

SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

HOLDENVILLE LAKE

2022

SURVEY REPORT

State: Oklahoma

Project Title: Holdenville Lake Fish Management Survey Report

Period Covered: 2022

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Date Prepared: December 18th, 2023

Holdenville Lake

ABSTRACT

Holdenville Lake was surveyed by spring electrofishing, fall trap netting, summer catfish electrofishing and an angler survey, techniques in 2022 to monitor trends in fish populations. Largemouth Bass abundance, size structure, body conditions and growth rates decreased. Flathead Catfish abundance increased. Crappie abundance, size structure and growth rates increased. However, the Crappie population remained stunted. A total of 114 interviews with 201 anglers were surveyed. Bass anglers made up the highest percentage of anglers surveyed, while Crappie were the highest percentage of species harvested.

INTRODUCTION

Holdenville Lake impounds Bemore Creek, nine miles southeast of Holdenville in Hughes County, Oklahoma. Holdenville Lake covers 550 surface acres and was constructed in 1932 by the City of Holdenville. The lake has a mean depth of 20 feet and a maximum depth of 52 feet, a shoreline development ratio of 4.0, a water exchange rate of 0.36, and a secchi disc visibility of around 72 inches in the main pool in August; turbidity is primarily from plankton. Fish habitat consists primarily of aquatic vegetation (water willow) and some rock structures and riprap.

The main management problem for this lake in the past has been a stunted Crappie population. Saugeye have been stocked to reduce Crappie abundance and improve their growth rates. These stockings have been successful as the Crappie population size structure has improved. However, improvement in the Crappie size structure has plateaued and may have reached its max potential. Low Channel Catfish, Blue Catfish and Flathead Catfish recruitment has been a persistent problem. Low water levels have been a major problem in the past.

Saugeye, Channel Catfish, Blue Catfish, Flathead Catfish and Florida largemouth bass have been stocked in recent years (Appendix 1). Florida Largemouth Bass (FLMB) were stocked periodically in Holdenville Lake from 1995 to present in an effort to introduce FLMB genetics into the bass population. FLMB will grow quicker and larger than native Northern Largemouth Bass, given enough forage and the right conditions within the system.

Fish attractor sites have been constructed of spider blocks, starfish and brush piles to improve angler success and are periodically refurbished (Appendix 2). Fish attractor sites were most recently refurbished in December 2019. A boating access project consisting of the addition of a double lane ramp, a boat dock, and renovation the asphalt parking lot was completed in 1990. A handicapped-accessible covered fishing dock with paved parking area and access road was installed in 1993. Construction of a restroom was completed in 1995. A 16-22 inch slot length limit regulation for bass with only one bass per day larger than 22 inches was implemented in 1993 by the City of Holdenville in order to manage this lake as a trophy bass fishery. Also, a slot length limit of 30-40 inches on Flathead Catfish and Blue Catfish was implemented to protect broodstock. In 2023 Largemouth Bass regulations changed to follow statewide regulations: a creel limit of six (6) Largemouth Bass of which only one may be larger than 16 inches. In 2023 the Blue Catfish regulations were changed to a creel limit of three (3) fish of which only one may be greater than thirty (30) inches. Jug lines were also prohibited.

Holdenville Lake was surveyed by spring electrofishing, fall trap netting, summer catfish electrofishing and an angler survey, techniques in 2022 to monitor trends in fish populations.

Aquatic Nuisance Species

Holdenville Lake is the water supply for the Holdenville State Fish Hatchery located just below the dam. Public waters from across the state receive fish from the hatchery. Therefore, it is critical to prevent the spread of Aquatic Nuisance Species to Holdenville Lake. Main sources of potential spread include boat transfer, angler transfer and pump station from the Little River. Zebra Mussels are currently the main concern. They can be spread by attaching themselves to boats, transferred in the stomachs of Blue Catfish, and by water transfer through pump stations from rivers. Zebra Mussel sampling was conducted in 2022. Results were negative. Sampling for Zebra Mussels will continue.

RESULTS

Largemouth Bass

Largemouth Bass (LMB) were surveyed in spring of 2022 by means of boat electrofishing. Fifteen randomly selected shoreline units were sampled. Overall LMB abundance, catch per unit of effort (CPUE) decreased from 2019 (CPUE = 66) to 2022 (CPUE=52) (Table 1). While CPUE decreased for the 2022 survey, it was still above the minimum CPUE of 40 for a quality fishery. A slight decrease was observed in all size classes except for Quality (11.8 in) size fish, where a significant increase was observed in 2022 (CPUE=14) compared to 2019 (CPUE=5). However, the most significant decrease observed was in the substock (0-7.8 in) size class in 2022 (CPUE=4.8) compared to 2019 (CPUE=25.0) indicating poor recruitment occurred from the 2021-year class. It is important to note that electrofishing systems switched from Smith-Roots to an ETS System in 2022. The two systems differ in design and possibly efficiency. The 2022 results should be viewed as an estimate and not directly comparable to the 2019 survey. Future surveys will be comparable with the 2022 survey.

Length frequency histograms showed a more even distribution of size classes from 2019 to 2022, but a reduced frequency of eight inches and smaller fish (Figure 1). Proportional size distribution (PSD) values increased for quality (PSD-Q =70) size fish but decreased slightly for preferred (PSD-P = 41) and memorable (PSD-M = 8) size fish. This indicating an increase in proportion of quality size (12 inches and greater, but a decrease in the proportion of preferred (15 inches and greater) and memorable (20 inches and greater) (Table 2). Body condition or relative weights (Wr) for all size classes surveyed showed a decrease in 2022 compared to 2019, except for memorable size where a noticeable increase was observed in 2022 (Wr=109). Body conditions for both stock and quality size fish were below the acceptable values of 90 (Table 1). The largest fish sampled from the 2022 survey measured 22.95 (in) in total length and weighed 9.8 (lbs).

Age data was collected on a subset of Largemouth Bass from the 2022 survey. Largemouth Bass showed a decrease in growth rates for fish between the ages of one and four in 2022 compared to 2019 taking approximately three years to reach a mean length of 12.5 inches and 16.4 inches by age four (Table 3). However, a slight increase in growth rates was observed at age five (19.5 inches) and up. The Von Bertalanffy growth curve (Figure 2) gives a visual representation of the predicted growth of Largemouth Bass for Holdenville Lake and estimates the mean maximum length at 25.4 inches, an increase compared to the 21.2 inches in 2019. Age frequencies indicate strong 2018, 2019 and 2020 year classes (Figure 3).

Largemouth Bass genetics were sampled in 2022 to determine the extent of Florida largemouth bass genetic integration within the population (Table 4). DNA samples are currently in processing. The most recent FLMB stocking occurred in 2021 with a total of 60,116 fingerlings.

Overall abundance decreased, abundance of quality size LMB increased significantly, body conditions decreased below acceptable levels for stock and quality size fish, recruitment of the 2021-year class was poor, and growth rates decreased for LMB between one and four years of age. Harvest of LMB less than 16 inches in total length is encouraged to help reduce abundance and increase growth rates.

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 Holdenville Lake. Acceptable Wr values are ≥ 90 .

		<u>Total</u> CPUE	<u>Substock</u> 0-7.8 in	<u>Stock</u> 7.9 in		<u>Quality</u> 11.8 in		<u>Preferred</u> 15 in		<u>Memorable</u> 20.1 in		<u>Trophy</u> 24.8 in	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
2009	311	82.9	.	38.4	91	14.9	96	6.7	104	0.8	113	.	.
2019	132	66.0	25.0	16.0	87	5.0	100	16.0	102	4.0	101	.	.
2022	130	52.0	4.8	14.0	82	14.0	86	15.6	95	3.6	109	.	.

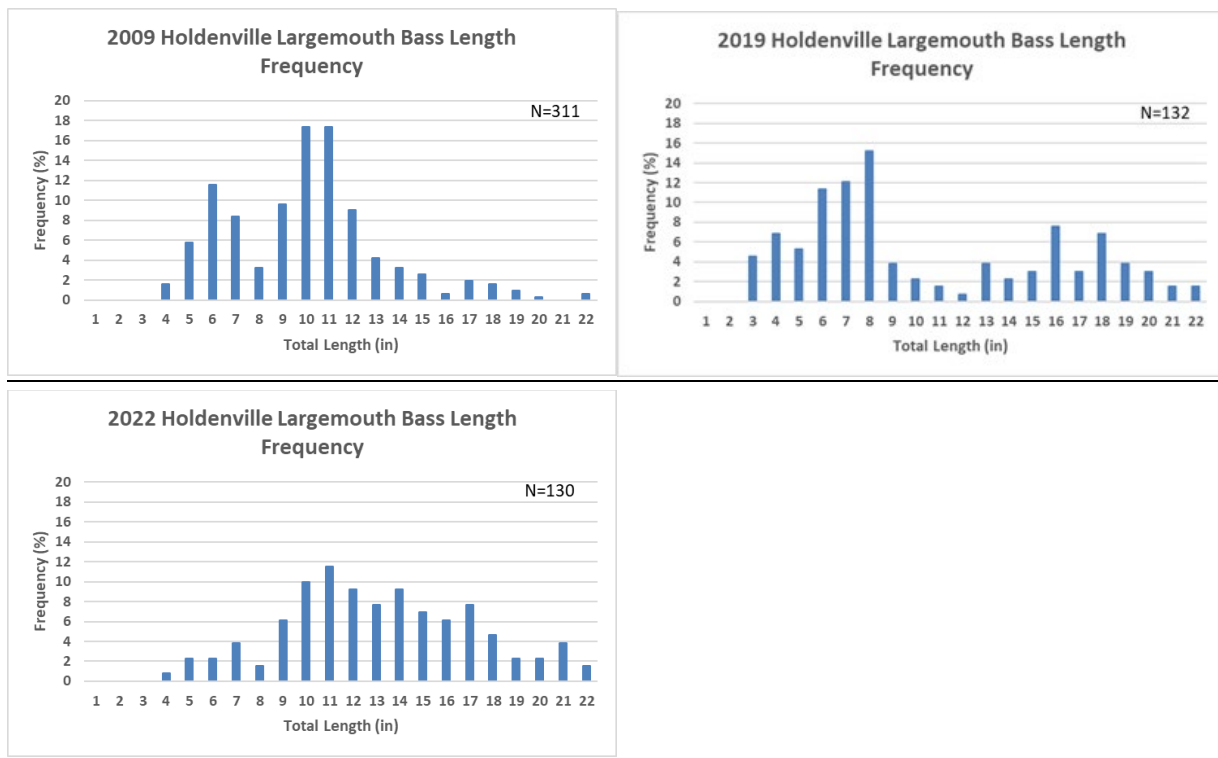


Figure 1. Largemouth Bass Length Frequencies for Holdenville Lake 2009 -2022.

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.

<u>Year Surveyed</u>	<u>PSD-Q</u> <u>(11.8 in)</u>	<u>PSD-P</u> <u>(15 in)</u>	<u>PSD-M</u> <u>(20.1 in)</u>
<u>2009</u>	37	12	1
<u>2019</u>	61	49	10
<u>2022</u>	70	41	8

Table 3. Mean Total Length at age (inches) and L infinity (estimated mean maximum length) for Largemouth Bass from Holdenville Lake.

<u>Year</u>	<u>Age</u> <u>1</u>	<u>Age</u> <u>2</u>	<u>Age</u> <u>3</u>	<u>Age</u> <u>4</u>	<u>Age</u> <u>5</u>	<u>Age</u> <u>6</u>	<u>Age</u> <u>7</u>	<u>Age</u> <u>8</u>	<u>Age</u> <u>9</u>	<u>Age</u> <u>10</u>	<u>Age</u> <u>11</u>	<u>Age</u> <u>12</u>	<u>L inf.</u>
<u>2019</u>	7.0	11.0	16.1	17.3	18.7	19.4	.	20.7	.	.	20.5	21.2	21.2
<u>2022</u>	6.4	10.3	12.5	16.4	19.5	20.1	21.1	21.9	.	22.9	.	.	25.3

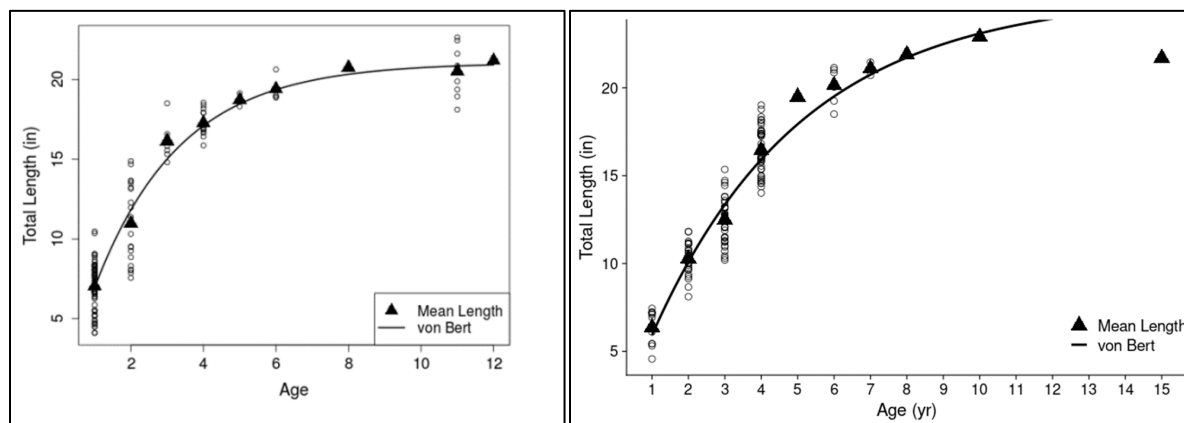


Figure 2. 2019 and 2022 Largemouth Bass Mean Length at Age: Von Bert Estimated Growth Curve. The Von Bert Growth Curve indicates the estimated growth rate of Largemouth Bass.

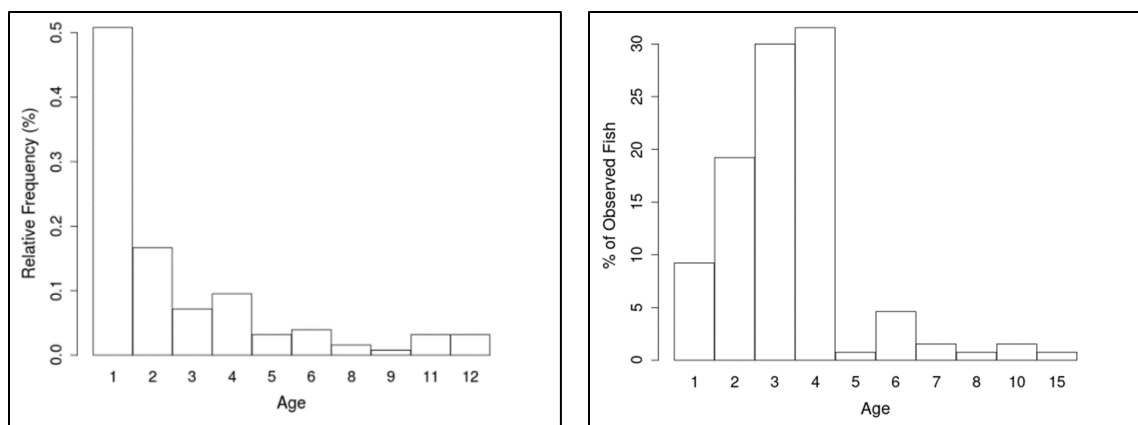


Figure 3. 2019 (left) and 2022 (right) Age Frequencies of Largemouth bass.

Table 4. Largemouth Bass Genetic Samples 2009 -2022.

Bass DNA Summary									
Year	%FLMB	%NLMB	% F1	% FX-F	% FX-N	% FX	% DNR	% F+F1	# Sampled
2009	15.8%	2.6%	23.7%	.	.	57.9%	10.5%	39.5%	38
2015	6.3%	0.0%	31.3%	50.0%	12.5%	0.0%	60.0%	37.5%	40
2022	TBD	.	.	.	.	.	.	.	.

Genotype	Description
FLMB	Only Florida Strain Alleles
NLMB	Only Native Strain Alleles
F1	First Cross-Both Alleles present for all markers
FX-F	Hybrid Cross-mostly Florida Alleles
FX-N	Hybrid Cross-mostly Native Alleles
FX	Hybrid Cross-equal number of Alleles for 2 or 3 markers
DNR	Did not run or file unreadable.

Spotted Bass

Spotted Bass were surveyed in spring of 2022 by means of boat electrofishing. Fifteen randomly selected shoreline units were sampled. Overall Spotted Bass abundance, catch per unit of effort (CPUE) increased from 2019 (CPUE = 8.5) to 2022 (CPUE=14.0) (Table 5). Relative abundance varied slightly between size classes from 2019 to 2022 but showed a significant increase in stock size fish in 2022 (CPUE= 10.0) compared to 2019 (CPUE=2.0). Only a slight decrease was observed in quality and preferred size fish. It is important to note that electrofishing systems switched from Smith-Roots to an ETS System in 2022. The two systems differ in design and possibly efficiency. The 2022 results should be viewed as an estimate and not directly comparable to the 2019 survey. Future surveys will be comparable with the 2022 survey.

Body condition or relative weights (Wr) had decreased in all size classes surveyed except for stock (Wr=85) size fish. However, stock (Wr=85) and quality (Wr=87) size classes were considered to be in poor body condition with less than acceptable relative weight conditions. Only preferred (Wr=92) size fish were in acceptable body condition (Table5). The largest fish sampled from the 2022 survey measured 16.4 (in) in total length and 2.3 (lbs) in weight.

Proportional size distribution (PSD) values decreased considerably in all size classes from 2019 to 2022 indicating a decrease in proportion of larger size fish (Table 6). Spotted Bass length frequency histograms (Figure 4) also demonstrated a decrease in overall size structure with. Only 14% of the population surveyed were of quality (11 in) size and larger.

Age data was collected on a subset of Spotted Bass from the 2022 survey. Spotted Bass growth rates slowed in 2022 compared to 2019, reaching a mean length of 5.4 inches in their first year, taking three years to reach a mean length 9.8 inches (Table 7). Age frequencies indicate a strong 2019-year class with approximately 40% of the fish being three years of age. The oldest fish surveyed was seven years of age (Figure 5).

While Spotted Bass abundance has increased, size structure and body conditions have decreased, and growth rates have slowed. Spotted Bass typically grow slower and obtain smaller sizes than Largemouth Bass, but they compete for the same food source. For management reasons low abundance of Spotted Bass is preferred. Harvest is encouraged.

Table 5. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Spotted Bass collected by spring electrofishing from Holdenville Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	Substock 0-7.0 in	Stock 7.1 in		Quality 11 in		Preferred 13.8 in		Memorable 16.9 in		Trophy 20.1 in	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2009	94	25.1	.	12.8	93	6.1	95	2.9	101	1.3	105	.	.
2019	17	8.5	1.5	2.0	80	1.5	90	3.5	99	.	.	.	.
2022	35	14.0	2.0	10.0	85	1.2	87	0.8	92	.	.	.	.

Table 6. Proportional Size Distribution (PSD) of Spotted 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.

<u>Year Surveyed</u>	<u>PSD-Q</u> <u>(11 in)</u>	<u>PSD-P</u> <u>(13.8 in)</u>	<u>PSD-M</u> <u>(16.9 in)</u>
2009	45	18	6
2019	71	50	.
2022	17	7	.

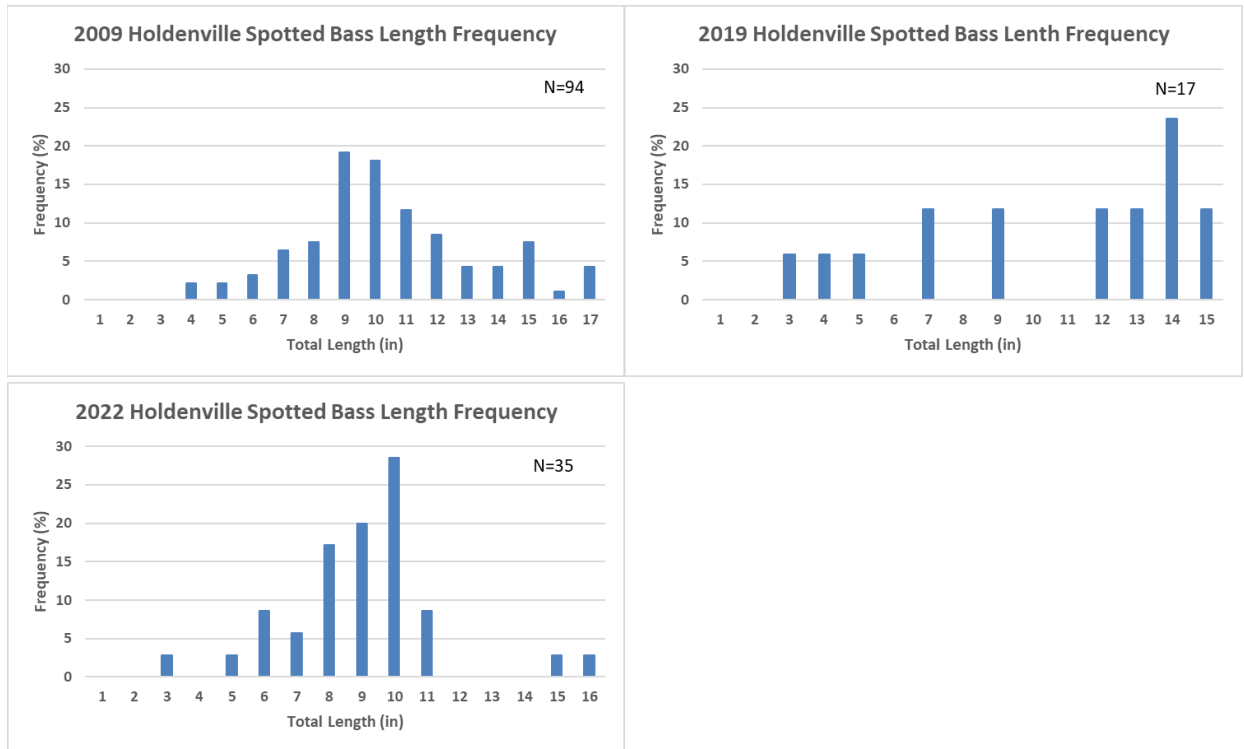


Figure 4. Spotted Bass Length Frequencies for Holdenville Lake 2009-2022.

Table 7. Mean Total Length at age (inches) and L infinity (estimated mean maximum length) for Spotted Bass from Holdenville Lake.

<u>Year</u>	<u>Age</u> <u>1</u>	<u>Age</u> <u>2</u>	<u>Age</u> <u>3</u>	<u>Age</u> <u>4</u>	<u>Age</u> <u>5</u>	<u>Age</u> <u>6</u>	<u>Age</u> <u>7</u>	<u>Age</u> <u>8</u>	<u>Age</u> <u>9</u>	<u>Age</u> <u>10</u>	<u>Age</u> <u>11</u>	<u>Age</u> <u>12</u>	<u>L inf.</u>
<u>2019</u>	6.9	13.3	14.9	.	.	.	.	.	.	.	.	.	15.37
<u>2022</u>	5.4	8.0	9.8	10.7	.	.	16.0	.	.	.	.	.	.

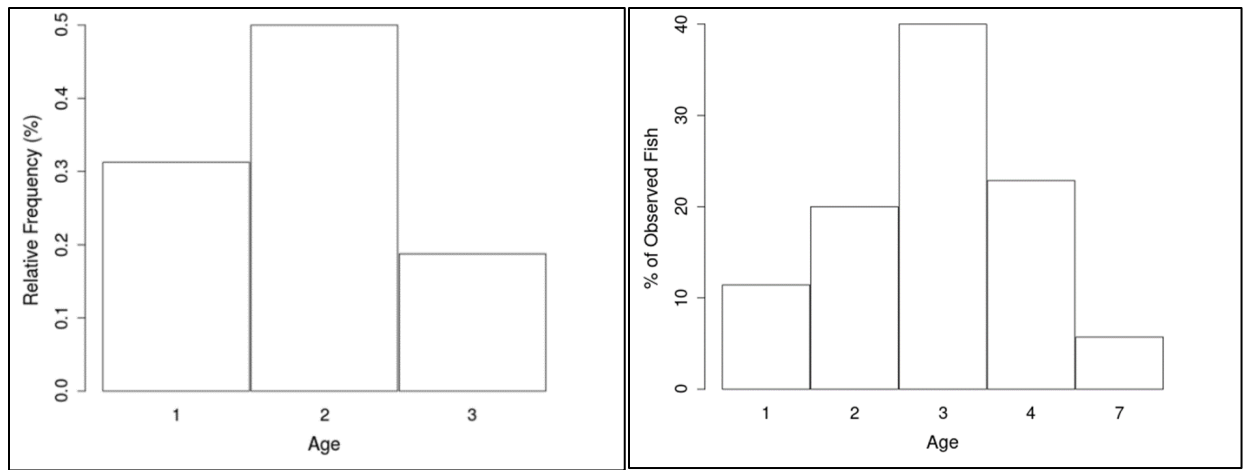


Figure 5. 2019 (left) and 2022 (right) Age Frequency of Spotted Bass.

Blue Catfish

Blue Catfish were sampled in the summer of 2022 using electrofishing techniques. Eight randomly selected sites were surveyed for a total of 40 minutes of effort. A total of one Blue Catfish was sampled during the survey. The one fish collected was in the quality size class and in excellent body condition ($Wr = 111$) (Table 8). Blue Catfish populations are considered low, with no verified reproduction occurring. In 2023, the City of Holdenville changed the Holdenville Lake Blue Catfish regulations to only allow a creel limit of three with only one greater than 30 inches. Jug lines were also prohibited. It is important to note that electrofishing systems switched from Smith-Roots to an ETS System in 2022. The two systems differ in design and possibly efficiency. The 2022 results should be viewed as an estimate and not directly comparable to the 2019 survey. Future surveys will be comparable with the 2022 survey.

Table 8. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Blue Catfish collected by Summer Catfish Electrofishing from Holdenville Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> 11.8 in		<u>Quality</u> 20.1 in		<u>Preferred</u> 29.9 in		<u>Memorable</u> 35 in		<u>Trophy</u> 44.9 in	
Year	No.	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
<u>2019</u>	2	2.7	.	.	2.7	125	.	.	.	.	.	.
2022	1	1.5	.	.	1.5	111	.	.	.	.	.	.

Flathead Catfish

Flathead Catfish were sampled in the summer of 2022 using electrofishing techniques. Eight randomly selected sites were surveyed for a total 40 minutes of effort. A total of 16 Flathead Catfish were sampled during the survey. Abundance increased in 2022 (CPUE = 24.0) compared to 2019 (CPUE=5.3) (Table9). However, both quality and trophy size classes decreased, and no change occurred in the preferred and memorable size classes. Body condition for stock size fish was considered poor ($Wr = 79$). Nearly 87% of the fish sampled were in the substock size class measuring 13 inches or less (Figure 6). The largest

fish sampled measured 17.6 (in) in total length and weighed 1.8 pounds. It is important to note that electrofishing systems switched from Smith-Roots to an ETS System in 2022. The two systems differ in design and possibly efficiency. The 2022 results should be viewed as an estimate and not directly comparable to the 2019 survey. Future surveys will be comparable with the 2022 survey.

Table 9. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Flathead Catfish collected by Summer Catfish Electrofishing from Holdenville Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> 13.8 in		<u>Quality</u> 20.1 in		<u>Preferred</u> 28 in		<u>Memorable</u> 33.9 in		<u>Trophy</u> 40.2 in	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
<u>2019</u>	4	5.3	.	.	3.0	88	.	.	.	.	1.3	101
<u>2022</u>	16	24.0	4.5	79	.	.	.	.	.	.	.	.

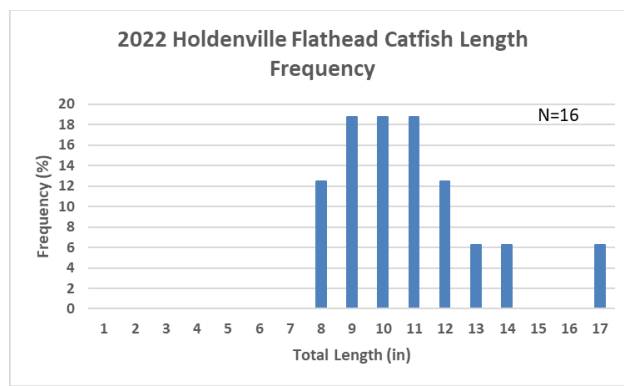


Figure 6. Flathead Catfish, Electrofishing Length Frequency Histogram 2022.

Crappie

Crappie were surveyed in the fall of 2022 using trap nets. A total of 14 randomly selected site locations were fished for a total of 24 hours (14 net nights). Overall Crappie abundance increased significantly from 2017 (CPUE=25.0) to 2022 (CPUE=42.9) (Table 10). Abundance increased for all size classes in 2022 compared to 2017, except for trophy size fish where no fish were found during either survey. However, with an increase in overall abundance, Crappie body condition declined in all size classes except for stock (Wr = 86) size where it remained below the acceptable level of 90. Both stock (Wr = 86) and quality (Wr = 78) body conditions were considered poor, while preferred (Wr = 91) and memorable (Wr = 90) size classes barely met the acceptable value of 90 and above (Table 10). The largest fished sampled from the 2022 survey measured 12.6 (in) in total length and 1.04 (lbs.) in weight. Length frequency histograms indicated that most of the fish sampled were seven inches or less (Figure 7).

Age data was collected on a subset of Crappie from the 2022 survey. Growth rates were considered slow for all ages but had increased in 2022 compared to 2017. The 2022 survey showed it takes roughly three years for a crappie to reach a mean length of 8.7 inches, an increase from 2017's mean length at

age three of 7.8 inches (Table 11). The Von Bertalanffy growth curve (Figure 8) gives a visual representation of the predicted growth of Crappie for Holdenville Lake and estimated the mean maximum length at 9.2 inches for the 2022 survey, an increase from 8.1 inches in 2017. Age frequency for 2022 indicated high recruitment over the last few years with roughly 90 percent of Crappie age three or younger (Figure 9).

Crappie at Holdenville Lake remain stunted with slow growth. Abundance is moderate and overall body conditions are considered poor. Harvest of Crappie in all size classes is encouraged.

Table 10. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Crappie collected by fall trap netting from Holdenville Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	Stock 5.1 in		Quality 7.9 in		Preferred 9.8 in		Memorable 11.8 in		Trophy 15.0	
Year	No.	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2009	82	17.1	14.2	81	1.3	76	0.2	80	.	.	.	.
2017	692	25.0	21.2	81	3.3	80	1.3	100	0.1	107	.	.
2022	586	42.9	27.5	86	9.5	78	2.3	91	0.3	90	.	.

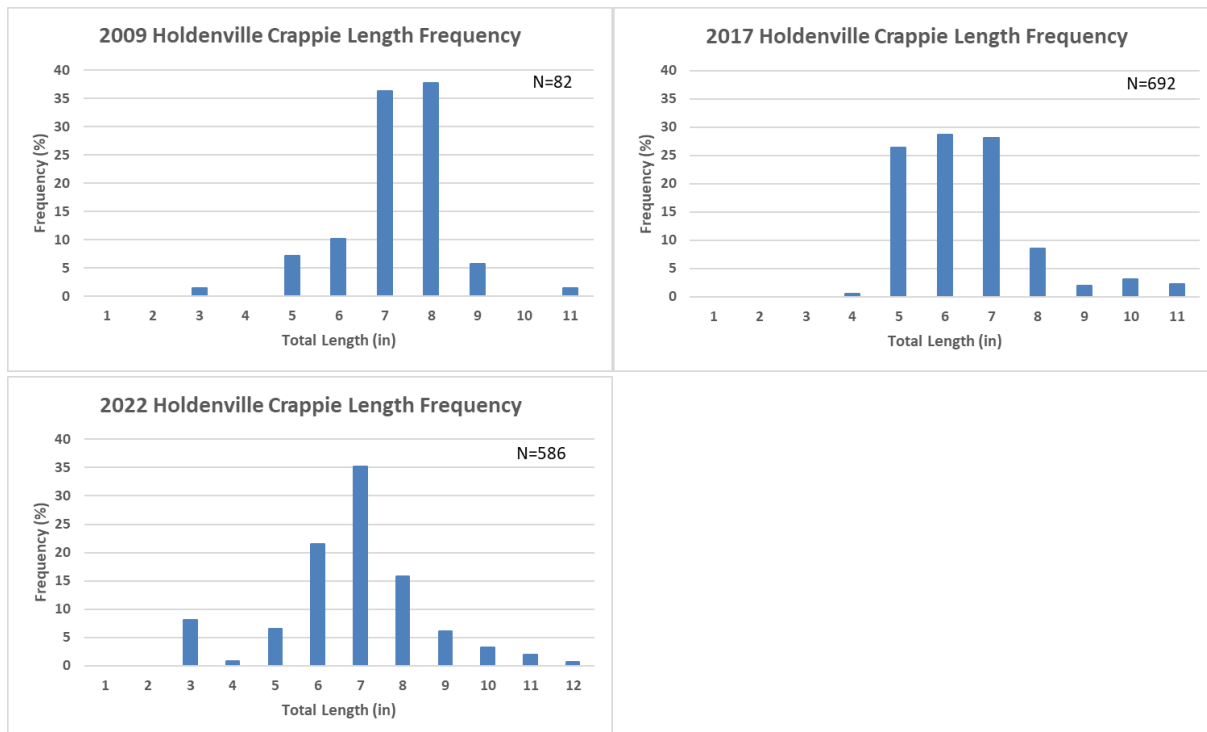


Figure 7. Crappie, Trap Net Length Frequency Histogram 2009-2022.

Table 11. Mean Total Length at age (inches) and L infinity (estimated mean maximum length) for Crappie from Holdenville Lake.

<u>Year</u>	<u>Age</u> <u>1</u>	<u>Age</u> <u>2</u>	<u>Age</u> <u>3</u>	<u>Age</u> <u>4</u>	<u>Age</u> <u>5</u>	<u>Age</u> <u>6</u>	<u>Age</u> <u>7</u>	<u>Age</u> <u>8</u>	<u>L inf.</u>
2009	5.3	6.6	7.3	7.4	8.2	6.6	.	.	8.0
2010	5.2	6.3	6.5	7.1	7.3	8.2	.	.	11.1
2016	5.7	6.7	7.0	7.7	7.0	.	.	.	7.7
2017	5.6	6.7	7.8	7.1	8.1	8.2	.	.	8.1
2022	5.6	7.5	8.7	.	.	11.9	.	7.7	9.2

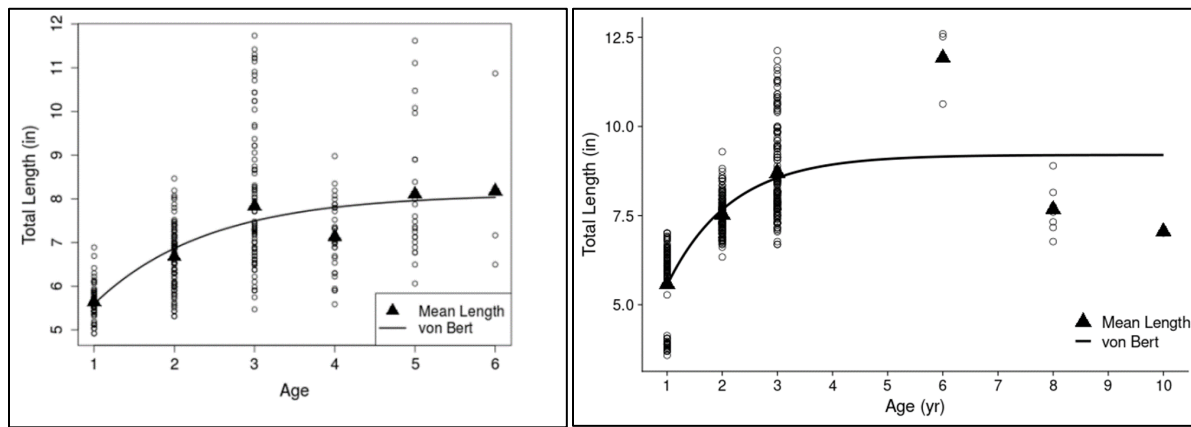


Figure 8. 2017 (left) and 2022 (right) Crappie Mean Length at Age: Von Bert Estimated Growth Curve. The Von Bert Growth Curve indicates the estimated growth rate of Crappie.

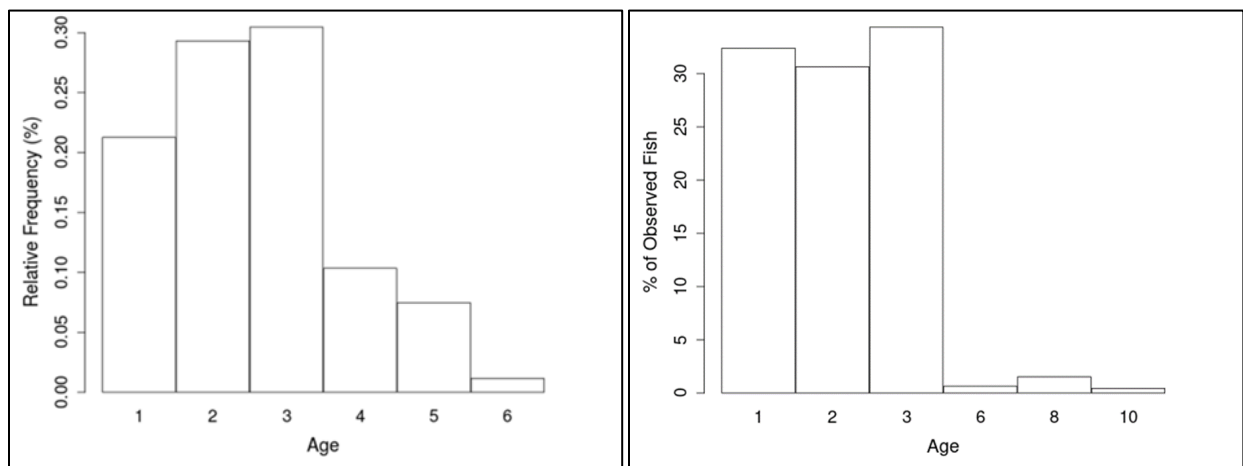


Figure 9. 2017 (right) and 2022 (left) Crappie Age Length Frequency.

Angler Survey

A roving creel survey was conducted at Holdenville Lake from January 1st through December 31st, 2022. The creel survey was weighted for weekend pressure with a total of 36 creel days (9 per quarter). A total of 114 interviews with 201 anglers were conducted. 21% (43) anglers were interviewed multiple times. Fishing pressure was roughly 2.4 hours per interviewed angler, a total of 476.9 angler hours. Roughly 69% of the fishing pressure occurred during the weekend. Bank anglers made up 40% of the fishing type while boat anglers powered by gas engines were 31%, and dock anglers 22%. When asked what species anglers targeted, 41% were after Black Bass, 20% said catfish, 19% said anything, and 13% said Crappie. Other species specifically targeted were Blue Gill, White Bass and Saugeye.

Angler success (anglers who caught fish) was nearly 70%. However, angler harvest was low, only 93 fish total were harvested by 44 (22%) of the anglers. Harvest rates were estimated at 0.19 fish per hour or 0.46 fish per angler. Crappie (43%) were the most harvested fish, followed by Blue Gill (32%), Channel Catfish (18%), White Bass (4%), and Black Bass (2%). Only 10 % of the interviewed anglers utilized live sonar. When first time interviewed anglers were asked if they target ODWC fish attractor locations, only 38% of the interviewed groups responded yes. When asked about overall satisfaction on a scale of one to five with one being highly unsatisfied, and five highly satisfied, anglers were satisfied with the fishery at (3.9).

When asked if they targeted Blue Catfish or Saugeye at Holdenville Lake in the past 12 months, only 14% (22) of the first-time interviewed anglers specifically targeted Blue Catfish and 7% (12) saugeye. When asked, to what extent do they support a reduced bag limit of Blue Catfish on Holdenville Lake, on a scale of one to five, the overall sentiment was neutral at (3.1). Answers varied but generally, those who did not support a reduced bag limit had a miss understanding of how a reduced bag limit would help.

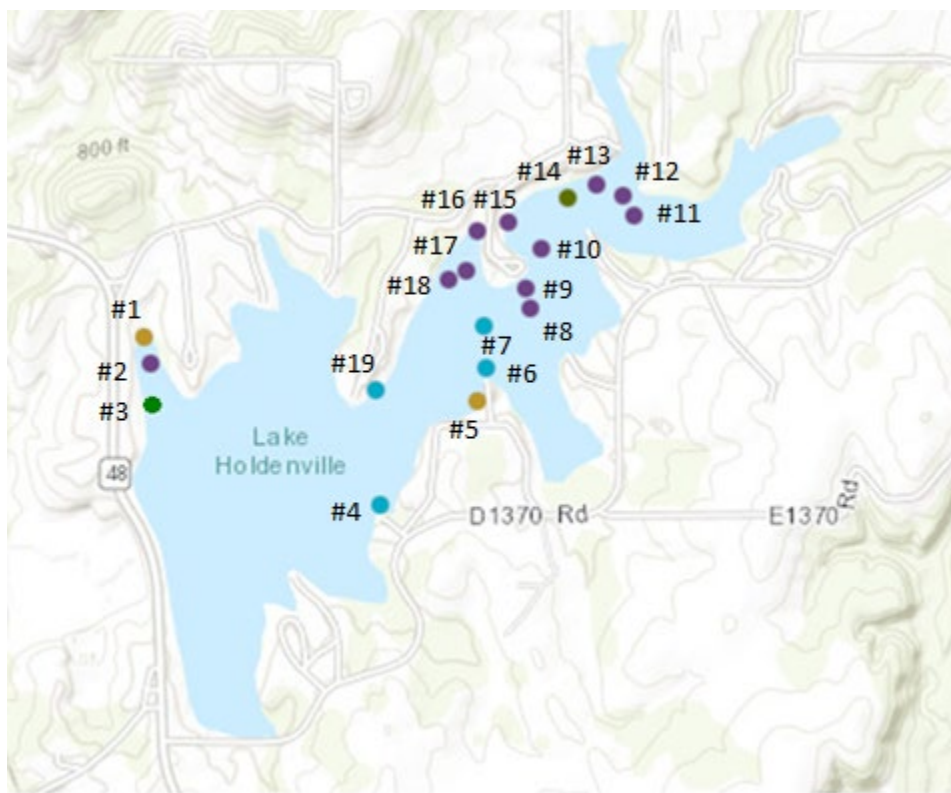
Overall, angler success was high, anglers were satisfied, and harvest was low for all species. Few anglers had actively fished for Blue Catfish and saugeye in the past 12 months. General opinion for a reduced bag limit for Blue Cattish was neutral. And only 38 % of first-time anglers targeted ODWC fish attractor locations.

RECCOMENDATIONS

1. Monitor Crappie growth rates in response to saugeye stockings.
2. Monitoring Gizzard shad and reduce predator stockings if low abundance continues.
3. Continue Zebra Mussel sampling and increase frequency to at least once annually.

Appendix 1. Species, number and size of fish stocked in Holdenville Lake since 2005.

Date	Species	Number	Size (inches)
2005	Channel Catfish	11,040	7
	Blue Catfish	14,858	6
	Saugeye	11,250	1.7
2006	Channel Catfish	11,000	7
2007	Channel Catfish	11,220	7
2008	Florida Largemouth Bass	52	3.5
	Florida Largemouth Bass	3,535	3
	Saugeye	12,500	1.5
	Channel Catfish	5,500	7
2010	Saugeye	11,000	2
2012	Florida Largemouth Bass	77,004	1.25
	Saugeye	20,323	1.5
2013	Florida Largemouth Bass	30,240	1.5
2015	Saugeye	12,540	1.5
2016	Florida Largemouth Bass	7,315	1.5
	Saugeye	13,200	1.5
	Channel Catfish	35,846	2.5
2017	Florida Largemouth Bass	24,435	1.5
	Channel Catfish	10,164	2
2018	Florida Largemouth Bass	27,666	2
2019	Florida Largemouth Bass	50,148	1.5
	Saugeye	20,250	1.5
2021	Florida Largemouth Bass	60,116	1.5
	Saugeye	11,155	1.5
2023	Saugeye	18,304	1.5



Appendix 2. Holdenville Lake Fish Attractor Locations

Fish Attractor Site Information for Holdenville Lake.

Area Name	Site #	Latitude	Longitude	Habitat Type	Marked	Bank Access	Date
Boat Dock Cove	1	35.03442	-96.36969	Brush Pile	Y	Y	12/18/2019
Fishing Dock	2	35.03355	-96.36938	Brush/ Spider Blocks	N	Y	12/18/2019
Metal Retaining Wall S. of Fishing Dock	3	35.03291	-96.36965	Spider Blocks	N	Y	12/18/2019
Indian Church Area	4	35.02908	-96.36053	Starfish/Brush	Y	Y	12/18/2019
Indian Cemetary Cove	5	35.03239	-96.35676	Brush Pile	Y	Y	12/18/2019
Cemetary Point	6	35.03347	-96.35632	Starfish	N	N	9/11/2014
Shallow Flat in back half of Lake	7	35.03474	-96.35643	Starfish	N	N	9/11/2014
Mid lake Flat Site 1	8	35.0353	-96.35463	Brush/ Spider Blocks	Y	N	12/18/2019
Mid Lake N. Point Site 1	9	35.03604	-96.35469	Brush/Spider Blocks	Y	Y	12/18/2019
Mid lake Flat site 2	10	35.03717	-96.35422	Brush/Spider Blocks	Y	N	12/18/2019
SW Point of back Island	11	35.03823	-96.35062	Spider Blocks	N	N	4/9/2010
E. Point Mouth Wingo Neck	12	35.03887	-96.35102	Brush/Spider Blocks	Y	N	12/18/2019
W. Point Mouth Wingo Neck	13	35.03925	-96.35198	Brush/Spider Blocks	Y	N	12/18/2019
Old R.Bed W. of Wingo Neck	14	35.03858	-96.35328	Spider Blocks	N	N	4/9/2010
Mid Lake N. Point Site 2	15	35.03802	-96.35548	Spider Blocks	N	Y	4/9/2010
Mid lake N. Cove Site 2	16	35.03783	-96.35667	Brush/ Spider Blocks	Y	Y	12/18/2019
Mid lake N. Cove Site 3	17	35.0365	-96.3571	Brush/Spider Blocks	Y	N	12/18/2019
Mid lake N. Cove Site 1	18	35.03623	-96.35773	Brush/ Spider Blocks	Y	Y	12/18/2019
N. Bank halfway up Lake	19	35.03275	-96.3606	Starfish	N	N	9/11/2014