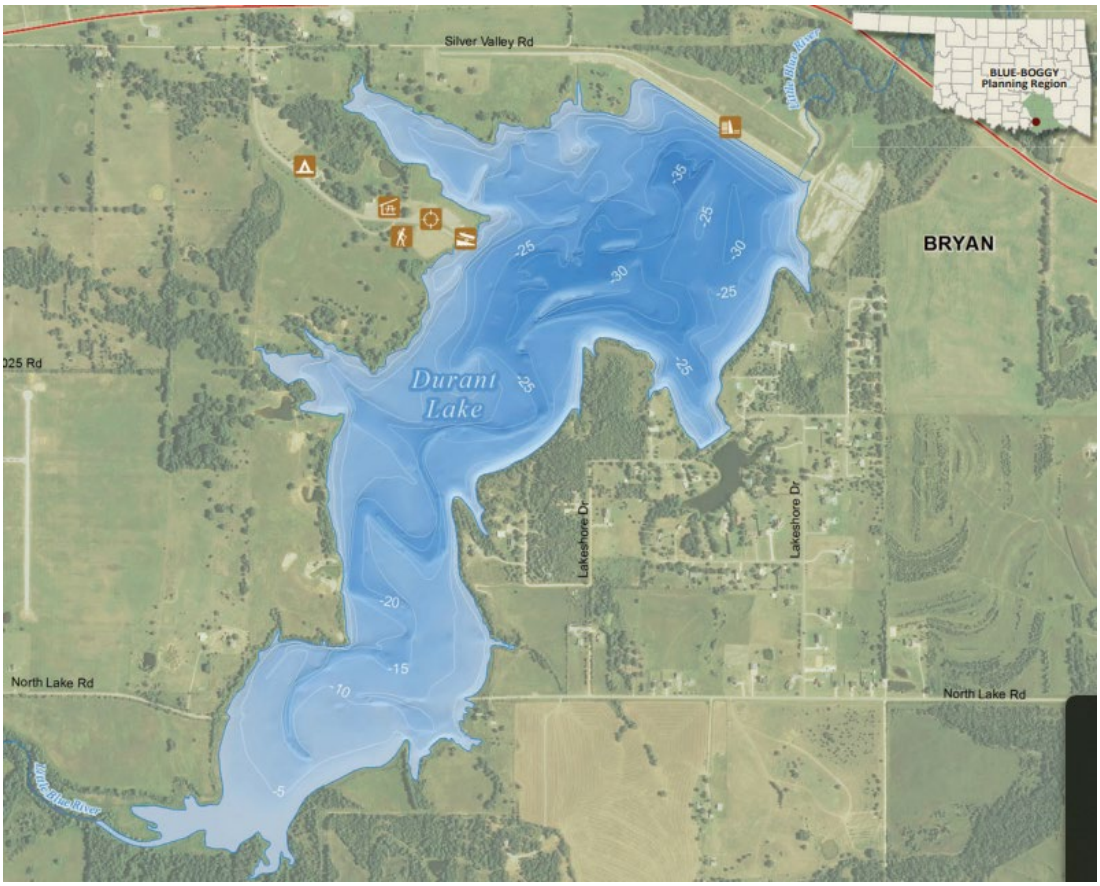
SURVEY REPORT

OKLAHOMA FISHERIES MANAGEMENT PROGRAM



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

DURANT LAKE

2024

INTRODUCTION

Durant Lake is located in Bryan County approximately 6 miles northwest of the City of Durant, Oklahoma (Figure 1). The lake is 305 acres and has one principal tributary, Little Blue River. Lake construction was completed in 1993 by the City of Durant. The lake has a mean depth of 20 feet, a maximum depth of 56 feet. The Oklahoma Department of Wildlife Conservation (ODWC) in cooperation with the City of Durant helped construct a boat ramp, boat dock, parking lot and paved access road on the northwest side of the lake. City of Durant installed a new fishing dock in 2024 located on the north side of the ramp parking lot.

HABITAT

Natural fish habitat consists primarily of flooded timber, aquatic vegetation, and rock. A large percentage of the lake has flooded timber. August secchi disc visibility is 30 inches in the main pool.

FISHERY

The major sportfish in Durant Lake include largemouth bass, white crappie, black crappie, white bass, and channel catfish. A complete stocking history is included in Table 1. Catch rates of bass and crappie have fluctuated over the short history of the lake. Most lakes go through a highly productive period for several years after impoundment. This “new lake effect” is due to the nutrient rich waters created by inundating what was previously a floodplain area and the open niche of available aquatic habitat for fish populations to expand. Following this initial period, fish populations tend to stabilize, often at a lower level than the early years. Durant Lake is currently going through this maturing process. Regardless of any declines, Durant Lake is still considered a quality largemouth bass and crappie fishery.

Regulations were changed in 2024 to remove the 13 – 24 inch protective slot limit for bass. Regulations now coincide with statewide limits to include a 6 fish/day creel limit with only one

fish/day ≥ 16 inches for largemouth and smallmouth bass, and a 37 fish creel limit on crappie, and a 15 fish creel limit on channel catfish.

Black Bass

Largemouth Bass

Spring electrofishing was conducted in April 2021. During this sample, a new electrofishing control box was suspected to not be performing properly. A wiring problem was later discovered, explaining the poor catch efficiencies noted during the sampling. Reduced catch rates for black bass in 2021 are likely the result of this issue and should not be viewed as a reduction in the overall population (Table 2, Figure 2). Supplemental sampling was conducted to improve the quality of size distribution and age data (Figure 3). During this survey, no largemouth bass exceeded the previous slot limit of 24 inches. During previous surveys (2012, 2015, 2018), only two bass exceeded 24 inches in length.

Spring electrofishing was conducted in April of 2024 and produced the highest catch rate on record for largemouth bass (122/hr) and bass greater than 16 inches (65/hr) at Durant. Relative weights were above the acceptable levels across all size classes greater than 12 inches. Age and growth data was last collected from a subsample of largemouth bass in 2021. Mean length at age-3 was 15.3 inches at that time (Table 3, Figure 4).

Spotted Bass

Spotted bass were first collected at Durant Lake in 2002 and have been sampled in each consecutive survey until 2024 (Table 4). No spotted bass were collected in 2024 and they likely make up a very small portion of the overall black bass community and rarely exceed 14 inches.

Smallmouth Bass

Smallmouth bass were collected at Durant Lake in 2007, 2010, and 2018 (Table 5). However, only 4 total individuals have been collected during these surveys. No smallmouth were collected in 2024. The source of smallmouth bass introductions is unknown. The population should be monitored in future years to evaluate the expansion and reproductive success.

Channel Catfish

Channel Catfish were last sampled by gillnetting in 2000.

Crappie

Durant Lake contains both white and black crappie. Catch rates increased dramatically in 2022, more than doubling the previously record catch in 2016 (Table 6, Figure 5). This appears to be the result of a very strong age-1 year class . Durant Lake is known to have inconsistent reproduction and/or recruitment. This was once again evident in the 2022 sample. Of 190 aged crappie, only one age-2 fish (black crappie) was collected and zero crappie older than age-3. This inconsistency is not uncommon for crappie populations in small impoundments. Growth rates remained very good in 2022 with age-1 fish averaging 8.8 inches and age-3 fish averaging 13.3 inches. Size structure and growth data are listed in Table 7, Figures 6 – 7.

Forage Fish

Bluegill, gizzard shad, threadfin shad, and silversides were not sampled during 2021.

THREATS TO FISHERY

Aquatic Nuisance Species (ANS)

Zebra mussels

Zebra mussels (*Dreissena polymorpha*) are small, thumbnail size mussels with a zebra-like pattern of stripes native to the Caspian Sea region of Asia. These invasive mussels reproduce rapidly and can spread from one waterbody to another through a free-floating, microscopic larval stage known as a veliger. Zebra mussels negatively impact the environment by altering the food chain and water chemistry of a lake. Zebra mussels also affect manmade facilities by clogging water intake pipes and disrupting withdrawal operations.

Zebra mussels have not been detected at Durant Lake. They were first detected in nearby Lake Texoma in 2008. Since that time, adult zebra mussels have become widespread throughout Lake Texoma. Because Durant Lake is located in close proximity (within 20 miles) to Lake Texoma

there is a good likelihood that recreational users will utilize both reservoirs. This results in numerous vectors for the transfer of water and zebra mussel adults and veligers to Durant Lake. The use as a municipal water source increases the threat level and the resulting negative impacts that a zebra mussel infestation would have. More information about invasive mussels can be found at http://www.100thmeridian.org.

Hydrilla

Hydrilla (*Hydrilla verticillata*) is an invasive and potentially damaging aquatic weed popular in the aquarium trade. It has the ability to establish at depths greater than 15 feet and form dense surface mats. Hydrilla is known to displace native species, restrict water flow, and impair recreational activities. Its many modes of reproduction, including fragmentation, allows for rapid spread and dispersal within and among water bodies. Hydrilla infestation has not been detected at Durant Lake but could be severe due to the relatively shallow nature of the lake and the ability of hydrilla to establish in deep water and outcompete native plants. Hydrilla has been observed at nearby lakes Arbuckle, Ardmore City lakes, and Murray. The proximity of these lakes to Durant Lake increases the risk of infestation.

RECOMMENDATIONS

1. Conduct spring electrofishing in 2027 to evaluate the black bass fishery.
2. Stock Florida largemouth bass according to policy to enhance the trophy potential of the black bass fishery.
3. Establish natural or artificial fish attractors near the new fishing dock.

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Table 1. Species, number and size of fish stocked in Durant Lake from 1993 to 2024.

DATE	SPECIES	NUMBER	SIZE
1993	Channel catfish	30,500	Fingerlings
1993	Bluegill	109,000	Fingerlings
1993	Redear	44,000	Fingerlings
1994	Cert. Florida bass	31,200	Fingerlings
1994	Channel catfish	12,225	Growouts
1994	Bluegill	246,015	Fingerlings
1994	Threadfin shad	2,500	Adults
1995	Threadfin shad	5,050	Adults
1995	Cert. Florida bass	31,000	Fingerlings
1995	Channel catfish	12,225	Fingerlings
1995	Bluegill	150,000	Fingerlings
1996	Threadfin shad	4,740	Adults
1996	Cert. Florida bass	32,330	Fingerlings
1997	Threadfin shad	2,000	Adults
1999	Cert. Florida bass	6,100	Fingerlings
2000	Cert. Florida bass	6,300	Fingerlings
2000	Threadfin shad	3,000	Adults
2000	Channel catfish	12,000	Fingerlings
2002	Threadfin shad	1,500	Adults
2003	Threadfin shad	3,300	Adults
2003	Cert. Florida bass	6,750	Fingerlings
2005	Cert. Florida bass	6,116	Fingerlings
2005	N. largemouth bass	2,500	Fingerlings
2007	N. largemouth bass	10,000	Fingerlings
2011	Cert. Florida bass	30,502	Fingerlings
2011	Cert. Florida bass	55	Adults
2013	Cert. Florida bass	30,000	Fingerlings
2014	Cert. Florida bass	30,448	Fingerlings
2016	Cert. Florida bass	30,016	Fingerlings
2017	Cert. Florida bass	30,021	Fingerlings
2018	Cert. Florida bass	30,325	Fingerlings
2019	Cert. Florida bass	65,416	Fingerlings
2021	Cert. Florida bass	24,860	Fingerlings

Table 2. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of largemouth bass collected by spring electrofishing from Durant Lake. Numbers in parentheses represent acceptable values for a quality fishery. Acceptable W_r values are ≥90.

	Total (≥40)		<8 in. (15-45)		≥12 in. (≥15)		≥14 in. (≥10)		≥ 16 in.		≥ 22 in.	
Year	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r	C/f	W_r		
1995	111	74.0	14.0	101	32.7	103	26.7	105	13.3	108	-	-
1996	105	105.0	6.0	97	78.0	93	66.0	94	39.0	97	0	-
1997	96	64.0	18.7	97	33.3	95	24.0	97	19.3	98	0	-
1998	91	91.0	3.0	81	63.0	97	54.0	98	43.0	99	0	-
1999	73	73.0	4.0	74	60.0	92	50.0	91	33.0	93	0	-
2000	109	87.0	11.2	90	71.2	88	67.2	87	45.6	87	0	-
2002	60	60.0	23.0	80	28.0	96	27.0	97	15.0	97	0	-
*2003	104	69.3	4.0	106	52.0	97	42.0	98	30.7	98	0	-
2006	54	36.0	9.3	93	18.0	90	12.0	94	8.0	95	0	-
2007	83	55.3	9.3	101	40.7	92	33.3	92	24.7	93	1.33	-
2010	79	52.7	6.0	96	33.3	-	26.0	93	19.3	95	2.67	108
2012	82	82.0	29.0	94	-	-	34.0	89	25.0	89	4.0	95

Table 2. Continued

	Total (≥40)		<8 in. (15-45)		≥12 in. (≥15)		≥14 in. (≥10)		≥ 16 in.		≥ 21 in.	
Year	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r	C/f	W_r	C/f	Wr
2015	57	57.0	9.0	96	45.0	91	41.0	91	35.0	90	4.0	92
2018	54	54.0	1.0	-	53.0	103	48.0	103	40.0	104	5.0	103
**2021	42	36.0	-	-	36.0	101	33.4	102	15.4	106	0	-
2024	122	122.0	6.0	87	99.0	94	81.0	95	65.0	97	4.0	105

* 2003 started a new minimum of 1.5 hours electrofishing on Durant Lake.
** ETS control box wiring problem discovered following sample may have reduced effectiveness.

Table 3. Mean length at age of largemouth bass collected by spring electrofishing from Durant Lake.

Year	Age 1 (Inches)	Age 2 (Inches)	Age 3 (Inches)	Age 4 (Inches)	Age 5 (Inches)
2010	6.3	11.5	14.4	16.6	17.0
2021	-	12.4	15.3	16.7	18.2

Table 4. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of spotted bass collected by spring electrofishing from Durant Lake. Numbers in parentheses represent acceptable values for a quality fishery. Acceptable W_r values are ≥90.

	Total (≥ 40)		< 8 inches (15-45)		8-13 inches (15-30)		≥ 14 inches (≥ 10)	
Year	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r
1996	0	-	-	-	-	-	-	-
1997	0	-	-	-	-	-	-	-
1998	0	-	-	-	-	-	-	-
1999	0	-	-	-	-	-	-	-
2000	0	-	-	-	-	-	-	-
2002	1	1.0	1.0	64	0.0	-	0.0	-
*2003	2	1.3	0.0	-	1.3	102	0.0	-
2006	5	3.3	0.0	-	2.7	108	0.67	104
2007	15	10.0	0.67	99	4.7	96	2.0	99
2010	8	5.3	2.0	-	2.7	102	0.0	-
2012	7	7.0	1.0	-	5.0	88	0.0	-
2015	7	7.0	0.0	-	5.0	99	2.0	78
2018	1	1.0	1.0	92	0.0	-	1.0	92
**2021	1	0.9	-	-	-	-	0.9	111
2024	0	-	-	-	-	-	-	-

*2003 started a new minimum of 1.5 hours Electrofishing on Durant Lake.
** ETS control box wiring problem discovered following sample may have reduced effectiveness.

Table 5. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of smallmouth bass collected by spring electrofishing from Durant Lake. Numbers in parentheses represent acceptable values for a quality fishery. Acceptable W_r values are $\geq$90.

	Total (≥ 15)		< 8 inches (15-45)		8-12 inches (15-30)		≥ 14 inches (≥ 10)	
Year	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r
*2007	1	0.67	-	-	-	-	0.67	93
2010	1	0.67	-	-	-	-	0.67	93
2012	0	-	-	-	-	-	-	-
2015	0	-	-	-	-	-	-	-
2018	2	2.0	-	-	-	-	1	88
**2021	0	-	-	-	-	-	-	-
2024	0	-	-	-	-	-	-	-

* 2003 started a new minimum of 1.5 hours electrofishing on Durant Lake.
** ETS control box wiring problem discovered following sample may have reduced effectiveness.

Table 6. Total number (No.), fish per net night (C/f), and relative weights (Wr) by size groups of all crappie collected by trap netting from Durant Lake. Numbers in parentheses represent acceptable C/f values for a quality fishery.

	Total (≥25)		<5 in. (≥5)		≥5 in. (10-40)		≥8 in. (≥10)		≥10 in. (≥4)	
Year	No.	C/f	C/f	Wr	C/f	Wr	C/f	Wr	C/f	Wr
2002	137	15.5	3.0	-	12.6	99	5.0	99	2.6	104
2006	49	5.2	0.1	89	5.1	102	5.1	102	4.8	102
2010	43	3.8	0.3	-	3.5	92	2.4	94	1.8	97
2016	297	26.2	5.7	89	20.6	76	0.5	71	0.4	70
2019	97	9.4	5.3	-	4.2	99	3.6	101	3.1	103
2022	544	53.5	0.7	131	52.8	92	30.6	96	12.2	96

Table 7. Mean length at age of crappie collected by trap netting from Durant Lake. Numbers in parentheses represent values for acceptable growth rates.

	Age 1	Age 2	Age 3	Age 4
Year	(≥ 6.3 in.)	(≥ 7.9 in.)	(≥ 8.9 in.)	(≥ 9.8 in.)
*2000	7.1	9.1	11.6	14.0
2002	7.3	9.5	11.1	14.8
2006	9.8	11.1	13.0	-
2010	7.7	11.4	12.2	13.5
2016	5.8	8.8	12.5	-
2019	9.9	11.8	-	13.3
2022	8.5	13.9	13.2	-

* This data was collected from gill netting survey.

Figure 1. Map of Durant Lake and vicinity.

SSP Sampling Sites:

Spring Electrofishing -

Fall Trap Netting -

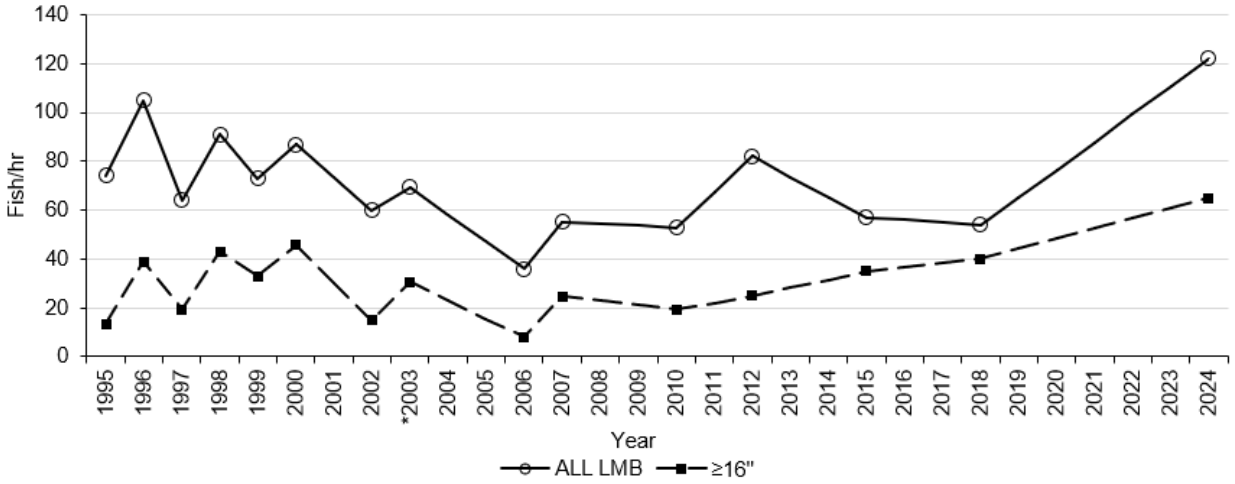

Figure 2. Total catch rates of largemouth bass and catch rates of largemouth bass > 16 inches collected by spring electrofishing.

* In 2003, electrofishing protocol changed to a minimum of 1.5 hrs of effort required on Durant Lake.

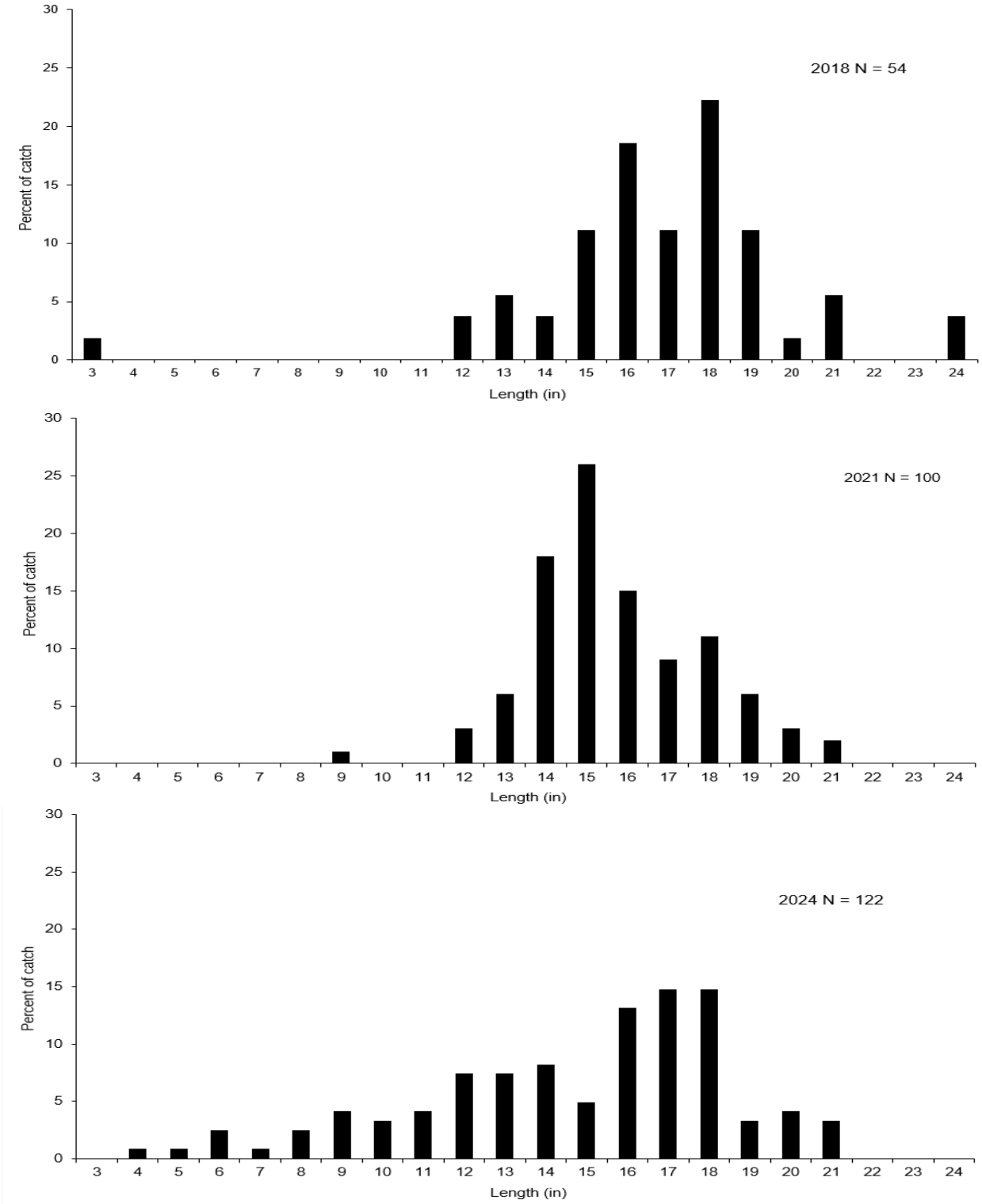

Figure 3. 2018, 2021, and 2024 length frequency distribution for largemouth bass collected by spring electrofishing at Durant Lake.

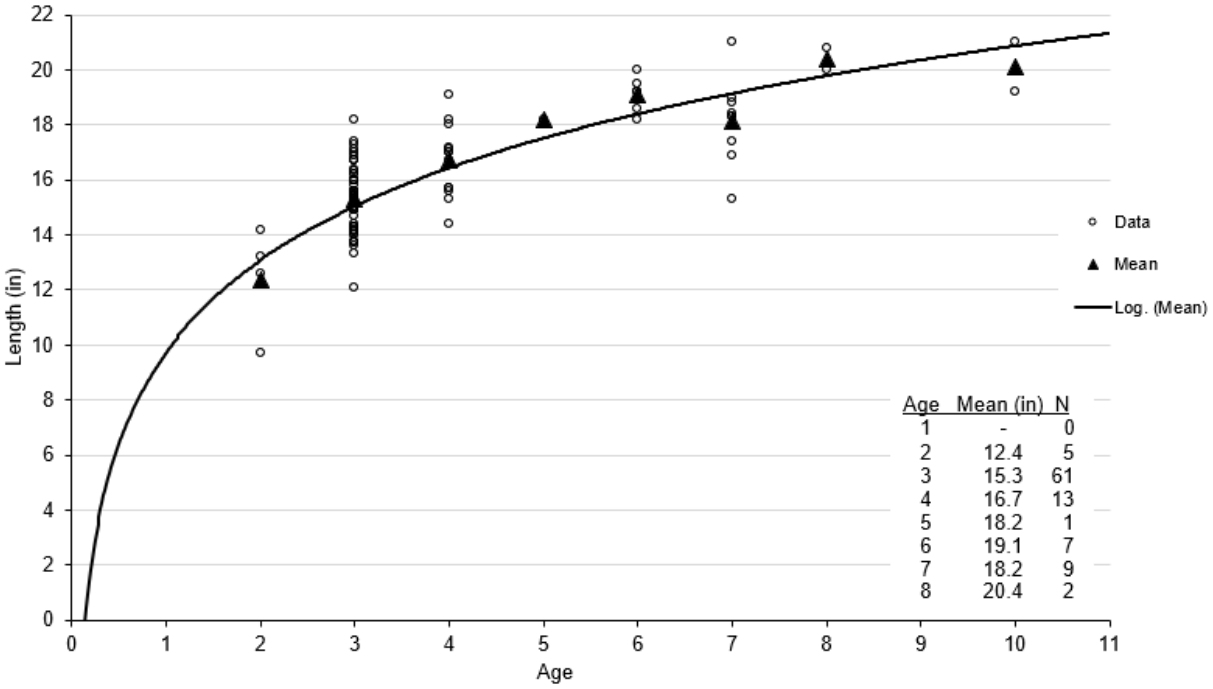

Figure 4. 2021 Length at age data for largemouth bass collected from Durant Lake by spring electrofishing. N = 100

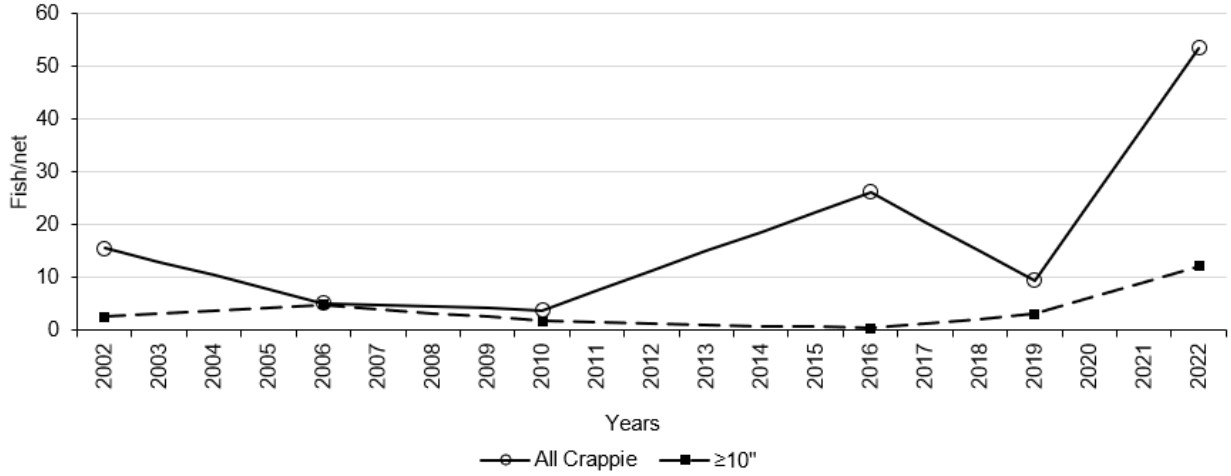

Figure 5. Total catch rates of crappie and catch rates of crappie ≥ 10 inches collected by fall trap netting at Durant Lake.

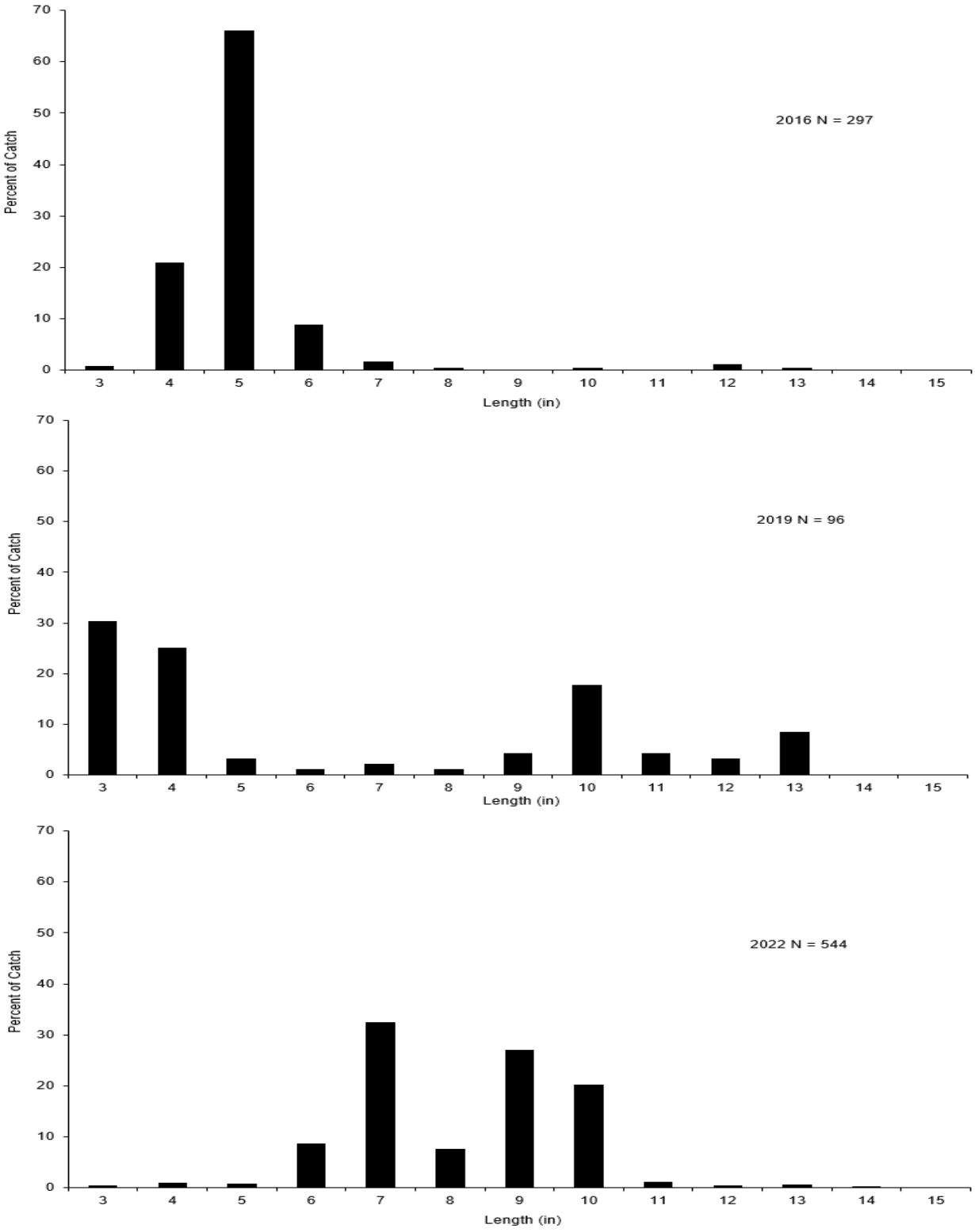

Figure 6. 2016, 2019 and 2022 length frequency distribution for all crappie collected by trap netting at Durant Lake.

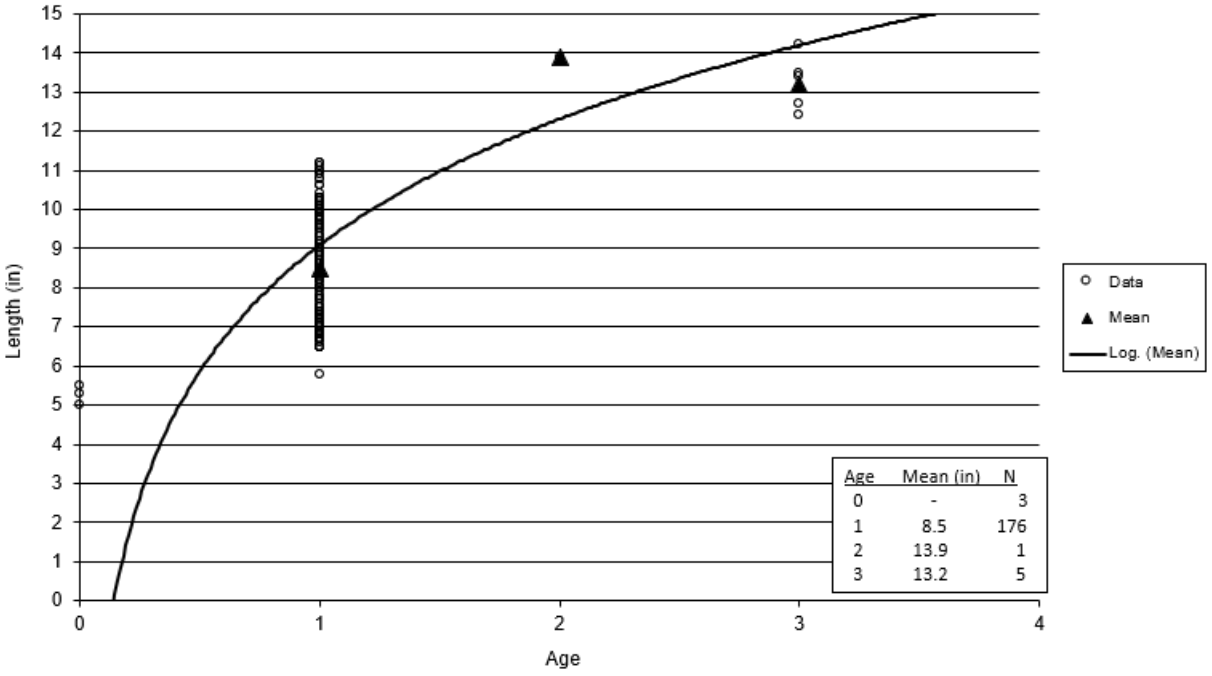

Figure 7. 2022 Length at age data for white crappie collected from Durant Lake by fall trap netting.
N = 185