Abstract

Cleveland lake was sampled the spring of 2023 to evaluate the Largemouth Bass (LMB) fishery. While not being stocked with Florida LMB since 2019 sampling was conducted to see what growth the population did have 4 years after stocking was discontinued due to poor geneflow.

Current Management Practices

Monitoring of Heavily Utilized Black Bass Populations

Largemouth bass was the most sought after species in Oklahoma according to the most recent angler survey. The NCR has high profile largemouth bass fisheries that are utilized by both recreational and tournament anglers. The introduction of Florida Largemouth Bass genetics into largemouth bass populations can be a valuable management tool to improve growth rates. These black bass populations require monitoring for constituent interaction, evaluation of recent regulation changes, and evaluation of genetic contribution of FLMB. FLMB stocking was ceased after the last stocking in 2019.

2023

Cleveland was sampled for black bass in the spring of 2023. A total of eight samples were conducted using an ETS Electrofishing systems unit. A total of 128 Largemouth Bass were collected. Otoliths were collected from 114 LMB for aging.

Catch Per Unit Effort (CPUE) for Largemouth Bass was 96 with a C.V. of .14, this was not significantly different from the last survey conducted in 2019 (CPUE = 78, C.V. = .15). Length-Frequencies indicate a wider distribution of Largemouth bass than in 2019 (Figure 1), with an increase abundance of LMB 375mm to 499mm. Proportional Size Distributions (PSD) and PSD – Memorable did not significantly change, but PSD – Preferred did significantly increase when compared to the 2019 survey (Table 1). Relative Weights (Wr) were 92.56± 1.83 and found to not be significantly different from Wr in 2019 (Wr = 95.58± 2.57). Age Frequencies indicate the large age 1- and 2-year classes from 2019 are still present in comparable abundances to 2023 age 1-, 3-, and 4-year classes (Figure 2). Von Bertalanffy Growth Equations found $L\infty$ did not significantly increase between 2019 and 2023 (2019 $L\infty$ = 508.25± 123.898, 2023 $L\infty$ = 613.799) (Figure 3). Mean length at age show significant decrease at age-2 and age-3 (Table 2).

Largemouth Bass in Cleveland lake have not received a stocking of Florida strain LMB since 2019. DNA samples indicated that geneflow of FLMB in the lake was not worth continuing those that were stocked may have contributed more now that 4 years have gone by and most of those stocked fish will be reaching end of life. The large year class of age-6 LMB in Cleveland Lake that is making the number of preferred sized fish exceptional. These fish are reaching the end of life and will mostly be gone in the next 2 years, but until then the chance of catching big LMB is as good as you will find anywhere else in the North Central Region. Additionally conducting a DNA sample of Cleveland Lake would further reveal the amount of geneflow the FLMB contributed to the Lake.

RECOMMENDATIONS

1. Evaluate LMB population in 2024, collect otoliths for age analysis.
2. Collect DNA from LMB population to determine geneflow of FLMB.

Figures and Tables

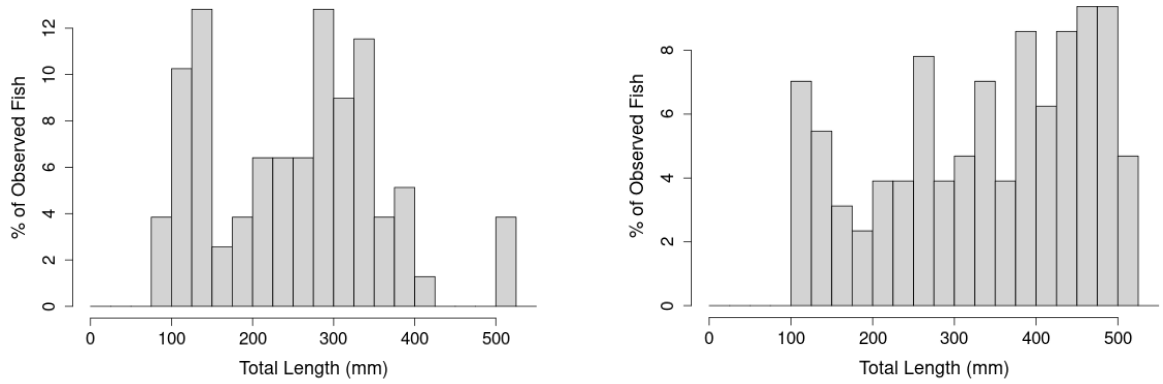

Figure 1. Lengths Frequencies of Largemouth Bass in Cleveland Lake 2019 (left) and 2023 (right).

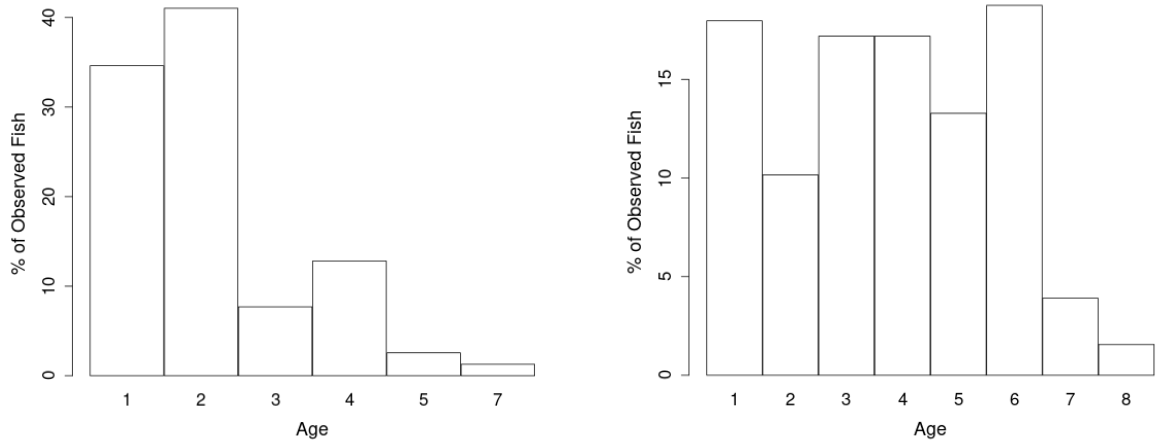

Figure 2. Age Frequencies of Largemouth Bass in Cleveland Lake 2019 (left) and 2023 (right).

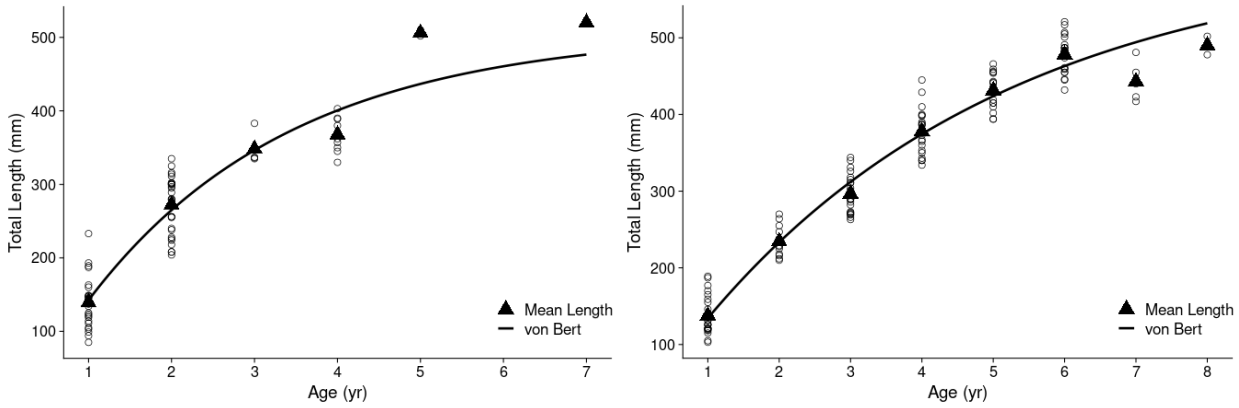

Figure 3. Von Bertalanffy Growth Equation for Largemouth Bass in Cleveland Lake 2019 (left) and 2023 (right).

Table 1. Proportional Size Distributions of Largemouth Bass in Cleveland Lake.

YEAR	PSD	PSD – P	PSD – M
2019	58± 19	15± 14	4± 7
2023	76± 11	56± 13	2± 4

Table 2. Mean Length-at-Age of Largemouth Bass in Cleveland Lake. Results are only from age classes that had at least 5 individuals age classes with fewer individuals were excluded from the table.

	Age-1	Age-2	Age-3	Age-4	Age-5	Age-6	Age-7
2019	139.11± 12.72	272.06± 13.01	348.17± 14.59	367.60± 14.24			
2023	137.74± 10.45	234.46± 10.65	296.45± 10.52	377.95± 12.22	431.47± 11.16	478.17± 9.23	443.20± 22.66