SURVEY REPORT
OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS FOR LAKE CARL ETLING 2023

SURVEY REPORT

State: Oklahoma

Project Title: Lake Carl Etling Fish Management Survey Report

Period Covered: 2015-2023

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LAKE CARL ETLING

ABSTRACT

Lake Carl Etling was surveyed in 2015, 2017, 2019, 2020, 2022, and 2023. These surveys included spring electrofishing and summer hoop net surveys. Results of the electrofishing surveys show slightly decreasing relative abundance of largemouth bass throughout the years as well as low recruitment. Channel catfish hoop net surveys show that there has been an increase in relative abundance at Lake Etling. The bait for channel catfish was changed in 2023 from Zoat soap to cheese logs. This could be the reason for the improved catch rates in 2023.

INTRO

Lake Carl Etling is located in Cimarron County, and it is 26 miles Northwest of Boise City within Black Mesa State Park. Lake Etling was constructed in 1958 by the Oklahoma Department of Wildlife Conservation.

At normal pool, Lake Etling covers 159 surface acres and has a storage capacity of 1717 acre feet. Lake Etling has a shoreline length of 7.24 km, an average depth of 3.3 meters, and a maximum depth of 11.5 meters. The lake level is highly variable and fluctuates as much as 10 feet per year. In 2004 Etling went dry and the lake was reclaimed. It remained virtually dry until the summer of 2013.

Stocking efforts since 2013 are displayed in Appendix 2. In 2013, the lake was restocked with largemouth bass, channel catfish, and bluegill after returning to normal pool. Maintenance stockings of channel catfish have been stocked annually to support the population. Tiger muskies were introduced from 2014 through 2017 in an attempt to create a unique fishery as the lake had previously held northern pike. Those efforts proved unsuccessful as high water temperatures were not tolerated durning the summer months. Lake Etling was also home to a put and take rainbow trout fishery in previous years but stockings were ceased in 2020 due to low use of the area. Walleye and hybrid striped bass are occasionally stocked to provide additional opportunities in the lake.

Fish attractors were deployed in Lake Etling in the form of brush piles. The locations of these brush piles can be observed in Appendix 1.

Lake Etling was surveyed using boat electrofishing in 2015, 2017, 2019, and 2022, and it was surveyed in 2017, 2020, and 2023 by using tandem hoop nets for channel catfish.

RESULTS

Largemouth bass

Largemouth Bass (LMB) were surveyed in the spring of 2015, 2019, and 2022 by boat electrofishing. Whole shoreline samples were conducted each year by using ten-minute stations. Total Catch Per Unit Effort (CPUE) did fluctuate throughout the three years sampled with 2017 being the highest (CPUE=50.8) and 2022 being the lowest (CPUE=6) (Table 1). Relative weights for quality, preferred and memorable sized fish have routinely been over 100 demonstrating excellent body condition. The lack of stock and substock sized fish in2022 indicate that reproduction may have been limited the last few years. It may have also been due to the low lake level when sampled.

Length frequency histograms show that individuals collected had increased in size throughout the three sample years. In 2015 the highest frequency 10 mm length band was 140 mm, whereas the highest frequency length band in 2019 was 350 mm, and the highest in 2022 was 400 mm (Figure 1). The largest individual was collected in 2022 with a total length of 560 mm. The smallest individual collected was 122 mm collected in 2015. The size range of individuals collected in 2015 was 122-416 mm total length. Collected individual size range for the 2017 survey was 196-513 mm total length. The size range for 2019 was 212-490 mm total length. The most recent year of sampling, 2022, has a size range of 374-560 mm.

Overall, proportional size distributions also indicate a fishery with large individuals, although it is based on low sample sizes. The PSD for largemouth bass ranged from 67 to 100 in three of the last four samples (Table 2).

The largemouth bass population appears stable but recent samples indicate low recruitment. It is recommended that biennial sampling continues to monitor the population.

Table 1: Total number (No), catch per unit effort (CPUE), and relative weights (Wr) by size group of Largemouth Bass collected in electro-fishing surveys from Lake Carl Etling.

		Total	Substock		Stock		Quality		Preferred		Memorable	
		CPUE	<200mm		200mm		300mm		380mm		510mm	
Year	**No**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2022	11	6	-	-	-	-	0.55	144.57	4.91	111.25	0.55	138.75
2019	41	16.4	-	-	0.8	85.7	14	86.79	0.8	96.65	-	-
2017	127	50.8	0.4	84.83	40.8	82.22	5.2	92.35	4	102.69	0.4	106.87
2015	23	19.71	17.14	100.06	0.86	114.4	0.86	140.81	0.86	132.75	-	-

Table 2: Proportional Size Distribution (PSD), Proportional Size Distribution of Preferred (PSD-P), and Memorable (PSD-M) for Largemouth Bass collected from Lake Carl Etling electrofishing surveys.

Year	PSD	PSD-P	PSD-M
2022	100	91	9
2019	95	5	-
2017	19	9	1
2015	67	33	-

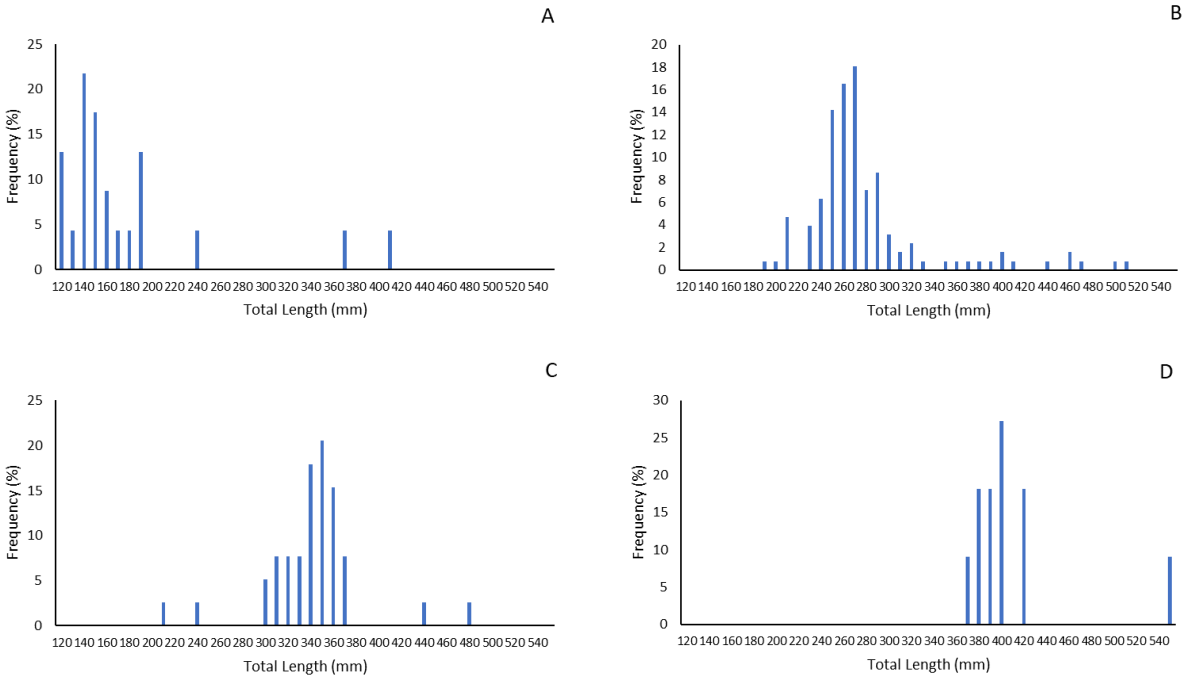


Figure 1: Largemouth Bass Length Frequencies for Lake Carl Etling 2015(A), 2017(B), 2019(C), and 2022(D).

Channel Catfish

Channel catfish were surveyed in the summer of 2020 and 2023 at Lake Carl Etling. The surveys were conducted following Standard Sampling Procedures for Fisheries Management. Tandem hoop net surveys were conducted by setting six stations of three net nights each totaling 18 net nights. Each station was three hoop nets set in tandem with the bridle end tied to the cod end. Before 2023, each of these three nets was baited with a whole bar of Zoat soap (400g). During the 2023 survey, cheese logs were used. These cheese logs were cut into thirds of about 0.9kg. This bait was first placed in a 0.9 kg plastic sample jar with 25-30 6 mm holes in it. The largest hoop on these nets was 0.8 meters and the net itself was approximately 3.4 meters long.

The highest catch per unit effort (CPUE) value was in 2023 with a CPUE of 25. The lowest CPUE value was 1.28 in 2017 (Table 2). In 2017, the sample size was very low compared to the other two years sampled. The increase in CPUE values through the three survey years show that populations were most likely increasing. The change in bait for the hoop nets could be the reason the CPUE value for 2023 was much higher than previous years. Channel catfish may prefer cheese logs, or the bait may disperse in the water more and attract more individuals.

The channel catfish population in Carl Etling is dependent on maintenance stockings of 7” channel catfish. Annual stockings should continue at the rate of 40 fish/acre. Hoop net surveys should also be conducted again in 2026.

Table 2: Total number (No), catch per unit effort (CPUE), and relative weights (Wr) by size group of Channel Catfish collected in hoop net surveys from Lake Carl Etling.

		Total	Substock		Stock 280mm		Quality 410mm		Preferred 610mm	
		CPUE	<280mm							
Year	**No**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2023	450	25	13.33	-	10.56	-	1	-	0.11	-
2020	131	7.28	4.67	87.79	2.11	86.3	0.5	102.79	-	-
2017	23	1.28	-	-	-	-	-	-	-	-

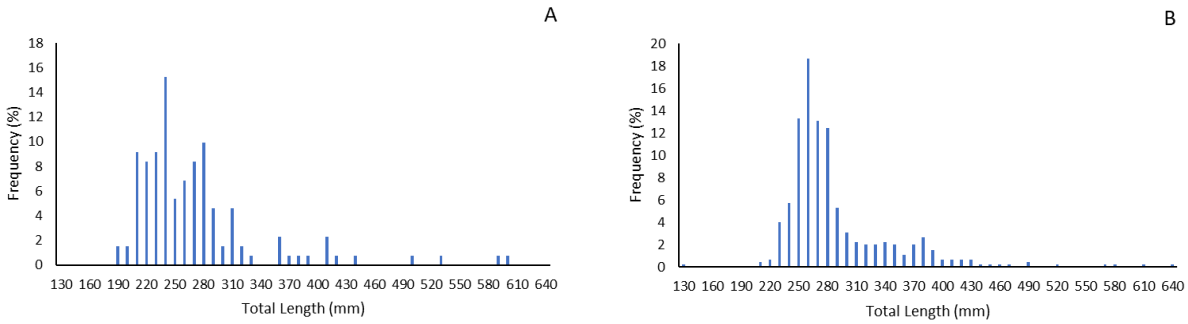
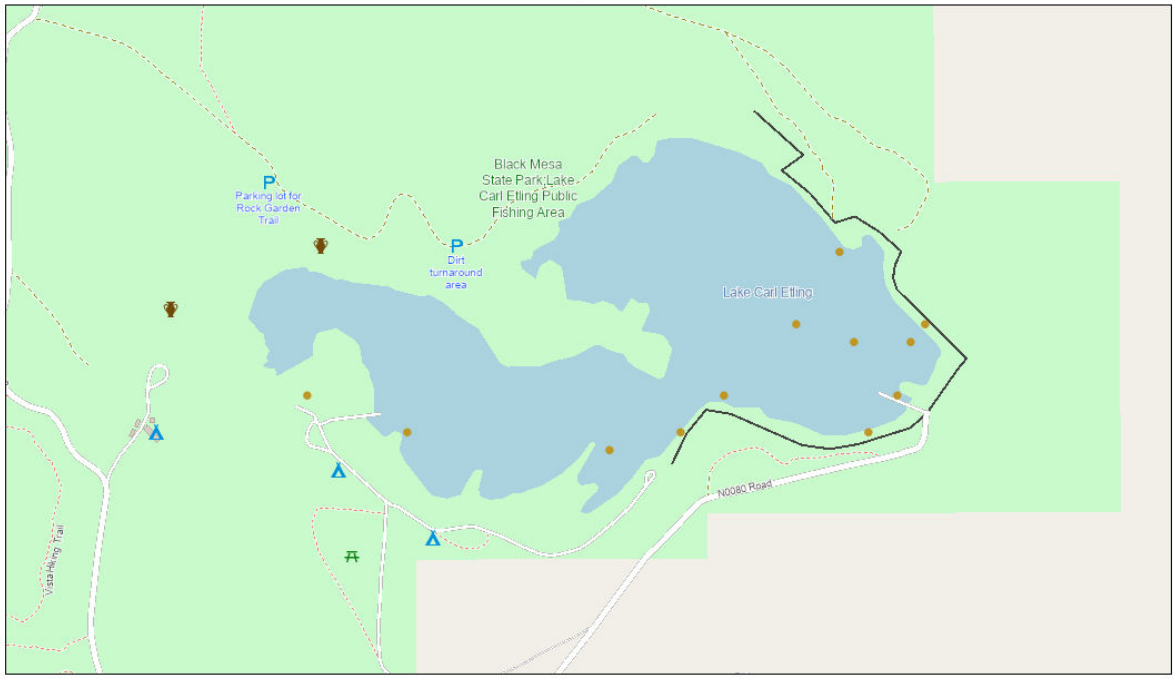


Figure 2: Channel Catfish Length Frequencies for Lake Carl Etling 2020(A) and 2023(B).

Lake Carl Etling Fish Attractors



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FishAttractors

- Brush Pile
- Spider Blocks
- Pallet
- Combination
- PVC Structure
- Gravel Pile
- Sunken Boat
- Tire Reefs
- Other
- Unknown

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

APPENDIX 1

Year	Species	Number	Size (mm)
2023	Walleye	80,000	6.35
2022	Walleye	40,000	6.35
	Channel Catfish	6,415	190.5
2021	Channel Catfish	6,370	162.56
	Hybrid S.B.	1,022	44.45
2020	Rainbow Trout	4,310	254-355.6
	Rainbow Trout	240	355.6+
	Channel Catfish	6,400	165.1
2019	Rainbow Trout	7,751	254-355.6
	Rainbow Trout	340	355.6+
	Rainbow Trout	1,900	254-457.2
	Rainbow Trout	8,775	254-304.8
	Rainbow Trout	525	304.8-355.6
	Channel Catfish	14,986	154.94
2018	Rainbow Trout	11,250	254-355.6
	Rainbow Trout	880	355.6+
	Rainbow Trout	3,375	228.6-355.6
	Channel Catfish	6,400	146.05
2017	Rainbow Trout	8,465	228.6-355.6
	Rainbow Trout	7,775	254-355.6
	Rainbow Trout	765	355.6+
	Channel Catfish	6,400	101.6
	Tiger Muskie	280	251.46
2016	Rainbow Trout	12,671	228.6-355.6
	Rainbow Trout	900	254-355.6
	Rainbow Trout	611	355.6+
	Channel Catfish	16,000	101.6
	Tiger Muskie	1,200	330.2
2015	Rainbow Trout	11,700	228.6-355.6
	Rainbow Trout	160	355.6
	Rainbow Trout	210	355.6+
	Tiger Muskie	1,200	-
	Bluegill	23,100	63.5
	Walleye	80,000	6.35
2014	Rainbow Trout	4580	228.6
	Rainbow Trout	2,700	254
	Rainbow Trout	345	355.6
	Largemouth	38,560	31.75
	Largemouth	8,200	40.64
	Largemouth	40	355.6
	Bluegill	9,000	50.8
	Bluegill	12,500	101.6
	Channel Catfish	6,572	228.6
	Tiger Muskie	166	228.6-254
	Walleye	80,000	6.35
2013	Rainbow Trout	4,600	228.6
	Rainbow Trout	195	355.6
	Channel Catfish	1,000	76.2
	Channel Catfish	1,400	266.7
	Bluegill	60,000	25.4
	Bluegill	10,000	38.1
	Bluegill	200	-
	Redear	100	-