SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

JOHN WELLS LAKE

2023

SURVEY REPORT

State: Oklahoma

Project Title: John Wells Fish Management Survey Report

Period Covered: 2023.

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Date Prepared: December 2023

John Wells Lake

ABSTRACT

John Wells lake was surveyed using boat electrofishing to determine fish population trends; monitor Largemouth bass (LMB) size structure, body condition and growth rates. LMB abundance showed an increase from the 2020 survey to a catch rate of 117 bass per hour, with the highest catch rates coming in the stock and quality size classes. LMB body condition, measured as relative weights (Wr) remains below acceptable levels. Growth is slow to moderate taking 4-5 years to reach 14 inches. Recommendations include continuing to survey John Wells LMB on a 3 year rotational basis and stocking additional forage when possible. No regulation changes are recommended at this time.

INTRODUCTION

Stigler City Lake (Lake John Wells) is located 1 kilometer southeast of Stigler in Haskell County, Oklahoma and is an impoundment of a tributary of Sans Bois Creek. Stigler City Lake was constructed in 1936 by the City of Stigler for use as water supply. The reservoir covers 194 surface acres and has a mean depth of 7 ft and a maximum depth of 40 ft. It is a clear reservoir with most recent secchi disk visibility readings nearing 12 ft, turbidity is primarily from plankton. Fish habitat consists primarily of aquatic vegetation, contour changes, flooded timber in the upper end and rock in the lower end. Habitat improvements include the addition of 2 spider block groves and 3 catfish spawning containers on the south side of the lake (Appendix I). Facilities include a small boat ramp, floating dock, gravel parking lot and swim beach area. There is some camping available; see city website for details.

Management problems at Stigler lake historically include a stockpiled LMB population as well as low channel catfish recruitment and abundance. Recent management activities include the stocking of channel catfish to establish a population (Appendix II) and placement of 3 spawning containers to increase catfish spawning habitat.

Stigler lake follows statewide regulations for fish creel and size limits as well as methods of harvest.

Largemouth Bass

Largemouth Bass (LMB) were surveyed in the spring of 2020 utilizing boat electrofishing. Sampling sites were randomly chosen utilizing a standardized grid map and six units of effort were conducted. Catch rates, measured as catch per unit of effort (CPUE) more than doubled from the 2020 sample to 117 bass per hour. Stock and quality sized individuals comprised the majority of the sample totaling 108 bass per hour. LMB body condition, measured as relative weight (Wr) was below the acceptable level of <90 in all categories with an overall average Wr of 82 (Table 1). This indicates a lack of available forage and high competition for resources. The length frequency histogram reflects the size category findings with 91% of bass sampled caught being between 7-14" in length (Figure 1). Proportional size distribution (PSD) values show a balanced value in the quality size range but the preferred size group is below balanced levels (Table 2). Mean length at age shows slow growing fish, taking 4-5 years to reach 14" (Table 3). Stigler age 2 bass were the most represented followed by 3 and 4 year olds respectively with no one year old fish in the sample (Figure 2). Ideally, the stock and quality size fish will recruit into the preferred and memorable categories in the coming years creating some good bass fishing at John Wells. A boat electrofishing survey should be conducted in 2026 to continue to monitor LMB size structure, age/growth and recruitment. If body condition remains poor, supplemental forage such as stocking threadfin shad should be considered. Habitat enhancement and refurbishing should be on an as needed basis.

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 John Wells Lake. Acceptable Wr values are ≥90.

		Total	Substock	Stock		Quality		Preferred		Memorable	
		CPUE	0-7.8 in	7.9 in		11.8 in		15 in		20.1 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2017	123	92	23.3	30.7	81	22.7	77	5.3	80	.	.
2020	43	43	6	8	84	21	79	8	78		
2023	117	117	7	54	82	50	81	6	86		

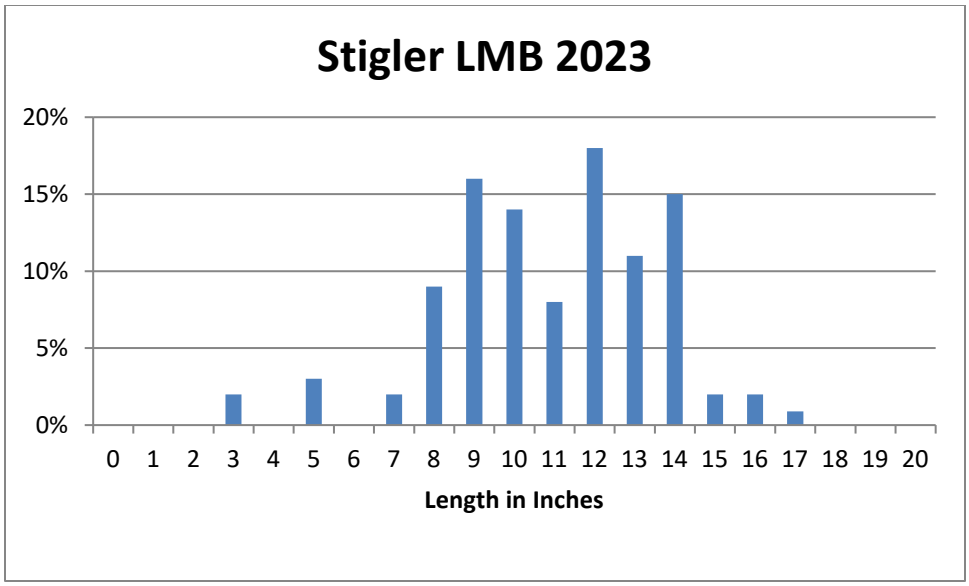

Figure 1. Largemouth Bass Length Frequencies for John Wells lake 2023

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.

Year	PSD-Q	PSD-P	PSD-M
2017	48	9	
2020	78	22	
2023	51	5	

Balanced PSD Values	
PSD-Q	40-70
PSD-P	10-40
PSD-M	0-10

Table 3. Mean Total Length at age (inches) for Largemouth bass from John Wells Lake.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9
2017		10.05	11.92	12.86	13.45	14.93			
2020	6.4	10.8	13.7	13.7	14.9		15.4	14.9	15.9
2023		9	11.8	13.6	14.9	14.3	16.9	17.8	

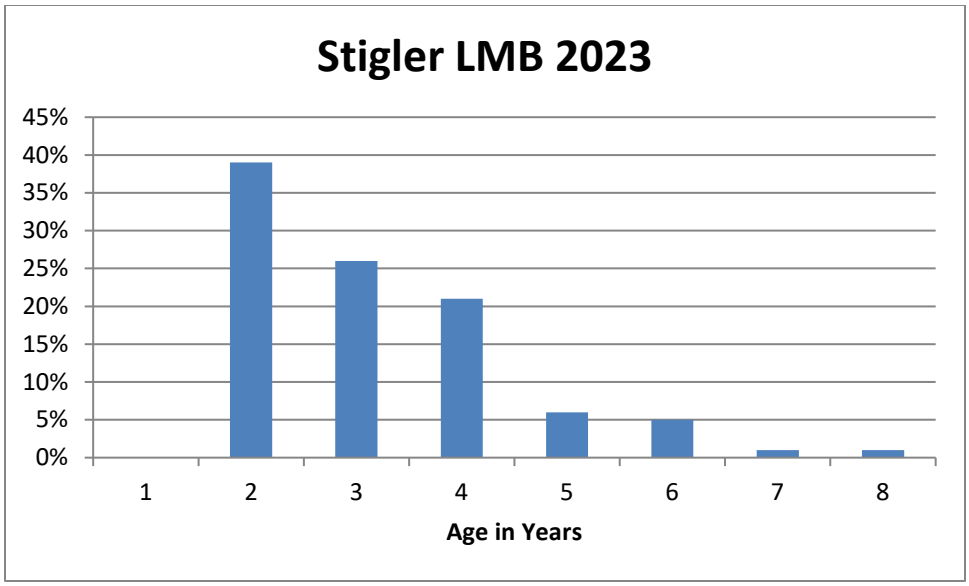

Figure 2. Largemouth Bass age frequencies 2023 for John Wells Lake

Appendix I. John Wells ODWC habitat structures

Area Name	Latitude	Longitude	Habitat type	Marked	Bank Access	Date installed
SW Corner	35.226012	-95.097297	65 Spider Blocks	N	Y	7/26/2016
Camping Area	35.230183	-95.096517	69 Spider Blocks	Y	Y	6/11/2020
SC Shore	35.22745	-95.09181	7 catfish condos	N	N	9/17/2021

Appendix II. John Wells recent stocking history

Channel Catfish	**Number**	**Size (inches)**
2000	4000	7
2001	4004	7
2017	5160	6.25
2018	5088	7
2020	4390	7
Threadfin shad		
2016	1500	3