SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

Clayton LAKE

2023

SURVEY REPORT

State: Oklahoma

Project Title: Clayton Fish Management Survey Report

Period Covered: 2023

Prepared by: David Bogner

Date Prepared: January 2024

Clayton

ABSTRACT

Channel Catfish were collected via gill net in fall of 2023. Very few catfish were collected in the sample. Most of the fish were of harvestable length but body condition was low. Mortality rate of Channel Catfish was 30% which was likely influenced by the small sample size. Future management actions should focus on whether to continue stocking if the population will not self-sustain, as well as looking at spawning habitat, and forage fish.

INTRODUCTION

Clayton Lake is located 14-km SW of the city of Clayton on U.S. Highway 271 in Pushmataha County, Oklahoma. The reservoir, which is within the boundaries of Clayton State Park impounds two intermittent branches of the Kiamichi River. Clayton Lake covers 75 surface acres and is a typical southeastern Oklahoma lake characterized by steep, rocky shorelines, and good water quality. Fish habitat consists primarily of aquatic vegetation, rip rap along dam, the old creek channel, and fish habitat enhancement structures. Principal sport fisheries include largemouth bass, crappie, channel catfish and bluegill sunfish.

Several applied management strategies have been used to enhance angling in Clayton Lake. Channel catfish are routinely stocked to increase fishing opportunities and Certified Florida largemouth bass were introduced in 2004 to improve the genetic potential of this species.

RESULTS

Catfish

Clayton lake was gill netted for Channel Catfish in fall of 2023. Catch rates were low with only 8 Channel Catfish caught. This is the lowest catch rate since before 2010 (table 1). The majority of Channel Catfish were of quality size which has improved since 2010 (table 2). Proportion Stock Density, a measure of size structure, was good but given the low sample size we are unsure of how representative it is of the population (table 3). Relative Weight (Wr) a measure of fish condition was low but previous samples have all been low since 2010 and range from 84.91 to 89.68 for total Wr (table 4). Mean length and weight at age data is not presented as age data was not previously taken. At age 5 Channel Catfish have a mean length of 458 mm and a mean weight of 780 mm. The mortality rate for Channel Catfish is 30.66% (table 5). Previous estimates for mortality are unavailable as age data was not collected. The Channel Catfish population at Clayton lake is small and likely needs to be stocked if it is expected to

provide angling opportunities for Channel Catfish. The inability of these fish to sustain their own population makes this lake a candidate for discontinuing the catfish fishery.

Recommendations

1. Look into discontinuing the catfish fishery or installing catfish spawning structures with additional catfish stocking for a period of 4 years.

Table 1: Channel Catfish Catch Per Unit Effort (CPUE) by year.

Total CPUE	2010	2013	2023
Mean	5.93	3	2.67
Count	2	2	3
SE	0.79	3	0.67
L 95% CI	4.39	-2.88	1.36
U 95% CI	7.48	8.88	3.97

Table 2: Channel Catfish CPUE by size class across time.

CPUE Size	2010		2013		2023	
	Mean	SE	Mean	SE	Mean	SE
Sub-stock	.	.	.	.	.	.
Stock	5.5	1.22	0.5	0.5	0.67	0.67
Quality	0.43	0.43	2.5	2.5	2	1.15
Preferred	.	.	.	.	.	.
Memorable	.	.	.	.	.	.
Trophy	.	.	.	.	.	.

Table 3: Channel Catfish proportional Stock Density by year.

PSD	2010	2013	2023
PSD	7	83	75
PSD-P	.	.	.
PSD-M	.	.	.
PSD-T	.	.	.
PSD S-Q	92	17	25
PSD Q-P	8	83	75
PSD P-M	.	.	.
PSD M-T	.	.	.

Table 4: Channel Catfish Relative Weight with standard errors across PSD classes by year.

Wr	2010		2013		2023	
	Mean	SE	Mean	SE	Mean	SE
Sub-stock	.	.	.	.	.	.
Stock	85.44	1.81	82.99	.	86.19	5.25
Quality	79.59	.	91.02	4.17	87.15	4.72
Preferred	.	.	.	.	.	.
Memorable	.	.	.	.	.	.
Trophy	.	.	.	.	.	.
Total	84.91	1.75	89.68	3.66	86.91	3.6

Table 5: Channel Catfish mortality estimates.

Mortality Table	2023
Instantaneous	0.37
Annualized	30.66

Figure 1: Channel Catfish age frequency histogram.

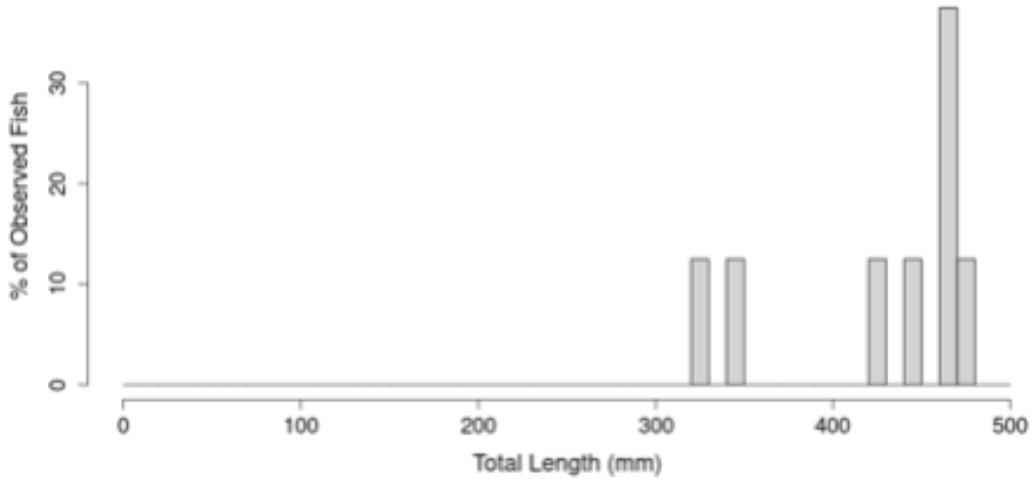

Figure 2: Channel Catfish length frequency histogram.