

SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

BIRCH LAKE

2025

SURVEY REPORT

State: Oklahoma

Project Title: Birch Lake Fish Management Survey Report

Period Covered: This report discusses survey results from 2025.

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Birch Lake

ABSTRACT

Birch Lake was surveyed using experimental gillnets to determine the status of the Hybrid Striped Bass population during the 2025 fall sampling season.

Recommendations include maintaining annual stocking rates of Threadfin Shad and Hybrid Striped Bass and trap netting in fall of 2026 to monitor Black Crappie and White Crappie populations.

INTRODUCTION

Birch Lake is a multipurpose lake for flood management, water supply, water quality control, recreation, and fish and wildlife. Dam construction began in 1973 and was completed in 1977. Birch Lake is part of the comprehensive plan for flood management and water conservation in the Verdigris River Basin. Birch Lake impounds Birch Creek, which is 2 miles south of Barnsdall, and approximately 20 miles southwest of Bartlesville in Osage County. Birch Lake has a surface area of 1137 acres, 31 miles of shoreline, and a maximum depth of 53 feet.

Birch Lake is stocked with Hybrid Striped Bass. Hybridized fish species do not have the ability 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. Gill net samples are used to determine Hybrid Striped Bass abundance, growth rates, and length frequencies. No natural reproduction of Hybrid Striped Bass allows for evaluation of stocking rates, bag limits, and determination of continued stockings.

RESULTS

Hybrid Striped Bass

We sampled Birch Lake targeting Hybrid Striped Bass using experimental gillnets in fall of 2025. We sampled a total of 36 net nights. The minimum number of net nights was 10 per standard sampling procedures, but sampling did cease until suitable coefficient of variation was achieved for Hybrid Striped Bass ($CV=0.20$). Otoliths were collected and catch per unit effort, mean length at age, and length frequencies were calculated for Hybrid Striped Bass.

A total of 148 Hybrid Striped Bass were collected, and all fish were used for age analysis. Lengths ranged from 181mm to 601mm and weights ranged from 66g to 3082g. Per standard sampling procedures, fish with weights less than 115g were excluded from relative weight calculations. Ages ranged from 0 to 11 years old. In 2023 no Hybrid Striped Bass were stocked in Birch Lake, resulting in an absence of age 2 Hybrid Striped Bass in our 2025 sample.

Hybrid Striped Bass catch per unit effort (CPUE) was similar in 2025 and 2023 (Table 1). Mean length at age has increased at all ages in 2025, with the exception of age 4 fish where it remained similar (Table 2). Additionally, we see that mean length at age 0 and 1 fish both exceeded the 95th percentile, mean length at age 3 and 4 fish both exceeded the 75th percentile, and mean length at age 5 fish exceeded the 50th percentile, when compared to previous Hybrid Striped Bass samples collected across the state of Oklahoma (Table 3). Length frequencies have remained similar in 2025 and 2024, although we see an additional peak around 270mm (age 0 fish in 2025). In 2023 over 70% of fish collected were age 1, 2 and 3. Older year classes were seen, but in lower numbers (Figure 2). In 2025, we observed a similar ratio of older year classes in our sample (i.e., 64% of the fish collected were age 0, 1, and 3) (Figure 2). Overall relative weight of Hybrid Striped Bass in Birch Lake significantly increased from 85.12 in 2023 to 88.87 in 2025. For reference, overall relative weight was 84.66 in 2021. Overall relative weight exceeded the 50th percentile, and relative weight of preferred sized fish exceeded the 75th percentile, when compared to previous Hybrid Striped Bass samples collected across the state of Oklahoma (Table 4). After surveying Birch Lake in the fall of 2023, it was suggested that decreasing stocking rates of Hybrid

Striped Bass or supplementing the forage base by introducing Threadfin Shad may improve growth and relative weights of the Hybrid Striped Bass population in Birch. Considering this, Birch Lake was stocked with adult Threadfin Shad in the spring of 2024 and 2025. Since these stockings, we have received reports in the summer of 2024 from anglers catching Threadfin Shad while cast netting for bait. Additionally, we caught two adult Threadfin Shad while gillnetting in the fall 2025. This suggests that Threadfin Shad stocking efforts are taking hold in Birch Lake, although annual inputs are still warranted as this forage species is vulnerable to winter mortality events. Increased growth and relative weights of Hybrid Striped Bass observed in 2025 can likely be attributed to these annual Threadfin Shad stockings, as the Hybrid Striped Bass population is likely benefiting from the additional forage base. With plenty of age 0 and 1 fish, increased growth, and increased relative weights in 2025, Birch Lake should be an exceptional Hybrid Striped Bass fishery for the next several years.

Table 1. Catch per unit effort of Hybrid Striped Bass on Birch Lake sampled with gillnets

Lake	Year	Sample Size	Species	L 95% CI	CPUE	U 95% CI
Birch	2021	14	Hybrid Striped Bass	9.56	13.59	17.63
Birch	2023	26	Hybrid Striped Bass	2.61	4.46	6.31
Birch	2025	36	Hybrid Striped Bass	2.64	4.33	6.02

Table 2. Mean length at age of Hybrid Striped Bass in Birch Lake collected using gillnets in 2021, 2023, and 2025 (gray fill denotes age class absences due to no stocking of Hybrid Striped Bass in 2023)

Year	Sample Size	Age-0	Age-1	Age-2	Age-3	Age-4	Age-5	Age-6	Age-7	Age-8	Age-9	Age-10	Age-11
2021	182	229.1	377.5	465.1	493.9	-	512.8	540.6	530.0	-	-	570.0	-
2023	110	-	405.0	470.7	483.0	530.3	525.9	545.5	555.8	535.0	515.0	-	-
2025	148	259.0	435.6	-	509.8	528.3	547.9	554.0	563.4	548.0	549.1	-	566.0

Table 3. Statewide mean length at age percentiles from Hybrid Striped Bass samples in 2010-2023 (surveys with less than 100 aged fish were excluded from percentile calculations; gray fill denotes the percentile that our 2025 Hybrid Striped Bass sample from Birch Lake exceeded)

Age Class	5%	25%	50%	75%	95%	Surveys (N)
Age-0	206	227	245	251	254	8
Age-1	268	371	376	388	405	13
Age-2	421	440	453	461	480	12
Age-3	460	468	471	480	541	13
Age-4	486	491	507	509	556	8
Age-5	504	510	519	567	589	8

Table 4. Statewide relative weight percentiles from Hybrid Striped Bass samples in 2010-2023 (gray fill denotes the percentile that our 2025 Hybrid Striped Bass sample from Birch Lake exceeded)

Size	5%	25%	50%	75%	95%	Surveys (N)
Overall	77	83	87	94	107	63
Substock (< 200mm)	79	82	87	92	108	28
Stock (200-299mm)	78	83	87	93	105	47
Quality (300-379mm)	75	81	85	90	102	45
Preferred (380-510mm)	71	73	83	86	94	31

Figure 1. Hybrid Striped Bass length frequencies for Birch Lake 2023 (left) and 2025 (right)

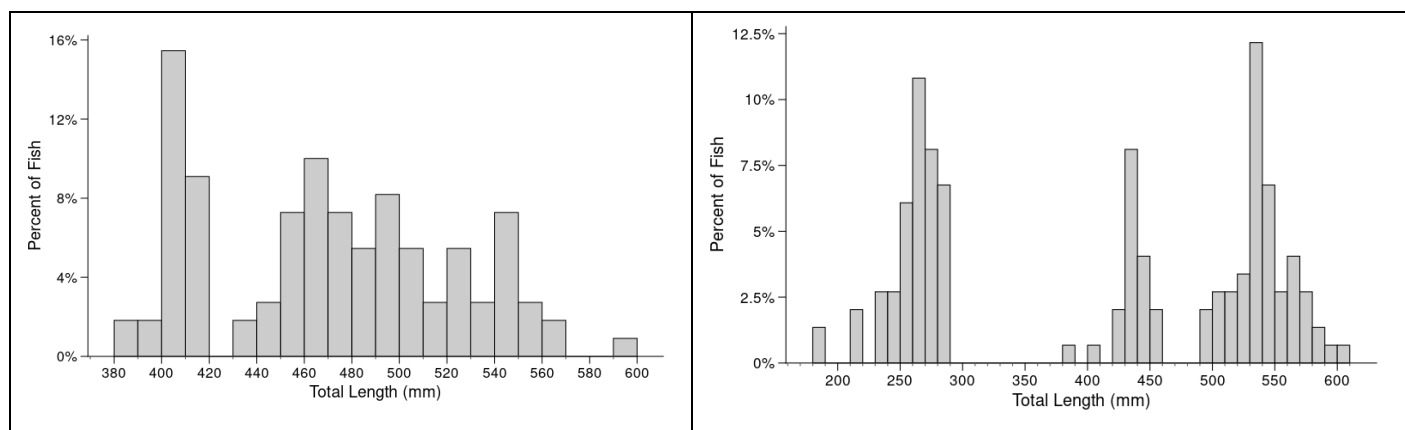
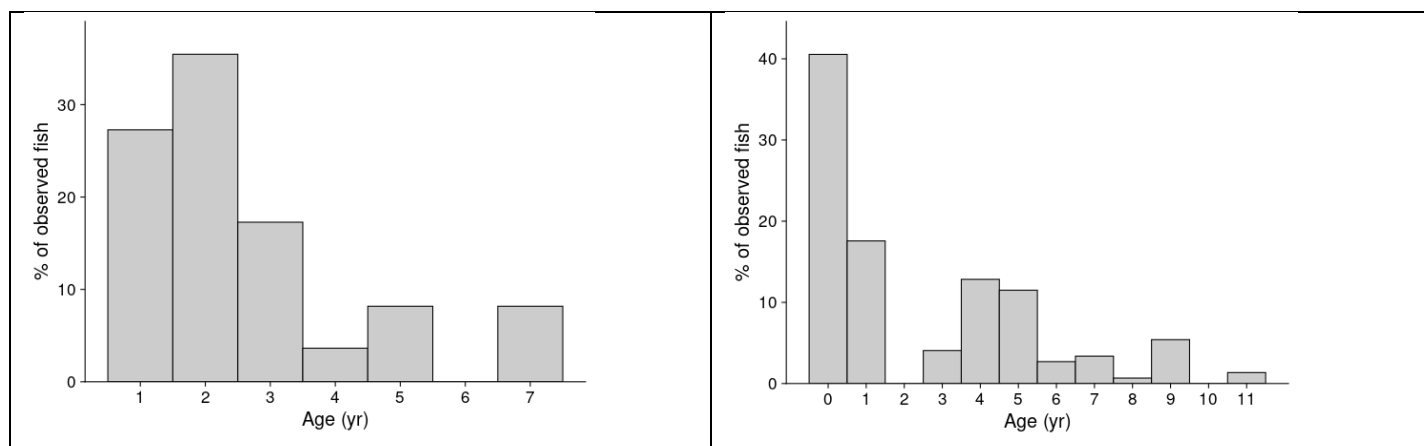


Figure 2. Hybrid Striped Bass age frequencies for Birch Lake 2023 (left) and 2025 (right)



RECOMMENDATIONS

1. Maintain stocking rates of Threadfin Shad and Hybrid Striped Bass in 2026
2. Trap net sample in fall of 2026 to monitor Black Crappie and White Crappie population dynamics