

Survey Report

Oklahoma Department of Wildlife Conservation



Fish Management Survey and Recommendations

for

Bickham-Rudkin

In Edmond

2024

Survey Report

State: Oklahoma

Project Title: Bickham-Rudkin

Operating Authority: City of Edmond

Period Covered: 2024

Prepared by: Oklahoma Fishery Research Laboratory

Date Prepared: Jan. 2025

Bickham-Rudkin Park Pond

Abstract

Bickham-Rudkin Park Pond is an 8-acre pond located in Edmond, OK. It was surveyed in 2024 using boat electrofishing, hoop netting, and trap netting. The largest Largemouth Bass was around 400mm (15in), and the relative weights were all above acceptable. One thousand five hundred forty-eight Bluegill were caught during 2024 hoop netting. Their relative weights were all above acceptable. Additionally, Black Crappie was caught in higher abundance than White Crappie. Black Crappie had a catch per unit of effort (CPUE) of 29.44, while White Crappie's CPUE was 21.18. Channel Catfish were caught in low abundance. Those results were compared to the previous sampling events: 2004 & 2013 electrofishing, 2020 hoop netting & 2020 trap netting. Regular monitoring is recommended for Largemouth Bass, Bluegill, and Crappie. Additional sampling during spring or fall seasons is recommended for Channel Catfish.

Introduction

Bickham-Rudkin Park Pond is an 8-acre pond located in Edmond, Oklahoma. It has .5 acres of shoreline and a max depth of 9 feet. It is surrounded on two sides by a 49-acre park, with the west side bordered by a business complex. It has a walking trail near the pond and a dog park. The edge habitat has primrose and cattails along it. The north third of the pond is shallow with an average depth of 2 feet.

This pond is a Close to Home Fishing Pond. Close to Home Fishing Ponds are managed as put-and-take fisheries. Current management practices for the pond include stocking Channel Catfish and hybrid sunfish (Appendix 1). An automated fish feeder is typically filled from April through September. Close to Home fishing ponds have an aggregate limit of 3 Channel Catfish and/or sunfish. Only rod and reel fishing is allowed, with a limit of three fishing poles per angler. Everything else falls under statewide regulations.

In July 2022, the pond had a fish kill. The City of Edmond picked up the fish and reported at least 3 40-45lb Flathead Catfish (weighed on a scale) and multiple 20-30lb catfish. We are unsure if those were Channel Catfish or Flatheads. They reported very few Largemouth Bass. After the kill, a temporary aerator was installed. In 2023, a permanent aerator was installed (Appendix 2).

In 2024, a local Boy Scout group put 8 “lotus buckets” (a 5-gal bucket with plastic pipe sticking out and filled with concrete) in the pond for fishing habitat. A local FFA group added some floating wetlands to the north side of the pond in 2023 and refurbished them in 2024.

The pond was sampled with electrofishing three times. In 2004, one 15-minute unit was sampled. In 2013, two 10-minute units were conducted. In 2024, six 10-minute units were sampled (three units per day on two separate dates). In 2024, the electrofishing system switched from a Smith-Root to an ETS. Additionally, weights were not collected for the 2004 sample for comparisons. It was sampled twice with hoop nets. Once in 2020, it was set with 3 sets of 1in hoop nets using fish food, and once in 2024, there were 3 sets of 1in hoop nets. Each one had a different bait type (cheese bait, fish food, and zote soap). Additionally, a fourth ½ in hoop net was set in 2024, so see if any smaller catfish were present. It was set with two zote soaps and one fish food container. Lastly, it was sampled twice with trap netting in 2020 and 2024.

A creel survey was conducted from April 1, 2024 – Aug. 31, 2024. Two surveys a week for four hours. One survey on a weekday and one on a weekend. Forty-eight surveys were conducted. All dates and times were randomly selected.

Results

Largemouth Bass

Largemouth Bass were surveyed by boat electrofishing in the spring of 2004, 2013, and 2024. In 2004, the max total length (TL) was 465 mm, and in 2013, the max TL was 489 mm and 2150 g. In 2024, the max TL was 418 mm and 1170 g (Figure 1). The average catch per unit of effort (CPUE) was 31 in 2024. It is less than the CPUE from 2013 of 39. Relative weights (Wr) for 2013 and 2024 samples were above acceptable. For preferred fish, 2013 & 2024 relative weights were over 100 (Table 1). Most of the Bass in the 2024 sample were preferred sizes, with the overall proportional size distribution (PSD) value at 100. It was higher than the 2013 sample (PSD=92; Table 2).

Bluegill Sunfish

Bluegill were caught during electrofishing in 2004, 2013, & 2024, hoop netting in 2020 & 2024, and trap netting in 2020 & 2024. Weights were not collected in the 2004 and 2013 samples. The largest Bluegill was collected in the 2020 hoop netting sample. It was 261 mm TL (10.28in) and 250 g (.55 lbs; Figure 2). During 2024 hoop netting, 1548 fish were collected, with a CPUE of 216 (Figure 2 & Table 3). 2020 hoop netting had the second most collected (n=345; Figure 2).

In 2024, Bluegill were in their best condition during spring electrofishing (Wr=97.68). During trap netting, their relative weight dropped below acceptable. They had their best overall condition during 2020 hoop netting (Wr=110.88; Table 3). The highest PSD was also seen during 2024 electrofishing (Table 4).

Crappie

Black Crappie relative abundance was considerably higher than White Crappie in the 2024 samples (Table 6). Black Crappie had a CPUE of 49.17 (n=590) during hoop netting and 29.44 (n=124) during trap netting. White Crappie's CPUE was 4.83 and 21.18, respectively (Table 5). In the 2024 samples, most of the fish were stock size (Tables 6 & 7). Black Crappie were low in relative abundance in 2020 (CPUE= 1.33 & 6.5), but White Crappie had CPUEs of 20.44 & 55.08 (Table 5).

Overall Wr of Black Crappie were similar in 2024 (Wr=89.73 & 90.07; Table 6). For White Crappie, the Wr improved during trap netting from 84.33 to 94.67 (Table 7). Relative weights from both species were higher in 2020 (Tables 6 & 7).

The overall PSD for Black Crappie was low in 2024 for hoop netting and trap netting at 11 & 18. PSD's were better in 2020 at 58 & 78. White Crappie's PSD values were better at 52 & 67 in 2024. The PSDs were 50 & 76 in 2020. White Crappie had 3 individuals collected in the memorable range in 2024 (Tables 8 & 9).

We did not collect a crappie older than 4. Mean length-at-age for Black Crappie collected during 2024 trap netting was 104 mm (TL) for age 0, 174 mm for age 1, 209 mm for age 2, 207.5 mm for age 3. Mean length-at-age for White Crappie collected during 2024

trap netting was 111 mm (TL) for age 0, 178 mm for age 1, 221 mm for age 2, and 267 mm for age 3. The one four-year-old was a 315 mm White Crappie (Figures 3 & 4).

Channel Catfish

This pond receives stockings of Channel Catfish. However, we have not caught more than 3 Channel Catfish at a time. Three were collected in 2004 via electrofishing, two in 2020 hoop netting, and two during 2024 hoop netting. Although catch was low, during creel surveys, we observed fishermen catching Channel Catfish before and after hoop netting.

Recommendations

1. Survey Channel Catfish during the spring or fall to see if there is an improvement in catch rate.
2. Use various sampling methods to see if Flatheads are still present.

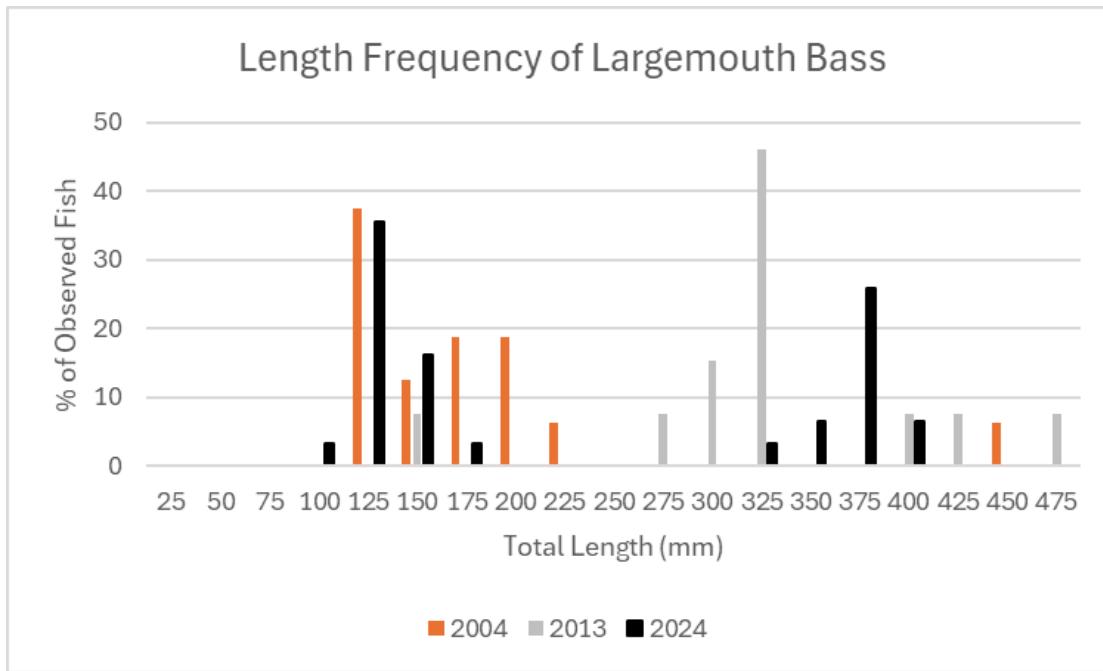


Figure 1. Largemouth Bass length frequency for electrofishing 2004, 2013, & 2024

Table 1. Catch per unit effort and relative weight by size category for electrofishing 2004, 2013, & 2024

CPUE - Relative Weight (Wr) – Largemouth Bass											
Year	Count	Total CPUE	Wr	Substock 0mm		Stock 200mm		Quality 300mm	Preferred 380mm		
				CPUE	Wr	CPUE	Wr				
2004	16	64		
2013	13	39	98.0	3	.	3	94.9	24	94.6	9	108.0
2024	31	31	98.4	18	92.3	.	.	3	97.2	10	103.7

Table 2. Largemouth Bass proportional size distribution with lower (L) and upper (U) confidence intervals (CI) for electrofishing 2004, 2013, & 2024

Largemouth Bass PSD									
	2004 Electrofishing			2013 Electrofishing			2024 Electrofishing		
	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI
PSD	20	0	55	92	72	100	100	.	.
PSD-P	20	0	55	25	0	56	77	54	100
PSD S-Q	80	45	100	8	0	28	.	.	.
PSD Q-P	.	.	.	67	33	100	23	0	46
PSD P-M	20	0	55	25	0	56	77	54	100

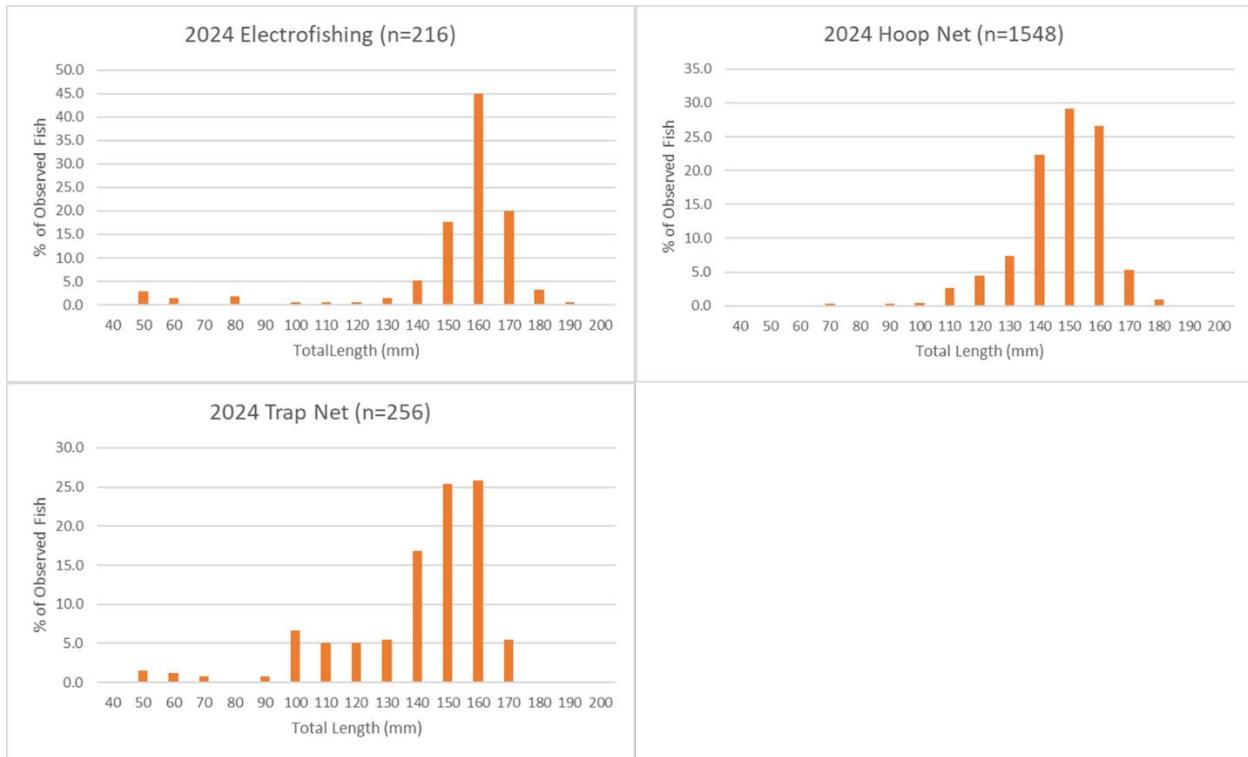


Figure 2. Bluegill length frequency (TL) from electrofishing in 2004, 2013, & 2024, hoop netting in 2020 & 2024, and trap netting in 2020 & 2024. Three fish, 210, 220, & 260mm (.2%) from 2020 hoop netting were not included for conciseness of the figure.

Table 3. Relative weight and CPUE for Bluegill from electrofishing in 2004, 2013, & 2024, hoop netting in 2020 & 2024, and trap netting in 2020 & 2024.

Relative Weight & CPUE – Bluegill							
	Size Category	CPUE	Mean Wr	Count	Standard Error (SE)	L 95% CI	U 95% CI
2020 Hoop Netting	Stock (80)	31.67	119.89	147	1.71	116.55	123.23
	Quality (150)	39.78	104.86	194	1.14	102.63	107.09
	Preferred (200)	0.33	76.37	3	15.97	45.07	107.68
	Memorable (250)	0.11	57.33	1			
	Overall	71.89	110.88	345	1.08	108.77	112.99
2020 Trap Netting	Stock	39.38	100.01	117	1.67	96.74	103.28
	Quality	52.01	97.67	116	1.07	95.57	99.76
	Preferred	0.35	92.68	2	5.44	82.02	103.34
	Overall	92.26	98.76	235	0.99	96.86	100.72
2024 Electrofishing	Stock	18.00	90.95	18	3.3	84.48	97.48
	Quality	189.00	98.32	189	0.59	97.17	99.48
	Overall	216.00	97.68	207	0.62	96.46	98.91
2024 Hoop Netting	Stock	46.08	91.91	189	0.88	90.19	93.63
	Quality	82.50	91.49	325	0.56	90.4	92.58
	Overall	129.00	91.65	514	0.48	90.71	92.58
2024 Trap Netting	Stock	23.36	93.58	97	1.19	91.24	95.91
	Quality	35.44	86.98	147	0.76	85.5	88.46
	Overall	60.95	89.6	244	0.69	88.25	90.95

Table 4. Proportional size distribution (PSD) for Bluegill from electrofishing in 2004, 2013, & 2024, hoop netting in 2020 & 2024, and trap netting in 2020 & 2024

PSD – Bluegill												
	2004 Electrofishing			2013 Electrofishing			2020 Hoop Netting			2020 Trap Netting		
	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI
PSD	48	36	60	24	15	33	56	50	61	57	52	62
PSD S-Q	52	40	64	76	67	85	44	39	50	43	38	48
PSD Q-P	48	36	60	24	15	33	55	50	61	57	51	62

	2024 Electrofishing			2024 Hoop Netting			2024 Trap Netting		
	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI
PSD	91	87	95	64	62	67	60	54	66
PSD S-Q	9	5	13	36	33	38	40	34	46
PSD Q-P	91	87	95	64	62	67	60	54	66

Table 5. Catch per unit of effort for Crappie caught during 2020 & 2024 hoop netting and 2020 & 2024 trap netting.

Sampling Event	Species	Count	CPUE
2020 Hoop Netting	Black Crappie	13	1.33
	White Crappie	184	20.44
2020 Trap Netting	Black Crappie	37	6.5
	White Crappie	314	55.08
2024 Hoop Netting	Black Crappie	590	49.17
	White Crappie	58	4.83
2024 Trap Netting	Black Crappie	124	29.44
	White Crappie	89	21.18

Table 6. Relative weights for Black Crappie caught during 2020 & 2024 hoop netting and 2020 & 2024 trap netting.

Relative Weight – Black Crappie							
	Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
2020 Hoop Netting	Stock (130mm)	106.40	5	5.11	2.43	101.6	111.17
	Quality (200mm)	100.25	7	9.52	3.61	93.2	107.31
	Overall	102.81	12	8.16	2.42	98.06	107.56
2020 Trap Netting	Substock (0mm)	109.5	1				
	Stock	93.64	2	12.87	8.52	76.94	110.33
	Quality	103.1	12	7.74	2.3	98.54	107.56
	Overall	102.2	15	8.49	2.24	97.84	106.62
2024 Hoop Netting	Stock	90.50	273	9.82	0.54	89.45	91.56
	Quality	84.33	39	6.58	0.89	82.59	86.07
	Overall	89.73	312	9.78	0.50	88.76	90.70
2024 Trap Netting	Substock	95.74	4	21.82	10.44	75.26	116.21
	Stock	90.83	96	7.54	0.70	89.46	92.20
	Quality	85.78	20	7.47	1.43	82.97	88.59
	Preferred (250mm)	79.69	1				
	Overall	90.07	121	0.70	0.70	88.69	91.45

Table 7. Relative weights for White Crappie caught during 2020 & 2024 hoop netting and 2020 & 2024 trap netting.

Relative Weight – White Crappie							
	Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
2020 Hoop Netting	Stock (130mm)	101.92	92	11.09	1.18	99.61	104.23
	Quality (200mm)	96.69	83	7.81	0.83	95.06	98.31
	Preferred (250mm)	93.60	9	10.4	3.25	87.23	99.97
	Overall	99.15	184	10.16	0.74	97.7	100.61
2020 Trap Netting	Substock (0mm)	134.45	4	23.82	16.02	103.06	165.84
	Stock	100.3	42	7.8	1.21	97.94	102.67
	Quality	97.07	71	8.69	1.0	95.05	98.97
	Preferred	106.25	45	10.92	1.73	102.86	109.64
	Memorable (300mm)	123.34	1				
	Overall	101.49	163	11.94	.95	99.63	103.35
2024 Hoop Netting	Stock	89.84	28	8.16	1.39	87.13	92.56
	Quality	81.78	21	9.79	1.75	78.36	85.21
	Preferred	73.19	6	7.21	2.15	68.97	77.41
	Memorable	72.96	3	9.68	4.08	64.97	80.96
	Overall	84.33	58	11.21	1.24	81.90	86.76
2024 Trap Netting	Substock	92.44	12	23.02	6.14	80.40	104.48
	Stock	101.11	24	16.80	3.47	94.31	107.91
	Quality	92.44	34	8.06	1.28	89.94	94.94
	Preferred	91.12	12	11.89	3.13	84.99	97.25
	Memorable	90.09	2	5.22	3.33	83.57	96.61
	Overall	94.67	84	14.75	1.52	91.69	97.66

Table 8. Proportional size distribution for Black Crappie caught during 2020 & 2024 hoop netting and 2020 & 2024 trap netting.

PSD – Black Crappie												
	2020 Hoop Netting			2020 Trap Netting			2024 Hoop Netting			2024 Trap Netting		
	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI
PSD	58	30	86	78	61	95	11	8	15	18	9	27
PSD-P				3	0	9				1	0	3
PSD S-Q	42	14	70	22	5	39	89	85	92	82	73	91
PSD Q-P	58	30	86	75	57	93	11	8	14	17	9	26
PSD P-M				3	0	9	11	8	14	1	0	3

Table 9. Proportional size distribution for White Crappie caught during 2020 & 2024 hoop netting and 2020 & 2024 trap netting.

PSD – White Crappie												
	2020 Hoop Netting			2020 Trap Netting			2024 Hoop Netting			2024 Trap Netting		
	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI
PSD	50	41	59	76	68	83	52	33	70	67	51	82
PSD-P	5	1	9	30	22	37	16	2	29	19	6	32
PSD-M							5	0	13	3	0	8
PSD S-Q	50	41	59	24	17	32	48	30	67	33	18	49
PSD Q-P	45	36	54	46	38	54	36	19	54	47	31	64
PSD P-M	5	1	9	29	22	37	10	0	22	17	4	29
PSD M-T							5	0	13	3	0	8

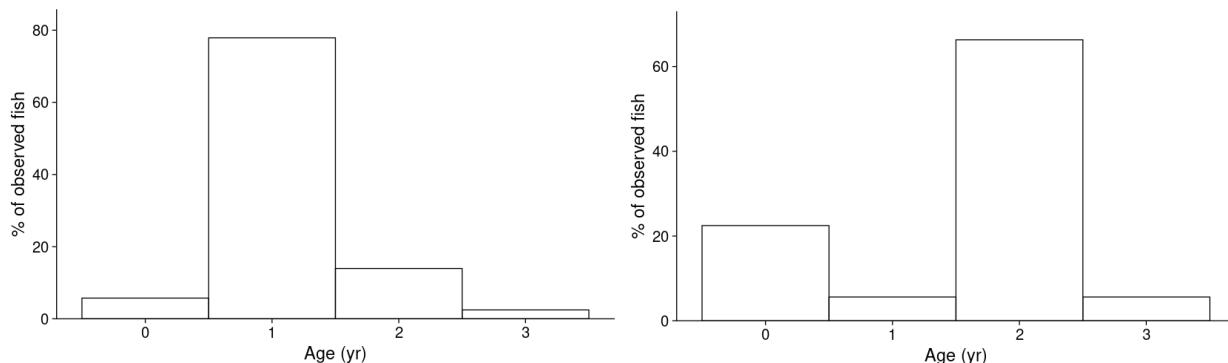


Figure 3. Age frequency histogram for Black Crappie (left) and White Crappie (right) from 2024.

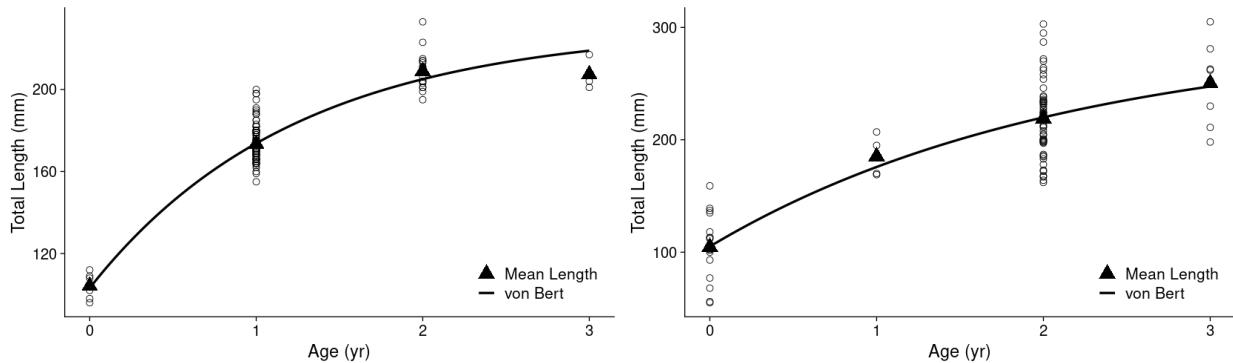


Figure 4. Mean length-at-age and von Bertalanffy growth equation for Black Crappie (left) and White Crappie (right) from 2024.

Appendix 1. Stocking records for Bickham-Rudkin pond from 2013-2024.

Month/Year	Species	Count	Weight (lbs.)	Size (in.)
Oct-24	Channel Catfish	200	132.5	12
Sep-24	Channel Catfish	150	150	13
Sep-23	Channel Catfish	330	330	12
Aug-23	Channel Catfish	50	130	20
May-23	Hybrid Sunfish	300		
Apr-21	Channel Catfish	800	216	9
Sep-20	Grass Carp	3	0.83	12
Jun-20	Channel Catfish	200	240	14
Apr-19	Hybrid Sunfish	531	59	5-7
Apr-19	Channel Catfish	800		9
Jun-18	Channel Catfish	100	100	12
Apr-17	Channel Catfish	802	191	9
Jun-16	Channel Catfish	333	500	14
Apr-16	Channel Catfish	807	576	14
2014	Channel Catfish	801	267	11
2013	Channel Catfish	1022	255	9-10

Appendix 2. Aerial photo of Bickham-Rudkin Pond highlighting 3 diffuser locations.

