POSSUM CREEK METROPARK
2023 FISH SURVEY SUMMARY
Five Rivers MetroParks – Dayton, OH

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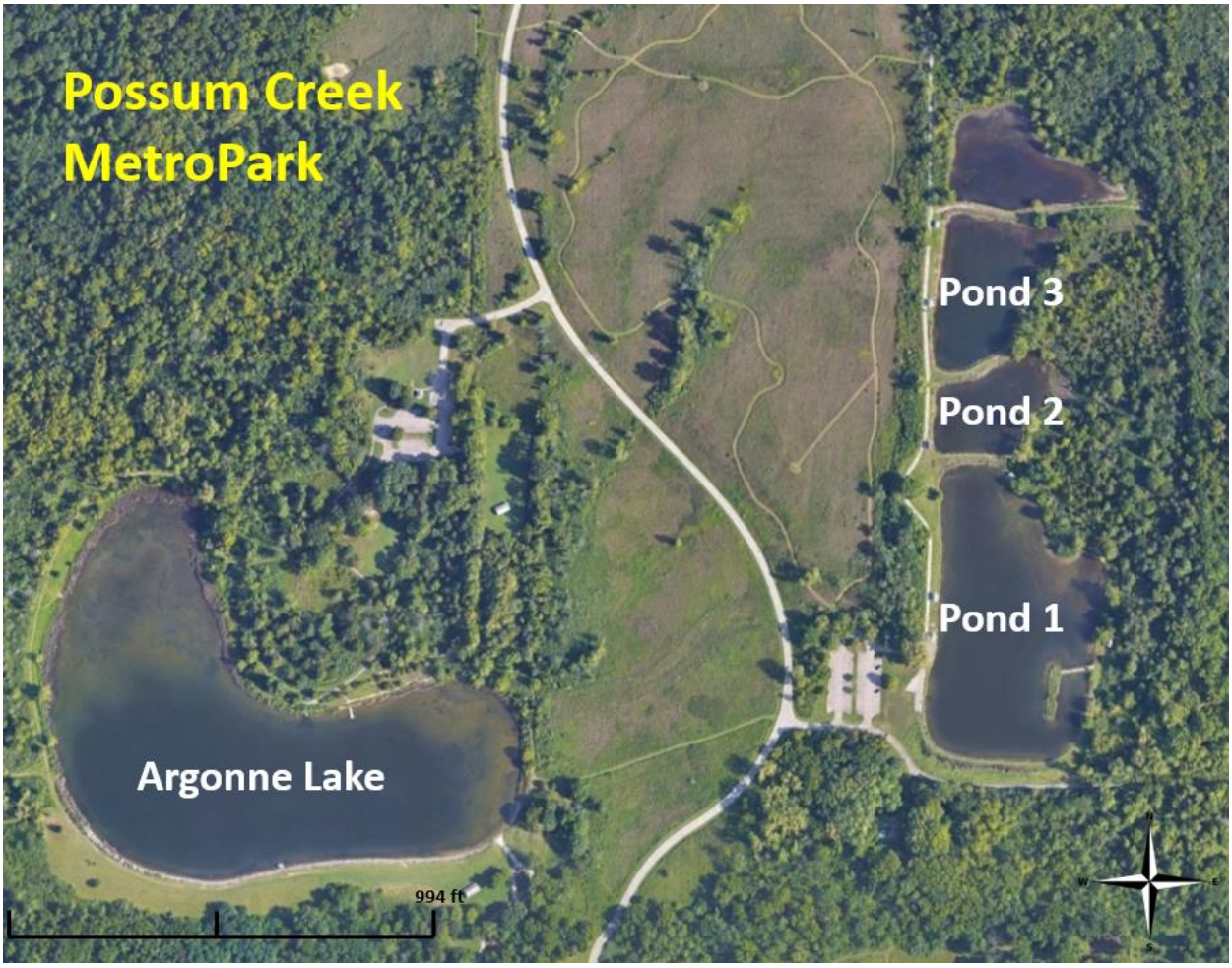
INTRODUCTION

This document presents the findings from the 2023 fisheries surveys conducted on the Possum Creek Ponds and Argonne Lake of Possum Creek MetroPark in Montgomery and Greene Counties, Ohio, managed by Five Rivers MetroParks. The survey was performed to assess the fish community structure and overall health to guide current and future lake management programs for Possum Creek MetroParks. EnviroScience field survey methods included measurement of a vertical depth profile, water transparency and nighttime boat electrofishing. Data analysis was completed using standard evaluation methods.

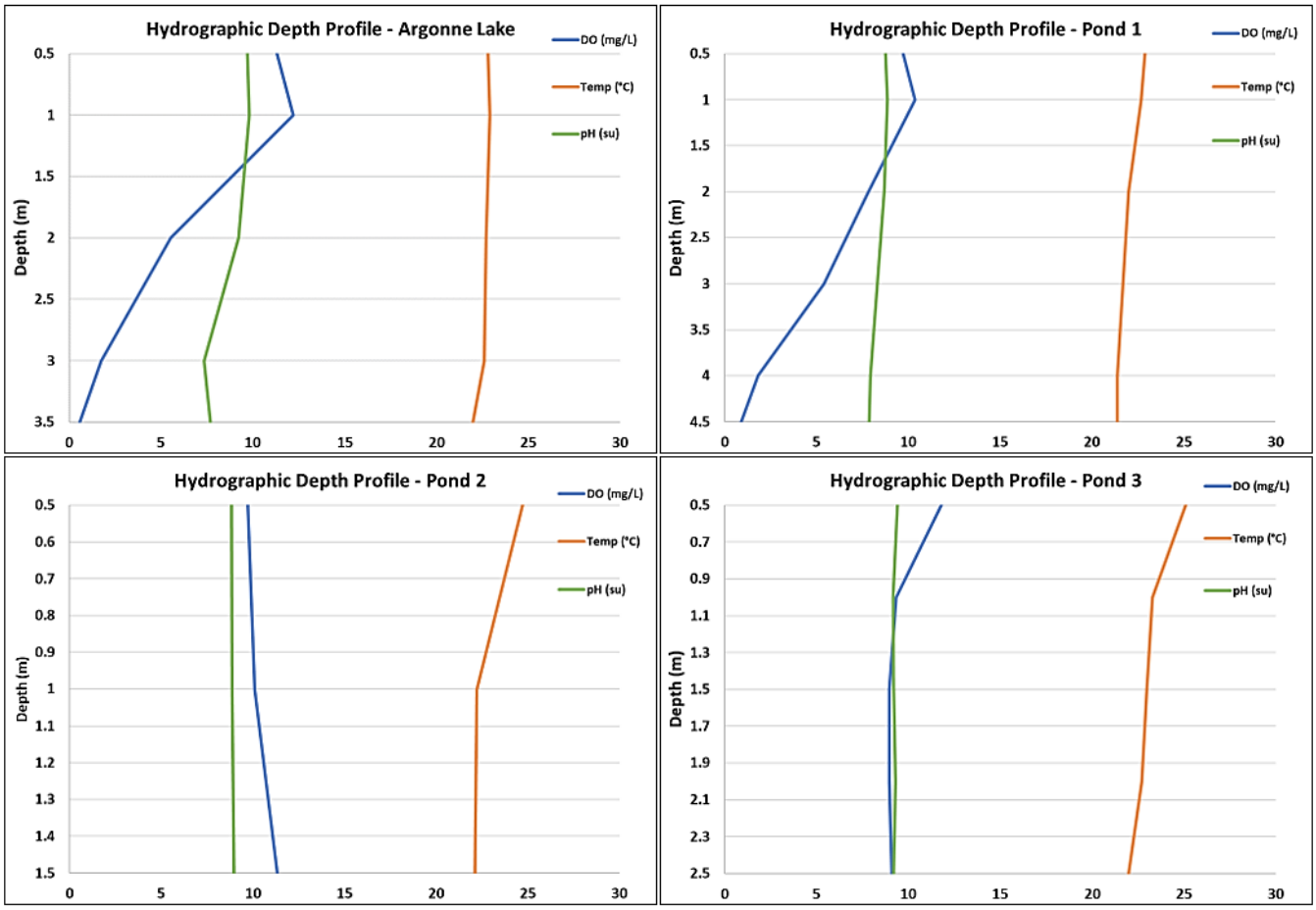
The findings of the study for Argonne Lake and the Ponds of Possum Creek MetroPark show that they have clear water and abundant fish, which offers good opportunities for recreation, aquatic wildlife observation, and fishing for visitors of all ages to enjoy visits to the park for years to come.



SURVEY RESULTS

VERTICAL DEPTH PROFILE

A vertical depth profile for temperature, pH, and dissolved oxygen (DO) was measured at the deepest location found in each waterbody. The collected data is useful for determining the existence of thermal stratification and the presence of DO ranges necessary to support fish. In both Argonne Lake and Pond 1, DO levels decrease at the bottom of the water column, which might prevent fish from inhabiting this zone for extended periods. Fish in these lakes likely spend more time in the shallower shoreline areas, potentially improving fishing opportunities.



SECCHI DISK TRANSPARENCY

Secchi disk transparency measurements were collected at the deepest part of each waterbody. A Secchi disk is a black and white patterned weighted disk commonly used to measure the water clarity based on the depth the disk is at while still visible when lowered into the water column. Although shallow, Argonne Lake and Ponds 2 and 3 had relatively clear water with visibility almost clear to bottom. While, Pond 1 had the deepest total observed depth, its clarity was only to around 1 meter deep. Overall, Argonne Lake and the Ponds of Possum Creek MetroPark have clear water and offer good opportunities for observing aquatic wildlife.

Measurements	Argonne Lake	Pond 1	Pond 2	Pond 3

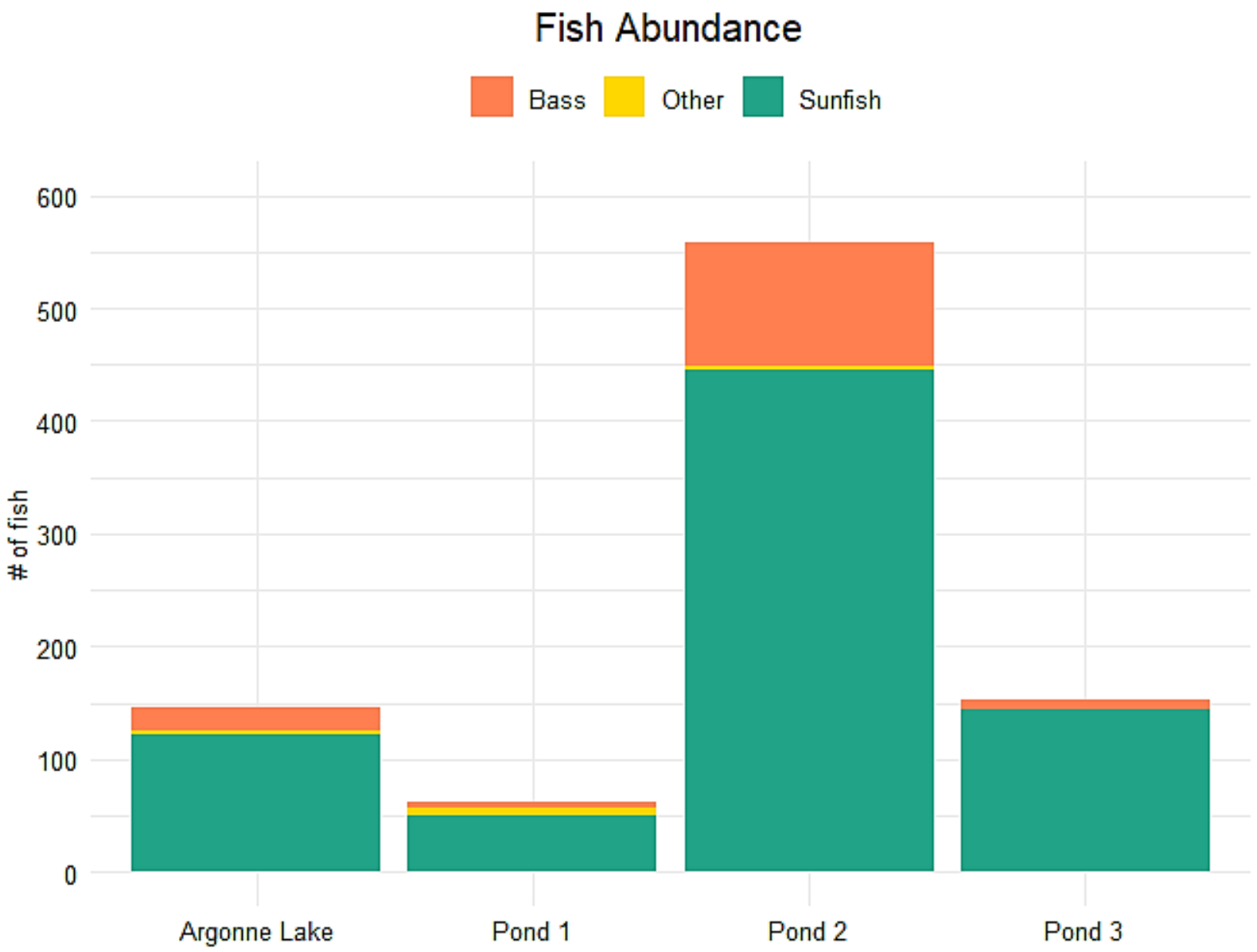
Water Depth (m)	3.5	4.0	2.0	3.0
Disappearance (m)	3.2	1.0	2.0	2.8
Reappearance (m)	3.1	0.8	1.8	2.5

FISH

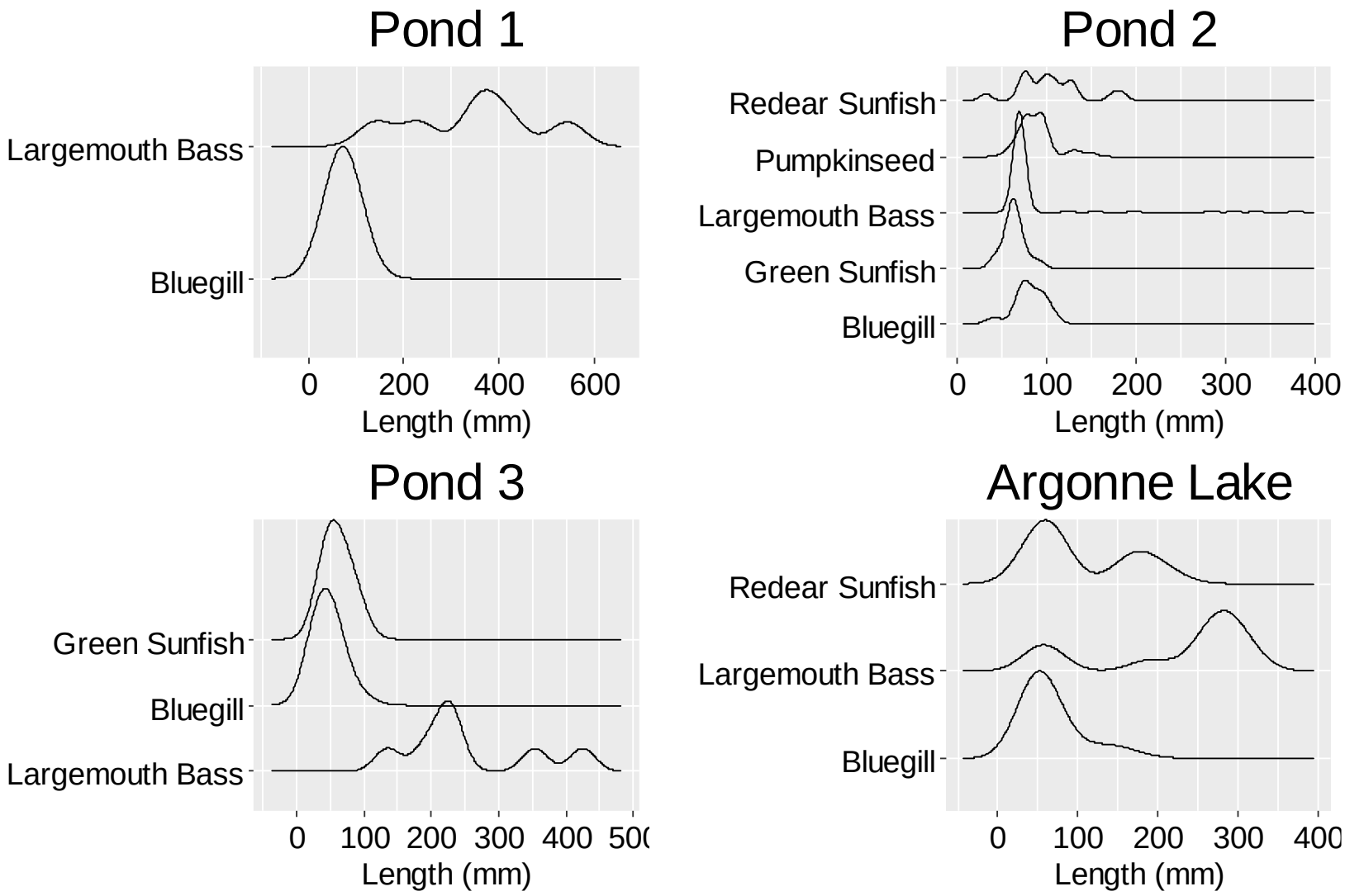
Fish were collected using nighttime boat electrofishing, identified to species, counted, measured, weighed and then released back into the water. Electrofishing was completed at night due to the well-documented fish behavior of coming within four to six feet of the water's surface to feed at night, making them accessible to survey equipment. When shocked, the fish were temporarily stunned and floated toward the surface where they could be netted. To aid in capture, the bow of the boat was equipped with LED lights to illuminate the area where fish were netted. The boat was maneuvered by directing the bow toward the shore and/or submerged habitat while shocking the near-shore area. The boat continued in this manner in one direction along the shoreline until the entire shoreline or submerged habitats of each waterbody was sampled.

A total of 15 species were collected from all of the surveyed waterbodies within the park. Bluegill were the most abundant species observed in each waterbody, followed by Largemouth Bass. The average sizes of Bluegill and Largemouth Bass were slightly below average compared to other waterbodies but were present in high numbers, especially in Pond 2.

Species	**Argonne Lake**	**Pond 1**	**Pond 2**	**Pond 3**
	Total Catch			
Bluegill	170	66	448	127
Largemouth Bass	21	6	143	7
Redear Sunfish	19	2	17	
Green Sunfish	2		36	5
Bluegill x Redear			44	13
Channel Catfish		2	1	
Pumpkinseed		2	30	
Black Bullhead	2			
Common Carp (Koi)	1			
Gizzard Shad		5		
Bluegill x Green Sunfish			2	
Bluegill x Pumpkinseed			7	
Golden Shiner			1	
Goldfish			1	
Smallmouth Bass			1	
Total	**215**	**83**	**731**	**152**


Fish Abundance
Bass
Other
Sunfish
600
500
400
300
200
100
0
# of fish
Argonne Lake
Pond 1
Pond 2
Pond 3

Species	Total Catch	Average Total Length (mm)
Argonne Lake		
Black Bullhead	2	237
Bluegill	170	66
Common Carp (Koi)	1	670
Green Sunfish	2	99
Largemouth Bass	21	221
Redear Sunfish	19	104
Total	**215**	**-**
Pond 1		
Bluegill	66	72
Channel Catfish	2	452
Largemouth Bass	6	343
Pumpkinseed	2	174
Redear Sunfish	2	75
Total	**83**	**-**
Pond 2		
Bluegill	448	81
Bluegill x Green Sunfish	2	73
Bluegill x Pumpkinseed	7	88
Bluegill x Redear	44	83
Goldfish	1	220
Green Sunfish	36	64
Largemouth Bass	143	81
Pumpkinseed	30	89
Redear Sunfish	17	105
Smallmouth Bass	1	165
Total	**731**	**-**
Pond 3		
Bluegill	127	47
Bluegill x Redear	13	90
Green Sunfish	5	3
Largemouth Bass	7	5
Total	**152**	**-**



Length Frequency Distribution Charts *– The charts above show the distribution of individual fish by selected species for different lengths.*

DISCUSSION AND CONCLUSION

The relative community composition of fish present in Possum Creek MetroPark was similar across all surveyed waterbodies. Each waterbody was dominated by Bluegill followed by Largemouth Bass, which is typical of small recreational fishing waterbodies. However, the abundance of fish and size distribution in each waterbody differs. While Pond 2 had the most Largemouth Bass, the majority were smaller sized (less than 4 inches in length). This might indicate that Largemouth Bass fishing for larger fish in Pond 2 could improve each year as this size class of fish matures due to the abundance of available food (i.e. Bluegill). Currently, Argonne Lake holds the most proportional number of stock size (8 inches) and quality size (12 inches) Largemouth Bass and could offer the best chance at catching larger sized Largemouth Bass. The overall conclusion for Argonne Lake and the Ponds of Possum Creek MetroPark is that they have clear water and abundant fish. They offer good opportunities for recreation, aquatic wildlife observation, and fishing for visitors of all ages to enjoy their visits to the park for years to come.