Michigan Department of Natural Resources
Status of the Fishery Resource Report 91-10, 1991.

ROUND LAKE

Hillsdale County (T7S, R4W, Sections 3 and 4)
Surveyed June 1989

Michael P. Herman

Environment

Round Lake, 72 acres in size, is located in west-central Hillsdale County approximately 6 miles west of the city of Hillsdale. It is part of the St. Joseph River watershed. Little Hog Creek enters Round Lake from the north, and a small unnamed inlet flows into the lake on its eastern side. Round Lake has one small outlet on its west side which flows into Hemlock Lake.

Marl is the predominant substrate type from shore out to the 10-foot contour and covers approximately 10% of the total lake bottom. There are some scattered areas of gravel and sand near shore. Over 80% of this lake's substrate is comprised of organic matter. Bulrush, white and yellow water lily, and several species of pondweed are the most abundant aquatic plants found in the lake; all are moderately abundant.

Round Lake has the steep drop-off characteristic of marl lakes. The maximum depth is 36 feet, and approximately 85% of the lake's surface area is deeper than 10 feet. Water color is best described as clear to slightly turbid. The latest limnology survey (August 1980) found temperatures ranging from 74°F at the surface to 45°F at the bottom. A thermocline occupied the layer of water between the 16 and 21 foot depths. Dissolved oxygen concentrations in this layer of water were high, ranging from 5 ppm to 9 ppm.

The shoreline is approximately one-third developed with about 30 mostly-permanent residences. A state-owned public fishing site with a gravel boat ramp was constructed on the northwest shore in 1964. The undeveloped shoreline of Round Lake supports a mixture of wetland shrubs, green ash, and red and silver maples.

Fishery Resource

An electrofishing survey in 1965 collected several game fish species including bluegill, pumpkinseed sunfish, yellow perch, black crappie, and largemouth bass. One 12-inch rainbow trout was also caught. It probably immigrated from Hemlock Lake, which has been stocked with rainbow trout since the mid-1950s. All game fish species caught in 1965 were reported to be in excellent condition and fishing pressure was estimated as moderate.

Round Lake was last surveyed in June 1989 with four standard 6 x 3-foot trap nets and two 125-foot experimental gill nets (Table 1). Game fish species captured in descending order of abundance included bluegill (160), black crappie (8), largemouth bass (6), pumpkinseed sunfish (5), and rock bass (1). Although few largemouth bass were captured in nets, numerous small bass were observed in the shallow areas of the lake.

Bluegills comprised nearly 70% of all fish caught in trap nets. Bluegills averaged 7.1 inches each,

were as large as 9.5 inches, and over 80% of them were of an acceptable size to anglers. Bluegills over 8 inches long are generally uncommon in most other area lakes and bluegills larger than 9 inches are rare.

Bluegills are targeted for sampling in inland lakes because of their role in determining fish community structure and overall sportfishing quality (Schneider 1981). Even though the goal of lake surveys is to sample all fish species and all sizes present, many times the bluegill population is the only one adequately sampled because bluegills are typically the most abundant. A ranking system was de- veloped recently that allows fish managers to get an idea of the relative quality of a lake's fish population. On a scale of 1 to 7, (Schneider 1990), the quality of the bluegill population in Round Lake was calculated as 5.8 or "excellent".

Based on growth analysis using fish scales, bluegills caught during the 1989 survey exhibited growth rates above the state average (Table 2).

No yellow perch were caught in trap nets, but this species comprised over 70% by number and 66% by weight of the total gill net catch (Table 1). Nearly 90% of all perch were of acceptable size to anglers. They averaged 8.5 inches each, and were as large as 12.6 inches. As a group, they exhibited a growth rate that was 1.0 inch above the state average (Table 2).

Black crappie and pumpkinseed also exhibited above average growth trends. However, largemouth bass grew slowly. These conclusions are tentative because they are based on small samples.

Age composition and survival characteristics of bluegill and yellow perch populations appear to be normal based on scale sample frequencies (Table 3). Ages II through VIII were well represented. Only four age-V yellow perch were caught during the 1989 survey, which suggests that a weak year class may exist. Few age-II fish of either species were caught in trap or gill nets, because small fish are much less vulnerable to netting.

The catch from the 1989 survey shows that a good species mix exists in this lake. Bluegill and yellow perch growth rates and average sizes are impressive, suggesting that these two species may be under-utilized by anglers.

Anglers interviewed during the 1989 survey reported good open-water fishing success for bluegill and crappie, but poor success for bass. Ice fishing was rated as good, but fishing pressure was only light. One angler reported that good perch fishing opportunities existed in Round Lake while others were unable to catch this species consistently.

Management Direction

Round Lake presently supports excellent populations of yellow perch and bluegills for angling. A water chemistry survey of Round Lake in 1980 showed that temperatures and dissolved oxygen levels favorable for rainbow trout growth and survival existed. This data, together with the absence of northern pike, make this lake a good candidate for the introduction of rainbow trout. An updated dissolved oxygen and temperature profile of Round Lake is planned in the summer of 1990. If water quality is found to be comparable to the 1980 data, it is recommended that rainbow trout be stocked to provide an additional angling opportunity. Subsequent surveys of this lake's fishery should be made to evaluate trout growth and survival as well as to monitor the growth rates of existing game fish.

Report completed: March 9, 1990.

References

Schneider, J. C. 1981. Fish communities in warmwater lakes. Michigan Department of Natural Resources, Fisheries Research Report 1890, Ann Arbor.

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

Table 1.-Number, weight, catch per effort, and percent legal size for species of fish taken with trap or gill nets from Round Lake, June 9, 1989.

Species	Number of fish	Percent total number	Weight of fish	Percent total weight	Catch per effort[1]	Percent legal size[2]
Trap nets						
Bluegill	153	69.9	39.7	33.3	38.3	81
Black crappie	6	2.7	3.4	2.8	1.5	100
Largemouth bass	4	1.8	2.0	1.7	1.0	0
Warmouth	18	8.1	2.7	2.3	4.5	22
Pumpkinseed	5	2.3	0.9	0.8	1.3	60
Bullhead	1	0.5	1.5	1.3	0.3	100
Rock bass	1	0.5	0.2	0.2	0.3	100
Green sunfish	1	0.5	0.1	0.1	0.3	0
Longnose gar	18	8.1	16.7	14.0	4.5	---
Bowfin	1	0.5	2.7	2.3	0.3	---
Carp	6	2.7	36.6	30.7	1.5	---
White sucker	7	3.2	12.8	10.7	1.8	---
Total	221	100.0	119.3	100.0	55.6	---
Gill nets						
Yellow perch	98	72.1	33.2	66.0	49.0	88
Bluegill	7	5.1	1.7	3.4	3.5	71
Largemouth bass	2	1.5	0.5	1.0	1.0	0
Black crappie	2	1.5	1.3	2.6	1.0	100
Bullhead	3	2.2	0.6	1.2	1.5	33
Warmouth	8	5.9	1.0	2.0	4.0	12
White sucker	12	8.8	10.8	21.5	6.0	---
Grass pickerel	3	2.2	0.8	1.6	1.5	---
Spotted gar	1	0.7	0.4	0.8	0.5	---
Total	136	100.0	50.3	100.0	68.0	---

[1]Number of fish per trap-net or gill-net night.

Percent legal size or acceptable size to harvest.

Table 2.-Average total length (inches) at age, with ranges, for bluegill and yellow perch taken with trap and gill nets from Round Lake, June 9, 1989. Number of fish aged in parentheses.

	Age group							Mean growth
Species	II	III	IV	V	VI	VII	VIII	index[1]
Bluegill								
Length	4.8	5.7	6.8	7.7	8.5	8.9	9.5	
Range	4.7-4.9	4.7-6.6	5.8-7.6	7.4-7.9	8.2-9.0	8.7-9.1	9.5	+0.8
	(3)	(17)	(7)	(8)	(9)	(5)	(1)	
Yellow perch								
Length	6.2	7.6	9.0	9.6	11.0	11.7	12.2	
Range	6.0-6.5	6.2-8.8	8.4-9.7	9.0-10.3	10.1-12.2	10.7-12.6	12.2	+1.0
	(7)	(19)	(11)	(4)	(7)	(6)	(1)	

[1]Mean growth index is the average deviation from the state average length at age.

Table 3.-Percentage age frequency for two species of fish taken with trap or gill nets from Round Lake, June 9, 1989 (number of fish in parentheses).

	Age group						
Species	II	III	IV	V	VI	VII	VIII
Bluegill	6	34	14	16	18	10	2
	(3)	(17)	(7)	(8)	(9)	(5)	(1)
Yellow perch	13	34	20	7	13	11	2
	(7)	(19)	(11)	(4)	(7)	(6)	(1)

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Web Author: *Tina M. Tincher, Librarian*

Questions, comments and suggestions are always welcome! Send them to tinchert@michigan.gov