OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

FISH MANAGEMENT SURVEY REPORT

ATOKA LAKE

2025

EXECUTIVE SUMMARY

Trap netting was conducted in fall of 2025 to evaluate the status of the crappie fishery. Atoka Lake is dominated by white crappie, with only three (3) black crappie collected in the 2025 survey. Overall catch rate of white crappie increased over the past two surveys in 2021 and 2025 compared to historical averages. The overall catch rate in 2025 was 24.3 fish/net-night and the catch rate of crappie > 10 inches was 5.6 fish/net-night (Table 1, Figure 1). A strong age-0 year class (2025 spawn) was detected in fall sampling. This, along with consistent year class contributions out to age-5, indicate that recruitment has been consistent in recent years and likely the cause of increase overall catch rates. Length frequency and Proportional Stock Density (PSD) metrics are included in Figure 2 and Table 2, respectively.

Crappie growth rates in 2025 were still above acceptable levels across all age classes with age-2 crappie averaging 9.1 inches (Table 3, Figure 3). While growth rates continue to be good, growth of age-3 and older individuals slowed slightly in 2025 compared to previous years. This could be the impact of the increase overall population or the result of a combination of other factors but is worth monitoring closely in future years.

Mortality estimates (Table 4) for crappie at Atoka Lake are highly variable and may not accurately reflect overall mortality rates. Estimates across years indicate annual mortality rates of approximately 50 – 70 percent.

Table 1. Effort, overall fish per net night (CPUE), variability, relative weights (Wr), and CPUE by size groups of white crappie collected by trap netting from Atoka Lake.

Year	Net-nights	# Fish	Total CPUE	Range (U/L 95% CI)	RSE	Net-nights needed RSE = 20	Wr	CPUE < 5 in	CPUE ≥ 5 in	CPUE ≥ 10 in
2009	21	363	18.2	±4.0	11.2	7	93	0.1	18.0	8.9
2015	21	219	10.6	±4.5	21.8	25	93	6.1	9.6	1.4
2018	20	352	18.1	±7.1	19.9	20	92	1.7	16.8	8.5
2021	21	630	31.3	±6.5	10.6	6	91	27.5	12.3	5.6
2025	21	509	24.3	±6.3	13.3	9	89	16.8	23.4	5.6

Figure 1. Fish per net night (CPUE) trend data for white crappie and white crappie greater than 10 inches collected by trap netting from Atoka Lake. Error bars represent standard error estimates.

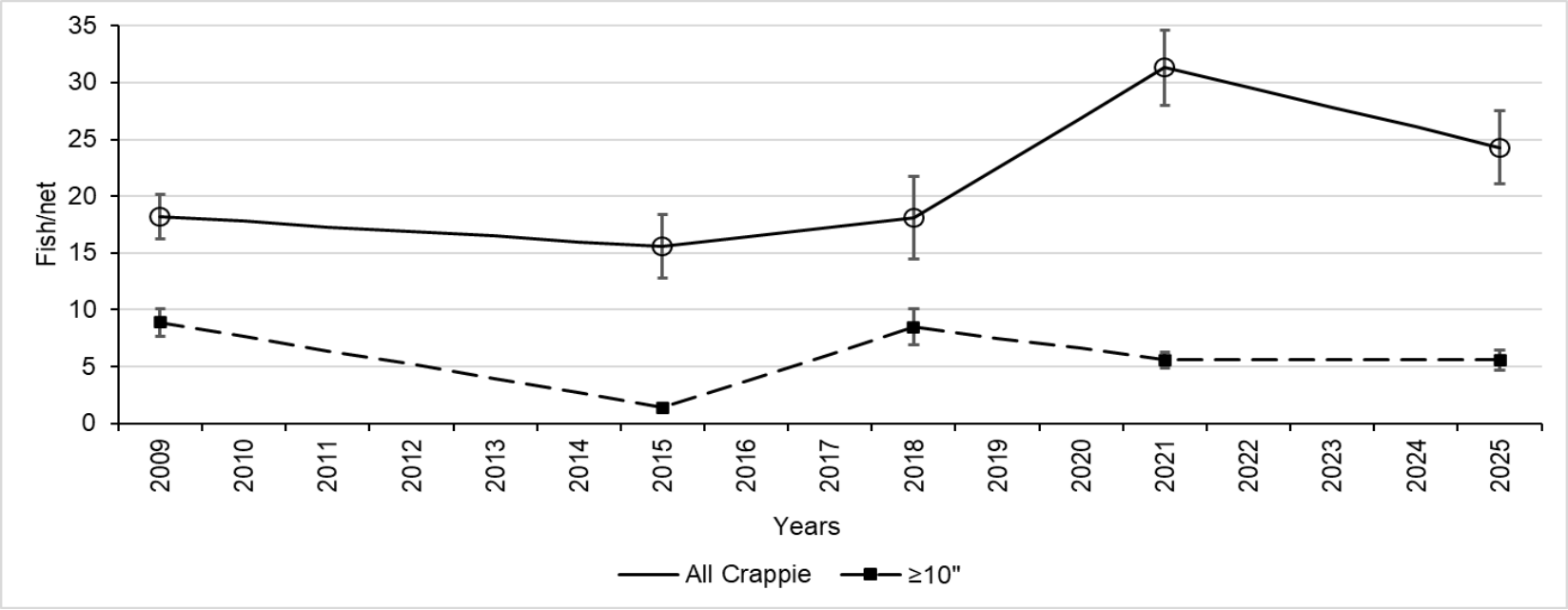

Figure 2. 2025 length frequency distribution for white crappie collected by trap netting at Atoka Lake. N = 844.

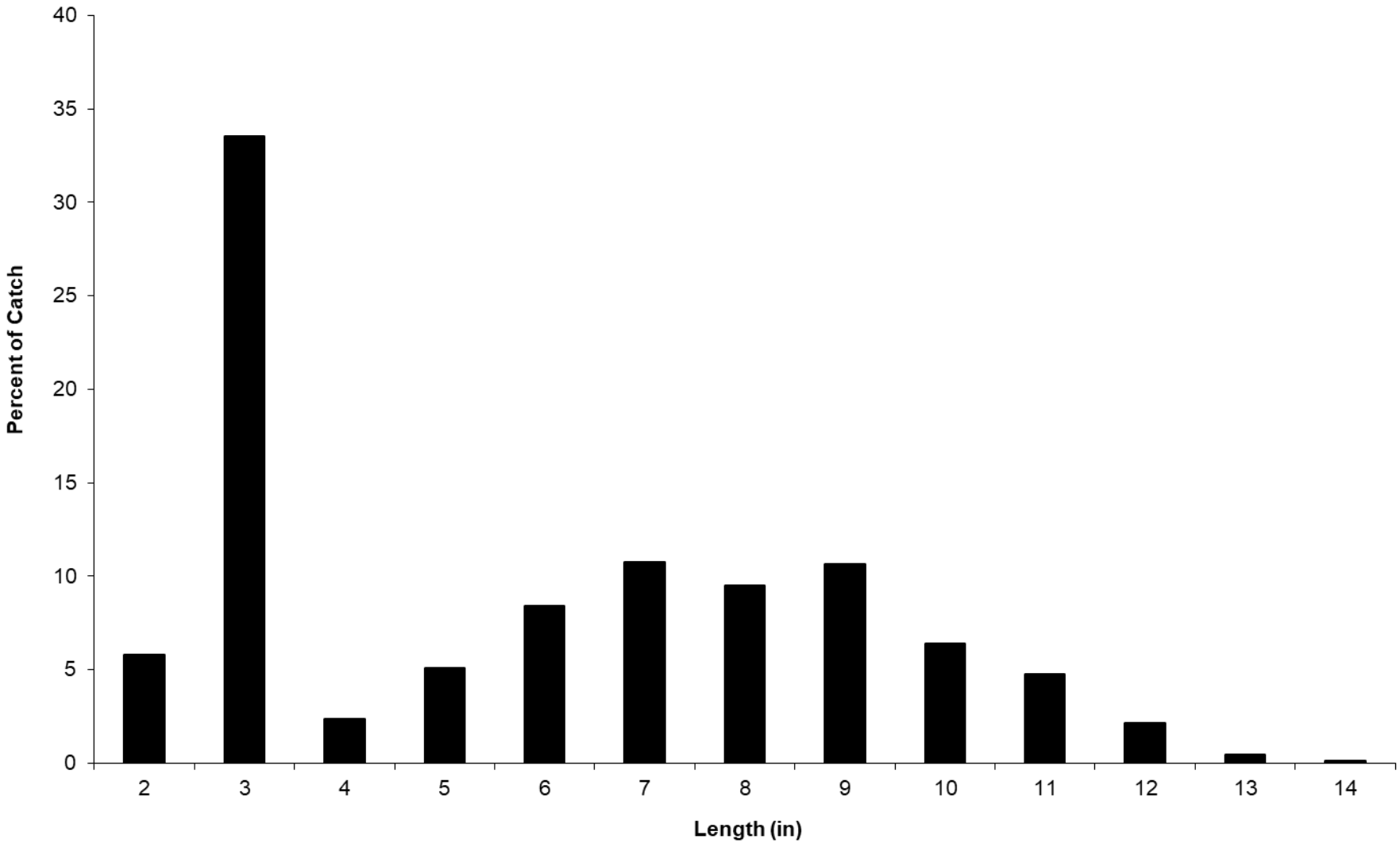

Table 2. Proportional Stock Density (PSD) categories and PSD metrics and variability for white crappie collected by trap netting from Atoka Lake.

Category	Stock	Quality	Preferred	Memorable	Trophy
Size (in)	5.1	7.9	9.8	11.8	15.0

Year	PSD	Range (U/L 95% CI)	PSD-P	Range (U/L 95% CI)	PSD-M	Range (U/L 95% CI)	PSD-T	Range (U/L 95% CI)
2009	**87**	±5	**53**	±7	**19**	±6	**-**	-
2015	**30**	±9	**17**	±8	**7**	±5	**-**	-
2018	**80**	±7	**53**	±8	**11**	±5	**-**	-
2021	**69**	±8	**48**	±9	**16**	±8	**-**	-
2025	**61**	±6	**26**	±6	**6**	±3	**-**	-

Table 3. Number of white crappie, mean length at age, and variability of white crappie collected by trap netting from Atoka Lake.

Year	# Aged	# Fish with Length-Age Key	Age-1 (N)	Range (U/L 95% CI)	Age-2 (N)	Range (U/L 95% CI)	Age-3 (N)	Range (U/L 95% CI)	Age-4 (N)	Range (U/L 95% CI)	Age-5 (N)	Range (U/L 95% CI)
2009	179	356	7.6 (33)	±0.3	9.3 (197)	±0.1	11.4 (52)	±0.2	12.2 (64)	±0.2	14.1 (3)	±0.4
2015	112	210	5.6 (63)	±0.1	7.2 (131)	±0.3	11.7 (9)	±0.2	12.5 (4)	±0.6	12.5 (2)	±1.3
2018	159	336	6.7 (61)	±0.4	-	-	10.0 (250)	±0.2	11.8 (9)	±0.8	12.0 (16)	±0.6
2021	163	273	5.2 (69)	±0.1	9.0 (148)	±0.3	11.7 (31)	±0.2	11.9 (8)	±0.4	13.8 (1)	-
2025	173	506	6.7 (231)	±0.1	9.1 (146)	±0.1	10.4 (38)	±0.4	10.6 (45)	±0.3	11.3 (45)	±0.4

Figure 3. 2025 Length at age data for white crappie collected from Atoka Lake by fall trap netting.

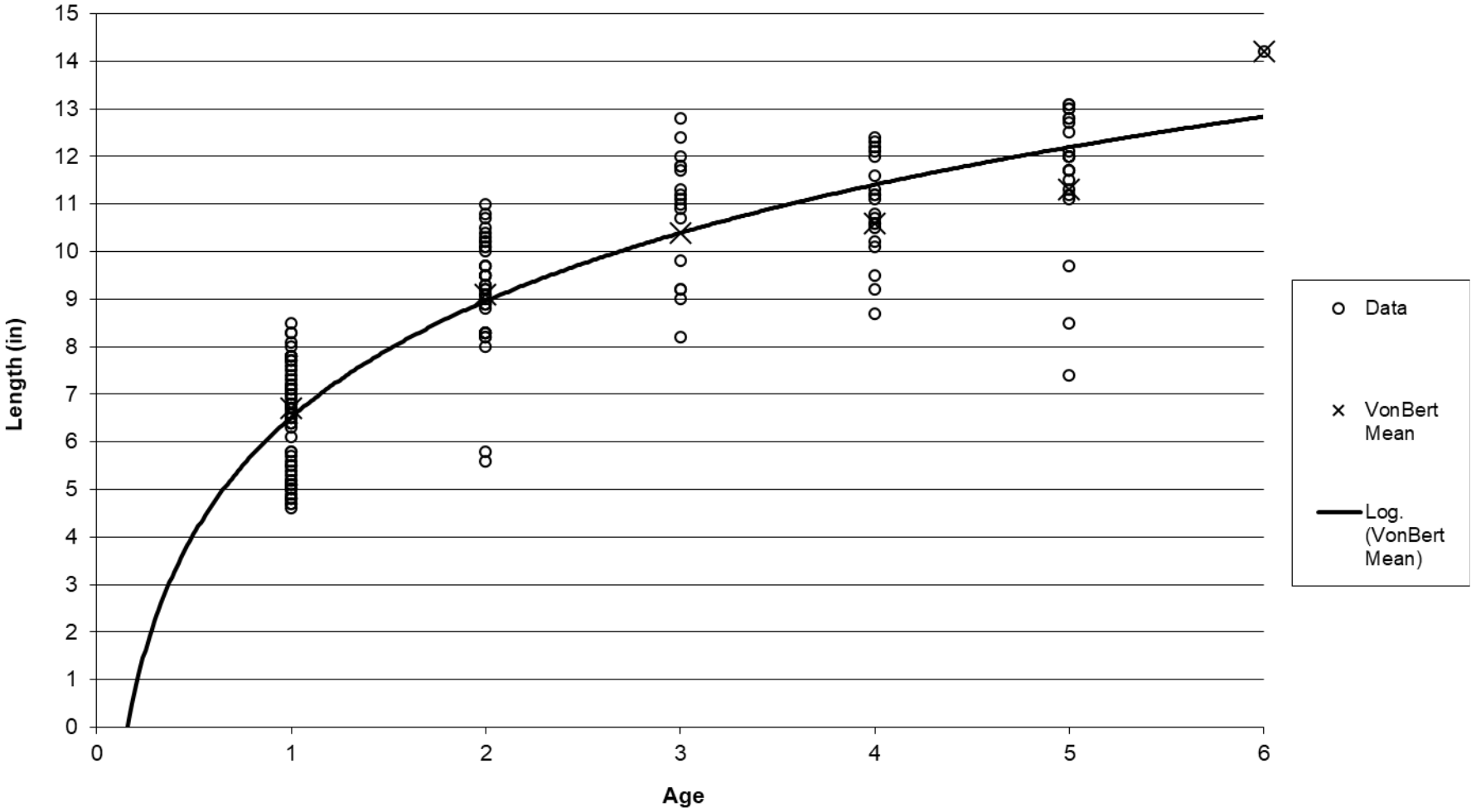

Table 4. Mortality estimates, variability, and maximum observed age of white crappie collected by trap netting from Atoka Lake.

Year	Annual Mortality	Lower 95% CI	Upper 95% CI	Observed Max Age
2009	60.3	32	76	8
2015	72.5	27	89	8
2018	80.0	-26337440	100	5
2021	60.0	-26	87	6
2025	50.4	16	70	6