SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

Cedar LAKE

2024

SURVEY REPORT

State: Oklahoma

Project Title: Cedar Lake Fish Management Survey Report

Period Covered: 2024

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Date Prepared: January 2025

Cedar Lake

ABSTRACT

Cedar Lake was sampled in 2024 for Largemouth Bass and in 2023 with Gill nets and Trap nets for catfish and crappie. Bass catch rates were satisfactory and many population metrics have recovered from 2022. Few catfish and crappie were collected in the standard survey. Low crappie numbers are not concerning since Cedar lake is not managed for crappie. Likewise low catfish numbers are not concerning as catfish have not been stocked in several years. Staff recommend stocking catfish and installing catfish spawning boxes in an attempt to establish a self-sustaining population.

INTRODUCTION

Cedar lake is a small 86 acre lake located in Le Flore county in Southeastern Oklahoma and is owned and operated by the United States Forest Service (USFS) and is within the Ouachita National Forest. The lake was impounded in 1937. The Civilian Conservation Corp constructed the dam on Big Cedar Creek. The lake has aquatic vegetation around 75% of the lake which limits shoreline access. The lake is known for its largemouth bass fishing and produced several state records including a 14 lb 12.3 oz bass in 2012 And another state record Largemouth Bass weighing 14 lb 13.7 oz in 2013. Channel Catfish have been stocked in the lake until 2017. Cedar lake is stocked with Florida Bass on average every 2 to 3 years. This has contributed to the trophy potential of the lake. The USFS limes and fertilizes the lake every 2 or so years in an effort to assist the productivity of the lake. Cedar lakes location within the national forest means that it is surrounded by timber and there are very few agricultural inputs which limit the nutrient flow into the lake.

RESULTS

<u>Largemouth Bass</u>

Largemouth Bass were collected in spring 2024 via routine spring electrofishing. Prior to 2022, most of the sampling was conducted by the USFS who used similar methods but did not collect age data so age derived metrics are not available. Catch rates in 2024 were lower than previous samples but not below accepted values (table 1). Catch rates by size indicated that size distribution for large sizes have improved from 2022 and mirror those in 2008 except for stock size individuals (table 2). The length frequency histogram indicates the majority of the population is between 300 and 400 mm and part of the 2022 year class moving through (figure 1). Proportional Stock Density (PSD) has

greatly improved from 2022 levels although the low levels in 2022 were biased by the large number of stock size fish (table 3). Many of those fish are now moving through the size classes and increasing the potential of the fishery as they mature and age resulting in excellent angling opportunities. Relative Weight (Wr) has improved since 2022 and match that of 2008 (table 4). Wr does drop with increasing size but are still adequate in larger individuals. Wr of smaller individuals is extremely high indicating that forage is readily available and could signal improved fishing in the next 5 years as these fish mature with an abundance of reserves. Survival for these fish could increase resulting in an abundance of fish in improved condition and numbers. Mean length at age has improved between ages 3 and 8, although older individuals were not encountered in this years samples and inferences for these older fish can not be drawn (table 5). There is a large percentage of older fish in the sample with age 6 and 7 year old fish compiling over 35% of the sample (figure 2). Mean weight at age has dramatically improved compared to the 2022 sample (table 6). While catch rates were down in 2024, the change in mean weight is drastic enough to indicate a likely increase in forage abundance. Von Bertalanffy metrics are similar between years for max length (table 7). Mortality estimates are very low for Largemouth Bass at Cedar and likely underestimated in 2024 owing to the low number of younger fish and larger number of older individuals (table 8).

Channel Catfish

Cedar lake was gill netted for Channel Catfish in 2023. Only one Catfish was collected measuring 644 mm and weighing 3208 grams. Previously Channel catfish were routinely stocked in Cedar lake but have since ceased. This sample was completed to evaluate the catfish population at Cedar lake to evaluate whether stockings should resume. It is recommended that channel catfish stockings resume for the period of evaluation recommended by the ODWC catfish committee with the addition of catfish spawning structures in an effort to establish a self-sustaining population. ODWC will continue to monitor the catfish population at Cedar lake as they are stocked and evaluate whether the population can be sustained or if stockings efforts should stop.

Crappie

Only 9 crappie were collected during trap netting in 2023. As such no tables or charts are presented. Crappie have never been present in large numbers at Cedar lake but have always been fairly health. The average size in this sample was 295 mm with the largest specimen reaching 360 mm. Relative weights were high for all size classes. The crappie population in Cedar lake is very small but that is to be expected in a lake managed for Trophy Largemouth Bass. The crappie that are present are large and healthy and present a unique catch for the lake.

Recommendations

1. Explore opportunities to remove smaller individuals of large cohorts to encourage fast growth and larger total size fish.
2. Stock Channel catfish and install spawning habitat based on Lab results from the Catfish spawning study.
3. Maintain shoreline access for anglers around boat ramp.

Table 1: Largemouth Bass Catch Per Unit Effort (CPUE) by year.

Total CPUE	2008	2022	2024

Mean	84	82	69
Count	5	6	6
SE	20.2	14.83	4.02
L 95% CI	44.41	52.92	61.11
U 95% CI	123.59	111.07	76.89

Table 2: Largemouth Bass CPUE across size classes by year.

CPUE Size	2008		2022		2024	
	Mean	SE	Mean	SE	Mean	SE
Substock	8	1.79	16	3.35	4	2
Stock	9.6	4.12	45	10.48	4	1.23
Quality	40	9.21	16	4.29	40	4.29
Preferred	21.6	6.52	.	.	21	4.31
Memorable	4.8	2.33	5	2.86	.	.
Trophy	.	.	.	.	.	.

Table 3: Largemouth Bass Proportional Stock Density by year.

PSD	2008	2022	2024
PSD	87	32	94
PSD-P	35	8	32
PSD-M	6	8	.
PSD-T	.	.	.
PSD S-Q	13	68	6
PSD Q-P	53	24	62
PSD P-M	28	8	32
PSD M-T	6	.	.

Table 4: Largemouth Bass Relative weight with standard errors across PSD classes by year.

Wr	2008		2022		2024	
	Mean	SE	Mean	SE	Mean	SE
Substock	88.74	.	86.83	5.26	80.09	5.73
Stock	88.22	.	82.86	1.16	145.1	64.57
Quality	89.75	.	74.53	2.58	87.56	1.08
Preferred	90.29	.	.	.	90.79	2.17
Memorable	96.81	.	94.62	4.70	.	.

Trophy	.	.	.	.	.	.
Total	90.05	.	81.92	1.21	91.61	3.82

Table 5: Largemouth Bass Mean length at age with standard errors.

Mean Length at Age	2022		2024	
	Mean	SE	Mean	SE
1	134.00	3.76	158.25	11.84
2	221.47	4.37	.	.
3	261.09	5.29	329.07	10.87
4	285.50	4.36	338.75	8.63
5	305.59	4.08	391.40	12.34
6	313.50	8.29	376.14	8.77
7	.	.	380.17	12.76
8	.	.	453.00	11.99
9	536.00	10.00	.	.
10	.	.	.	.
11	617.50	0.05	.	.
12	.	.	.	.
13	560.00	.	.	.

Table 6: Largemouth Bass Mean weight at age with standard errors.

Mean Weight at Age	2022		2024	
	Mean	SE	Mean	SE
1	24.53333	2.288411	42.5	8.5
2	125.2941	9.111953	.	.

3	200.5455	12.25514	493.57	41.9
4	273.6667	13.79291	528.12	40.5
5	307	12.95263	835.2	91.65
6	341	29.03446	712.14	57.52
7	.	.	764.25	83.32
8	.	.	1425.5	246.4
9	2365	24.1	.	.
10	.	.	.	.
11	3990	12.76	.	.
12	.	.	.	.
13	2648	.	.	.

Table 7: Largemouth Bass Von Bertalanffy growth metrics.

Von Bert	2022	2024
L inf	423.129	404.341
K	0.009	0.504
t0	-2.784	-0.032

Table 8: Largemouth Bass mortality estimates.

Mortality Est.	2022	2024
Instantaneous	0.285503	0.16
Annualized	24.84	14.86

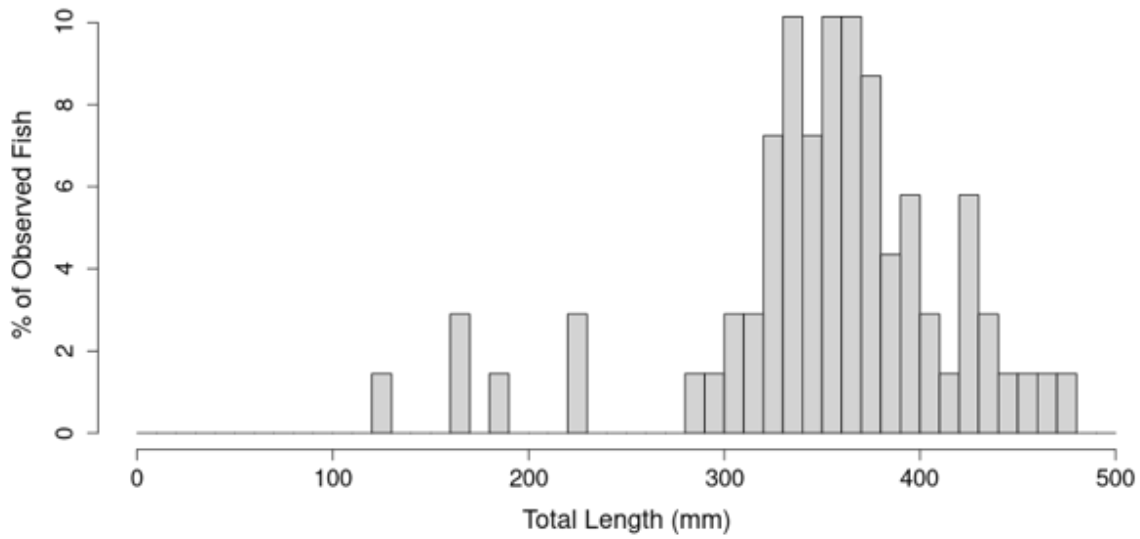

Figure 1: Largemouth Bass length frequency histogram.

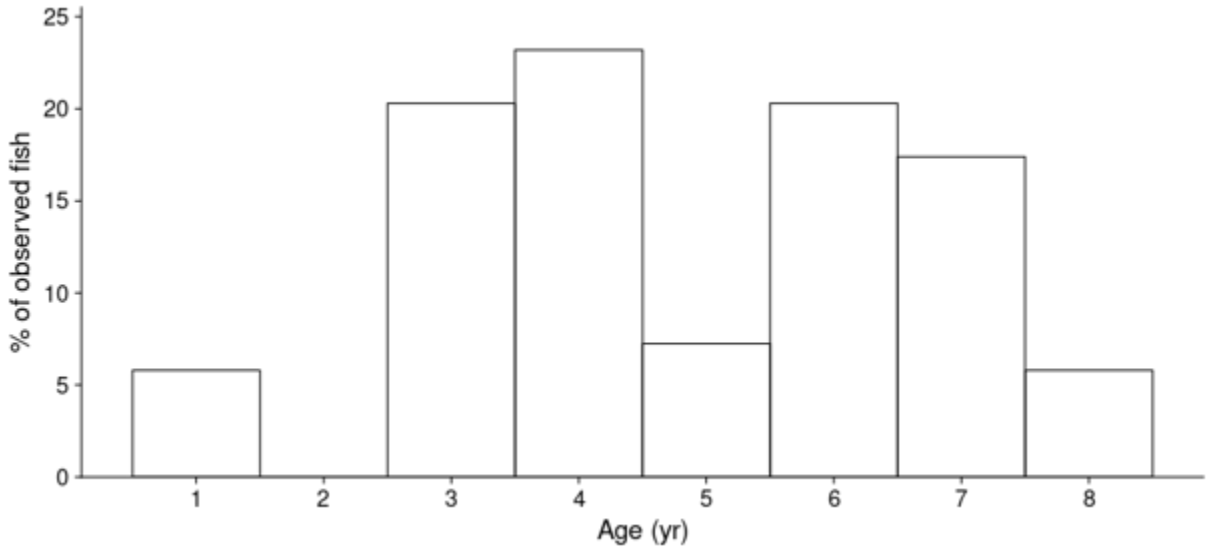

Figure 2: Largemouth Bass age frequency histogram.