SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

Carlton LAKE

2024

SURVEY REPORT

State: Oklahoma

Project Title: Carlton Lake Fish Management Survey Report

Period Covered: 2024

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Date Prepared: January 2025

Carlton

ABSTRACT

Carlton Lake has a very good bass fishery with previous samples netting many individuals over 2000g and still having high catch rates. The 2024 sample shows lower catch rates and a lack of larger fish which are likely still present but not encountered. Relative weight was low but has improved over the last 12 years.

INTRODUCTION

Lake Carlton impounds the Fourche Maline Creek, 8.0 km North of Wilburton in Latimer County, Oklahoma within the boundaries of Robbers Cave State Park. Carlton covers 52 surface acres and was constructed in the 1930's. It is very shallow in the upper 1/3 of the lake due to siltation and near the dam the maximum depth is approximately 6 meters. Fish habitat consists primarily of aquatic vegetation. Major fisheries include black bass, crappie, channel catfish and bluegill sunfish.

RESULTS

Largemouth Bass

Carlton Reservoir in Robbers Cave State Park was sampled for Largemouth Bass utilizing shoreline spring electrofishing in 2024. Catch rates reported as Catch Per Unit Effort (CPUE) were the lowest recorded since 2012 but still acceptable (table 1). The length distribution appears to almost be bimodal with a increase in the frequency of bass at 260 mm and 430 mm (Figure 1). While the CPUE is down from past samples the distribution of fish across size class is similar to 2021 (Table 2). Catch rate metrics are currently unavailable for 2018. Proportional Stock Density (PSD) is good and intermediate to previous samples and seems to indicate that this lake is steady with regard to the size distribution (table 3). Relative Weight (Wr) has improved since 2012 but not significantly so, with all Wr being below acceptable levels for Largemouth Bass (Table 4). Age data reveals strong numbers of age-3 and age-5 Largemouth Bass with very low numbers of age-4 bass indicating a very weak cohort (figure 2). Mean length at age between years is variable and shows no positive or negative trends over time (table 5). Overall, mean weight at age has improved compared to earlier samples (table 6). Von Bertalanffy estimates show a decrease in maximum length (table 7). Mortality estimates have decreased likely due to the lack of older individuals in the most recent sample (table 8).

Recommendations

1. Continue to monitor Largemouth Bass.
2. Investigate methods to increase body condition likely through supplemental forage or Largemouth Bass biomass removal.

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

Total CPUE	2012	2021	2024
Mean	111	91.2	74.4
Count	6	5	5
SE	19.33	11.12	13.5
L 95% CI	73.11	69.38	47.95
U 95% CI	148.89	113.01	100.85

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

CPUE Size	2012		2021		2024	
	Mean	SE	Mean	SE	Mean	SE
Substock	37	14.81	4.8	2.24	3.6	1.47
Stock	19	5.67	26.4	8.4	24	7.82
Quality	29	6.28	33.6	4.87	19.2	4.41
Preferred	21	4.58	16.8	3.49	24	7.35
Memorable	5	3.26	9.6	2.4	3.6	2.4
Trophy	.	.	.	.	.	.

Table 3: Largemouth Bass Proportional Stock Density by year.

PSD	2012	2018	2021	2024
PSD	74	55	69	66
PSD-P	35	45	31	39
PSD-M	7	13	11	5
PSD-T	.	.	.	.
PSD S-Q	26	45	31	34
PSD Q-P	39	11	39	27
PSD P-M	28	32	19	34
PSD M-T	7	13	11	5

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

Wr	2012		2018		2021		2024	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Substock	92.19	2.5	80	.	72.67	2.53	95.28	.
Stock	83.55	1.73	76.91	1.79	83.1	0.89	82.29	1.5
Quality	84.5	1.05	80.33	4.42	78.83	2.66	87.78	3.04
Preferred	82.1	2.18	79.87	2.22	81.34	3.94	86.98	1.5
Memorable	97.62	7.98	95.01	1.75	87.96	1.37	88.75	7.42
Trophy	.	.	.	.	.	.	.	.
Total	85.38	1.02	80.57	1.45	81.39	1.32	85.85	1.15

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

Mean Length at Age	2018		2021		2024	
	Mean	SE	Mean	SE	Mean	SE
1	.	.	162	5	142	19.14
2	218.1	12.3	235.64	6.53	244.7	4.77
3	259.78	8.68	290.5	6.16	288.64	10.12
4	336.67	5.36	320.73	7.69	392	24.27
5	398	.	338.85	8.61	376.5	11.52
6	405	5	382.33	28.75	395.56	16.19
7	421.17	15.76	499.2	8.15	358	.
8	429	14.73	464.88	15.93	470	18
9	.	.	.	.	.	.
10	565.67	16.83	559	.	.	.
11	533	.	543	.	544	54
12	584	.	.	.	.	.

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

Mean Weight at Age	2018		2021		2024	
	Mean	SE	Mean	SE	Mean	SE
1	.	.	37	5	37.33	15.38
2	131.1	14.81	147.57	36.22	161.8	12.69
3	197.56	23.68	277.75	17.3	307.71	45.24
4	433	24.01	390.33	24.31	816	174.92
5	836	.	454.14	38.21	706.86	64.19
6	740	12	509.33	34.45	820.44	102.9
7	990.33	119.15	1780	222.43	678	.
8	958	121.96	1452	175.91	1584.67	216.08
9	.	.	.	.	.	.
10	2855.33	226.67	2490	.	.	.
11	2358	.	2180	.	2369	489
12	3302	.	.	.		

Table 7: Largemouth Bass Von Bertalanffy growth metrics.

Von Bert	2018	2021	2024
L inf	1354.45	.	601.185
K	0.04	.	0.164
t0	-2.64	.	-1.025

Table 8: Largemouth Bass mortality estimates.

Mortality Table	2018	2021	2024
Instantaneous	0.28	.	0.17
Annualized	24.96	.	15.7

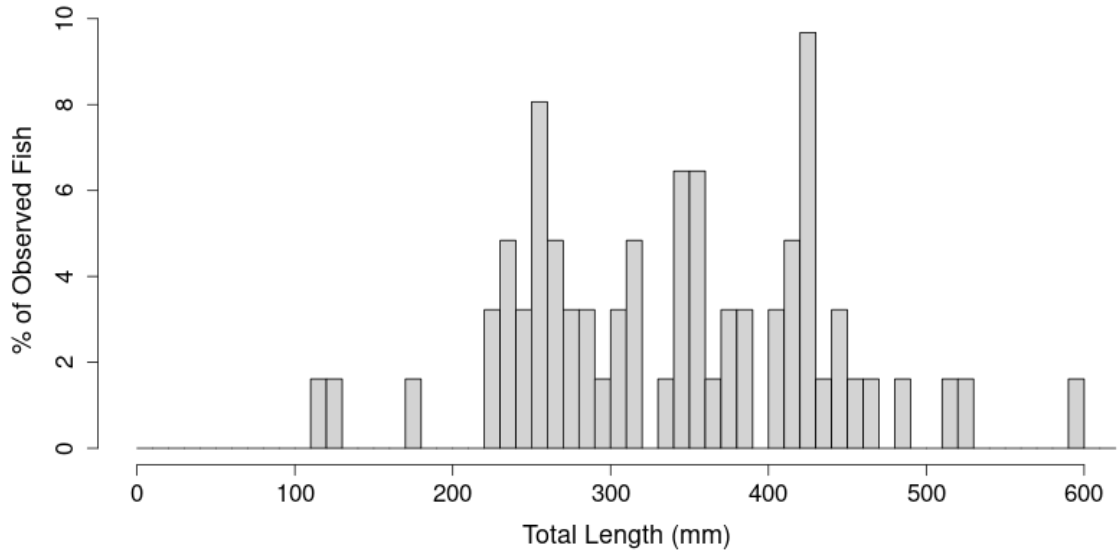

Figure 1: Largemouth Bass length frequency histogram.

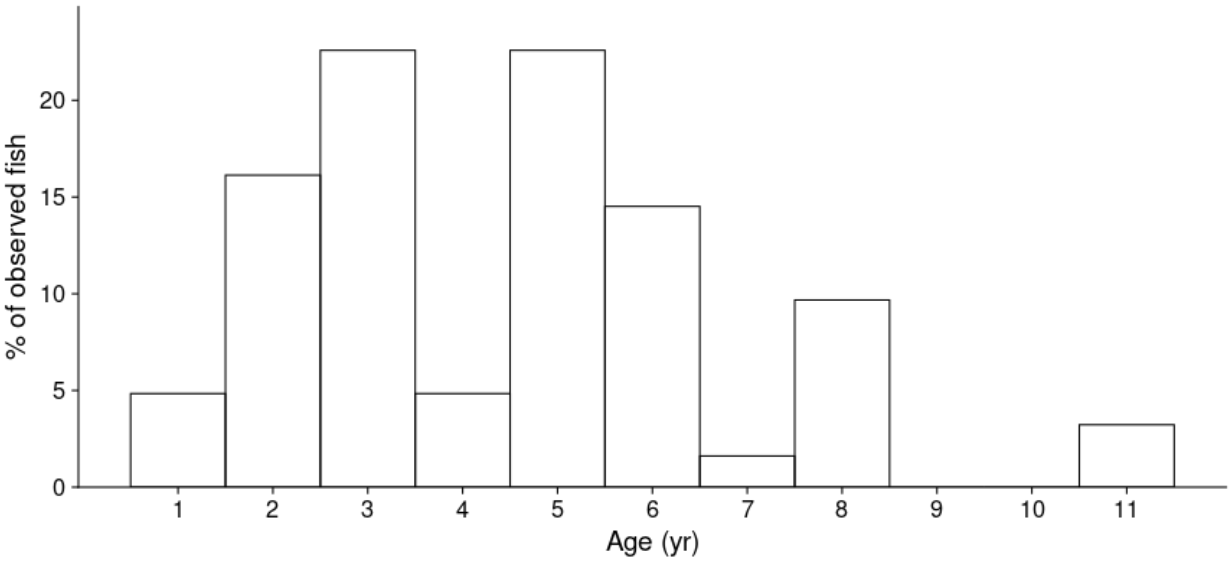

Figure 2: Largemouth Bass age frequency histogram.