

VAUGHN LAKE

*Alcona County (T25, R6E, Sections 20, 21, 28, and 29)
Surveyed May 1990*

Steven P. Sendek

Environment

Vaughn Lake is a glacial till lake located in southwest Alcona County approximately 1.5 miles south of Glennie, Michigan. Rolling hills with productive sand/loam soils characterize the geography of the area. The watershed is a mixture of aspen/northern hardwood forests intermixed with farmland, most of which has been abandoned. The area surrounding the lake is predominantly upland hardwoods covering hilly terrain; two small wetlands are located on the north and south shores. One small intermittent inlet enters the northwest portion of the lake. It originates in Thompson and Little Bear lakes, 1 mile to the northwest. A small outlet drains into Bryant Creek, a tributary to the South Branch of the Pine River. A concrete spillway on this outlet maintains an elevated lake level and has been in place since the early 1920s. The upper reaches of this outlet are classified second quality trout tributary, while the lower reaches are classified top quality trout tributary.

Vaughn Lake has a maximum depth of 69 feet, and covers an area of 115 acres. Shoals, composed of gravel, sand, fibrous peat and marl, cover approximately 20% of the area. The deep water areas are underlaid with pulpy peat. The shallow bays have moderate submerged weed growth composed mainly of large leaf pondweed, coontail, pond lilies, and *Chara*.

Water quality conditions were last surveyed on September 9, 1949. At that time, the water had a slight brown tint and periodic algae blooms. Within the water column, alkalinity ranged from 120 ppm to 143 ppm and pH ranged from 7.0 to 8.4. These values indicate that the water is hard and well buffered. Temperature varied from 66°F at the surface to 46°F at the 60-foot depth, with the thermocline occurring between 15 and 25 feet. Typically, summer oxygen levels are sufficient for fish survival from the surface to the thermocline, but not below. Dissolved oxygen levels below 25 feet drop to 0.0 ppm. Overall, adequate cover and excellent water quality provide a good environment for cool and warm water fisheries.

Riparian development is moderate to extensive along the southern shore. Undeveloped areas include the wetlands along the northwest and northeast shores. The entire shoreline is under private ownership except for the public access site located on the south shore. This site provides a gravel boat ramp, parking for 6 to 10 cars, and a small sand beach area for bathers.

Fishery Resource

According to historical records, Vaughn Lake has been actively managed since 1937, when smallmouth bass, yellow perch and bluegills were stocked in varying numbers. This stocking took place for nearly 8 years before it was discontinued. The first re-corded fish sampling, with a seine, was conducted in July 1937. Reported as common were yellow perch, pumpkinseed sunfish, rock bass, northern pike, smallmouth bass, walleye, and largemouth bass. Forage fish observed were

black-chin shiner, bluntnose minnow, Iowa darter, Johnny darter, and golden shiner. The only "coarse" fish observed were brown bull-heads.

Surveys conducted in 1956, 1967, and 1968 found very similar fish communities except for one large (16.2 inch) brook trout and numerous white suckers. Through the years, the fish community has been good and varied with numerous bluegills and pumpkinseeds.

The fish community was most recently surveyed on May 16-18, 1990. This survey entailed the use of six 1-inch bar mesh fyke nets, three 3/4-inch bar mesh fyke nets, one 3/8-inch ace mesh mini fyke nets, and two 125-foot experimental mesh gill nets. These nets were fished for 2 nights for a total effort of 24 net nights.

The fish community observed in 1990 was very similar to that found in previous surveys (Table 1). Bluegill, yellow perch, pumpkinseed sunfish, rock bass, and largemouth bass made up 84% of the 788 fish captured. The size distribution appears well balanced with large members of each species present. All (100%) of the northern pike, 35% of the largemouth bass, 82% of the yellow perch, 68% of the bluegill, 82% of the pumpkinseed, and 75% of the rock bass were of catchable size.

The one exception to past surveys was that no walleye were captured even though 10,000 spring fingerlings were stocked the previous summer. This plant had been made to supplement the remnant walleye population. With no apparent survival of the 1989 walleye plant, another 10,000 fall fingerling walleye were added in September 1990. No evaluation of the 1990 plant has been made to date.

The present rough fish population is composed of white sucker and brown bullhead. This segment is in balance with the game fish population - their numbers are not excessive, and no fish appear to be stunted.

The growth rates of game fish currently equal or exceed the state averages (Table 2). Age composition and survival characteristics of the fish populations appear to be normal from our samples (Table 3). Many age and size groups were represented. Largemouth bass were represented by age groups II - VII, bluegill by age groups III - VIII, and yellow perch by age groups II - X.

Angler reports from Vaughn Lake have generally been good. There is considerable summer fishing for bass and bluegill, and light winter fishing activity for bluegill and northern pike. The northern pike can sustain themselves because there are adequate spawning marshes in northwest and northeast bays. Vaughn Lake is primarily noted for its trophy bluegills; the state record of 2 pounds 12 ounces was taken here in 1983. In recent years, several bluegills exceeding one pound were reported to the state's Master Angler Entry Program. Yellow perch are also large, with a 9.3-inch average total length. A high incidence of yellow grub was noted in them, and local anglers have expressed concern over this.

In summary, Vaughn Lake is considered a good fishing lake. It does not receive intense fishing pressure, and water quality is high. Public access on the south side provides anglers with an opportunity to launch small boats. The lake is very suitable for small boats because it is small and sheltered by hills. Anglers fishing from shore, or by wading, are aided by a sandy bottom and the placement of drop-offs and weed beds close to shore.

Management Direction

The Department will continue to manage the lake for a bass/bluegill fishery. Low levels of northern pike and walleye will be maintained for added angling opportunities and strengthening the predator base. Natural reproduction will maintain the fishery, except walleye. Moderate numbers of spring fingerling walleye will be stocked biannually. The rough fish population must be monitored periodically to insure that they are not over populating the lake. The integrity of the wetlands must

also be protected to insure spawning and nursery areas for northern pike and other species.

Report completed: April 1991.

Table 1-Number, weight, and length indices of fish collected from Vaughn Lake with fyke and gill nets, May 16-18, 1990

Species	Number	Percent by number	Weight (pounds)	Percent by weight	Length range (inches) ¹	Average length	Percent Legal size ²
Rock bass	307	39	86.7	22	3-10	6.9	88
Bluegill	107	13	24.5	6	4.1-9.6	6.7	87
Pumpkinseed	104	13	24.3	6	4-9	6.6	89
Brown bullhead	96	12	75.2	19	7-14	11.1	100
Largemouth bass	80	10	62.9	16	7.9-16.9	11.6	56
Yellow perch	57	7	17.0	4	5-13	9.3	94
White sucker	16	2	52.2	13	18-22	19.8	-
Northern pike	8	1	51.0	13	25.0-36.2	29.8	100
Green sunfish	4	1	0.3	-	2-5	4.7	-
Golden shiner	2	1	0.3	-	7	7.4	-
Minnow spp.	7	1	-	-	-	-	-
Total	788	100	394.4				

¹Note 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.

²Percent legal size or acceptable size for angling.

Table 2.-Average total length (inches) at age, and growth relative to the state average for three species of fish sampled from Vaughn Lake with fyke and gill nets May 16-18, 1990. Number of fish aged is given in parentheses.

Species	Age								<u>Mean growth index</u> ¹
	I	II	III	IV	V	VI	VII	VIII	
Northern pike	-	-	-	30.2	27.4	36.2	29.6	30.5	-
	-	-	-	(1)	(3)	(1)	(2)	(1)	
Largemouth bass	-	7.9	9.9	11.7	13.0	14.5	14.9	16.5	+0.5
	-	(1)	(22)	(18)	(11)	(8)	(3)	(1)	
Bluegill	-	-	4.3	5.7	7.0	8.4	8.8	9.4	+0.3
	-	-	(5)	(19)	(14)	(10)	(6)	(4)	

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

Table 3.-Estimated age frequency (percent) of three species of fish caught from Vaughn Lake with fyke and gill nets May 16-18, 1990.

<u>Species</u>	<u>Age</u>								<u>Number caught</u>
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>VII</u>	<u>VIII</u>	
Northern pike	-	-	-	13	38	13	25	13	8
Largemouth bass	-	1	28	23	14	10	4	1	80
Bluegill	-	-	5	18	13	9	6	4	107

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Web Author: [Tina M. Tinchert, Librarian](#)

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