



Cane Creek Lake: Black Crappie Surveys 2001 - 2019



June 2020

Illustration: Duane Raver

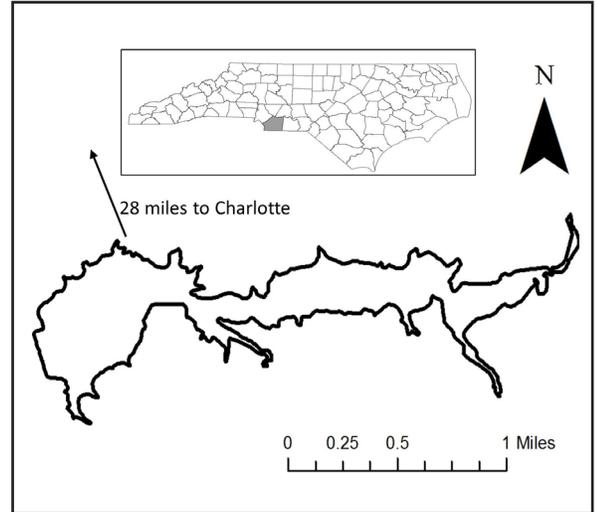
Biologists with the N.C. Wildlife Resources Commission (NCWRC) conduct surveys of crappie populations across the state each fall. These surveys monitor crappie populations and determine the effectiveness of fishery regulations. Trap nets are the most effective method to complete these surveys due to movement patterns of crappie along shorelines. Cane Creek Lake in Union County is a popular Black Crappie fishery and biologists sample this reservoir for Black Crappie every three years. The most recent survey was conducted in 2019. The current crappie regulations at Cane Creek Lake are an 8-inch minimum size length and a daily creel limit of 20 fish.

Project Objective:

- Survey Black Crappie in Cane Creek Lake every three years to determine the relative abundance, growth rates, and size characteristics of the population.
- Examine changes in the crappie population over time to determine if management strategies are effective and if regulation changes are necessary.

Methods:

- 12 sites were selected across the lake to collect a representative sample of Cane Creek Lake crappie. These sites have been used for every survey since 2001.
- Trap nets were deployed and left to “soak” overnight. Fish were removed from the nets the next day and were measured and weighed. A subsample of individuals was sacrificed for aging and growth analysis.
- Fish age was determined using an ear bone called an “otolith”. Otoliths are bones that get a new layer of growth each year. These layers, or rings, are counted to determine the age of the fish. This process is similar to aging a tree using yearly growth rings.
- Age, length, and weight information was used to examine the size characteristics, body condition, and recruitment of the population.
- Catch-per-unit-effort (CPUE), which is defined as the average number of fish that were caught per net night, was used to assess abundance. Trends in CPUE are examined to assess abundance changes over time.



Map of Cane Creek Lake, located at Cane Creek Park in Union County, North Carolina.



Trap net used to capture crappie. (Photo: Miller Net Company, Inc.)



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Results:

- In the past 20 years of sampling, over 2,400 Black Crappie have been collected at Cane Creek Lake. In 2019, 451 individuals were captured in 24 net nights of effort.
- Although there have been fluctuations over the years, the Cane Creek Lake crappie fishery has seen consistent growth and recruitment, and overall the lake supports a healthy fishery.
- CPUE has ranged from 9.5 to 22.5 fish per net night over the past 20 years (Figure 1). These results were often within the normal range for crappie populations in the Piedmont Region of North Carolina (4-18 fish per net night). Variation in catch over the years has occurred, but this is not abnormal for crappie populations, and overall the fishery is seeing positive recruitment and is stable.
- In 2019, fish ranged in age from 1 to 8 years old, with 36% of individuals over 2 years old. Since 2001, average size of 2-year-old fish has ranged from 8.8 to 11 inches, all of which were available for harvest based on minimum size regulations (Figure 2).
- Fish captured in 2019 ranged from 5 to 14 inches in total length, indicating many size and age classes are present in the population (Figure 3). Cane Creek Lake contains numerous age-1 individuals as well as fish over 10 inches, which shows recruitment to the fishery while also maintaining preferred and memorable sized fish.

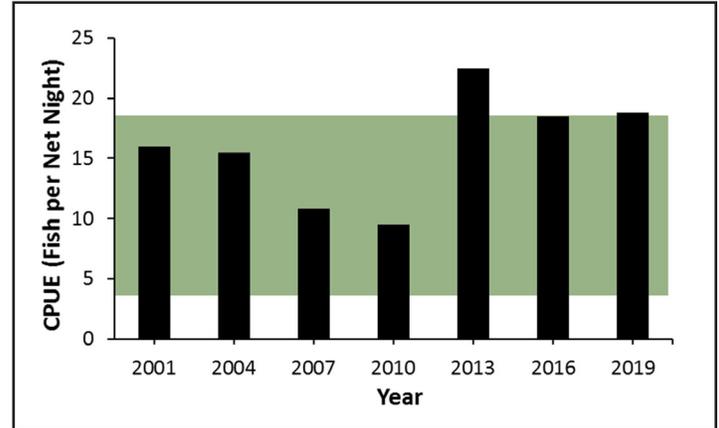


Figure 1. CPUE (Fish per Net Night) of Black Crappie captured from Cane Creek Lake, 2001 to 2019. Shaded area represents the average range of CPUE data for Black Crappie across the Piedmont Region.

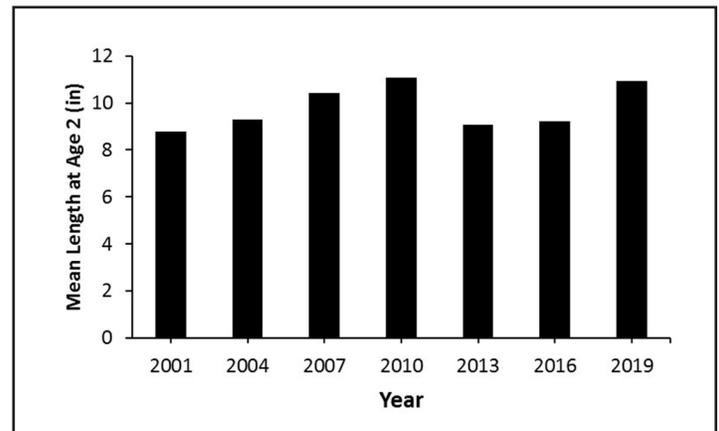


Figure 2. Mean length of Black Crappie at age-2 by year.

What's Next:

- NCWRC surveys will continue at Cane Creek Lake every three years. The next survey is scheduled for fall of 2022.
- Although current data do not indicate a need for management changes, data will continue to be evaluated and collected, and management recommendations will be considered.

For more information, contact:

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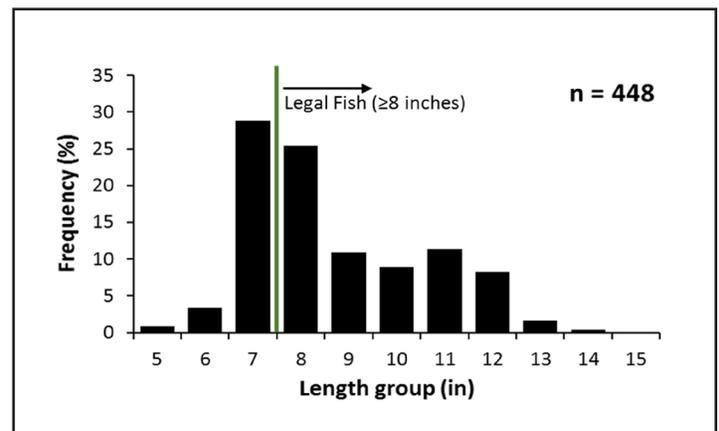


Figure 3. Percentage of fish caught in 2019 within each length group. Green bar represents the size at which fish become legal to harvest, 8 inches.

