



Little Platte Lake 2018 Fisheries Survey
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History:

Little Platte Lake is an 805-acre lake located in western Benzie County, in the northwestern lower peninsula of Michigan. Little Platte Lake is fed by Little Platte Lake Creek, as well as some small seeps and springs. Little Platte Lake is adjacent to a large wetland complex known as the Deadstream Swamp, where the North Branch of the Platte River flows through to the east of Little Platte Lake before converging with the Platte River. The outflow of Little Platte Lake joins the North Branch (often referred to as the Dead Stream) less than a mile before it meets the Platte River (Figure 1). The Little Platte Lake morphometry consists of a triangular shaped basin with little topography. Much of the lake is 2-5 feet deep, and the maximum water depth of Little Platte Lake in 2018 was approximately 9 feet. The lake bottom composition consists of sand in depths of 4 feet or less to an organic bottom in depths greater than 7 feet. Some limited marl deposits can be found, along with scattered areas of muck. Small areas of gravel are also present.

Near-shore habitat and cover consists of moderate amounts of large woody debris, undeveloped shoreline, and docks. During the 2018 sampling effort docks and cottages along the entire shoreline were documented, resulting in a count of 101 cottages and 114 docks in 4.93 miles of shoreline, which is average in comparison to other lakes in this area. Aquatic vegetation consists of moderate amounts of coontail, abundant potamogeton, and very abundant chara. Scattered lily pad beds can be found near the marshy areas of shoreline on the northwest and east sides of the lake. Overall the shoreline is lightly developed and is highly intact.

Little Platte Lake has one DNR Boating Access Site located on the northernmost side of the lake off of Saffron Road, just off of M-22. This site has a hard surface launch with skid pier, vault toilet, and parking for approximately 21 vehicles with trailers.

In December of 1961, the Benzie County Circuit Court issued an Order establishing 586.7 feet above sea level as the "recommended normal height and level of the lake". To achieve this, the Dead Stream was rerouted, and a dam was constructed under Deadstream Road. In early 2004, a steep-pass fish ladder was installed at this dam to improve fish passage, particularly for northern pike. The lake's water level is controlled by adding or removing wooden boards in the dam under the direction of the County Drain Commissioner.

Little Platte Lake has an active lake association, the Little Platte Lake Association (LPLA). The LPLA has worked diligently on invasive species removal, fish protection, and improving common loon nesting success for many years (<http://www.littleplattelake.org/>).

Stocking and Surveys:

Little Platte Lake has a history of fisheries management dating back to the early 1900's. The Michigan Department of Conservation (Pre-cursor to the DNR) stocked Lake Trout and Walleye in the lake as early as 1909 (Table 1). A variety of species including Smallmouth Bass, Bluegill, Largemouth Bass, and Yellow Perch were also stocked up until 1944 when fisheries management shifted away from stocking these self-sustaining species in capable waterbodies.

In June of 1956, a marginal survey and soundings were conducted to create a topographic map of the lake (Figure 2).



A community survey was conducted on Little Platte Lake in 1981. Fyke nets and a Great Lakes gill net were used from June 23rd to June 26th to sample the fishery on the lake. Survey notes from this survey reported that “the lake contains a diverse fish population. The total number of fish for a lake this size was quite low. However, there was a good number of large bluegill and pumpkinseed. The number of pike was low and possibly due to a lack of suitable spawning habitat. It is also possible that the lake may winterkill during severe winter. Carp were observed along the eastern shoreline but were not collected in the nets. The lack of alewife may be due to a dam on the outlet stream (at Deadstream Road). The tiger musky probably escaped from the Platte River Hatchery where they are reared annually” (Fisheries Division files, Traverse City). A total of 504 fish were collected in this effort, which included White Sucker, Yellow Perch, Black Crappie, Rock Bass, Pumpkinseed Sunfish, Bluegill, Largemouth Bass, Northern Pike, Tiger Muskellunge, Brown Bullhead, Longnose Gar, and Bowfin.

Discussion:

The 2018 survey was a discretionary survey aimed at updating our knowledge of the fish community in Little Platte Lake. Large-mesh fyke nets, small-mesh fyke nets, and experimental gill nets were set for three nights in early May, while three electrofishing transects, and two beach seine hauls were conducted in mid-June. A total of 2,855 fish representing 23 different species were collected (Table 2).

Each fish collected in this survey was measured to the tenth of an inch and ageing structures (either scales or spines) were collected to assess growth. Fish growth by species was then compared to state average length at ages for each species (Table 3). Most species found in Little Platte Lake were found to be growing above average, with the exception of Yellow Perch, which were growing 0.5 inches below average. While its intriguing that perch are growing below average while everything else is well above average, the lack of growth is minimal enough that it is not alarming. Smallmouth Bass were growing an impressive 2.0 inches above state average.

Based on the number of fish collected, the number of species observed, and the average lengths at ages, it appears as though the fish community in Little Platte Lake is doing very well. Most of the comments that Fisheries Division receives on Little Platte Lake are positive, and the findings of this survey support that. The 2018 survey and the 1981 survey did not use similar gear types or efforts, so we are unable to make direct comparison, but it is interesting to note that species such as Smallmouth Bass, Channel Catfish, and White Perch have established themselves in the lake now. Forage species such as Common Shiner, Bluntnose Minnow, and Banded Killifish appear to inhabit the lake in abundance, providing a stable food source for the popular gamefish found in the lake.

Management Direction:

1. DNR Fisheries Division should continue to monitor Little Platte Lake every five to ten years through netting and electrofishing surveys.
2. DNR Fisheries Division should continue to maintain open lines of communication with the Little Platte Lake Association to ensure
3. Since Little Platte Lake is moderately developed along its shoreline, efforts should be made to protect remaining riparian wetlands from development in order to maintain the healthy aquatic ecosystem that currently exists. This can be achieved by reviewing Department of Environment, Great Lakes, and Energy (formerly DEQ) permit applications and drafting appropriate comments and guidance for such permits.

Figure 1. Location of Little Platte Lake, Benzie County.

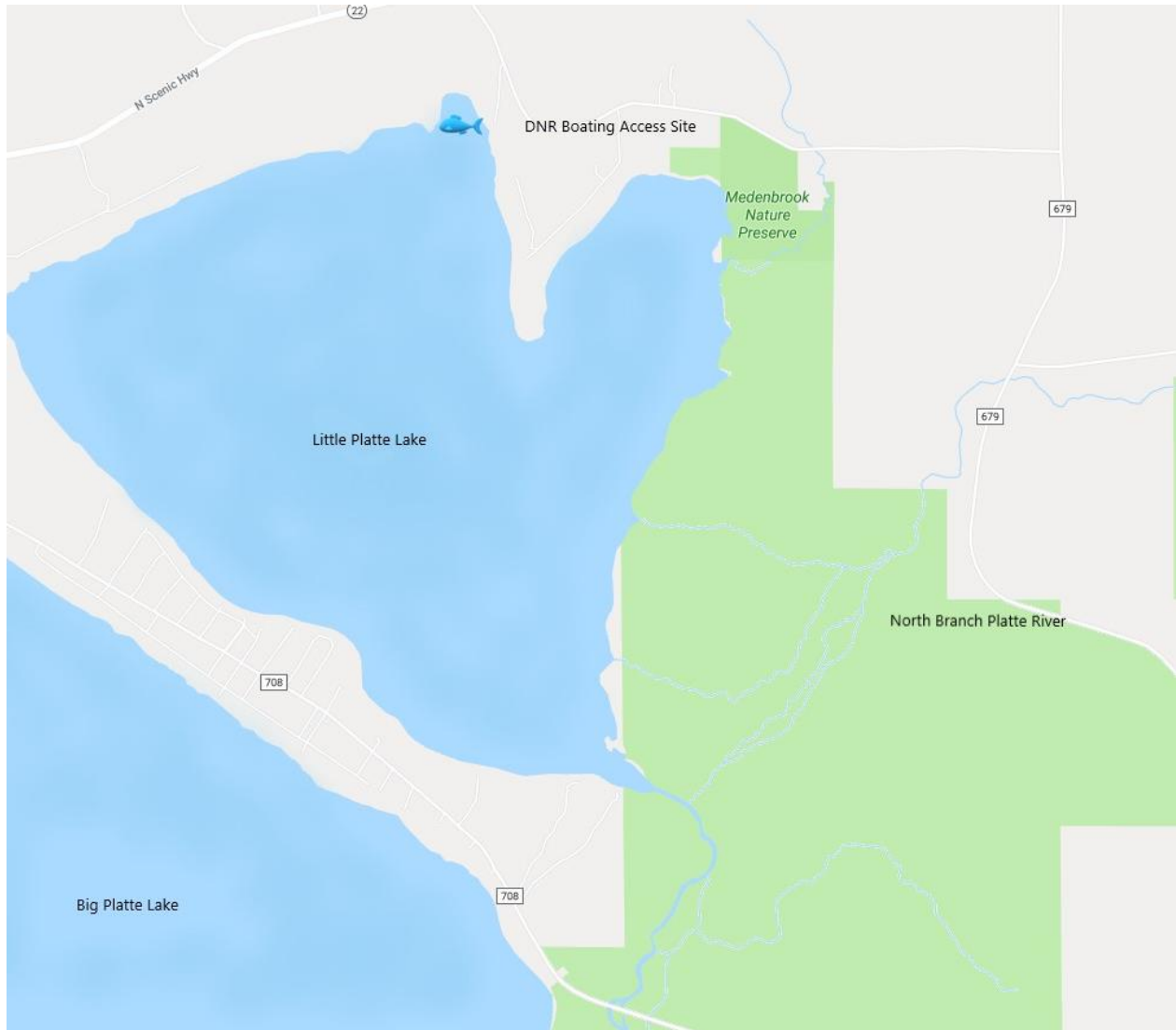


Figure 2. Depth map of Little Platte Lake.

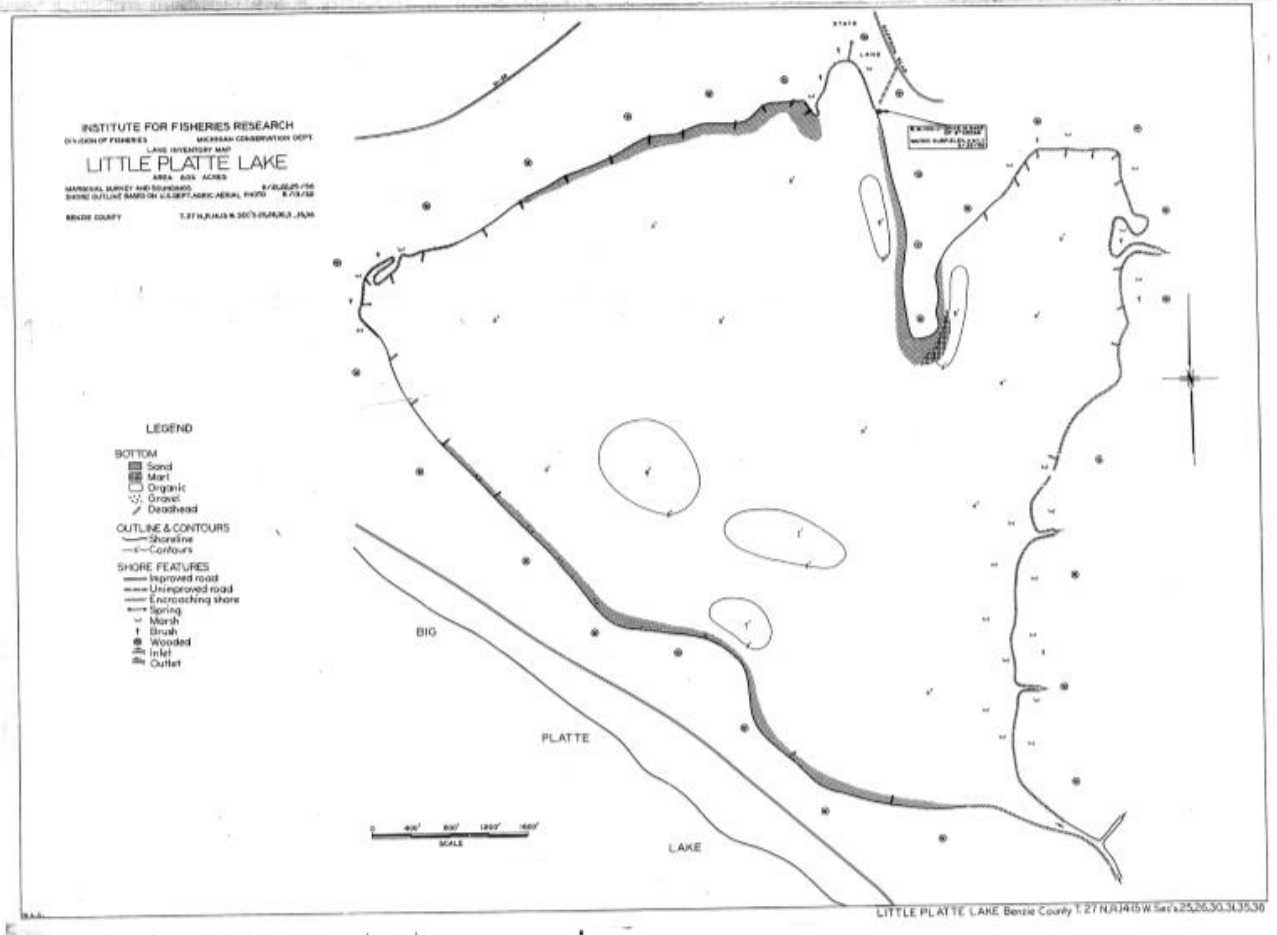




Table 1. Historic Little Platte Lake fish stocking.

Species	Stocking Year	Number Stocked	Life Stage
LAKE TROUT	1909	20000	Fry
WALLEYE	1909	125000	Fry
SMALLMOUTH BASS	1910	6000	Fry
BLUEGILL	1933	2000	6 month
BLUEGILL	1935	2000	4 month
BLUEGILL	1936	200	Yearling
LARGEMOUTH BASS	1936	200	Yearling
BLUEGILL	1937	4000	5 month
LARGEMOUTH BASS	1937	500	3 month
SMALLMOUTH BASS	1937	1000	3 month
BLUEGILL	1938	5000	3 month
BLUEGILL	1938	10000	5 month
LARGEMOUTH BASS	1938	1000	3 month
SMALLMOUTH BASS	1938	1000	5 month
WALLEYE	1938	120000	Swim-up fry
YELLOW PERCH	1938	20000	7 month
BLUEGILL	1939	10000	4 month
SMALLMOUTH BASS	1939	1500	5 month
WALLEYE	1939	100000	Swim-up fry
BLUEGILL	1940	34260	4 month
SMALLMOUTH BASS	1940	1500	4 month
WALLEYE	1940	80000	Swim-up fry
BLUEGILL	1941	25000	4 month
LARGEMOUTH BASS	1941	1500	4 month
SMALLMOUTH BASS	1941	400	4 month
SMALLMOUTH BASS	1942	100	4 month
BLUEGILL	1943	1000	Yearling
LARGEMOUTH BASS	1943	400	4 month
SMALLMOUTH BASS	1943	1500	4 month
BLUEGILL	1944	1000	15 month
LARGEMOUTH BASS	1944	834	3 month



Table 2. Fish collected in the Little Platte Lake fisheries survey, May and June 2018.

Species	Number	Percent by number	Weight (Pounds)	Percent by weight	Length range (inches) ¹	Percent legal size ²
Banded Killifish	79	2.80%	0.5	0.10%	1-3	100
Bluegill	141	4.90%	49	8.50%	1-9	79 (7")
Bluntnose Minnow	1,713	60.00%	8.7	1.50%	1-3	100
Brown Trout	2	0.10%	8	1.40%	20-21	100
Bowfin	13	0.50%	53.3	9.20%	19-26	100
Brown Bullhead	24	0.80%	24.3	4.20%	10-14	100
Channel Catfish	9	0.30%	45.3	7.80%	20-29	100
Creek Chub	11	0.40%	0.1	0.00%	2-3	100
Common Shiner	259	9.10%	4.7	0.80%	1-5	100
White Sucker	18	0.60%	45	7.80%	3-21	100
Iowa Darter	33	1.20%	0.1	0.00%	1-2	100
Largemouth Bass	68	2.40%	110.2	19.00%	1-19	54 (14")
Longnose Gar	3	0.10%	5.4	0.90%	2-31	100
Logperch	6	0.20%	0	0.00%	2	100
Central Mudminnow	1	0.00%	0	0.00%	1	100
Northern Pike	11	0.40%	64.3	11.10%	22-40	73 (24")
Pumpkinseed	46	1.60%	19.1	3.30%	3-9	91 (6")
Round Goby	2	0.10%	0	0.00%	2	100
Rock Bass	126	4.40%	87.7	15.10%	1-12	90 (7")
Smallmouth Bass	10	0.40%	15.4	2.70%	11-16	60 (14")
White Perch	1	0.00%	1	0.20%	12	100
Yellow Perch	231	8.00%	11.2	1.90%	1-12	10 (8")
Yellow Bullhead	48	1.70%	26	4.50%	7-13	100
Total	2,855	100.00%	579.3	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 3. Average total weighted length (inches) at age, and growth relative to the state average, for fish sampled from Little Platte Lake in 2018. 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	XII	
Bluegill			7.56 (4)	7.73 (5)	8.12 (7)	8.28 (11)	8.48 (5)	9.4 (1)	9.4 (4)	9.5 (3)			+ 1.2
Largemouth Bass		10 (1)	11.94 (15)	13.35 (8)	14.52 (11)	16.18 (5)	16.28 (4)	17.04 (7)	16.97 (3)	17.18 (4)	17 (1)	18.2 (1)	+ 1.3
Brown Trout					20 (1)	21.8 (1)						
Northern Pike		23.4 (2)	23.2 (1)	27.63 (4)	31.73 (3)							
Pumpkinseed		4.2 (1)		8 (2)	7.64 (3)	7.65 (10)	8.71 (4)	8.1 (1)	8.8 (1)			7.9 (1)	+ 1.1
Rock Bass			4.1 (2)	7.29 (17)	7.98 (17)	10.29 (6)	10.4 (10)	10.42 (8)	11.04 (7)	11.46 (4)	11.3 (1)	11.94 (2)	+ 1.5
Smallmouth Bass			12.86 (3)	14.59 (5)	16.80 (1)								+ 2
Yellow Perch		4.51 (7)	5.54 (14)	6.75 (8)	9.17 (15)	8.77 (5)	8.6 (2)						- 0.5
....	Not enough fish collected per age group to calculate a Mean Growth Index.												

