DEPARTMENT OF NATURAL RESOURCES

Fisheries Management

LAKE SURVEY REPORT

DRAFT VERSION

PRELIMINARY DATA (AS OF 08/07/2023)

Lake Name: Sturgeon
DOW Number: 69-0939-01

Survey Type: Targeted Survey
Survey ID Date: 07/17/2023

TARGETED SURVEY
Gill Netting
Water Quality Measurement

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID: 7
DNR Sounding Map Number: N/A
Alternate Lake Class ID: N/A

Lake Location

Primary County: St. Louis
Nearest Town: Chisholm

All Counties: Itasca, St. Louis.

Legal Descriptions

Lake Center: Township - 60N Range - 21W Section - 18
PLS Section Lake Center: 6002118

All Legal Descriptions:

Itasca County: Township - 60N Range - 22W Sections - 12, 13, 24
St. Louis County: Township - 60N Range - 21W Sections - 7, 8, 17, 18, 19, 20

Area Office

Area Name: Grand Rapids
Region Name: Northeast
ORG Code: F216
Region Number: 2

Lake Access

(Information based on Standard Survey dated 07/11/2016)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 2	Private Property	Fee/Permit needed	Gravel	Sixberries Landing, between SW bay and West Sturgeon. Private property.

Lake Characteristics

Lake Area (planimetered acres): 1,664.00
GIS Lake Area (acres): 1,584.98
DOW Lake Area (acres): 0.00
Littoral Area (acres): 667.00
Area in MN (acres): 1,584.98
Maximum Depth (feet): 79.8
Mean Depth (feet): N/A

GIS Shoreline Length (miles): 10.78
Maximum Fetch (miles): 2.30
Fetch Orientation (degrees): 315
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: 08/11/1975.
Re-Survey: 08/20/1984.
Population Assessment: 07/27/2009, 07/22/2002, 07/10/1995, 07/09/1990.
Special Assessment: 08/27/1979, 08/22/1969, 08/22/1949.
Standard Survey: 07/11/2016.
Targeted Survey: 07/17/2023.

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 2	07/14/2016	High	-4.40	Above or below Benchmark
	07/31/2009	Low	-5.65	Above or below Benchmark
BM - 3	07/31/2009	N/A	N/A	Destroyed
BM - 4	07/14/2016	High	-2.90	Above or below Benchmark
	07/30/2009	Low	-4.53	Above or below Benchmark

Water Level History - Station Summary

Station ID	Minimum Level Feet	Minimum Level Date	Maximum Level Feet	Maximum Level Date	Range (feet)	Average Level (feet)	Reading Type (and number of readings)
BM - 2	-5.65	07/31/2009	-4.40	07/14/2016	1.25	-5.03	Above or below Benchmark (2)
BM - 3	N/A	N/A	N/A	N/A	N/A	N/A	Destroyed - 07/31/2009 (0)
BM - 4	-4.53	07/30/2009	-2.90	07/14/2016	1.63	-3.72	Above or below Benchmark (2)

Fish Diseases and Parasites

Species Examined	Number of Fish Examined Internally	Externally	In Lab	Examination Results Condition Observed	Number of Fish
lake whitefish	-	-	-	None observed	6
				Triaenophorus	2
tullibee (cisco)	19	-	-	None observed	12
				Triaenophorus	8

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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	07/18/2023	67.0	Surface	66.9	9.7
			3.0	66.9	9.6
			6.0	66.9	9.6
			9.0	66.7	9.6
			12.0	66.7	9.5
			15.0	66.7	9.5
			16.0	66.6	9.4
			17.0	66.6	9.4
			18.0	61.7	8.9
			19.0	57.6	8.9
			20.0	55.4	8.5
			21.0	53.2	8.4
			22.0	51.1	7.9
			23.0	50.0	8.1
			24.0	48.9	7.7
			25.0	47.5	7.5
			26.0	46.4	7.5
			27.0	46.2	7.4
			28.0	45.9	7.4
			29.0	45.7	7.3
			30.0	45.5	7.3
			33.0	44.6	7.0
			36.0	44.4	6.8
			39.0	43.9	6.4
			42.0	43.7	6.3
			45.0	43.5	6.2
			48.0	43.5	6.1
			51.0	43.3	6.1
			55.0	43.3	6.1
			60.0	43.0	5.9
			65.0	42.4	4.7

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	07/18/2023	Surface	15.0	N\A	N/A	Brown	Organic stain

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 15
First Set Date: 07/17/2023
Last Lift Date: 07/21/2023
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 7[1] 25%	50%	75%
BLC	Black Crappie	15	1.00	0.21	0.50	1.40
BLG	Bluegill	11	0.73	N/A	N/A	N/A
LKW	Lake Whitefish	15	1.00	0.20	0.60	3.00
LMB	Largemouth Bass	4	0.27	0.18	0.40	0.81
NOP	Northern Pike	75	5.00	1.21	2.08	3.59
PMK	Pumpkinseed	3	0.20	N/A	N/A	N/A
TLC	Tullibee (Cisco)	110	7.33	1.83	5.25	12.43
WAE	Walleye	8	0.53	3.06	6.24	9.80
WTS	White Sucker	13	0.87	2.83	4.06	6.66
YEP	Yellow Perch	4	0.27	1.88	4.00	7.13
	Total Fish/Set:		17.20	[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 7[1] 25%	50%	75%
BLC	Black Crappie	3.42	0.23	0.23	0.17	0.27	0.46
BLG	Bluegill	1.73	0.12	0.16	N/A	N/A	N/A
LKW	Lake Whitefish	54.49	3.63	3.63	0.86	2.00	3.00
LMB	Largemouth Bass	5.66	0.38	1.42	0.89	1.07	1.29
NOP	Northern Pike	178.89	11.93	2.39	1.93	2.74	3.61
PMK	Pumpkinseed	0.15	0.01	0.05	N/A	N/A	N/A
TLC	Tullibee (Cisco)	38.69	2.58	0.35	0.22	0.37	0.50
WAE	Walleye	19.01	1.27	2.38	0.68	0.88	1.25
WTS	White Sucker	37.77	2.52	2.91	1.29	1.69	2.00
YEP	Yellow Perch	1.25	0.08	0.31	0.13	0.18	0.25
	Total Pounds Fish/Set:		22.74		[1] Quartiles for Mean Weight		

[2] Mean Weights are based on measured fish counts only.

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Length Frequency Distribution for GN

Standard gill net sets

(Field work conducted between 07/17/2023 and 07/21/2023)

	BLC	BLG	LKW	LMB	NOP	PMK	TLC	WAE	WTS	YEP
< 3.00	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	3	-	-	-	2	-	-	-	-
4.00 - 4.49	-	1	-	-	-	-	-	-	-	-
4.50 - 4.99	-	2	-	-	-	1	-	-	-	-
5.00 - 5.49	5	1	-	-	-	-	-	-	-	-
5.50 - 5.99	1	1	-	-	-	-	-	-	-	-
6.00 - 6.49	1	1	-	-	-	-	2	-	-	-
6.50 - 6.99	3	-	-	-	-	-	1	-	-	-
7.00 - 7.49	3	-	-	-	-	-	-	-	-	-
7.50 - 7.99	-	-	-	-	-	-	-	-	-	1
8.00 - 8.49	1	1	-	-	-	-	13	-	-	2
8.50 - 8.99	-	1	-	-	-	-	21	-	-	-
9.00 - 9.49	-	-	-	1	-	-	3	-	-	-
9.50 - 9.99	-	-	-	-	1	-	10	-	-	-
10.00 - 10.49	-	-	-	-	-	-	19	-	-	1
10.50 - 10.99	-	-	-	-	-	-	16	-	-	-
11.00 - 11.49	-	-	-	-	-	-	11	-	-	-
11.50 - 11.99	-	-	-	1	-	-	8	-	-	-
12.00 - 12.99	-	-	-	-	-	-	6	-	-	-
13.00 - 13.99	1	-	-	1	-	-	-	1	-	-
14.00 - 14.99	-	-	1	-	1	-	-	-	-	-
15.00 - 15.99	-	-	-	-	2	-	-	-	-	-
16.00 - 16.99	-	-	-	-	8	-	-	1	-	-
17.00 - 17.99	-	-	-	1	10	-	-	1	3	-
18.00 - 18.99	-	-	1	-	8	-	-	-	5	-
19.00 - 19.99	-	-	1	-	7	-	-	1	4	-
20.00 - 20.99	-	-	2	-	7	-	-	1	-	-
21.00 - 21.99	-	-	6	-	6	-	-	2	1	-
22.00 - 22.99	-	-	3	-	3	-	-	1	-	-
23.00 - 23.99	-	-	1	-	1	-	-	-	-	-
24.00 - 24.99	-	-	-	-	4	-	-	-	-	-
25.00 - 25.99	-	-	-	-	2	-	-	-	-	-
26.00 - 26.99	-	-	-	-	5	-	-	-	-	-
27.00 - 27.99	-	-	-	-	2	-	-	-	-	-
28.00 - 28.99	-	-	-	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	1	-	-	-	-	-
30.00 - 30.99	-	-	-	-	1	-	-	-	-	-
31.00 - 31.99	-	-	-	-	1	-	-	-	-	-
32.00 - 32.99	-	-	-	-	1	-	-	-	-	-
33.00 - 33.99	-	-	-	-	1	-	-	-	-	-
34.00 - 34.99	-	-	-	-	3	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	-	-

	BLC	BLG	LKW	LMB	NOP	PMK	TLC	WAE	WTS	YEP
Total	15	11	15	4	75	3	110	8	13	4
Min. Length	5.12	3.78	14.76	9.06	9.84	3.66	6.18	13.62	17.40	7.91
Max. Length	13.39	8.70	23.23	17.13	34.76	4.53	12.56	22.44	21.65	10.04
Mean Length	6.76	5.35	20.83	12.83	21.42	4.04	9.93	19.01	18.83	8.61
# Measured	15	11	15	4	75	3	110	8	13	4
No Lengths for	0	0	0	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.

Status Of The Fishery

Sturgeon Lake is a 1,664-acre lake located 14 miles northwest of Chisholm, MN, within the Little Fork River watershed. A public access is located on the southeast shore within McCarthy Beach State Park. The lake has a maximum depth of 80 feet and 40 percent of the lake is less than 15 feet deep. Water chemistry analysis shows the lake has soft water and low fertility indicating the lake has a limited capacity to support a lot of fish. The lakes water is clear resulting in visibility to 15 feet. The temperature and oxygen profile in mid-July 2023 found sufficient oxygen from the surface to the bottom of the lake to support fish. The Sturgeon Lake inlet and outlet are located on the southwest side of the lake and are navigable by boat. The inlet flows from West Sturgeon Lake while the outlet flows into Little Sturgeon Lake. Water ultimately flows from the Sturgeon Lake Chain to the Sturgeon River, which is a tributary to the Little Fork River.

The 2023 gill net only survey was the tenth survey of the Sturgeon Lake fish community since 1969. The Management Plan lists Northern Pike as a primary management species and Walleye as a secondary management species. Surveys are conducted to monitor the fish population for changes in abundance, size distribution, and growth. The 2023 survey will be primarily used to evaluate the effectiveness of Walleye stocking to the fishery. Walleye fry were stocked at a rate of 1,000/littoral acre (667,000; acres of water less than 15 feet) annually from 2011 to 2016. Six years of fry stocking yielded minimal contributions to the fishery warranting a new alternate fingerling stocking plan 2017 through the present. In 2023 the gill net catch rate for Walleye declined to 0.5/net which is an all-time low over survey history and remains below the long-range goal of 2.0/net for the seventh survey in a row indicating this goal may not be attainable. Low Walleye numbers typically reflect limited or no natural production and low survival of stocked fish, and it appears that conditions for juvenile Walleye survival are poor. Walleye lengths in 2023 ranged from 13 to 23 inches. Age and growth data will be forthcoming following winter analysis and are likely to be comparable to previous studies that have indicated slower than normal growth rates compared to statewide averages. Despite multiple fry and fingerling stocking strategies since 2011, Walleye numbers remain low likely due to low perch numbers, soft water, and low lake fertility. In general, the population is low in number and has slow growth rates.

The Northern Pike catch rate of 5.0/net was up by 1 fish per net compared to the previous survey in 2017 which is essentially the long-term average for the lake but still exceeds catch rates for lakes with similar habitat. Lengths in 2023 ranged from 10 to 35 inches and the number of Northern Pike that were 21+ inches and 28+ inches met management goals this survey indicating a slightly improved size structure in 2023. Lower Northern Pike numbers are thought to be beneficial as higher densities commonly result in slower pike growth, increased predation on Yellow Perch, and lower survival rates of stocked Walleye. High harvest of medium and large pike can contribute to the number of 21+ and 28+ inch fish that are present in the lake. Previous age and growth data showed slow growth patterns. Harvest limited to individuals less than 22 inches recommended.

The gill net catch rate of Yellow Perch in 2023 was below average for the lake and for lakes with similar habitat. Lengths in 2016 ranged from 7 to 10inches. One fish 10+ inches was sampled which is the first one of that size since 1984, indicating poor size structure in recent decades. Low Yellow Perch numbers likely limits the Walleye and Northern Pike populations. In general, the population is low in number, has a limited number of harvestable sized fish, and historically slow growth rates.

Other fish sampled in 2023 included: Black Crappie, Bluegill, Lake Whitefish, Largemouth Bass, Pumpkinseed Sunfish, Tullibee and White Sucker.
In order to maintain or improve fish and wildlife populations, water quality and habitat must be protected. People often associate water quality problems with large-scale agricultural, forestry, urban development, or industrial practices in the watershed. In reality, the impact of land use decisions on one lake lot may be relatively small, yet the cumulative impact of those decisions on many lake lots can result in a significant decline in water quality and habitat. For example, removing shoreline and aquatic vegetation, fertilizing lawns, mowing to the water's edge, installing beach sand blankets, failing septic systems and uncontrolled run-off, all contribute excess nutrients and sediment which degrade water quality and habitat. Understanding these cumulative impacts and taking steps to avoid or minimize them will help to ensure our quality fisheries can be enjoyed by future generations.

Anglers and boaters are reminded to help stop the spread of invasive species by removing all aquatic plants from boats, trailers, and equipment. All drain plugs must be removed, and live and bait wells must be drained before

Status Of The Fishery (*Continued*)

leaving the access. Anglers and boaters are encouraged to power wash and thoroughly dry all equipment prior to use in another water body.

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 08/07/2023), and is therefore subject to change at any time.

REPORT OVERVIEW - FOR OFFICE USE ONLY

(This page is not part of the Lake Survey Report and should be discarded)

Lake Name: Sturgeon **Survey Type: Targeted Survey**

DOW Number: 69-0939-01 **Survey ID Date: 07/17/2023**

Gill Netting, Water Quality Measurement

Survey Status: Active

The following 22 (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 History[1]
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 Observations[2]
10. Resorts And Campgrounds
11. Fish Spawning Conditions
12. Erosion And Pollution
13. Aquatic Vegetation And Shoalwater Substrates
14. Water Quality (Winter Observations) (added to revision 01/21/2010)
15. Laboratory Analysis Of Water Chemistry
16. Zooplankton Sampling (added to revision 20221130)
17. Catch Summary (Pre-1993 Format) (added to revision 20201001)
18. Length At Capture With Last Incremental Length*
19. Back-Calculated Lengths
20. Age Class Frequency Distributions
21. Other Species (added to revision 03/24/2009)
22. 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 08/07/2023 may not be reflected in the Distribution tables until 08/08/2023.

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