



Houghton Lake – 2021-2022 Fisheries Surveys Report
Mark A. Tonello
Fisheries Management Biologist
January 2023

Introduction

Houghton Lake is a natural lake of glacial origin located in west-central Roscommon County. The unincorporated communities of Houghton Lake, Houghton Lake Heights, and Prudenville are located along the southern shore of the lake. Houghton Lake has a surface area of 20,075 acres, making it Michigan’s largest inland lake. The maximum depth of Houghton Lake is 22 feet, and the average depth is 8.4 feet (Clark et al. 2004). Houghton Lake lies in the Muskegon River Watershed and its outflow essentially forms the Muskegon River. Houghton Lake is fed by several small tributaries, the most significant of which include the Cut River and Denton Creek. There are multiple public boat launches on Houghton Lake. Houghton Lake receives extremely heavy fishing pressure in both the open-water and ice fishing seasons. A creel census study conducted in 2001/2002 resulted in angler effort of approximately 500,000 angler-hours, making it the most heavily fished inland lake in Michigan, with more angler effort than Michigan waters of Lake Erie or Lake Superior (Clark et al. 2004).

Houghton Lake has a long fisheries management history, dating back to at least the early 1900s. Popular species on Houghton Lake include Walleye, Northern Pike, Bluegill, Black Crappie, Yellow Perch, Largemouth Bass, and Smallmouth Bass. After the extensive creel census study of 2001/2002, Clark et al. (2004) stated that “It also seems clear that the fishery of Houghton Lake in 1957-61 was very similar to its fishery today”.

Much of the stocking and management activity on Houghton Lake has revolved around Walleye, which were first stocked into Houghton Lake in 1908 (O’Neal 2017). Houghton Lake was stocked with Walleye fry from 1933-1944, and then not stocked from 1945-1978. From 1979-1994 it was stocked regularly with Walleye spring fingerlings in most years. Between 1995 and 2011, stockings were more sporadic, with low numbers of Walleye stocked in only five of those years. All of these stocking efforts were very low on a per-acre basis for a 20,000-acre lake. Schrouder (1993) recommended further investigation into the extent of Walleye natural reproduction in Houghton Lake, specifically by fall electrofishing surveys targeting juvenile Walleye. She stated that “if catches of Walleyes on non-stocking years equal or exceed stocked year catches a decision will be made to cease Walleye rearing and stocking by the Houghton Lake Association and the MDNR”. Despite this statement and the presence of naturally reproduced Walleye in fall electrofishing surveys that met this threshold, stocking continued sporadically until 2011.

An extensive netting effort in the spring of 2001 combined with creel census in 2001 and 2002 led to a Walleye population estimate of 58,854 (Clark et al. 2004). Other, much less intensive netting surveys were conducted in 2007 and 2011. According to O’Neal (2012), “most of the walleye catch in 2011 was composed of age-2 to age-5 walleye (Table 3). These fish represent the 2006 through 2009 year-classes when walleye were not stocked into Houghton Lake”. In addition to the netting surveys, many fall electrofishing surveys targeting juvenile Walleye in the fashion of a Serns Index (1982, 1983) and Ziegler and Schneider (2000) have been conducted on Houghton Lake, starting in 1990 (O’Neal 2017; Tonello 2020). The results of these surveys conducted since 2000 can be seen in Table 1. As a result of this extensive sampling of Houghton Lake, Walleye stocking was discontinued after 2011. In 2022 however, 1.1 million surplus Walleye fry were stocked into the Cut River.

2021 and 2022 Fall Walleye Electrofishing Surveys-Materials and Methods



On 10/26/21 and 9/14/2022, electrofishing surveys to evaluate walleye natural reproduction in Houghton Lake were conducted. The surveys were one-night electrofishing efforts aimed at assessing Walleye year class strength. The surveys were conducted according to protocols outlined by Ziegler and Schneider (2000), and by Serns (1982 and 1983), and were similar in nature to prior surveys of Houghton Lake (Table 1). An 18-foot electrofishing boat with two electrodes was utilized for the surveys. The ideal temperature range for conducting fall electrofishing surveys is 55-65°F.

Results

In the 10/26/21 survey, 4.6 miles of Houghton Lake shoreline were surveyed. A total of 21 Walleye were captured, ranging from 9.7 to 18.7 inches in length. Of those, none were age-0, and 12 were age-1 Walleye from 9.7 to 12.9 inches (Table 2). The catch rate for the age-1 Walleye was 2.6 per mile and 7.3 per hour. Of the remaining 9 Walleye, 6 were age-2 and ranged from 10.7 to 14.0 inches in length, 2 were age-3 and ranged from 13.5 to 16.7 inches, and the 18.7-inch fish was age-7. In combination, the age-1 and age-2-year classes were growing -0.4 inches below the state average (a minimum of five fish per age group is required to make statistical inferences about growth rates). Two water temperature readings were taken during the 2021 survey, and they were 49.1°F and 52.5°F.

In the 9/14/22 survey, 3.4 miles of Houghton Lake shoreline were surveyed. A total of 19 Walleye were captured, ranging from 6.4 to 15.9 inches in length. Of those, 7 were age-0, ranging from 6.4 to 7.6 inches and 11 were age-1, ranging from 11.2 to 14.0 inches (Table 3). The one other Walleye caught in the 2022 survey was age-3 and was 15.9 inches in length. In combination, the age-0 and age-1-year classes were growing -0.2 inches below the state average (a minimum of five fish per age group is required to make statistical inferences about growth rates). The water temperature during the 2022 survey was 71.0°F.

Discussion

The MDNR protocol for fall indexing of age-0 and age-1 Walleye calls for sampling at least six miles of shoreline for lakes larger than 1,000 acres (Ziegler and Schneider 2000). Since Houghton Lake is over 20,000 acres, it should receive far more effort even than that. However, in recent years, staffing levels have only allowed for the sampling of approximately 4 miles of shoreline per year. This is no doubt inadequate to accurately gauge the abundance of young Walleye in the lake. That said, the recent surveys are not without value. While they may not accurately show the abundance of young Walleye, they do continue to show annual natural production of Walleye in Houghton Lake.

The 2021 and 2022 fall surveys showed that Houghton Lake continues to produce natural year classes of Walleye. In these surveys, Walleye from the 2020-, 2021-, and 2022-year classes were documented. While the lack of age-0 Walleye in the 2021 survey was discouraging, the 2022 survey showed an above-average abundance of Walleye from the 2021-year class. The presence of three age classes of Walleye in the 2021 and 2022 surveys is confirmation that Houghton Lake continues to produce natural year-classes of Walleye.

2022 Summer Trap Net Survey- Materials and Methods

From June 21-24, 2022, a fisheries survey was conducted on Houghton Lake according to methods described by O'Neal (2012). The survey consisted of six trap nets fished for three net-nights each, for a total of 18 net-nights, and one small-mesh fyke net set for one night. The survey was designed to mimic previous surveys conducted on Houghton Lake in 1972, 1983, 1993, 1998, 2007, and 2011. In particular, the survey was designed to assess the Bluegill population of Houghton Lake.

Results



A total of 19 different fish species were caught during the survey (Tables 4 and 5). Popular game and panfish species encountered included Black Crappie, Bluegill, Largemouth Bass, Northern Pike, Pumpkinseed, Rock Bass, Smallmouth Bass, Walleye, and Yellow Perch. Spines and scales were collected from select fish to determine age and growth rates (Table 6). A total of 382 Bluegill ranging from 3-10.2 inches were caught in the trap nets. This resulted in a catch rate of 20.1 Bluegill per net-night (Table 7). Seventeen Northern Pike were caught in the trap nets, for a catch rate of 0.9 Northern Pike per net-night. A total of 43 Walleye were also caught in the trap nets, resulting in a catch rate of 2.3 Walleye per net-night.

Discussion

The catch from the June 2022 trap net survey was not remarkably different from previous June trap net surveys conducted on Houghton Lake. The biggest difference was in the Bluegill catch rate (Table 7). The 2022 Bluegill catch rate of 20.1 per net-night was the highest recorded in any of the June surveys. Bluegill catch rates from previous surveys have ranged between 7.3 and 17.9 Bluegill per net-night, with the average being 12.6. According to the Schneider Index, a tool which examines Bluegill size structure and growth rates to provide a score for the Bluegill population of a lake (Schneider 1990), the 2022 Bluegill catch for Houghton Lake rated as “Good” (Table 8). While the average size of Bluegill caught in the 2022 trap net catch (6.7 inches) was lower than some of the previous surveys, growth rates were higher than any previous surveys. Clearly, the Bluegill population of Houghton Lake remains healthy with ample consistent year class production, excellent growth rates, and good size structure. Houghton Lake continues to provide outstanding Bluegill fishing for anglers, including the potential for Master Angler catches (larger than 10 inches). Not surprisingly, Houghton Lake received 26 entries for Master Angler Bluegill in both 2021 and 2022.

While the June 2022 trap net survey did not specifically target Walleye, a total of 43 Walleye ranging from 8 to 24 inches were caught in the trap nets. This resulted in a catch rate of 2.3 Walleye per net-night, which is not appreciably different than the average of 2.6 Walleye per net-night from previous June trap net surveys on Houghton Lake over the past 50 years (Table 7). While Walleye growth rates were somewhat slow (Table 6), this is not uncommon for shallow lakes in Michigan’s lower peninsula. A total of 9 different year classes were represented in the catch, none of which were stocked years. Clearly, the Walleye population of Houghton Lake is healthy and well-supported by natural reproduction.

Northern Pike were also not specifically targeted in the 2022 trap net survey, but a total of 17 were caught, ranging from 18-27 inches in length. Growth rates were slightly slower than the state average (Table 6), but this is not uncommon for shallow lakes in Michigan’s lower peninsula. The catch rate of 0.9 Northern Pike per net-night (Table 7) was consistent with all but one of the previous surveys (2007). The 2000’s saw very high populations of Northern Pike in Houghton Lake, to the point of becoming a nuisance for anglers. That phenomenon was most likely linked to the extreme habitat changes resulting from the whole-lake chemical treatment (targeting nuisance aquatic plants) conducted in 2002. Currently, it appears that the Northern Pike population of Houghton Lake is at a more “normal” level. Angler reports remain solid, with good catches reported, including the occasional trophy sized Northern Pike exceeding 40 inches. In 2014, the Northern Pike regulations on Houghton Lake were changed from the statewide standard (2 fish per day possession limit with a 24-inch minimum size) to a 5 fish per day possession limit with no minimum size limit (but only one over 24 inches may be kept per day). This regulation appears to be successful for the fishery, and most Houghton Lake anglers are supportive of the regulation.

While the June 2022 fisheries survey did not specifically target other popular species on Houghton Lake, some were caught. The Black Crappie catch was particularly impressive, with 129 caught from 5 to 13



inches in length (Table 5). While the catches of Largemouth and Smallmouth Bass were sparse, these species are not overly vulnerable to trap nets at this time of year. Angler reports for these species remain strong, and Houghton Lake remains a popular destination for bass anglers. In 2022, there were 13 fishing tournaments on Houghton Lake, all but one of which targeted Largemouth and Smallmouth Bass.

Small mesh fyke nets had not been utilized in previous Houghton Lake surveys. Small mesh fyke nets target smaller fish, including non-game forage species. A total of seven different species were caught in the small mesh fyke net, which was only fished for one night. The species caught included Banded Killifish, Bluegill, Bluntnose Minnow, Common Shiner, Pumpkinseed, Sand Shiner, and Yellow Perch. Sand Shiners and Bluntnose Minnows were the most abundant, and both species are excellent forage for game species like Largemouth Bass, Smallmouth Bass, and Walleye.

Management Direction:

While it is possible that the stocking of fry in the spring of 2022 may have contributed to that year class, the contribution will likely be minimal. While 1.1 million Walleye fry may sound substantial, MDNR's recommended stocking rate for Walleye fry is 2,000 per acre. This would require a stocking level of 40 million fry for Houghton Lake. At least at this point, MDNR is not capable of producing that many fry in addition to existing rearing needs. Also, Walleye survival from fry stocking is notoriously inconsistent. For this reason, the vast majority of stocked Walleye lakes in Michigan receive spring fingerlings (typically 1-2" in size) or even fall fingerlings (5-8" in size). However, the sheer size of Houghton Lake makes stocking it with spring or fall fingerlings nearly impossible. For example, MDNR's recommended rate for spring fingerlings is 50/acre, usually on an every-other year basis. This would require approximately 1,000,000 spring fingerling Walleye to be stocked. At this point, MDNR does not have the capacity to rear that many additional Walleye. Most of the lakes currently stocked with Walleye in Michigan see none or very little natural reproduction of Walleye. Also, in other situations, stocked fish have been shown in to suppress naturally produced fish populations. Since Houghton Lake continues to see consistent natural reproduction that maintains an excellent fishery, it should not be stocked with Walleye on a regular basis.

As the most heavily fished inland lake in Michigan, the Houghton Lake fishery contributes dramatically to the local economy of the area. Annual fall Walleye electrofishing surveys should continue to be conducted to monitor year-class strength and the fishery, and when possible, more stations should be surveyed than have been done in recent years. In addition, a creel survey and further fisheries surveys of Houghton Lake should be conducted as soon as possible. Conducting a population estimate survey for Walleye would be extremely helpful in setting the course for future management on Houghton Lake. Creel census and population estimate data could be compared with the data from the 2001 survey efforts. June trap net surveys similar to that conducted in 2022 (and in many previous years) should also be conducted as frequently as staffing levels allow. Also, MDNR Fisheries personnel should work to maintain communication with Houghton Lake anglers and stakeholders to monitor all aspects of the Houghton Lake fishery, including Walleye.

Other issues worthy of discussion on Houghton Lake include aquatic plant management and shoreline management. Houghton Lake has an extensive treatment history with a myriad of chemicals being used for controlling both native and non-native aquatic plants. Due to its shallow nature, aquatic plants are a critical component to the Houghton Lake ecosystem and fishery. Therefore, we recommend only treating invasive plant species when recreational use is disrupted or threatened. Native plants should not be treated. In addition, Fisheries Division will continue to support ongoing efforts by other stakeholder groups to restore native wild rice beds and other native plants important to the ecology of Houghton Lake.



An issue of particular importance to the Houghton Lake Walleye fishery is the protection of the Cut River. The Cut River is the most significant tributary used by Walleye from Houghton Lake for spawning and rearing purposes and is critical to continued successful Walleye natural reproduction in Houghton Lake. The Cut River flows out of Higgins Lake, and there is a lake-level control structure at the outlet of Higgins Lake. Wiley and Layman (2016) recommended maintaining flows of at least 50 cubic feet per second (cfs) through the dam to protect fish populations in the Cut River. They also recommended that during the critical spring Walleye spawning time, flows of 100-150 cfs should be maintained to ensure that walleye spawning and hatching can be successfully completed. Some Higgins Lake residents have strongly advocated against minimum flows exiting Higgins Lake and have even advocated for shutting off the flow into the Cut River at times. This should not be allowed, and a minimum flow rate of at least 50 cfs should be maintained at all times, with potentially higher flow rates in the spring to assist with Walleye reproduction.

All remaining riparian wetlands adjacent to Houghton Lake should be protected and considered critical habitat to the continued health of the lake's aquatic community. The Houghton Lake shoreline is already more developed than most other lakes in Michigan. Future unwise riparian development and wetland loss may result in further deterioration of the water quality and aquatic habitat. Healthy biological communities in inland lakes require suitable natural habitat. Human development within the watershed, along the shoreline, and in the lake, basin has a tendency to change and diminish natural habitat. Attempts should be made to reclaim Houghton Lake natural shoreline by removing seawalls and riprap and restoring natural shoreline characteristics. The Michigan Natural Shoreline Partnership, an organization dedicated to promoting natural shoreline landscaping to protect Michigan's inland lakes (<http://www.mishorelinepartnership.org/>), can provide guidance and training on how best to manage the land/water interface for the benefit of Houghton Lake.

References:

- Clark, R. D., P. A. Hanchin, and R. N. Lockwood. 2004. The fish community and fishery of Houghton Lake, Roscommon County, Michigan with emphasis on Walleyes and Northern Pike. Michigan Department of Natural Resources, Fisheries Special Report 30, Ann Arbor.
- O'Neal, R. P. 2012. Houghton Lake fisheries survey, June 2011. Michigan Department of Natural Resources, Cadillac.
- O'Neal, R. P. 2017. Houghton Lake juvenile Walleye surveys. Michigan Department of Natural Resources, Cadillac.
- Schneider, J. C. 1990. Classifying Bluegill populations from lake survey data. Michigan Department of Natural Resources, Fisheries Division, Technical Report 90-10, Ann Arbor.
- Schrouder, K. S. 1993. Status of the Fishery Report: Houghton Lake, Roscommon County. Michigan Department of Natural Resources, Fisheries Division, Fish Collection System Report, Lansing.
- Serns, S. L. 1982. Relationship of Walleye fingerling density and electrofishing catch per effort in northern Wisconsin lakes. *North American Journal of Fisheries Management* 2:38-44.
- Serns, S. L. 1983. Relationship between electrofishing catch per effort and density of Walleye yearlings. *North American Journal of Fisheries Management* 3:45 1-452.



Tonello, M. A. 2020. Houghton Lake juvenile Walleye surveys, 2017-2019. Michigan Department of Natural Resources, Cadillac.

Tonello, M. A. 2021. Status of the Fishery Report 2021-320: Higgins Lake, Roscommon County. Michigan Department of Natural Resources, Lansing.

Wiley, M. J., and A. J. Layman. 2016. Ecohydrologic evaluation of removing the Higgins Lake-level control structure. Job 6. Prepare habitat models to examine fishery-related impacts. Muskegon River Watershed Assembly, Big Rapids MI.

Ziegler, W., and J. C. Schneider. 2000. Guidelines for evaluating Walleye and Muskie recruitment. Chapter 23 *in* Schneider, James C. (ed.) 2000. Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources, Fisheries Special Report 25, Ann Arbor.



Table 1. Results of fall electrofishing surveys conducted on Houghton Lake targeting juvenile Walleye. The surveys were conducted according to protocols described by Ziegler and Schneider (2000).

Year survey was conducted	Age 0 Walleye #/mile of electrofishing	Age 1 Walleye #/mile of electrofishing
2000	0	2.2
2001*	7.8	0.4
2002	0.1	1.6
2003	3.5	0.2
2004*	29.7	1.0
2005*	No survey conducted	No survey conducted
2006	5.1	6.6
2007	22.0	1.0
2008	10.3	2.3
2009	16.5	1.3
2010	13.8	3.8
2011*	25.8	7.3
2012	No survey conducted	No survey conducted
2013	8.2	4.3
2014	4.0	4.0
2015	6.4	2.6
2016	10.6	1.3
2017	13.3	2.6
2018	21.0	0.0
2019	4.1	6.4
2020	7.7	0.9
2021	0	2.6
2022*	2.1	3.2
Average:	10.1	2.6

*Indicates Walleye were stocked



Table 2. Results of a fall electrofishing effort targeting Walleye on Houghton Lake on October 26, 2021, Roscommon County, Michigan. During the survey, 4.6 miles of shoreline were sampled in 1.7 hours of electrofishing. The surface water temperature was 49.1°F at one site, and 52.5°F at the other.

Houghton Lake acreage	20,075
Miles of shoreline sampled:	4.6
Hours of electrofishing:	1.7
Water temperature:	49.1, 52.5°F

Year Class	Age	# Walleye captured	Catch Rate (# Walleye/mile of shoreline sampled)	Catch Rate (# Walleye/hour of electrofishing)
2021	0	0	0.00	0.00
2020	1	12	2.61	7.3

Table 3. Results of a fall electrofishing effort targeting Walleye on Houghton Lake on September 14, 2022, Roscommon County, Michigan. During the survey, 3.4 miles of shoreline were sampled in 2.7 hours of electrofishing. The surface water temperature was 71.°F.

Houghton Lake acreage	20,075
Miles of shoreline sampled:	3.4
Hours of electrofishing:	2.7
Water temperature:	71.0F

Year Class	Age	# Walleye captured	Catch Rate (# Walleye/mile of shoreline sampled)	Catch Rate (# Walleye/hour of electrofishing)
2022	0	7	2.06	2.59
2021	1	11	3.24	4.07



Table 4. Number, weight, and length of fish collected from Houghton Lake, Roscommon County, with trap nets and small mesh fyke nets, June 21-24, 2022.

Species	Number	Percent by number	Weight (pounds)	Percent by weight	Length range (inches) ¹	Average length	Percent legal size ²
Banded Killifish	2	0.1	0.0	0.0	2-2	2.5	
Black Crappie	129	8.5	42.3	6.6	5-13	7.9	62 (7")
Black Bullhead	13	0.9	13.3	2.1	12-14	13.2	
Bluegill	462	30.3	120.4	18.8	1-10	7.1	60 (6")
Bluntnose Minnow	77	5.1	0.5	0.1	2-3	2.6	
Bowfin	13	0.9	63.4	9.9	16-26	23.8	
Brown Bullhead	51	3.3	52.9	8.2	11-14	13.1	
Common Carp	11	0.7	117.5	18.3	22-36	28.8	
Common Shiner	1	0.1	0.0	0.0	2-2	2.5	
Largemouth Bass	14	0.9	22.7	3.5	8-16	14.5	71 (14")
Longnose Gar	7	0.5	22.5	3.5	22-39	30.2	
Northern Pike	17	1.1	54.3	8.5	18-27	24.0	59 (24")
Pumpkinseed Sunfish	51	3.3	17.3	2.7	2-9	7.1	86 (6")
Rock Bass	50	3.3	13.9	2.2	3-11	7.1	50 (6")
Sand Shiner	540	35.5	2.7	0.4	1-2	2.5	
Smallmouth Bass	14	0.9	20.0	3.1	8-17	13.8	50 (14")
Walleye	43	2.8	60.6	9.4	8-24	15.9	67 (15")
White Sucker	5	0.3	16.5	2.6	18-21	20.3	
Yellow Perch	23	1.5	1.1	0.2	2-8	6.8	13 (7")
Total	1,523	100	641.9	100			

¹Note some fish were measured to 0.1 inch, others to inch group: e.g., "5"=5.0 to 5.9 inch, 12=12.0 to 12.9 inches; etc.

²Percent legal size or acceptable size for angling. Legal size or acceptable size for angling is given in parentheses.



Table 5. Length frequency distribution for popular gamefish species caught from Houghton Lake in June 2022 in trap nets.

Inch Class	Black Crappie	Blue gill	Largemouth Bass	Northern Pike	Pumpkin seed	Rock Bass	Smallmouth Bass	Walleye	Yellow Perch
3		5				2			
4		21			2	10			
5	22	78			1	13			
6	27	83			12	6			
7	26	78			20	7			
8	13	40	1		9	5	2	1	3
9	20	58			3	3	3		
10	15	19	1			2		1	
11	1					2	1	3	
12	3		2					4	
13	2						1	4	
14			4				1	1	
15			2				1	7	
16			4				3	7	
17							2	7	
18				1				3	
19				1				3	
20				1				1	
21				1					
22									
23				3					
24				3				1	
25				2					
26				3					
27				2					
28									
29									
30									
31									
33									
36									
37									
38									
40									
Total	129	382	14	17	47	50	14	43	3



Table 6. Average total weighted length (inches) at age, and growth relative to the state average, for fish sampled from Houghton Lake, Roscommon County, with trap nets and small mesh fyke nets, June 21-24, 2022. Number of fish aged is given in parenthesis. A minimum of five fish per age group is statistically necessary for calculating a Mean Growth Index, which is a comparison to the State of Michigan average.

Species	Age											Mean Growth Index
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	
Black Crappie		5.9 (23)	7.8 (20)	9.7 (18)	10.4 (3)	11.3 (2)	12.2 (1)	13.3 (2)	12.9 (1)			--
Bluegill			6.2 (34)	7.1 (13)	9.2 (5)	8.9 (3)	9.5 (3)	8.6 (4)	9.7 (7)	9.8 (5)	9.8 (1)	+1.3
Largemouth Bass		8.2 (1)	12.2 (1)		12.3 (3)	15.2 (2)	15.6 (6)	16.4 (1)				-1.1
Northern Pike			19.7 (3)	23.4 (6)	26.7 (4)	26.0 (3)	25.0 (1)					-0.8
Pumpkinseed Sunfish		4.4 (2)	6.5 (11)	7.3 (14)	8.2 (5)	8.4 (1)	9.1 (2)	8.5 (1)	8.6 (3)	8.4 (1)		+1.6
Smallmouth Bass		9.0 (5)	11.2 (1)	14.6 (3)	15.6 (2)		17.6 (2)	16.7 (1)				+0.2
Walleye	8.7 (1)	11.6 (5)	13.0 (8)	15.4 (5)	16.9 (11)	17.3 (3)	17.8 (5)	19.2 (4)		24.1 (1)		-1.2
Yellow Perch		4.5 (4)	8.0 (1)	8.4 (2)								--



Table 7. Catch rates (# fish/net-night) for popular fish species on Houghton Lake from trap net surveys conducted between 1972-2022.

	Bluegill	Northern Pike	Walleye
1972	7.3	0.9	1.6
1983	5.4	1.9	2.7
1993	9.4	1.6	2.5
1998	10.5	0.9	1.6
2007	17.7	7.7	2.9
2011	17.9	0.4	4.4
2022	20.1	0.9	2.3
Average:	12.6	2.0	2.6

Table 8. Houghton Lake Bluegill size structure ratings from June trap net catches using the Schneider Index (Schneider 1990). Schneider Index ratings are as follows: 1 = very poor, 2= poor, 3 = acceptable, 4 = satisfactory, 5 = good, 6 = excellent, and 7 = superior.

Date of Sample	Sample size	Length Range (in)	Ave. size	% > 6"	% > 7"	% > 8"	Growth Index	Schneider Index	Schneider Rank
June 1972	144	3-10	7.4	77	58	39	+0.6	5.6	Good
June 1983	108	3-10	7.7	90	70	43	+0.2	6.0	Excellent
June 1993	272	3-10	8.8	98	91	77	+1.0	6.8	Excellent
June 1998	189	3-10	6.5	71	29	5	+0.9	4.6	Satisfactory
June 2007	266	3-10	7.8	95	88	44	+0.5	6.4	Excellent
June 2011	322	3-10	7.3	83	61	32	+0.5	5.6	Good
June 2022	382	3-10	6.7	73	51	31	+1.3	5.4	Good