SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

EUFAULA LAKE

2024

<p style="text-align:center">SURVEY REPORT</p>

State: Oklahoma

Project Title: Eufaula Lake Fish Management Survey Report

Period Covered: 2023-2024

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Date Prepared:

<p style="text-align:center">**Eufaula Lake**</p>

<p style="text-align:center">**ABSTRACT**</p>

Eufaula Lake was surveyed by spring electrofishing (2024) to monitor trends in the black bass population dynamics. 150 electro fishing sites were conducted in the spring of 2024, 75 of which were from previous fixed locations, while the remaining 75 were randomly selected of all habitat types lake wide. This was conducted in order to compare previous fixed sites and previous random site surveys with 2024 data. Largemouth Bass, Spotted Bass, and Smallmouth Bass relative abundance decreased compared to the previous surveys. While abundance was lower than desired for Largemouth Bass, their size structure appeared balanced through most size classes. Central Pool had the highest Largemouth Bass catch rates when compared between arms, but South Canadian arm had the highest abundance greater than 15 inches.

INTRODUCTION

Eufaula Lake impounds the Deep Fork River, North Canadian River, South Canadian River and Gaines Creek. The dam is located 12 miles east of the City of Eufaula in McIntosh County, Oklahoma. Eufaula Lake covers 102,500 surface acres and was constructed in 1964. It is operated by the United States Army Corps of Engineers (USACE) for the purposes of flood control, water supply, hydroelectric power and navigation. Lake Eufaula has a mean depth of 23 feet and a maximum depth of 87 feet, a shoreline development ratio of 13.4, and a water exchange rate of 1.8. Secchi disc visibility ranges from about 50 (in) in the central pool in August to about 12 (in) in the Gaines Creek arm; turbidity is mainly from suspended clay in less clear areas of the lake. Fish habitat consists primarily of flooded timber and rock in some areas of the lake. Water willow has become established in some areas of the lake in recent years. Approximately six miles of shoreline having little or no habitat was planted with water willow in 2003; however, additional plantings have not been conducted.

Reservoir-strain Smallmouth Bass were first stocked in 1992 and continued through 1998 with fish distributed in eight areas of the lake where there was suitable habitat. The fish were reared in a series of nursery ponds operated in conjunction with the now defunct Fishermen's Association of Oklahoma (FAO). Stocking were discontinued when natural reproduction was confirmed. Smallmouth Bass abundance have declined significantly in recent years, likely due to water elevation and condition during and after spring spawning.

Florida largemouth bass were first stocked in mid-2000's (Appendix 1), in areas having suitable habitat. Currently the goal is to stock Florida largemouth bass in Eufaula Lake on a biannual basis. This varies based on available fry from the hatchery section. Stockings are now focused in the Duchess Creek, Porum, Broken Cove and Longtown Cove areas.

The most recent Fish Health Survey was conducted in early 2019, no new pathogens of concern were found in the tested fish (Largemouth Bass, Gizzard Shad, White Crappie, Common Carp, Blue Catfish and White Bass). Largemouth Bass Virus (LMBV) was confirmed, however, it was expected to be found based on the results of previous testing. LMBV was first detected in Eufaula Lake in 2001. Then found in subsequent testing in 2002 and 2003. White Crappie were surveyed in 2011 with no pathogens of concern found. Paddlefish were surveyed in 2014 with no pathogens of concerns found (ODWC Fish Health Survey Report 2019).

The Arkansas River basin has been identified as a major pathway for the introduction of aquatic nuisance species. Due to its proximity to the McClellan Kerr Arkansas River Navigation System, Eufaula Lake is particularly vulnerable to the transport of invasive species by boaters. Zebra Mussels, salvinia, and water hyacinth have been confirmed in Eufaula Lake.

Fluctuating water levels and deteriorating fish habitat are major lake management problems. Most game fish populations have fluctuated in abundance over the years due mostly to year-class strengths being affected by success of reproduction and/or recruitment. Boom and bust cycles are not uncommon and can be attributed to periods of unfavorable water conditions. High and stable spring (April - May) water levels improve spawning success. A summer rise (June-Aug) of 1-2 ft. in water levels provides escape cover for newly spawned fish and improves their survival and recruitment. Water levels over an elevation of 586 ft. during these time periods should help to increase crappie and bass populations. Studies at Eufaula Lake have shown that high mortality occurs with greater water level fluctuations for young of year fish. Largemouth Bass had doubled in abundance following

implementation of a water level plan in 1985. However, their abundance declined considerably following 2000 due to poor recruitment, Largemouth Bass Virus disease and the cancellation of a lake level manipulation plan.

In 2007 congress passed legislations "Section 3133(b)(1) of the Water Resources Development Act of 2007" requiring the development of the "Lake Eufaula Advisory Committee" (LEAC) with a purpose of *"The Committee shall provide information and recommendations to the Secretary of Defense through the Secretary of the Army, the Assistant Secretary of the Army for Civil Works, and the U.S. Army Corps of Engineers ("the Corps"), regarding the operations of Lake Eufaula for the project purposes for Lake Eufaula. According to section 3133(a) of the 2007 WRDA, the Lake Eufaula project goal is to maximize the use of available storage in a balanced approach that incorporates advice from representatives from all the project purposes to ensure that the full value of the reservoir is realized by the United States. To achieve this goal, recreation is recognized as a project purpose at Lake Eufaula, pursuant to section 4 of the Flood Control Act of December 22, 1944 (58 Stat. 889)".* The committee was officially formed in 2015 and was administratively disbanded in 2018 after accomplishing its purpose.

Based on the recommendation of the LEAC, no lake level manipulation plan should be implemented, and no reallocation study should occur. However, in the interest of recreation with an added benefit to the fishery, the LEAC recommended changing release methods to hydropower only when the lake is between elevations of 585 and 587 during the months of May- September. The USACE partially agreed, stating "flood events are unpredictable and this will be implemented when circumstances allow. Safety of the public, flows, rainfall amounts, lower Arkansas River evacuation needs, must be considered during each flood before a decision is made to implement. When conditions allow, the Tulsa District will use this recommendation for release of flood waters. The estimated time this will occur is approximately 20%".

Fish attractor habitat sites have increased from 25 locations on the lake in 2005, to rough 200 listed sites in 2020. Many of the sites need to be refurbished and buoys inspected. Maintaining that volume of sites on a lake the size of Eufaula is nearly impossible with the limited manpower. It is recommended to reduce the number of sites containing cedar trees to no more than 100. It would then be feasible to maintain all brush piles at Eufaula Lake on a five-year rotation. It is also recommended to increase the number and type of artificial structures, since they do not degrade over time. In 2023, with cooperation between ODWC and the city of Eufaula, a large-scale habitat enhancement project utilizing artificial structures was initiated. The City of Eufaula donated $10,000 to ODWC which was then matched at 3:1 for a total of $40,000. The City of Eufaula pledged to the funds for a total of five years. During the first year of the project (2023 funds, habitat completed early 2024) a total of 117 Shelbyville cubes and 68 Mossback structures were placed in 58 different locations. In addition, the Major League Fishing Organization donated $10,000 worth of Mossback structures which were placed at Eufaula cove as recovery habitat for tournament caught fish. In 2024, the City of Eufaula donated $12,000 and an individual angler donated $5,000 for a total of $17,000 in donations and $68,000 for habitat enhancement.

A Creel survey of Eufaula Lake was conducted from 2010 to 2014. A total of 4,328 anglers were interviewed between March and June of 2010 to 2014 and indicated that the majority of anglers (58 %) targeted Crappie. The remaining pressure was split among Blue Catfish anglers (14 %), Largemouth Bass anglers (15 %), Channel Catfish anglers (6 %), White Bass anglers (4 %), Flathead Catfish anglers (1 %), Smallmouth Bass anglers (0.3 %), and any species (1 %). Overall, approximately 78,069 fishermen visited Eufaula from March to June and spent a total of 394,325 hours on the water.

As of 2005 boating access development projects have been completed at nine locations, by 2020 an additional three were completed. As of 2020, the Crowder boat dock (2005), Deep Fork boat ramp (2006), and the South Point (Peters Point)(Nichols Point) boat ramp and asphalt parking lot (2016) are the only projects still within their considered useful life (20 years) that receive annual inspections and required maintenance.

<center>**RESULTS**</center>

Largemouth Bass

Largemouth Bass (LMB) were surveyed in the spring of 2024 by means of boat electrofishing. A total of 150 sites were surveyed for a period of 10 minutes each. The sites were further stratified by lake arm (Gaines Creek, Deep Fork, North Canadian, South Canadian, and Central Pool) with a total of 30 sites each. Of those 30 sites 15 sites were randomly selected to include all habitat types and locations within the respective arm, the remaining 15 sites sampled were from historically fixed sites. Past electrofishing survey methods changed various times preventing true comparability between electrofishing surveys. We chose to conduct this survey in a manner where we can compare past fixed site surveys with the 75 fixed sites from 2024, the past random location survey with the 75 randomly selected sites from 2024, and to combine the samples to analyze a total of 150 sites from this single 2024 survey. We will also be able to compare arms of the lake.

When comparing the 75 fixed site locations lake wide to the past fixed site survey in 2016, LMB abundance, catch per unit of effort (CPUE) decreased significantly in 2024 (CPUE=36.4) compared to 2016 (CPUE=65.8) (Table 1). A decrease was observed in all size classes present. Abundance of substock size fish (CPUE=8.6) was lower than desired. Relative weights also showed a slight decrease in all size classes except for preferred size fish, though they all remained above acceptable values except for memorable size class (Wr=76) (Table 1).

When comparing the 75 randomly selected sites containing all habitat types from 2024 to the last randomly selected survey in 2020, a decrease in catch rates occurred. The 2024 survey (CPUE=18.8) also showed a significant decrease compared to 2020 (CPUE=29.6). Abundance decreased for all size classes except for memorable size fish where a slight increase was observed in 2024 (CPUE=0.2) compared to 2020 (CPUE=0.1). A slight decrease in relative was observed in all size classes present except for memorable size fish (Wr=105), however, all size classes remained above acceptable values (Table 2).

When all 150 sites (75 fixed, 75 random) were combined and analyzed the total catch rate was CPUE=27.6, with low abundance of substock size fish (CPUE=6.8) (Table 3). Relative weights were considered acceptable for all size classes except for memorable size fish (Wr=86). Length frequency histograms for all three are similar in size structure and show a relatively even distribution of sizes (Figure 1). Overall Proportional Size Distribution (PSD) indicated a slight decrease for quality and preferred size classes from 2024 (PSD-Q=65, PSD-P=27), compared to 2021 (PSD-Q= 76, PSD-P=30) indicating a slight decrease in size structure (Table 4). No change occurred for memorable size class (PSD-M=1). While a slight decrease was observed, it was still within range to be considered a balanced population. The largest fish sampled measured 23.1 (in) in total length and 7.5 (lbs) in weight.

It is important to note that 2008, 2010, 2016 and 75 locations of the 2024 surveys were fixed sites of good to quality habitat in all arms, whereas the 2020 and 75 sites in the 2024 surveys were randomized sample of all habitat types across the entire lake. Comparisons cannot be made between the two different sample types and locations. Any assumptions made should be carefully considered. While Eufaula has localized areas of quality habitat, it also has vast areas of poor habitat.

Age data was collected on a total of 192 Largemouth Bass from the 2023 DNA collection and 413 Largemouth Bass from the 2024 survey. Largemouth Bass growth rates had increased slightly according to age data from the 2023 DNA sample and the 2024 survey. In 2024 Largemouth Bass grew to a mean length of 11.7 inches by age three and 15.8 inches by age four (Table 5). Growth slowly but steadily increased reaching a mean length of 20.6 inches by age ten. The 2024 Age Frequency indicates a strong 2023 (age one) and 2022 (age two) year classes were present (Figure 2). The oldest Largemouth Bass sampled was ten years of age.

Florida largemouth bass (FLMB) are stocked periodically in Eufaula Lake in an effort to introduce FLMB genetics into the bass population, the most recent stocking occurred in 2024 with 119,963 fingerlings (Appendix 1). FLMB will grow quicker and larger than native Northern largemouth bass, given enough forage and the right conditions within the system. Largemouth Bass genetics were sampled in the spring of 2023 to determine the extent to which the FLMB genetics integrated into the population. Unfortunately, results have been delayed and will be reported once they are received.

Largemouth Bass were also be compared between arms during the 2024 survey, when comparing both random and fixed sites, relative abundance varied greatly. Central Pool had the highest total catch rate (CPUE=46.0) and followed by North Canadian arm (CPUE=36.0), South Canadian (CPUE=26.4), Gaines Creek (CPUE=18.4), and finally Deep Fork arm (CPUE=11.2) (Table 6). While Central Pool had highest total abundance, the South Canadian had highest catch rate of LMB over greater than 15 inches (CPUE=8.0), then followed by North Canadian (CPUE=7.6) and then Central Pool (CPUE=7.2).

Largemouth Bass abundance decreased, relative weights decreased slightly for most size classes and growth rates were moderate reaching 15.8 inches by age four. Relative abundance was lower than desired for substock size fish. While abundance had decreased, body conditions were acceptable for most size classes. While fixed site comparison showed a higher catch rate its important to note that those sites have been historically picked for the better habitat present and therefore should collect more fish during the survey. Quality LMB fishery can be found in areas of quality habitat, and quality habitat is more prevalent in the Central Pool, North Canadian, and South Canadian Arms. Largemouth Bass regulations at Eufaula Lake have historically followed statewide regulations. Statewide regulations changed in 2022 from a creel of six Smallmouth and Largemouth Bass combined with a 14-inch minimum to a creel of six Smallmouth and Largemouth Bass combined, where only one may be larger than 16 inches. Eufaula Lake no longer has a minimum length limit.

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 Eufaula Lake. Sample sites were **fixed** on areas of quality habitat. Acceptable Wr values are $\geq$90.

		Total CPUE	Substock 0-7.8 in	Stock 7.9 in		Quality 11.8 in		Preferred 15 in		Memorable 20.1 in		Trophy 24.8 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2008	881	88.1	33.8	28.8	92	14.7	95	10.1	95	0.7	98	.	.
2010	860	84.0	32.6	16.4	89	16.9	94	18.2	97	0.4	101	.	.
2016	998	65.8	9.2	24.1	96	16.3	98	15.0	95	0.9	91	.	.
2024	455	36.4	8.6	9.6	93	11.1	97	6.8	98	0.3	76	.	.

Table 2. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Largemouth Bass collected by **spring electrofishing** from Eufaula Lake. Sample sites were **randomly** selected from all habitat types. Acceptable Wr values are $\geq$90.

		Total CPUE	Substock 0-7.8 in	Stock 7.9 in		Quality 11.8 in		Preferred 15 in		Memorable 20.1 in		Trophy 24.8 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2020	439	29.6	5.9	5.5	101	10.9	103	6.8	101	0.1	94	.	.
2024	235	18.8	5.0	5.0	97	4.8	98	3.8	100	0.2	105	.	.

Table 3. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Largemouth Bass collected by **spring electrofishing** from Eufaula Lake. Sample sites contained a **combination of fixed and randomly selected** sites selected from all habitat types. Acceptable Wr values are $\geq$90.

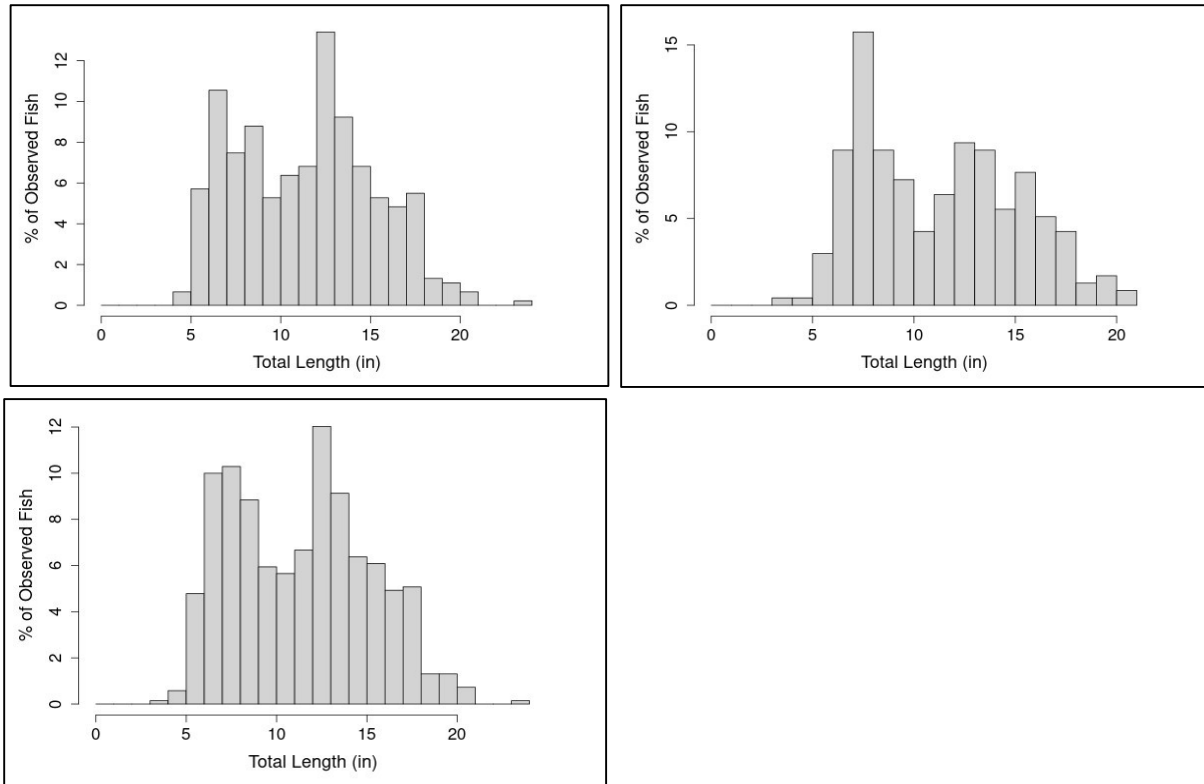|		Total CPUE	Substock 0-7.8 in	Stock 7.9 in		Quality 11.8 in		Preferred 15 in		Memorable 20.1 in		Trophy 24.8 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2024	690	27.6	6.8	7.3	95	7.8	97	5.3	99	0.2	86	.	.

Figure 1. 2024 Largemouth Bass Length Frequencies for Eufaula Lake: Fixed Sites (Top Left), Random Sites (Top Right), and Random and Fixed Combined (Lower Lerft).

Table 4. 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. Numbers in parenthesis indicate the desired range for a balanced bass population.

Year Surveyed	PSD-Q (40-70)	PSD-P (10-40)	PSD-M (0-10)
2008	47	20	1
2010	68	36	1
2016	57	28	2
2020	76	30	1
2024	65	27	1

Table 5. Mean Total Length at age (inches) for Largemouth Bass from Eufaula Lake.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12
2019 Spring Health Survey	6.9	10.5	13.3	17.6	15.5	16.2	18.3	.	.	.	.	.
2019 Fall Tournament	.	15.2	16.6	17.3	17.8	18.8	18.2	19.7	.	.	20.6	.
2020 Spring Electro	7.6	11.2	14.2	15.6	17.0	18.3	19.3	18.7	19.2	.	.	.
2021 Fall Electro	7.0	9.8	12.7	15.9	.	19.4	.	19.7	.	.	.	.
2023 Spring DNA Collection	.	12.7	14.4	16.1	16.7	17.7	19.1	.	.	.	.	.
2024 Spring Electro	7.5	11.7	14.1	15.8	17.0	17.4	18.9	19.3	19.9	20.6	.	.
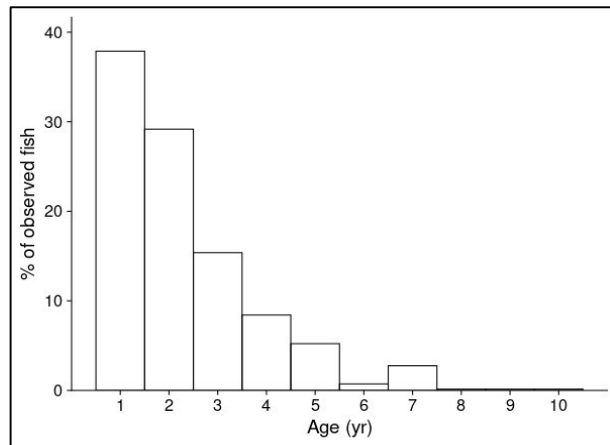
Figure 2. Age Frequency Histogram for the 2024 Electrofishing Survey.

Table 6. Largemouth Bass catch per unit of effort (CPUE) totals and $\geq$15 inches, stratified by arm. Collected by both random and fixed sites combined from the 2024 survey.

	All Arms		North Canadian		South Canadian		Central Pool		Deep Fork		Gaines Creek	
Year	**Total**	**≥15**	**Total**	**≥15**	**Total**	**≥15**	**Total**	**≥15**	**Total**	**≥15**	**Total**	**≥15**
2020	27.6	5.5	36.0	7.6	26.4	8.0	46.0	7.2	11.2	2.6	18.4	2.2

Spotted Bass

Spotted Bass were surveyed in the spring of 2024 by means of boat electrofishing. A total of 150 sites were surveyed for a period of 10 minutes each. The sites were further stratified by lake arm (Gaines Creek, Deep Fork, North Canadian, South Canadian, and Central Pool) with a total of 30 sites each. Of those 30 sites 15 sites were randomly selected to include all habitat types and locations within the

respective arm, the remaining 15 sites sampled were from historically fixed sites. Past electrofishing survey methods changed various times preventing true comparability between electrofishing surveys. We chose to conduct this survey in a manner where we can compare past fixed site surveys with the 75 fixed sites from 2024, the past random location survey with the 75 randomly selected sites from 2024, and to combine the samples to analyze a total of 150 sites from this single 2024 survey. We will also be able to compare arms of the lake.

When comparing the 75 fixed site locations lake wide to the past fixed site survey in 2016, Spotted Bass abundance decreased significantly in 2024 (CPUE=8.2) compared to 2016 (CPUE=15.4) (Table 7). A decrease was observed on all size classes present except for preferred size fish in 2024 (CPUE=1.8) compared to 2016 (CPUE=0.9). Relative weights increased for all size classes and were well above acceptable values (Table 7).

When comparing the 75 randomly selected sites containing all habitat types from 2024 to the last randomly selected survey in 2020, a slight decrease in catch rates occurred. The 2024 survey (CPUE=6.2) indicated a slight decrease in total abundance compared to 2020 (CPUE=10.7). Abundance decreased for all size classes except for stock size fish where a slight increase was observed in 2024 (CPUE=2.0) compared to 2020 (CPUE=1.1). A slight increase in relative weights occurred in all size classes present except for quality size fish, however, all size classes remained above acceptable values (Table 8).

When all 150 sites (75 fixed, 75 random) were combined and analyzed a low relative abundance was observed (CPUE=7.2) (Table 9). Relative weights were considered acceptable for all size classes present. Length frequency histograms for the Spotted Bass also show a balanced size structure and relatively even distribution across all sizes (Figure 3). The largest fish sampled measured 16.6 (in) in total length and 2.5 (lbs) in weight.

It is important to note that 2008, 2010, 2016 and 75 locations of the 2024 surveys were fixed sites of good to quality habitat in all arms, whereas the 2020 and 75 sites in the 2024 surveys were randomized sample of all habitat types across the entire lake. Comparisons cannot be made between the two different sample types and locations. Any assumptions made should be carefully considered. While Eufaula has localized areas of quality habitat, it also has vast areas of poor habitat.

Age data was collected on a subset of Spotted Bass from the 2024 survey. Spotted Bass growth rates decreased slightly in 2024 compared to 2020. In 2024 Spotted Bass grew to a mean length of 10.7 inches by age two and 13.9 inches by age five (Table 10). The 2024 Age Frequency indicated strong 2023 (age one) and 2022 (age two) year classes were present (Figure 4). The oldest Spotted Bass sampled was five years of age.

Spotted Bass were also compared between arms during the 2024 survey, when comparing both random and fixed sites, relative abundance varied greatly. Differing from the LMB results, Spotted Bass had the highest catch rates in the Gaines Creek (CPUE=15.0) arm, followed by Central Pool (CPUE=9.8), South Canadian (CPUE=7.6), North Canadian (CPUE=2.6) and finally the Deep Fork (CPUE=1.6) arm (Table 11). While Gaines Creek had the highest total abundance, Central Pool had the highest catch rate of Spotted Bass over greater than 14 inches (CPUE=1.4), then followed by South Canadian (CPUE=1.2).

Spotted Bass abundance decreased along with their growth rates. Spotted Bass typically grow slower and obtain smaller sizes than Largemouth Bass but they compete for the same food source. For management reasons, a low abundance of Spotted Bass is preferred. Spotted Bass have no minimum length limit, harvest is encouraged.

Table 7. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Spotted Bass collected by **spring electrofishing** from Eufaula Lake. Sample sites were **fixed** on areas of quality habitat. Acceptable Wr values are ≥90.

		Total CPUE	Substock 0-7 in	Stock 7.1 in		Quality 11 in		Preferred 13.8 in		Memorable 16.9 in		Trophy 20.1 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2008	203	20.3	4.4	8.9	92	4.4	90	2.5	89	0.1	89	.	.
2010	267	26.1	14.7	4.7	90	4.2	92	2.4	93	.	.	.	.
2016	234	15.4	2.8	5.9	94	5.8	91	0.9	94	.	.	.	.
2024	102	8.2	1.6	2.7	97	2.0	97	1.8	100	.	.	.	.

Table 8. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Spotted Bass collected by **spring electrofishing** from Eufaula Lake. Sample sites were **randomly** selected from all habitat types.   Acceptable Wr values are ≥90.

		Total CPUE	Substock 0-7 in	Stock 7.1 in		Quality 11 in		Preferred 13.8 in		Memorable 16.9 in		Trophy 20.1 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2020	159	10.7	3.5	1.1	99	4.5	102	1.5	101	.	.	.	.
2024	78	6.2	2.6	2.0	106	1.4	98	0.2	110	.	.	.	.

Table 9. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Spotted Bass collected by **spring electrofishing** from Eufaula Lake. Sample sites contained a **combination of fixed and randomly selected** sites selected from all habitat types. Acceptable Wr values are ≥90.

		Total CPUE	Substock 0-7 in	Stock 7.1 in		Quality 11 in		Preferred 13.8 in		Memorable 16.9 in		Trophy 20.1 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2024	180	7.2	2.1	2.4	101	1.7	98	1.4	102	.	.	.	.

Table 10. Mean Total Length at age (inches) for Spotted Bass from Eufaula Lake.

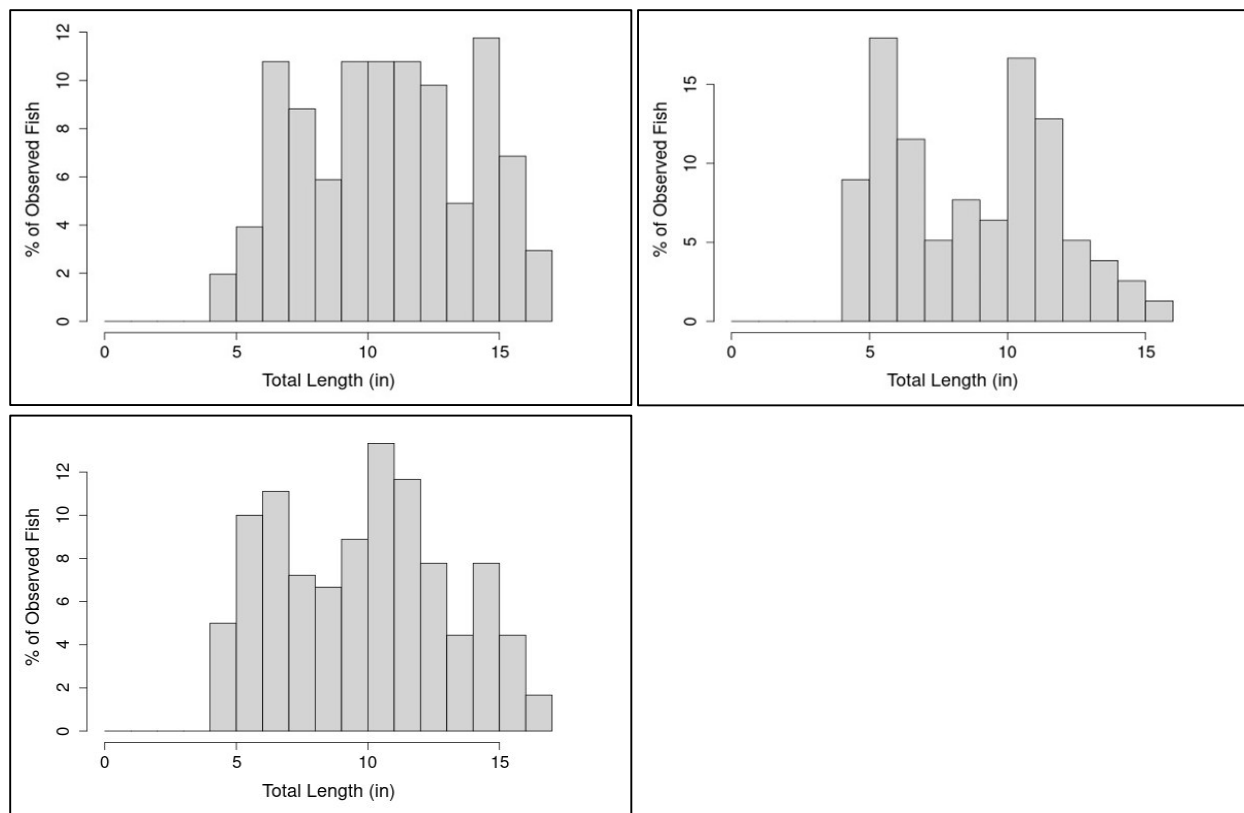| Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9
2020	5.9	11.7	13.2	13.1	16.9	15.2	.	.	.
2024	6.1	10.6	11.3	13.8	13.9	.	.	.	.

Figure 3. 2024 Spotted Bass Length Frequencies for Eufaula Lake: Fixed Sites (Top Left), Random Sites (Top Right), and Random and Fixed Combined (Lower Lerft).
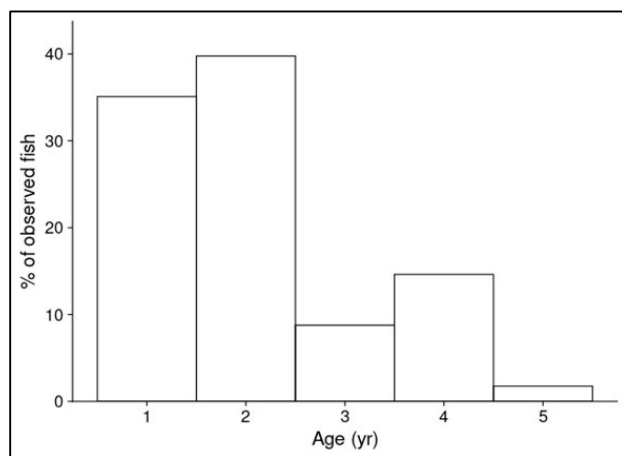

Figure 4. Age Frequency Histogram 2024

Table 11. Spotted Bass catch per unit of effort (CPUE) totals and >14 inches, stratified by arm. Collected by both random and fixed sites combined from the 2024 survey.

	All Arms		North Canadian		South Canadian		Central Pool		Deep Fork		Gaines Creek	
Year	Total	>14	Total	>14	Total	>14	Total	>14	Total	>14	Total	>14
2020	7.2	1.4	2.4	1.0	7.6	1.2	9.8	1.4	1.6	0.2	15.0	1.0

Smallmouth Bass

Smallmouth Bass were surveyed in the spring of 2024 by means of boat electrofishing. A total of 150 sites were surveyed for a period of 10 minutes each. The sites were further stratified by lake arm (Gaines Creek, Deep Fork, North Canadian, South Canadian, and Central Pool) with a total of 30 sites each. Of those 30 sites 15 sites were randomly selected to include all habitat types and locations within the respective arm, the remaining 15 sites sampled were from historically fixed sites. Past electrofishing survey methods changed various times preventing true comparability between electrofishing surveys. We chose to conduct this survey in a manner where we can compare past fixed site surveys with the 75 fixed sites from 2024, the past random location survey with the 75 randomly selected sites from 2024, and to combine the samples to analyze a total of 150 sites from this single 2024 survey. We will also be able to compare arms of the lake.

Only two fish were collected in the 2024 survey. Both were collected in the South Canadian arm on a fixed historical site. One Smallmouth Bass was measured in the quality size class and had excellent body condition (Wr=96). The other one was in the preferred size class and was in poor body condition (Wr=79). The largest fish surveyed measured 15.4 (in) in total length and weighed 1.6 (lbs.) in weight. No age data was collected.

Smallmouth Bass numbers have declined significantly over the years, likely due to water elevation and condition during and after spring spawning. Reservoir-strain Smallmouth Bass were first stocked into the lake in 1992. Stockings continued through 1998 with fish distributed to suitable habitat in eight areas of the lake. The fish were reared in a series of nursery ponds operated in conjunction with the now defunct Fishermen's Association of Oklahoma (FAO). Stockings were discontinued when natural reproduction was confirmed. Smallmouth Bass in Eufaula Lake have failed to maintain a fishable population.

Appendix 1. Species, number and size of fish stocked in Eufaula Lake since 2000.

Date	Species	Number	Size (inches)
2001	Threadfin Shad	3,000	2.5
2002	Threadfin Shad	215,040	1.25
2004	Florida Largemouth Bass	147,825	1.5
2005	Florida Largemouth Bass	100,071	1.5
2007	Paddlefish	1,028	20
2009	Paddlefish	41,056	18
2010	Paddlefish	17,041	11-18
	Threadfin Shad	13,600	3
2011	Paddlefish	9,206	12-24
2012	Paddlefish	47,648	11-17
2013	Paddlefish	38,252	11-24
	Florida Largemouth Bass	111,815	1.5
2014	Florida Largemouth Bass	105,200	1.5
	Florida Largemouth Bass	367	10
2016	Paddlefish	33,146	10-12
	Florida Largemouth Bass	100,044	1.5
2017	Florida Largemouth Bass	114,492	1.5
	Alligator Gar	2,472	2-13
2018	Alligator Gar	37,440	1-24
2019	Florida Largemouth Bass	120,558	1.5
	Alligator Gar	69,061	1-9
2020	Alligator Gar	10,024	2
2021	Florida Largemouth Bass	120,086	1.5
2023	Alligator Gar	12,000	1-2
2024	Florida Largemouth Bass	119,963	1.5