Fisheries Research Fact Sheet

Largemouth Bass Fishery in Randleman Lake

June 2020

Randleman Regional Reservoir (Randleman Lake) is a 3,007-acre reservoir located on the Deep River in Randolph County and is used for recreation and water supply (Figure 1). Randleman Lake was impounded in 2006, stocked with Largemouth Bass *Micropterus salmoides* and Channel Catfish *Ictalurus punctatus* fingerlings in 2007, and opened to the public in March 2010.

Biologists with the N.C. Wildlife Resources Commission routinely monitor the sportfish populations in Randleman Lake to ensure the fish are healthy and the regulations in place are effective. Below are the results highlighting how the Largemouth Bass fishery in Randleman Lake has changed over the last decade.

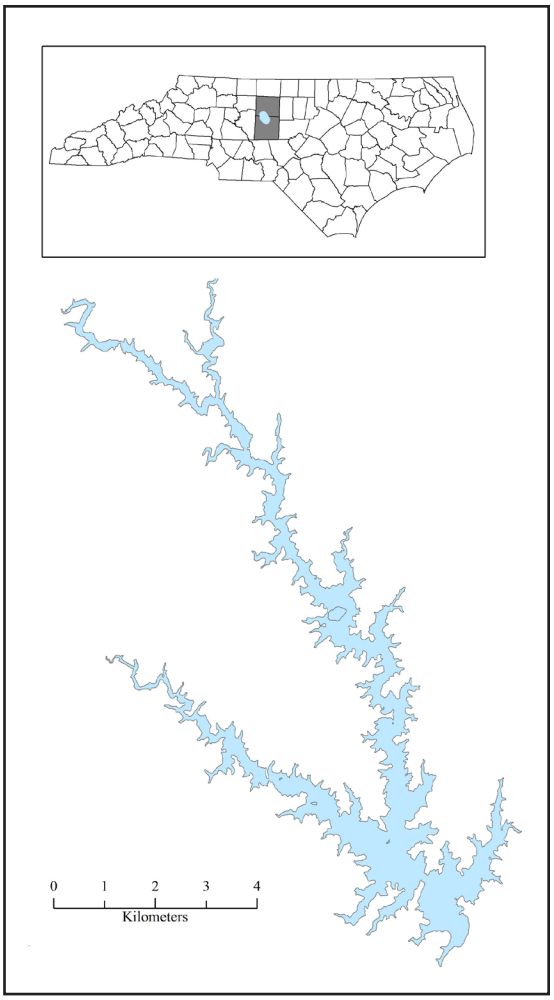

Figure 1: Map of Randleman Lake and its location relevant to Guilford and Randolph counties.

Methods:

- Using shoreline boat electrofishing, biologists surveyed Largemouth Bass during the spawning season in Randleman Lake in spring of 2009, 2012, 2014, and 2019.
- All fish were weighed and measured, and otoliths (ear bones) were removed from a sub-set of fish to asses age structure and growth.
- There are many parameters used to assess the overall health of a population, but the following are important to consider when planning fishing trips:
  - o CPUE (catch per unit of effort): For boat electrofishing surveys this means the number of fish collected per hour of electrofishing.
  - o Body Condition: This is an index of how much a fish should weigh relative to their length. Typically, fish with body conditions in the 90s are considered healthy.
  - o The number of fish that are of harvestable size and/or the number of fish over a certain desirable weight.
  - o Growth: For growth, biologists typically want to see bass reaching a harvestable size between ages 3 and 4. We also look at age distribution to look for recruitment issues or to evaluate if the population appears to consist of mostly younger or mostly older individuals, or a mix of all age classes.

Duane Raver

Results So Far:

- In 2009, during the early years after the reservoir was opened, Largemouth Bass were able to thrive as their overall population was low and food resources were not limiting. This initial boom in the population and lack of competition for food resources is reflected in the high catch rates

(CPUE) and excellent body conditions in 2009 (Table 1). As the population of bass grew and became more stable throughout the last decade, the CPUE and body conditions also decreased over time. Body condition and CPUE values are now considered average for Piedmont reservoirs (Table 1). Although average, body conditions from the 2019 survey are still above the ideal range where fish appear plump and healthy. The largest fish caught in 2019 weighed 8.33 lbs.

- The size and age distributions have shifted from a population in 2009 that consisted of smaller, younger fish to a more mature and balanced population in 2019 with larger and older fish (Figure 2; Figure 3). The number of fish caught that were of harvestable size has shifted from 33% in 2009 to 53% in 2019 (Table 1).
- Despite changes in population densities over the last decade, fish growth has remained relatively constant. Fish reach harvestable size (14 in) between age 3 and age 4, which is average for Piedmont reservoirs.
- **Bottom Line**: Overall the Largemouth Bass population in Randleman Lake has progressed into a more steady and well-balanced population over the last decade. Declining body conditions could indicate a slightly over-crowded population where fish are having to compete for limited food resources. Future surveys will determine whether this trend continues, or body condition values stabilize over time.

What's Next:

- Biologists recommend promoting harvest of Largemouth Bass. Harvest can be a useful tool to minimize overcrowding and allow remaining fish an opportunity to grow bigger and faster with less competition. Adequate harvest also helps to minimize fish disease issues as healthy fish have stronger immune systems and can resist infections better than unhealthy fish in overcrowded populations. The regulation was changed during the 2020-2021 cycle to the default statewide regulation of a daily creel limit of 5 fish, where 2 fish may be less than 14 inches.
- To view the current regulations, download a Regulations Digest from the Commission's website (eregulations.com/northcarolina/hunting-fishing/).
- For information on fisheries near you please call or email the district biologist in your area (ncwildlife.org/Portals/0/Fishing/documents/fisheries_NC_map.pdf)

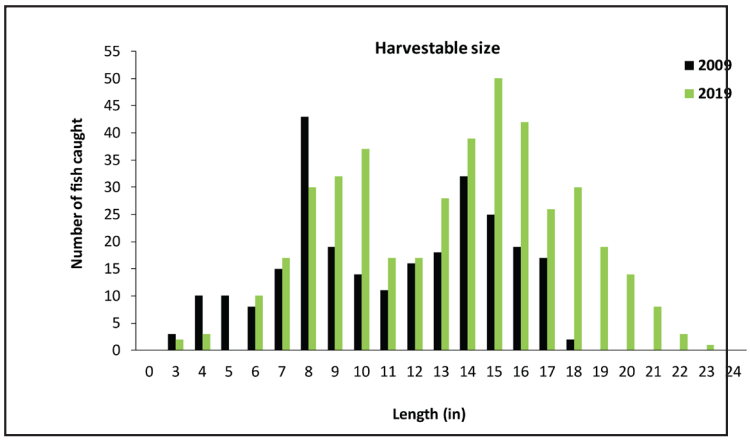

Figure 2: Shown here are the length distributions in 2009 and 2019, where the x-axis labels are length categories in increments of 1 inch. For example, fish in the column labeled 5 in are fish that fell into the length category of 5.00 to 5.99 in. The y-axis is how many fish were collected in each length category.

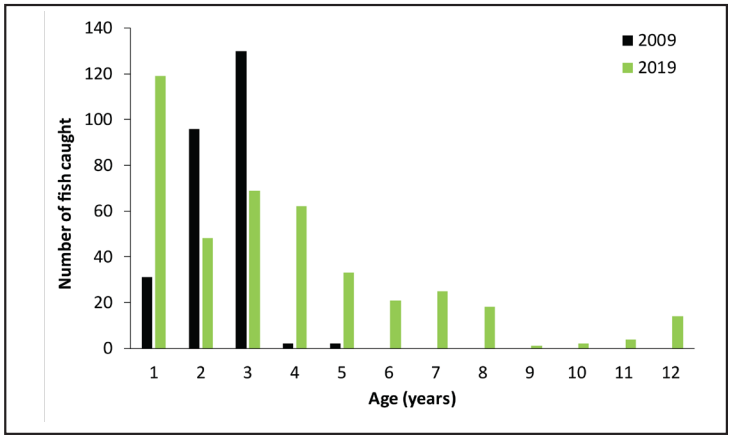

Figure 3: Shown here are the age distributions for 2009 and 2019, where the x-axis labels are the age of the fish and y-axis is how many fish were collected for each age.

Year	CPUE	Body Condition	Percent >14 in	Percent >5 lbs	Largest Fish (lbs)
2009	NA	102	33	0.0	4.1
2012	114	99	44	1.2	6.0
2014	103	94	47	3.2	7.4
2019	64	92	53	2.2	8.3

Table 1: This tables lists the results for the key population parameters as described above for Largemouth Bass from 2009, 2012, 2014, and 2019.

For more information, contact:

Kelsey Roberts, District 5 Fisheries Biologist
336-290-0052, kelsey.roberts@ncwildlife.org