Survey Report

Oklahoma Department of Wildlife Conservation

Fish Management Survey and Recommendations

for

Northeast Lions Park Pond

(Willow Pond)

2023

Survey Report

State: Oklahoma

Project Title: Northeast Lions Park Pond (Willow Pond)

Operating Authority: City of Norman - Parks and Recreation Department

Date Impounded: Pre 1965

Period Covered: 2013 - 2023

Prepared by: Shelby Jeter

Date Prepared: January 2023

Northeast Lions Park Pond (Willow Pond)

Abstract

Northeast Lions Park Pond was surveyed by spring electrofishing in 2016, fall electrofishing in 2022, summer hoop netting (2023), and fall trap netting (2023). Surveys showed a quality Largemouth Bass population, Bluegill of stock and quality size, a small number of Channel Catfish with good body conditions, and a stunted White Crappie population.

Introduction

Northeast Lions Park Pond is 6 surface acres, located in Northeast Lions Park. It is also referred to as Willow Pond. The pond is in Norman, OK at 1800 Northcliff Ave, Norman, OK 73071. Its watershed is from a residential area and is surrounded by a park with a disc golf course, two picnic shelters, a playground, and a restroom. A dock and walkway were installed in 2003. The pond has an average depth of 4ft, with a maximum depth of 8ft. The shoreline has cattails and trees when full or near full. It typically has an algae bloom in the summer.

This pond is a Close to Home Fishing Pond. Close to Home Fishing Ponds are managed as put-and-take fisheries. Sampling has 3 goals. First, to determine if fish stockings are adequate. The second is to collect as much baseline data for each pond. Lastly, to determine the most effective gear to evaluate sunfish and crappie metrics. Current management practices for the pond include stocking Channel Catfish and hybrid sunfish (appendix 1). A 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 2022, the Largemouth Bass statewide regulation changed from a 6 fish limit with a minimum of 14in to a 6 fish limit and only 1 fish can be over 16in. The pond has spider block fish attractors located throughout the pond. Fifty stake buckets under the bridge and near the dock in 2010. In September 2022, 8 “lotus buckets” were placed throughout the pond for additional cover (appendix 2).

Electrofishing was conducted with a Smith-Root 5.0 generator-powered pulsator (setting: High Range, DC, 102 pluses per second, 20-60% or power) in spring 2016 and in fall 2022 as a part of the operculum hole-punching research. In 2022, Northeast Lions was sampled on 4 different days, with a total of 16 sites sampled in 10-minute intervals. The data was collected in two different ways, so they cannot be directly compared. These will just be anecdotal comparisons.

In July 2023, the pond was set with three 1in tandem hoop nets. The nets were baited with Sportsman’s Choice Trophy Fish Food. Three stations were set and checked daily. The nets are checked daily in Close to Home ponds to remove turtles. All fish are measured and weighed daily. Channel Catfish and Bluegill were returned to the pond. White Crappie were removed for aging.

In October 2023, the pond was trap netted for 5 net nights. Three nets were set for one overnight set, with two for the next overnight set. Nets 1 and 2 were reset at the same location they were pulled from.

A creel survey was conducted in 2017. Anglers were surveyed from May through August, twice a week. Surveys were on one weekday and one weekend, for a total of 40 days.

Results

Largemouth Bass

In 2016, one 20-minute unit was completed with 20 Largemouth Bass being collected. In 2022, 71 Largemouth Bass were collected from 16 10-minute samples.

The length frequency histograms for Largemouth Bass showed an increase in size structure from 2016 to 2022 (figure 1). The overall proportional size distribution (PSD) increased from 58 to 66, with more memorable fish in 2022 (table 1). The largest bass increased in length from 500 (19.7in) to 585mm (23in) and in weight from 2545g (5.6 lbs) and 3430g (7.5 lbs). The relative weight (Wr) for Largemouth Bass increased from 2016 to 2022, with the mean Wr moving above the acceptable ≥90 (table 2).

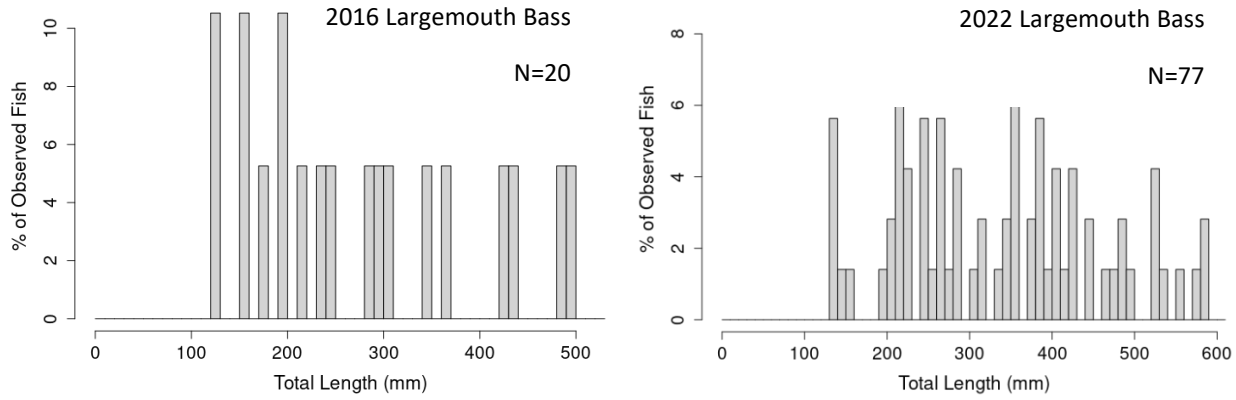

Figure 1 – Length-Frequency Histograms for Largemouth Bass in 2016 and 2022 via electrofishing

Table 1 – PSD tables for Largemouth Bass in 2016 and 2022 via electrofishing

	2016			2022		
	PSD Value	L 95% CI	U 95% CI	PSD Value	L 95% CI	U 95% CI
PSD	58	23	93	64	47	82
PSD-P	33	0	67	42	25	59
PSD-M				12	1	24

PSD S-Q	42	7	77	36	19	53
PSD Q-P	25	0	56	22	7	36
PSD P-M	33	0	67	30	14	46
PSD M-T				12	1	24

Table 2 – Relative Weight for Largemouth Bass in 2016 and 2022 via electrofishing

Relative Weight Largemouth Bass							
2016	Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
	Stock	72.03	2	15.94	8.12	56.12	87.94
	Quality	87.42	2	14.60	9.02	69.73	105.11
	Preferred	84.24	4	7.52	3.17	78.03	90.45
	Overall	81.98	8	12.14	3.52	75.09	88.88
2022	Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
	Substock	95.02	2	11.67	7.84	79.66	110.39
	Stock	93.72	23	6.21	1.21	91.34	96.09
	Quality	91.63	14	14.70	3.60	85.57	98.69
	Preferred	94.06	19	7.40	1.60	90.93	97.19
	Memorable	99.81	8	8.03	2.83	94.25	105.37
	Overall	94.15	66	9.22	1.07	92.05	96.24

Sunfish

Sunfish were collected with three methods of sampling. During electrofishing in 2016, 21 Bluegill, 1 Green Sunfish, 4 Redear, and 15 other sunfish. During fall electrofishing in 2022, 243 Bluegill, 5 Green Sunfish, 83 Hybrid Sunfish, 3 Longear Sunfish, 1 Redear Sunfish, and 7 Warmouth. In 2022, only fish over 127mm were recorded. Catch per unit effort (CPUE) increased for Bluegill Sunfish from 2016 to 2022 (table 3). Green Sunfish and Redear Sunfish saw a decrease. Warmouth were not found in the 2016 sample, and Longear were noted to be found in the pond but were not measured. The PSDs were slightly higher in the 2016 sample (table 4).

Hybrid sunfish stockings have been increased in recent years. The last stocking before the 2016 sample was in 2007.

During hoop netting, only stock and quality size sunfish were collected. The sample size was small (n=84), with a mean CPUE of 9.33 (table 3). The overall PSD was 20, with a PSD S-Q being 80 (table 4). The stock relative weights were acceptable, but they slightly diminished for quality size fish (table 5).

Trap netting caught 88 Bluegill and 1 Warmouth. Smaller size Bluegill were collected than in the hoop nets. That is most likely due to the smaller mesh of the trap nets. The CPUE was higher for trap netting at 17.6 (table 3).

Electrofishing produced the highest overall CPUE, the greatest variety of sunfish, and a larger size range. The relative weights were above the acceptable ≥90, with trap netting collecting the best-conditioned fish (table 5). Weights were not collected in 2016, so they could not be compared.

Table 3 – CPUE for Sunfish

Total CPUE for Sunfish									
Sampling Type	Species	Mean	Count	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
2016 Electrofishing	Bluegill Sunfish	63	1	NA	NA	NA	NA	NA	NA
	Green Sunfish	3	1	NA	NA	NA	NA	NA	NA
	Redear Sunfish	12	1	NA	NA	NA	NA	NA	NA
	Sunfish Spp.	45	1	NA	NA	NA	NA	NA	NA
2022 Electrofishing	Bluegill Sunfish	91.12	16	12.08	11.01	69.54	112.71	15	6
	Green Sunfish	1.88	16	48.17	0.90	0.10	3.65	238	193
	Hybrid Sunfish	31.12	16	27.16	8.45	14.56	47.69	76	30
	Longear Sunfish	1.12	16	53.75	0.60	-0.06	2.31	296	116
	Redear Sunfish	0.38	16	100	0.38	-0.36	1.11	1024	400
	Warmouth	2.62	16	31.57	1.09	0.49	4.76	177	69

Hoop Netting	Bluegill Sunfish	9.33	3	27.28	2.55	4.34	14.32	14	6
Trap Netting	Bluegill Sunfish	17.6	5	48.23	8.49	0.96	34.24	74	29

Table 4 – PSDs for Bluegill Sunfish during electrofishing, hoop netting, and trap netting.

PSD – Bluegill												
	2016 Electrofishing			2022 Electrofishing			Hoop Netting			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	38	17	59	31	25	37	20	12	29	7	1	12
PSD S-Q	62	41	83	69	63	75	80	71	88	93	88	99
PSD Q-P	38	17	59	31	25	37	20	12	29	7	1	12

Table 5 – Bluegill Sunfish relative weight table during 2022 electrofishing (EF), hoop netting, and trap netting.

Relative Weight – Bluegill							
	Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
2022 EF	Stock	93.12	168	12.29	0.88	91.39	94.85
	Quality	91.75	75	10.59	1.12	89.55	93.95
	Overall	92.7	243	11.8	0.7	91.32	94.07
Hoop Netting	Stock	93.12	67	14.52	1.65	89.69	96.16
	Quality	91.75	17	15.19	2.98	75.14	86.83
	Overall	90.51	84	15.52	1.53	87.51	93.51
Tra	Stock	107.97	70	17.44	2.25	103.56	112.38

	Quality	97.24	5	12.48	5.43	86.60	107.88
	Overall	107.26	75	17.34	2.15	103.05	111.47

Channel Catfish

Channel Catfish were only collected during hoop netting, with only 10 being caught. The last stocking of catfish before sampling was in June of 2022. The Channel Catfish were of a decent size, but the sample size was low with a mean CPUE of 1.11 (table 6). They had good body conditions with an overall Wr of 99.3 (table 7).

Table 6 – CPUE for Channel Catfish

Total CPUE - 2023 Hoop Netting								
Species	Mean	Count	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Channel Catfish	1.11	3	52.92	0.59	-0.04	2.26	54	21

Table 7 – Relative Weight (Wr) for Channel Catfish

Relative Weight for Channel Catfish						
Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
Quality	99.00	9.00	8.65	2.85	93.41	104.59
Preferred	101.97	1.00	NA	NA	NA	NA
Overall	99.30	10.00	8.18	2.57	94.26	104.33

White Crappie

White Crappie were collected with hoop netting and trap netting. Hoop netting caught 83 fish, while trap netting caught 474 fish. White Crappie were removed for aging once each net was pulled. Most of the fish caught were of stock size, with a CPUE of 84.8 during trap netting and 8.44 during hoop netting (table 8). Only 7 out of 83 fish were above 200mm (HN), with only 5 out of 474 growing over 200mm (TN) (figure 2).

The overall PSD was 8/1 (HN/TN), with the PSD S-Q at 92/99; showing a large amount of small fish (table 9). However, the mean Wr for White Crappie was an overall of 99.62/109.28 (table 10).
Seventy of the fish were 3 or younger, with a maximum age of 7 (table 11). The von Bertalanffy growth equation shows a slow-growing fishery (figure 3). The trap netting sample was able to show a better representation of the growth curve. Crappie grew within the first 1 to 2 years then generally plateaued.

White Crappie had slow growth rates but good body conditions for their size. The fish age at length shows a stunted fishery. These fish are not a desirable species in the pond considering their life history

Table 8 –CPUE by size class

CPUE by Size Class for 2023									
	Species	Size Category	Mean	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Hoop Netting	White Crappie	HN Stock	8.44	35.04	2.96	2.65	14.24	24	9
	White Crappie	HN Quality	0.44	50.00	0.22	0.01	0.88	48	19
Trap Netting	White Crappie	TN Substock	9	34.61	3.11	2.9	15.1	38	15
	White Crappie	TN Stock	84.8	30.59	25.94	33.96	135.64	30	12
	White Crappie	TN Quality	0.8	72.89	0.58	-0.34	1.94	170	66
	White Crappie	TN Preferred	2	100	0.2	-0.19	0.59	320	125

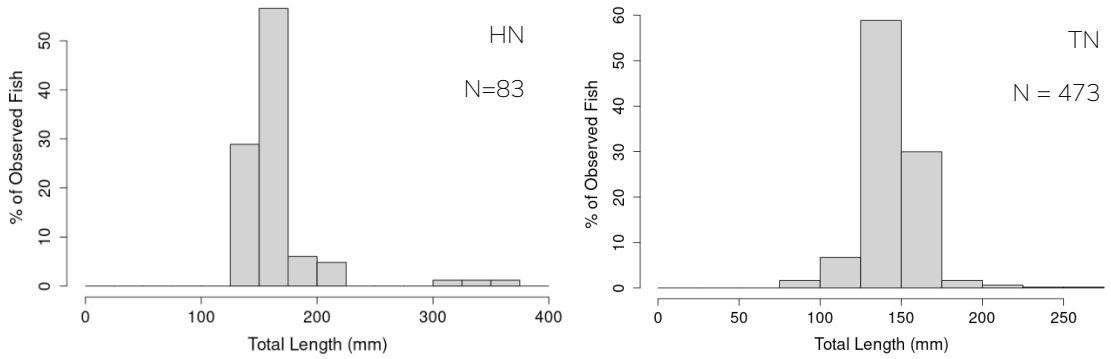

Figure 2 - Total lengths of White Crappie observed collected via hoop netting (HN) and trap netting (TN)

Table 9 – The PSDs for White Crappie collected via hoop netting and trap netting

PSD - White Crappie							
Hoop Netting				Trap Netting			
	PSD Value	L 95% CI	U 95% CI		PSD Value	L 95% CI	U 95% CI
PSD	8	1	16	PSD	1	0	2
PSD - P	4	0	9				
PSD - M	4	0	9				
PSD S-Q	92	84	99	PSD S-Q	99	98	100
PSD Q-P	5	0	11	PSD Q-P	1	0	2
PSD M-T	4	0	9	PSD M-T	4	0	9

Table 10 –Relative Weight for White Crappie

Relative Weight White Crappie							
Hoop Netting	Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
	Stock	100.39	76	13	1.49	97.46	103.31
	Quality	95.59	4	7.43	3.55	88.64	102.55
	Memorable	85.49	3	30.5	15.1	55.97	115

	Overall	99.62	83	13.5	1.48	96.71	102.52
Trap Netting	Substock	107.6	40	19.5	3.31	101.1	114.09
	Stock	109.54	424	16	0.85	107.87	111.2
	Quality	99.1	4	8.77	4.35	90.59	107.62
	Preferred	106.29	1	NA	NA	NA	NA
	Overall	109.28	469	16.2	0.82	107.67	110.88

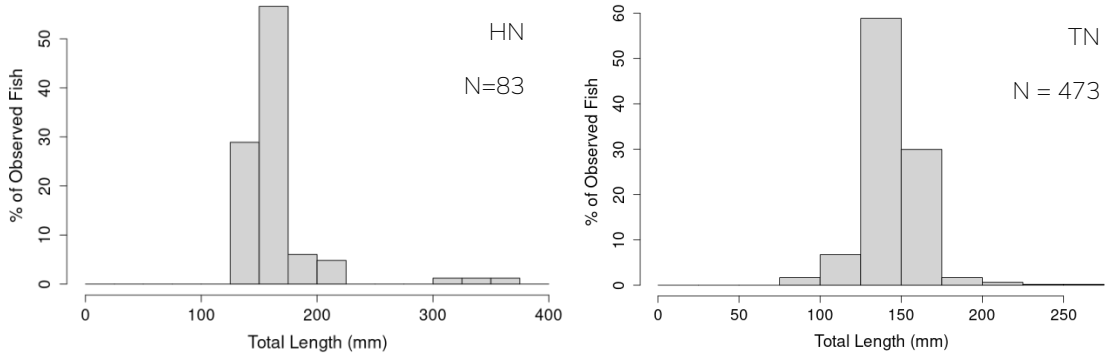

Figure 2 - Total lengths of White Crappie observed collected via hoop netting (HN) and trap netting (TN)

Table 11 – Mean length-at-age for White Crappie

Mean Length-at-Age - White Crappie							
Hoop Netting	Age	Mean TL	Count	CV	SE	L 95% CI	U 95% CI
	1	146.25	28	5.66	1.56	143.19	149.31
	2	161.39	23	5.16	1.74	157.99	164.79
	3	169.79	19	8.66	3.37	163.18	176.40
	4	175.50	4	10.20	8.95	157.96	193.04
	5	180.80	5	10.32	8.35	164.44	197.16
	6	285.67	3	21.05	34.72	217.61	353.73
Trap Netting	Age	Mean TL	Count	CV	SE	L 95% CI	U 95% CI
	0	105.22	36	5.84	1.02	103.22	107.23
	1	140.98	281	5.61	0.47	140.06	141.91
	2	158.85	33	6.84	1.89	155.14	162.55
	3	159.20	87	7.88	1.35	156.56	161.83
	4	171.81	21	13.64	5.14	162.73	182.89

	5	162.30	10	5.44	2.79	156.83	167.77
	6	183.00	5	19.43	15.90	151.83	214.17
	7	161.00	1	NA	NA	NA	NA

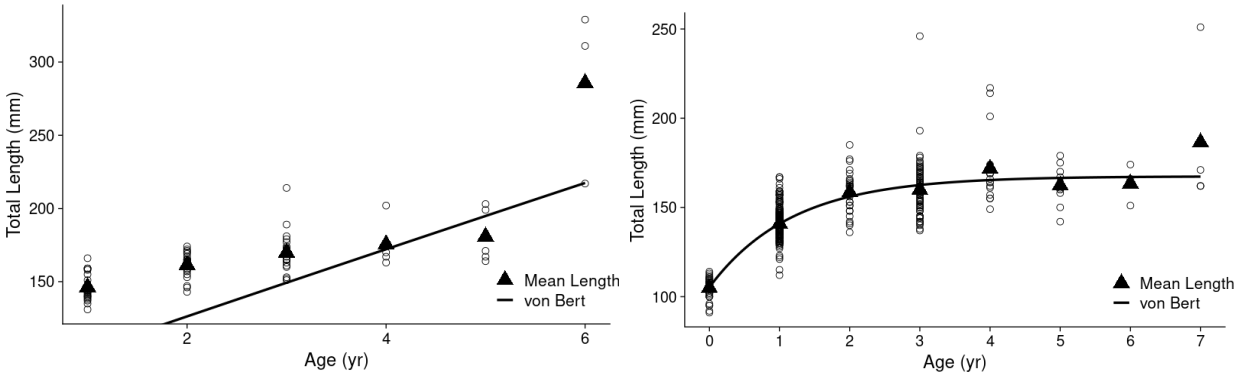

Figure 3 – White Crappie Mean length-at-age figure with the von Bertalanffy equation growth equation collected via hoop netting (n=56) and trap netting (n=107)

Creel Survey – 2017

Anglers were surveyed twice a week May through August in 2017. One survey was conducted on a weekday and one survey was on the weekend. Creels last four hours. It was for a total of 20 weeks with 40 survey days.

One hundred and fifteen interviews were conducted. The average age of anglers was 36, with a majority being male (102 male, 13 female). Fifty-five percent of the anglers were familiar with the Close to Home Fishing Program.

Sixty-eighty of the fishermen stated they just were fishing for anything. Twenty-four anglers were fishing for Largemouth Bass. Fifteen were trying to catch Channel Catfish, and eight fished for sunfish (Figure 5).

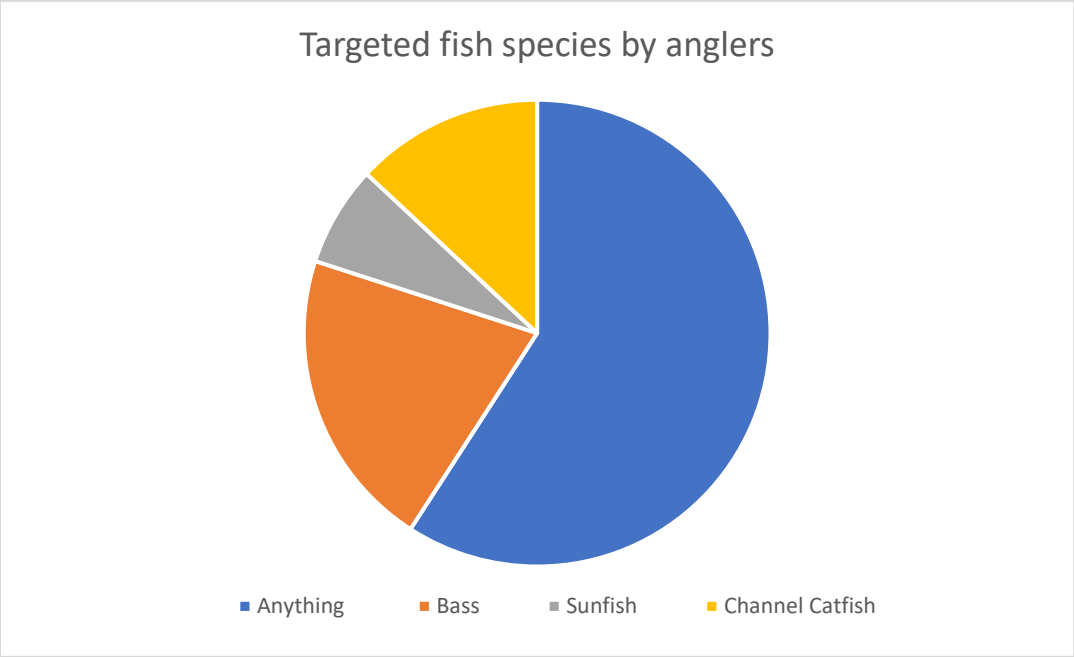

Figure 5 – The most popular fish species that anglers fished for

Appendix 1 –

Stocking Reports for the past 10 years

Month/Year	Species	Count	Weight (lbs.)	Size (in.)
Aug-23	Channel Catfish	29	100	14-24
Jun-22	Channel Catfish	167	500	20
May-22	Hybrid Sunfish	665	163	6.5
Apr-22	Hybrid Sunfish	200	64	6.4
Apr-22	Channel Catfish	111	166.5	14
Oct-21	Hybrid Sunfish	400	66.7	6
Jun-21	Hybrid Sunfish	400	57	5
Apr-21	Channel Catfish	100	150	15
Jul-20	Channel Catfish	480	720	12-15
Sep-19	Hybrid Sunfish	250	41.8	5-7
May-19	Hybrid Sunfish	200	28.5	5-7
Apr-19	Channel Catfish	240		9
Sep-18	Hybrid Sunfish	229		
Jun-18	Hybrid Sunfish	100	25	6
Jun-18	Channel Catfish	40	75	14
Oct-17	Hybrid Sunfish	300	47.7	5
Aug-17	Hybrid Sunfish	225	45	5-7
Jun-17	Hybrid Sunfish	300	43	4
Jun-17	Channel Catfish	250	250	14
Apr-17	Channel Catfish	600	200	9
May-16	Hybrid Sunfish	400	40	5
Apr-16	Channel Catfish	600	400	13
May-14	Channel Catfish	200	100	10
Feb-14	Bluegill	1440	8	2
Aug-13	Hybrid Sunfish	200		4
Jun-13	Channel Catfish	599	113	9
May-13	Channel Catfish	200	100	10

Appendix 2 –

Lotus Bucket additions in September 2022