SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

LAKE EL RENO

2024

SURVEY REPORT

State: Oklahoma

Project Title: Lake El Reno Fish Management Survey Report

Period Covered: 2024

Prepared by: Oklahoma Fishery Reasearch Laboratory

Date Prepared: December 2024

Lake El Reno

ABSTRACT

Lake El Reno was surveyed by fall trap netting in 2024 to monitor trends in White Crappie and Sunfish spp. populations. White Crappie and Bluegill Sunfish populations were well balanced and healthy. The fishery supports self-sustaining populations of Largemouth Bass, Channel, and Flathead Catfish, White Crappie, and a variety of Sunfish species. No regulation changes are recommended at this time.

INTRODUCTION

Lake El Reno impounds Four Mile Creek and is located on the north side of I-40 on South Country Club Road on the west side of El Reno, Canadian County, Oklahoma. It has a surface area of 170 acres, 4.40 miles of shoreline, a maximum depth of 19 feet, and was constructed in 1966. The lake has a secchi disc visibility of around 10 inches and is considered hypereutrophic. The lake serves a multiuse purpose as flood control and recreational use including fishing, boating, and camping, among other activities. Fish habitat consists of riprap jetties, and natural and artificial brush piles (predominately cedar trees with a few PVC structures around fishing docks). Aquatic vegetation is limited. Primary forage species consist of Gizzard Shad and Inland Silversides.

City enforced fishing regulations include a 6 inch minimum length/25 fish per day limit for Crappie species, 12 inch minimum length/15 fish per day limit for Blue and Channel Catfish, 20 inch minimum length/10 fish per day limit for Flathead Catfish, 14 inch minimum length/1 fish per day limit for Black Bass Species, and a 6 inch minimum length/5 fish per day limit for all other species. Fishing is permitted through rod and reel or hand line methods only. No city permit for fishing or boating is required.

Fish attractor sites have been constructed of spider blocks and brush piles to improve angler success and are periodically refurbished. Fish attractor sites were most recently refurbished in 2016 (Fish Attractors Map (arcgis.com)).

Lake El Reno has been previously surveyed by spring electrofishing (1985, 1988, 1993, 2009), fall nighttime electrofishing (1990, 1991, 1993, 1995, 1997, 1998), low-frequency electrofishing (2013), hoop netting (2021), fall gill netting (1985, 2013), and fall trap netting (2013, 2024) techniques to monitor trends in fish populations.

Aquatic Nuisance Species

There are no known ANS species in Lake El Reno.

RESULTS

Fall Trap Net (Gear 31)

Overview

Crappie were sampled at Lake El Reno, El Reno, OK using gear 31 from October 30-31, 2024. The average water temperature was 19.1 C. Sites were randomly chosen as specified by SSP for a total of 383 hours of effort.

White Crappie

A total of 848 White Crappie were captured and no Black Crappie were observed during sampling. The mean total length (TL) of White Crappie sampled was 175 mm with a range of 60-307 mm (Figure 1). The mean catch per unit effort (CPUE) of White Crappie was 53.4 with a SE of 11.7 and relative standard error (RSE) of 22.0. The lower and upper 95% confidence interval (CI) values were 30.4 and 76.4 respectively (Table 1). Substock, stock, quality, and preferred sized fish had mean CPUEs ranging from 5.2-26.4 and standard error (SE) ranging 1.5-10.1 (Table 1). Stock sized fish had the highest mean CPUE (26.4) with a SE of 3.7 and RSE of 14.0 (Table 1).

A total of 393 crappie were aged, ranging from 0-3 years of age. Approximately 80% of fish were age-0 and -1. The mean TL at age-0 = 94 mm, age-1 = 174 mm, age-2 = 245 mm, and age-3 = 281 mm. The overall mean relative weight (Wr) of crappie in El Reno Lake was 100.5, all Wr for all size categories were above 95 (Table 2). A von Bertalanffy growth curve predicted a L_∞ of 662 mm, a growth coefficient (K) of 0.2, and a t_0 -1.0 (Figure 2). A catch-curve regression calculated an annual mortality (A) of 88.7% and an instantaneous mortality (Z) of 2.2 (Figure 3).

Bluegill Sunfish

A total of 314 Bluegill Sunfish were captured during sampling. The mean TL of fish sampled was 158 mm with a range of 57-216 mm (Figure 1). The mean CPUE of Bluegill Sunfish was 20.3 with a SE of 6.3 and RSE of 31.2. The lower and upper 95% CI values were 7.9 and 32.7 respectively (Table 1). Substock, stock, quality, and preferred sized fish had mean CPUEs ranging from 0.7-12.4 and SE ranging 0.3-5.2 (Table 1). Quality sized fish had the highest mean CPUE (12.39) with a SE of 5.24 and RSE of 42.31 (Table 1).

A total of 107 Bluegill Sunfish were aged, ranging from 0-5 years of age. The mean TL at age-0 = 68 mm, age-1 = 129 mm, age-2 = 166 mm, age-3 = 187 mm, age-4 = 186 mm, and age-5 = 205 mm. The overall Wr was 106.7, all Wr for all size categories exceeded 100 (Table 2). A von Bertalanffy growth curve predicted a L_∞ of 199 mm, a growth coefficient (K) of 0.7, and a t_0 -0.6 (Figure 2). A catch-curve regression calculated an A of 42.7% and a Z of 0.6 (Figure 3).

RECOMENDATIONS

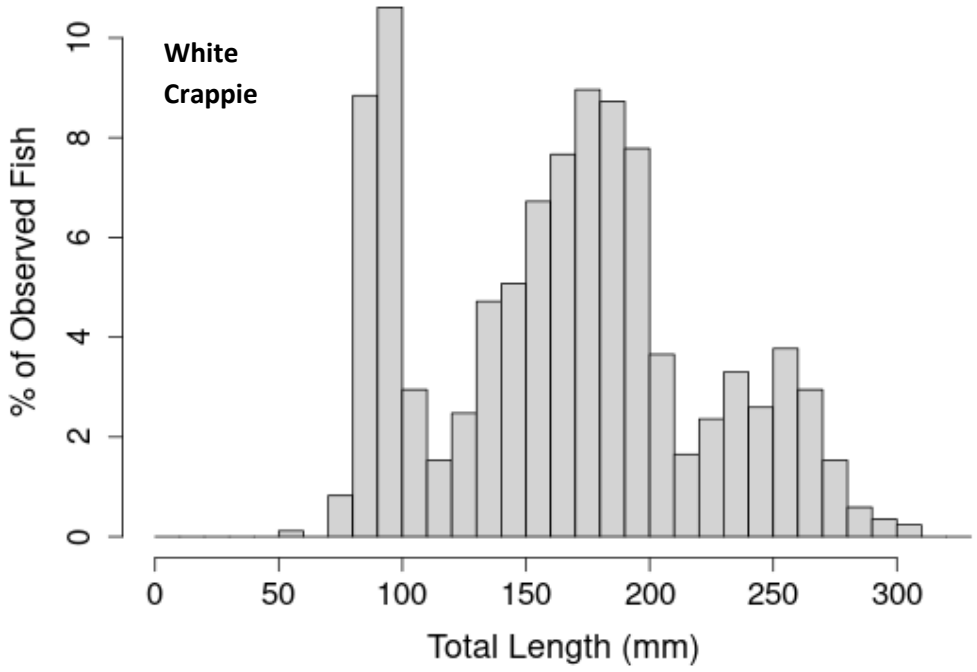
1. Continue to monitor population dynamics for self-sustaining sportfish species (Largemouth Bass, Crappie spp., White Bass, Catfish spp.).
2. The Lake El Reno Bluegill Sunfish population exhibits good growth and high relative abundance of quality size fish. The fishery should be promoted as an above average sunfish fishery.
3. No regulation changes are recommended at this time.

Table 1. Catch per unit effort (CPUE) of total sample and species size categories for White Crappie and Bluegill Sunfish from Lake El Reno.

	Mean	Count	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
El Reno								
White Crappie								
Total	53.4	15	22.0	11.7	30.4	76.4	46	18
Substock	14.3		70.7	10.1	0	34.2	480	187
Stock	26.4		14.1	3.7	17.1	33.7	19	7
Quality	7.4		18.3	1.4	4.8	10.0	32	13
Preferred	5.2		24.1	1.3	2.7	7.6	56	22
Memorable	0.1		100	0.1	0	0.4	960	375
Bluegill Sunfish								
Total	20.3	15	31.2	6.3	7.9	32.7	93	36
Substock	0.7		59.9	0.4	-0.1	1.5	344	134
Stock	6.2		25.0	1.5	3.2	9.2	60	23
Quality	12.4		42.3	5.2	2.1	22.7	172	67
Preferred	1.0		30.3	0.3	0.4	1.7	88	34

Table 2. Relative Weights (Wr) of White Crappie and Bluegill Sunfish from Lake El Reno.

	Mean	Count	CV	SE	L 95% CI	U 95% CI
El Reno						
White Crappie						
Overall	84.2	496	12.92	0.5	83.3	85.2
Substock	90.4	56	18.4	2.2	86.0	94.7
Stock	83.4	421	11.2	0.5	82.5	84.3
Quality	85.7	12	10.7	2.3	71.1	80.3
Preferred	85.4	2	25.6	17.3	61.6	129.3
Memorable	106.2	4	6.4	3.4	99.5	112.8
Bluegill Sunfish						
Overall	106.7	303	28.9	1.8	103.2	110.2
Stock	111.0	97	42.1	4.7	101.7	120.3
Quality	104.7	190	18.9	1.4	101.9	107.6
Preferred	103.4	16	5.7	1.5	100.5	106.2



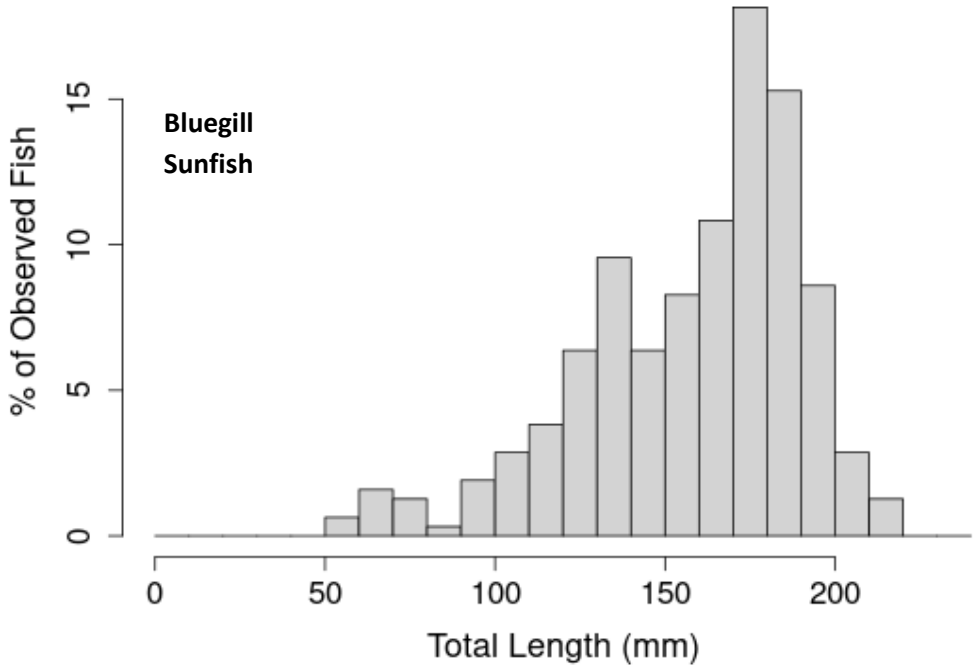


Figure 1. Length-frequency distribution of White Crappie and Bluegill Sunfish from Lake El Reno.

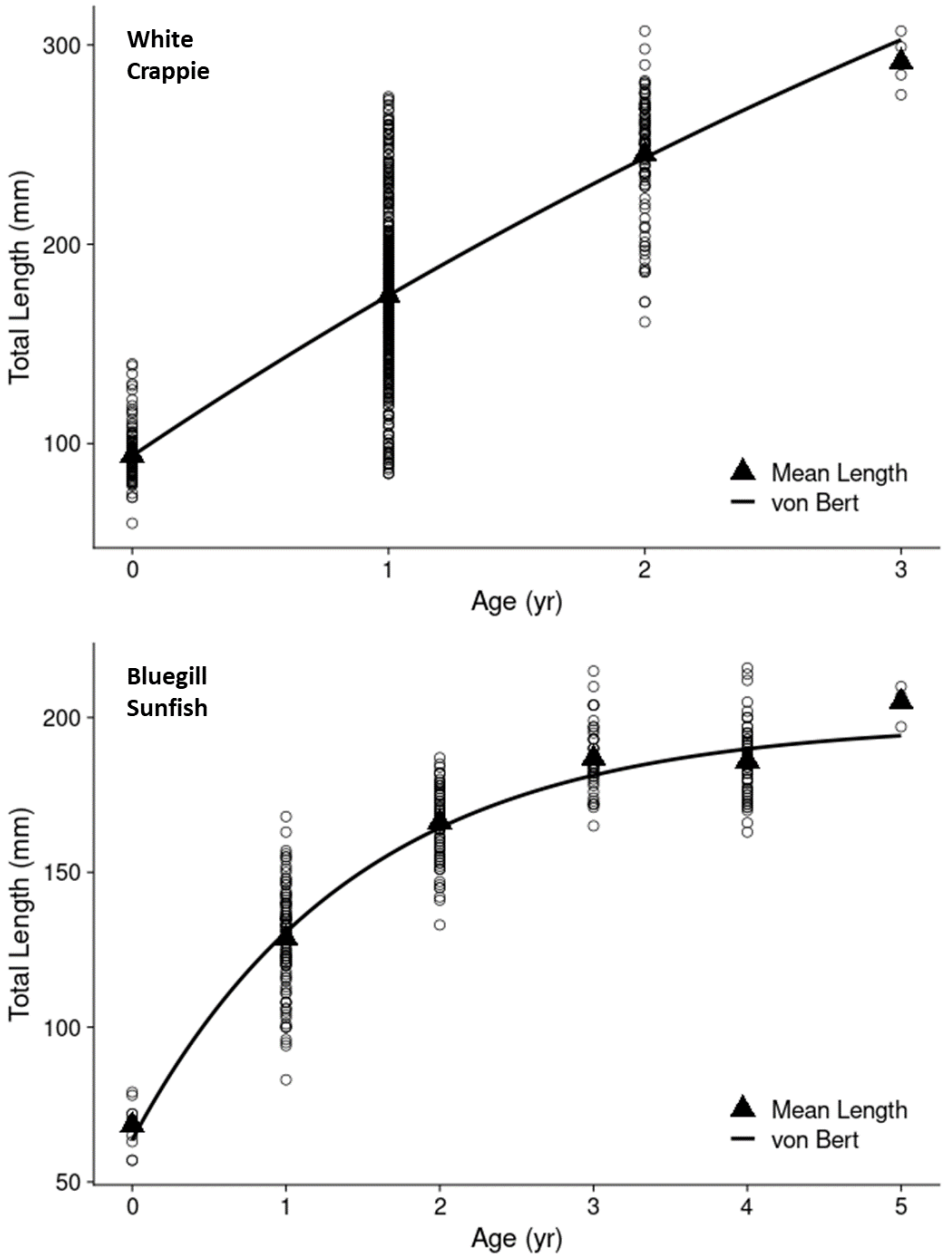


Figure 2. von Bertalanffy growth curve for White Crappie and Bluegill Sunfish from Lake El Reno.

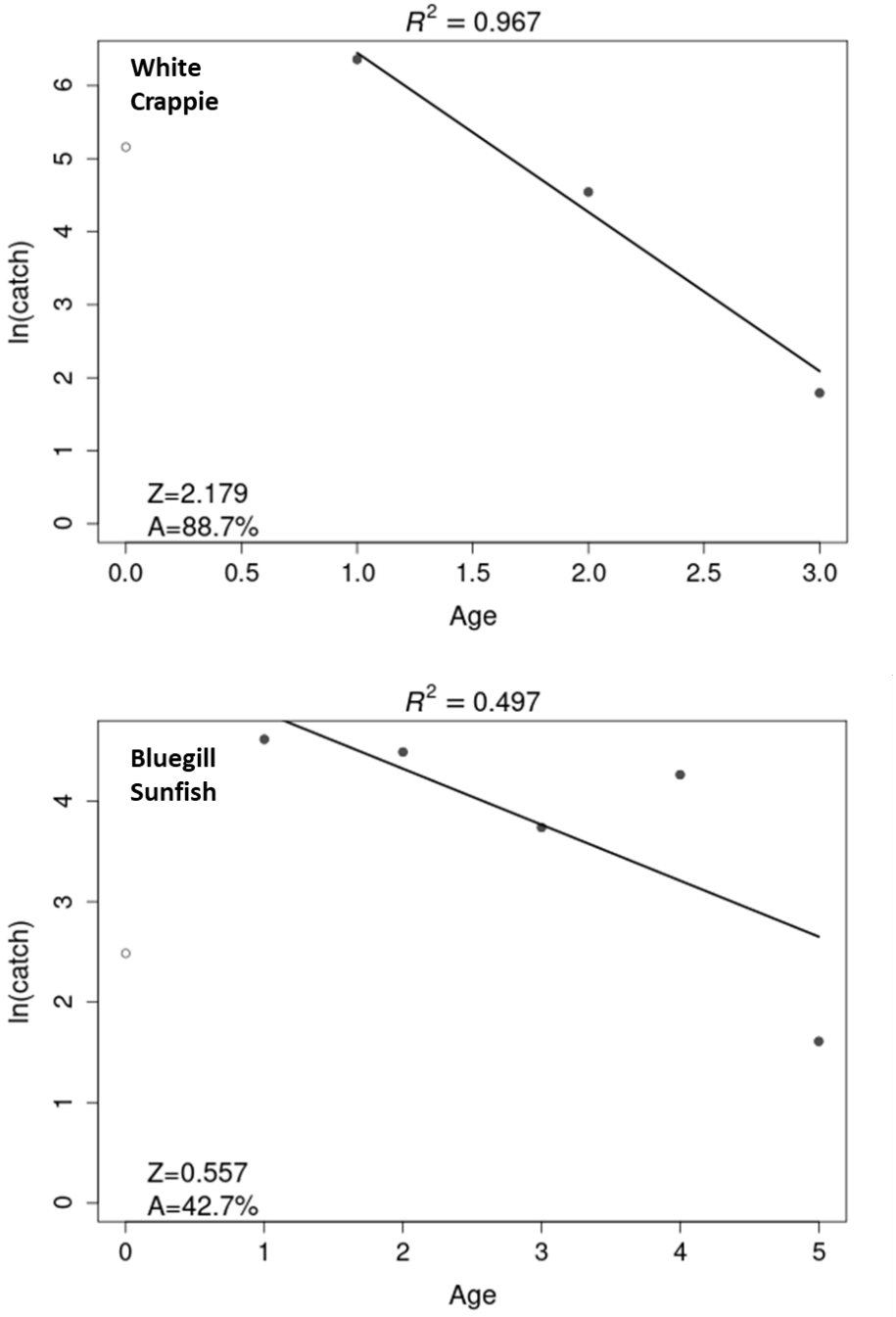


Figure 3. Catch curve for White Crappie and Bluegill Sunfish from Lake El Reno.

Appendix 1. Species, number, and size of fish stocked in Lake El Reno since 2012.

Date	Species	Number	Size (inches)
2016	Saugeye	5,000	1.5
2016	Saugeye	5,000	1.5