

Lake Name: Farm Island
DOW Number: 01-0159-00

Survey Type: Targeted Survey
Survey ID Date: 09/28/2022

TARGETED SURVEY
Electrofishing targeting Walleye Young Of The Year

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID: 22

DNR Sounding Map Number: B0002
Alternate Lake Class ID: N/A

Lake Location

Primary County: Aitkin

Nearest Town: Bennettville

Legal Descriptions

Lake Center: Township - 45N Range - 27W Section - 5
PLS Section Lake Center: 4502705

All Legal Descriptions:

Aitkin County: Township - 45N Range - 27W Sections - 4, 5, 6, 8
Township - 46N Range - 27W Sections - 28, 29, 31, 32, 33

Area Office

Area Name: Aitkin
Region Name: Northeast

ORG Code: F211
Region Number: 2

Lake Access

(Information based on Targeted Survey dated 05/07/2019)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	The state public access is located on the SW side of the lake.
AC - 2	DNR	Open to Public use	Concrete	The state public access is located on the NE side of the lake.

Lake Characteristics

Lake Area (planimetered acres): 2,054.00
GIS Lake Area (acres): 2,005.19
DOW Lake Area (acres): 2,025.00
Littoral Area (acres): 883.00
Area in MN (acres): 2,005.19
Maximum Depth (feet): 56.0
Mean Depth (feet): N/A

GIS Shoreline Length (miles): 14.64
Maximum Fetch (miles): 3.00
Fetch Orientation (degrees): N/A
USGS Quad Map Number: M14a
USGS Quad 24K GIS Index: 2428

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Watershed Characteristics

Major Watershed

Name: Miss R-Brainerd
 Watershed Number: 10
 Watershed size (acres): 1,076,295

Minor Watershed

Name: Spirit L
 Watershed Number: 36
 Watershed size (acres): 14,942

Surveys and Investigations

Re-Survey: 07/22/2013, 07/31/2000, 08/20/1980.
Population Assessment: 08/02/2010, 07/30/2007, 08/08/1991, 08/11/1986.
Special Assessment: 10/01/2014, 08/11/2014, 10/09/2013, 08/08/2012, 09/07/2011, 08/09/2011, 09/09/2010, 04/05/2010, 08/13/2009, 08/02/2004, 09/27/2001, 08/10/1998.
Standard Survey: 08/01/2016.
Targeted Survey: 09/28/2022, 08/08/2022, 09/29/2021, 08/06/2021, 09/23/2020, 07/20/2020, 10/01/2019, 08/01/2019, 05/07/2019, 10/24/2018, 07/30/2018, 10/03/2017, 07/10/2017, 10/03/2016, 10/01/2015, 08/05/2015.

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	07/25/2013	High	6.08	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	6.08	07/25/2013	6.08	07/25/2013	0.00	6.08	Above or below Benchmark (1)

Natural Reproduction Catch Summary for EW

Fall electrofishing for walleye

Number of Stations: 6
Total run-time for all stations: 02:00:00
Total on-time for all stations: 02:00:00
First Sampling Date: 09/28/2022
Last Sampling Date: 09/28/2022
Daylight Sampling: No
Target Species: Young of the year walleye

Abbr	Species	Age	Total Number	Number Measured	Mean Length (inches)	Length Range (inches)		Catch Rates (number per hour)	
						Min	Max	Run-Time	On-Time
WAE	Walleye	YOY	104	104	6.14	5.12	7.52	52.00	52.00
WAE	Walleye	≥ 1	22	22	14.83	10.94	21.14	11.00	11.00

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Length Frequency Distribution for EW (for fish < 16.00 inches)

Fall electrofishing for walleye

(Field work conducted between 09/28/2022 and 09/28/2022)

	<u>WAE</u>	<u>YWAE</u>
< 0.50	-	-
0.50 - 0.99	-	-
1.00 - 1.49	-	-
1.50 - 1.99	-	-
2.00 - 2.49	-	-
2.50 - 2.99	-	-
3.00 - 3.49	-	-
3.50 - 3.99	-	-
4.00 - 4.49	-	-
4.50 - 4.99	-	-
5.00 - 5.49	-	2
5.50 - 5.99	-	37
6.00 - 6.49	-	43
6.50 - 6.99	-	19
7.00 - 7.49	-	2
7.50 - 7.99	-	1
8.00 - 8.49	-	-
8.50 - 8.99	-	-
9.00 - 9.49	-	-
9.50 - 9.99	-	-
10.00 - 10.49	-	-
10.50 - 10.99	1	-
11.00 - 11.49	3	-
11.50 - 11.99	4	-
12.00 - 12.49	-	-
12.50 - 12.99	1	-
13.00 - 13.49	-	-
13.50 - 13.99	-	-
14.00 - 14.49	-	-
14.50 - 14.99	-	-
15.00 - 15.49	2	-
15.50 - 15.99	2	-
= > 16.00	9	-

	<u>WAE</u>	<u>YWAE</u>
Total	22	104
Min. Length	10.94	5.12
Max. Length	21.14	7.52
Mean Length	14.83	6.14
# Measured	22	104
No Lengths for	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.

LAKE SURVEY REPORT
TARGETED SURVEY DATED 09/28/2022 FOR DOW NUMBER 01-0159-00

Length Frequency Distribution for EW (for fish \geq 16.00 inches)

Fall electrofishing for walleye

(Field work conducted between 09/28/2022 and 09/28/2022)

	<u>WAE</u>	<u>YWAE</u>
< 16.00	13	104
16.00 - 16.49	-	-
16.50 - 16.99	4	-
17.00 - 17.49	1	-
17.50 - 17.99	1	-
18.00 - 18.49	1	-
18.50 - 18.99	-	-
19.00 - 19.49	-	-
19.50 - 19.99	1	-
20.00 - 20.49	-	-
20.50 - 20.99	-	-
21.00 - 21.49	1	-
21.50 - 21.99	-	-
22.00 - 22.49	-	-
22.50 - 22.99	-	-
23.00 - 23.49	-	-
23.50 - 23.99	-	-
24.00 - 24.49	-	-
24.50 - 24.99	-	-
25.00 - 25.49	-	-
25.50 - 25.99	-	-
26.00 - 26.49	-	-
26.50 - 26.99	-	-
27.00 - 27.49	-	-
27.50 - 27.99	-	-
28.00 - 28.49	-	-
28.50 - 28.99	-	-
29.00 - 29.49	-	-
29.50 - 29.99	-	-
30.00 - 30.49	-	-
30.50 - 30.99	-	-
31.00 - 31.49	-	-
31.50 - 31.99	-	-
32.00 - 32.49	-	-
32.50 - 32.99	-	-
33.00 - 33.49	-	-
33.50 - 33.99	-	-
34.00 - 34.49	-	-
34.50 - 34.99	-	-
35.00 - 35.49	-	-
35.50 - 35.99	-	-
= > 36.00	-	-

	<u>WAE</u>	<u>YWAE</u>
Total	22	104
Min. Length	10.94	5.12
Max. Length	21.14	7.52
Mean Length	14.83	6.14
# Measured	22	104
No Lengths for	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.

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Age Class Frequency Distribution

Species & SS Type (1)	Number of Fish (2)			Number of Fish in Year Class ('yy) and Age Class															
	Aged	Keyed	Unaged	'22	'21	'20	'19	'18	'17	'16	'15	'14	'13	'12	'11	'10	'09	'08	<'08
				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
Walleye																			
EW	111	1	14	104	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(1) Key to Sampling Station (SS) Type abbreviations:

EW = Fall electrofishing for walleye

(2) Notes:

Number of Fish Aged: Fish that were aged from bony parts.

Number of Fish Keyed: Fish assigned an age with an age-length key or by expansion of mesh or station age distributions.

Number of Fish Unaged: Fish that were not aged and were not assigned an age.

Survey Crew Notes

null

Region Signed by user 'legeorge' on 04/12/2023

Discussion

A Walleye fry stocking strategy was evaluated between 2010 and 2016, with stocking gaps in 2010 and 2014 to evaluate the extent of natural reproduction in this system. Night electrofishing in the fall was used to evaluate this strategy. It was concluded that while some natural reproduction was observed, non-stocked years did not appreciably contribute to the fishery compared to stocked years. Annual monitoring of the abundance of young-of-the-year (YOY) Walleye will continue on Farm Island Lake. This year, sampling was conducted on September 28, 2022. Sampling time was 2 hours and resulted in a YOY Walleye catch rate of 52/hour (run time), with an average size of 6.1 inches. This catch is above average and comparable to the 2013 year class. The catch rate for age 1 Walleye was 4/hour, which is also above long-term average. Results from the electrofishing surveys, conducted since 2010, suggest that years with fry stocking have significantly higher catch rates of YOY (mean of 42/hr) than the non-stocked years (mean of 2.1/hr). Due to the lower contribution of natural year classes, Farm Island will be stocked with fry on an annual basis. It's important to note that no fry were available to be stocked in 2020 due to restrictions from the Covid-19 pandemic. Extra fry (200,000) were stocked in 2021, to help make up for the 2020 gap. It's important to note that only 1 netter was used in 2020 and 2021, but given that catches were not super high, catch rate data probably would have been similar with 2 netters. Two netters were used again in 2022.

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Status Of The Fishery

A Walleye fry stocking strategy was evaluated between 2010 and 2016, with stocking gaps in 2010 and 2014 to evaluate the extent of natural reproduction in this system. Night electrofishing in the fall was used to evaluate this strategy. It was concluded that while some natural reproduction was observed, non-stocked years did not appreciably contribute to the fishery compared to stocked years. Annual monitoring of the abundance of young-of-the-year (YOY) Walleye will continue on Farm Island Lake. This year, sampling was conducted on September 28, 2022. Sampling time was 2 hours and resulted in a YOY Walleye catch rate of 52/hour (run time), with an average size of 6.1 inches. This catch is above average and comparable to the 2013 year class. The catch rate for age 1 Walleye was 4/hour, which is also above long-term average. Results from the electrofishing surveys, conducted since 2010, suggest that years with fry stocking have significantly higher catch rates of YOY (mean of 42/hr) than the non-stocked years (mean of 2.1/hr). Due to the lower contribution of natural year classes, Farm Island will be stocked with fry on an annual basis. It's important to note that no fry were available to be stocked in 2020 due to restrictions from the Covid-19 pandemic. Extra fry (200,000) were stocked in 2021, to help make up for the 2020 gap. It's important to note that only 1 netter was used in 2020 and 2021, but given that catches were not super high, catch rate data probably would have been similar with 2 netters. Two netters were used again in 2022.

Survey Attachments

Attachment #1: Photo

Title: Map of EW stations

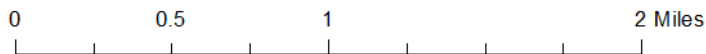
Farm Island 01-0159-00
Sampling Locations
Targeted Survey - 9/28/2022

File Name:
Farm_Island_EW.png

UTM Easting: -
UTM Northing: -

Date: 03/20/2023
Time: 11:33 am

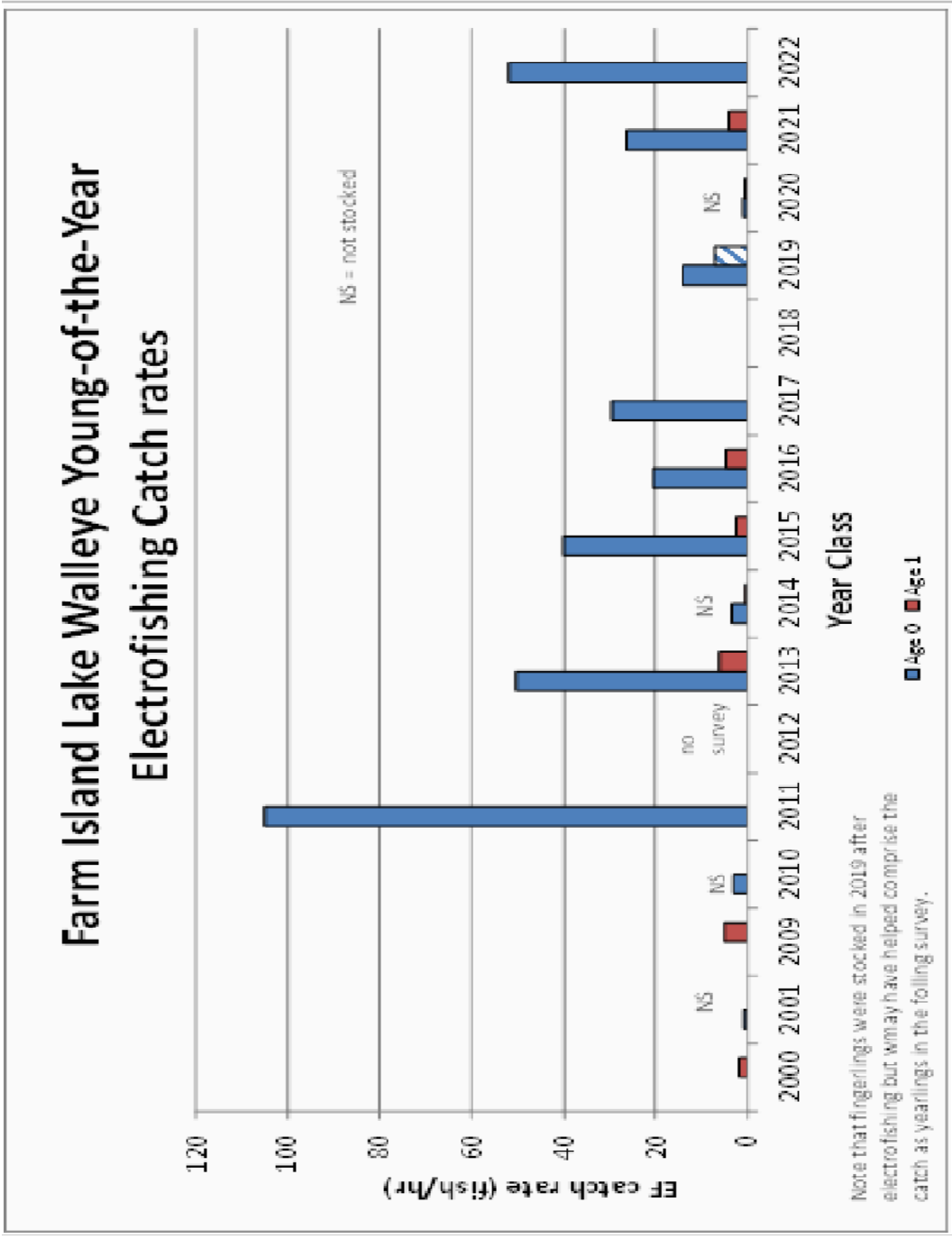
Notes: -



Survey Attachments (Continued)

Attachment #2: Graph

Title: Farm Island EW Map



File Name:
 Farm_EW_Graph.png

UTM Easting: -
 UTM Northing: -

Date: 03/20/2023
 Time: 3:20 pm

Notes: -

Approval Dates And Notices

Date Approved By Aitkin Area Fisheries Supervisor: 03/21/2023

Date Approved By Northeast Region Fisheries Manager: 04/12/2023



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Lake Survey Report revision: 20230207-RJE. Data Date: 04/12/2023 at 2:43 pm .