Au Sable Lake

Ogemaw County, T24N, R04E, Sections 34, 35
Au Sable River Watershed, last surveyed 2019

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Environment

Au Sable Lake is a 271-acre natural lake in Ogemaw County in the northeastern Lower Peninsula of Michigan (Figure 1). It is located approximately five miles east of the town of Lupton (Figure 2). It has two primary lake basins separated by a shallow marl shoal (Figure 3). The lake was mapped in 1942 and shows that the east basin reaches a depth of 52 feet while the smaller west basin reaches a maximum depth of 40 feet. The primary inlet to Au Sable Lake is Au Sable Creek located on the west shore, while the outlet flows from the same basin to the north to Little Au Sable Lake. This is the headwaters of the South Branch River which flows directly into the lower Au Sable River. The lake outlet has a control structure and is regulated my local authorities to provide a legal lake level for Au Sable Lake. The legal lake level was established by court order in the 1970s and is 898.1 feet at summer level and 897.6 feet at winter level.

Water clarity is high at Au Sable Lake. The littoral zone is dominated by floating and submergent vegetation. Bottom substrate is primarily marl, sand, and detritus. The littoral zone is adjacent to steep drop-offs. A historical limnological profile (Table 1) shows that Au Sable Lake has thermal stratification in the summer, with low dissolved oxygen levels below the thermocline. The shoreline of the lake is highly developed and private. The exception to this is a small state-owned parcel on the southeast shore which provides a hard-surface boat ramp for access to the lake by the public. This DNR launch site was built in 1962 and provides parking for approximately six boat trailers. Chemical treatments of aquatic vegetation have been frequent in the past 25 years. Records indicate that spot treatments for swimming and boating have been obtained by the lake association on 17 occasions over this period (Ryan Crouch, Michigan Department of Energy, Great Lakes, and Environment, personal communication). This has typically accounted for 2-3 acres of lake treatment per permit.

History

Stocking records for Au Sable Lake date back to the 1930s and stocking efforts were initiated by the Department of Conservation (DOC). This was a period when the State of Michigan was experimenting with rearing various warm- and cool-water species and stocking at low rates in waterbodies across Michigan. This was done regardless of the need to stock some of these species. Bluegill and sunfish fingerlings were stocked in Au Sable Lake from 1937-1944, Yellow Perch fingerlings in 1937, Smallmouth Bass fingerlings from 1940-1943, Largemouth Bass fingerlings from 1941-1945, and Walleye fry in 1937.

Notes from the DOC regarding the 1942-1943 winter fishery at Au Sable Lake indicated a "good" Northern Pike fishery was present but thought to be on the decline, and that Largemouth Bass fishing was the primary attraction. The first in-depth analysis of the lake and fish community was completed in August of 1949 by the DOC. A limnological profile noted a lake which stratified thermally with dissolved oxygen levels suitable to fish in only the top 15-20 feet of the water column (Table 1). In

1949, the lake had three resorts and three liveries along its shoreline, along with approximately 53 cottages. The percent shoal habitat, or water less than 15 feet deep, was estimated at 15%. Emergent aquatic vegetation such as rushes was considered abundant as was floating vegetation. Submersed vegetation was common. Lake substrate was primarily marl with no gravel present. The lake was characterized as having a dominant warm-water fish community with a reputation for fishing centered on Largemouth Bass, Bluegill, and Northern Pike. DOC surveyed the fish community in August 1949 with gill nets over one night. Rock Bass, Yellow Perch, and Largemouth Bass were common in the survey catches, while Northern Pike, Bluegill, and Pumpkinseed were frequently captured.

DOC surveyed the fish population of Au Sable Lake on two occasions in the 1960s, but for different reasons. A survey in 1965 was another general examination of the fish community, much like the survey completed in 1949. Trap nets, fyke nets, and gill nets were used in 1965 and a warm water fish community was again found. Game fish included Largemouth Bass, Bluegill, Pumpkinseed, Rock Bass, and Northern Pike were commonly collected, while non-game fish such as bullheads were also common. According to the surveyors, the panfish community "seem to be plentiful but tend to be of an undesirable size". A recommendation was made to explore ways of improving predator numbers, with efforts focused on developing a Northern Pike marsh adjacent to the lake. This did not become a management action immediately. The lake was then netted in 1968 by DOC with trap nets over one night. A total of 11 Largemouth Bass and 253 Bluegill (most 4-6 inches) were removed from Au Sable Lake and transferred to a nearby small lake which recently had a chemical reclamation of its fish community.

A more thorough evaluation of the Au Sable Lake fish community was made in June of 1981 by the Department of Natural Resources (DNR). Sampling effort consisted of experimental gill-net lifts, trap-net lifts, and 20 small-mesh fyke-net lifts (1 and 3/8 inch mesh) for a total 69 net-nights. Surveyors found an abundant panfish population dominated by Bluegill and Pumpkinseed (Table 2). Growth of these two species was considered poor, but both species could live long. Thus, the few large Bluegill or Pumpkinseed available were likely attaining those sizes from longevity rather than fast growth. The prominent, slow growing populations of these species was believed to be associated with the heavy aquatic vegetation present in Au Sable Lake which allowed for reduced predation. Yellow Perch were found to be less abundant in the lake yet could attain larger sizes. Predator numbers were considered low. Few legal size (14 inches) Largemouth Bass were captured, but acceptable numbers of Northern Pike greater than 24 inches were collected in the survey. Recommendations from the 1981 survey focused once again on improving Northern Pike numbers in Au Sable Lake with the goal of increasing predation on abundant and slow growing panfish. A consideration by DNR officials involved stocking Tiger Muskellunge. This was disregarded since pike densities were high enough in the lake to likely suppress fingerling Muskellunge survival. Regardless of future stocking, managers believed that abundant aquatic vegetation would still likely be a key impediment to future predator-prey management at Au Sable Lake.

Following the 1981 survey and recommendations, DNR managers in cooperation with lake riparians established a small pike rearing marsh in 1983 on the southeast shore of Au Sable Lake. A small inlet was dammed up with sand-bags which allowed for a small rearing area. DNR stocked Northern Pike fry directly into the flooded marsh area with the hopes of allowing them to grow to fingerling size prior to release back into Au Sable Lake. This was accomplished for a small number of years but with limited success. By the late 1980s, the DNR Northern Pike fingerling stocking program had been

improved and state hatcheries were able to rear larger and more fingerlings for statewide stocking. It was at this time that the rearing marsh program at Au Sable Lake was terminated, and DNR began stocking fingerling pike directly into Au Sable Lake (Table 3). This management practice continued through 1991 when it was replaced with a fingerling Walleye stocking program which began in 1989 (Table 3).

With the advent of a Walleye stocking program in Au Sable Lake, DNR would begin evaluating these stocking efforts periodically over the years. This has been accomplished with nighttime electrofishing of the littoral zone in the fall and typically in a stocking year. The first evaluation was made in the fall of 1990 on the heels of the 1989 stocking event. Only four yearling Walleye were collected over three miles of shoreline, but the fish exhibited excellent growth for yearlings (12-14 inches). This showed that there was limited survival of fingerling Walleye, but the few that did survive fed well on the abundant prey in Au Sable Lake. Fisheries managers recommended the continued periodic stocking of fingerlings into the lake.

A general fish community survey was again completed by the DNR at Au Sable Lake in mid-May of 1994. Sampling effort consisted of 28 total net nights utilizing gill nets and fyke nets. The population of fish was noted as "well balanced" with a "good" predator-prey relationship (Table 4). Panfish such as Bluegill and Rock Bass were considered abundant with average to below average growth rates. Pumpkinseed sunfish were found in fair numbers and even one Black Crappie was collected. This latter species had not been caught in previous surveys. Yellow Perch, collected in previous surveys, were not collected in the 1994 survey. Largemouth Bass were still common but exhibited slow growth. Northern Pike abundance was considered good with growth rates average when compared to pike growth across Michigan. Some larger pike (30 inches and larger) were captured in the survey. Only two adult Walleye were collected in the survey and were from the 1989 stocked year class. This again indicated limited survival of the 1989 stocked year class. No Walleye from the 1992 stocking event were collected. Despite this, the Walleye program would continue. Also present in the 1994 survey of Au Sable Lake were low numbers of White Sucker and abundant bullhead species. In addition, surveyors captured the invasive rusty crayfish.

Walleye were again stocked in Au Sable Lake as fingerlings in the spring of 1995 (Table 3). DNR used nighttime electrofishing to evaluate this stocking event on one night in September. Shoreline electrofishing over 2.2 miles allowed for the capture of 18 Walleye. Thirteen of these specimens were age-0 fish from the stocking event earlier in the year. The numbers again indicated low survival of stocked fish. DNR electrofished the shallow reaches of Au Sable Lake again in June of 1999. Reasons for the survey are unknown, but it is believed it was done to collect adult Walleye. Only two Walleye were collected with these efforts.

Another juvenile Walleye assessment was made in the fall of 2000. Walleye fingerlings were again stocked in the spring of 2000 in Au Sable Lake (Table 3). Fall nighttime electrofishing for 2.5 miles of shoreline allowed for the capture of 25 Walleye including 16 age-0 fish. Also collected were seven yearlings along with two adults. This was a better catch rate of juveniles from past surveys but was still considered a low catch rate.

The most recent general fish community survey was at Au Sable Lake in 2007. The survey was done by DNR under the statewide Status and Trends survey protocol where sampling effort is a product of

lake acreage. Sampling effort in mid-May consisted of 4 inland gill-net lifts, 4 trap-net lifts, 2 maxi-mini fyke-net lifts, and 4 large-mesh fyke-net lifts. An additional 30 minutes of nighttime electrofishing was also completed in mid-September of 2007.

A total of 613 fish were collected during the 2007 survey with a total estimated weight of 458 pounds (Table 5). Panfish, including Bluegill, Rock Bass, Pumpkinseed, Yellow Perch, and Black Crappie, comprised 43% of the total catch number, and 14% by weight. Bluegill were considered prolific but few fish larger than 8-inches were present (Table 6 and 7). Bluegill lived up to age-9 in Au Sable Lake, but few fish were reaching these older ages and Bluegill continued to demonstrate slow growth. Pumpkinseed were collected in lesser numbers but exhibited good growth with most fish 7-inches or larger. This is not surprising since this species is more affiliated with shallow vegetated zones and not open water for feeding. Yellow Perch were again found in Au Sable Lake but demonstrated slow growth and high mortality rates since no older fish were captured (Table 7). This may be attributed to the lack of highly oxygenated cool-water refuge in the summer at Au Sable Lake. Black Crappie were a much more prominent part of the panfish community based on the 2007 survey catches when compared to past surveys. Some large crappie were collected (Table 6) and they exhibited excellent growth rates (Table 7). Four year-classes of crappie were present indicating some continued natural reproduction. Rock Bass remained a common member of the fish community, showing good growth and represented by 10 year-classes (Table 7).

Predators, consisting of Largemouth Bass, Northern Pike, and Walleye, comprised 20% of the total catch by number, and 51% by weight (Table 5). Largemouth Bass were the most prolific predator, with most fish 10-14 inches (Table 6). Bass demonstrated good growth and were represented by a minimum of eight age-classes. Bass growth has not changed significantly at Au Sable Lake from past surveys (Table 7). A total of 35 Northern Pike were collected with most fish less than legal size (24-inches) (Table 6). Growth of pike at Au Sable Lake was considered average and only five age groups were observed in the 2007 survey catch (Table 7). Acceptable numbers of adult Walleye were collected in the survey (Table 6) along with one yearling. Growth was average for this species. All Walleye ages (Table 7) corresponded with previous stocking years (Table 3). The catch numbers and ages of Walleye from the survey indicate some limited Walleye survival from stocking events, but likely no natural reproduction.

Also collected in the 2007 survey were large numbers of bullheads and lesser numbers of Brook Silversides, minnow, shiner, and darter species, as well as White Sucker (Table 5). These are species typical of a northern Michigan natural lake community with exception of Brook Silversides which are more common in natural lakes of central and southern Michigan.

Current Status

Fingerling Walleye continued to be stocked in Au Sable Lake following the 2007 fish community survey, including in the following years: 2012, 2014, 2015, 2017, and 2019 (Table 3). Survival of stocked fish was monitored with fall nighttime electrofishing of the shoreline in both 2014 and 2019 (both stocking years). No Walleye were collected during the 2014 index survey while only one adult Walleye was collected in the 2019 index survey. Both surveys indicated continued limited survival of stocked fingerling Walleye.

Analysis and Discussion

The Au Sable Lake fish community and limnology can be characterized as having the following: 1) A slow growing panfish community consisting primarily of Bluegill, Pumpkinseed, and Yellow Perch; and faster growing Rock Bass and Black Crappie. The Black Crappie population is relatively new to the fish community and offers up the potential for quality catches. Other panfish are dominated by smaller sizes with few growing to desirable sizes. The aquatic vegetation of the lake is prolific, both historically and currently. It provides the base of the food chain but also may prevent efficient thinning from predators. Despite this, the vegetation is important to the primary productivity of the lake. 2) A predator population consisting of Largemouth Bass, Northern Pike, and stocked Walleye. Largemouth Bass are abundant, but few reach large sizes with most fish at or below legal size (14-inches). Northern Pike are common, but the population is also dominated by sub-legal fish (less than 24-inches). Pike do not live long in Au Sable Lake based on age-frequency analysis. This is likely attributed to the natural lack of dissolved oxygen present below the thermocline in the summer. Pike typically will utilize the deeper, cooler water in the summer to avoid the warm summer temperatures of the littoral zone. This type of water is not available to Northern Pike at Au Sable Lake. Walleye numbers are completely reliant on stocking at Au Sable Lake, and they have been frequently stocked at this lake since the late 1980s. The success of this program has been marginal. The few that survive stocking (and predation) can grow large, but not enough to support a consistent fishery. Their impact as an additional predator on the stunted panfish community is also dubious since primary panfish growth rates remain poor. 3) Au Sable Lake has a typical non-game fish community represented by suckers, bullheads, shiners, darters, silversides, and minnows. With the exception of bullheads, all these species are found in relatively low to moderate numbers. 4) Au Sable Lake has abundant aquatic vegetation in the littoral zone and steep drop-offs to deeper water in both the east and west basins. The lake has a natural anoxic zone below the summer thermocline which is unavailable to fish. Cool, well oxygenated water is typically important to cool water species of fish such as Walleye, Northern Pike, and Yellow Perch and the lack of it in the summer may help explain poor growth rates and longevity for some of these species. This anoxic zone is not uncommon for well-vegetated natural lakes in northern Michigan that have a marl and silt bottom.

Management Direction

1) The fish community of Au Sable Lake is typical for a northern Michigan natural lake. There are certain morphological limitations to this lake that limit what species may or may not proliferate and create a fishery. The standard State of Michigan fishing regulations (bag limits and size limits) for game fish are appropriate.

2) Walleye stocking should be discontinued at Au Sable Lake. Reports of Walleye catches from anglers are non-existent, while survey catches infrequently catch acceptable numbers of fish. It is likely that fingerling Walleye, when stocked, are preyed on by all species, even panfish. Thus, adult numbers never attain levels that: a) produce a consistent fishery, and b) are sufficient in reducing panfish abundance and increasing panfish growth rates. This has been a 30-year stocking program that has had little tangible results.

3) Spot treatments of aquatic vegetation at Au Sable Lake have been ongoing by private contractors for nearly 30 years. Efforts should be made by the State of Michigan EGLE to survey the current aquatic vegetation community of Au Sable Lake to gather a comprehensive list and distribution of plants in the lake, both for native and invasive species.

4) Anglers of Au Sable Lake should share their catch information with fisheries managers. This allows for better management of the lake, both today and in the future.

References

Figure 1. General location of Au Sable Lake in the northern Lower Peninsula of Michigan. General location indicated by red arrow.

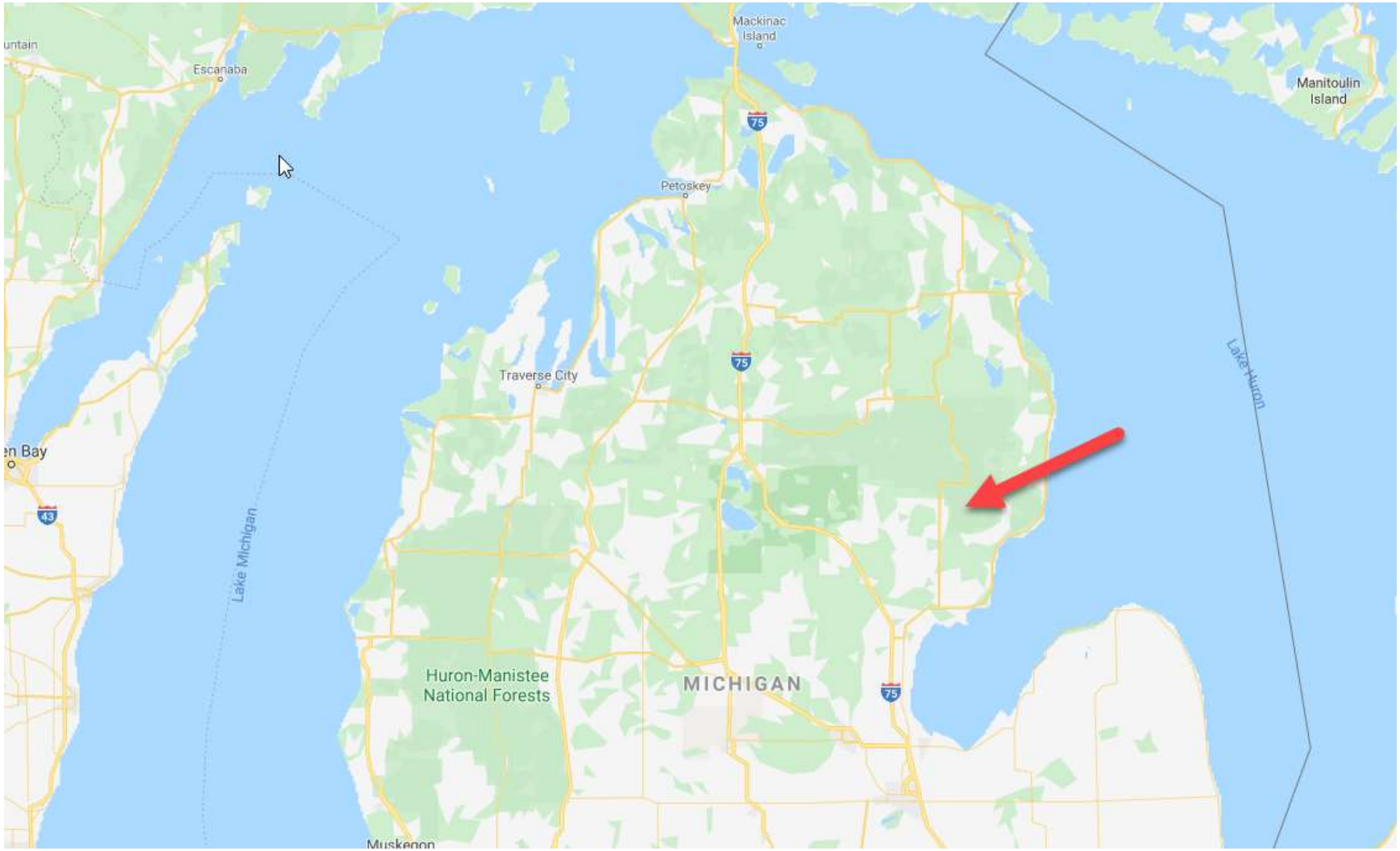

Figure 2. Au Sable Lake and surrounding area in Ogemaw County. Lake indicated by red arrow.

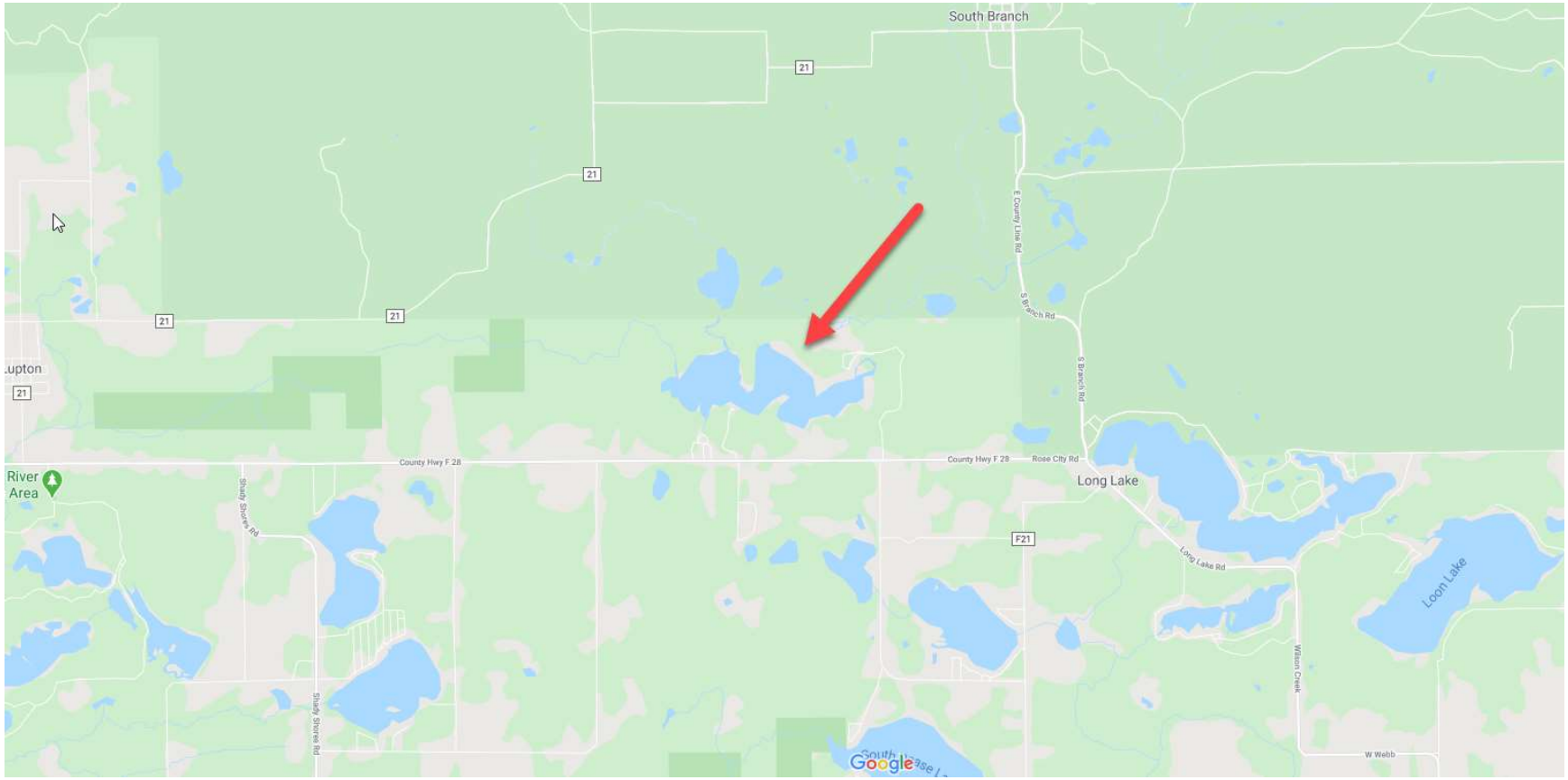

Figure 3. Original bathymetric map for Au Sable Lake.

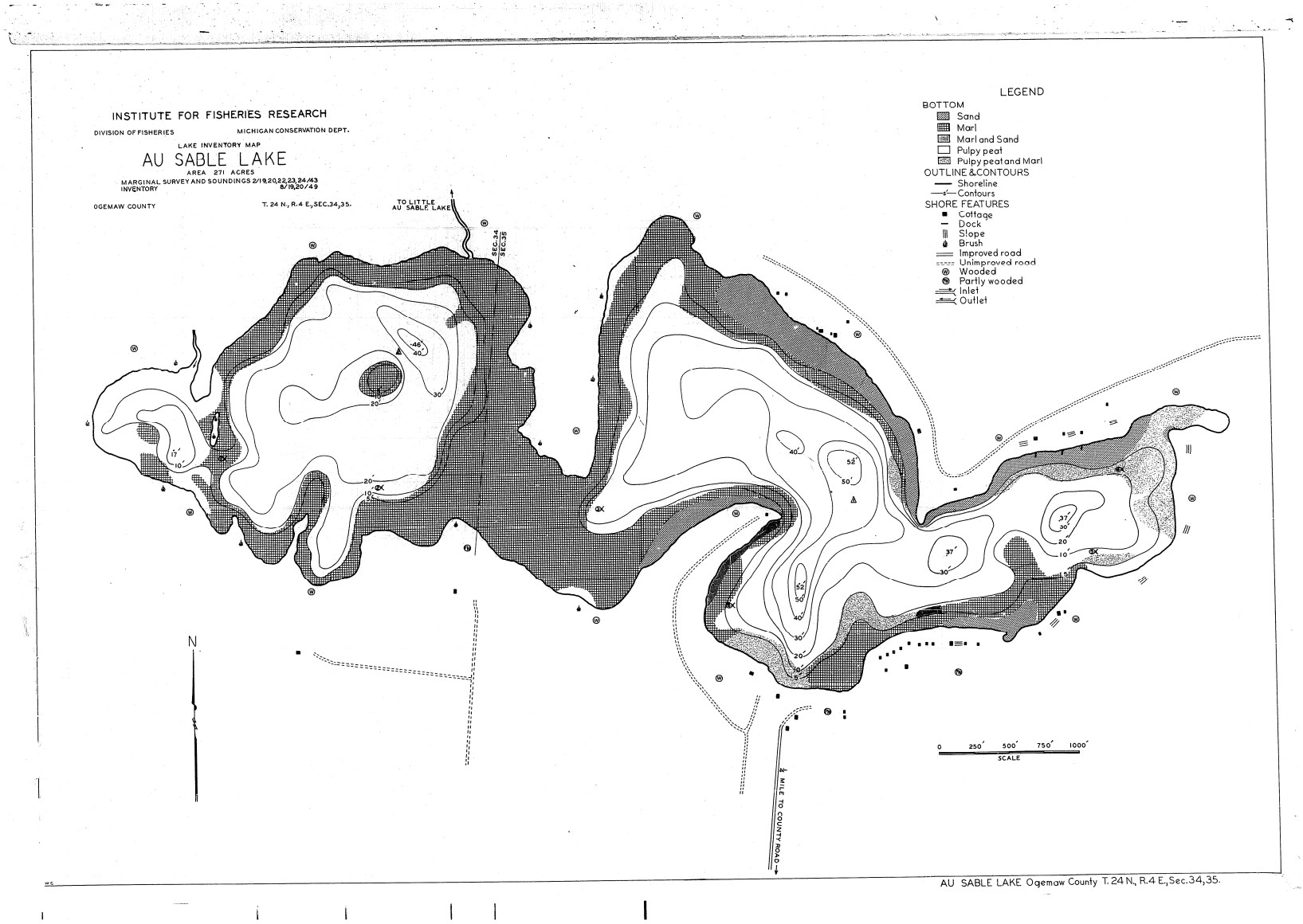

Table 1.-Limnological analysis of Au Sable Lake, Ogemaw County on August 19, 1949. Measurements were taken in the east basin.

Depth (ft)	Water Temperature (F)	Dissolved Oxygen (ppm)	Alkalinity (ppm)	pH
Surface	76.0	7.7	128	8.3
5.0	76.0	7.2		
10.0	76.0	7.2		
12.5	75.0	7.3		
15.0	73.0	7.1		
17.5	70.0	4.3		
20.0	63.0	2.1		
22.5	60.0	1.0		
25.0	57.0	0.6		
30.0	52.5	0.3	146	7.2
40.0	50.5	0.3		

Table 2.-Length-frequency distribution of important game fishes collected during the 1981 netting survey at Au Sable Lake.

Length (in)	Bluegill	L. Bass	Rock bass	Yellow perch	Pumpkinseed	Northern pike
1						
2	48		4		8	
3	39	1	7	3	20	
4	85		9	7	43	
5	630		20	3	112	
6	430	6	41	3	73	
7	95	10	42	3	33	
8	8	5	23	3		
9	2	6	10	6		
10		8	2	5		
11		5	1	2		
12		3				1
13		1				1
14		1				1
15						
16						
17						2
18						
19		1				3
20						
21						4
22						3
23						1
24						4
25						2
26						8
27						
28						4
29						1
30						
31						1

Table 3.-Recent stocking history for Northern Pike and Walleye at Au Sable Lake. Fingerling walleye stocked from 2000 through 2006 were marked with oxytetracycline.

Year	Species	Strain	Number	Number/Acre	Avg. Length (in)
1983	N. Pike	--	3,000	--	--
1984	N. Pike	--	7,488	27	4.0
1985	N. Pike	--	2.300	8	2.7
1986	N. Pike	--	1,000	3	2.2
1988	N. Pike	--	22,500	83	3.3
1989	N. Pike	--	4,562	16	4.7
1990	N. Pike	--	15,000	55	3.7
1991	N. Pike	--	10,725	39	3.1
1989	Walleye	Muskegon	15,372	56	1.7
1992	Walleye	Muskegon	12,280	45	1.4
1995	Walleye	Muskegon	28,725	105	2.1
1999	Walleye	Muskegon	20,120	74	1.8
2000	Walleye	Tittabawassee	10,301	38	1.6
2003	Walleye	Tittabawassee	20,000	73	1.4
2006	Walleye	Tittabawassee	18,288	67	1.5
2012	Walleye	Muskegon	26,526	97	1.9
2014	Walleye	Muskegon	40,436	149	1.4
2015	Walleye	Muskegon	31,828	117	2.0
2017	Walleye	Muskegon	25,245	93	1.4
2019	Walleye	Muskegon	33,370	123	1.2

Table 4.-Length-frequency distribution of important game fishes collected during the 1994 netting survey at Au Sable Lake.

Length (in)	Bluegill	L. Bass	Black Crappie	Walleye	Rock Bass	Pumpkinseed	Northern pike
1							
2						1	
3					4	1	
4	1					1	
5	5				4	1	
6	22				25	1	
7	38				32	4	
8	18				31	4	
9	2	2			23		
10		3			13		
11		4			1		
12		8					1
13		8					
14		12	1				
15		4					
16							
17							2
18		1					1
19				1			6
20		1					2
21							4
22				1			4
23							
24							
25							
26							
27							
28							1
29							1
30							1
31							1
32							
33							
34							1

Table 5.-Species catch and relative abundance of fishes collected during the Au Sable Lake fish community survey, May 15-17, and September 20, 2007. Weight is estimated.

Species	Number	Percent by number	Weight (lb.)	Percent by weight	Length range (in.)
Brown Bullhead	147	24.0	122.3	26.7	7.1 – 15.1
Bluegill	144	23.5	18.7	4.1	0.9 – 10.5
Largemouth Bass	71	11.6	87.8	19.2	6.3 – 19.0
Rock Bass	67	10.9	33.6	7.3	1.8 – 11.0
Northern Pike	35	5.7	80.2	17.5	15.1 – 29.2
Brook Silverside	28	4.6	0.0	0.0	3.0
Yellow Perch	28	4.6	0.6	0.1	1.8 – 5.8
Black Bullhead	25	4.1	33.2	7.3	12.2 – 15.6
Walleye	20	3.3	65.4	14.3	8.9 – 26.0
Pumpkinseed	15	2.4	5.0	1.1	3.5 – 9.1
Black Crappie	13	2.1	6.5	1.4	6.6 – 14.1
Bluntnose Minnow	7	1.1	0.1	0.0	2.0 – 3.0
Mimic Shiner	6	1.0	0.0	0.0	2.0
Johnny Darter	5	0.8	0.0	0.0	2.0
White Sucker	1	0.2	3.9	0.9	21.0
Yellow Bullhead	1	0.2	0.7	0.2	11.2
TOTAL	**613**		**458.0**		

Table 6.-Length-frequency distribution of important game fishes collected during the 2007 netting survey at Au Sable Lake.

Length (in)	Bluegill	Black crappie	Rock bass	Yellow perch	L. Bass	Walleye	Northern pike
1	2		1	2			
2	25		1	13			
3	39		2	4			
4	35		5	6			
5	9		3	3			
6	4	1	9		2		
7	12	4	4				
8	9	4	9		3	1	
9	7	1	15		2		
10	2	1	17		8		
11			1		6		
12		1			9		
13					16		
14		1			17		
15					2		1
16					4		2
17					1	1	2
18						2	1
19					1	1	3
20						5	6
21						3	6
22						2	4
23						2	4
24							3
25						2	
26						1	2
27							
28							
29							1
30							

Table 7.-Mean length (inches) at age for various game fishes of Au Sable Lake in various years. Number in parentheses represents number aged. Growth comparison in last column was across all ages.

Species	Age group	June 1981	May 1994	May 2007	2007 growth compared to state average across all ages
Black Crappie	I	--	--	--	+1.8 inches
	II	--	--	7.8 (9)	
	III	--	--	9.5 (2)	
	IV	--	--	--	
	V	--	--	12.8 (1)	
	VI	--	--	--	
	VII	--	--	14.1 (1)	
	VIII	--	14.1 (1)	--	
Bluegill	I	--	--	--	-0.2 inches
	II	2.7 (10)	--	3.2 (6)	
	III	3.7 (9)	--	4.1 (10)	
	IV	4.2 (6)	4.3 (1)	4.8 (15)	
	V	4.7 (5)	6.1 (9)	7.2 (14)	
	VI	5.9 (17)	7.1 (16)	8.3 (11)	
	VII	7.3 (9)	7.9 (13)	8.7 (4)	
	VIII	7.7 (8)	9.0 (1)	9.5 (3)	
	IX	8.4 (1)	--	10.0 (1)	
	X	9.0 (1)	--	--	
Pumpkinseed	I	--	--	--	+1.0 inches
	II	2.7 (6)	--	4.0 (2)	
	III	3.3 (11)	--	7.2 (1)	
	IV	4.9 (11)	5.2 (1)	4.8 (1)	
	V	5.7 (20)	6.6 (1)	7.1 (7)	
	VI	7.1 (11)	7.2 (1)	7.8 (4)	
	VII	7.2 (2)	7.9 (6)	--	
	VIII	8.0 (4)	8.6 (1)	9.1 (1)	
Largemouth	I	3.8 (4)	--	6.6 (2)	+1.4 inches
Bass	II	7.2 (26)	--	9.4 (7)	
	III	9.6 (16)	9.6 (3)	11.4 (17)	
	IV	11.4 (23)	11.2 (7)	13.3 (18)	
	V	12.8 (7)	13.0 (9)	13.8 (9)	
	VI	--	13.8 (14)	15.1 (8)	
	VII	--	14.6 (6)	16.3 (2)	
	VIII	--	15.1 (2)	17.7 (3)	
	IX	--	19.0 (2)	--	
	X	18.9 (2)	--	--	

Table 7.-continued.

Species	Age group	June 1981	May 1994	May 2007	2007 growth compared to state average across all ages
Rock Bass	I	--	--	--	+0.8 inches
	II	2.5 (3)	--	3.2 (3)	
	III	4.2 (14)	--	5.2 (11)	
	IV	5.7 (8)	5.5 (2)	6.9 (8)	
	V	6.6 (13)	6.4 (6)	8.4 (12)	
	VI	7.6 (13)	7.1 (10)	9.3 (2)	
	VII	8.4 (4)	8.3 (13)	9.3 (4)	
	VIII	9.5 (11)	9.4 (14)	9.8 (5)	
	IX	11.0 (1)	9.8 (5)	10.0 (3)	
	X	--	10.5 (2)	10.4 (5)	
	XI	--	--	--	
	XII	--	--	10.9 (2)	
Northern Pike	I	13.7 (2)	12.0 (1)	--	0.0 inches
	II	18.5 (6)	18.3 (4)	19.3 (9)	
	III	21.7 (6)	20.2 (10)	20.1 (11)	
	IV	24.5 (8)	22.0 (2)	22.5 (11)	
	V	--	23.9 (4)	24.7 (2)	
	VI	28.1 (5)	31.5 (1)	27.9 (2)	
	VII	30.3 (2)	28.6 (1)	--	
	VIII	--	32.3 (2)	--	
Walleye	I	--	--	8.9 (1)	+0.2 inches
	II	--	--	--	
	III	--	--	--	
	IV	--	--	18.2 (4)	
	V	--	21.0 (2)	--	
	VI	--	--	--	
	VII	--	--	21.8 (3)	
	VIII	--	--	21.7 (10)	
	IX	--	--	--	
	X	--	--	--	
	XI	--	--	--	
	XII	--	--	25.5 (2)	
Yellow Perch	I	--	--	--	-0.8 inches
	II	--	--	4.4 (12)	
	III	--	--	4.5 (1)	

Table 8.-Fall walleye assessments of Au Sable Lake using nighttime boat electrofishing.

Survey Year	1990	1995	2000	2014	2019
Water Temperature (F)	--	62	67	63	68
Effort (hours)	2.0	--	2.0	2.1	1.8
Effort (miles)	3.1	2.2	2.5	4.4	4.2
Total Walleye Caught	4	18	23	0	1
Catch of Age-0/hr	0.0	--	6.5	0.0	0.0
Catch of Age-0/mile	0.0	5.9	5.1	0.0	0.0