

SURVEY REPORT
OKLAHOMA DEPARTMENT OF WILDLIFE
CONSERVATION



FISH MANAGEMENT SURVEY AND
RECOMMENDATIONS
FOR
Roland City LAKE
2024-2025

PERFORMANCE REPORT

State: Oklahoma

Project Title: Roland City Lake Report

Period Covered: January 1, 2024 - December 31, 2025

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ROLAND CITY LAKE

ABSTRACT

Roland City Lake was sampled in the Spring of 2025 via boat electrofishing to evaluate Largemouth Bass population structure and condition. Seven sites were selected and sampled in discrete 10-minute units of effort. Catch of largemouth bass was moderate to high in abundance ($C/f = 73.7$) but was below previous surveys. Body condition (W_r) was good for fish ≥ 12 inches ($W_r = 93$). Size structure for the lake has also shifted to larger fish from the previous survey done in 2022.

Recommendations include conducting spring electrofishing for largemouth bass in 2028 and collecting age data from a subsample of fish for growth analysis. Stockings of threadfin shad to increase forage should occur on a semi-annual basis when possible. Roland City Lake falls under the new bass regulations of six bass per day and harvest of only one fish greater than 16 inches is allowed. This new regulation should allow Roland city anglers to harvest more largemouth bass to help reduce competition and help overall bass growth.

INTRODUCTION

Garrison Creek Reservoir (Roland City Lake) is a 65-acre lake that was impounded in 1999 by the city of Roland as a water supply. Garrison creek flows directly into the Arkansas River after a 9-mile journey. Water clarity is moderate with a secchi disk range of 4-6 feet. Average depth is 12 feet with the deepest parts reaching in the thirty-foot range. Fish habitat consists primarily of chunk rock, riprap, and some aquatic vegetation which includes water willow and various submerged vegetation in small patches. Amenities include a large parking lot, boat ramp, fishing dock and some covered picnic tables. Port O' Potties are also on-site. Access to the lake is from dawn until dusk only. An access road, the parking lot and boat ramp were built utilizing Sportfish Restoration monies for Boating Access.

The lake is mostly known as a largemouth bass, sunfish and channel catfish fishery. In the past Garrison creek was stocked with Florida LMB and Channel catfish (Table 5). In 2016 approximately 80 spider blocks were placed around the fishing dock and in 2019 cedar trees were placed near the picnic area and marked with a buoy. In 2025, four Shelbyville Cubes were placed around the fishing dock. Habitat locations can be found on the interactive Fish Attractor Map located within the ODWC's website.

RESULTS

Largemouth Bass

1. Largemouth bass abundance for the 2025 spring electrofishing survey showed abundance to be moderate to high with a catch per unit of effort (CPUE or C/f) of 73.7 which was significantly lower than the catch rate from the 2022 survey ($C/f = 138.9$; Figure 1, Table 1). The previous high catch rates are examples of stunted populations in such a small body of water.
2. Condition as a measure of relative weight (W_r) was less than acceptable for size groups less than 12 inches, but acceptable for fish ≥ 12 inches ($W_r = 93$; Table 1). For PSD size classes, condition of Stock size was less than acceptable ($W_r = 86$) but Quality ($W_r = 93$) and Preferred ($W_r = 94$) were in good condition (Table 2). This seems to show that the lower catch rate may indicate a lower population and less competition resulting in improving fish condition. Also, Threadfin Shad was confirmed to have overwintered and may have contributed to the better growth and condition for the population.
3. Size structure of Roland Largemouth consisted mostly of stock and quality sized fish (Tables 2 and 3). Length frequencies have shifted from the 2022 sample where 8- to 13-inch fish dominated the sample, to 12- to 15-inch fish dominating in 2025 (Figure 2).
4. In 2022, age data was taken from a subsample of Largemouth Bass in Roland City Lake. Largemouth growth was relatively slow, taking up to 5 years to recruit into the harvestable population (Table 4). This slow growth however was not reflected in the body condition of the bass which was at acceptable levels for every size category except stock (Table 2). This could be attributed to the 2021 stocking of Threadfin Shad, which were confirmed to have overwintered during the 2022 electrofishing survey.
5. Proportional size distribution ranges fall within balanced levels for Quality and Preferred size groups (Table 3). Biggest fish of the 2025 survey measured 19.06 inches and weighed 3.75 pounds.

RECOMMENDATIONS

Habitat

1. In 2016 approximately 80 spider blocks were placed around the fishing dock and in 2019 cedar trees were placed near the picnic area and marked with a buoy.
2. Artificial fish attractor habitat structures known as Shelbyville Cubes were placed in Roland Lake in 2025.
3. Locations for additional habitat structures will be considered in 2028 or 2029 as materials become available.

Fish Stockings

1. Most recent fish stockings are listed in Table 5.
2. Threadfin shad should be stocked on a semi-annual basis to continue supplementing forage for sportfish in the Roland Lake.
3. No other fish stockings are currently recommended.

Fish Surveys

1. Spring boat electrofishing surveys for Largemouth Bass should be conducted in 2028 to evaluate population abundance and condition.
2. Otoliths should be collected from a subsample of Bass to determine growth rates and mortality for the population.

Fishing Regulations

1. Prohibited fishing methods: trotline, throwline, jugline, limblime, yo-yo, bow and arrow, gigging, grab hook, spear and speargun, snagging, noodling, netting, seining, cast netting, trawls, and dip nets.
2. Species regulations:
 - a. Bass (all species): same as statewide regulation (limit 6 fish per day, only 1 over 16 inches)
 - b. Catfish (all species): limit 4 per day, 20-inch minimum
 - c. Sunfish (all species): limit 20 per day
 - d. Crappie (White and Black): limit 20 per day
3. No new regulations are currently recommended.

Table 1. Total number (No.), catch rates (C/f), and relative weights (Wr) by size groups of **Largemouth Bass** collected by spring boat electrofishing from Roland City Lake. Numbers in parenthesis represent acceptable C/f values for a quality fishery. Acceptable relative weights are ≥ 90 .

Year	Total (>40)		<200 mm (15-45)		200-330 mm (15-30)		≥ 300 mm (≥ 15)		≥ 356 mm (≥ 10)		≥ 406 mm (≥ 10)	
	No.	C/f	C/f	Wr	C/f	Wr	C/f	Wr	C/f	Wr	C/f	Wr
2003	140	93.3	19.3	82	60.7	79	13.3	93	8.7	100	7.3	101
2004	117	93.6	28.0	90	40.8	81	26.4	86	12.8	92	9.6	95
2005	136	136.0	73.0	86	42.0	83	31.0	82	10.0	84	12.0	82
2008	180	144.0	17.6	103	87.2	84	39.2	82	14.4	83	4.8	84
2013	176	264.0	75.0	85	162.0	82	78.0	84	21.0	90	9.0	83
2015	197	236.4	45.6	78	141.6	80	88.8	82	31.2	85	18.0	90
2019	209	156.8	42.8	73	84.0	80	41.3	88	25.5	90	16.5	92
2022	162	138.9	22.3	77	67.7	87	66.0	94	32.6	96	21.4	99
2025	86	73.7	0.86	-	23.1	87	64.3	93	33.4	94	7.7	96

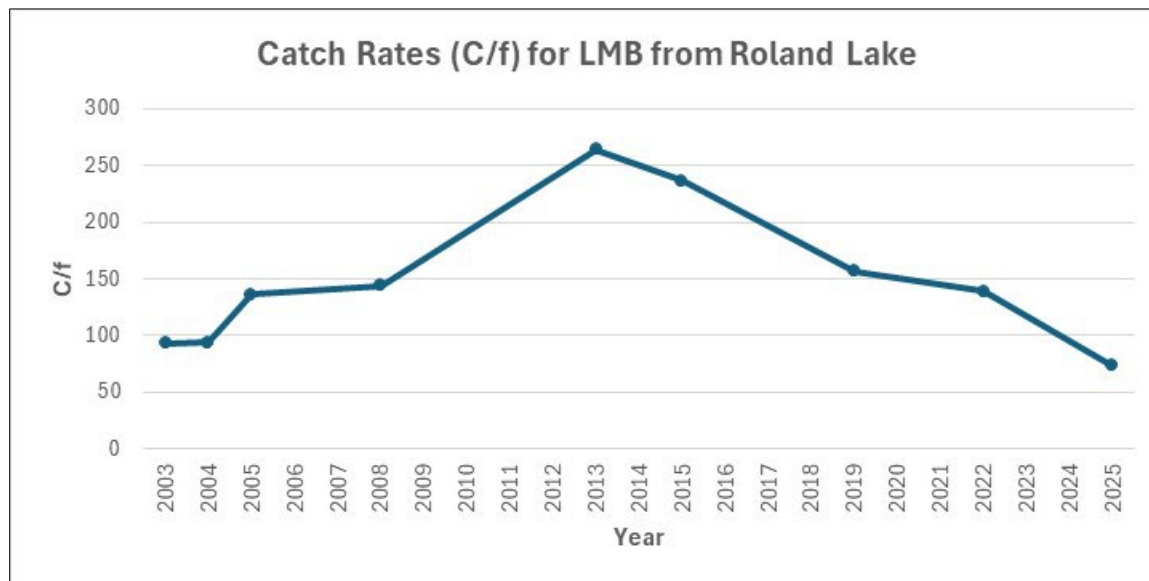


Figure 1. Roland city Largemouth Bass catch rate (C/f) trend, 2003 - 2025.

Table 2. Total number (No.), catch per unit effort (CPUE), and relative weights (Wr) by **PSD** size groups of **Largemouth Bass** collected by spring electrofishing from Roland City Lake. Acceptable Wr values are ≥ 90 (OFAT analysis).

Year	No.	Total		Substock 0-7.8 in		Stock 7.9 in		Quality 11.8 in		Preferred 15 in		Memorable 20.1 in		Trophy 24.8	
		CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2015	172	238	82	44.4	82	94.8	82	74.4	82	20.4	84	2.4	.	.	.
2019	172	156	85	42	85	71.3	82	21	85	16.5	88	5.3	93	.	97
2022	162	138	93	22.3	88	48.9	88	41.1	93	15.4	96	11.1	96	.	.
2025	86	73.7	93	0.9	86	6.9	86	45.4	93	20.6	94	-	-	-	-

Table 3. Roland Largemouth Bass Proportional Size Distribution: PSD

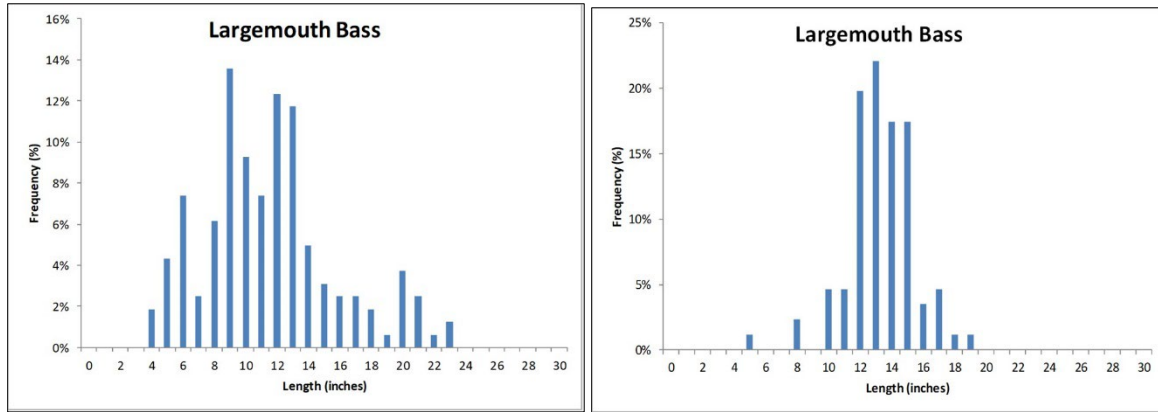
Year	PSD-Q	PSD-P	PSD-M
2013	45	8	-
2015	51	12	1
2019	38	20	5
2022	58	23	10
2025	62	28	-

Balanced PSD Values

PSD-Q 40-70

PSD-P 10-40

PSD-M 0-10

**Figure 2.** Length frequency histograms for Largemouth Bass sampled in 2022 and 2025 from Rolan City Lake.**Table 4.** Roland City Lake Largemouth Bass mean-length-at-age.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 13
2008	6.22	9.17	11.4	12.6	13.6	13.93	14.07	14.56	14.6	-
2015	8.9	11.3	12.3	13.4	15.8	16.3	-	-	-	-
2019	5.54	9.07	10.78	13.46	17.49	17.16	17.57	18.94	18.32	-
2022	6.53	9.46	11.5	13.6	13.9	17.4	17.4	21.3	20.6	23.4

Table 5. Roland City Lake stocking history.

Year	Species	Number	Size
1999	Channel catfish	6,020	4.5"
1999	BGS x RES hybrids	75,000	1.25"
1999	Certified FLMB	1,500	3.0"
2000	Certified FLMB	3,600	3.0"
2000	Channel catfish	3,600	7.0"
2000	Bluegill	61,000	1.0"
2001	Certified FLMB	1,260	3.0"
2001	Channel catfish	3,610	7.0"
2017	Channel catfish	3460	6.25"