Michigan Department of Natural Resources
Status of the Fishery Resource Report No. 2005-2, Year 2005
Renumbered in 2024, Status of the Fishery Resource Report 0092

WOODHULL LAKE

Oakland County (T3N, R9E, Section 3 & T4N, R9E, Section 34)
Surveyed May 2001

James T. Francis

Environment

Woodhull Lake is a 135 acre lake located in central Oakland County, on the east side of Waterford in Waterford and Independence townships. There are large shoal areas in the lake, with 40 percent of the lake being 5 feet or less in depth. However, once the 5 foot contour is reached, the lake drops off very quickly and reaches a maximum depth of 56 feet in the center (Figure 1). Another feature on the lake is a submerged island. The geology of the area surrounding the lake is characterized by sand and gravel glacial outwash. These areas are well drained and allow good infiltration to the ground water.

Woodhull Lake is located on the upper reaches of the Clinton River watershed. The Clinton River enters Woodhull Lake on the west end and exits on the north end. Approximately three-quarters of a mile upstream is the dam for Van Norman Lake, the next lake upstream. The Clinton River between these two lakes is wide with slow flow. Downstream from Woodhull Lake, it is connected to Oakland Lake by a short, wide connection. There is a dam on Oakland Lake and both Oakland Lake and Woodhull Lake have a legal established lake level elevation of 957.43. On the southeast side of Woodhull Lake, there is a connection to Eagle Lake (not shown on the map). This is a small lake which flows into Woodhull Lake, but a small weir structure at its outlet prevents the exchange of fish with Woodhull Lake.

The bottom type of Woodhull Lake is pulpy peat with some muck in the deep areas and marl with some fibrous peat in the shoal areas. The north and east shores have a narrow belt of sand. The water is characterized as clear, with good visibility (Secchi disk reading of 18 feet). Within the water column, alkalinity ranged from 154 ppm to 222 ppm and pH ranged from 7.2 to 8.5. Woodhull Lake is deep enough that the water column stratifies annually. That means that during the summer, the lake develops three distinct water layers; the upper most layer, the epilimnion, is warm and well oxygenated; the middle layer or thermocline is intermediate in temperature and the amount of dissolved oxygen varies; the bottom layer, the hypolimnion, is cold and lacks oxygen. In July 2001, the thermocline was from 18 to 25 feet and was well oxygenated.

There is a public access boat launch on Oakland Lake, which provides access to Woodhull Lake via a connecting channel. The shoreline is about 60% developed. Because of the large shoal areas, both emergent and submergent vegetation is abundant.

Fishery Resource

A variety of gamefish species were stocked in Woodhull during the 1930's and early 1940's. Species stocked included bluegill, crappie, largemouth bass, yellow perch, and crayfish for forage. It is uncommon to stock these species today, as they are self sustaining and ubiquitous. Oakland Lake has a similar stocking history, but also included smallmouth bass, and walleye in 1955, 1956, 1934, 1984, and 1986. Oakland Lake stocking information is mentioned because the fish are able to move between the two lakes.

There were four fisheries surveys conducted on Woodhull Lake between 1973 and 1994. The 1973 records indicate that both summer and winter fishing pressure was light, and the fishery was rated fair for panfish and largemouth bass. Today Woodhull has a good reputation as a bass fishery and gets a fair amount of fishing pressure. In 2003, there were 7 bass tournaments permitted to be conducted at the public access site at Oakland Lake and 14 in 2004. Anglers fish both Oakland and Woodhull during the tournaments.

A variety of gear was used in the historical surveys, including fyke nets, trap nets, gill nets, and electrofishing, depending on the goal of the particular survey. The fish community in Woodhull Lake during these earlier surveys was found to be composed primarily of panfish such as bluegill, yellow perch, rock bass, green sunfish, black crappie, warmouth, and pumpkinseeds. Predators included largemouth bass, northern pike, and bullhead. Carp were a common part of the catch among all surveys. Growth data was only available for the 1994 survey and most species were growing slightly below the state average.

The most recent fisheries survey was conducted on Woodhull Lake in May 2001. Sampling included the use of two standard trap nets tended daily and fished for two nights (4 net lifts), as well as day time electrofishing (Figure 1). The goal of the survey was to evaluate the current fish population and determine future management needs of the fishery.

A total of 16 fish species were collected during this survey with 660 fish handled in total (Table 1a and 1b). Panfish such as bluegill, black crappie, pumpkinseed, rock bass, and yellow perch comprised almost 87% of the total catch by number (trap net and electrofishing combined) and over 39% by weight. Predators such as largemouth bass, northern pike, bullheads, and bowfin made up 7% of the catch by number and 21% by weight. Common carp accounted for 3% of the total catch by number, but 40% by weight.

Bluegill were the most abundant fish caught during this survey. They represented 77% of the total catch by number and 34% by weight (Table 1a and 1b). The bluegill in the trap net catch averaged 6.5 inches. The quality of the bluegill population in Woodhull Lake was evaluated using Schneider's Index. This index provides a relative measure of the quality of the bluegill fishery in a lake based on a scale of 1 to 7, with 7 being the best (Schneider 1990). Based on the trap net catch, the bluegill in Woodhull Lake received an average to good rating (score 4.4). There was a good representation of ages in the catch, with fish ranging in age from 1 to 12 (Table 2). Overall, growth rates were about a half inch below the state average.

The next most abundant fish in the catch were pumpkinseeds. They accounted for 5% of the total catch by number and 3% by weight (Table 1a and 1b). Pumpkinseeds averaged 6.8 inches long and were growing 0.3 inches above the state average. Other panfish in the catch but in smaller numbers included black crappie, rock bass, and yellow perch. Growth rates for crappie and yellow perch were both below the state average (Table 2).

Largemouth bass dominated the catch of larger gamefish during the survey, making up 4% of the total catch by number and 7% by weight (Table 1a and 1b). The bass averaged 11.6 inches long in the trap nets, with only 2 of the 12 bass exceeding the minimum size limit of 14 inches. Growth rates averaged almost two inches below the statewide average (Table 2).

Four northern pike were caught, ranging in size from 23 to 31 inches and averaging 27.3 inches. All of the pike caught were growing at rates above the state average. Although the number of pike and largemouth caught may seem low, these species are not fully susceptible to the gear used. A general fisheries survey targets bluegill and other panfish. Although these surveys do not target larger game fish, attempts are made to catch an adequate sample to get a measure of abundance and growth. The catch rates of both bass and pike in this survey are consistent with other area lakes.

Carp were a common catch in Woodhull Lake. Although they made up only 3% of the total catch by number, they accounted for 40% of the

catch by weight (Table 1a). The disproportionate weight of the catch is due to the large size of the carp caught, ranging in length from 14 to 29 inches. Carp are a non-native species and compete with native fishes for food and space and have a negative impact on the environment. They feed in the sediments, often uprooting vegetation that is important habitat, and increasing turbidity.

A fish survey was conducted concurrently on the adjoining Oakland Lake in 2001. The results of that survey are consistent with the findings on Woodhull Lake (see Oakland Lake 2001 Status of the Fishery Report). The catch rates and size structure of the fish community were very similar between the two lakes. The growth rates were also the same; below average for bluegill, black crappie, yellow perch, and above average for pumpkinseeds. Largemouth bass were very slow growing in both lakes, conversely, northern pike were very fast growing. During the survey, fish were observed traveling and nesting in the wide connection between the two lakes. The short, unobstructed connection and similarity in the fish communities support that these two lakes can be managed as one water body.

Management Direction

Overall, there is a good fish community in Woodhull Lake. Bluegill and other panfish are abundant with a good size structure and there is a good balance of larger game fish. Largemouth bass are present in good number, although their growth rates are below ideal. Pike are also present in good numbers and have good growth rates. Northern pike require emergent vegetation in shallow marsh areas for spawning. Unfortunately, this habitat is at risk in many lakes in southeast Michigan due to dredging, seawall construction, and shoreline development. Marsh areas and emergent vegetation should be protected on Woodhull Lake, and the connected Oakland Lake, because it provides critical habitat for northern pike and other wildlife. Because northern pike are a top predator, they serve an important ecological function to provide balance to the entire fish community. Loss of pike from Woodhull Lake would result in a decline in the quality of the panfish fishery.

Redear sunfish would be a good addition to the fishery and appear to be a good candidate for Woodhull Lake. Redears have been established successfully in southern Michigan to provide a trophy panfish opportunity for anglers (Towns 2003). Redear sunfish grow faster than either bluegill or pumpkinseeds, and attain a larger size. Redears reach a length of almost 9 inches by age 5, where a bluegill takes about 10 years to reach a similar size. Most lakes where redears have been established produce redear sunfish greater than 10 inches long (Towns 2003). Redears are similar to pumpkinseeds and do well in lakes that have large areas of marl. The presence of marl and the fact that pumpkinseeds have above average growth rates further supports the potential for a successful redear program. Stocking is recommended for a three year period, at which point redears are usually self sustaining.

Report completed March 4, 2005

References

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

Towns, G. L. 2003. Redear sunfish management in Michigan. Michigan Department of Natural Resources, Fisheries Division Technical Report 2003-3, Ann Arbor.

Table 1a.-Number, weight, and length indices of fish collected from Woodhull Lake with trap nets, May 7-9, 2001.

Species	Number	Percent by Number	Weight (pounds)	Percent by Weight	Length range (inches)[1]	Average length	Percent legal size[2]
Panfish							
Bluegill	358	79	77.6	32.7	3-8	6.5	73.7
Pumpkinseed	23	5.1	6.0	2.5	5-7	6.8	95.7
Rock bass	15	3.3	2.0	0.8	4-8	5.4	20.0
Black crappie	8	1.8	2.6	1.1	6-9	8.4	87.5
Predators							
Largemouth bass	12	2.7	11.1	4.7	7-16	11.6	16.7
Brown bullhead	8	1.8	4.3	1.8	8-11	10.4	100
Northern pike	4	0.9	18.9	8.0	23-31	27.3	75.0
Bowfin	3	0.7	12.07	5.1	22	22.0	--
Others							
Carp	21	4.7	102.2	43.2	14-29	21.4	--

[1]Note: some fish were measured to 0.1 inch, others to inch group: e.g., "5"=5.0 to 5.9 inches; "12"=12.0 to 12.9 inches; etc.
[2]Percent legal size or acceptable size for angling

Table 1b.-Number, weight, and length indices of fish collected from Woodhull Lake by electrofishing, May 18, 2001.

Species	Number	Percent by Number	Weight (pounds)	Percent by Weight	Length range (inches)[1]	Average length	Percent legal size[2]
Panfish							
Bluegill	149	71.6	8.6	44.7	1-7	4.0	8.0
Pumpkinseed	12	5.8	1.5	7.6	1-6	5.0	25.0
Rock Bass	5	2.4	0.7	3.4	1-8	4.5	20.0
Yellow perch	5	2.4	0.5	2.4	2-8	5.5	20.0
Hybrid sunfish	1	0.5	<0.1	<0.1	1.0	1.0	--
Predators							
Largemouth bass	15	7.2	6.6	34.2	3-14	8.2	13.3
Grass pickerel	5	2.4	0.5	2.8	4-10	7.7	--
Yellow bullhead	2	1.0	0.5	2.4	4-9	7.0	50.0
Others							
Bluntnose minnow	11	5.3	<0.1	0.1	1-2	1.7	--
Lake Chubsucker	2	1.0	0.4	2.3	5-8	7.0	--
Johnny darter	1	0.5	<0.1	<0.1	2.0	2.0	--

Table 2.-Average total length (inches) at age, and growth relative to the state averages for six species of fish sampled from Woodhull Lake, May 7-9, 2001.

Species	Age group	Number of fish	Length range (inches)	Mean Length	State average length	Growth index	Mean growth index[1]
Black crappie							--
	IV	4	6.8-8.4	7.8	8.6	--	
	V	2	8.9-8.9	8.9	9.4	--	
	VI	2	9.2-9.3	9.3	10.2	--	
Bluegill							-0.6
	I	5	1.3-2.4	2.0	1.8	0.2	
	II	8	2.5-3.2	2.7	3.8	-1.1	
	III	32	3.4-4.7	3.8	5.0	-1.2	
	IV	8	3.7-5.4	4.7	5.9	-1.2	
	V	20	4.3-6.8	5.7	6.7	-1.0	
	VI	18	5.9-8.1	7.1	7.3	-0.2	
	VII	9	6.9-8.2	7.7	7.8	-0.1	
	VIII	10	7.2-8.7	7.9	8.2	-0.3	
	IX	1	8	8.0	8.6	--	
	XII	1	8.5	8.5		--	
Largemouth bass							-1.8
	I	1	3.8	3.8	4.2	--	
	II	4	4.1-5.8	5.3	7.1	--	
	III	7	5.8-9.9	8.0	9.4	-1.4	
	IV	8	6.9-13.2	9.4	11.6	-2.2	
	V	2	11.2-13.8	12.5	13.2	--	
	VI	1	14.3	14.3	14.7	--	
	VIII	3	13.1-16.5	14.8	17.4	--	
	IX	1	14.0	14.0	18.3	--	
Northern pike							--
	III	2	23.4-25.3	24.4	20.8	--	
	VI	1	28.3	28.3	27.3	--	
	VII	1	31.3	31.3	29.3	--	
Pumpkinseed							+0.3
	I	1	1.9	1.9	1.8	--	
	II	2	3.6-3.7	3.7	3.8	--	
	III	1	4.7	4.7	4.9	--	
	IV	6	5.5-6.5	6.2	5.6	0.6	
	V	5	6.4-7.1	6.7	6.2	0.5	
	VI	7	6.7-7.1	6.9	6.6	0.3	
	VII	5	6.7-7.0	6.9	7.1	-0.2	

Table 2.-Continued

Yellow perch						--
	I	1	2.9	2.9	3.3	--
	III	3	5.0-5.4	5.2	6.5	--
	V	1	8.1	8.1	8.5	--

[1]Mean growth index is the average deviation from the state average length at age. A minimum sample size of five fish is required to calculate a growth index.

Figure 1.-Map of Woodhull Lake with sampling locations