SURVEY REPORT
OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS FOR KAW LAKE 2024

SURVEY REPORT

State: Oklahoma

Project Title: Kaw Lake Fish Management Survey Report

Period Covered: This report discusses survey results from 2024.

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Date Prepared: January 2025

Kaw Lake

ABSTRACT

Kaw Lake was surveyed using experimental gillnets to determine the status of the Hybrid Striped Bass, Walleye and White Perch populations during the 2024 fall sampling season. Data from the 2024 sample will be compared to previous standardized sampling efforts to monitor trends in catch per unit effort (CPUE) and population dynamics. Fall trap netting was conducted to evaluate population demographics of White Crappie populations.

Recommendations include trap netting in fall of 2027 for crappie, gillnetting fall of 2028 for Hybrid Striped Bass and White Perch, and using fall night electofishing to evaluate Walleye.

Current Management Practices

Evaluate and Maintain Stocked Moronid and Percid Fish Populations

Hybridized fish species like Hybrid Striped Bass do not have the capability to reproduce and sustain their populations as other game fish can. These put and take fisheries are subject to greater control by fisheries managers who must request annual introductions to maintain their abundances in satisfactory levels for the angling public. Populations must be monitored closely to ensure this limited resource is used most efficiently. The Kaw Lake hybrid fishery has been increasingly utilized by anglers. The Walleye fishery at Kaw Lake has always been of interest as it has been challenging to determine the amount of natural reproduction taking place in the lake. The maintenance of current data on these species is vital to gauging success of these management strategies and communicating about them with constituents.

Evaluation of Historically Stunted and High-Profile Crappie Populations

Crappie was the second most sought after species in Oklahoma according to the most recent angler survey. It is important to keep a finger on the pulse of high profile crappie fisheries in the region, especially with the recent developments in fish finding technology. The Garmin Livescope allows anglers to single out and harvest the largest fish in a school. As this technology becomes more affordable and more widespread in use, it will be important to have baseline information on high profile crappie fisheries.

2024

Kaw Lake was sampled during the fall with trap nets to assess the crappie population. Trap nets were deployed around the lake in chosen areas to have the highest catch rates. Trap nets were deployed perpendicular to the bank and anchored at the point where the net started at the water's edge. Max depth of the nets did not exceed 15ft were checked daily and moved to another location

if catch was deemed too low. 5 nets were set for 2 days for a total of 10 net nights of fishing. Kaw Lake additionally was sampled using experimental gillnets. Gillnets were deployed around the lake randomly and in selected areas perpendicular to the shore in a minimum of 6ft deep. A total of 31 net nights of sampling was completed. Catch Per Unit Effort (CPUE) was not calculated due to sample sites being a mixture of random and non random sites. The 16 sites that were random did not meet the target coefficient of variance (C.V.) to accurately determine abundance of all three target species (Hybrid Striped Bass, Walleye, and White Perch).

White Crappie:

Catch Per Unit Effort (CPUE) was not calculated due to sample sites not being random. 211 White Crappie were collected. Fish were measured (mm) and weighed (g). A subsample of White Crappie were taken for aging, otoliths were collected. A total of 148 otoliths were collected and aged for analysis. White Crappie length frequencies had notable peaks at 100mm - 124mm, 175mm – 199mm, and 250mm – 274mm (Figure 1). Proportional size distributions significantly increased for quality size (PSD) and preferred (PSD-P) sized fish compared to the 2020 sample (Table 1). Relative weight (Wr) significantly decreased from the 2020 sample (2020 Wr = 97.39± .67 and 2024 Wr = 91.61± 1.31). Age frequencies show a majority of the fish sampled were age 0 and age 2 (Figure 2). Mean length at age significantly increased for age 0 White Crappie but significantly decreased for ages 1, 2, and 3 (Figure 3, Table 2).

White Crappie in Kaw Lake displayed typical boom and bust recruitment with large age 0 and age 2 year classes. While quality and preferred sized fish did significantly increase mean length at age and relative weights significantly decreased likely due to the large age 2 year class competing for resources. This still lands the Kaw Lake White Crappie PSD values in the 75th percentile for preferred and memorable sized fish compared statewide. As the age 2 crappie get older we should see increase in the abundance of memorable sized crappie in the next couple of years. Sampling again in 2027 would allow managers to observe maximum growth of the large class of two year of crappie.

Hybrid Striped Bass:

A total of 39 Hybrid Striped Bass were collected, all were measured (mm), weighed (g) and had their otoliths pulled for aging. No stocking took place in 2024 and therefore no age 0 hybrids were found in the sample. A majority of hybrids found were from 400mm (15in) to 449mm (17in) (Figure 4). Proportional size distribution significantly increased for quality size fish to PSD= 92± 10 but this is most likely due to the absence of age 0 hybrid in the population (Table 3). Relative weight (Wr) was 93.06± 2.22 and was not significantly different from 2021 (Wr = 89.52± 1.68). A majority of Hybrids sampled were age 1 with few age 2 and 3 fish collected (Figure 5). Mean length at age significantly increased with age 1 hybrids reaching 426.48mm (16.79in) compared to 342.70mm (13.49in) in 2021. Mean length at age was not calculated for older hybrids do to less then 5 individuals were collected at each age.

Hybrid Striped Bass in Kaw Lake have excellent growth in the first year of life. They rank in the 95th percentile of Hybrid Striped Bass fisheries across the state. This excellent growth most likely sets these fish up for continued impressive growth in the coming years. It appears that most hybrids either die off or leave the lake by age 2. Hybrids stocked in Kaw Lake were intended to create a tailrace fishery as they have been known to leave anytime there is water flowing out of an impoundment. It appears Kaw Lake hybrids are doing this as well, spending the first year of life gaining size then exiting the lake to move further downstream. In recent years anglers have started targeting hybrids in the lake and have had great success. Future research could look at the sizes of hybrids caught by these anglers to determine if they are harvesting these fish in the same ratios as we have collected them.

Walleye:

A total of 13 Walleye were collected. When so few fish are collected it is a challenge for any manager to determine the quality of a fishery. The last sample that took place in 2021 only collected 2 individuals, before that only 3 were collected in 2016. Walleye have been stocked in some number every year since 2012 except for 2021. This species should be well established in Kaw Lake especially since they are able to reproduce on their own. To better determine if stocking should continue alternative sampling methods may be required i.e. fall night electrofishing. In addition, determining if there is a community of Kaw Lake anglers who pursue Walleye at all within the lake. Cheney reservoir and El Dorado Lake in Kansas both stock Walleye and it could be assumed that Walleye will always be in Kaw Lake due to them emigrating from these reservoirs, but I would be hesitant to halt stockings of Walleye until further evaluation is done.

White Perch:

A total of 29 White Perch were collected, all were measured (mm), weighed (g) and had their otoliths pulled for aging. White Perch ranged from 125mm (4.92in) to 199mm (7.83in) with a majority of being 125mm to 149mm in length (Figure 6). All fish were less then quality size (200mm) resulting in a proportional size distribution of zero. All White Perch collected were age 1. White Perch have always been collected in low numbers in Kaw Lake with the last survey collecting one individual in 2021 and only 3 individuals in 2016. All those individuals collected in the last two samples were age 1 as well. The White Perch population in Kaw Lake remains low and has not exploded like those in Skiatook and Sooner Lakes. Why they haven't exploded in population is unknown but may have something to do with Kaw being a flow through reservoir or the large population of Blue Catfish in the lake keeps them in check. Continued monitoring to determine if there is any significant change in the population is warranted as they are an invasive species, but control options are limited as the lakes up stream of Kaw (Cheney and El Dorado) both have White Perch in them.

RECOMMENDATIONS

1. Trap Net Kaw Lake fall 2025 to check for recruitment and assess the older Crappie population.
2. Continue stocking Hybrid Striped Bass at the same rates. Work with guides and anglers to determine sizes of hybrids harvested, potentially a question in a future Kaw Lake creel if deemed appropriate.
3. Determine if Walleye could be better sampled using alternate gears like fall night electrofishing.
4. Continue monitoring the White Perch population to check for changes. Gillnetting recommended in 2028.

Figures and Tables

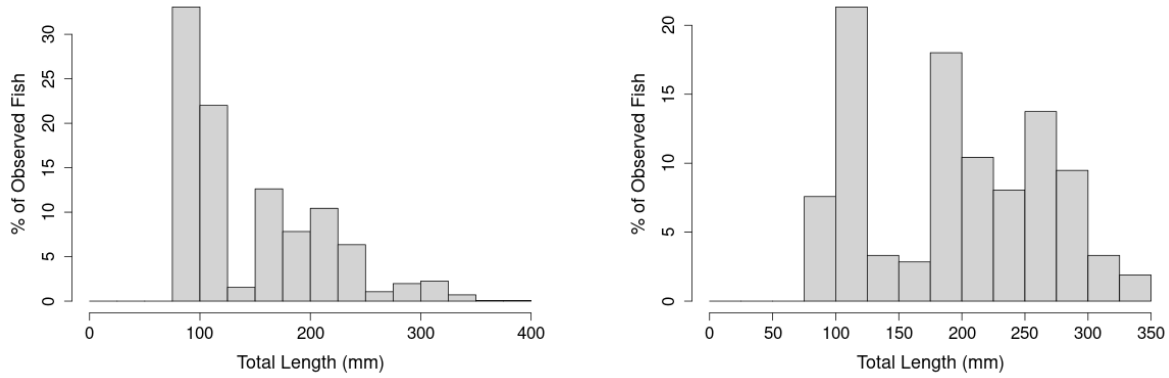

Figure 1. Length frequencies of White Crappie in Kaw Lake 2020 (left) and 2024 (right).

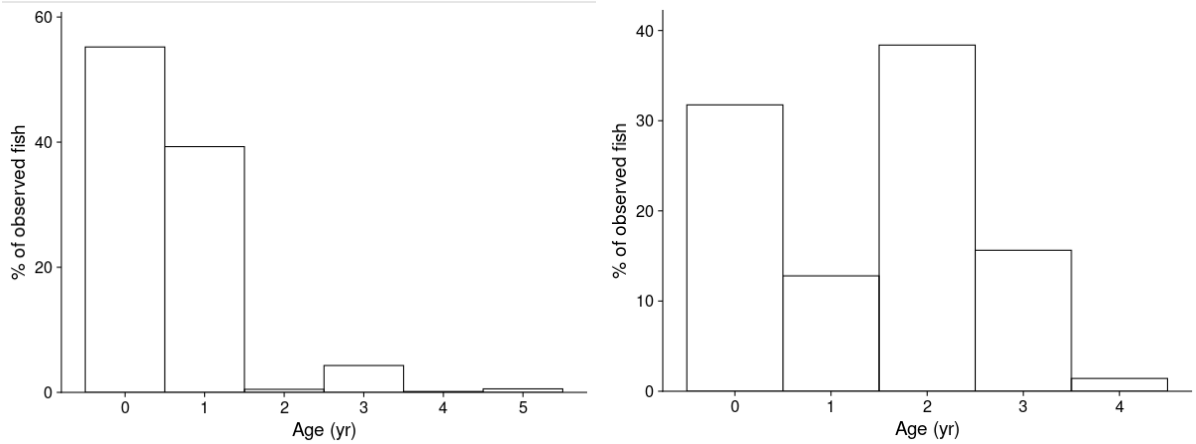

Figure 2. Age frequencies of White Crappie in Kaw Lake 2020 (left) and 2024 (right).

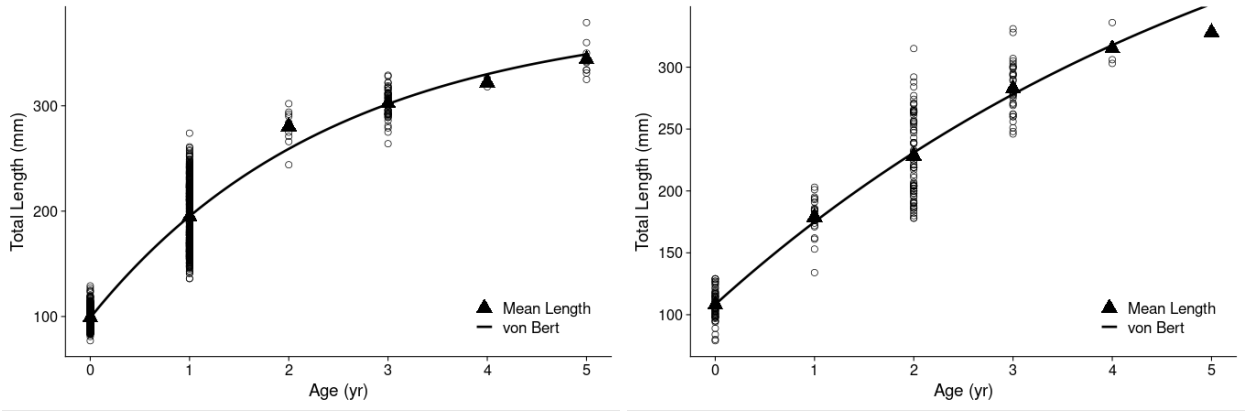

Figure 3. Mean Length at age and von Bertalanffy growth equation of White Crappie in Kaw Lake sampled in 2020 (left) and 2024 (right).

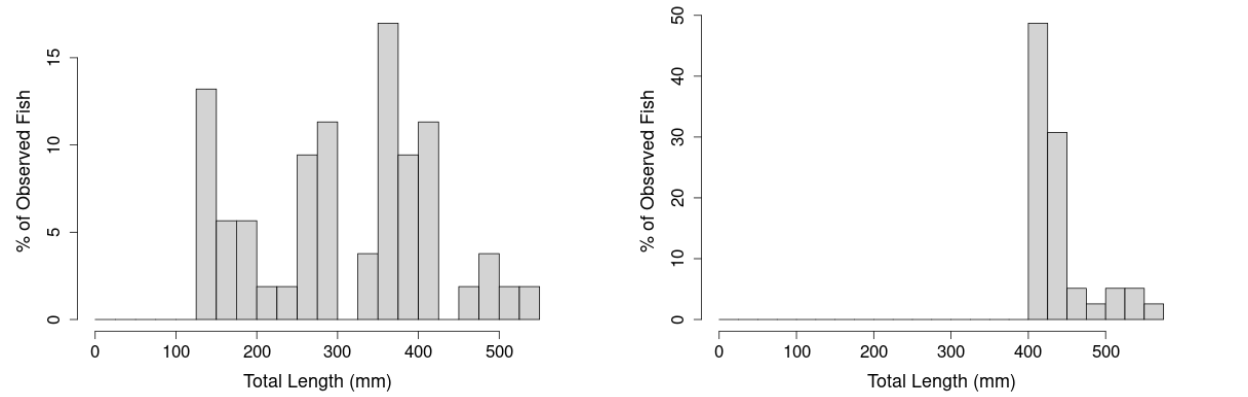

Figure 4. Length frequencies of Hybrid Striped Bass in Kaw Lake 2021 (left) and 2024 (right).

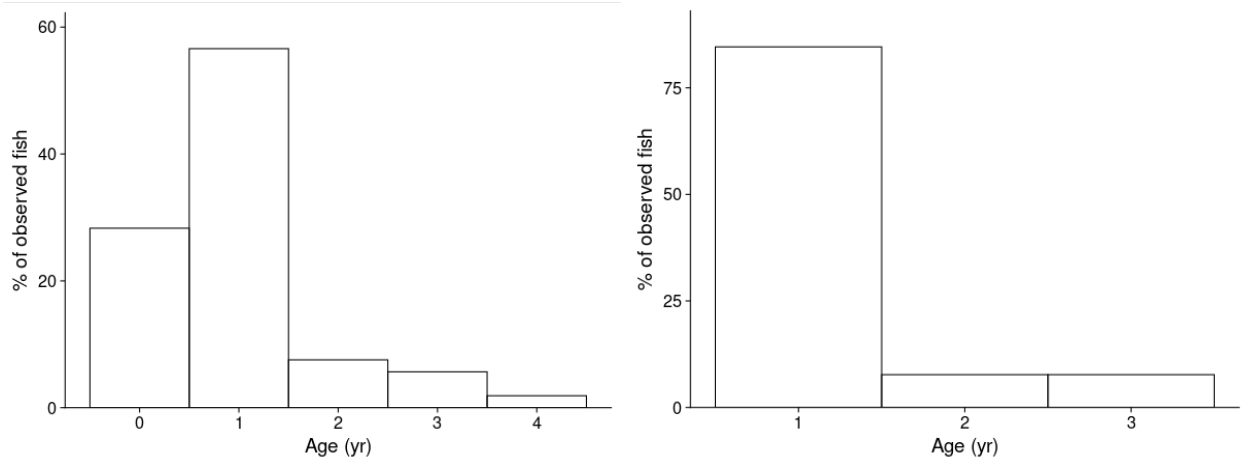

Figure 5. Age frequencies of Hybrid Striped Bass in Kaw Lake 2021 (left) and 2024 (right).

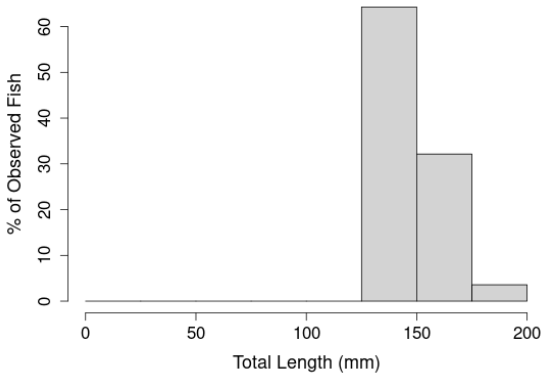

Figure 6. Length frequencies of White Perch in Kaw Lake 2024.

Table 1. Proportional Size Distributions of White Crappie in Kaw Lake.

Year	PSD	PSD – P	PSD – M
2020	52 ± 6	14 ± 4	7 ± 3
2024	71 ± 10	42 ± 12	9 ± 7

Table 2. Mean Length at age of White Crappie collected from Kaw Lake. Mean length at age was only calculated for age groups that had at least 5 individuals

Year	Sample Size (N)	Age-0	Age-1	Age-2	Age-3	Age-4	Age-5
2020	1418	98.91± .5	194.62± 2.51	281.29± 15.48	301.33± 3.94	-	347.25± 11.12
2024	211	108.01± 2.7	178.89± 5.51	228.22± 7.19	282.68± 7.04	-	-

Table 3. Proportional Size Distributions of Hybrid Striped Bass in Kaw Lake.

Year	PSD	PSD – P
2021	26 ± 17	3 ± 6
2024	92 ± 10	10 ± 12