

# MOUNTAIN ISLAND LAKE BLACK BASS SURVEY, 2022



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**Study Site:** Mountain Island Lake

**Sample Date(s):** April 27–28 and May 2–3, 2022

**Species:** Largemouth Bass and Alabama Bass

**Gear:** Boat Mounted Electrofishing, High Frequency, 60 PPS

**Effort:** 5.62 hours

**Sample Size:** Largemouth bass (*Micropterus salmoides*) n = 124

Alabama bass (*Micropterus henshalli*) n = 171

## LARGEMOUTH BASS RESULTS

**Catch Per Unit Effort (Mean):** 22 fish/hr (SE = 6.0)

**Length (mm):** Minimum = 118      Maximum = 492      Mean = 296

% $\geq$ 356 mm = 19      % $\geq$ 457 mm = 2      PSD = 58      PSD-P = 17

**Condition:** Mean  $Wr$  = 86      % $\geq$ 2.3 kg = 0

**Growth:** Length at Age 3 (mm) = 334    Max Age (years) = 10

### **ALABAMA BASS RESULTS**

**Catch Per Unit Effort (Mean):** 30 fish/hr (SE = 4.3)

**Length (mm):** Minimum = 72      Maximum = 446      Mean = 244  
                         % $\geq$ 356 mm = 9      % $\geq$ 457 mm = 1      PSD = 59      PSD-P = 13

**Condition:** Mean  $Wr$  = 79      % $\geq$ 2.3 kg = 0

**Growth:** Length at Age 3 (mm) = 322    Max Age (years) = 7

### **BIOLOGICAL OBSERVATIONS**

Mountain Island Lake continues to provide an average to below average Black Bass fishery, consisting of Alabama Bass and Largemouth Bass. Although Largemouth Bass catch rates are typically below the Piedmont average of 30–60 fish per hour (Table 1), this range was calculated based on reservoirs that only had Largemouth Bass. When combined with Alabama Bass (Table 2), catch rates fall within the average range. Although Alabama Bass have predominated, typically comprising 50–60% of the total population, this proportion appears to be relatively stable. This indicates the populations have reached an equilibrium since Alabama Bass were introduced into the reservoir in the early 2000's.

Overall, Largemouth Bass in Mountain Island Lake tend to have lower recruitment than Alabama Bass but better growth, condition, size distribution and age distribution (Figures 1–10). However, indices of growth, condition, size distribution, and age distribution have consistently been average to below average for Largemouth Bass when compared with Piedmont averages. This is most likely due to the relative unproductivity of Mountain Island Lake, which is classified as oligotrophic by the North Carolina Division of Water Resources and cannot produce the standing stocks of other, more productive, systems in North Carolina.

### **MANAGEMENT RECOMMENDATIONS**

1. Maintain current Largemouth Bass 356-mm size limit and creel limit of 5 fish per day, where 2 fish may be less than 356 mm, at Mountain Island Lake.
2. Continue to allow unrestricted harvest of Alabama Bass at Mountain Island Lake.
3. Continue to sample Mountain Island Lake every three years during the spring with electrofishing gear to examine temporal trends in population and recruitment variability and evaluate the current regulation.

## TABLES AND FIGURES

TABLE 1.—Catch per unit effort (CPUE), percent of fish that were 356 mm and longer, Proportional Size Distribution-Preferred, mean length (TL mm) at age 3, and mean relative weight ( $W_r$ ) of Largemouth Bass collected from Mountain Island Lake with electrofishing, April-May 2015, 2018, and 2022. Parentheses are one standard error.

Year	CPUE (fish/h)	%≥356 mm	PSD-P	Mean length at age 3	Mean $W_r$
2015	21 (4)	23	15	324	84
2018	20 (7)	21	16	336	87
2022	22 (6)	19	17	334	86

TABLE 2.—Catch per unit effort (CPUE), percent of fish that were 356 mm and longer, Proportional Size Distribution-Preferred, mean length (TL mm) at age 3, and mean relative weight ( $W_r$ ) of Alabama Bass collected from Mountain Island Lake with electrofishing, April-May 2015, 2018, and 2022. Parentheses are one standard error.

Year	CPUE (fish/h)	%≥356 mm	PSD-P	Mean length at age 3	Mean $W_r$
2015	31 (3)	11	23	328	74
2018	23 (7)	12	17	310	72
2022	30 (4)	9	13	322	79

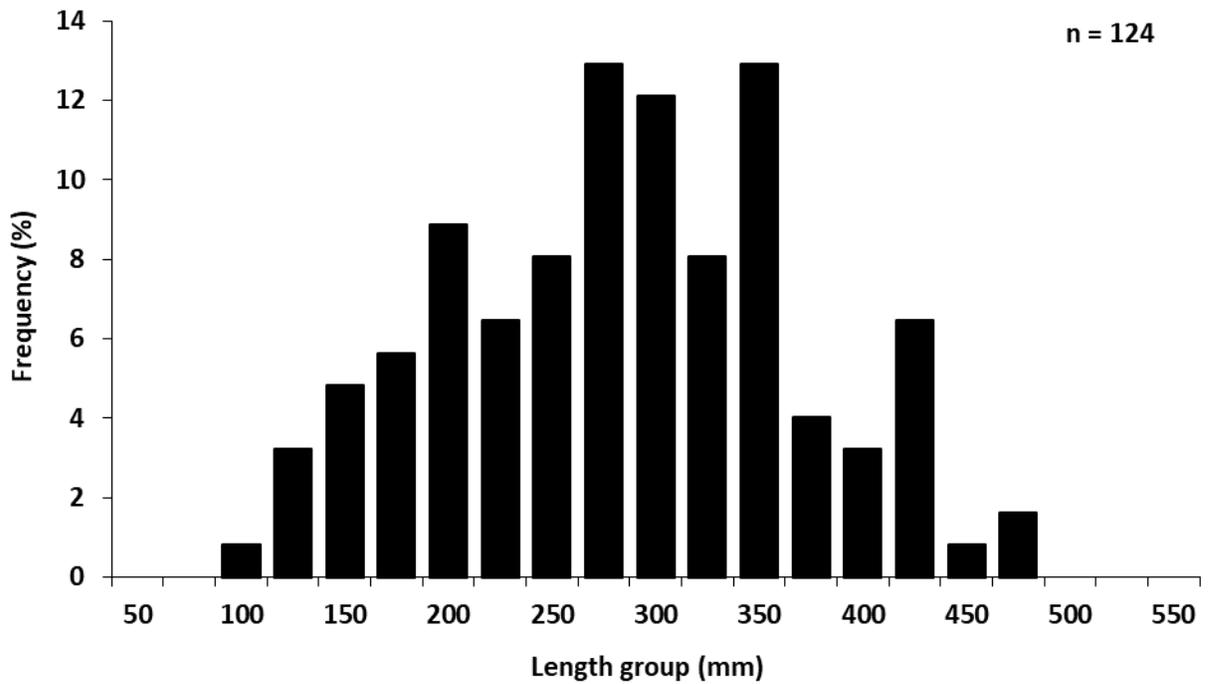


FIGURE 1.—Length frequency distribution of Largemouth Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

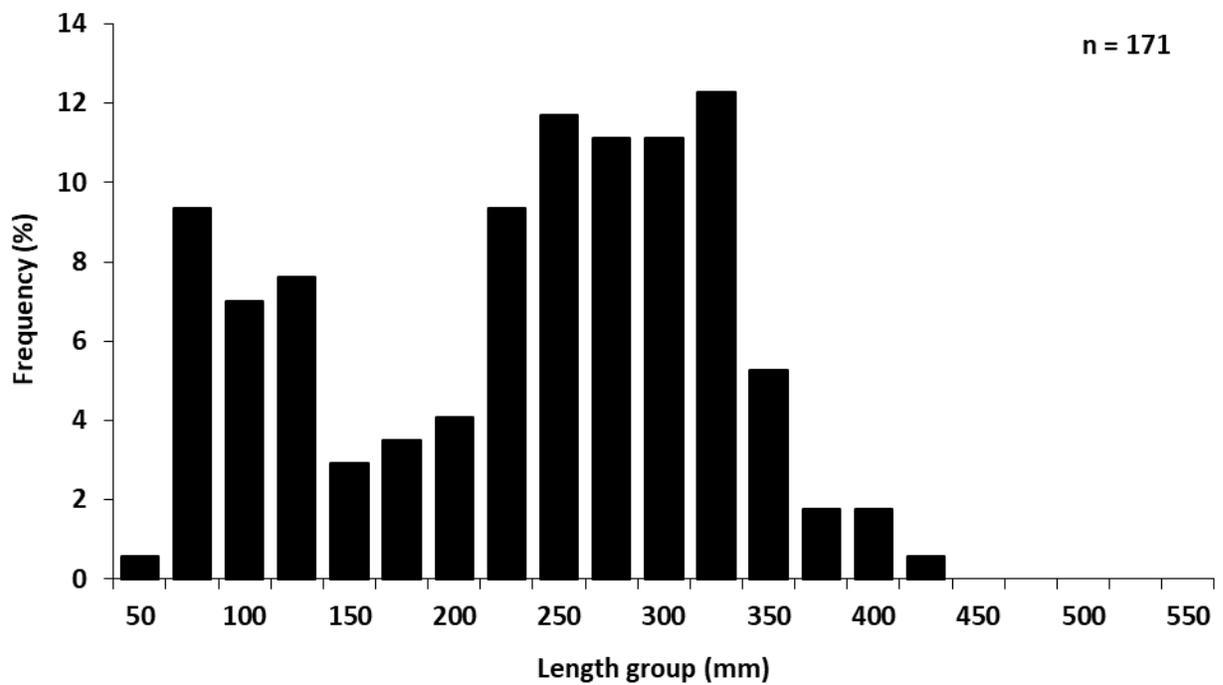


FIGURE 2.—Length frequency distribution of Alabama Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

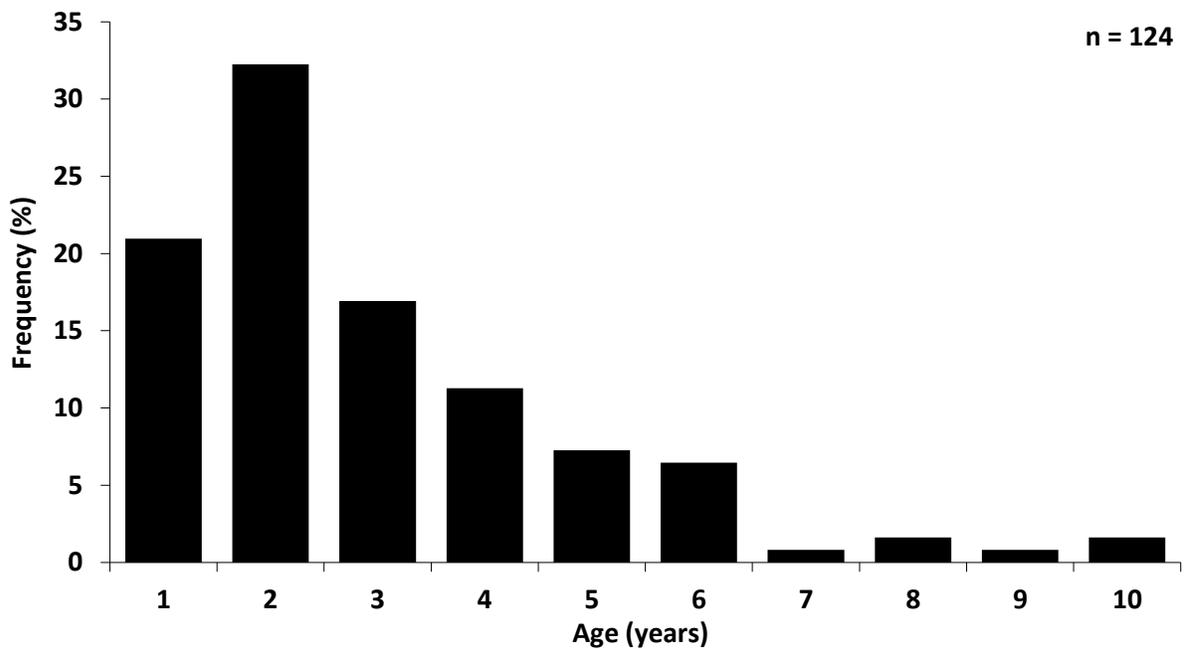


FIGURE 3.—Age frequency distribution of Largemouth Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

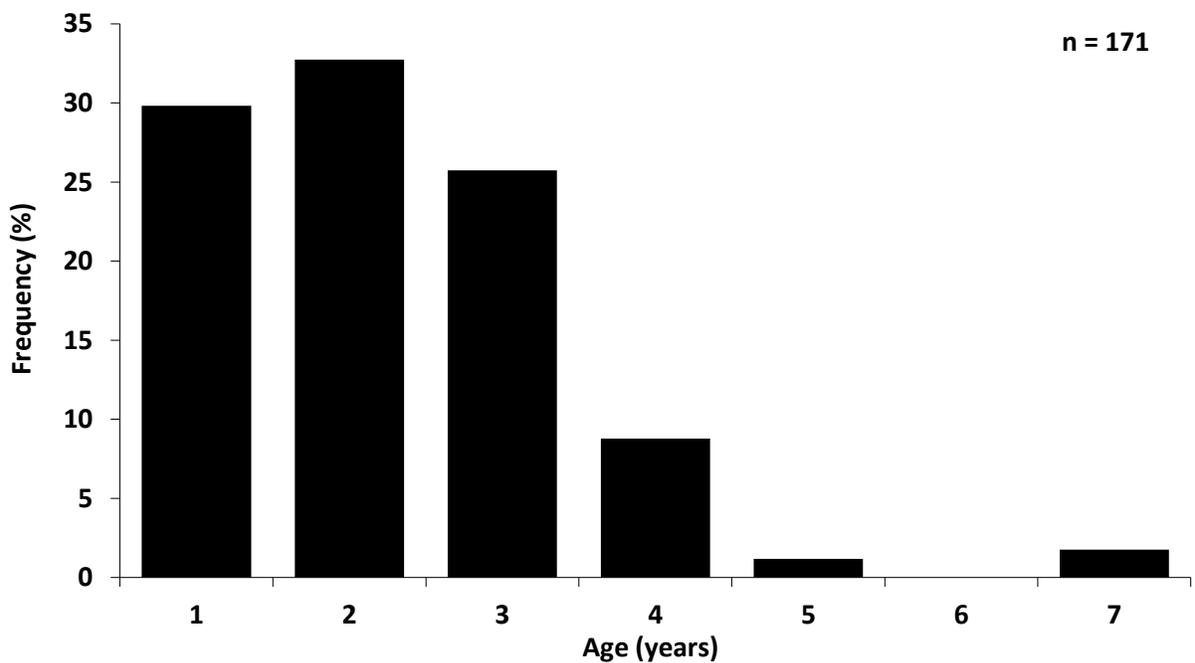


FIGURE 4.—Age frequency distribution of Alabama Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

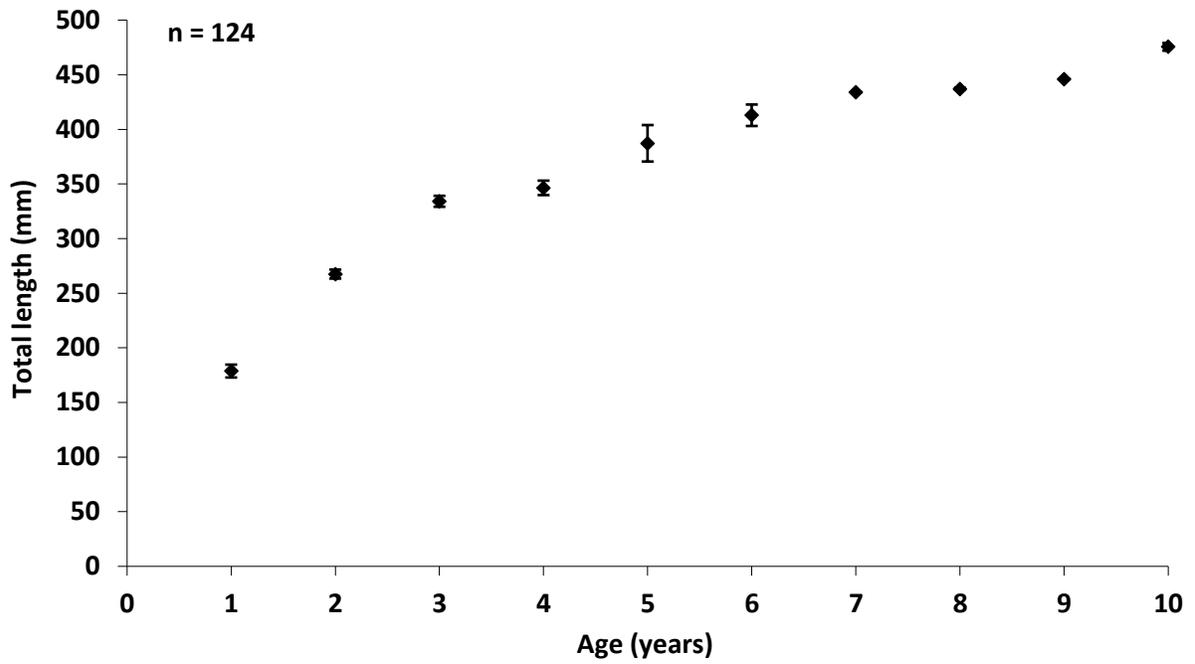


FIGURE 5.—Mean total length at age ( $\pm 1$  SE) at time of capture for Largemouth Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

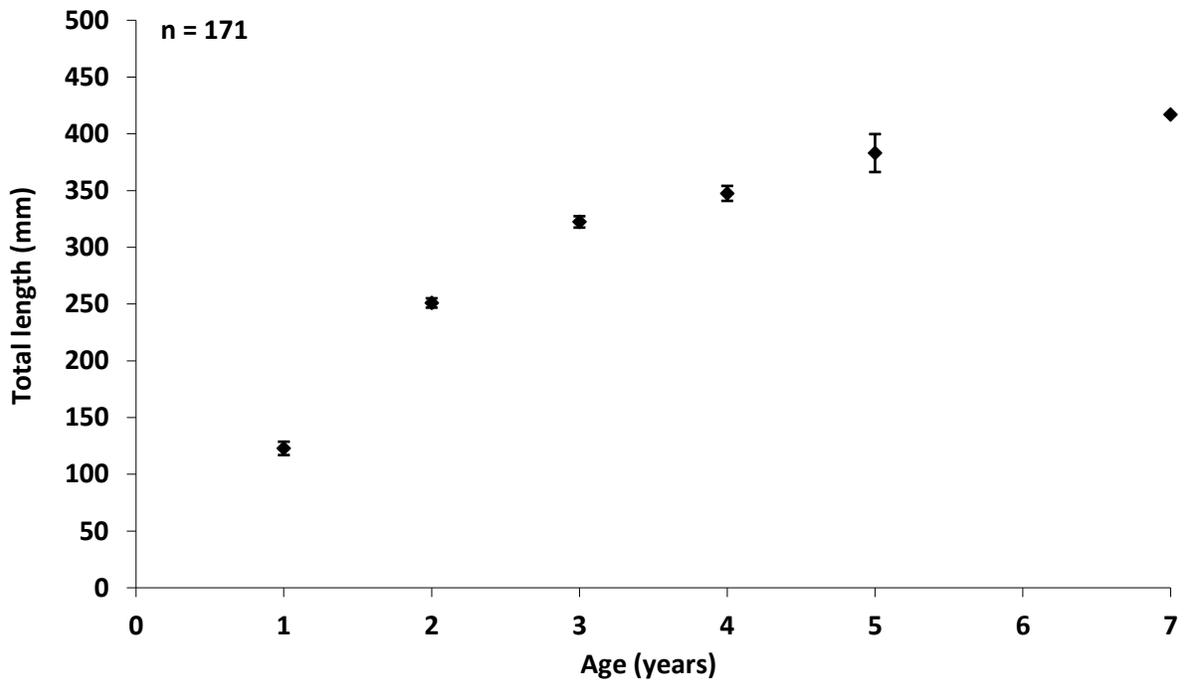


FIGURE 6.—Mean total length at age ( $\pm 1$  SE) at time of capture for Alabama Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

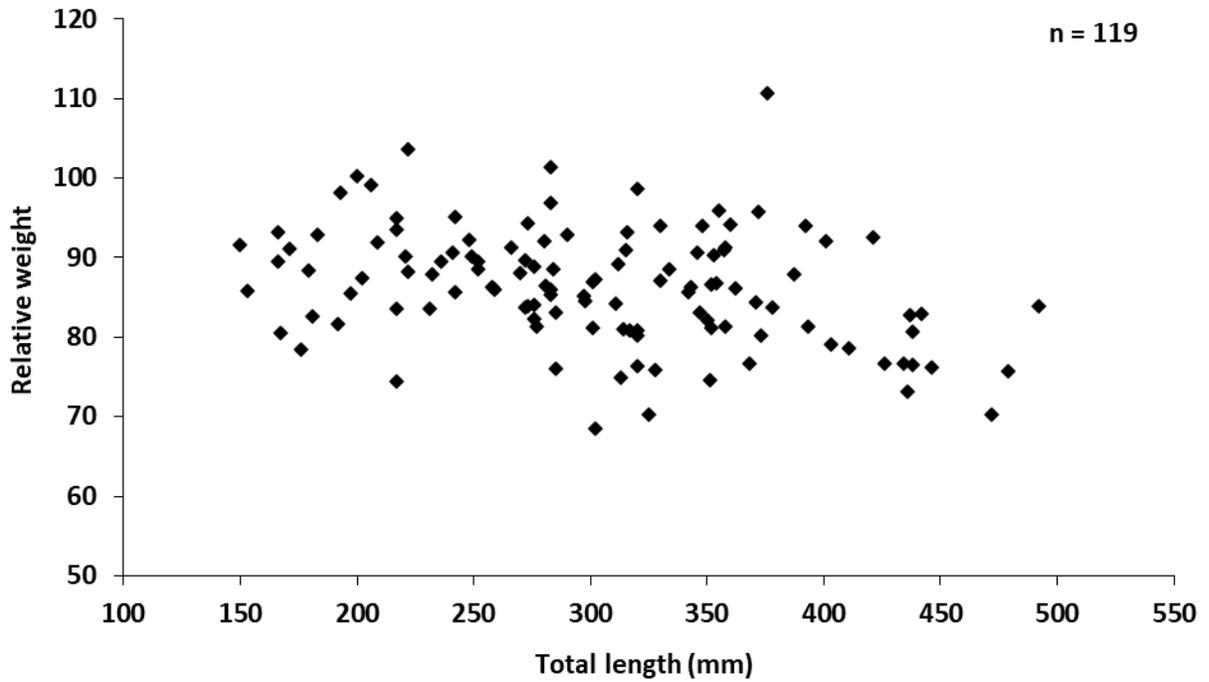


FIGURE 7.—Relationship between length and relative weight of Largemouth Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

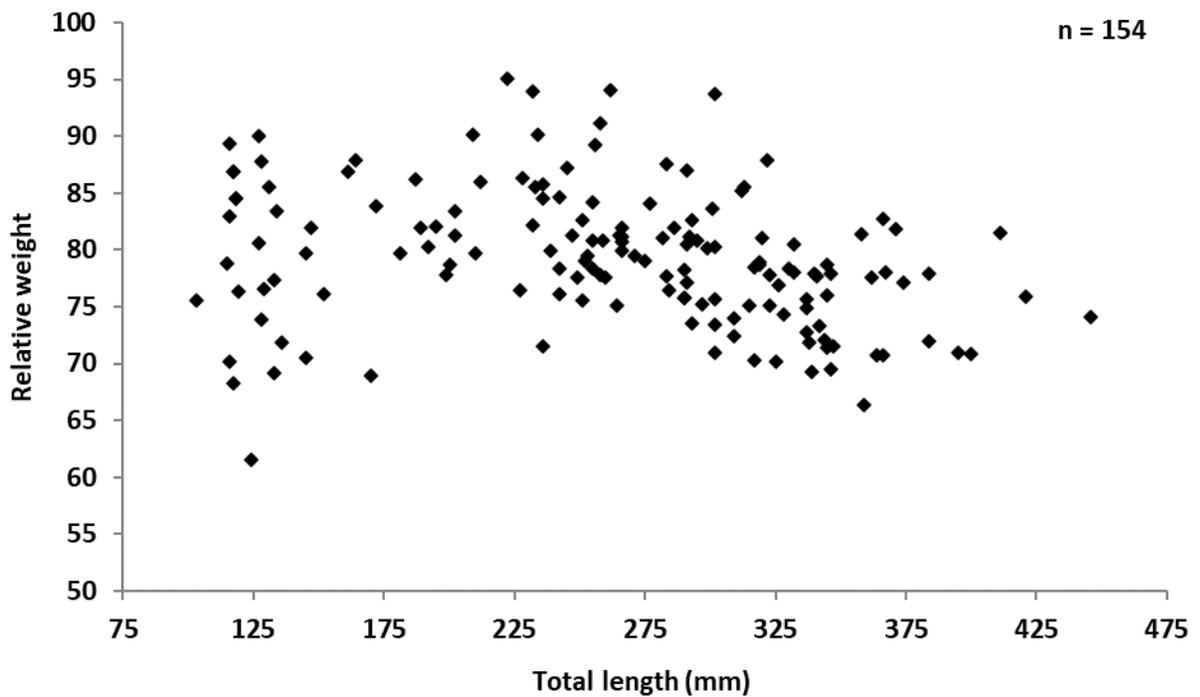


FIGURE 8.—Relationship between length and relative weight of Alabama Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

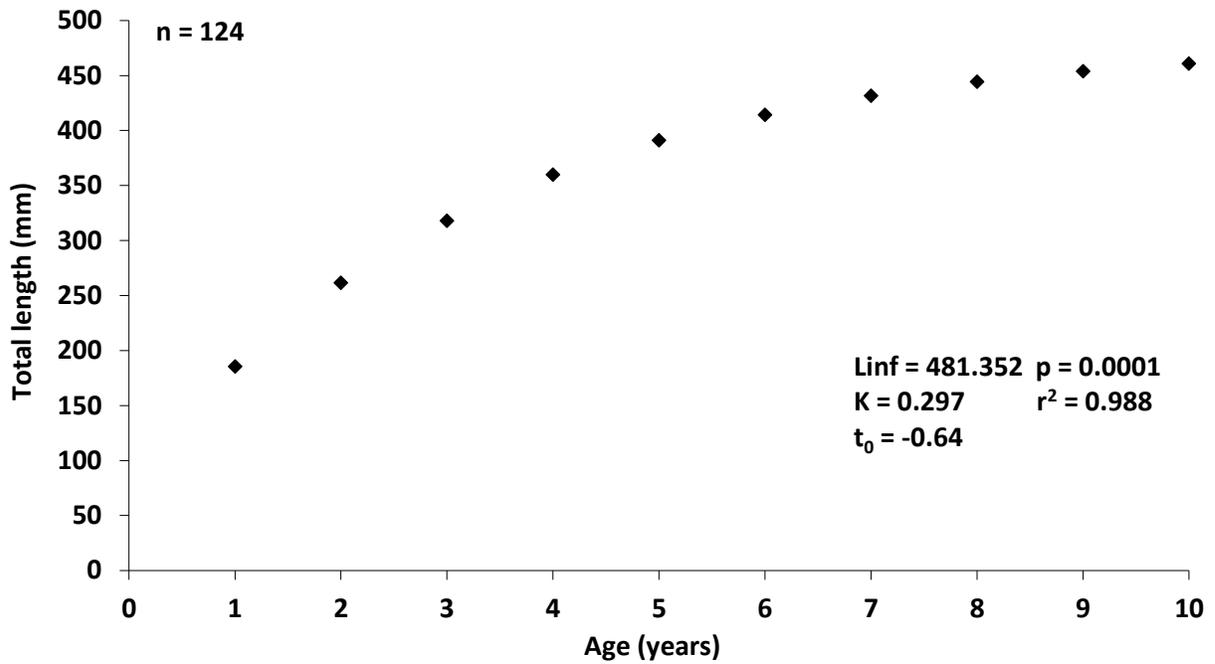


FIGURE 9.—von Bertalanffy growth curve for Largemouth Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

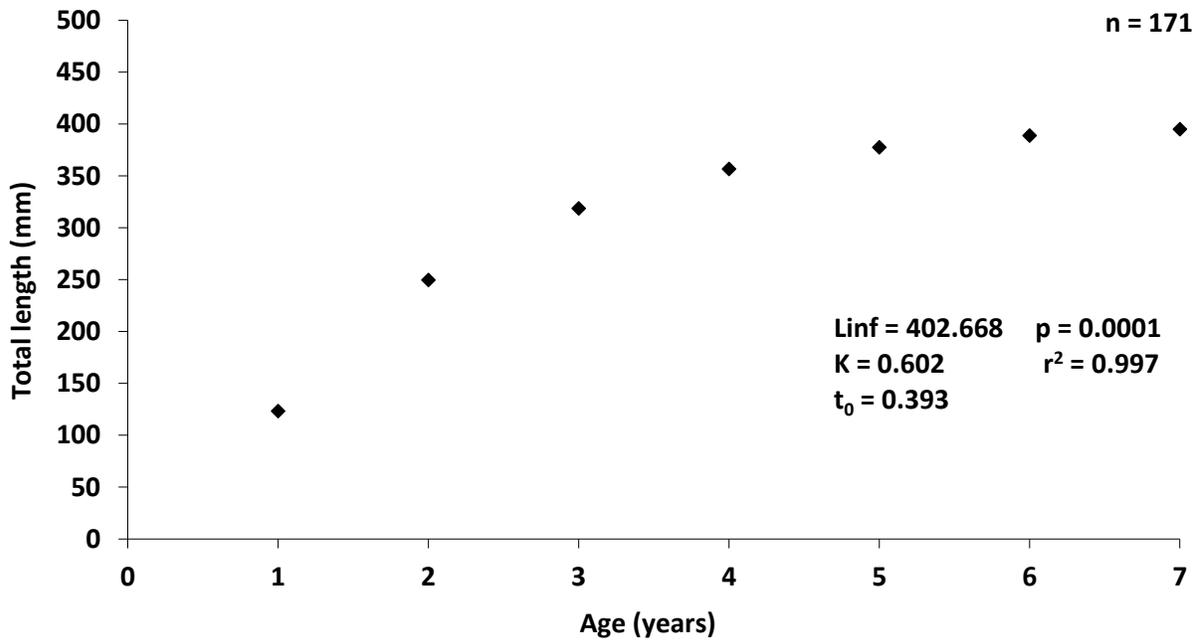


FIGURE 10.—von Bertalanffy growth curve for Alabama Bass collected from Mountain Island Lake with electrofishing, April and May 2022.

**APPENDIX**

