



Minnesota Department of Natural Resources
 Fisheries Management
LAKE SURVEY REPORT



Lake Name: Horseshoe
DOW Number: 73-0157-00

Survey Type: Targeted Survey
Survey ID Date: 10/13/2015

Lake Identification

Alternate Lake Name: N/A
 Primary Lake Class ID: 25

DNR Sounding Map Number: B0334
 Alternate Lake Class ID: N/A

Lake Location

Primary County: Stearns

Nearest Town: Richmond

Legal Descriptions

Lake Center: Township - 123N Range - 31W Section - 35
 PLS Section Lake Center: 12303135

All Legal Descriptions:

Stearns County: Township - 123N Range - 31W Sections - 25, 26, 34, 35, 36

Area Office

Area Name: Sauk Rapids
 Region Name: Central

ORG Code: F315
 Region Number: 3

Lake Access

(Information based on Population Assessment dated 08/15/2011)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	The public access is on the Sauk River; one-half mile upstream from the lake; off MN State Hwy 22.

Lake Characteristics

Lake Area (planimetered acres):	550.00	GIS Shoreline Length (miles):	13.80
GIS Lake Area (acres):	627.26	Maximum Fetch (miles):	1.83
DOW Lake Area (acres):	995.00	Fetch Orientation (degrees):	22
Littoral Area (acres):	275.00	USGS Quad Map Number:	Q11a
Area in MN (acres):	627.25	USGS Quad 24K GIS Index:	3222
Maximum Depth (feet):	57.0		
Mean Depth (feet):	14.1		

Watershed Characteristics

Major Watershed

Name: Sauk River
 Watershed Number: 16
 Watershed size (acres): 666,747

Minor Watershed

Name: Sauk River
 Watershed Number: 16
 Watershed size (acres): 11,893

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Surveys and Investigations

Re-Survey: 07/14/2003, 07/16/1990, 07/24/1980.

Population Assessment: 08/15/2011, 07/17/1995, 07/30/1985.

Special Assessment: 10/29/2014, 10/21/2013, 10/07/2009, 10/17/2007, 10/10/2005, 10/07/2002, 09/27/2001.

Targeted Survey: 10/13/2015, 08/31/2015.

LAKE SURVEY REPORT
TARGETED SURVEY DATED 10/13/2015 FOR DOW NUMBER 73-0157-00

Natural Reproduction Catch Summary for EW

Fall electrofishing for walleye

Total run-time for all stations: 00:44:00
Total on-time for all stations: 00:41:39
First Sampling Date: 10/13/2015
Last Sampling Date: 10/13/2015
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	38	38	7.39	5.75	8.35	51.82	54.74
WAE	Walleye	≥ 1	95	95	10.25	8.43	17.09	129.55	136.85

LAKE SURVEY REPORT
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Length Frequency Distribution for EW (for fish < 16.00 inches)

Fall electrofishing for Walleye

(Field work conducted on 10/13/2015)

	<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	-	-
5.50 - 5.99	-	2
6.00 - 6.49	-	6
6.50 - 6.99	-	6
7.00 - 7.49	-	4
7.50 - 7.99	-	6
8.00 - 8.49	2	14
8.50 - 8.99	14	-
9.00 - 9.49	18	-
9.50 - 9.99	21	-
10.00 - 10.49	13	-
10.50 - 10.99	4	-
11.00 - 11.49	6	-
11.50 - 11.99	6	-
12.00 - 12.49	2	-
12.50 - 12.99	2	-
13.00 - 13.49	2	-
13.50 - 13.99	2	-
14.00 - 14.49	1	-
14.50 - 14.99	-	-
15.00 - 15.49	-	-
15.50 - 15.99	-	-
= > 16.00	2	-

	<u>WAE</u>	<u>YWAE</u>
Total	95	38
Min. Length	8.43	5.75
Max. Length	17.09	8.35
Mean Length	10.25	7.39
# Measured	95	38
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 10/13/2015 FOR DOW NUMBER 73-0157-00

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

Fall electrofishing for Walleye

(Field work conducted on 10/13/2015)

	<u>WAE</u>	<u>YWAE</u>
< 16.00	93	38
16.00 - 16.49	-	-
16.50 - 16.99	1	-
17.00 - 17.49	1	-
17.50 - 17.99	-	-
18.00 - 18.49	-	-
18.50 - 18.99	-	-
19.00 - 19.49	-	-
19.50 - 19.99	-	-
20.00 - 20.49	-	-
20.50 - 20.99	-	-
21.00 - 21.49	-	-
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	95	38
Min. Length	8.43	5.75
Max. Length	17.09	8.35
Mean Length	10.25	7.39
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Survey Crew Notes

Fall electrofishing for YOY Walleye

Discussion

The Sauk River Chain of Lakes (SRCL) is located in south central Minnesota, near the city of Richmond. A dam on the Sauk River at Cold Spring allows users to access over 3,200 acres by water. The fishery of the SRCL Lake is managed primarily for walleye, muskellunge, and channel catfish, although it is also a popular destination for panfish, largemouth bass, and northern pike anglers. Horseshoe and Cedar Island Lakes are the two largest basins in the SRCL comprising 50% of the total acreage of the Chain. The lakes are managed for Walleye and prior to 2001 were sustained by fingerling stocking.

Since 2001 the lakes have been stocked with Walleye fry every other year. Following each stocking, fingerlings are recovered during fall electrofishing to get an idea of fry survival.

The average catch of YOY Walleye on Horseshoe Lake from 2001-2015 was 143.8/hour. In 2015, the catch was 54.7/hour, the lowest recorded since 2003. Walleye fingerlings in Horseshoe ranged in length from 5.8 to 8.4 inches with an average length of 7.4 inches.

The average catch of YOY Walleye on Cedar Island Lake from 2001-2015 was 108/hour. In 2015, the catch was 82.2/hour, the lowest recorded on Cedar Island since 2007. Walleye fingerlings in Cedar Island ranged in length from 5.6 to 8.2 inches with an average length of 6.9 inches.

Although fingerling catch rates were down in both lakes from previous years, yearling (age 1) Walleye catch rates were significant on Cedar Island (57.4/hour) and Horseshoe (116.7/hour) Lakes. Yearling Walleyes on Horseshoe Lake ranged in length from 8.1 to 10.5 inches with an average length of 10.5 inches. Considering there is no record of either state or private stocking in 2014 these yearling Walleye are apparently from natural reproduction which has not been found in significant numbers since bi-annual fall electrofishing began in 2001.

Native strains have the potential to survive better in a given watershed or region than non-native strains. In an attempt to determine if these naturally reproduced Walleye are a separate genetic strain from the Mississippi River strain which have been stocked by the DNR in the past, scale samples from these yearlings were sent to the University of Minnesota for genetic analysis. Annual fall electrofishing will be conducted for the next five years to try and determine the extent of natural reproduction in the Sauk River Chain of Lakes during both stocked and non-stocked years.

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Status Of The Fishery

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Survey Attachments

Note: The following attachment is excluded from this report:

(1) 2015 Walleye Genetics - Loren Miller.xlsx

Approval Dates and Notices

Date Approved by Sauk Rapids Area Fisheries Supervisor: _____

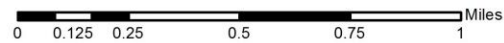
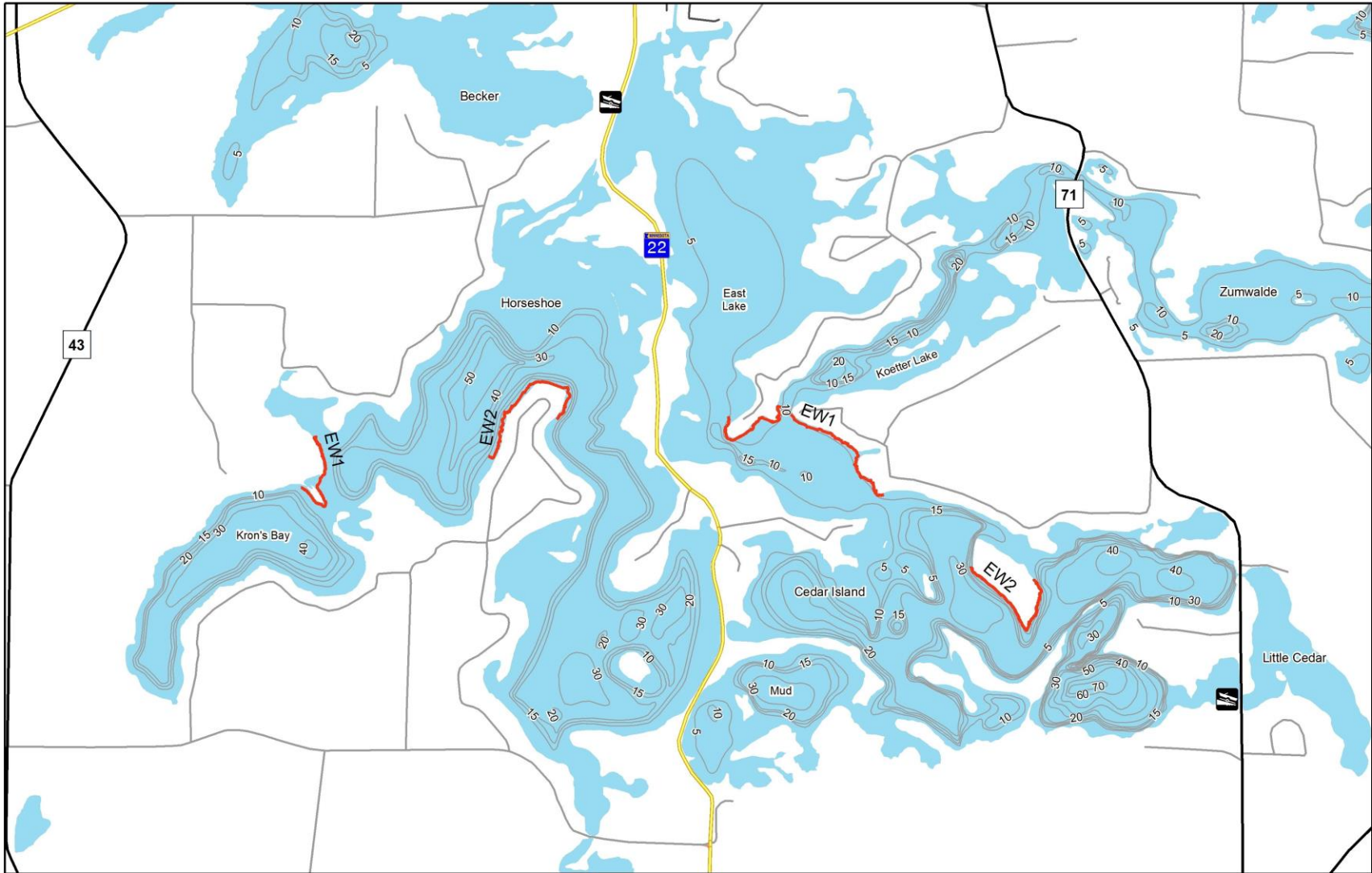
Date Approved by Central Region Fisheries Manager: _____



Minnesota Department of Natural Resources

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Horseshoe & Cedar Island Fall Walleye Electrofishing Sites



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