Argo Pond

Washtenaw County, T2S R6E Sec 21
Huron River Watershed, Last Surveyed May 2015

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Environment

Argo Pond is an 86.5-acre impoundment of the Huron River located on the northern edge of the City of Ann Arbor in central Washtenaw County (Figure 1). It is part of a chain of five shallow impoundments located in the City with the river emptying into the much larger Ford Lake impoundment created by the French Landing Dam. The dams in the City of Ann Arbor include, in order from upstream to downstream, Barton, Argo, Geddes, Superior, and Peninsula Dams.

Argo Pond is rather long and narrow extending about 1 mile upstream from the dam and no wider than about 700 feet at any point (Figure 2). It has a maximum depth of about 12 feet along the center of a narrow channel extending upstream from the dam. A shoreline habitat survey was conducted on May 6, 2015. The Argo Pond shoreline between the dam and US-23 totaled about 13,000 linear feet. Almost the entire shoreline was natural (unarmored or not modified) with 78 submerged trees in the nearshore waters providing habitat for fish and other aquatic animals. The few docks present were primarily associated with the Argo canoe livery on the east shore near the dam or the University of Michigan rowing facility located on the west shore at about the midpoint of the pond. Another two docks are located at the northwest corner of the pond just downstream of the US-23 bridge in the City-owned Bandemer Park. This park includes approximately 1/3 of the western side of the pond extending downstream from the freeway bridge. It includes parking and launching facilities for small watercraft such as canoes and kayaks. Public access to launch canoes, kayaks, or small boats is also available adjacent to the canoe livery. Access for shorefishing is limited to a small area near the canoe livery and a few locations in Bandemer Park. There were no houses or other residential structures on the immediate shoreline.

Argo Pond does not develop a thermocline due to its shallowness and the constant flow-through nature of the pond (bottom-draw dam). The water is usually fairly turbid and aquatic vegetation becomes dense in the shallower areas. A temperature profile taken on September 1, 2015 verified the lack of a thermocline and relatively little temperature difference between surface and deeper waters (Figure 3). Water temperatures were also recorded hourly in 2015 from April 30 through October 10 with a temperature monitor located at the Argo Canoe Livery docks in about 3 feet of water (Figure 4). Average water temperatures were mostly in the 70's from mid-June through mid-September. A few days in early August reached the low 80's.

Water samples to test for nutrient levels in the water were collected along with the temperature profile taken on September 1, 2015. Chemical analysis results found total phosphorus at 17 ug/l, total kjeldhal nitrogen at 552 ug/l, nitrate-nitrogen at 53 ug/l, ammonia at <20 ug/l, and chlorophyl-a at 3.1 ug/l. These are comparable to slightly lower than many other lakes in the area. The high rate of flow-through in Argo Pond is likely a significant factor in keeping nutrient levels from accumulating to higher levels.

History

This impoundment was created when Detroit Edison constructed the 18-foot high Argo Dam in 1920 to produce power for the City of Ann Arbor. It was built on one of the highest gradient portions of the river and replaced a fast-flowing stretch of river containing excellent smallmouth bass habitat with a narrow, relatively shallow impoundment. The dam was retired from hydropower production in 1963 and reconfigured in a major project in 1972 that installed new level control gates. Over the past few years the dam discharge was supposed to be operated at a run-of-the-river rate to reduce problems with peaking flows. Significant, sudden flow fluctuations still occur regularly due to problems with the gate controls, water level monitoring equipment, and sudden flow changes from the power turbines operating at the Barton Dam located a short distance upstream (Figure 5). For example, in one day (Nov 11, 2015), flow at the gauge located downstream of the dam changed suddenly by at least 100 cfs (about a third of the total flow at that time) 13 times in that one day with several smaller fluctuations as well. It currently provides very little flood control and its main purpose is to support recreational activities such as canoeing, rowing, and a small amount of fishing.

There is a city-run canoe/kayak livery just upstream of the dam and the University of Michigan maintains a competitive rowing facility on the western shore about midway up the pond. Other entities such as local high schools and the public also use the U-M facilities for recreational and competitive rowing activities on Argo Pond. A popular canoe/kayak whitewater route (the "Cascades") was constructed a few years ago in the former power-generating channel that begins just upstream of the dam adjacent to the canoe livery and then parallels the river below the dam for a short distance. This, along with the popularity of the pond for competitive rowing, has provided a strong incentive to keep the dam in place instead of removing it as was previously considered.

When the pond was drawn down to a narrow stream for dam reconstruction in 1972, the river from Barton Dam to Argo was treated with rotenone to remove all fish. After refilling, the pond was stocked with smallmouth bass, walleye, hybrid sunfish, and rainbow trout. Channel catfish fingerlings (3-4 inches long) were stocked from 1987 through 1991 (about 1,500 fish/year) and catfish yearlings (9-10 inches long) were stocked in 1996 (600 fish) and 1998 through 2000 (1,000-2,000/year). A general fish survey was conducted in May 2000 to evaluate the catfish stocking program and assess the overall fish community in the pond. Panfish made up over 40% of the catch by weight with bluegill being the most abundant. Small numbers of harvestable-sized panfish were found. Large game fish comprised 23% of the catch by weight with channel catfish being the most abundant (8 fish). Large, non-game fish such as carp, suckers, and longnose gar made up 30% of the catch by weight. Fish stocking was discontinued after 2000 due to poor survival and low angler use.

Current Status

A fish community survey was conducted on Argo Pond May 5-8 of 2015 by DNR Fisheries Division as part of the statewide, Status & Trend program. According to the protocols of this program (Wehrly et al, in press), a variety of sampling gear was used including 3 large-mesh fyke nets, 3 small-mesh fyke nets, 1 experimental gill net, and a 25-foot minnow seine. Fyke nets were set for three nights, the gill net for 2 nights, and 2 seine hauls were conducted. All gear was randomly located per the program protocols (Figure 2). The goal of this survey also included evaluating the current fish community and determining future management direction for the fishery.

The total catch for this survey was 596 fish including 21 species weighing just over 246 pounds (Table 1). Forage fish species such as minnows, shiners, and darters represented 43% of the total catch by number and were dominated by bluntnose minnow. Panfish such as bluegill, pumpkinseed, rock bass, and black crappie composed 42% of the total catch by number and 13% by weight. Large game fish species such as channel catfish, largemouth bass, and northern pike made up 7% of the total catch by number and 53% by weight. Large, non-game species such as carp, bowfin, suckers, and longnose gar were 6% of the total catch by number and 29% by weight. Other miscellaneous species collected included black bullhead and brown bullhead.

Bluntnose minnow (241 fish) was the only small, forage fish species found to be abundant in the pond (Table 1). The other species in this group had relatively few individuals collected. These included Johnny darter (3), greenside darter (2), mimic shiner (1), and blackstripe topminnow (1).

Bluegill (126 fish) was the most abundant panfish as well as the most abundant non-forage species in the survey (Table 1). It comprised about half of the total panfish catch with a size range from 1 to 5 inches, and an average length of 4.4 inches (Table 2). None exceeded the minimum size acceptable to anglers of 6 inches. Growth was acceptable with a mean growth index approximately equal to the state average based on length-at-age data (Table 3). This same data also showed that only younger fish (Age I-IV) were present in the survey. The catch rate in the large-mesh fyke nets was poor (6.1 fish per net lift) and only about 25% of the mean catch rate from other LEMU lakes (Table 4). The bluegills were also evaluated using Schneider's Index (Schneider 1990). This index provides a relative measure of the quality of the bluegill fishery in a lake based on a scale of 1-7, with 7 being the best. Argo Pond bluegill received an index of 2.0 which equates to a "poor" rating.

Other panfish species collected included pumpkinseed (48 fish), rock bass (44 fish), black crappie (28 fish), and yellow perch (1 fish). Pumpkinseeds averaged 6.1 inches with two-thirds of the fish exceeding the minimum size acceptable to anglers (6 inches) including 4% of the fish over 8 inches (Table 2). Growth was excellent with a mean growth index more than an inch above the state average (Table 3). The catch rate (4.4 fish per net lift) was also good compared with better lakes in the state and much better than other LEMU lakes (Table 4). Rock bass ranged from 3 to 9 inches and black crappie from 5 to 8 inches. The single yellow perch was 8 inches in length.

Large game fish species included northern pike (18 fish), channel catfish (12 fish), largemouth bass (11), and smallmouth bass (2) (Table 1). These predator species accounted for 7% of the total catch by number and over 50% of the total fish biomass collected. Northern pike ranged from 14 to 40 inches in length with 50% of the fish exceeding the minimum legal size limit of 24 inches (Table 2). Northern pike growth was very close to the state average (Table 3). All of the channel catfish caught were over the minimum legal size limit of 12 inches with an overall size range of 19-27 inches. Largemouth bass ranged from 2 to 16 inches with 18% of the fish exceeding the minimum legal size limit of 14 inches. Only juvenile smallmouth bass (2-3 inches) were collected.

The most abundant species in the large, non-game fish group was the longnose gar (18 fish) with a size range of 21 to 33 inches (Table 2). Other species included bowfin (4), carp (4), golden redhorse and black redhorse (4 of each), and white sucker (2) (Table 1). These non-game species made up 6% of the total catch by number and 29% of the total catch by weight.

Analysis and Discussion

While bluegill was one of the most abundant species, their size distribution was poor, total number was low, growth was reduced, and the fishery was rated poor overall. The trap net catch rate of 23.8 fish per trap net lift in 2000 was about 50% of the LEMU mean trap net catch rate whereas the catch rate in this survey was only 25% of the mean (Table 4). There were significant numbers of bluegills caught in the 2000 survey that were large enough to satisfy anglers (25% over 6 inches) and growth was above average as well. The entire panfish catch from the 2015 survey also comprised a much smaller proportion of the fish community being only 13% of the total weight caught compared to 41% of the fish biomass collected in the previous survey. Considered together, these factors all show a significant reduction in the bluegill population compared to the previous survey conducted in May of 2000.

Lake-type forage species are sparse in Argo Pond aside from the fair numbers of bluntnose minnow. Other species are present, but in low numbers. Some riverine species such as darters are also present as part of the forage base, but it appears young bluegill and other panfish are providing a majority of the forage in the pond.

Large game fish species composed an amazing 50% of the fish biomass collected. This is more than most lakes in the area and a significant increase over the 22% found in the previous survey. Much of this increase is due to the increased catch of large catfish and the appearance of northern pike that were not collected in May 2000. This abundance of predators is likely a factor in the low numbers of bluegill and other small fish species, but it also provides fishing opportunities for the large channel catfish and northern pike.

Large, non-game fish species (rough fish) composed almost a third of the fish biomass in 2015. This is similar to the proportion they composed in the 2000 survey. Changes noted in comparison to the previous survey included more longnose gar (18 fish vs. 1 in 2000) and a change in the species of redhorse sucker. Both black and golden redhorse were collected in 2015 while only shorthead redhorse were recorded in 2000.

Management Direction

The decline in the bluegill population has significantly decreased the quality of the panfish fishery in Argo Pond. Other species such as rock bass and pumpkinseed still provide some value for panfish anglers along with the occasional black crappie. Large, predator game fish will continue to provide fishing opportunities.

The high level of use by recreational and competitive boaters precludes any significant modifications to enhance the aquatic habitat quality and improve the fishery. Increasing the level of fishing effort on the pond could also lead to undesirable conflicts between user groups. Although the fishery in Argo Pond is not high quality, it will continue to provide a limited small craft and shore fishery in a quiet, park-like setting close to a major population center. No further management actions to improve the fishing quality in the pond are planned at this time.

References

Schneider, J.C. 1990. Classifying bluegill populations from lake survey data. Michigan Department of Natural Resources, Fisheries Technical Report 90-10, Ann Arbor, MI.

Wehrly, K. E., D. B. Hayes, and T. C. Wills. 2015. Status and trends of Michigan inland lake resources, 2002-2007. Michigan Department of Natural Resources, Fisheries Report 08, Lansing.

Wehrly, K. E., G. S. Carter, J. E. Breck. In Press. Inland Lake Status and Trends Program Sampling Protocols. Michigan Department of Natural Resources, Fisheries internal document, Ann Arbor.

Figure 1. Map showing location of Argo Pond within Washtenaw County.

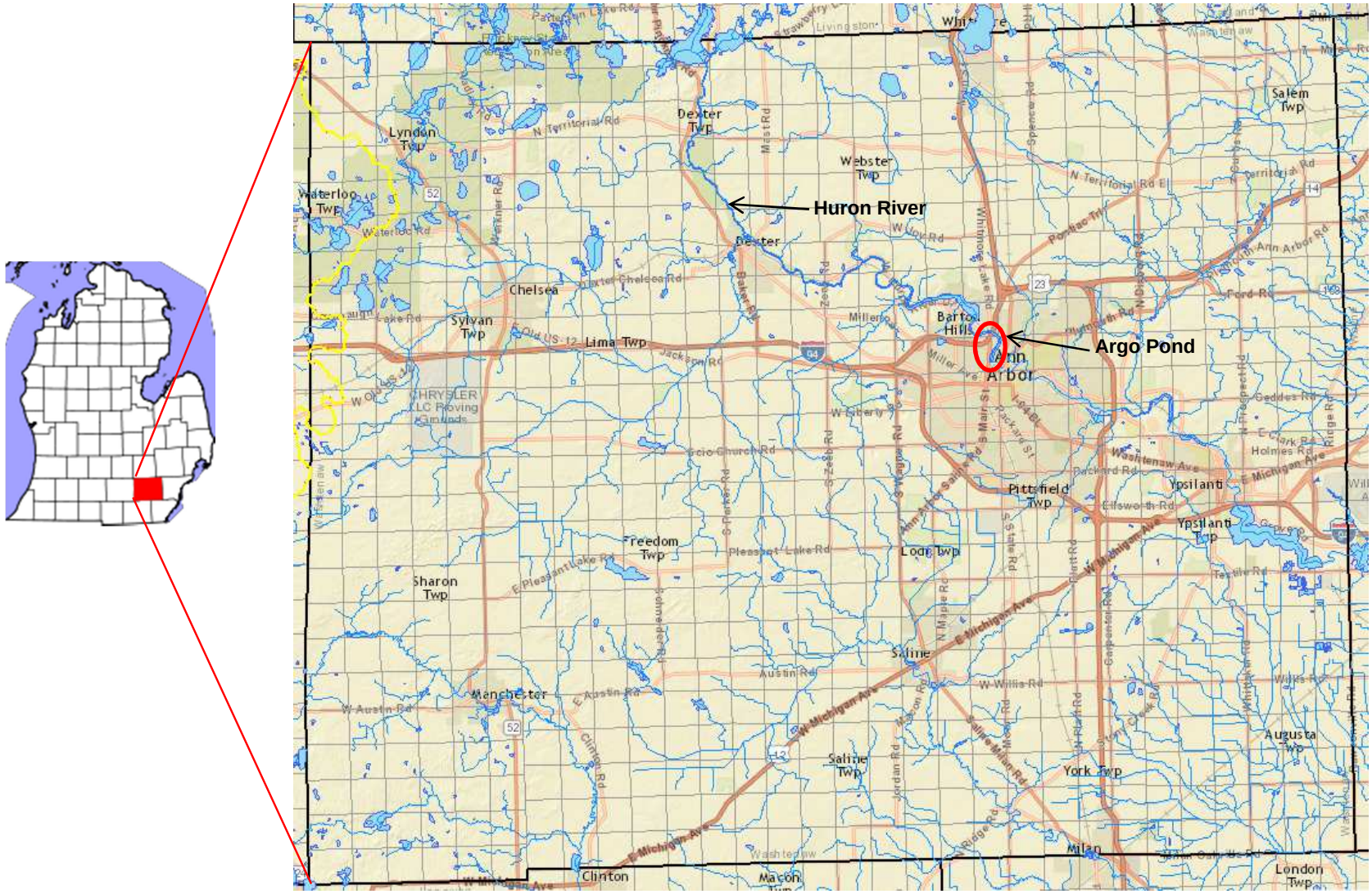

Figure 2. Map of Argo Pond showing depth contours and 2015 sampling locations.

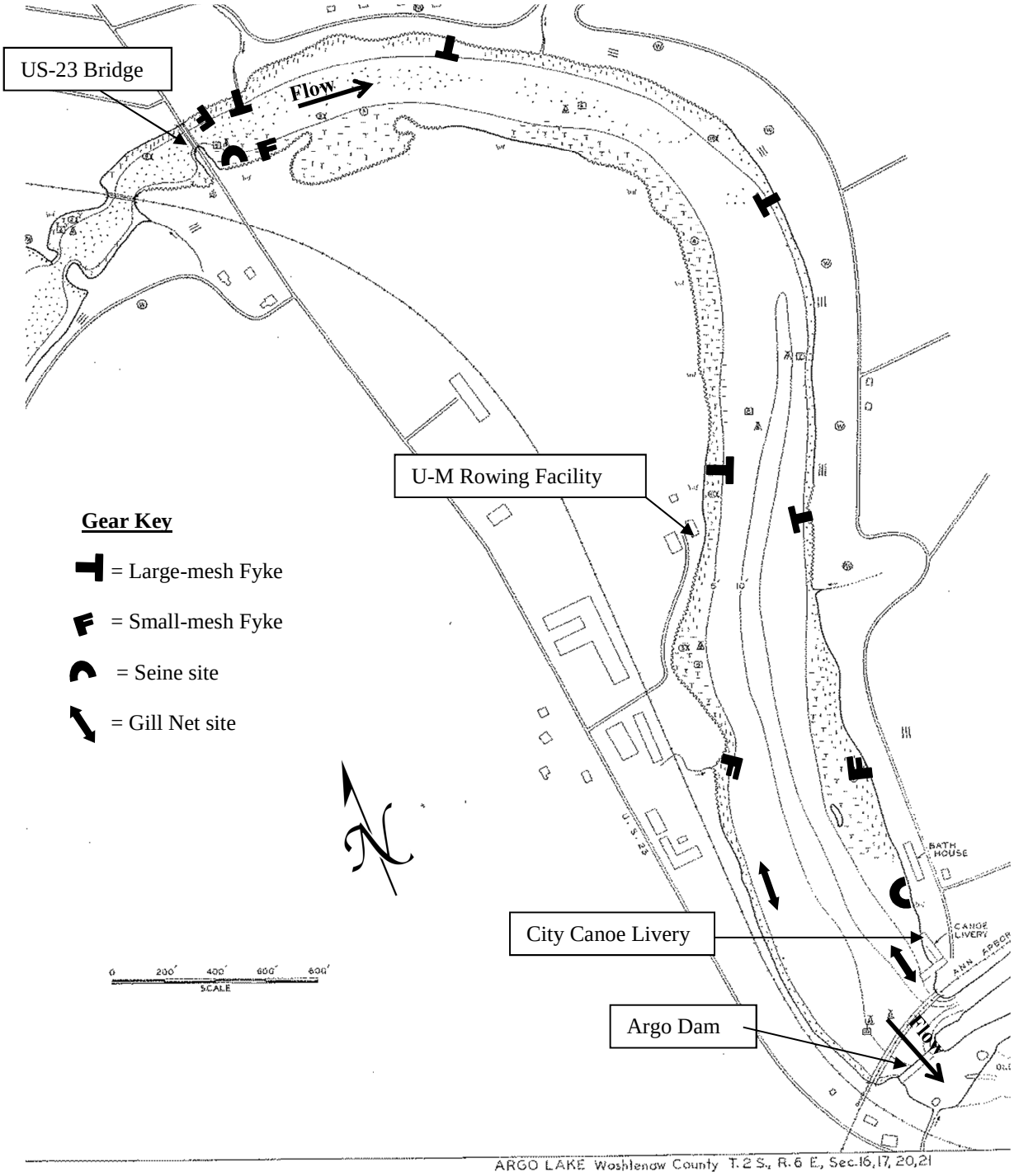

Figure 3. Water temperature and dissolved oxygen profile of Argo Pond on September 1, 2015.

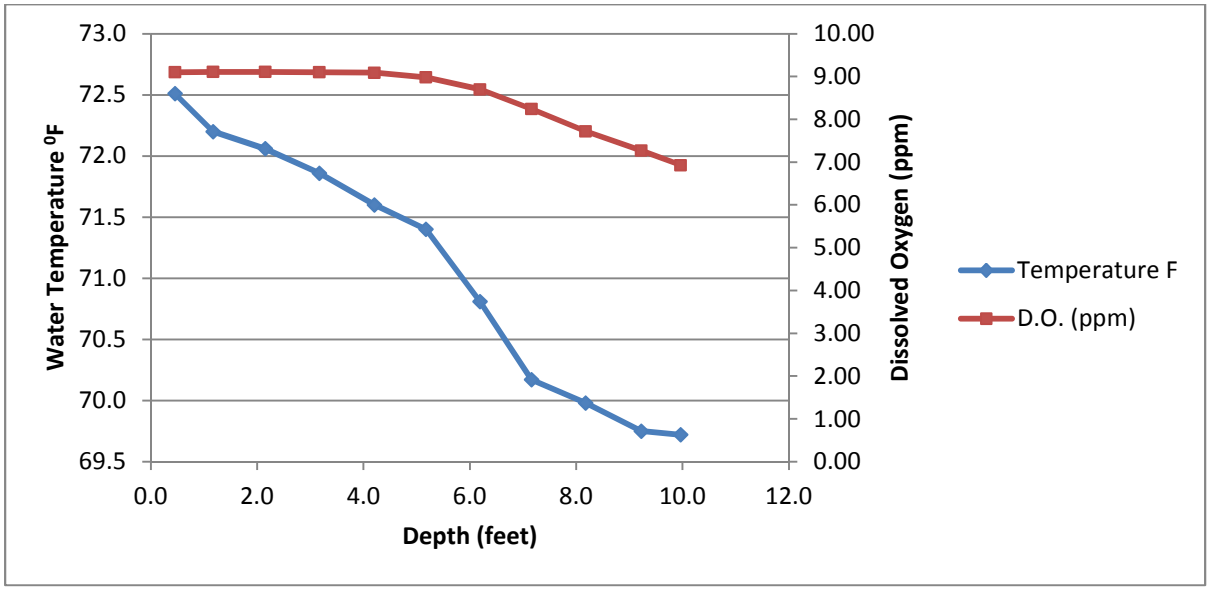

Figure 4. Graph of hourly water temperature in Argo Pond from April 30 through October 10, 2015.

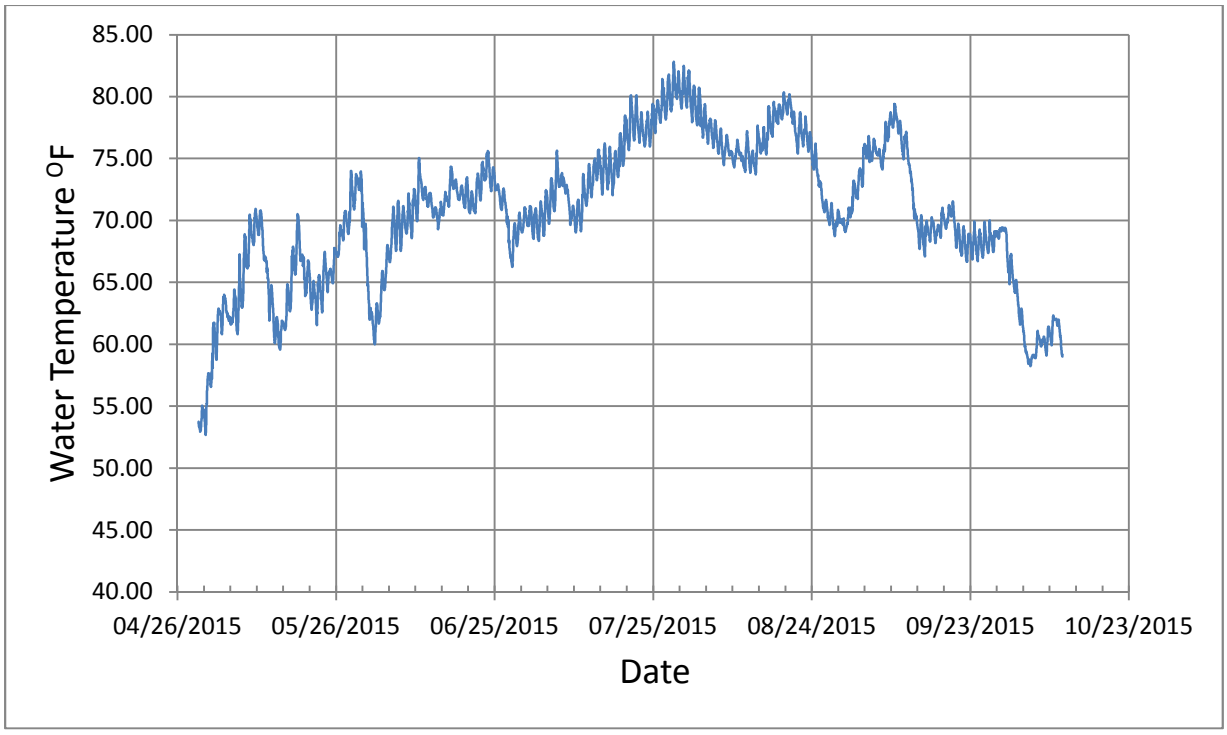

Figure 5. Sample hydrograph showing sudden and extreme water flow fluctuations in 2015 as measured by a USGS water flow gauge located downstream of Argo Dam.

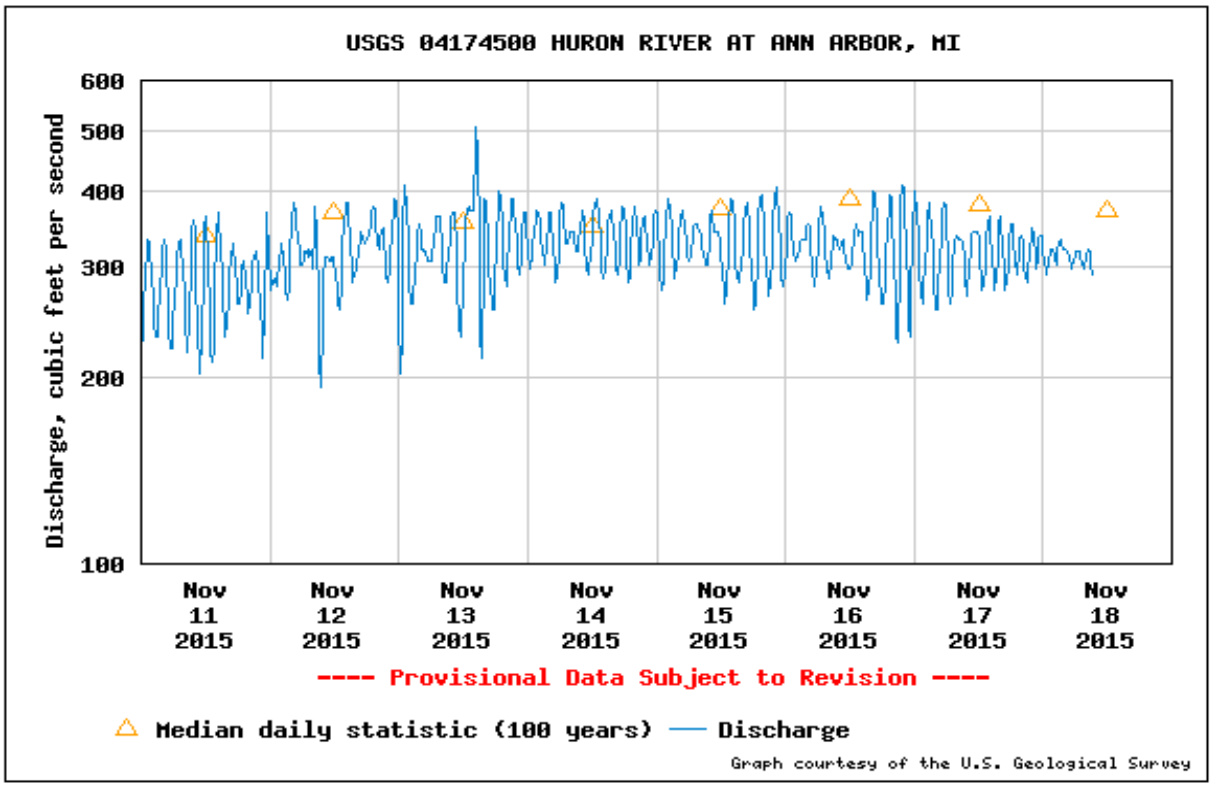

Table 1. Species composition and numbers of fish caught with all gear combined from the Argo Pond fisheries survey, May 5-8, 2015.

Species	Number of fish	Percent by number	Weight (lb.)	Percent by weight	Length range (in.)	Average length (in.)	Percent legal size*
Bluntnose minnow	241	40.4	1.3	0.5	1-3	2.5	--
Bluegill	126	21.1	5.5	2.2	1-5	4.4	0
Pumpkinseed	48	8.1	11.0	4.4	2-8	5.7	67
Rock bass	44	7.4	9.3	3.8	3-9	6.2	52
Black crappie	28	4.7	6.3	2.6	5-8	7.4	86
Brown bullhead	19	3.2	10.0	4.0	6-12	10.1	95
Longnose gar	18	3.0	26.6	10.8	21-33	26.2	100
Northern pike	18	3.0	66.6	27.0	14-40	24.3	50
Channel catfish	12	2.0	54.0	21.9	19-27	23.6	100
Largemouth bass	11	1.8	8.4	3.4	2-16	8.2	27
Golden redhorse	6	1.0	6.6	2.7	12-17	14.9	100
Black bullhead	4	0.7	1.9	0.8	9-10	10.0	100
Common carp	4	0.7	17.6	7.1	18-24	21.0	100
Bowfin	4	0.7	18.1	7.3	20-25	22.7	100
Johnny darter	3	0.5	0.0	0.0	1-2	2.0	--
Smallmouth bass	2	0.3	0.0	0.0	2-3	3.0	0
Greenside darter	2	0.3	0.0	0.0	2-2	2.5	--
White sucker	2	0.3	2.9	1.2	15-15	15.5	100
Yellow perch	1	0.2	0.3	0.1	8-8	8.5	100
Mimic shiner	1	0.2	0.0	0.0	2-2	2.5	--
Hybrid sunfish	1	0.2	0.0	0.0	3-3	3.5	100
Blackstripe topminnow	1	0.2	0.0	0.0	2-2	2.5	--
Species totals	596		246.4				

*Percent legal or acceptable size for angling

Table 2. Number per inch group for selected fish species collected with all gear types combined during the 2015 Argo Pond survey.

Inch group	Bluegill	Pumpkinseed	Rock bass	Northern pike	Channel catfish	Largemouth bass	Longnose gar
0							
1	37						
2	17	4				3	
3	1	4	1				
4	51	1	8			1	
5	20	7	12			2	
6		15	7				
7		15	11				
8		2	4				
9			1				
10							
11							
12						1	
13						1	
14				1		1	
15						1	
16				1		1	
17				1			
18							
19					1		
20				1			
21				3	2		1
22				2	1		2
23					1		4
24					5		3
25				2			1
26				2	1		2
27				3	1		2
28				1			
29							1
30							1
31							
32							
33							1
34							
35							
36							
37							
38							
39							
40				1			
Sample total:	126	48	44	18	12	11	18

Table 3. Mean length and age composition of selected species collected in Argo Pond, May 5-8, 2015.

Species	Age	No. aged	Length range (in.)	State avg. length (in.)	Average length (in.)	Mean growth index*
Black crappie	III	17	5.7-8.4	7.5	7.3	-0.6
	IV	6	7.0-8.2	8.6	7.6	
Bluegill	I	20	1.5-2.5	1.8	1.9	0.0
	II	1	3.5	3.8	3.5	
	III	20	4.3-5.3	5.0	4.9	
	IV	2	5.5-5.8	5.9	5.7	
Largemouth bass	I	4	2.4-5.2	4.2	3.3	
	II	2	4.8-5.0	7.1	4.9	
	V	2	15.3-16.2	13.2	15.8	
	VI	2	12.9-13.4	14.7	13.2	
	VII	1	14.4	16.3	14.4	
Northern pike	II	2	14.5-16.6	17.7	15.6	+0.2
	III	5	17.3-22.3	20.8	20.7	
	IV	6	20.3-27.4	23.4	23.9	
	V	4	25.1-28.3	25.5	26.9	
	VI	1	27.6	27.3	27.6	
	IX	1	40		40.0	
Pumpkinseed	I	2	2.1-2.7	1.8	2.4	+1.2
	II	3	2.5-4.0	3.8	3.0	
	III	21	3.1-7.0	4.9	5.7	
	IV	12	3.5-7.9	5.6	7.0	
	V	9	7.0-8.2	6.2	7.6	
Smallmouth bass	I	2	2.4-3.1	3.8	2.8	
Yellow perch	I	1	3.8	3.3	3.8	
	III	2	8.1-8.2	6.5	8.2	

*Mean growth index is the average deviation from the state average length at age.

Table 4. Comparison of catch-per-effort (CPE) for bluegill and pumpkinseed in Argo Pond. The statewide and LEMU mean CPEs were obtained from Wehrly et al. 2015.

		Statewide CPE			**Argo Pond**	**LEMU CPE**
Species	Gear	25^{th} perc.	Median	75^{th} perc.	**2015**	Mean
Bluegill	Fyke	2.5	8.5	25.9	6.1	23.6
	Trap net	7.8	26.0	64.3		57.3
Pumpkinseed	Fyke	0.4	1.7	4.7	4.4	0.6
	Trap net	0.7	2.7	8.0		2.8