

Lake Name: Little Sturgeon

Survey Type: Targeted Survey

DOW Number: 69-1290-00

Survey ID Date: 06/12/2023

TARGETED SURVEY
Gill Netting
Water Quality Measurement

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID: 5

DNR Sounding Map Number: N/A
Alternate Lake Class ID: N/A

Lake Location

Primary County: St. Louis

Nearest Town: Chisholm

Legal Descriptions

Lake Center: Township - 60N Range - 21W Section - 30
PLS Section Lake Center: 6002130

All Legal Descriptions:

St. Louis County: Township - 60N Range - 21W Sections - 19, 20, 30

Area Office

Area Name: Grand Rapids
Region Name: Northeast

ORG Code: F216
Region Number: 2

Lake Access

(Information based on Standard Survey dated 06/13/2016)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	Access is located on the northeast shore at the outlet.

Lake Characteristics

Lake Area (planimetered acres): 266.00
GIS Lake Area (acres): 272.40
DOW Lake Area (acres): 247.00
Littoral Area (acres): 54.00
Area in MN (acres): 272.40
Maximum Depth (feet): 22.0
Mean Depth (feet): N/A

GIS Shoreline Length (miles): 3.55
Maximum Fetch (miles): 1.21
Fetch Orientation (degrees): 45
USGS Quad Map Number: H17a
USGS Quad 24K GIS Index: 1434

Watershed Characteristics

Major Watershed

Name: Little Fork River
 Watershed Number: 76
 Watershed size (acres): 1,198,291

Minor Watershed

Name: Sturgeon R
 Watershed Number: 62
 Watershed size (acres): 26,568

Surveys and Investigations

Initial Survey: 06/18/1984.
Population Assessment: 06/08/2009, 06/10/2002, 06/27/1995, 06/27/1990.
Special Assessment: 08/22/1949.
Standard Survey: 06/13/2016.
Targeted Survey: 06/12/2023.

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	06/13/2016	Normal	-2.80	Above or below Benchmark
	06/08/2009	Normal	-3.43	Above or below Benchmark
BM - 2	06/13/2016	Normal	-5.90	Above or below Benchmark
	06/08/2009	Normal	-6.44	Above or below Benchmark

Water Level History - Station Summary

Station ID	Minimum Level		Maximum Level		Range (feet)	Average Level (feet)	Reading Type (and number of readings)
	Feet	Date	Feet	Date			
BM - 1	-3.43	06/08/2009	-2.80	06/13/2016	0.63	-3.12	Above or below Benchmark (2)
BM - 2	-6.44	06/08/2009	-5.90	06/13/2016	0.54	-6.17	Above or below Benchmark (2)

Dissolved Oxygen and Temperature Profile of Lake Water

Station ID	Sampling Date	Bottom Depth (Feet)	Sample Depth (Feet)	Water Temperature (°F)	Dissolved Oxygen (ppm)
WQ - 1	06/12/2023	18.0	Surface	69.3	8.9
			3.0	69.1	8.8
			6.0	68.9	8.7
			7.0	68.7	8.6
			8.0	68.2	8.4
			9.0	63.7	5.5
			10.0	59.5	4.3
			11.0	56.8	3.4
			12.0	53.6	1.9
			13.0	52.2	1.6
			14.0	51.1	1.2
			15.0	50.5	1.0
			18.0	49.3	0.6

Field Measurements of Water Quality

Station ID	Sampling Date	Sample Depth (Feet)	Secchi Depth (Feet)	Field pH	Alkalinity (ppm)	Water Color	Color Cause
WQ - 1	06/12/2023	Surface	4.5	N/A	N/A	Brown	N/A

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 6
 First Set Date: 06/12/2023
 Last Lift Date: 06/14/2023
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 5 ¹		
				25%	50%	75%
BLC	Black Crappie	16	2.67	0.40	1.50	3.33
BLG	Bluegill	4	0.67	N/A	N/A	N/A
NOP	Northern Pike	35	5.83	1.77	3.18	5.50
TLC	Tullibee (Cisco)	2	0.33	1.40	5.60	13.05
WAE	Walleye	5	0.83	2.00	5.00	9.67
WTS	White Sucker	10	1.67	2.33	4.75	8.69
YEP	Yellow Perch	10	1.67	1.71	5.22	14.13
Total Fish/Set:			13.67	¹ Quartiles for Number Per Set		

Net Catch Summary by Weight for GN

Standard gill net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight ²	Quartiles for Lake Class 5 ¹		
					25%	50%	75%
BLC	Black Crappie	2.82	0.47	0.18	0.20	0.30	0.50
BLG	Bluegill	0.25	0.04	0.06	N/A	N/A	N/A
NOP	Northern Pike	73.72	12.29	2.11	1.85	2.61	3.70
TLC	Tullibee (Cisco)	0.90	0.15	0.45	0.33	0.52	1.01
WAE	Walleye	14.97	2.50	2.99	0.82	1.27	2.01
WTS	White Sucker	21.13	3.52	2.11	1.50	1.86	2.23
YEP	Yellow Perch	1.64	0.27	0.16	0.10	0.15	0.21
Total Pounds Fish/Set:			19.24	¹ Quartiles for Mean Weight			

² Mean Weights are based on measured fish counts only.

Length Frequency Distribution for GN

Standard gill net sets

(Field work conducted between 06/12/2023 and 06/14/2023)

	<u>BLC</u>	<u>BLG</u>	<u>NOP</u>	<u>TLC</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-	-
4.00 - 4.49	-	2	-	-	-	-	-
4.50 - 4.99	3	2	-	-	-	-	-
5.00 - 5.49	2	-	-	-	-	-	-
5.50 - 5.99	1	-	-	-	-	-	3
6.00 - 6.49	1	-	-	-	-	-	2
6.50 - 6.99	1	-	-	-	-	-	2
7.00 - 7.49	2	-	-	-	-	-	-
7.50 - 7.99	3	-	-	-	-	-	1
8.00 - 8.49	1	-	-	-	-	-	1
8.50 - 8.99	1	-	-	-	-	-	-
9.00 - 9.49	1	-	-	-	-	-	-
9.50 - 9.99	-	-	-	-	-	-	1
10.00 - 10.49	-	-	-	1	-	-	-
10.50 - 10.99	-	-	-	-	-	-	-
11.00 - 11.49	-	-	-	-	-	1	-
11.50 - 11.99	-	-	-	-	-	-	-
12.00 - 12.99	-	-	-	1	-	-	-
13.00 - 13.99	-	-	-	-	-	-	-
14.00 - 14.99	-	-	-	-	-	-	-
15.00 - 15.99	-	-	-	-	-	1	-
16.00 - 16.99	-	-	-	-	-	1	-
17.00 - 17.99	-	-	1	-	-	4	-
18.00 - 18.99	-	-	1	-	1	2	-
19.00 - 19.99	-	-	4	-	1	1	-
20.00 - 20.99	-	-	8	-	1	-	-
21.00 - 21.99	-	-	9	-	1	-	-
22.00 - 22.99	-	-	3	-	-	-	-
23.00 - 23.99	-	-	4	-	-	-	-
24.00 - 24.99	-	-	3	-	1	-	-
25.00 - 25.99	-	-	-	-	-	-	-
26.00 - 26.99	-	-	-	-	-	-	-
27.00 - 27.99	-	-	1	-	-	-	-
28.00 - 28.99	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-	-
30.00 - 30.99	-	-	1	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-

	<u>BLC</u>	<u>BLG</u>	<u>NOP</u>	<u>TLC</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
Total	16	4	35	2	5	10	10
Min. Length	4.53	4.06	17.17	10.31	18.43	11.18	5.75
Max. Length	9.25	4.92	30.51	12.24	24.21	19.17	9.96
Mean Length	6.69	4.43	21.89	11.28	20.65	16.96	6.96
# Measured	16	4	35	2	5	10	10
No Lengths for	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish.

Field Notes - General Field

Only one boat on the lake other than ours. Found a floating dead deer. Cold and foggy the second day of picking up the nets.

Survey field crew: Dylan Von Barga and Steve Mero

Status Of The Fishery

Little Sturgeon Lake is located approximately 14 miles northwest of Chisholm, MN and within the Little Fork River Watershed. The 247-acre lake has 54 littoral acres with a 22 foot maximum depth, and is moderately developed along the 3.6 mile shoreline. A public access is located on the North side of the Sturgeon River between Little Sturgeon and Side Lake with parking for five rigs. Little Sturgeon Lake is part of the larger Sturgeon Lake chain and outlets through the Sturgeon River to Side Lake. There are inlets from both Sturgeon and South Sturgeon Lakes. Little Sturgeon Lake has low fertility and very soft water, both of which limit fish production.

The 2017 Lake Management Plan (LMP) lists Black Crappie and Bluegill as primary species for management and Walleye as a secondary species. The LMP goals were to: maintain a Black Crappie trap net or gill net catch near 2.0/net; maintain a Bluegill trap net catch near 8.0/net and maintain a Walleye gill net catch of 2.0/net. A targeted survey was conducted in June of 2023 to assess the status and characteristics of the fish community using six gill nets.

Little Sturgeon Lake has a small Walleye population maintained by natural reproduction and/or immigration. Walleye fingerlings were stocked annually from 2005 - 2010 and in 2014 at a rate of 1 lb./littoral acre (54 lbs.) but did not appear to contribute to the fishery, as most captured Walleye have been associated with non-stocked year classes. Walleye were captured at a rate of 0.8/gill net, which is below what would be expected for lakes with similar habitats. Gill net catch rates have been below the management goal of 2.0/gill net in six of seven surveys conducted since 1984. A total of five Walleye were captured in gill nets ranging in length from 18.4 to 24.4 inches with an average weight of 2.9 pounds. Walleye growth has not been analyzed at the time of this writing but has been characterized as slower than the statewide average in previous investigations.

The Black Crappie catch 2.7/gill net exceeded the management goals of 2.4/net. Black Crappie gill and trap net catch rates have been variable in previous surveys, but typical of lakes with similar habitats in six of seven surveys. Size structure in 2023 was poor as with only 3 fish being sampled longer than 8 inches. Slow growth and harvest may be impacting size structure as only one Black Crappie over 12.0 inches has been sampled in six surveys.

Bluegill are a management species but were not targeted in this assessment. Generally, Bluegill trap net catch rates have been within the typical range for lakes with similar habitat in all surveys. Management goals for both abundance and size structure were met in the previous survey and appears to have improved over time.

The Northern Pike catch rate of 5.8/gill net was near the upper limit of what would be typical of lakes with similar habitats. Little Sturgeon Lake has a history of catches similar to this level of pike abundance. Size structure in 2023 was decent with one fish over 30 inches sampled, an average size of nearly 22 inches and 28 percent in the 22 -26 inch range. Over survey history Little Sturgeon Lake has shown the potential to produce larger Northern Pike as fish over 28 inches have been sampled in five of seven surveys. Anglers are encouraged to release larger Northern Pike to improve size quality. Age analysis was not completed as this survey was directed at Walleye management.

The Yellow Perch numbers declined to an all-time low in survey history, 1.7/net. Their abundance has declined overtime. Yellow Perch are an important component of many fisheries, primarily as a forage species but often as a sportfish as well. Few Yellow Perch would be of a desirable size to anglers. The decline in their abundance may be influencing the growth and survival of game species such as Walleye and Northern Pike.

The Tullibee catch rate of 0.3/gill net was the lowest observed in any survey and has declined each survey since 1995. Tullibee have ranged from 0.3 - 4.3/net in seven surveys dating back to 1984.

Approval Dates And Notices

Date Approved By Grand Rapids Area Fisheries Supervisor: _____

Date Approved By Northeast Region Fisheries Manager: _____

This DRAFT VERSION of the Lake Survey Report contains preliminary data (as of 11/02/2023), and is therefore subject to change at any time.



Minnesota Department of Natural Resources



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REPORT OVERVIEW - FOR OFFICE USE ONLY

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Lake Name: Little Sturgeon

Survey Type: Targeted Survey

DOW Number: 69-1290-00

Survey ID Date: 06/12/2023

Gill Netting, Water Quality Measurement

Survey Status: Field Work Complete

The following 23 (of 34) report components are not included in this Lake Survey Report:

1. Current Water Level
2. Benchmark And Gauge Descriptions / Locations
3. Water Level History¹
4. Lake Inlets
5. Additional Inlet Information
6. Lake Outlets
7. Additional Outlet Information
8. Water Control Structure (Dam)
9. Surrounding Watershed Characteristics, Shoreline Characteristics, and Riparian Landscape Observations²
10. Resorts And Campgrounds
11. Fish Spawning Conditions
12. Erosion And Pollution
13. Fish Diseases And Parasites
14. Aquatic Vegetation And Shoalwater Substrates
15. Water Quality (Winter Observations) (added to revision 01/21/2010)
16. Laboratory Analysis Of Water Chemistry
17. Zooplankton Sampling (added to revision 20221130)
18. Catch Summary (Pre-1993 Format) (added to revision 20201001)
19. Length At Capture With Last Incremental Length*
20. Back-Calculated Lengths
21. Age Class Frequency Distributions
22. Other Species (added to revision 03/24/2009)
23. Survey Attachments (added to revision 20150622)

¹ Water Level History report: This data has not yet been migrated into the Fisheries LSM database. On 01/08/2009, two additional Water Level History report components (Readings and Station Summary) were added.

² Effective 03/25/2014, the Surrounding Watershed Characteristics, Shoreline Characteristics, and Riparian Landscape Observations report component was modified to be included in the Lake Survey report if it did not include any Watershed and Shoreline characteristics and only consisted of Riparian Landscape Observations.

* Length At Capture With Last Incremental Length report: The following criteria must be met for a report to be generated:

1. The fish species must have an assigned body scale constant.
2. Fish must have an "official" age assigned.
3. Fish must have a digitized measurement marked for back calculation use.

Note: The data source for Length and Age Class Frequency Distribution tables is updated twice daily - once at noon and once overnight. Any changes to the data made after noon on 11/02/2023 may not be reflected in the Distribution tables until 11/03/2023.

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