SURVEY REPORT
OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS FOR FT SUPPLY LAKE 2024

SURVEY REPORT

State: Oklahoma

Project Title: Ft Supply Lake Fish Management Survey Report

Period Covered: 2013-2024

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Date Prepared: December 2024

FT SUPPLY LAKE

ABSTRACT

Fort Supply Lake was sampled in the years 2024-2013 by means of fall experimental gill net sampling. Survey results for fall gillnets indicate that there is a high abundance of walleye and white bass in the lake. Proportional size distribution values also showed that both white bass and white crappie had a high percentage of ideal length individuals for anglers to catch. Largemouth bass were only present in three surveys and had a very low catch rate.

INTRO

Fort Supply Lake impounds the Wolf Creek, 7 km northwest of Woodward in Woodward County, Oklahoma. Fort Supply covers 761 surface hectares and was constructed in 1942 by the United States Army Corps of Engineers. Fort Supply Reservoir has a mean depth of 2.3 m and a maximum of 11.9 m, a shoreline development ratio of 4.4, a water exchange rate of 4.2, and a secchi disc visibility of around 25.4 cm in the main pool in August; turbidity is primarily from suspended clay.

Fish habitat is lacking. Cedar brush fish attractors have been added (Appendix 1). White crappie and white bass are the backbone of the fisheries. Walleye, hybrid striped bass, channel catfish and largemouth bass also contribute to angling. Angler pressure from Woodward and surrounding areas is high.

Lack of habitat, the shallow depth and fluctuating water levels are management problems on this impoundment. White bass and channel catfish populations have been stable and proving good angling opportunities. The walleye population has been showing improvement in abundance in recent years. Crappie angling remains good.

Walleye fry have been stocked the last ten years (Appendix 2). These stockings have added to the fisheries by increasing the abundance of walleye in Ft. Supply.

Fort Supply reservoir was sampled in 2013-2024 on odd years by fall gillnetting to evaluate the success of exotics and trend information on native predatory species and forage species.

RESULTS

Walleye

Gillnet sampling on Ft. Supply Lake took place in the fall of 2024-2015. These fall gillnet samples were conducted following Standard Sampling Procedures for Fisheries Management. These experimental gillnets are made up from monofilament with mesh sizes of 1.9-6.4 cm. The gill nets were 24 meters long and 1.8 meters deep with a float line and a lead line to ensure the net is deployed properly. Sampling locations for the nets were selected randomly by 300m^2 grids and an ideal water depth of less than 4.5 meters.

Catch per unit effort (CPUE) fluctuated over the years with a high of 15.2(2019) and a low of 7.47(2017). CPUE was highest for the stock length range (250-380 mm) in every year except for 2013 which had the highest CPUE in the preferred length range (520-630 mm) (Table 1).

Total length of walleye has decreased with age as observed in table 2. Mean total length at age has decreased in every age class from 2018-2022 except for the year 1 and year 2 age classes. The length frequency histograms also show that the total length frequencies have decreased since 2019 (Figure 1).

Table 1: Total number (No), catch per unit effort (CPUE), and relative weights (Wr) by size group of Walleye collected in fall gill net surveys from Ft. Supply Lake.

		Total CPUE	Substock <250mm		Stock 250mm		Quality 380mm		Preferred 510mm		Memorable 630mm	
Year	**No**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2024	70	8.00	0.23	86.11	0.69	90.83	5.26	92.95	1.83	92.60	-	-
2021	97	12.93	-	-	10.53	89.26	2.13	85.2	0.27	71.73	-	-
2019	114	15.2	-	-	12.93	101.85	1.47	101.07	0.8	98.1	-	-
2017	56	7.47	0.13	82.19	0.67	82.09	3.87	75.11	2.27	72.27	0.53	83.47
2015	75	9.47	1.26	187.29	2.91	98.96	4.8	87.26	0.51	81.99	-	-
2013	111	14.8	-	-	2.4	90.46	10.67	86.19	1.73	84.93	-	-

Table 2: Mean total length at age (mm) and L infinity (estimated mean maximum length) for Walleye collected from Ft. Supply Lake.

Year	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	L inf
2024	256.86	402.33	462.06	511.06	479.25	516.45	614	522.393
2021	262.5	362.18	413.33	-	-	590	620	798.578
2019	286.95	-	447	541	548.5	-	-	741.771

Table 3: Proportional Size Distribution (PSD), Proportional Size Distribution of Preferred (PSD-P) and Memorable (PSD-M) Walleye collected from Ft. Supply Lake gillnet surveys.

Year	PSD	PSD-P	PSD-M
2024	91	24	-

2021	19	2	-
2019	15	5	-
2017	91	38	7
2015	65	6	-
2013	84	12	-

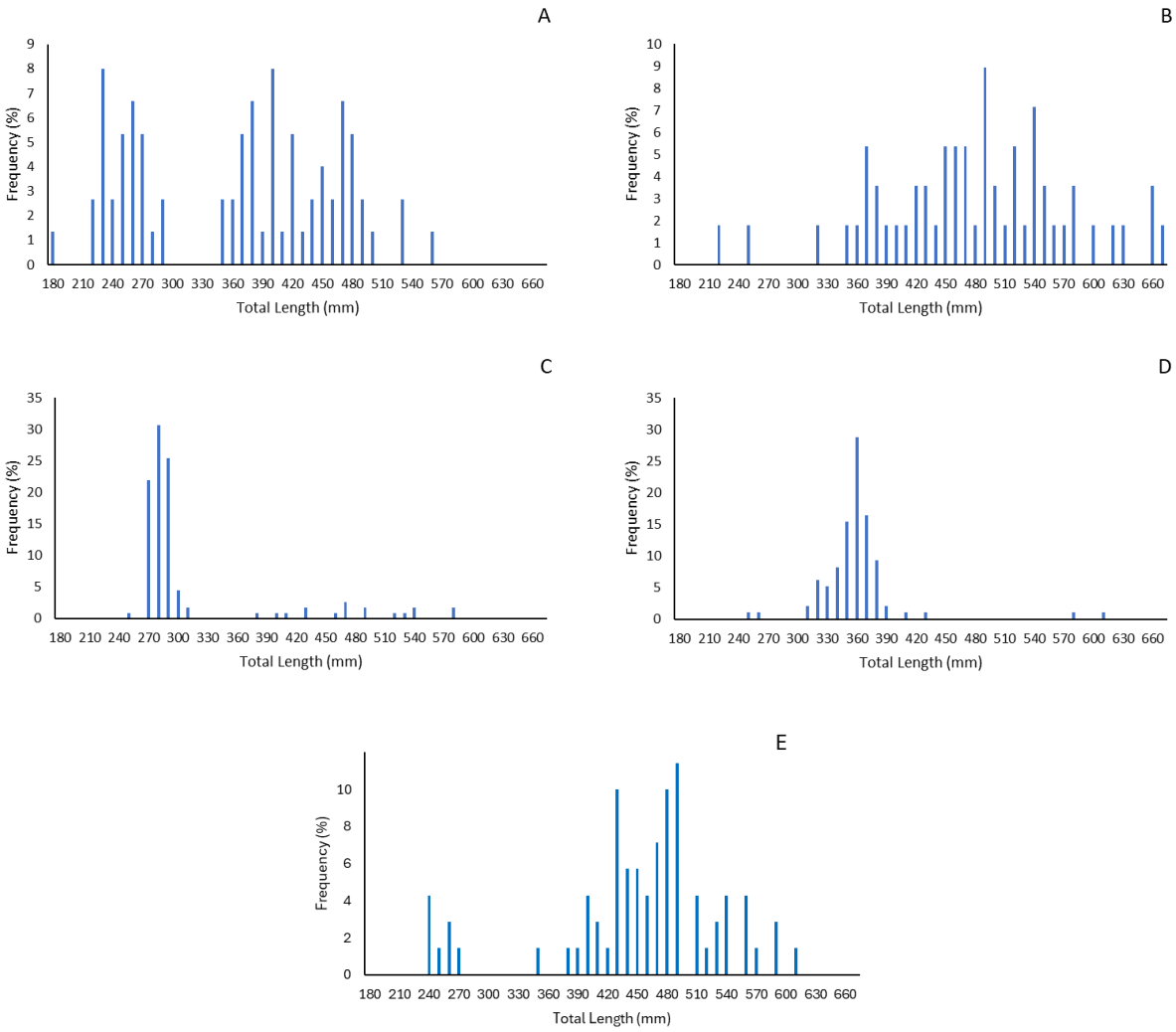


Figure 1: Walleye Length Frequencies for Ft. Supply Lake 2015(A), 2017(B), 2019(C), 2021(D), and 2024(E).

Largemouth Bass

Largemouth Bass were collected during gillnet sampling on Ft. Supply Lake that took place in the fall of 2021-2013 in odd years. Standard Sampling Procedures for Fisheries Management were followed when conducting gillnet surveys. These experimental gillnets are made up from monofilament line with mesh

sizes of 1.9-6.4 cm. The gill nets were 24 meters long and 1.8 meters deep with a float line and a lead line to ensure the net is deployed properly and maintained proper buoyancy. Sampling locations for the nets were selected randomly by 300m^2 grids and an ideal water depth of less than 4.5 meters.

Largemouth bass had very low catch per unit effort (CPUE) values for the three years that they were identified in the samples. The CPUE values were 0.13 in 2021 and 2015 and 1.33 in 2019. This was mirrored by the very small sample size for the three years (Table 4).

Proportional size distribution (PSD) vales for largemouth bass show that the one individual collected in 2015 had a value of 100. The PSD value for the 10 individuals collected in 2019 was 25 and a proportional of preferred (PSD-P) value of 12 (Table 5).

Table 4: Total number (No), catch per unit effort (CPUE), and relative weights (Wr) by size group of Largemouth Bass collected in fall gill net surveys from Ft. Supply Lake.

		Total CPUE	**Substock <200mm**		**Stock 200mm**		**Quality 300mm**		**Preferred 380mm**	
Year	**No**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2021	1	0.13	-	-	0.13	199.79	-	-	-	-
2019	10	1.33	0.27	103.85	0.8	100.68	0.13	125.48	0.13	122.11
2015	1	0.13	-	-	-	-	0.13	107.74	-	-

Table 5: Proportional Size Distribution (PSD), Proportional Size Distribution of Preferred (PSD-P) and Memorable (PSD-M) Largemouth Bass collected from Ft. Supply Lake gillnet surveys.

Year	**PSD**	**PSD-P**
2019	25	12
2015	100	-

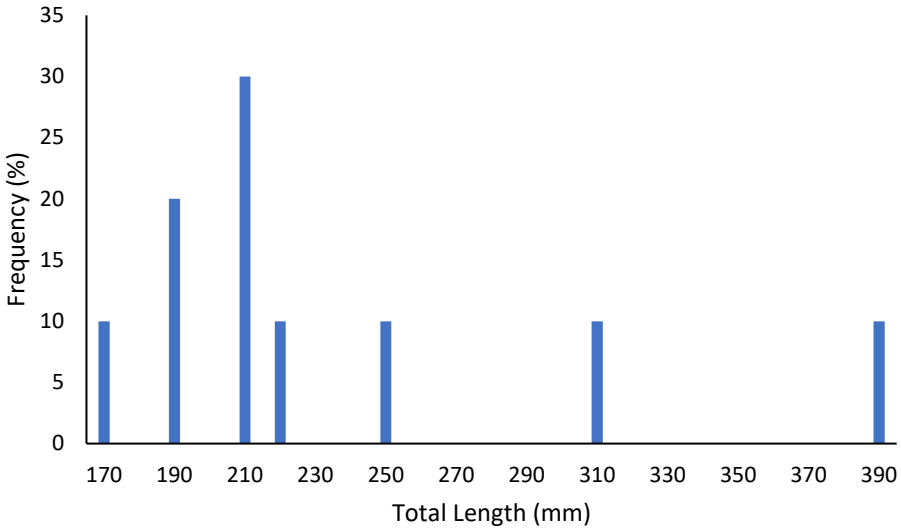


Figure 2: Largemouth Bass Length Frequencies for Ft. Supply Lake in 2019.

White Bass

White bass were identified in surveys in years from 2013-2024. Ft. Supply was surveyed following Standard Sampling Procedures for Fisheries Management when conducting gillnet surveys. These experimental gillnets were composed of monofilament line that created mesh sizes of 1.9-6.4 cm. The size of the gillnets gill nets were 24 meters long and 1.8 meters deep, and a float line and a lead line are used to ensure the net is deployed properly and maintained proper buoyancy. A series of 300m^2 grids was used to randomly select sample locations and an ideal water depth of less than 4.5 meters was targeted for net sets.

White bass had very high catch per unit effort (CPUE) values in years that Ft. Supply was sampled. The CPUE values ranged from 6.27-54.93 with the highest value being in 2019 and the lowest in 2017 Table 6).

Proportional size distribution (PSD) values for white bass in Ft. Supply in all years surveyed, except for 2019, were over 50 (Table 7). This shows that over 50% of the individuals were of a favorable length or longer for anglers.

The smallest individual collected was observed in 2021 with a total length of 100 mm. The largest individuals collected were observed in 2024 with an individual with a total length of 414 mm.

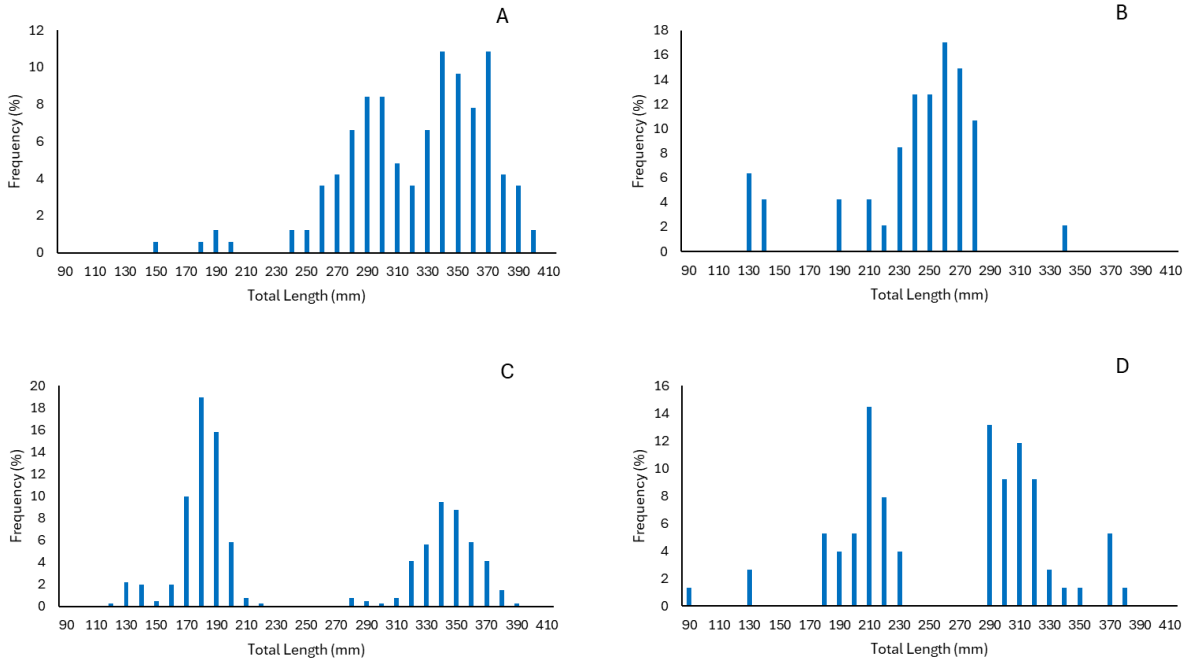
Table 6: Total number (No), catch per unit effort (CPUE), and relative weights (Wr) by size group of White Bass collected in fall gill net surveys from Ft. Supply Lake.

		Total	Substock		Stock		Quality		Preferred		Memorable	
		CPUE	<150mm		150mm		230mm		300mm		380mm	
Year	**No**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2024	87	9.94	-	-	0.91	91.04	4.91	91.34	3.54	95.01	0.57	94.59

2021	76	10.13	0.4	99.51	3.47	96.23	1.47	101.08	4.4	97.31	0.4	92.69
2019	412	54.93	2.27	92.3	29.73	95.94	0.53	93.95	20.93	110.66	1.47	107.71
2017	47	6.27	0.67	-	0.67	99.86	4.8	136.91	0.12	-	-	-
2015	166	20.97	-	-	0.63	-	4.67	-	13.26	-	2.4	-
2013	138	18.4	0.13	-	5.07	96.71	2	91.76	10.93	93.89	0.27	45.45

Table 7: Proportional Size Distribution (PSD), Proportional Size Distribution of Preferred (PSD-P) and Memorable (PSD-M) White Bass collected from Ft. Supply Lake gillnet surveys.

Year	PSD	PSD-P	PSD-M
2024	91	41	6
2021	64	49	4
2019	44	43	3
2017	88	2	-
2015	97	75	11
2013	72	61	1



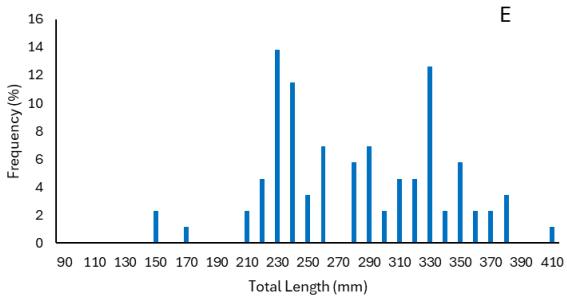


Figure 3: White Bass Length Frequencies for Ft. Supply Lake 2015(A), 2017(B), 2019(C), 2021(D), and 2024 (E).

White Crappie

From 2013 to 2024, white crappie were surveyed in fall gillnet surveys. Standard Sampling Procedures for Fisheries Management were followed when conducting these gillnet surveys. These experimental gillnets are made up from monofilament line with mesh sizes of 1.9-6.4 cm. The gill nets were 24 meters long and 1.8 meters deep with a float line and a lead line to ensure the net is deployed properly and maintained proper buoyancy. Sampling locations for the nets were selected randomly by 300m^2 grids and an ideal water depth of less than 4.5 meters.

White crappie had a catch per unit effort (CPUE) that varied between 2.4 (2013 and 2017) and 9.09 (2015). The highest CPUE for each year was in the quality length range (200-250 mm) and in the preferred length range (250-300 mm) (Table 8).

Proportional size distribution (PSD) was very high in all years that white crappie were collected except for the 2024 survey. The PSD values ranged from 48 (2024) to 100 (2013, 2021). The proportional size distribution of preferred (PSD-P) size range values ranged from 20 (2024) to 94 (2013). The proportional size distribution of memorable (PSD-M) size range values ranged from 11 (2021, 2024) to 38 (2019) (Table 10).

Table 8: Total number (No), catch per unit effort (CPUE), and relative weights (Wr) by size group of White Crappie collected in fall gill net surveys from Ft. Supply Lake.

		Total CPUE	Substock <130mm		Stock 130mm		Quality 200mm		Preferred 250mm		Memorable 300mm	
Year	**No**	**CPUE**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**	**CPUE**	**Wr**
2024	45	5.14	0.11	88.02	2.63	83.62	1.37	93.96	0.46	109.45	0.57	102.87
2021	28	3.73	-	-	-	-	1.47	111.49	1.87	103.95	0.4	93.51
2019	26	3.47	-	-	0.27	92.71	0.27	108.48	1.6	113.65	1.33	117.94
2017	18	2.4	-	-	0.93	88.88	0.8	92.78	0.27	82.01	0.4	88.15
2015	72	9.09	-	-	1.39	156.71	2.27	107.28	3.16	104.99	2.27	97.17
2013	18	2.4	-	-	-	-	0.13	116.81	1.73	113.8	0.53	107.65

Table 9: Mean total length at age (mm) and L infinity (estimated mean maximum length) for White Crappie collected from Ft. Supply Lake.

Year	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	L inf
2021	-	-	245.64	292.5	330	-	340	352.224
2019	174	278.12	308	320	328.33	-	-	327.678

Table 10: Proportional Size Distribution (PSD), Proportional Size Distribution of Preferred (PSD-P) and Memorable (PSD-M) White Crappie collected from Ft. Supply Lake gillnet surveys.

Year	PSD	PSD-P	PSD-M
2024	48	20	11
2021	100	61	11
2019	92	85	38
2017	61	28	17
2015	85	60	25
2013	100	94	22

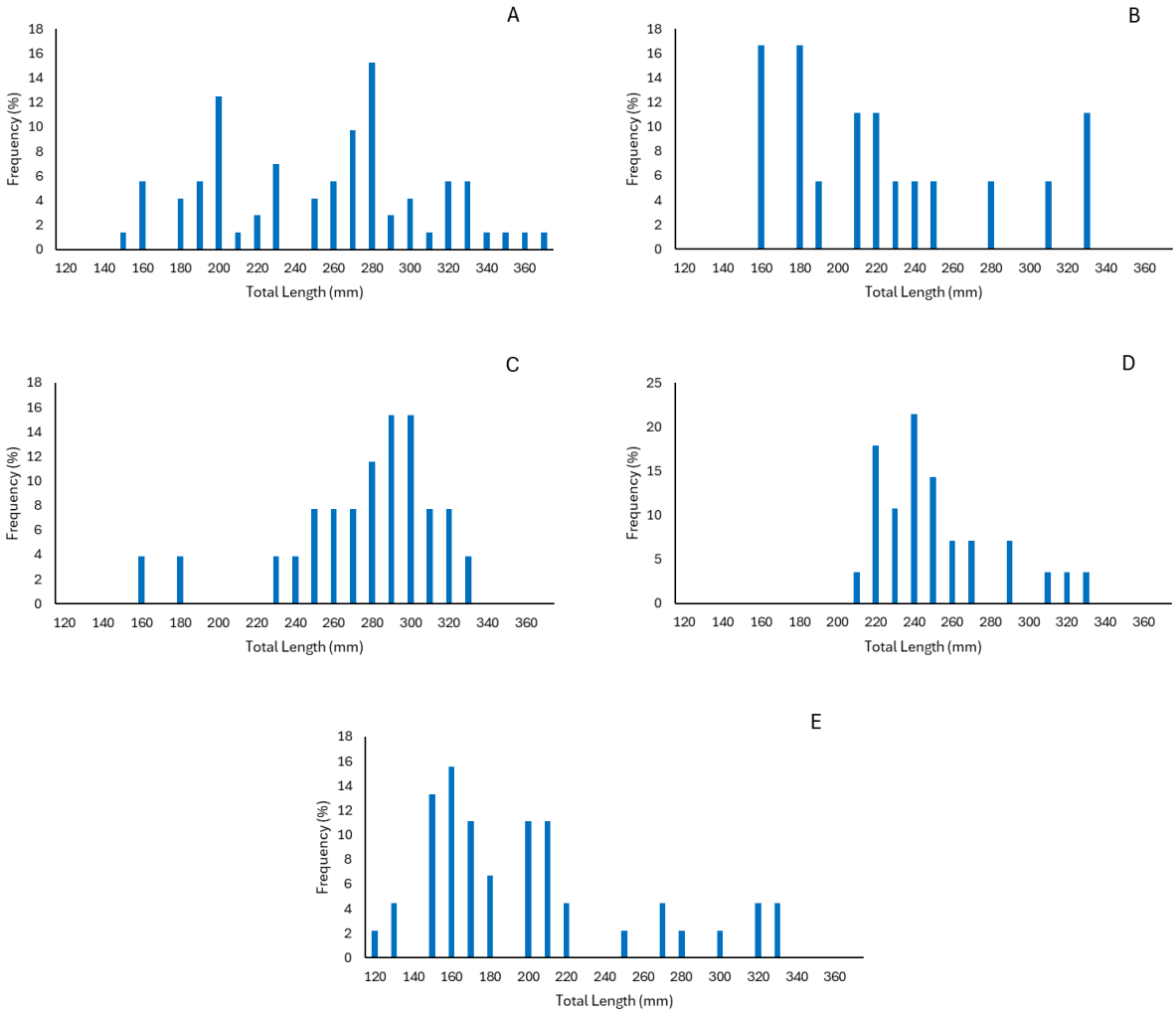
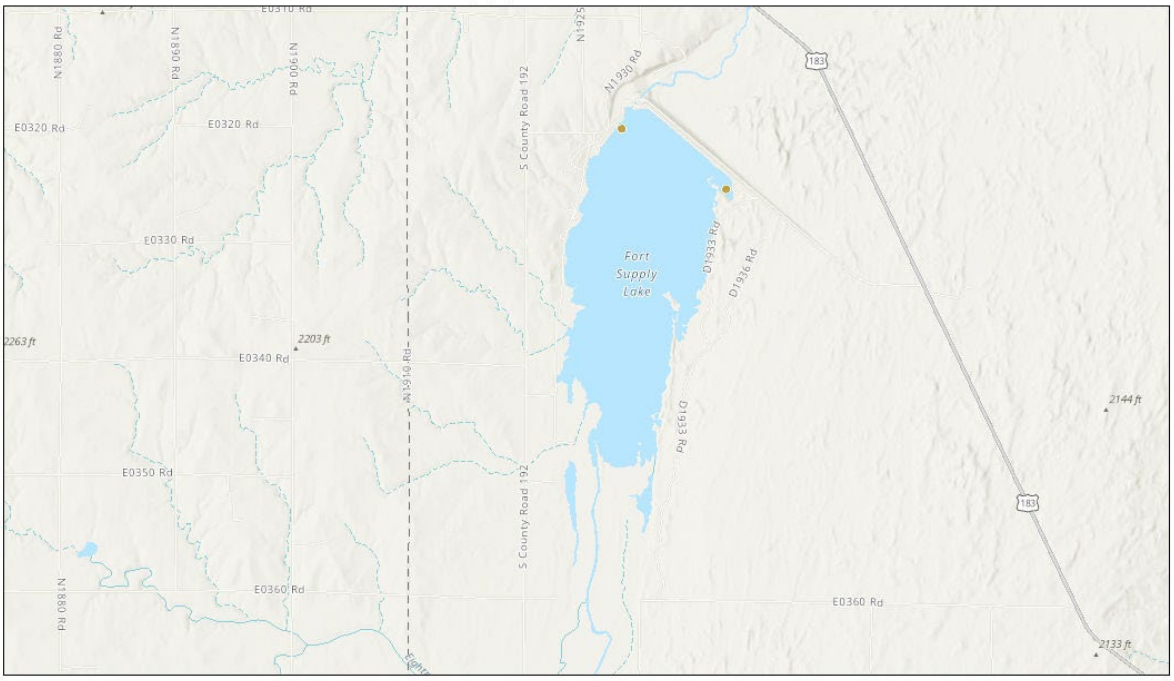


Figure 4: White Crappie Length Frequencies for Ft. Supply Lake 2015(A), 2017(B), 2019(C), 2021(D), and 2024 (E).

Ft. Supply Lake Fish Attractors



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FishAttractors

- Brush Pile
- Gravel Pile
- Pallet
- PVC Structure
- Spider Blocks
- Sunken Boat
- Tire Reefs
- Combination
- Other
- Unknown

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Esri, NASA, NGA, USGS, FEMA, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Web AppBuilder for ArcGIS

Esri, NASA, NGA, USGS, FEMA | Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS |

APPENDIX 1

Year	Species	Number	Size (mm)
2024	Walleye	990,000	6.35
2023	Walleye	940,000	6.35
2022	Walleye	1,100,000	6.35
2021	Walleye	1,044,739	6.35
2019	Walleye	990,000	6.35
2017	Walleye	940,000	6.35
2016	Walleye	1,500,000	6.35
2015	Walleye	1,002,672	6.35
2014	Walleye	1,900,000	6.35
2013	Walleye	2,490,000	6.35

APPENDIX 2