

SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



**FISH MANAGEMENT SURVEY AND RECOMMENDATIONS
FOR
LAKE HUDSON
2025**

SURVEY REPORT

State: Oklahoma

Project Title: Lake Hudson Fish Management Report

Period Covered: 2025

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Date Prepared: January 2026

ABSTRACT

Lake Hudson was sampled in 2025 using fall trap netting targeting the lakes Crappie population via Oklahoma's standardized sampling procedures for an age and growth sample. Age and growth data was collected during this sample, and no major concerns were outlined. The crappie population in Lake Hudson has been identified as "rebuilding" by the presence of large numbers of medium sized young individuals. This was likely caused by several years of below average spawning success with a large bumper year in the middle. Crappie populations are cyclic in nature, and this will likely balance out in the upcoming years. To assist in this rebuilding quality fish habitat should be added and maintained in the lake to give juvenile fish a better chance at survival and increase access to spawning cover. The lack of spawning success is likely because of changes in water level that made existing habitat unusable. Regional staff will continue to take these factors into account when augmenting the lake with habitat. There are currently no management changes needed.

INTRODUCTION

Lake Hudson is located in Mayes County, Oklahoma west of the City of Salina. The lake has a shoreline length of 142.4 miles and a surface area of 11,029 acres. The maximum depth of Lake Hudson is 65 ft. Lake Hudson was created in 1964 after the completion of the Robert S. Kerr Dam on the Grand River and is currently managed by the Grand River Dam Authority (GRDA) for hydropower and flood water storage. Secchi disc visibility averaged 24 inches for 2022 and 2023. Surface temperatures for spring sampling averaged 61.4° F and fall trap and gill nets sampling averaged 66° F.

Regional staff have identified 6 sportfish and 2 forage fish of interest in the lake, there are more present, but these are the species we focus on in monitoring efforts. Those are Largemouth Bass, Spotted Bass, Crappie, Blue Catfish, Channel Catfish, Hybrid Striped Bass, White Bass, 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. The lake is also home to a sport fishery of paddlefish which is monitored by a separate team, so updates of their status are not found here. Lake Hudson has one special regulation of 15 combined Crappie per day with a 10-inch minimum. All other creel and length limits follow statewide regulations. A complete list of fish stockings is found in Appendix A1.

RESULTS

Largemouth Bass

Spring electrofishing targeting Black Bass (*Micropterus spp.*) was conducted in 2022 at Lake Hudson. Fixed stations were used to examine catch rate, age, growth, and overall population structure by standardized protocols. A total of 480 largemouth bass were sampled and the mean CPUE was not different from the 2018 sample, mean Wr was exceptionally high, and data quality standards exceeded (RSE min of 20) (Table 1). When compared statewide overall CPUE sits above the 75th 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 (Figure 1). The Von Bert. growth curves shows fast growth and is missing no age classes, the appearance is flatter than 2018, however growth trajectory change isn't significant (Figure 2, Table 3). Our evidence suggests that Hudson 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
2016	374	93.5	35.3	105.8	24	9.6	75.9	111.2	6
2018	400	100	42.0	101.4	24	13.4	73.7	126.3	11
2022	480	120	44.8	103.0	24	7.6	102.2	137.8	3

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 Lake Hudson in 2016-2022.

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 ").

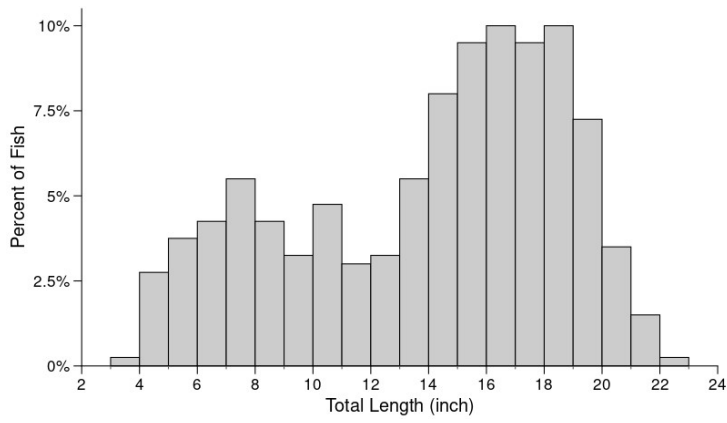


Figure 1. Length-frequency graph for Largemouth Bass at Lake Hudson in 2018 (left N=400) 2022 (right N=480).

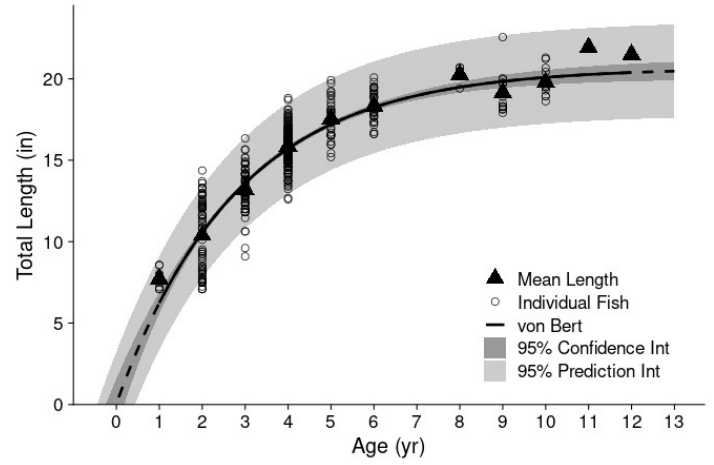
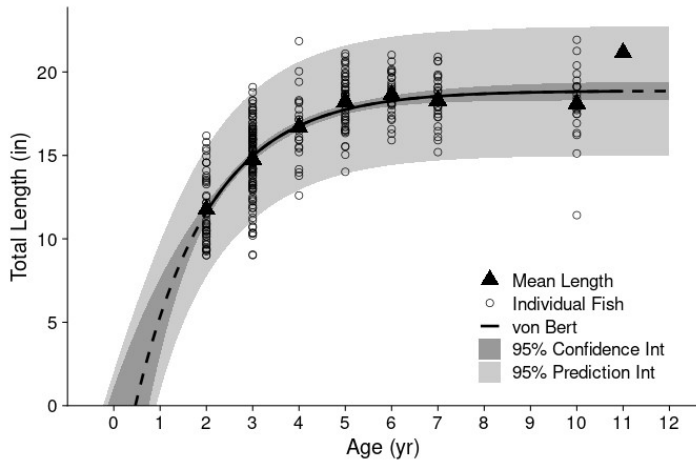


Figure 2. von Bertalanffy growth plot for largemouth bass caught with electrofishing at Lake Hudson in 2018 (left N=316) and 2022 (right N= 412).

Age	MLA	N	LCI	UCI
1	.	.	.	.
2	11.8	49	11.2	12.3
3	14.8	117	14.4	15.2
4	16.7	23	15.8	17.6
5	18.2	50	17.8	18.7
6	18.6	29	18.2	19.1
7	18.3	26	17.7	18.9
8	.	.	.	.
9	.	.	.	.
10	18.1	21	17.1	19.1
11	21.1	1	.	.
12	.	.	.	.

Age	MLA	N	LCI	UCI
1	7.9	7	7.5	8.4
2	10.4	69	9.8	10.9
3	13.1	70	12.8	13.5
4	15.8	164	15.6	16.0
5	17.7	31	17.3	18.1
6	18.3	32	17.9	18.6
7	.	.	.	.
8	20.9	3	20.5	21.2
9	19.1	21	18.7	19.5
10	19.7	13	19.2	20.1
11	21.9	1	.	.
12	21.5	1	.	.

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 2018 (left) and 2022 (right) spring electrofishing at Lake Hudson.

Year	Total Mort. (A)	LCI	UCI	O. Max	T. Max
2022	38.4	18.4	53.5	12	13.4

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 Lake Hudson in 2022.

Crappie

Fall Trap netting targeting Crappie (*Pomoxis spp.*) was conducted in 2025 at Lake Hudson. 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 123 crappies were sampled in 2025 and mean CPUE was not different from the previous sample, and relative weights were exceptional and data quality standards were not met (RSE min of 20) (Table 5). When compared statewide, overall CPUE is just below the 25th percentile, while CPUE $\geq 10''$ was just below the 50th percentile (Table 6). Length frequency analysis shows an abundance of 8-9" fish, and indicates the population is lacking in fish above and below that mark (Figure 3). Mean Length at age confirms this and shows the population primarily consists of 1 year-old fish (Table 7). Von Bert. Growth trajectory shows fast growth through age 2 which is indicative of compensatory growth (Figure 4, Table 8). Our evidence suggests that the Crappie population in Lake Hudson is on the rebound after having several years of spawns with little success. As new age classes recruit to the system the population should reach a new equilibrium as larger fish become more abundant. To enhance the efficiency of spawning more habitats could be added to the lake; however, we cannot control water levels which is likely the cause of the reduced spawning success of the past. We recommend the population be resampled in 2 years.

Year	N	Mean	Mean $\geq 10''$	Wr	Count	RSE	LCI	UCI	N RSE = 20
2022	123	6.2	1.5	101.1	21	20.9	3.7	8.8	23
2025	173	7.6	1.5	102.1	19	25.0	3.9	11.3	30

Table 5. Total number caught (N), mean CPUE (Mean), mean CPUE for fish $\geq 10''$, 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 Hudson Lake 2022-2025.

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	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	0.2	0.4	0.8	2.1	140
CPUE Trophy+	0	0	0	0	0.1	140

Table 6. Statewide percentiles for catch per net night (CPUE) for all white crappie, and by PSD size class in Oklahoma 2025 (S $\leq 5.1''$, Q $\leq 7.9''$, P $\leq 9.8''$, M $\leq 11.8''$, T $\leq 15.0''$)

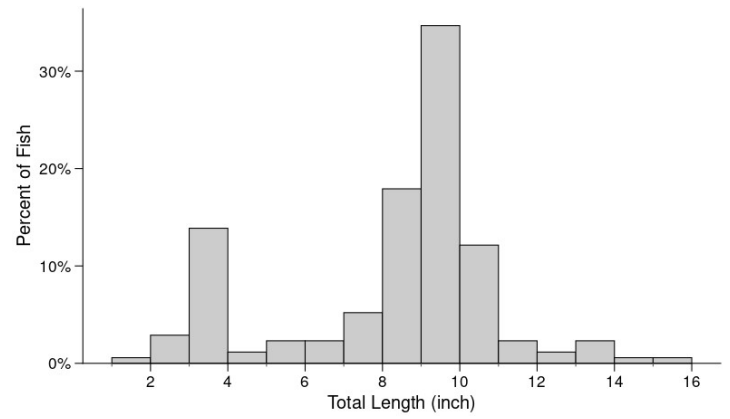
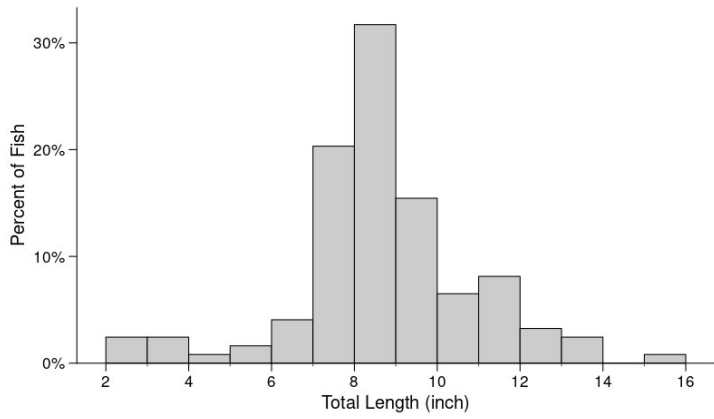


Figure 3. Length-frequency histogram for white crappie caught at Lake Hudson by fall trap netting in 2022 (left N=123) and 2025 (right N=173).

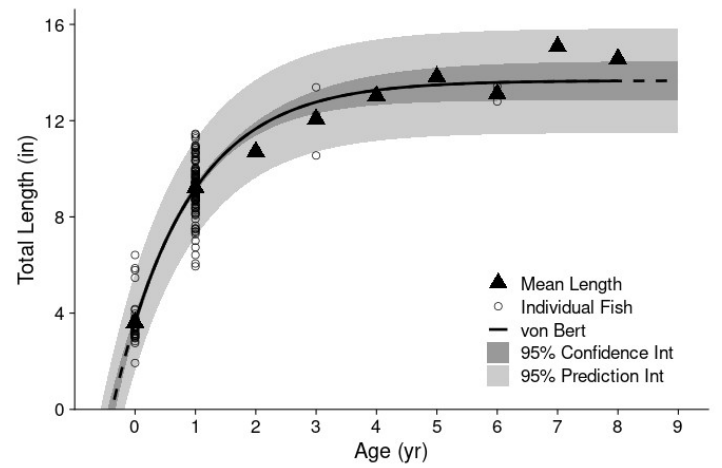
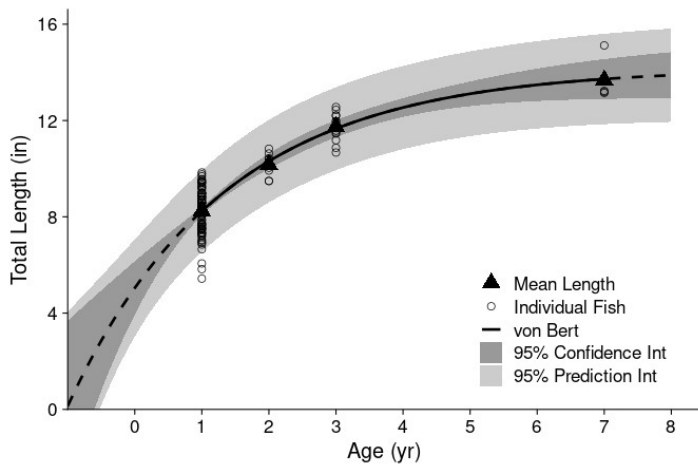


Figure 4. von Bertalanffy growth plot for White Crappie caught in trap nets at Lake Hudson in 2025 (n=173).

Age	MLA	N	LCI	UCI
0	.	.	.	.
1	8.3	88	8.1	8.5
2	10.3	9	9.9	10.7
3	11.8	15	11.5	12.0
4	.	.	.	.
5	.	.	.	.
6	.	.	.	.
7	13.7	4	12.7	14.6
8	.	.	.	.

Age	MLA	N	LCI	UCI
0	3.6	36	3.3	3.9
1	9.2	127	9.0	9.4
2	10.7	1	.	.
3	12.1	3	10.4	13.7
4	13.0	1	.	.
5	13.8	1	.	.
6	13.1	2	12.5	13.7
7	15.1	1	.	.
8	14.6	1	.	.

Table 7. 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 2022 (left) and 2025 (right) fall trap netting at Lake Hudson.

Year	Total Mort. (A)	LCI	UCI	O. Max	T. Max
2025	45.8	-10.2	73.4	8	6

Table 8. 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 Hudson Lake in 2025.

Blue Catfish

Winter gill netting targeting White Bass was conducted in 2023. Random site selection was used as per the standard protocol with nets being set for a total of 15 nights. Blue Catfish are an incidental catch in this gear and fish caught used as a proxy or to supplement data from other gears. A total of 57 Blue Catfish were sampled and the mean CPUE was not different than previous samples, mean Wr was good, and variance met data quality standards (RSE min of 20) (Table 9). When compared statewide, overall CPUE is just above the 50th percentile, while mean CPUE ≥ 30 " is in the 95th percentile (Table 10). Length frequency analysis shows majority of fish sampled were under 25" with most abundant being 15-20" (Figure 5). No age information was collected for this species. Our evidence suggests that Lake Hudson has an average Blue Catfish population with above average catch of trophy fish (≥ 30 "), no management actions are recommended at this time.

Year	N	Mean	Mean ≥ 30 "	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	40	3.3	0.2	84.2	15	2054	2	4.6	16
2021	143	10.7	0	98.2	15	26.5	5.1	16.2	26
2023	57	4.4	0.2	85.0	15	16	3	5.7	10

Table 9. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 30 ", 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 blue catfish sampled by winter gill netting at Hudson Lake 2018-2023.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	0.1	0.7	3.2	6.8	12.3	124
CPUE < Stock	0	0	0.3	1.8	5.8	124
CPUE S-Q	0	0.2	1.3	2.8	7.2	124
CPUE Q-P	0	0.2	0.6	1.2	3	124
CPUE P-M	0	0	0	0.1	0.2	124
CPUE M-T	0	0	0	0	0.1	124
CPUE Trophy+	0	0	0	0	0	124

Table 10. Statewide percentiles for catch per net night (CPUE) for all blue catfish, and by PSD Size class in Oklahoma 2025 (S ≤ 11.8 ", Q ≤ 20.1 ", P ≤ 29.9 ", M ≤ 35 ", T ≤ 44.9 ").

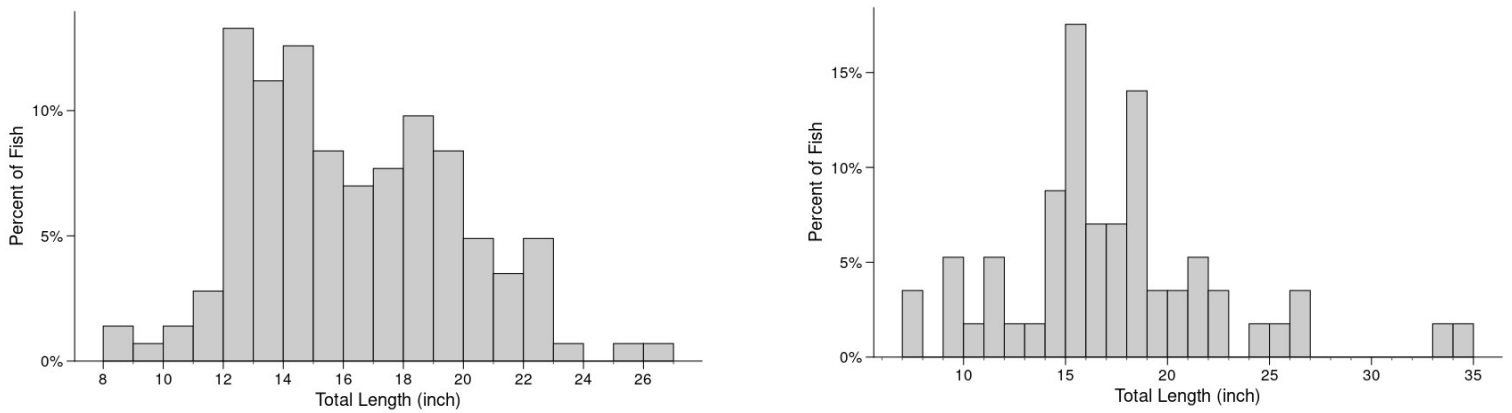


Figure 5. Length-frequency histogram for blue catfish caught at Lake Hudson by winter gill netting in 2021 (left N=143) and 2023 (right N=57).

Channel Catfish

Winter gill netting targeting the Temperate Basses (*Moronid spp.*) was conducted in 2023 at Lake Hudson. Random site selection was used as per the standard protocol with nets being set for a total of 15 nights. Channel Catfish are an incidental catch in this gear and fish caught used as a proxy or to supplement data from other gears. A total of 47 Channel Catfish were sampled and the mean CPUE was not different than the previous samples, mean Wr was average, and variance failed to meet data quality standards (RSE min of 20) (Table 11). When compared statewide, overall CPUE was just below the 50th percentile, with mean CPUE ≥ 14 " being just over the 25th percentile. (Table 14). Length frequency analysis shows an even distribution with a peak at 16 and 20" (Figure 6). No age information was collected for this species. Our evidence suggests that Lake Hudson has a below average Channel Catfish population, to ascertain why more sampling would need to be done. This could be due to the introduction of blue catfish which seem to act invasive in nature and outcompete the channel catfish for resources and spawning sites. There are no management actions recommended at this time.

Year	N	Mean	Mean $\geq$ 14"	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	59	4.8	3.4	98.5	15	20.4	2.9	6.7	16
2021	38	2.8	1.6	102.6	15	25.4	1.4	4.3	24
2023	47	3.6	2.4	89.6	15	24.4	1.9	5.2	22

Table 11. 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 Hudson Lake 2018-2023.

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

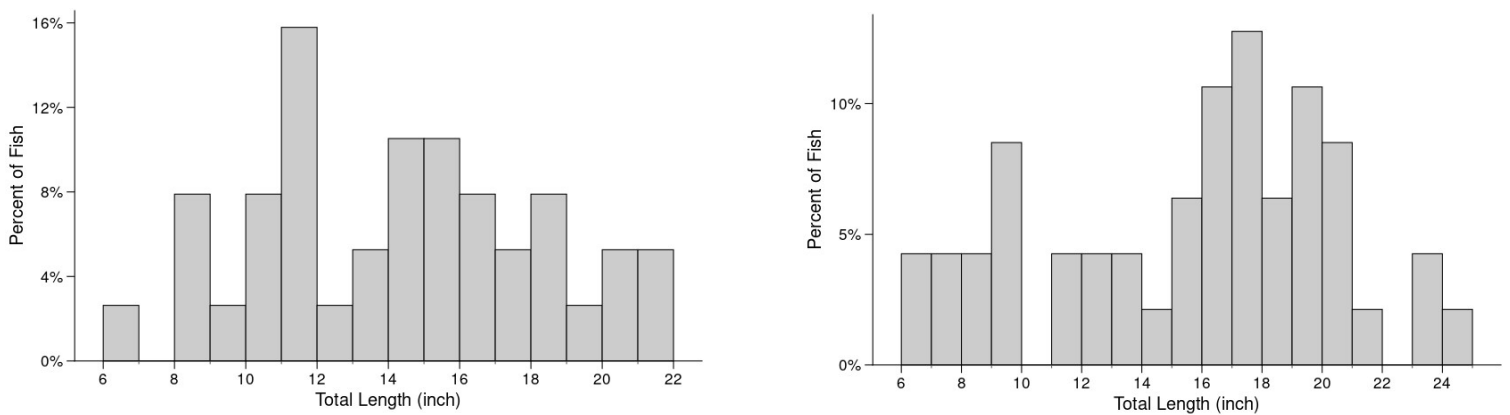


Figure 6. Length-frequency histogram for channel catfish caught at Lake Hudson by winter gill netting in 2021 (left N=38) and 2023 (right N=47).

Hybrid Striped Bass

Winter gill netting targeting the Temperate Basses (*Morone spp.*) was conducted in 2023 at Lake Hudson. Random site selection was used as per the standard protocol with nets being set for a total of 15 nights. A total of 48 hybrid striped bass were sampled and the mean CPUE was not different from the previous year, mean Wr was down slightly but still high and variance fell below data quality standards (RSE min of 20) (Table 13). When compared statewide overall CPUE was just above the 50th percentile, while mean CPUE ≥ 20 " fell below the 50th percentile (Table 14). Length frequency analysis shows a large proportion of fish are at quality size (Figure 7). A Von Bert. growth curve could not be computed for our age data as the model couldn't converge. However mean length at age shows slow growth at age 3 resulting in a stockpiling of age classes at a certain size (Table 15). Our evidence suggests the hybrid striped bass population of Lake Hudson is slightly below average. A more targeted sampling effort would be necessary to ascertain why that is and offer management recommendations.

Year	N	Mean	Mean ≥ 20 "	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	28	2.3	0.1	94.9	15	27.1	1.1	3.5	27
2021	46	3.5	0.2	112.1	15	26.6	1.7	5.3	26
2023	48	3.8	0.4	94.8	15	27.5	1.7	5.8	28

Table 13. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 20 ", 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 hybrid striped bass sampled by winter gill netting at Hudson Lake 2018-2023.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	0.1	0.9	5.3	9.3	13.6	81
CPUE < Stock	0	0	0.2	0.7	2.4	81
CPUE S-Q	0	0.1	1.3	4.1	7.3	81
CPUE Q-P	0	0.1	0.8	3.3	8.3	81
CPUE P-M	0	0	0.2	0.9	2.4	81
CPUE M-T	0	0	0	0	0.2	81
CPUE Trophy+	0	0	0	0	0	81

Table 14. Statewide percentiles for catch per net night (CPUE) for all hybrid striped bass, and by PSD Size class in Oklahoma 2025 (S ≤ 9.8 ", Q ≤ 16.1 ", P ≤ 20.1 ", M ≤ 24 ", T ≤ 28 ").

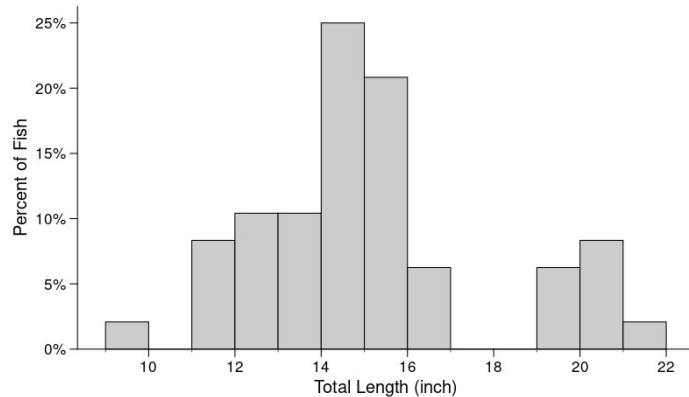
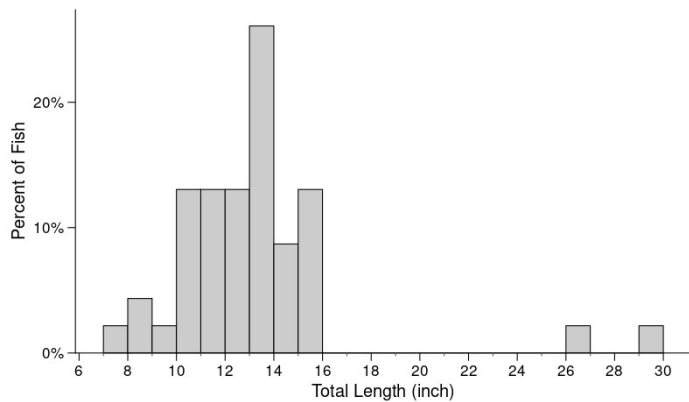


Figure 7. Length-frequency histogram for hybrid striped bass caught at Lake Hudson by winter gill netting in 2021 (left N=46) and 2023 (right N=48).

Age	MLA	N	LCI	UCI
1	9.4	1	.	.
2	12.1	6	11.3	13.0
3	14.6	10	13.9	15.4
4	14.3	18	13.8	14.8
5	16.1	5	13.9	18.3
6	18.5	3	16.0	21.1
7	20.8	3	20.4	21.2
8	20.3	2	19.4	21.1

Table 15. Mean total length at age (MLA), Total number in age class (N), and lower and upper 95% confidence intervals (LCI and UCI) for hybrid striped bass caught in winter gill nets at Lake Hudson in 2023.

Year	Total Mort. (A)	LCI	UCI	O. Max	T. Max
2023	37.3	3.4	59.3	8	12.9

Table 16. 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 hybrid striped bass sampled with winter gill nets at Hudson Lake in 2023.

White Bass

Winter gill netting targeting the Temperate Basses (*Morone spp.*) was conducted in 2023 at Lake Hudson. Random site selection was used as per the standard protocol with nets being set for a total of 15 nights. A total of 35 white bass were sampled and the mean CPUE was not different than previous years, mean Wr were ideal and variance fell just below data quality standards (RSE min of 20) (Table 17). When compared statewide overall CPUE fell below the 25th percentile, while mean CPUE ≥ 10 fell just above the 50th percentile (Table 18). Length frequency is different than the previous year with a mostly even distribution, however this is with a much lower sample size (Figure 8). White bass at Lake Hudson have not been aged traditionally so this data is lacking. Our evidence suggests that the white bass population of Lake Hudson is below average both CPUE metrics. This could be due to a variety of factors, but we just don't have the data to point to any one cause. Additionally catch of white bass in gillnets is highly variable, so year to year variation could be explained by that variation and not actual variation in population size/structure. There are no management actions recommended at this time, however there is a need for more/better quality data if this species becomes a higher priority in the system.

Year	N	Mean	Mean ≥ 10 "	Wr	Count	RSE	LCI	UCI	N RSE = 20
2018	29	2.4	2.0	98.5	15	22.5	1.3	3.4	19
2021	135	10.2	1.1	108.2	15	21.8	5.8	14.5	18
2023	35	2.7	1.4	100.7	15	22.4	1.5	3.9	19

Table 17. Total number caught (N), mean CPUE (Mean), mean CPUE for fish ≥ 20 ", 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 Hudson Lake 2018-2023.

CPUE Category	5%	25%	50%	75%	95%	# Surveys
Overall CPUE	0.4	2.1	5	8.7	19	200
CPUE < Stock	0	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 18. Statewide percentiles for catch per net night (CPUE) for all white bass, and by PSD Size class in Oklahoma 2025 (S ≤ 5.9 ", Q ≤ 9.1 ", P ≤ 11.8 ", M ≤ 15.0 ", T ≤ 18 ").

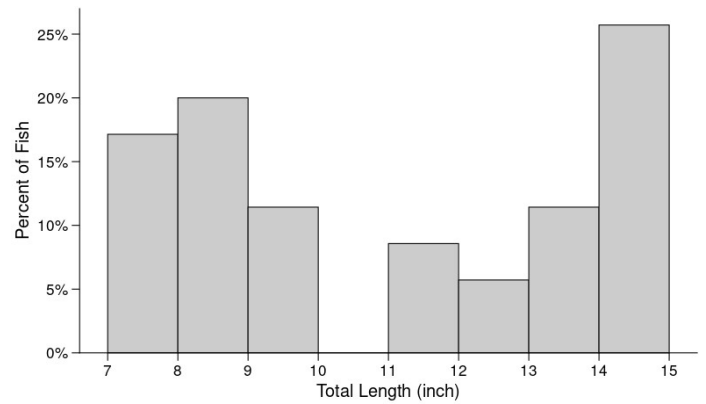
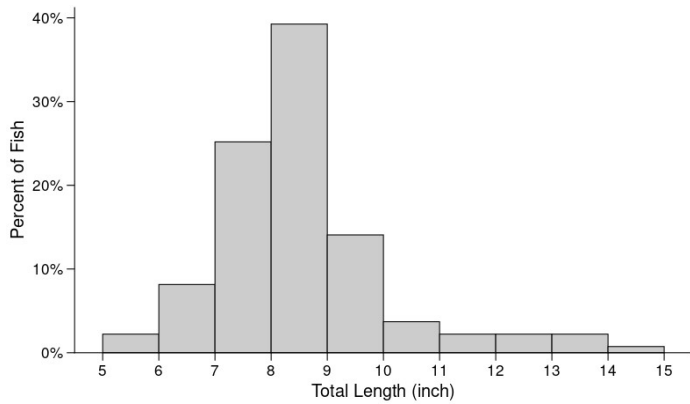


Figure 8. Length-frequency histogram for white bass caught at Lake Hudson by winter gill netting in 2021 (left N=135) and 2023 (right N=35).

Recommendations

1. Continue monitoring sport fish populations
2. Continuing adding habitat to Hudson Lake

Appendix

A1. Fish stockings 2013-2025

Date	Species	Number	Size
2013	Hybrid Striped Bass	109,000	Fingerlings
2014	Hybrid Striped Bass	112,200	Fingerlings
2015	Hybrid Striped Bass	110,875	Fingerlings
2016	Hybrid Striped Bass	109,348	Fingerlings
2017	Hybrid Striped Bass	111,003	Fingerlings
2018	Hybrid Striped Bass	112,050	Fingerlings
2019	Hybrid Striped Bass	110,856	Fingerlings
2020	Hybrid Striped Bass	109,000	Fingerlings
2021	Hybrid Striped Bass	112,700	Fingerlings
2022	Hybrid Striped Bass	112,160	Fingerlings
2023	Hybrid Striped Bass	110,080	Fingerlings
2024	Hybrid Striped Bass	109,755	Fingerlings
2025	Hybrid Striped Bass	110,205	Fingerlings