

SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

WEWOKA LAKE

2025

SURVEY REPORT

State: Oklahoma

Project Title: Wewoka Lake Fish Management Survey Report

Period Covered: 2025

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Wewoka Lake

ABSTRACT

Wewoka Lake was surveyed by spring electrofishing (2025) techniques to monitor trends in fish populations. Largemouth Bass abundance significantly decreased, Spotted Bass abundance decreased slightly. Sample sizes were small and variation between sites was considered too high, ultimately the data is unreliable to draw conclusions about the Black Bass population dynamics in Wewoka Lake. A spring Electrofishing Sample in 2026 is recommended.

INTRODUCTION

Wewoka Lake impounds Coon Creek, 5 miles northwest of Wewoka, in Seminole County, Oklahoma. Wewoka Lake covers 371 surface acres and was constructed in 1925 by the City of Wewoka. Wewoka Lake has a mean depth of 12 feet, a maximum depth of 27.2 feet and a secchi disc visibility of around 11 inches in the main pool in August. Turbidity is primarily from suspended clay. Fish habitat consists primarily of water willow around the shoreline and some hardwood stickups.

Fish management problems include a stunted Crappie population and low recruitment rates for Largemouth Bass. Past surveys have generally indicated low to moderate abundance of most fish species.

Recent fish management activities have included stocking of saugeye (Appendix 1) to prey on Crappie, hopefully reducing the Crappie abundance levels and competition for food which should improve their growth rates. A total of 18 fish attractor sites have been constructed over the years with spider blocks and brush to improve angler success and are periodically refurbished (Appendix 2). Fish attractor sites were most recently refurbished in 2022. In 1989, the City of Wewoka imposed a 356-mm (14-inch) minimum length limit on black bass in order to increase survival rates of smaller bass.

Wewoka Lake was surveyed by spring electrofishing (2025) techniques to monitor trends in fish populations.

RESULTS

Largemouth Bass

Largemouth Bass (LMB) were surveyed in spring of 2025 by means of boat electrofishing. A total of six randomly selected shoreline units were sampled. Overall LMB relative abundance, catch per unit of effort (CPUE) decreased significantly from the last survey in 2019 (CPUE = 41.0) to 2025 (CPUE = 9.0) (Table 1). Relative abundance decreased in all size classes that LMB were collected. No memorable or trophy size fish were collected.

The length frequency histogram indicated the majority of the fish sampled were less than 10 inches in total length (Figure 1). Proportional size distribution (PSD) values have decreased for both quality and preferred size classes indicating a decrease in proportion of larger size fish (Table 2). Body condition or relative weights (Wr) for all size classes surveyed also decreased compared to the 2019 survey (Table 1). The largest fish sampled from the 2025 survey measured 16.5 (in) in total length and 2.4 (lbs) in weight.

Age data was collected from the 2025 survey. LMB growth was slow taking approximately four years to reach a mean length of 16 inches (Table 3). The age frequency histogram indicated all fish sampled were from the 2023, 2022, and 2021 year classes (Figure3).

Ultimately, sample size was considered too small and variation between sites was too high to make reliable conclusions. Only 9 LMB were collected. A more thorough electrofishing survey is recommended for the spring of 2026.

Table 1. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Largemouth Bass collected by spring electrofishing from Wewoka Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Substock</u> 0-7.8 in	<u>Stock</u> 7.9 in		<u>Quality</u> 11.8 in		<u>Preferred</u> 15 in		<u>Memorable</u> 20.1 in		<u>Trophy</u> 24.8	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
<u>2006</u>	27	18.0	2.7	3.3	92	2.0	105	10.0	98	.	.	.	.
<u>2019</u>	41	41.0	7.0	7.0	93	5.0	97	26.0	98	.	.	.	.
<u>2025</u>	9	9.0	1.0	4.0	86	1.0	89	3.0	96	.	.	.	.

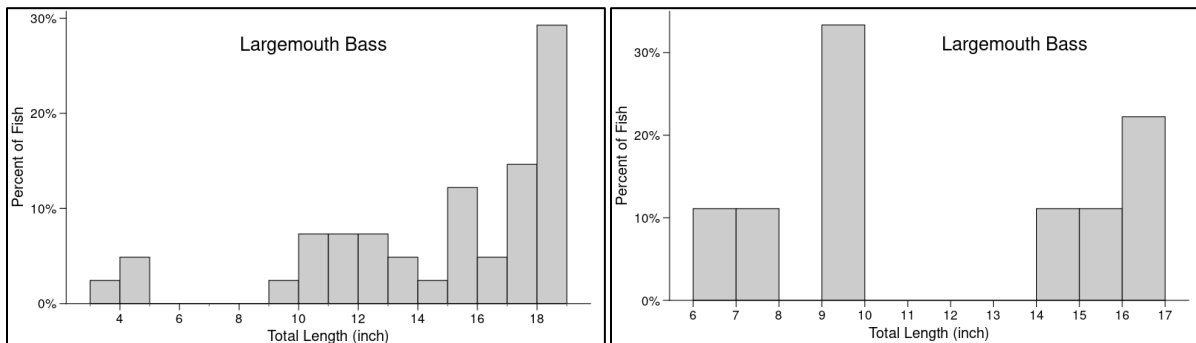


Figure 1. Largemouth Bass Length Frequency for Wewoka Lake 2019 (Left), 2025 (Right).

Table 2. Proportional Size Distribution (PSD) of Largemouth Bass. Quality (PSD-Q), preferred (PSD-P) and memorable (PSD-M) lengths. PSD values indicate the proportion of fish in or above the quality, preferred or memorable size classes.

<u>Year Surveyed</u>	<u>PSD-Q</u> <u>(11.8 in)</u>	<u>PSD-P</u> <u>(15 in)</u>	<u>PSD-M</u> <u>(20.1 in)</u>
2006	78	65	.
2019	82	68	.
2025	50	38	.

Table 3. Mean Total Length at age (inches) for **Largemouth Bass** from Wewoka Lake.

<u>Year</u>	<u>Age</u> <u>1</u>	<u>Age</u> <u>2</u>	<u>Age</u> <u>3</u>	<u>Age</u> <u>4</u>	<u>Age</u> <u>5</u>	<u>Age</u> <u>6</u>	<u>Age</u> <u>7</u>	<u>Age</u> <u>8</u>	<u>Age</u> <u>9</u>	<u>Age</u> <u>10</u>	<u>Age</u> <u>11</u>	<u>Age</u> <u>12</u>
2019	4.0	10.8	13.6	15.7	18.1	17.5	17.9	18.0	.	.	.	.
2025	.	9.7	15.5	16.0	.	.	.	.	.	.	.	.

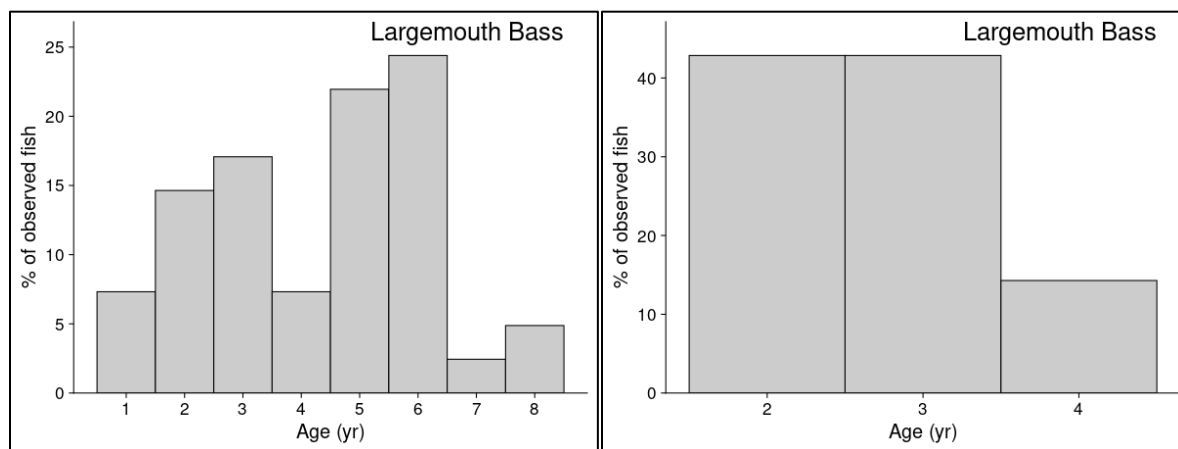


Figure 3. 2019 (Left) and 2025 (Right) Age Frequency of Largemouth Bass.

Spotted Bass

Spotted Bass were surveyed in spring of 2025 by means of boat electrofishing. A total of six randomly selected shoreline units were sampled. Overall Spotted Bass abundance decreased from 2019 (CPUE= 8.0) to 2025 (CPUE = 6.0) (Table 4). Relative weights (W_r) also saw a slight decrease in all size classes sampled (Table 4). The largest fish sampled from the 2025 survey measured 16.3 (in) in total length and 1.8 (lbs) in weight.

Spotted Bass typically grow slower and obtain smaller sizes than Largemouth Bass but they compete for the same food source. While the relative abundance of Spotted Bass decreased, for management reasons, low abundance of is preferred. Ultimately, sample size was considered too small and variation between sites was too high to make reliable conclusions. Only 6 Spotted Bass were collected. A more thorough electrofishing survey is recommended for the spring of 2026.

Table 4. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Spotted Bass collected by spring electrofishing from Wewoka Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	Stock 7.1 in		Quality 11 in		Preferred 13.8 in		Memorable 16.9 in		Trophy 20.1	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
<u>2006</u>	163	108.7	36.0	88	17.3	91	16.0	93	.	.	.	.
<u>2019</u>	8	8.0	1.0	90	3.0	89	1.0	99	.	.	.	.
<u>2025</u>	6	6.0	2.0	89	.	.	4.0	88	.	.	.	.

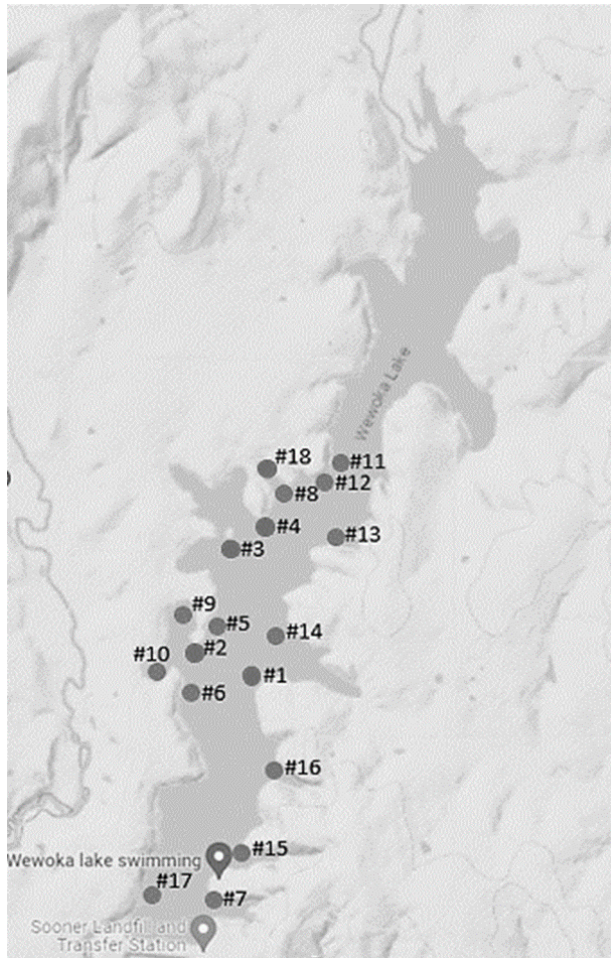
RECCOMENDATIONS

1. Conduct an Electrofishing survey in the spring of 2026 to monitor trends in the Black Bass populations.

Appendix 1. Species, number and size of fish stocked in Wewoka Lake since 2005.

Date	Species	Number	Size (inches)
2005	Saugeye	8,550	1.7
2006	Saugeye	9,000	1.75
2008	Saugeye	9,495	1.5
2009	Saugeye	9,126	2
2012	Saugeye	7,863	1.5
2013	Saugeye	8,000	1.5
2014	Saugeye	7,800	2.25
2015	Saugeye	8,800	2
2016	Saugeye	17,160	1.5
2019	Saugeye	20,250	1.5
2021	Saugeye	8,510	2
2023	Saugeye	8,008	1.7
2025	Saugeye	7,488	1.5

Appendix 2. Wewoka Lake Fish Attractor Locations



Fish Attractor Site Information for Wewoka Lake.

Site #	Latitude	Longitude	Marked	Habitat Type	Bank Access	Date
#1	35.19118	-96.52082	N	Cedar Trees, Spider Blocks	N	9/2/2010
#2	35.19167	-96.52367	Y	Spider Blocks	N	9/2/2010
#3	35.1957	-96.52162	Y	Spider Blocks	N	9/2/2010
#4	35.19633	-96.5206	N	Spider Blocks	N	9/2/2010
#5	35.19169	-96.52311	N	Cedar Trees	Y	2/10/2022
#6	35.19046	-96.52397	N	Cedar Trees	Y	2/10/2022
#7	35.18184	-96.52204	N	Cedar Trees	Y	2/10/2022
#8	35.19776	-96.51984	N	Cedar Trees	Y	2/10/2022
#9	35.19286	-96.52391	N	Cedar Trees	Y	2/10/2022
#10	35.19084	-96.52507	N	Cedar Trees	Y	2/10/2022
#11	35.1989	-96.51711	N	Cedar Trees	Y	2/10/2022
#12	35.19848	-96.51723	N	Cedar Trees	Y	2/10/2022
#13	35.1959	-96.517	N	Cedar Trees	Y	2/10/2022
#14	35.19137	-96.52107	N	Cedar Trees	N	2/10/2022
#15	35.18384	-96.52123	N	Cedar Trees	Y	2/10/2022
#16	35.18701	-96.52025	N	Cedar Trees	Y	2/10/2022
#17	35.18226	-96.52595	N	Cedar Trees	Y	2/10/2022
#18	35.19832	-96.52007	N	Cedar Trees, Spider Blocks	Y	2/10/2022