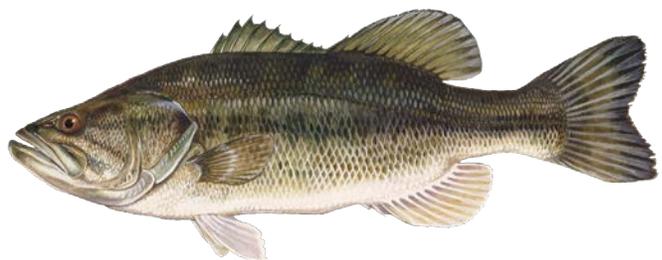


Figure 2: Trends in Largemouth Bass abundance at Sutton Lake, 1990–2018



Largemouth bass illustration (Duane Raver/USFWS)



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## Methods:

- Shoreline boat-electrofishing was used to sample Largemouth Bass every spring from 1990 to 2018 to quantify trends in abundance and growth rates.
- Angler surveys were conducted in 1994–1995 and 2015–2016 to quantify harvest and evaluate angler preferences.

## Results so far:

- Largemouth Bass abundance has fluctuated considerably, experiencing highs in the early 1990s and 2002–2003 and lows in the late 1990s. Since the early 2000s, abundance has spiked every 3–5 years.
- Largemouth Bass are reaching 20 inches in 6–8 years, one of the fastest growth rates in North Carolina.
- The 2015–2016 creel survey indicated 82% of the anglers at Sutton Lake were targeting Largemouth Bass. During the study, an estimated 9,894 Largemouth Bass were caught during 11,679 hours of angling, corresponding to a catch rate of 1 fish every 1.2 angling hours.
- Although Sutton Lake experiences high catch rates, few of those Largemouth Bass are harvested. Over 98% of the Largemouth Bass caught by anglers were released.
- Only 10% of interviewed anglers supported the winter prohibition on Largemouth Bass harvest.

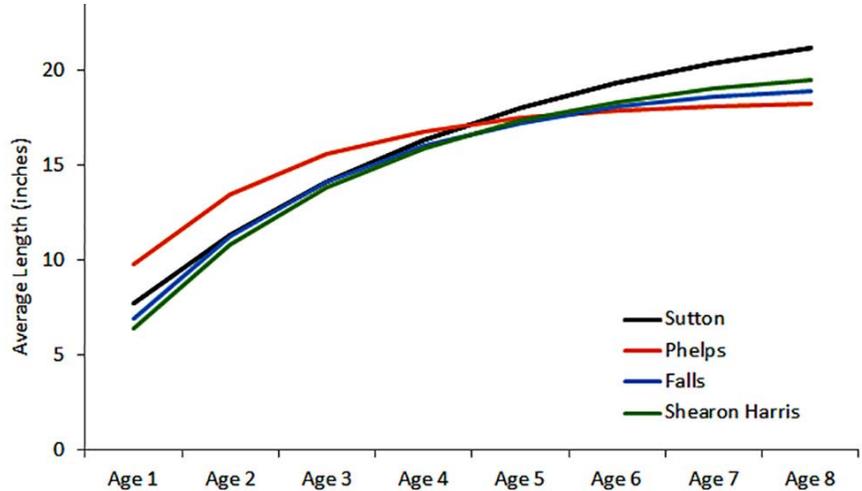


Figure 3: Largemouth Bass growth rates in Sutton Lake, Lake Phelps, Falls Lake, and Shearon Harris Reservoir

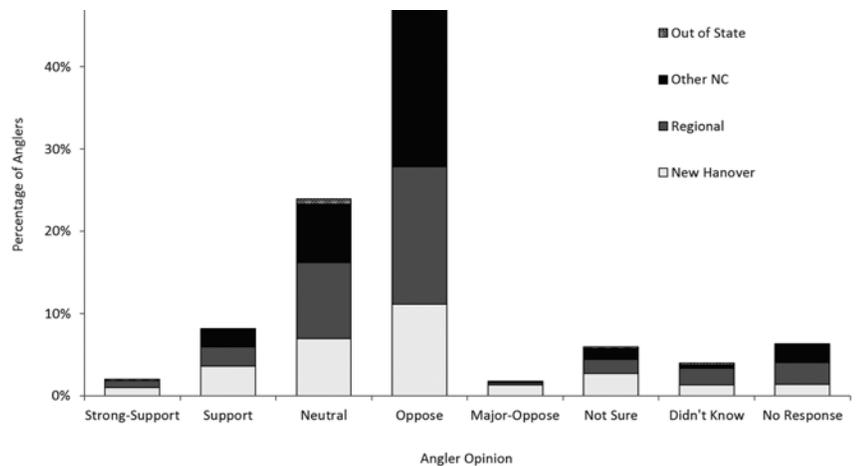


Figure 4: Angler opinions regarding the winter (Dec 1–Mar 31) Largemouth Bass harvest prohibition, categorized by angler origin

## What's next?:

- In response to the lack of angler support for the winter closed season regulation and to expand harvest opportunities, NCWRC is considering a proposal that would open Largemouth Bass harvest from Dec 1–Mar 31.
- Continue biological assessments to ensure Largemouth Bass regulations optimize both the sustainability of the population and angler utilization.

## For more information:

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### How You Can Help

Your purchase of fishing tackle, fishing licenses and motorboat fuel helps support fisheries work conducted by N.C. Wildlife Resources Commission fisheries biologists through the Sport Fish Restoration Program administered by the U.S. Fish and Wildlife Service.

