SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

ELMORE CITY LAKE

2023

SURVEY REPORT

State: Oklahoma

Project Title: Fish Management Survey Report

Period Covered: 2023

Prepared by: OFRL

Date Prepared: Jan. 2024

ABSTRACT

Elmore City Lake was surveyed by spring electrofishing in 2023 to assess the Largemouth Bass population. No Largemouth Bass samples have been conducted on Elmore City Lake in the previous ten years, however, the lake was hoop netted for Channel Catfish evaluation in 2021. The fishery consists of Largemouth Bass, various sunfish species, White Crappie, Channel and Flathead Catfish. No regulation changes are recommended at this time.

INTRODUCTION

Elmore City Lake is in Garvin County, one mile north of Elmore City on SH 74 and one-half mile east on Kay Buse Parkway. The lake consists of 2.4 miles of shoreline and is 69 acres in size. Impoundment was completed in 1966. Fish habitat consists primarily of flooded timber and some aquatic vegetation. Average secchi depth is 49 centimeters. The lake is classified as eutrophic.

Primary management goal was to establish relevant baseline data considering this lake had not been sampled in the previous ten years. There are two boat ramps with docks available for loading/unloading purposes, as well as a fishing dock. There are two fish attractor sites that are periodically loaded with brush, typically cedar trees. The fishery consists of Largemouth Bass, various Sunfish species, White Crappie, Channel Catfish and Flathead Catfish. In efforts to enhance fishing, Channel Catfish are periodically stocked (Appendix 1).

Aquatic Nuisance Species

There are no known ANS in Elmore.

RESULTS

Spring Bass Electrofishing

Largemouth Bass (LMB) were surveyed in spring of 2023 by means of boat electrofishing. Sampling occurred in accordance with the Oklahoma Department of Wildlife's Standard Sampling Procedures (SSP). During sampling the water temperature was 19^{o} C (66 F), and the lake was approximately two feet low. The entirety of the shoreline was sampled for a total of ten units of effort, and a total of 67 Largemouth Bass were collected.

Median total length of all LMB sampled was 402 mm with a minimum length of 185 mm and a maximum length of 528 mm (Figure 1). Mean CPUE of LMB was 40.20 (24.71-55.69 95% CI) with a standard error (SE) of 7.9 and a relative standard error (RSE) of 19.66 (Table 1).

A total of 66 LMB were aged; ages ranged from 1 to 11 years. von Bertanlanffy growth shows a theoretical maximum length (L_{∞}) of 529 mm TL, a growth coefficient (K) of 0.24, and a t_0 of -0.9 (Figure 2). A catch-curve regression calculated an annual mortality (A) of 18 % and an instantaneous mortality (Z) of 0.19 (Figure 3).

RECOMENDATIONS

1. Continue to monitor population dynamics for sportfish species (Largemouth, Sunfish Spp., Catfish Spp.).
2. No regulation changes are recommended at this time.

Table 1: *Catch per unit effort of Largemouth Bass in Elmore City Lake by size category.*

Species	Size Category	Mean	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
LMB	sub stock	0.6	100	0.6	-0.58	1.78	640	250
LMB	stock	4.8	48.59	2.33	0.23	9.37	151	59
LMB	quality	9.6	29.76	2.86	4	15.2	57	22
LMB	preferred	22.2	24.52	5.44	11.53	32.87	38	15
LMB	memorable	3	44.72	1.34	0.37	5.63	128	50

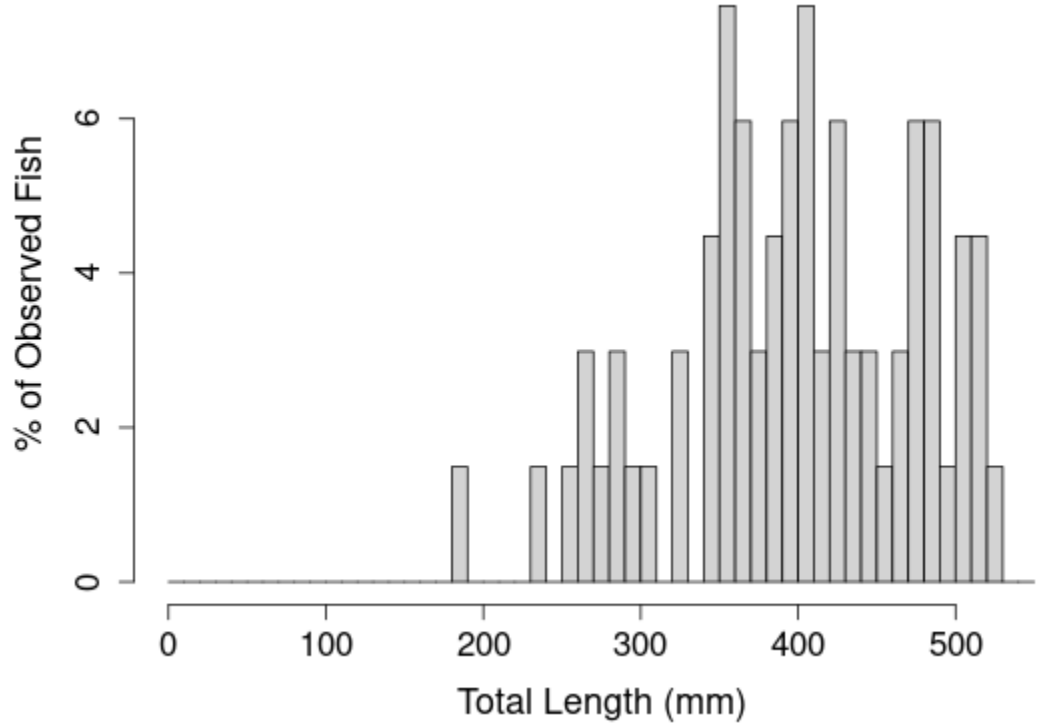

Figure 1*: Length-frequency distribution of Largemouth Bass in Elmore City Lake.*

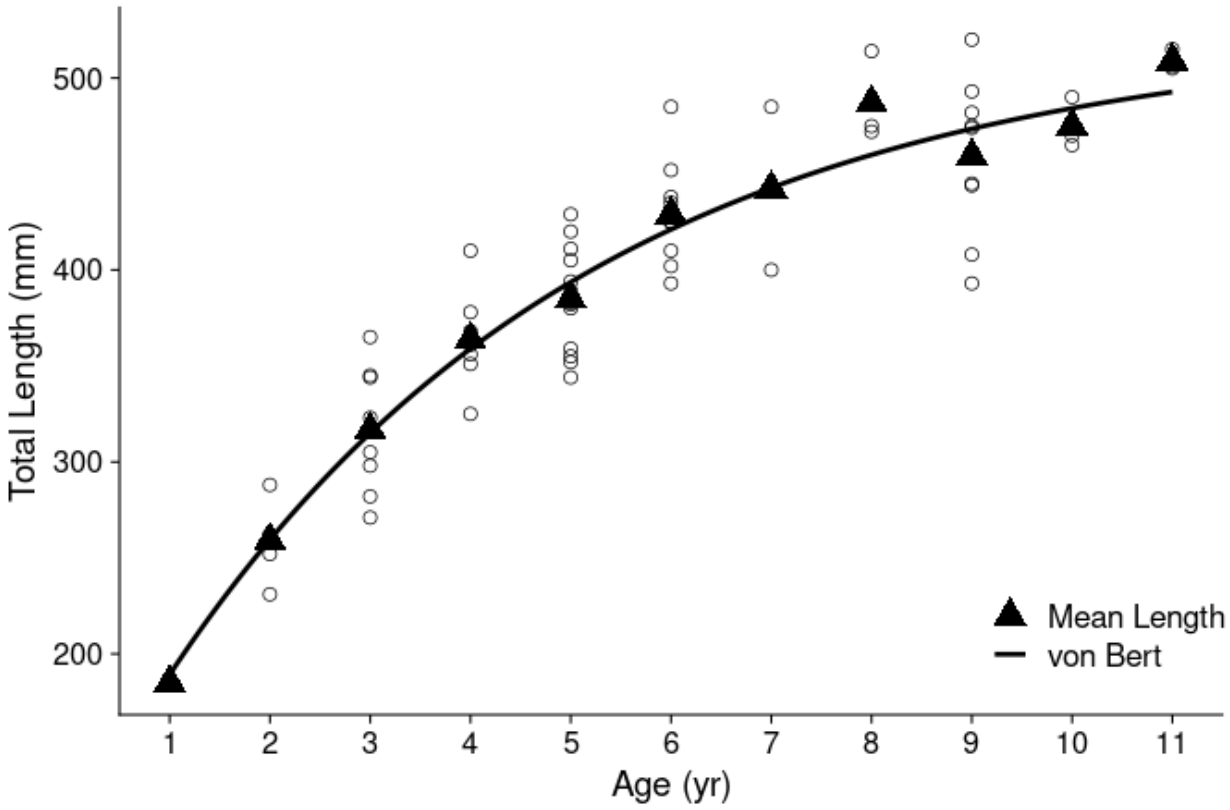

Figure 2*: von Bertalanffy growth curve for Largemouth Bass in Elmore City Lake.*

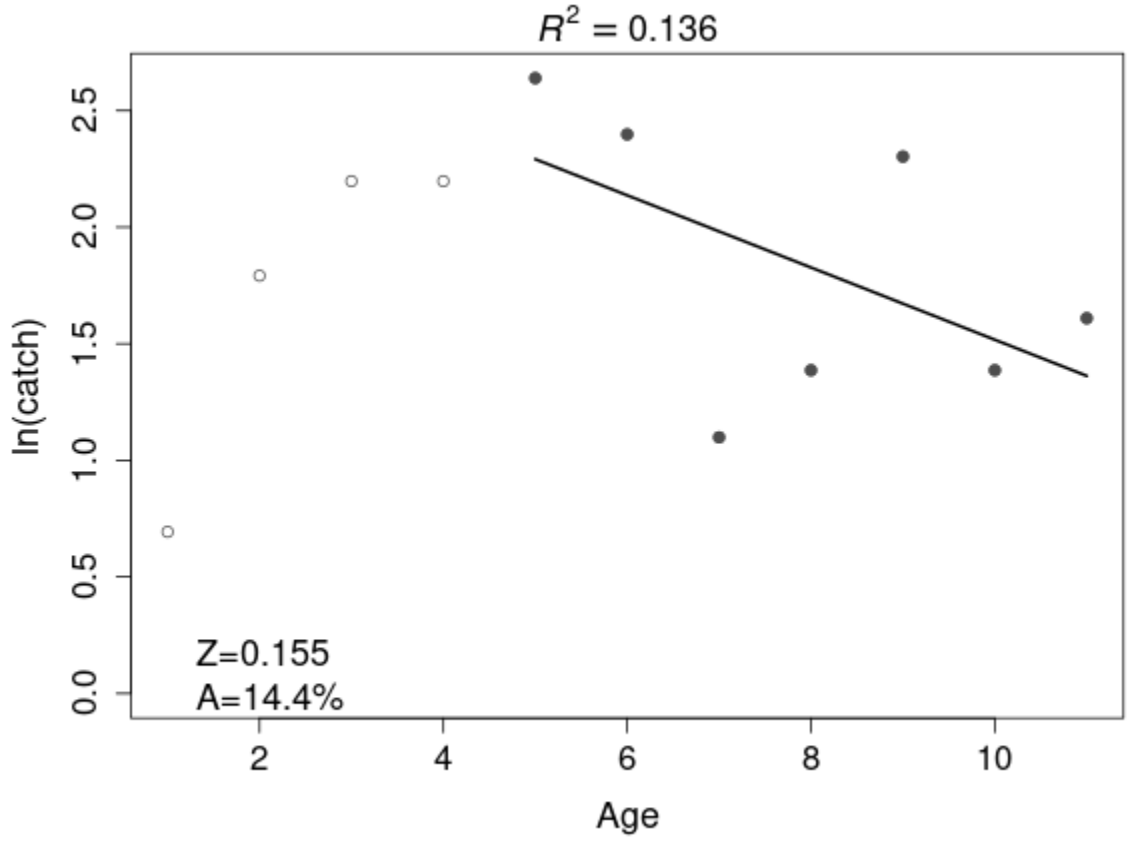

***Figure 3**: Catch curve for Largemouth Bass in Elmore City Lake.*

Appendix 1. Species, number, and size of fish stocked in Elmore City Lake since 2014.

Date	Species	Number	Size (inches)
2014	Channel Catfish	3,600	7
2014	Channel Catfish	3,602	7
2017	Channel Catfish	2,400	7
2017	Channel Catfish	2,620	6.25
2018	Channel Catfish	2,400	7.2
2020	Channel Catfish	2,492	7
2021	Channel Catfish	2,405	6.46