SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

LAKE PONCA

2024

SURVEY REPORT

State: Oklahoma

Project Title: Lake Ponca Fish Management Survey Report

Period Covered: This report discusses survey results from 2024.

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Lake Ponca

ABSTRACT

Ponca Lake was surveyed using trap nets to assess the status of the White Crappie and Black Crappie populations during the fall sampling season of 2024. Data from the 2024 sample will be compared to previous standardized sampling efforts to monitor trends in population dynamics.

Recommendations include trap netting in fall of 2027.

Current Management Practices

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. Slow growing crappie populations have been observed in some NCR reservoirs. These lakes have been stocked with saugeye in the past to develop a biological control for overabundant and slow growing crappie. Results have varied among these lakes and future evaluation of the crappie and saugeye populations is warranted.

2024

Lake Ponca was sampled using trap nets to evaluate the crappie population in the lake. A total of 59 net nights of effort was completed collecting a total of 157 White Crappie and 97 Black Crappie. Fish were measured (mm) and weighed (g) and otoliths were collected for aging.

White Crappie:

White Crappie catch rates appeared lower than in years past. While these observations were anecdotal low catch rates became a concern while sampling. Comparing crappie catch rates was not statistically appropriate due to sample sites not being randomly selected. We set 3x as many nets as the last two sampling events for roughly half as many White Crappie as in those sampling years. White Crappie lengths were most abundant from 200mm (7.9in) - 250mm (9.8in) composing of over 60% of White Crappie sampled (Figure 1). Proportional size distributions significantly decreased for preferred sized fish from 2021 to 2024 (Table 1). Relative Weight was significantly lower compared to 2021 and 2017 continuing this decreasing trend (Table 2). Age Frequencies indicate a large age one year class making up 80% of all White Crappie collected (Figure 2). Mean length at age was significantly larger for age one White Crappie compared to 2021 but not significantly different from the 2017 sample (Figure 3).

White Crappie in Ponca Lake followed classic crappie boom and bust cycles. These cycles can be seen in age frequencies with very low recruitment and then a larger year class. In the 2024 sample can still see the boom year age 2-class from the 2021 sample now 5 years old they still where more prevalent than the age 2-, 3-, and 4-year classes put together. These cycles are normal in crappie populations and are not of any concern. Growth in 2024 was more reflective of growth in 2017 with

White Crappie reaching 8in in their first year. This year one growth is in the 95th percentile of lakes across Oklahoma. Sampling Ponca in 2027 would allow for a good look at maximum growth with potentially larger numbers of fish for aging while allowing to see if any new recruitment has taken place.

Black Crappie:

Black Crappie were most abundant from 175mm (6.8in) - 225mm (8.8in) (Figure 4). Proportional size distributions were not significantly different from 2021 (PSD 64 ± 12, PSD-P 11 ± 8). Relative weights were not significantly different from 2021 (Wr = 88.29 ± .99). Age frequencies indicate over 75% of Black Crappie were age 1 (Figure 5). Mean length significantly increased for both age 1- and age 2- Black Crappie compared to 2021 (Figure 6).

Black Crappie appear to have become more abundant and have had better growth in the absence of numerous White Crappie. Sampling the crappie population in 2027 will be insightful in Black Crappie continue to significantly increase in size and number.

RECOMMENDATIONS

1. Trap Net Ponca Lake fall 2027 to check for recruitment and assess the older Crappie population

Figures and Tables

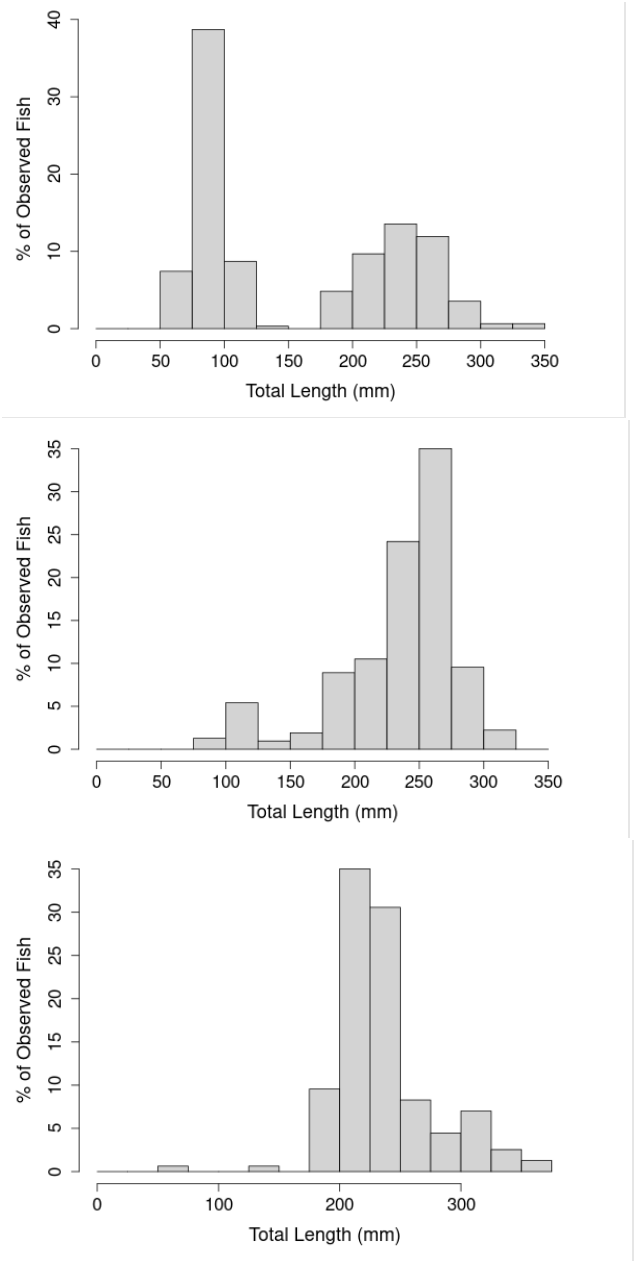

Figure 1. Length frequencies of White Crappie in Ponca Lake 2017 (top left), 2021 (top right), and 2024 (bottom left).

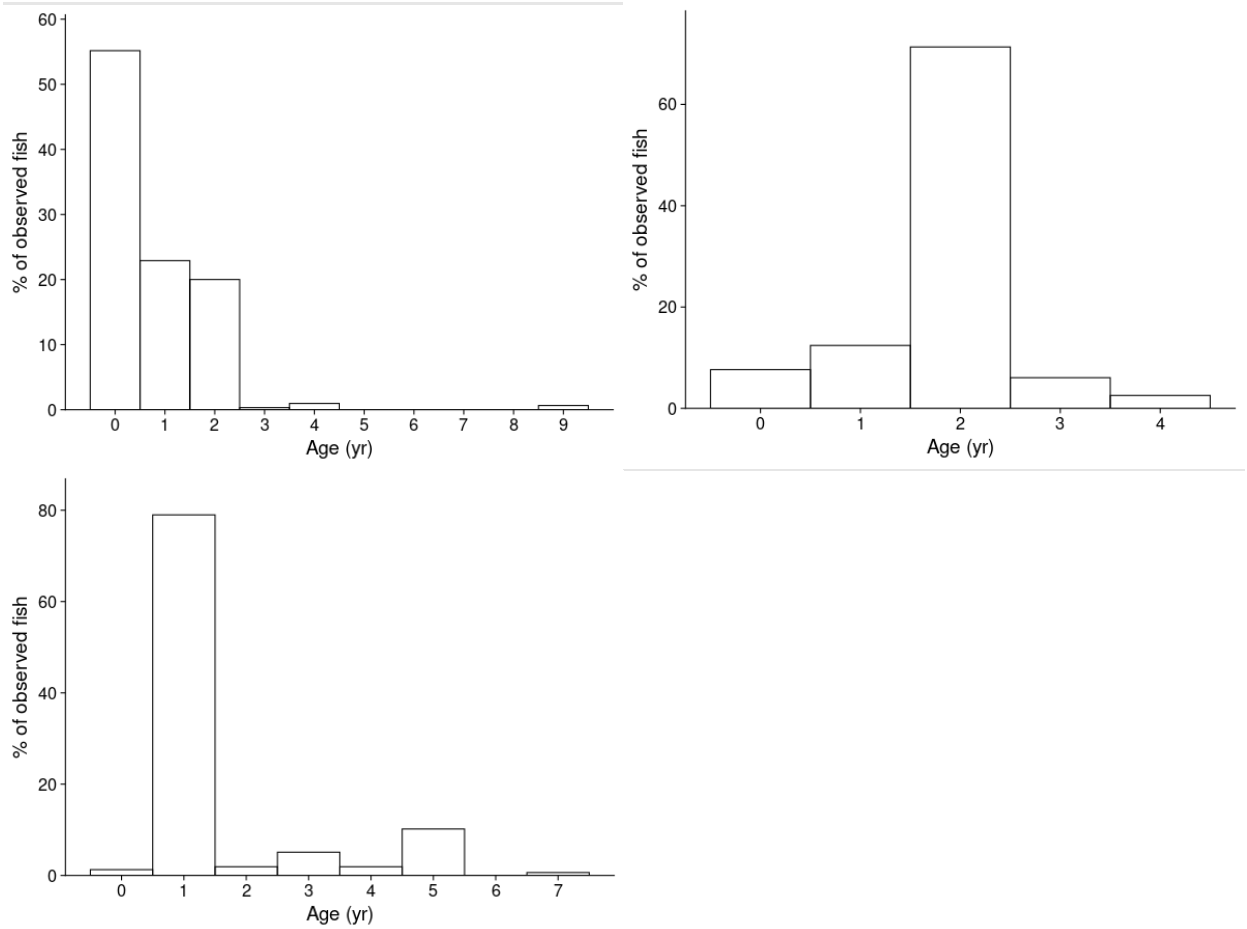

Figure 2. Age frequencies of White Crappie in Ponca Lake 2017 (top left), 2021 (top right), and 2024 (bottom left).

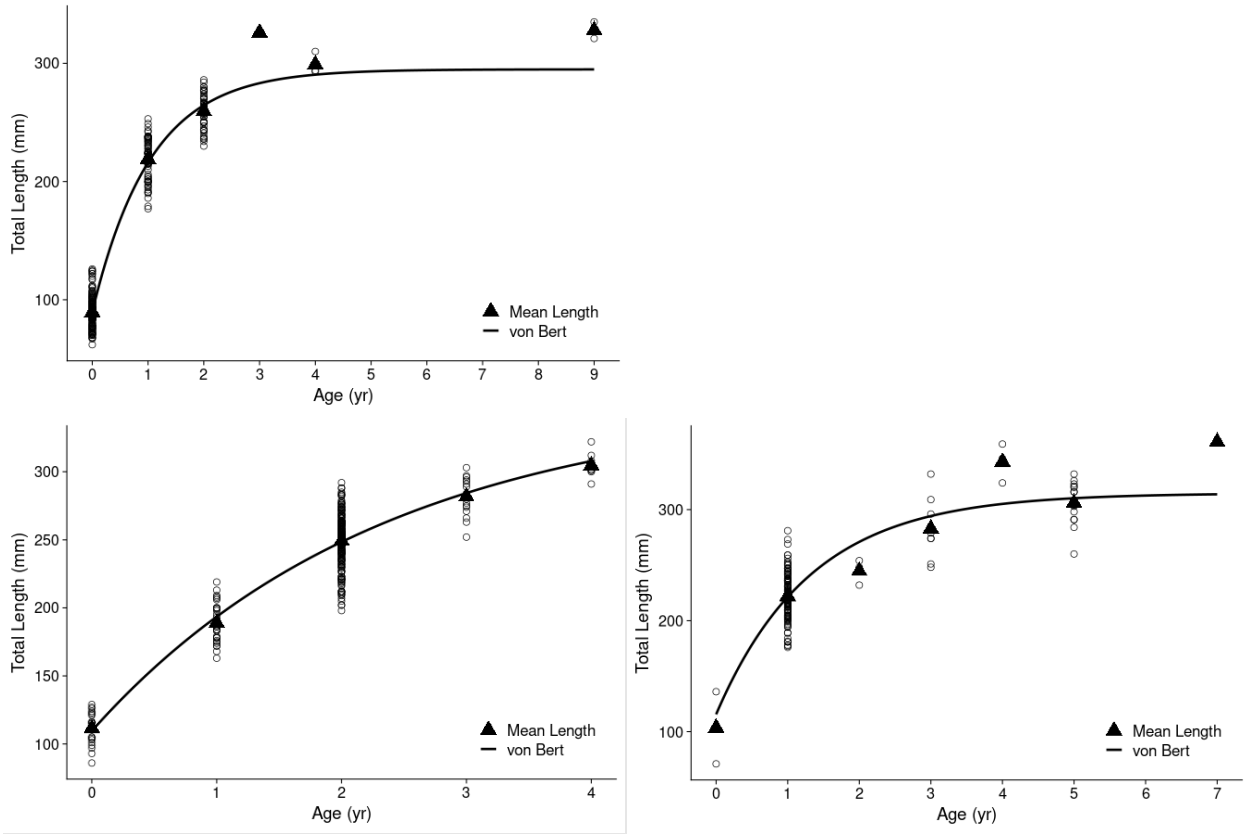

Figure 3. Mean Length at age and von Bertalanffy growth equation of White Crappie in Ponca Lake sampled in 2017 (top left), 2021 (top right) and 2024 (bottom left).

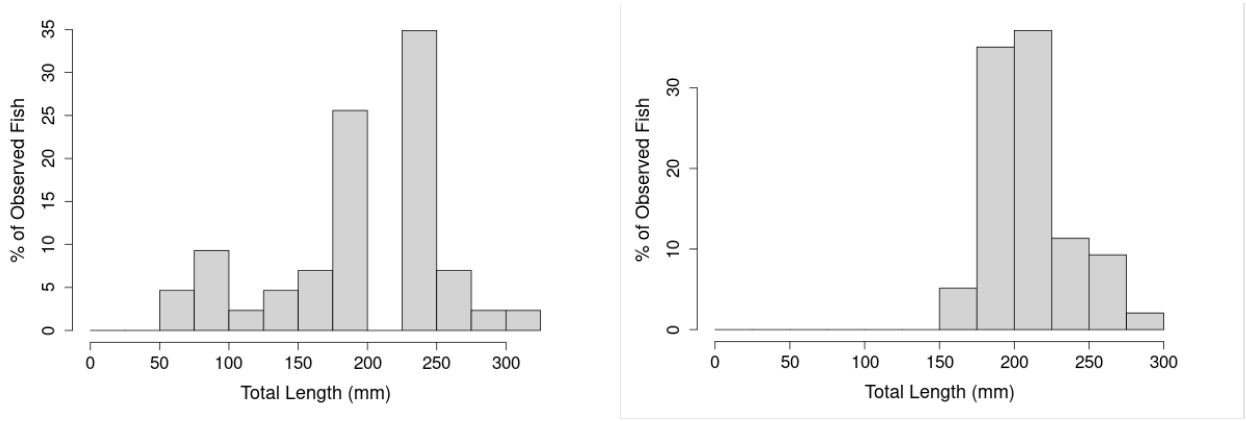

Figure 4. Length frequencies of Black Crappie in Ponca Lake 2021 (left) and 2024 (right).

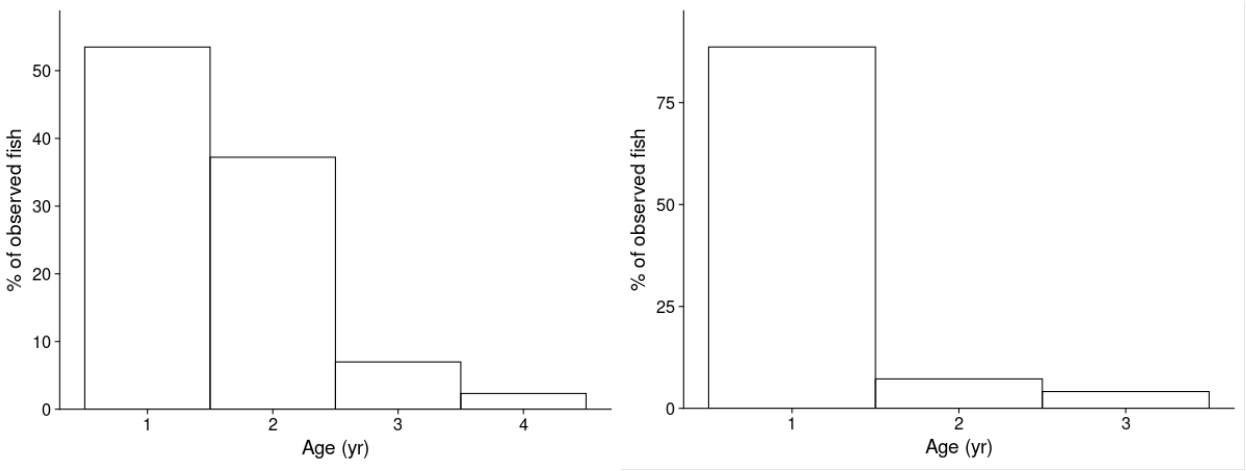

Figure 5. Age frequencies of Black Crappie in Ponca Lake 2021 (left) and 2024 (right).

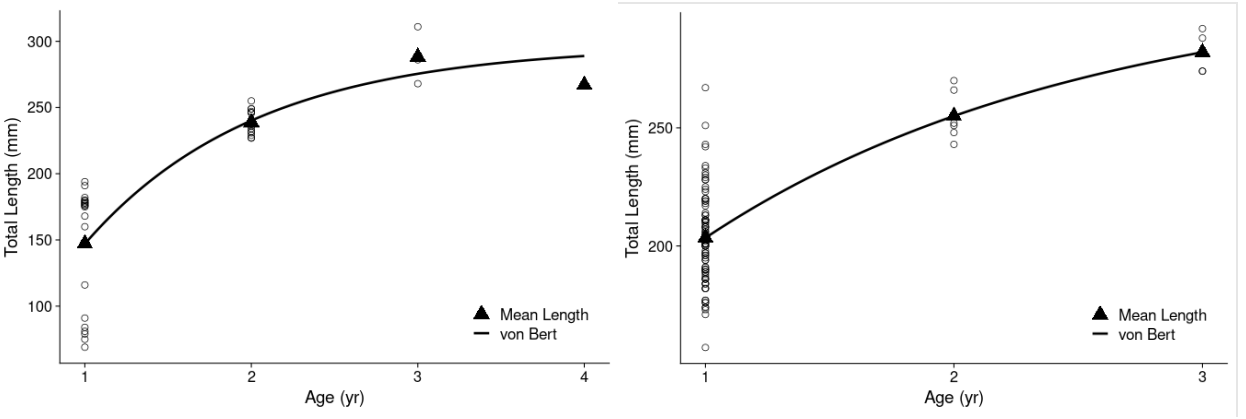

Figure 6. Mean Length at age and von Bertalanffy growth equation of Black Crappie in Ponca Lake sampled in 2021 (left) and 2024 (right).

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

Year	PSD	PSD – P	PSD – M
2017	92 ± 6	41 ± 12	3 ± 4
2021	89 ± 5	51 ± 8	3 ± 3
2024	90 ± 6	25 ± 10	11 ± 7

Table 2. Overall relative weights of White Crappie in Ponca Lake.

YEAR	WR
2017	97.89 ± 2.05
2021	92.81 ± 0.84
2024	89.66 ± 1.32