SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

WEWOKA LAKE

2022

SURVEY REPORT

State: Oklahoma

Project Title: Wewoka Lake Fish Management Survey Report

Period Covered: Changes in ODWC standard reporting occurred since the 2007 Survey Report. This report discusses survey results from 2007-2022.

Prepared by: Michael Hollie

Date Prepared: January 16th, 2024

Wewoka Lake

ABSTRACT

Wewoka Lake was surveyed by spring electrofishing (2019), fall gill netting (2010, 2016, 2020), fall trap netting (2007, 2009, 2012, 2015, 2018, 2022), and by fall saugeye electrofishing (2008, 2009, 2012, 2013, 2015, 2016, 2017) techniques to monitor trends in fish populations. Largemouth Bass abundance increased, growth rates were slow, and recruitment lower than desired. Relative abundance of Spotted Bass, Gizzard Shad and Blue Catfish decreased. Crappie remained stunted with slow growth. However, growth rates have increased in recent years. Saugeye abundance varied but showed good growth. Saugeye stockings have been successful in reducing Crappie abundance and increasing growth rates. Continued saugeye stockings are recommended. Channel Catfish abundance increased, while abundance of quality size and larger fish, and growth rates were slower than desired.

INTRODUCTION

Wewoka Lake impounds Coon Creek, 5 miles northwest of Wewoka, in Seminole County, Oklahoma. Wewoka Lake covers 371 surface acres and was constructed in 1925 by the City of Wewoka. Wewoka Lake has a mean depth of 12 feet, a maximum depth of 27.2 feet and a secchi disc visibility of around 11 inches in the main pool in August. Turbidity is primarily from suspended clay. Fish habitat consists primarily of water willow around the shoreline and some hardwood stickups.

Fish management problems include a stunted Crappie population and low recruitment rates for Largemouth Bass. Past surveys have generally indicated low to moderate abundance of most fish species.

Recent fish management activities have included stocking of saugeye (Appendix 1) to prey on Crappie, hopefully reducing the Crappie abundance levels and competition for food which should improve their growth rates. A total of 18 fish attractor sites have been constructed over the years with spider blocks and brush to improve angler success and are periodically refurbished (Appendix 2). Fish attractor sites were most recently refurbished in 2022. In 1989, the City of Wewoka imposed a 356-mm (14-inch) minimum length limit on black bass in order to increase survival rates of smaller bass.

Wewoka Lake was surveyed by spring electrofishing (2019), fall gill netting (2010, 2016, 2020), fall trap netting (2007, 2009, 2012, 2015, 2018, 2022), and by fall saugeye electrofishing (2008, 2009, 2012, 2013, 2015, 2016, 2017) techniques to monitor trends in fish populations.

RESULTS

Largemouth Bass

Largemouth Bass (LMB) were surveyed in spring of 2019 by means of boat electrofishing. A total of six randomly selected shoreline units were sampled. Overall LMB abundance, catch per unit of effort (CPUE) increased significantly from the last survey in 2006 (CPUE = 18.0) to 2019 (CPUE = 41.0) (Table 1). Relative abundance increased in all size classes that LMB were collected. No memorable or trophy size fish were collected in either survey. Overall relative abundance was above the minimum value (CPUE $\geq$ 40) for a quality fishery. However, poor recruitment can be observed with low abundance (CPUE = 7.0) of substock size fish. It is important to note that the standard sampling procedures (SSP) for LMB electrofishing surveys changed from 15 minute to 10 minute units in 2015. While this change decreased the amount of time sampled per unit, it is unknown how that would have affected catch rates. CPUE's can vary based on habitat types sampled.

The length frequency histogram also indicated poor recruitment with only 7% of the fish surveyed, were below eight inches in length (Figure 1). Proportional size distribution (PSD) values have increased slightly for both quality and preferred size classes from 2006 to 2019, indicating an increase in proportion of larger size fish (Table 2). Body condition or relative weights (Wr) for all size classes surveyed were above acceptable values of 90 and only varied slightly from the 2006 survey (Table 1). The largest fish sampled from the 2019 survey measured 18.7 (in) in total length and 4.1 (lbs) in weight.

Age data was collected on a subset of LMB from the 2019 survey. LMB growth was slow taking approximately four years to reach a legal harvest length of 14 inches with a mean length of 15.7 inches at age four (Table 3). Growth steadily increased to age five or 18.1 inches then slowed drastically. The Von Bertalanffy growth curve (Figure 2) gives a visual representation of the predicted growth of LMB for Wewoka Lake and estimates the mean maximum length at 18.4 inches. The age frequency histogram indicated strong 2017 (age 2) and 2013 (age 6) year classes were present (Figure3).

Overall abundance increased to that of a quality fishery, relative weights were acceptable for all size classes, growth rates were slow, and recruitment lower than desired.

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 Wewoka Lake. Acceptable Wr values are $\geq$90.

		Total CPUE	Substock 0-7.8 in	Stock 7.9 in		Quality 11.8 in		Preferred 15 in		Memorable 20.1 in		Trophy 24.8	
Year	No.	CPUE	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2006	27	18.0	2.7	3.3	92	2.0	105	10.0	98	.	.	.	.
2019	41	41.0	7.0	7.0	93	5.0	97	26.0	98	.	.	.	.

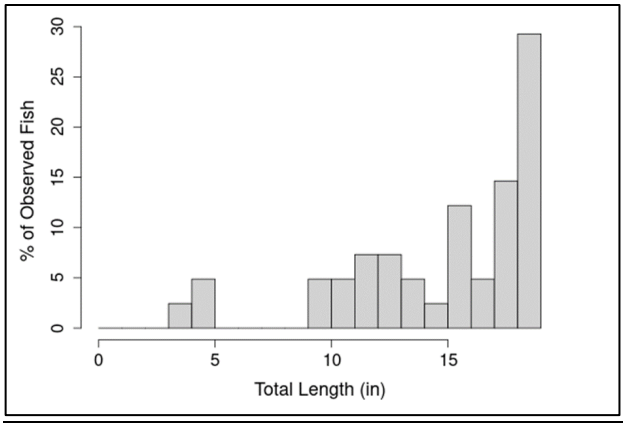


Figure 1. Largemouth Bass Length Frequency for Wewoka Lake 2019.

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 Surveyed	PSD-Q (11.8 in)	PSD-P (15 in)	PSD-M (20.1 in)
2006	78	65	.
2019	82	68	.

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

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12	L inf.
2019	4.0	10.8	13.6	15.7	18.1	17.5	17.9	18.0	.	.	.	.	18.4

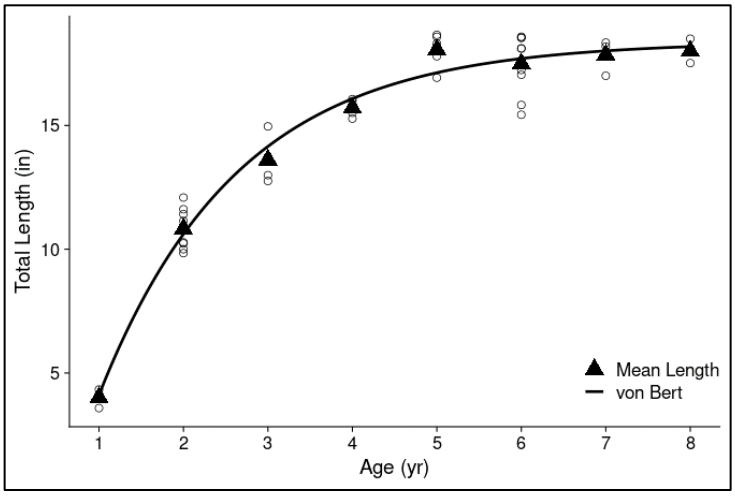


Figure 2. 2019 Largemouth Bass Mean Length at Age: Von Bert Estimated Growth Curve. The Von Bert Growth Curve indicates the estimated growth rate of Largemouth Bass.

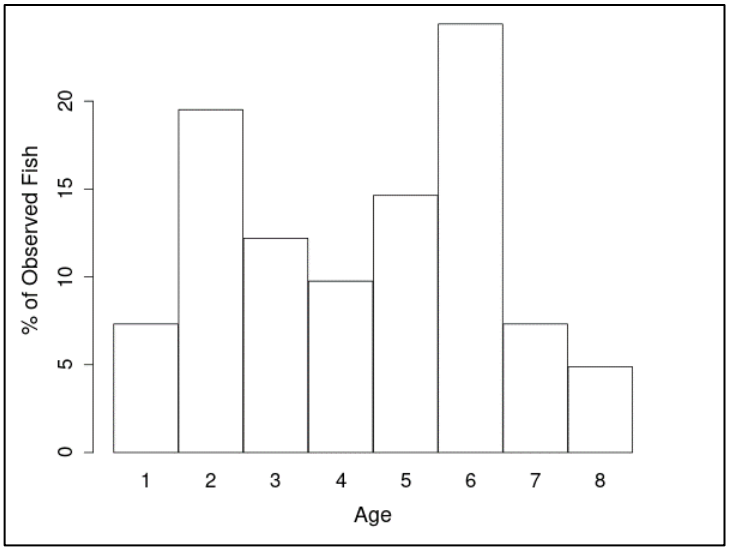


Figure 3. 2019 Age Frequency of Largemouth bass.

Spotted Bass

Spotted Bass were surveyed in spring of 2019 by means of boat electrofishing. A total of six randomly selected shoreline units were sampled. Overall Spotted Bass abundance decreased significantly from 2006 (CPUE= 108.7) to 2019 (CPUE = 8.0) (Table 4). All size classes present had a significant decrease in relative abundance. It is important to note that the standard sampling procedures (SSP) for Spotted Bass electrofishing surveys changed from 15 minute to 10 minute units in 2015. While this change decreased the amount of time sampled per unit, it is unknown how that would have affected catch rates. CPUE's can vary based on habitat types sampled. Only eight Spotted Bass were sampled during the 2019 survey.

Body condition or relative weights (Wr) had varied slightly between size classes and surveys. Both stock and preferred size classes increased slightly and were above the minimum accepted value of (Wr=90) (Table 4). Quality size fish (Wr = 89) fell below accepted body conditions. The largest fish sampled was from the 2009 survey. It measured 17.6 (in) in total length and 3.2 (lbs) in weight.

Spotted Bass typically grow slower and obtain smaller sizes than Largemouth Bass but they compete for the same food source. While the relative abundance of Spotted Bass decreased, for management reasons, low abundance of is preferred.

Table 4. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Spotted Bass collected by spring electrofishing from Wewoka Lake. Acceptable Wr values are ≥90.

		Total CPUE	Stock 7.1 in		Quality 11 in		Preferred 13.8 in		Memorable 16.9 in		Trophy 20.1	
Year	No.	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2006	163	108.7	36.0	88	17.3	91	16.0	93	.	.	.	.
2019	8	8.0	1.0	90	3.0	89	1.0	99	.	.	.	.

Channel Catfish

Channel Catfish were surveyed in 2010, 2016 and 2020 using suspended gill nets. Standard sampling protocols for gill net lengths changed in 2009 to 80 foot nets. Gill net lengths and effort varied prior to 2009. Five stations were randomly sampled for a period of 24 hours during each survey. All three surveys indicated a moderate abundance of Channel Catfish with an increase in 2020 (CPUE = 8.5) compared to 2010 (CPUE = 6.5) and 2016 (CPUE = 7.5) (Table 5). Body conditions for all size classes and years surveyed were below acceptable values (Wr≥90).

The length frequency histograms (Figure 4) indicated a decrease in size structure from 2016 to 2020, with 87% of the fish surveyed were below 16 inches or quality size. Proportional size distribution (PSD) values decreased from 2016 (PSD-Q = 48) to 2020 (PSD-Q = 22), also indicating a decrease in size structure (Table 6).

Age data was collected on a subset of Channel Catfish from the 2016 and 2020 surveys. Growth rates were slow during the 2020 survey. Channel Catfish grew to a mean length of 10.8 inches by age three and took between seven and eight years to reach quality size (Table 7). The largest fish sampled was collected during the 2016 survey and measured 24.2 (in) in total length and weighed 5.8 (lbs) in weight. The oldest Channel Catfish was aged to be 13 years old. Age frequencies indicate consistent recruitment and a strong 2018 (age 2) and 2015 (age 5) year classes (Figure 5). The most recent stocking on record occurred in 1988, indicating that the Channel Catfish population is self-sustaining at Wewoka Lake.

While Channel Catfish abundance increased, size structure decreased, and growth rates were slow. Harvest is recommended to reduce abundance and help increase body conditions and growth rates. The Channel Catfish population is self-sustaining. Therefore, no stockings are recommended.

Table 5. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Channel Catfish collected by fall gill netting from Wewoka Lake. Acceptable Wr values are ≥90.

		Total CPUE	Stock 11 in		Quality 16.1 in		Preferred 24 in		Memorable 28 in		Trophy 35.8 in	
Year	**No.**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2010	31	6.5	1.7	77	1.3	80	.	.	.	.	.	.
2016	39	7.5	3.1	85	2.7	86	.	.	.	.	.	.
2020	41	8.5	3.7	82	1.0	86	.	.	.	.	.	.

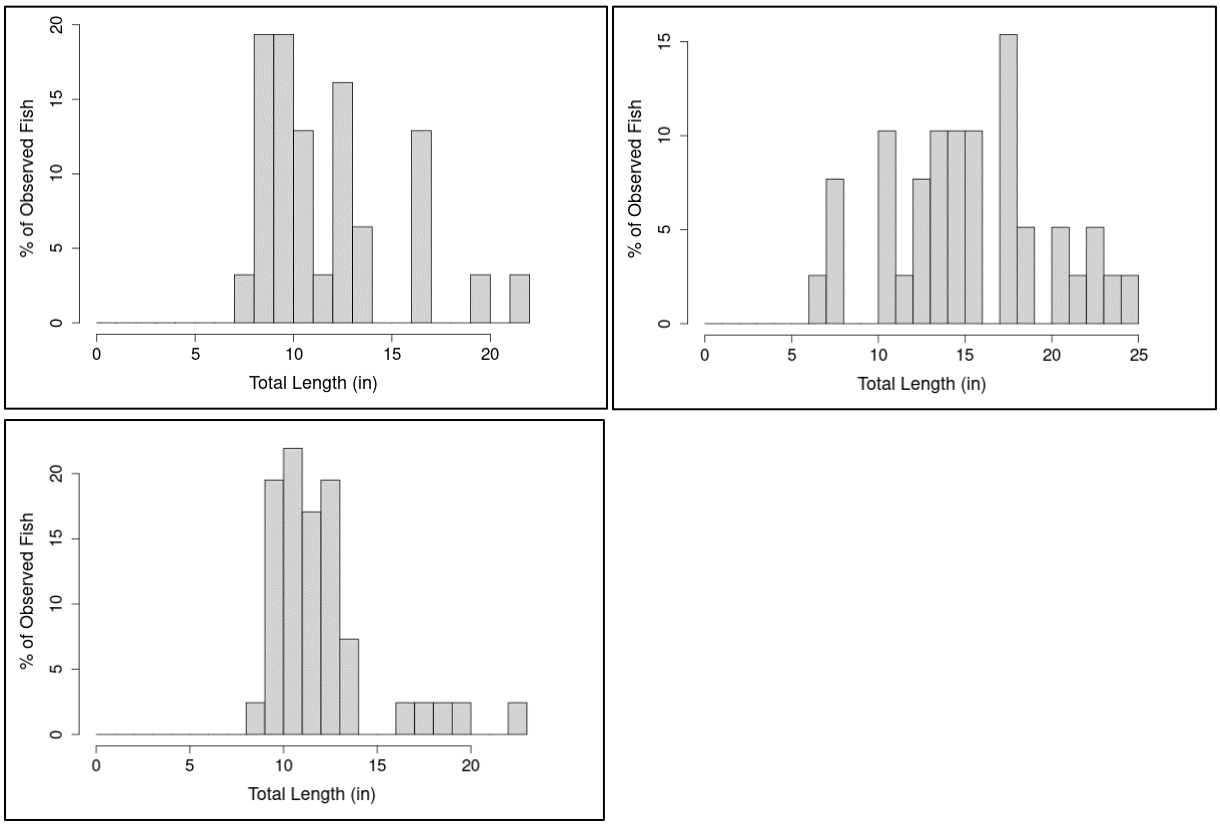


Figure 4. Channel Catfish Gill Net Length Frequency Histograms 2010 (top left), 2016 (top right), and 2020 (bottom).

Table 6. Proportional Size Distribution (PSD) of Channel Catfish. 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 Surveyed	PSD-Q (16.1 in)	PSD-P (24 in)	PSD-M (28 in)
2010	43	.	.
2016	48	3	.
2020	22	.	.

Table 7. Mean Total Length at age (inches) and L infinity (estimated mean maximum length) for Channel Catfish from Wewoka Lake.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12	L inf.
2016	7.3	.	.	.	10.4	13.2	16.6	17.8	14.4	22.7	.	.	38.9
2020	9.0	10.3	10.8	11.3	11.6	13.4	.	18.0	.	14.6	.	21.0	.

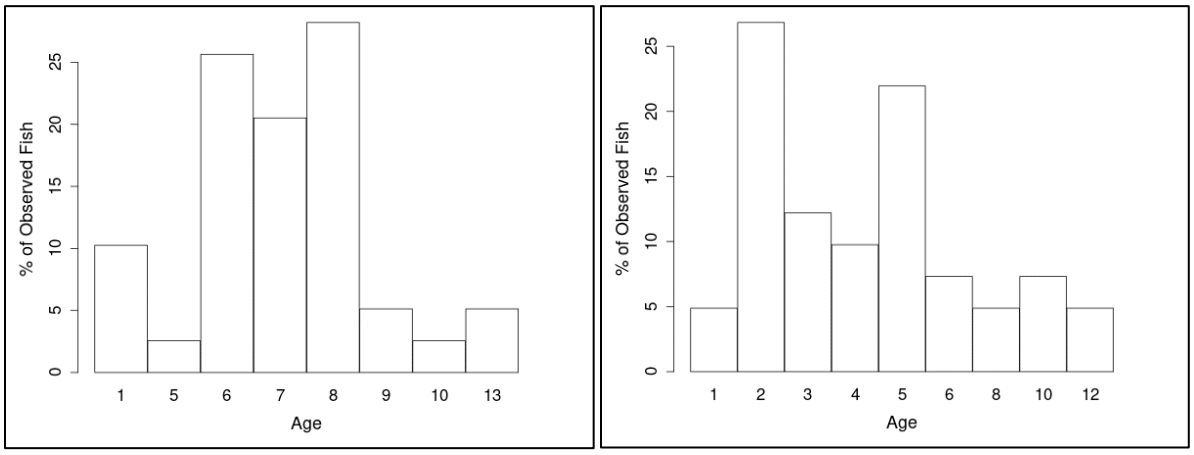


Figure 5. Channel Catfish Age Frequencies 2016 (left) and 2020 (right).

Blue Catfish

Blue Catfish were surveyed in 2010, 2016 and 2020 using suspended gill nets. Standard sampling protocols for gill net lengths changed in 2009 to 80 foot nets. Gill net lengths and effort varied prior to 2009. Five stations were randomly sampled for a period of 24 hours during each survey. All three surveys indicated a low abundance of Blue Catfish with a (CPUE = 1.0) in 2010. No Blue Catfish were sampled in the 2016 or 2020 surveys (Table 8). Body conditions were considered poor (Wr =81) for the stock size class and acceptable (Wr = 92) for the quality size class. The largest fish sampled measured 21.7 (in) in total length and 3.7 (lbs.) in weight.

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

		Total CPUE	Stock 11.8 in		Quality 20.1 in		Preferred 29.9 in		Memorable 35 in		Trophy 44.9 in	
Year	No.	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2010	5	1.0	0.6	81	0.4	92	.	.	.	.	.	.
2016	0	.	.	.	.	.	.	.	.	.	.	.
2020	0	.	.	.	.	.	.	.	.	.	.	.

Saugeye

Saugeye were surveyed in 2010, 2016 and 2020 using suspended gill nets. Standard sampling protocols for gill net lengths changed in 2009 to 80 foot nets. Gill net lengths and effort varied prior to 2009. Five stations were randomly sampled for a period of 24 hours during each survey. All three surveys indicated a low abundance of saugeye but an increase overall from 2010 (CPUE = 0.6) to 2020 (CPUE = 2.1) (Table 9). Body conditions were considered poor for stock and memorable size classes while both quality and preferred size fish were considered acceptable (Wr $\geq$ 90) during the 2020 survey. The largest fish sampled was from the 2020 survey and measured 23.7 (in) in total length and 5.07 (lbs.) in weight.

Fall nighttime electrofishing surveys for saugeye were conducted in 2008, 2009, 2012, 2013, 2015, 2016, and 2017. Randomly selected shoreline units were sampled. Overall saugeye abundance varied greatly between all years surveyed. Abundance increased from 2008 (CPUE = 20.0) to 2012 (CPUE = 37.7) then decreased through 2015 (CPUE = 26.7), then significantly increased in 2016 (CPUE = 53.3), and again decreased the following survey in 2017 (CPUE = 22.3). The 2017 survey indicated a moderate abundance of saugeye with an increase in abundance in the quality, preferred and memorable size classes compared to the previous electrofishing surveys (Table 10). Body condition for the most recent survey in 2017 were above the acceptable value of Wr $\geq$ 90 for all size classes. The 2017 length frequency histogram indicates roughly 61% of the saugeye surveyed were 14 inches or larger (Figure 6). The largest fish sampled was from the 2009 survey and measured 24.8 (in) in total length and 6.3 (lbs.) in weight.

Age data was collected from a subset of saugeye during the 2016, 2017 and 2020 surveys. Age data from the most recent 2020 gill net survey suggests saugeye grew to a mean length of 14.5 inches by age one and 20.2 inches by age four (Table 11). Legal harvest limit was changed from 18 inches to 14 inches statewide in 2016. Saugeye grew to a legal harvest length by age one during the 2020 survey. It appears, growth rates have increased from 2016 to 2020, however, only 10 fish were collected and aged during the 2020 survey. Sample size is considered too small to make reliable conclusions.

Saugeye were first introduced to Wewoka Lake in 1993 and stocked frequently since. The most recent stocking occurred in 2023 (Appendix 1). Saugeye do not naturally reproduce, therefore, they must be stocked to maintain the fishery. Saugeye were stocked as a management tool to control crappie abundance and increase growth rates. They need to reach roughly 16 inches to effectively prey on Crappie. Growth rates have been good and on average have grown to 16 inches between ages one and two. It is recommended to continue stocking saugeye on a biannual rotation. The next stocking should occur in 2025.

Table 9. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Saugeye collected by fall gill netting from Wewoka Lake. Acceptable Wr values are ≥90.

		Total CPUE	Stock 9.1 in		Quality 13.8 in		Preferred 18.1 in		Memorable 22 in		Trophy 27.2 in	
Year	**No.**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2010	3	0.6	.	.	.	.	0.4	86	0.2	95	.	.
2016	9	1.7	.	.	0.4	91	0.8	92	0.6	91	.	.
2020	10	2.1	0.4	85	0.4	103	0.2	95	1.0	87	.	.

Table10. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Saugeye collected by fall night electrofishing from Wewoka Lake. Acceptable Wr values are ≥90.

		Total CPUE	Stock 9.1 in		Quality 13.8 in		Preferred 18.1 in		Memorable 22 in		Trophy 27.2 in	
Year	**No.**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2008	30	20.0	8.0	88	0.7	91	1.3	101	0.7	82	.	.
2009	20	16.0	4.0	87	0.8	86	2.4	92	1.6	91	.	.
2012	44	37.7	4.3	90	.	.	.	.	.	.	.	.
2013	42	31.5	3.0	90	4.5	101	0.8	89	1.5	94	.	.
2015	40	26.7	0.7	91	1.3	81	.	.	.	.	.	.
2016	80	53.3	12.7	88	.	.	1.3	84	.	.	.	.
2017	26	22.3	8.6	90	7.7	97	4.3	92	1.7	91	.	.

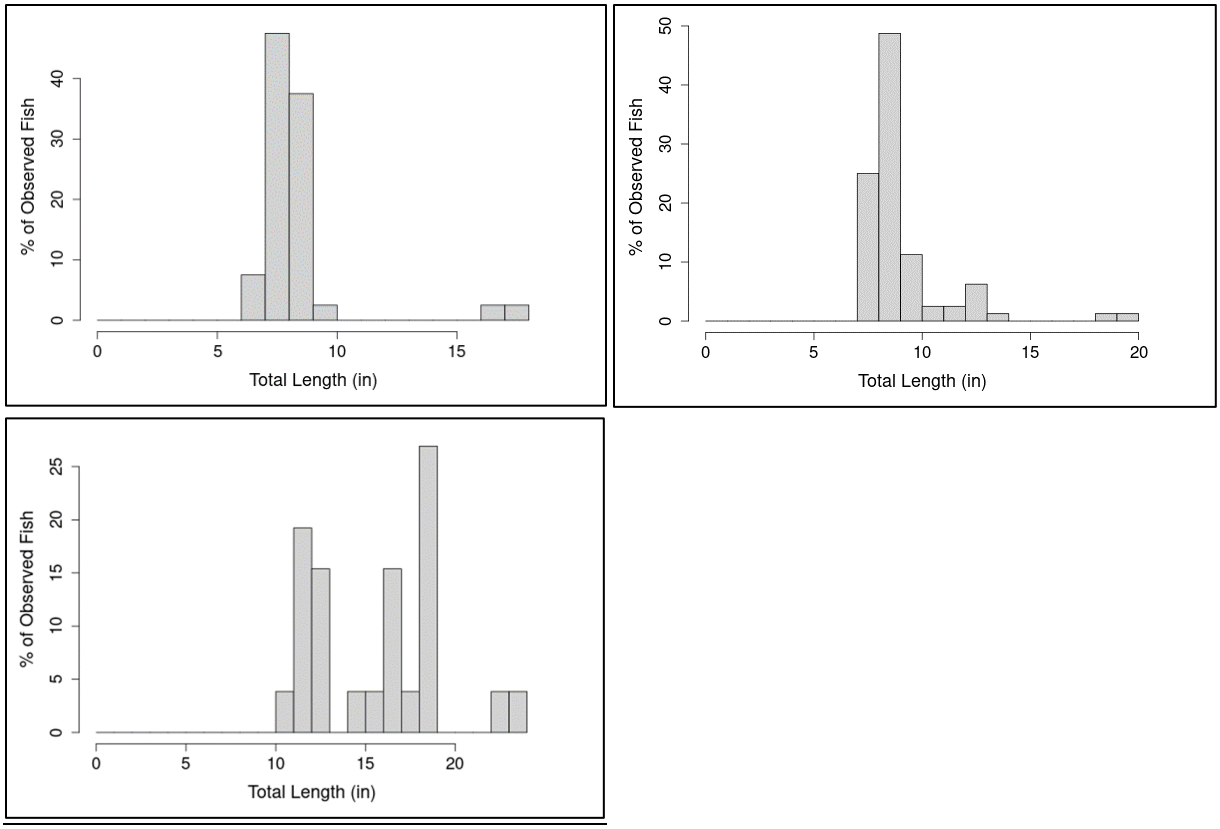


Figure 6. Saugeye, Electrofishing Length Frequency Histograms 2015 (top left), 2016 (top right), and 2017 (bottom left).

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

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	L inf.
2016	8.8	18.4	19.7	.	.	.	.	19.9
2017	13.4	18.4	.	19.7	.	.	.	19.8
2020	14.5	.	.	20.2	23.3	.	23.6	.

Crappie

Crappie were surveyed in 2009, 2012, 2015, 2018 and 2022 using trap net. In the 2009, 2012, and 2015 surveys, five random locations were selected for sampling. The 2018 survey had 15 and 2022 had eight randomly selected survey locations. Trap nets are fished for a period of 24 hours. Overall abundance decreased significantly from 2004 (CPUE = 255.4) to 2015 (CPUE = 36.7) then increased in both 2018 (CPUE = 90.3) and 2022 (CPUE = 93.8) (Table 12). Relative abundance was considered high for all years surveyed. However, abundance of quality size and larger fish was considered low for all years surveyed. Body condition varied between size classes and years surveyed but was considered below acceptable conditions (Wr $\geq$ 90) for most surveys. Body conditions in the most recent 2022 survey were acceptable for all size classes except for quality size fish (Wr = 77). The most recent length frequency histogram in 2022 also indicated low abundance of quality size (8 inches) and larger fish. Roughly 98% of the Crappie

sampled were shorter than eight inches in total length (Figure 7). The largest fish sampled was from the 2018 trap net survey and measured 14.9 (in) in total length and 1.98 (lbs.) in weight.

Age data was collected on a subset of Crappie from all the trap net surveys as well as gill net surveys in 2010, 2016, and 2020. Growth was considered slow for all ages and years surveyed. Mean length at ages varied slightly between years surveyed, however, growth rates slowly increased from 2009-2022 (Table 13). The most recent survey showed it takes roughly three years for a crappie to reach a mean length of 7.2 inches, an increase from 2004 when the mean length at age three was 5.6 inches. The Von Bertalanffy growth curve (Figure 8) gives a visual representation of the predicted growth of Crappie for Wewoka Lake and estimates the mean maximum length at 7.9 inches for the 2022 survey, an increase of 2.3 inches compared to the 2004 survey. The 2022 age frequency indicates a very strong 2021-year class with over 70% of the Crappie sampled were one year of age (Figure 9).

Crappie at Wewoka Lake remain stunted with slow growth and high relative abundance. While Crappie populations continue to be stunted, it appears that saugeye stockings have been successful. Slow improvements are occurring in Crappie growth rates and reduction in relative abundance. While improvement with the Crappie population has been slow, if saugeye stockings cease, Crappie growth may reverse and stunt at smaller sizes. Continued saugeye stockings are recommended to assist with reduction in Crappie abundance.

Table 12. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Crappie collected by fall trap netting from Wewoka 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
2004	1011	255.4	141.2	88	.	.	.	.	.	.	.	.
2009	769	160.5	83.1	88	0.2	75	.	.	.	.	.	.
2012	517	114.8	57.8	81	0.2	75	0.7	104	0.9	103	.	.
2015	168	36.7	27.9	88	3.7	80	0.2	91	.	.	.	.
2018	1336	90.3	57.1	87	0.4	76	0.3	88	0.3	103	.	.
2022	752	93.8	70.3	90	1.6	77	0.3	94	0.1	102	.	.

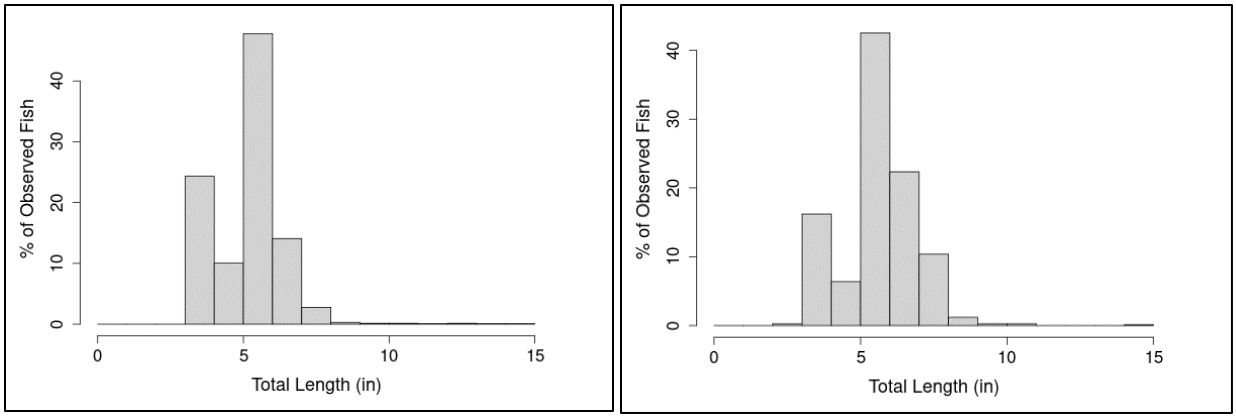


Figure 7. Crappie, Trap Net Length Frequency Histogram 2018 (left) and 2022 (right).

Table 13. Mean Total Length at age (inches)and L infinity (estimated mean maximum length) for Crappie from Wewoka Lake.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	L inf.
2004	5.1	5.5	5.6	5.4	.	.	.	.	5.6
2009	5.0	5.5	6.4	6.5	6.3	6.1	6.0	.	6.6
2010	4.9	5.2	5.6	6.3	6.1	.	.	.	.
2012	4.9	5.6	6.0	5.6	6.1	.	.	.	6.7
2015	5.3	6.7	8.1	.	.	.	.	.	.
2016	5.3	6.5	7.3	.	.	.	.	.	.
2018	5.3	6.0	6.4	7.7	9.6	.	.	.	7.8
2022	5.4	6.9	7.2	8.0	7.1	.	.	.	7.9

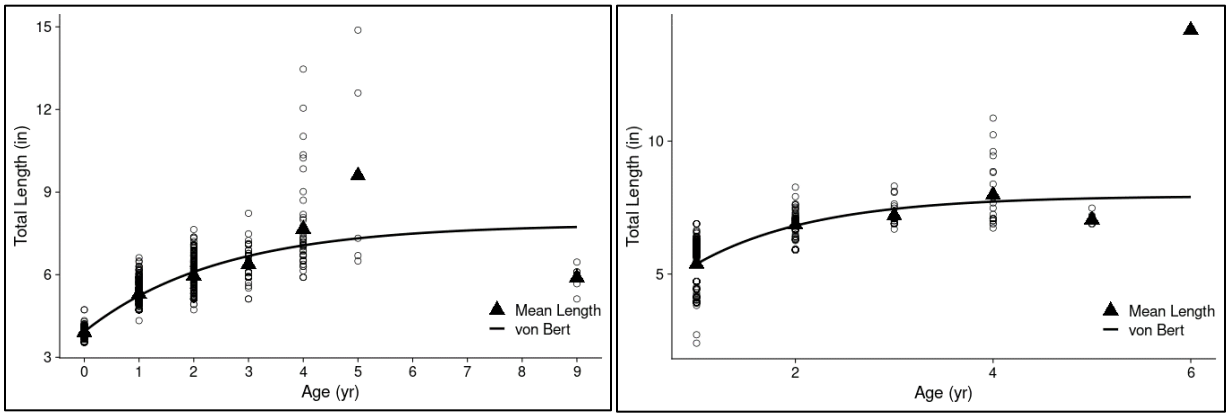


Figure 8. 2018 (left) and 2022 (right) Crappie Mean Length at Age: Von Bert Estimated Growth Curve. The Von Bert Growth Curve indicates the estimated growth rate of Crappie.

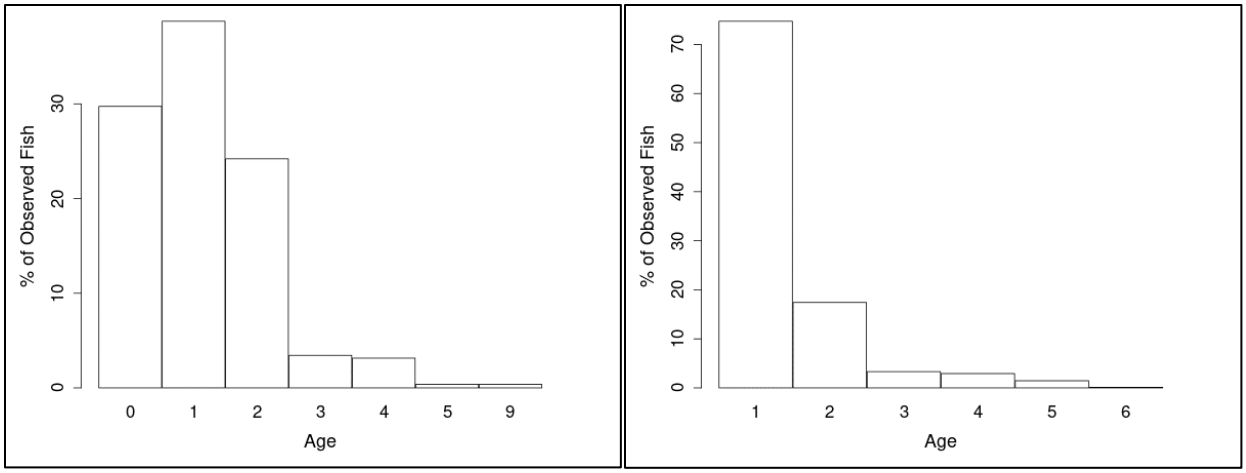


Figure 9. 2018 (left) and 2022 (right) Crappie Age Length Frequency.

White Bass

White bass were surveyed in 2010, 2016 and 2020 using suspended gill nets. Standard sampling protocols for gill net lengths changed in 2009 to 80 foot nets. Gill net lengths and effort varied prior to 2009. Five stations were randomly sampled for a period of 24 hours during all each survey. Overall abundance was considered low for all surveys. Only ten White Bass were sampled in the 2020 survey. No White Bass were collected in 2010 or 2016 (Table 14). Body conditions were considered acceptable (Wr $\geq$ 90) for all size classes present during the survey except for quality size fish (Wr = 81). The largest fish sampled measured 16.5 (in) in total length and 2.2 (lbs.) in weight.

Table 14. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of White Bass collected by fall gill netting from Wewoka Lake. Acceptable Wr values are ≥90.

		Total CPUE	Stock 5.9 in		Quality 9.1 in		Preferred 11.8 in		Memorable 15 in		Trophy 18.1 in	
Year	No.	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2010	0	.	.	.	.	.	.	.	.	.	.	.
2016	0	.	.	.	.	.	.	.	.	.	.	.
2020	10	2.1	0.2	92	0.2	81	1.5	100	0.2	94	.	.

Gizzard Shad

Gizzard shad were sampled by suspended gill nets in 2010, 2016 and 2020. Standard sampling protocols for gill net lengths changed in 2009 to 80 foot nets. Gill net lengths and effort varied prior to 2009. Five stations were randomly sampled for a period of 24 hours during each survey. Both 2010 (CPUE = 9.6) and 2016 (CPUE = 14.3) showed acceptable overall abundance of Gizzard Shad, while a decrease below acceptable values occurred in 2020 (CPUE = 2.1) (Table 15). However, the length frequency histogram for the most recent survey in 2020 (Figure 10) indicated nearly 70% of the Gizzard Shad surveyed were of optimal forage size ($\leq$ 6 inches) for most species.

Table 15. Total number (No.) and catch per unit of effort (CPUE) by size groups of Gizzard Shad collected by fall gill netting from Wewoka Lake.

Gizzard Shad				
Year	**No.**	**Total CPUE**	**<6 inches**	**≥6 inches**
2010	46	9.6	5.2	4.4
2016	74	14.3	1.7	12.6
2020	10	2.1	1.5	0.6

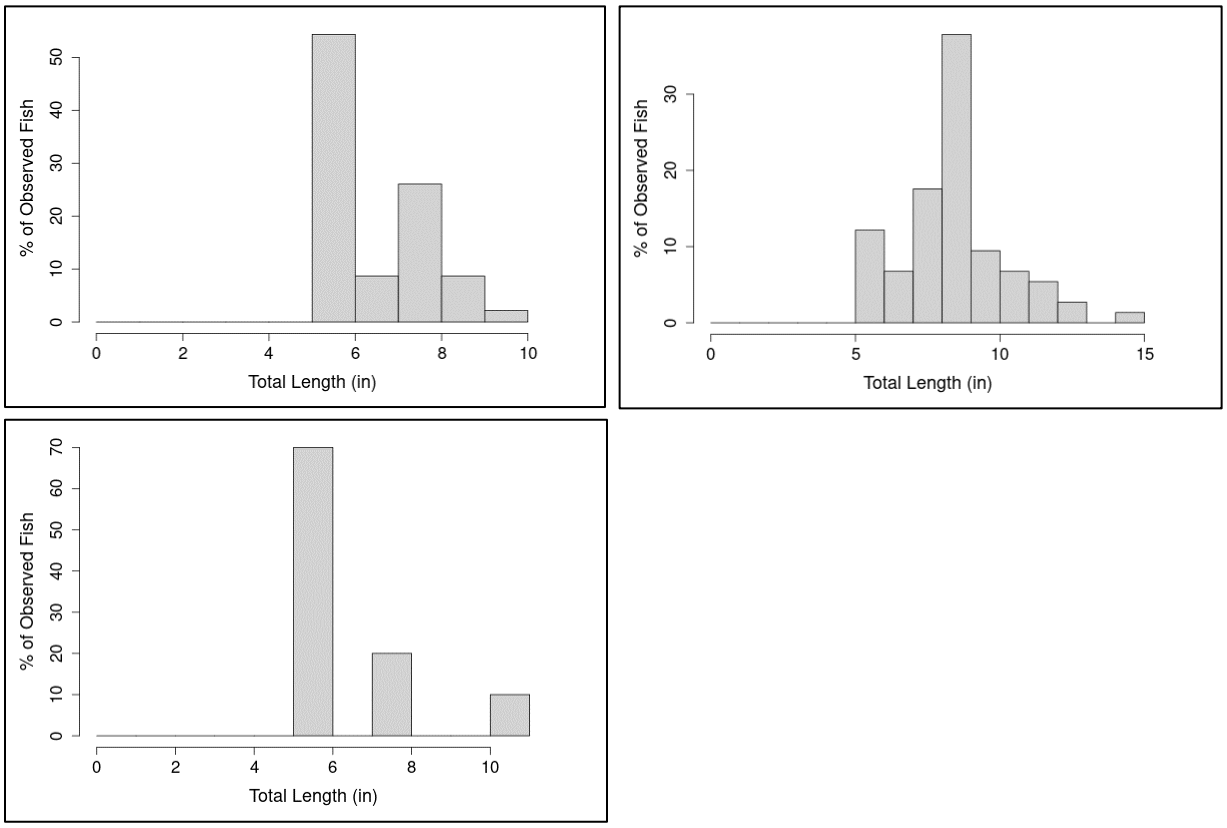


Figure 10. Gizzard Shad Length Frequency Histograms from suspended gill nets 2010 (top left), 2016 (top right), and 2020 (bottom left).

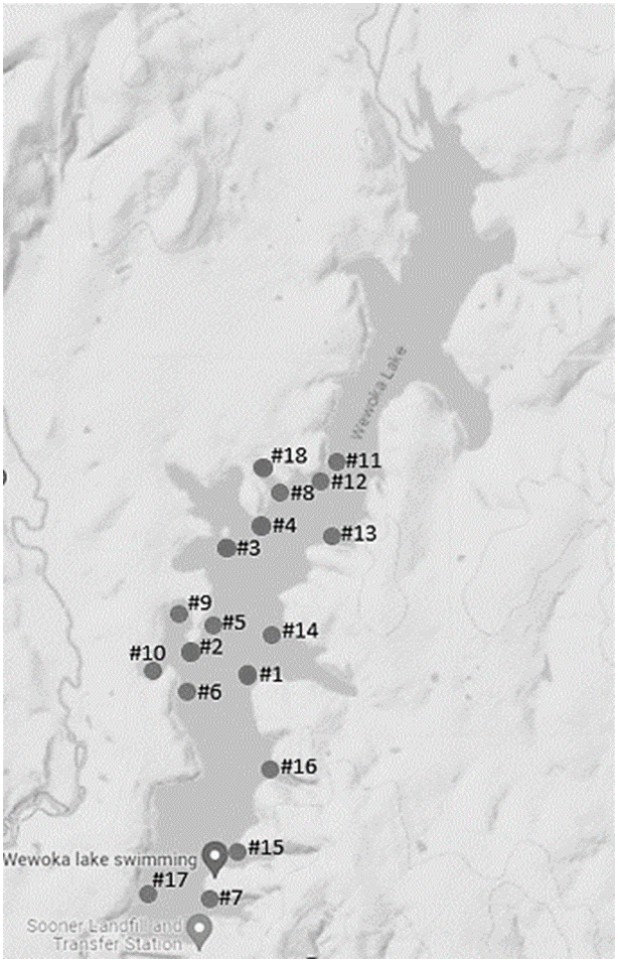
RECCOMENDATIONS

1. Continue stocking saugeye on a biannual basis.
2. Monitor stocking success and growth rates for saugeye.
3. Monitor Crappie growth rates in response to saugeye stockings.

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

Date	Species	Number	Size (inches)
2005	**Saugeye**	**8,550**	**1.7**
2006	**Saugeye**	**9,000**	**1.75**
2008	**Saugeye**	**9,495**	**1.5**
2009	**Saugeye**	**9,126**	**2**
2012	**Saugeye**	**7,863**	**1.5**
2013	**Saugeye**	**8,000**	**1.5**
2014	**Saugeye**	**7,800**	**2.25**
2015	**Saugeye**	**8,800**	**2**
2016	**Saugeye**	**17,160**	**1.5**
2019	**Saugeye**	**20,250**	**1.5**
2021	**Saugeye**	**8,510**	**2**
2023	**Saugeye**	**8,008**	**1.7**

Appendix 2. Wewoka Lake Fish Attractor Locations



Fish Attractor Site Information for Wewoka Lake.

Site #	Latitude	Longitude	Marked	Habitat Type	Bank Access	Date
#1	35.19118	-96.52082	N	Cedar Trees, Spider Blocks	N	9/2/2010
#2	35.19167	-96.52367	Y	Spider Blocks	N	9/2/2010
#3	35.1957	-96.52162	Y	Spider Blocks	N	9/2/2010
#4	35.19633	-96.5206	N	Spider Blocks	N	9/2/2010
#5	35.19169	-96.52311	N	Cedar Trees	Y	2/10/2022
#6	35.19046	-96.52397	N	Cedar Trees	Y	2/10/2022
#7	35.18184	-96.52204	N	Cedar Trees	Y	2/10/2022
#8	35.19776	-96.51984	N	Cedar Trees	Y	2/10/2022
#9	35.19286	-96.52391	N	Cedar Trees	Y	2/10/2022
#10	35.19084	-96.52507	N	Cedar Trees	Y	2/10/2022
#11	35.1989	-96.51711	N	Cedar Trees	Y	2/10/2022
#12	35.19848	-96.51723	N	Cedar Trees	Y	2/10/2022
#13	35.1959	-96.517	N	Cedar Trees	Y	2/10/2022
#14	35.19137	-96.52107	N	Cedar Trees	N	2/10/2022
#15	35.18384	-96.52123	N	Cedar Trees	Y	2/10/2022
#16	35.18701	-96.52025	N	Cedar Trees	Y	2/10/2022
#17	35.18226	-96.52595	N	Cedar Trees	Y	2/10/2022
#18	35.19832	-96.52007	N	Cedar Trees, Spider Blocks	Y	2/10/2022