SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

SPAVINAW LAKE

2025

SURVEY REPORT

State: Oklahoma

Project Title: Spavinaw Lake Fish Management Report

Period Covered: 2025

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Spavinaw Lake

ABSTRACT

Spavinaw Lake was sampled in 2025 using spring electrofishing targeting the lakes Black Bass population via Oklahoma's standardized sampling procedure. Age and growth data was collected during this sample, and no major concerns were outlined. The Largemouth Bass population in Spavinaw Lake is considered above average and healthy. This is identified by the evidence of consistent recruitment, growth, mortality, and healthy relative weights (Wr, relationship between length and weight). The lake is clearly doing well, and we have no concerns at this time. This will likely be a popular destination for tournament anglers in the future so monitoring should continue to ensure increased fishing pressure doesn't affect population dynamics. Spavinaw Lake is a hidden gem in the Ozark, our hope is that it continues throughout the reservoir's life.

INTRODUCTION

Spavinaw Lake is located in Mayes and Delaware County, Oklahoma, just south of Spavinaw, Oklahoma. Spavinaw Lake impounds Spavinaw Creek with a surface area of 1548 acres and a shoreline length of 23.3 miles. The lake has a mean depth of 29.8 feet and a maximum of 45.7 feet. Spavinaw Lake was impounded for use as a primary source of drinking water for the City of Tulsa.

Regional staff have identified 5 sportfish and 2 forage fish species of interest in the lake, there are many more present, but these are the species we focus on in monitoring efforts. Those are Largemouth Bass, Crappie, Channel Catfish, White Bass, Walleye, Shad, and Sunfish. Currently the forage species are sampled infrequently as they are relatively stable and clues as to their status are gathered from sampling of their predators. There is a popular sucker gigging, and pan fishery on the lake, however those species have not been deemed a concern. Due to the Ozark hills topography and heavy vegetation in coves, of Spavinaw Lake, finding ideal slopes for trap netting is difficult resulting in fairly low catch rates. This provides a potential need for a new sampling technique for fish caught by this gear. All creel and length limits follow statewide regulations.

RESULTS

Largemouth Bass

Spring electrofishing targeting Black Bass (*Micropterus spp.*) was conducted in 2025 at Spavinaw Lake. Fixed stations were used to examine catch rate, age, growth, and overall population structure by standardized protocols. A total of 242 largemouth bass were sampled and the mean CPUE was not different from the last three samples, mean Wr was high and data quality standards were met (RSE min of 20) (Table 1). When compared statewide overall CPUE sits above the 50th percentile, while mean CPUE ≥ 16" lies just below the 95th percentile (Table 2). Length frequency analysis shows a large percentage of individuals between 14-18" which is ideal for a sportfish like largemouth bass, and not different from the previous sample (Figure 1). Von Bert shows fast growth before slowing down about age 3, and no age classes are missing, which is expected of a healthy largemouth bass population (Figure 2, Table 3.). Our evidence suggests that Spavinaw Lake has an above average, healthy bass population and no management actions are recommended at this time.

Year	N	Mean	Mean ≥ 16"	Wr	Count	RSE	LCI	UCI	N RSE = 20
2020	157	78.5	37.5	94.8	12	8.8	65	92	2
2023	276	92.0	45	94.1	18	7.6	78.3	105.7	7
2025	242	80.7	41.3	94.3	18	8.9	66.6	94.7	4

Table 1. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 16", overall catch relative weight (Wr), number of sites samples (Count), relative standard error (RSE), lower and upper 95% confidence intervals (LCI and UCI), and number of samples needed for RSE of 20 (N RSE = 20) for largemouth bass sampled by electrofishing at Spavinaw Lake in 2020-2025.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	13.8	35.7	62.5	102	238.6	249
CPUE < Stock	0	3.0	8	17.3	52.7	249
CPUE S-Q	1.0	6.0	13	27	72.4	249
CPUE Q-P	2.9	8.1	15.3	26.7	67.1	249
CPUE P-M	1.3	6.4	13.3	25	51	249
CPUE M-T	0	0	1	2	6.9	249
CPUE Trophy+	0	0	0	0	0	249

Table 2. Statewide percentiles for catch per net night (CPUE) for all largemouth bass, and by PSD Size class in Oklahoma 2025 (S ≤.7.9", Q ≤ 11.8", P ≤ 15.0", M ≤ 20.1", T ≤ 24.8").

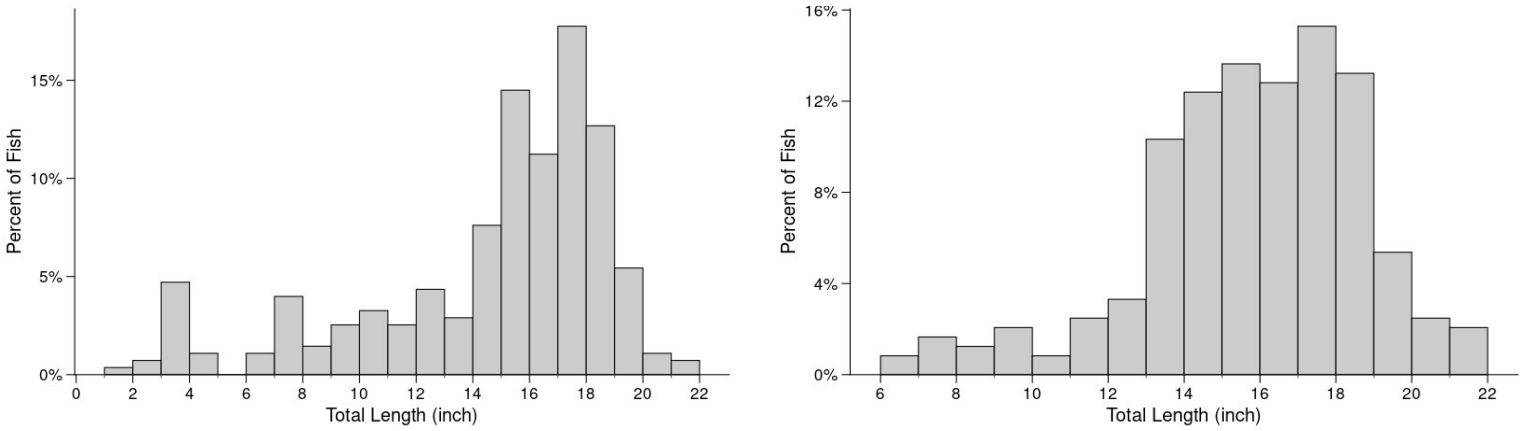

Figure 1. Length-frequency histogram for largemouth bass caught by spring electrofishing at Spavinaw Lake in 2023 (left, N=276), and 2025 (right, N=242).

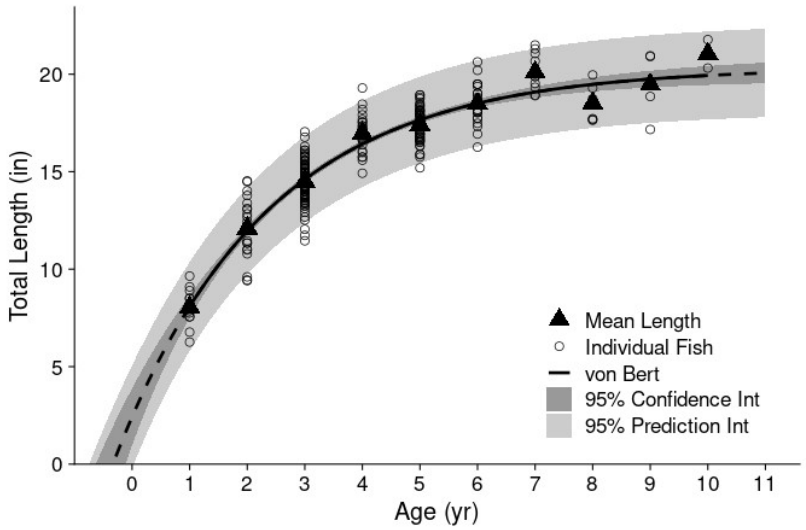

Figure 2. von Bertalanfy growth plot for largemouth bass caught with electrofishing at Lake Spavinaw in 2025 (n=241).

Age	MLA	N	LCI	UCI
1	8.0	11	7.4	8.6
2	12.1	20	11.4	12.8
3	14.5	83	14.3	14.7
4	17.0	28	16.6	17.3
5	17.4	52	17.2	17.6
6	18.5	24	18.1	18.9
7	20.1	10	19.5	20.7
8	18.5	7	17.8	19.2
9	19.5	4	17.7	21.3
10	21.0	2	19.6	22.5

Table 3. Mean total length at age (MLA), Total number in age class (N), and lower and upper 95% confidence intervals (LCI and UCI) for largemouth bass caught in 2025 spring electrofishing at Lake Spavinaw.

Year	Total Mort. (A)	LCI	UCI	O. Max	T. Max
2025	36.1	8.9	22.0	10	12.7

Table 4. Annualized mortality (Total Mort. A), lower 95% confidence interval (LCI), upper 95% confidence interval, observed maximum age (O. Max), theoretical maximum age (T. Max) for largemouth bass sampled with electrofishing at Spavinaw Lake in 2025.

Crappie

Fall Trap netting targeting Crappie (*Pomoxis spp.)* was conducted in 2023 at Spavinaw Lake. Fixed stations were used to examine age, growth, and overall population structure. Black Crappie are caught infrequently and normally at such low abundances that analysis is futile. A total of 35 crappies were sampled and the mean CPUE was not significantly different than previous samples, mean Wr values were good, and variance fell below data quality standards (Table 4). When compared statewide, mean CPUE was at the 5th percentile, while mean CPUE ≥ 10" was just below the 50th percentile (Table 5). Sample size was very limited, but length frequency was made up primarily by ≥ 10" individuals, normally this would be a concern however, we know that this gear does not work well at Spavinaw Lake (Figure 3). Von bert growth curve shows very rapid growth through age 3, however this is based on few individuals of which the majority were age 1 (Figure 4, Table 6). Ultimately more information is needed before we can make any conclusions about the crappie population on Spavinaw Lake. Its steep sided banks reduce the efficiency of our traditional trap net gear likely biasing our catch. This is evident by the sample conducted in 2017 in which extreme effort was necessary to obtain quality data. Additionally, Spavinaw being steep banked and heavily vegetated may mean that it's not conducive to maintaining a quality crappie fishery. Nonetheless it is moderately used by anglers and should be monitored on rotation as has been historically done. If better data is needed, staff should likely use a suite of gears and/or new gears to assist with sampling a reservoir of this type.

Year	N	Mean	Mean ≥ 10"	Wr	Count	RSE	LCI	UCI	N RSE = 20
2017	209	3.1	0.9	101.7	70	13.9	2.3	4.0	34
2020	15	0.6	0.4	99.8	24	27.1	0.3	0.9	44
2023	35	1.3	1.0	100.4	14	39.3	0.3	2.3	54

Table 4. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 10", overall catch relative weight (Wr), number of sites samples (Count), relative standard error (RSE), lower and upper 95% confidence intervals (LCI and UCI), and number of samples needed for RSE of 20 (N RSE = 20) for white crappie sampled by trap netting at Spavinaw Lake 2017-2023.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	1.3	7.5	21.8	45.8	111.7	140
CPUE < Stock	0	0.4	3.0	12.4	47.3	140
CPUE S-Q	0.1	1.3	7.8	16.5	69.5	140
CPUE Q-P	0.1	1.3	4.0	6.6	19.0	140
CPUE P-M	0.1	0.7	1.6	3.5	13.2	140
CPUE M-T	0	0.2	0.4	0.8	2.1	140
CPUE Trophy+	0	0	0	0	0.1	140

Table 5. Statewide percentiles for catch per net night (CPUE) for all white crappie, and by PSD size class in Oklahoma 2025 (S ≤.5.1", Q ≤ 7.9", P ≤ 9.8", M ≤ 11.8", T ≤ 15.0").

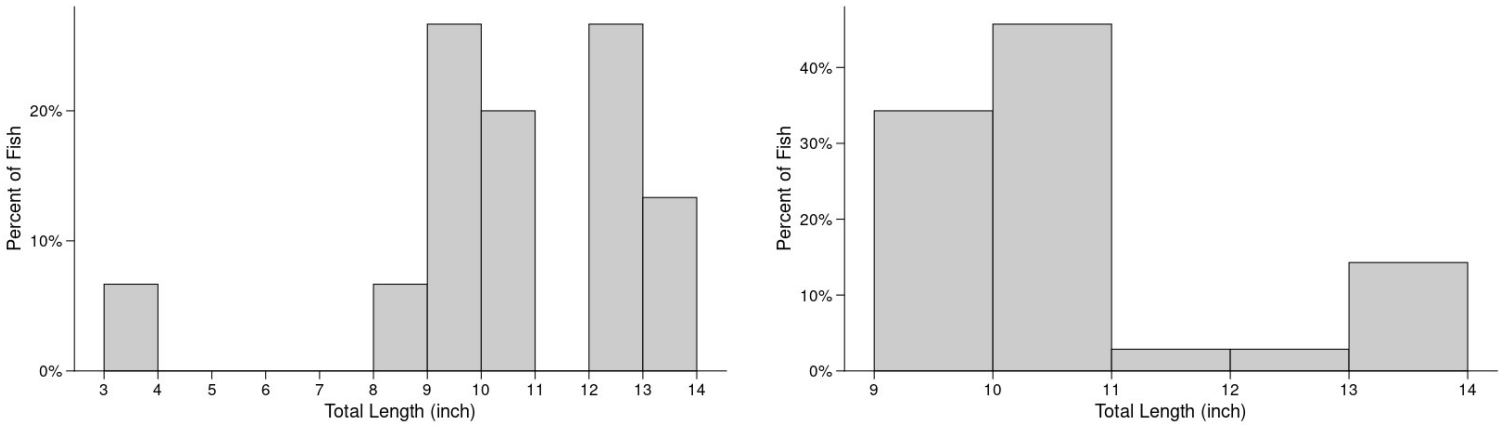

Figure 3. Length-frequency histogram for white crappie caught at Grand Lake by fall trap netting in 2020 (left N=15) and 2023 (right N=35).

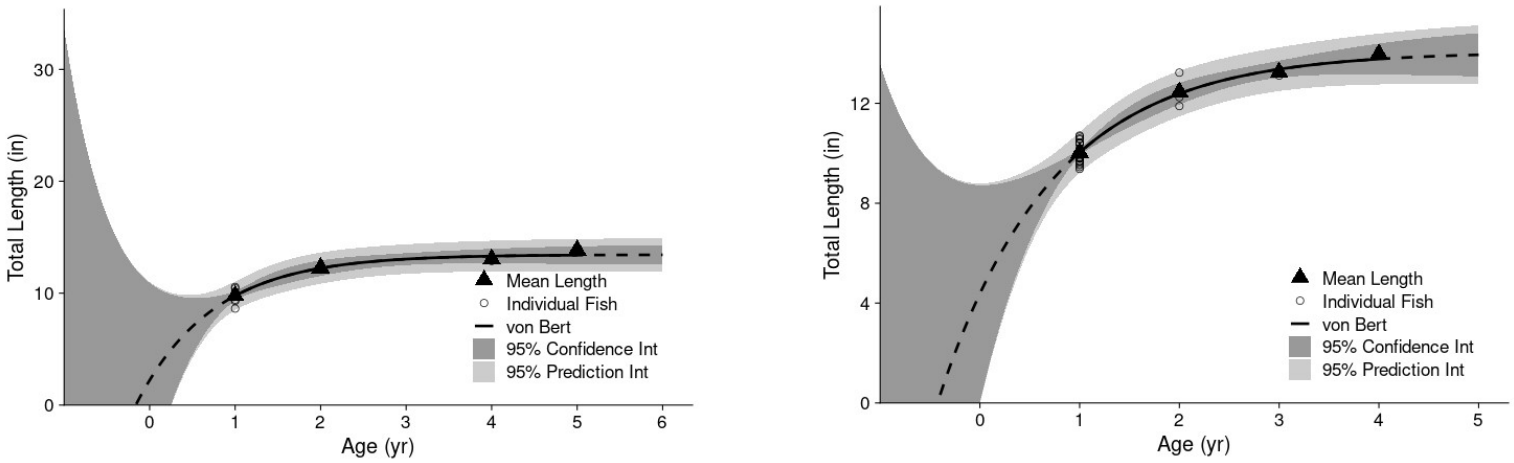

Figure 4. von Bertalanfy growth plot for white crappie caught in trap nets at Spavinaw Lake in 2020 (left, N=15) and 2023 (right, N=35).

Age	MLA	N	LCI	UCI
1	9.8	8	9.3	10.2
2	12.3	3	12.1	12.5
3	.	.	.	.
4	13	2	12.7	13.3
5	13.9	1	.	.

Age	MLA	N	LCI	UCI
1	10	28	9.9	10.2
2	12.5	3	11.7	13.2
3	13.2	3	13.1	13.4
4	14	1	.	.
5	.	.	.	.

Table 6. Mean total length at age (MLA), Total number in age class (N), and lower and upper 95% confidence intervals (LCI and UCI) for white crappie caught in 2020 (left) and 2023 (right) fall trap netting at Spavinaw Lake.

Year	Total Mort. (A)	LCI	UCI	O. Max	T. Max
2023	62.1	-74.9	91.77	4	4.2

Table 7. Annualized mortality (Total Mort. A), lower 95% confidence interval (LCI), upper 95% confidence interval observed maximum age (O. Max), theoretical maximum age (T. Max) for white crappie sampled with trap nets at Spavinaw Lake in 2023.

Channel Catfish

Winter gill netting targeting the Temperate Basses (*Moronid spp.*) was conducted in 2022 at Spavinaw Lake. Channel Catfish are an incidental catch in this gear and fish caught are used as a proxy or to supplement data from other gears. A total of 34 channel catfish were sampled and the mean CPUE was not different from previous samples, mean Wr values were moderate and variance met quality standards (RSE min of 20) (Table 8). When compared statewide, overall mean CPUE was just above the 25th percentile, while mean CPUE ≥ 14" in the 75th percentile (Table 9). Length frequency analysis shows a shift towards larger individuals from the previous sample (Figure 5). No age information was collected for this species. Our evidence suggests the channel catfish population in Spavinaw Lake is average, with a high catch rate of quality fish. There are no management recommendations at this time.

Year	N	Mean	Mean ≥ 14"	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	58	7.7	3.7	87.4	10	10.2	6.2	9.3	3
2021	35	4.2	3.1	88.8	10	15.5	2.9	5.5	6
2022	34	2.9	2.7	85.2	10	19.2	1.8	4	9

Table 8. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 14”, overall catch relative weight (Wr), number of sites samples (Count), relative standard error (RSE), lower and upper 95% confidence intervals (LCI and UCI), and number of samples needed for RSE of 20 (N RSE = 20) for channel catfish sampled by winter gill netting at Spavinaw Lake in 2018-2022.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	0.8	2.2	4.2	7.2	14.6	258
CPUE < Stock	0	0.1	0.6	1.6	4.3	258
CPUE S-Q	0	0.4	1.1	2.8	6.4	258
CPUE Q-P	0.1	0.6	1.5	3.1	7.3	258
CPUE P-M	0	0	0	0.2	0.7	258
CPUE M-T	0	0	0	0	0.2	258
CPUE Trophy+	0	0	0	0	0	258

Table 9. Statewide percentiles for catch per net night (CPUE) for all channel catfish, and by PSD Size class in Oklahoma 2025 (S ≤ 11.0”, Q ≤ 16.1”, P ≤ 24”, M ≤ 28”, T ≤ 35.8”).

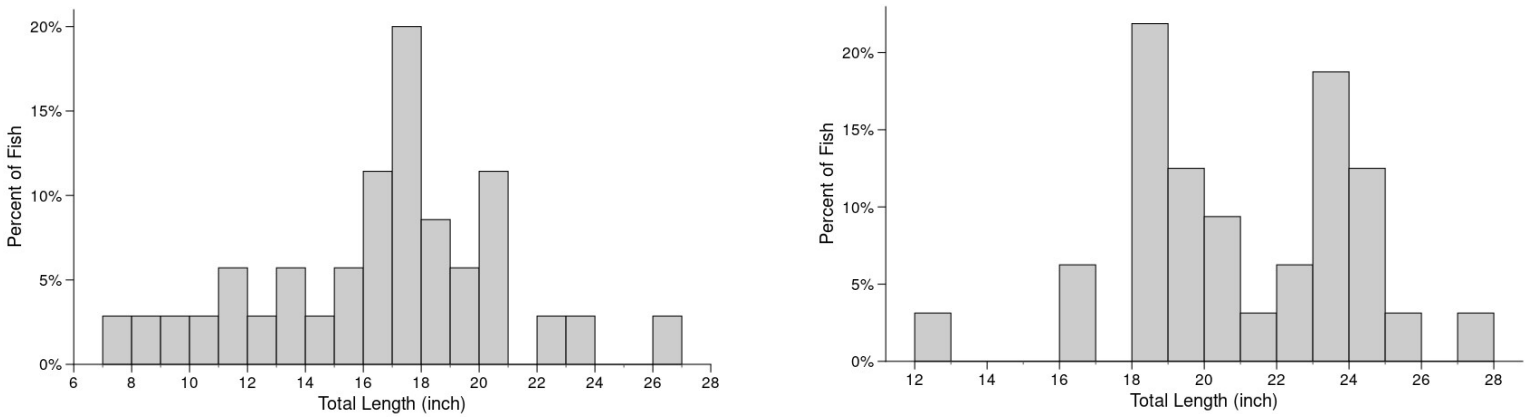

Figure 5. Length-frequency histogram for channel catfish caught at Spavinaw Lake by winter gill netting in 2021 (left N=35) and 2022 (right N=34).

Walleye

Winter gill netting targeting the Temperate Basses (*Moronid spp.*) was conducted in 2022 at Spavinaw Lake. Walleye are an incidental catch in this gear and fish caught are used as a proxy or to supplement data from other gears. A total of 12 walleye were sampled with the mean CPUE not being different than previous years, mean Wr values were good, and data quality standards were not met (RSE min of 20) (Table 10). When compared statewide, overall CPUE was just under the 50th percentile, while that of quality fish was in the 75th percentile (Table 11). So, few fish were caught that no length frequency or age information was computed for this species. Our limited evidence suggests that the walleye in Spavinaw lake are doing well and are on average larger than other water bodies in the state. More information could be collected with other gears should the need present itself. There are no management recommendations at this time.

Year	N	Mean	Mean ≥ 16"	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	0	.	.	.	.	.	.	.	.
2021	9	1.1	0.7	84.9	10	25.9	0.5	1.6	17
2022	12	1.0	1.0	87.2	10	36.9	0.3	2	34

Table 10. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 16”, overall catch relative weight (Wr), number of sites samples (Count), relative standard error (RSE), lower and upper 95% confidence intervals (LCI and UCI), and number of samples needed for RSE of 20 (N RSE = 20) for walleye sampled by winter gill netting at Spavinaw Lake in 2018-2022.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	0.1	0.6	1.4	3.0	14.9	57.0
CPUE < Stock	0.0	0.0	0.0	0.1	0.6	57.0
CPUE S-Q	0.0	0.0	0.4	1.4	3.4	57.0
CPUE Q-P	0.0	0.2	0.6	1.2	5.8	57.0
CPUE P-M	0.0	0.1	0.2	0.3	1.6	57.0
CPUE M-T	0.0	0.0	0.0	0.0	0.1	57.0
CPUE Trophy+	0.0	0.0	0.0	0.0	0.0	57.0

Table 11. Statewide percentiles for catch per net night (CPUE) for all channel catfish, and by PSD Size class in Oklahoma 2025 (S ≤ 9.8”, Q ≤ 15.0”, P ≤ 20.1”, M ≤ 24.8”, T ≤ 29.9”).

White Bass

Winter gill netting targeting the Temperate Basses (*Moronid spp.*) was conducted in 2025 at Spavinaw Lake. Random site selection of 10 net nights was used as per SSP. A total of 58 white bass were sampled and the mean CPUE was not different from the previous year, mean Wr values were excellent, and variance failed to meet data quality standards (RSE min of 20) (Table 12). When compared statewide, overall CPUE was at the 50th percentile while mean CPUE ≥ 10" was above the 75th percentile (Table 13). Length frequency was not that different from the previous year with peaks in the same places and exhibiting an average distribution (Figure 6). No age information was collected for this species. Our evidence suggests the White Bass population in Spavinaw lake is average with more quality fish than most. There are no management recommendations at this time.

Year	N	Mean	Mean ≥ 10"	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	66	8.8	5.1	93.7	10	34.3	3.8	13.8	21
2021	42	5	2.5	98.1	10	20.3	3	7.1	10
2022	58	5	2.6	104	10	27.1	2.3	7.6	18

Table 12. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 10”, overall catch relative weight (Wr), number of sites samples (Count), relative standard error (RSE), lower and upper 95% confidence intervals (LCI and UCI), and number of samples needed for RSE of 20 (N RSE = 20) for white bass sampled by winter gill netting at Spavinaw Lake 2018-2022.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	0.4	2.1	5.0	8.7	19.0	200
CPUE < Stock	0	0	0	0.1	0.7	200
CPUE S-Q	0	0.2	0.6	1.9	6.6	200
CPUE Q-P	0	0.3	0.8	2.1	5.6	200
CPUE P-M	0	0.6	1.7	4.1	8.4	200
CPUE M-T	0	0	0.2	0.7	2.5	200
CPUE Trophy+	0	0	0	0	0.1	200

Table 13. Statewide percentiles for catch per net night (CPUE) for all white bass, and by PSD Size class in Oklahoma 2022 (S ≤ 5.9”, Q ≤ 9.1”, P ≤ 11.8”, M ≤ 15.0”, T ≤ 18”).

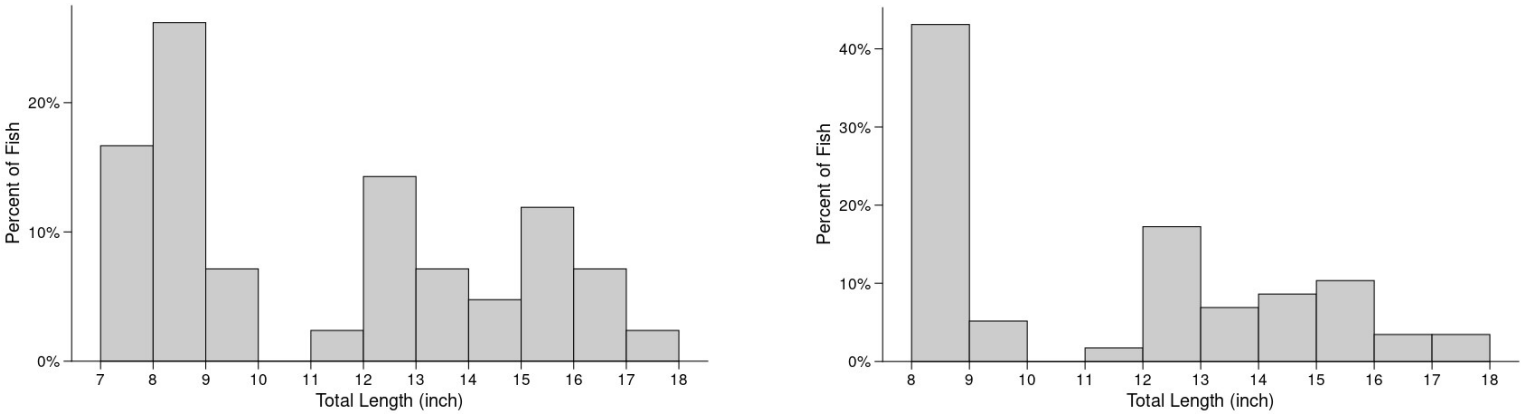

Figure 6. Length-frequency histogram for white bass caught at Spavinaw Lake by winter gill netting in 2021 (left N=42) and 2022 (right N=58).

Recommendations

1. Continue monitoring Shad populations, specifically Threadfin Shad.
2. Look into other ways of sampling Crappie more effectively in steep banked reservoirs such as Spavinaw.
3. Consider other sampling gears to accurately assess Walleye
4. No management changes are needed at this time.