



Minnesota Department of Natural Resources Fisheries Management



STANDARD LAKE SURVEY REPORT

DRAFT VERSION - PRELIMINARY DATA (AS OF 08/01/2014)

Lake Name: Shaokotan

Survey Type: Population Assessment

DOW Number: 41-0089-00

Survey ID Date: 07/28/2014

Lake Identification

Alternate Lake Name: Shoakotan
Primary Lake Class ID: 41

DNR Sounding Map Number: B0204
Alternate Lake Class ID: N/A

Lake Location

Primary County: Lincoln

Nearest Town: Ivanhoe

Legal Descriptions

Lake Center: Township - 111N Range - 46W Section - 23
PLS Section Lake Center: 11104623

All Legal Descriptions:

Lincoln County: Township - 111N Range - 46W Sections - 22, 23, 24, 26, 27, 28

Area Office

Area Name: Windom
Region Name: Southern

ORG Code: F418
Region Number: 4

Lake Access

(Information based on Population Assessment dated 08/12/1996)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	STATE OWNED BOAT ACCESS ON NORTH SIDE.

(Data excludes records where public use is not designated or is designated "No Public Use")

Lake Characteristics

Lake Area (planimetered acres): 995.00	GIS Shoreline Length (miles): 8.73
GIS Lake Area (acres): 996.28	Maximum Fetch (miles): 2.84
DOW Lake Area (acres): 1043.00	Fetch Orientation (degrees): 67
Littoral Area (acres): 996.28	USGS Quad Map Number: U04a
Area in MN (acres): 996.28	USGS Quad 24K GIS Index: 4008
Maximum Depth (feet): 10.0	
Mean Depth (feet): N/A	

Watershed Characteristics

Major Watershed

Name: Minn R-Yellow Medicine R.
Watershed Number: 25
Watershed size (acres): 1,332,769

Minor Watershed

Name: L Shaokatan Outlet
Watershed Number: 147
Watershed size (acres): 8,817

Surveys And Investigations

Re-Survey: 08/07/2000, 08/17/1992, 07/06/1983.
Population Assessment: 07/28/2014, 07/29/2013, 08/01/2011, 08/04/2008, 08/02/2004, 08/12/1996, 08/15/1988.
Special Assessment: 08/13/2013, 09/28/2010, 08/05/2010, 08/02/2010, 10/19/2009, 08/04/2009, 08/03/2009,
09/16/2008, 08/04/2008, 10/13/1999, 09/15/1998, 10/09/1996, 08/17/1967.
Dissolved Oxygen Check: 01/02/2014, 02/06/2013, 01/03/2013, 01/10/2012, 12/29/2010, 01/05/2010.
External Management Survey: 06/03/2009, 07/21/2008.

Current Water Level

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	07/28/2014	Normal	-5.10	Above or below Benchmark

Benchmark and Gauge Descriptions / Locations

Station ID	Location Description
BM - 1	N/A

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	07/28/2014	Normal	-5.10	Above or below Benchmark
	08/05/2010	Normal	-4.30	Above or below Benchmark
	08/05/2008	N/A	-4.80	Above or below Benchmark
GA - 1	08/01/2013	Normal	2.30	Direct Gauge Reading
	08/03/2011	Normal	2.14	Direct Gauge Reading
	08/05/2010	Normal	2.20	Direct Gauge Reading
	08/05/2008	N/A	1.70	Direct Gauge Reading

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	-5.10	07/28/2014	-4.30	08/05/2010	0.80	-4.73	Above or below Benchmark (3)
GA - 1	1.70	08/05/2008	2.30	08/01/2013	0.60	2.09	Direct Gauge Reading (4)

Dissolved Oxygen And Temperature Profile Of Lake Water

Station ID	Sampling Date	Bottom Depth (Feet)	Sample Depth (Feet)	Water		Dissolved Oxygen (ppm)
				Temperature (°F)		
WQ - 1	07/27/2014	N/A	Surface	71.1	8.5	
			2.0	71.1	8.5	
			4.0	71.1	8.4	
			6.0	71.1	8.4	
			8.0	70.9	7.4	
			9.0	70.9	7.2	
			10.0	70.9	7.2	

Field Measurements Of Water Quality

Station ID	Sampling Date	Sample Depth (Feet)	Secchi Depth (Feet)	Field pH	Alkalinity (ppm)	Water Color	
						Water Color	Color Cause
WQ - 1	07/27/2014	Surface	7.5	N/A	153	Clear	N/A

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 3
 First Set Date: 07/28/2014
 Last Lift Date: 07/31/2014
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 41*		
				25%	50%	75%
BLB	Black Bullhead	193	64.33	4.56	23.42	83.00
NOP	Northern Pike	4	1.33	1.20	3.50	7.79
WAE	Walleye	32	10.67	3.22	7.67	15.33
WTS	White Sucker	1	0.33	0.75	2.00	5.88
YEP	Yellow Perch	130	43.33	3.00	8.94	22.50
Total Fish/Set:			120.00	* 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	Quartiles for Lake Class 41*		
					25%	50%	75%
BLB	Black Bullhead	78.35	26.12	0.41	0.21	0.38	0.60
NOP	Northern Pike	15.10	5.03	3.78	1.53	2.12	2.95
WAE	Walleye	109.34	36.45	3.42	0.88	1.37	1.90
WTS	White Sucker	2.43	0.81	2.43	1.44	1.87	2.20
YEP	Yellow Perch	19.03	6.34	0.15	0.14	0.24	0.36
Total Pounds Fish/Set:			74.75	* Quartiles for Mean Weight			

Net Catch Summary by Numbers for TN

Standard 3/4-in mesh, double frame trap net sets

Number of Sets: 12
 First Set Date: 07/28/2014
 Last Lift Date: 07/31/2014
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 41*		
				25%	50%	75%
BLB	Black Bullhead	24	2.00	1.33	14.73	78.13
BLG	Bluegill	1	0.08	1.05	3.00	14.93
GSF	Green Sunfish	6	0.50	0.13	0.33	0.66
NOP	Northern Pike	8	0.67	N/A	N/A	N/A
WAE	Walleye	6	0.50	0.31	0.73	1.69
YEP	Yellow Perch	73	6.08	0.25	0.81	2.62
Total Fish/Set:			9.83	* Quartiles for Number Per Set		

Net Catch Summary by Weight for TN

Standard 3/4-in mesh, double frame trap net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 41*		
					25%	50%	75%
BLB	Black Bullhead	9.11	0.76	0.38	0.21	0.36	0.59
BLG	Bluegill	0.04	0.00	0.04	0.16	0.25	0.38
GSF	Green Sunfish	0.30	0.02	0.05	0.06	0.10	0.17
NOP	Northern Pike	20.60	1.72	2.58	N/A	N/A	N/A
WAE	Walleye	14.09	1.17	2.35	0.85	1.63	2.41
YEP	Yellow Perch	8.93	0.74	0.12	0.13	0.20	0.31
Total Pounds Fish/Set:			4.42	* Quartiles for Mean Weight			

Length Frequency Distribution For GN (for fish < 36.00 inches)

Standard gill net sets

(Field work conducted between 07/28/2014 and 07/31/2014)

	<u>BLB</u>	<u>NOP</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
< 3.00	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-
4.50 - 4.99	7	-	-	-	-
5.00 - 5.49	21	-	-	-	-
5.50 - 5.99	18	-	-	-	10
6.00 - 6.49	3	-	-	-	20
6.50 - 6.99	8	-	-	-	18
7.00 - 7.49	4	-	-	-	27
7.50 - 7.99	2	-	-	-	12
8.00 - 8.49	2	-	-	-	-
8.50 - 8.99	14	-	-	-	-
9.00 - 9.49	26	1	-	-	-
9.50 - 9.99	28	-	-	-	-
10.00 - 10.49	21	-	2	-	-
10.50 - 10.99	1	-	-	-	-
11.00 - 11.49	2	-	-	-	-
11.50 - 11.99	-	-	-	-	-
12.00 - 12.99	5	-	-	-	-
13.00 - 13.99	2	-	-	-	-
14.00 - 14.99	-	-	2	-	-
15.00 - 15.99	-	-	-	-	-
16.00 - 16.99	-	-	1	-	-
17.00 - 17.99	-	-	1	-	-
18.00 - 18.99	-	1	-	1	-
19.00 - 19.99	-	-	3	-	-
20.00 - 20.99	-	-	4	-	-
21.00 - 21.99	-	1	5	-	-
22.00 - 22.99	-	-	7	-	-
23.00 - 23.99	-	-	7	-	-
24.00 - 24.99	-	-	-	-	-
25.00 - 25.99	-	-	-	-	-
26.00 - 26.99	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-
28.00 - 28.99	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-
= > 36.00	-	1	-	-	-

	<u>BLB</u>	<u>NOP</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
Total	164	4	32	1	87
Min. Length	4.76	9.29	10.04	18.11	5.55
Max. Length	13.78	36.85	23.82	18.11	7.76
Mean Length	8.25	21.42	20.38	18.11	6.80
# Measured	164	4	32	1	87
No Lengths for	29	0	0	0	43

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

Length Frequency Distribution For GN (for fish \geq 36.00 inches)

Standard gill net sets

(Field work conducted between 07/28/2014 and 07/31/2014)

	<u>BLB</u>	<u>NOP</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
< 36.00	164	3	32	1	87
36.00 - 36.99	-	1	-	-	-
37.00 - 37.99	-	-	-	-	-
38.00 - 38.99	-	-	-	-	-
39.00 - 39.99	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-
= > 78.00	-	-	-	-	-

	<u>BLB</u>	<u>NOP</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
Total	164	4	32	1	87
Min. Length	4.76	9.29	10.04	18.11	5.55
Max. Length	13.78	36.85	23.82	18.11	7.76
Mean Length	8.25	21.42	20.38	18.11	6.80
# Measured	164	4	32	1	87
No Lengths for	29	0	0	0	43

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

Length Frequency Distribution For TN

Standard 3/4-in mesh, double frame trap net sets

(Field work conducted between 07/28/2014 and 07/31/2014)

	<u>BLB</u>	<u>BLG</u>	<u>GSF</u>	<u>NOP</u>	<u>WAE</u>	<u>YEP</u>	<u>YYEP</u>
< 3.00	-	-	-	-	-	-	-
3.00 - 3.49	-	-	1	-	-	-	-
3.50 - 3.99	1	-	1	-	-	-	-
4.00 - 4.49	3	1	4	-	-	-	-
4.50 - 4.99	5	-	-	-	-	-	-
5.00 - 5.49	1	-	-	-	-	-	1
5.50 - 5.99	1	-	-	-	-	16	-
6.00 - 6.49	-	-	-	-	-	34	1
6.50 - 6.99	2	-	-	-	-	11	1
7.00 - 7.49	-	-	-	-	-	3	-
7.50 - 7.99	-	-	-	-	-	-	-
8.00 - 8.49	-	-	-	-	1	-	-
8.50 - 8.99	-	-	-	1	-	-	-
9.00 - 9.49	-	-	-	-	-	-	-
9.50 - 9.99	3	-	-	1	-	-	-
10.00 - 10.49	3	-	-	-	-	-	-
10.50 - 10.99	2	-	-	-	-	-	-
11.00 - 11.49	1	-	-	-	-	-	-
11.50 - 11.99	1	-	-	-	-	-	-
12.00 - 12.99	-	-	-	-	-	-	-
13.00 - 13.99	1	-	-	-	-	-	-
14.00 - 14.99	-	-	-	-	1	-	-
15.00 - 15.99	-	-	-	-	-	-	-
16.00 - 16.99	-	-	-	-	1	-	-
17.00 - 17.99	-	-	-	-	-	-	-
18.00 - 18.99	-	-	-	1	-	-	-
19.00 - 19.99	-	-	-	-	1	-	-
20.00 - 20.99	-	-	-	1	-	-	-
21.00 - 21.99	-	-	-	-	1	-	-
22.00 - 22.99	-	-	-	-	-	-	-
23.00 - 23.99	-	-	-	-	-	-	-
24.00 - 24.99	-	-	-	-	1	-	-
25.00 - 25.99	-	-	-	-	-	-	-
26.00 - 26.99	-	-	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-	-	-
28.00 - 28.99	-	-	-	1	-	-	-
29.00 - 29.99	-	-	-	1	-	-	-
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>BLB</u>	<u>BLG</u>	<u>GSF</u>	<u>NOP</u>	<u>WAE</u>	<u>YEP</u>	<u>YYEP</u>
Total	24	1	6	7	6	64	3
Min. Length	3.86	4.09	3.11	8.54	8.46	5.51	5.35
Max. Length	13.19	4.09	4.49	30.87	24.41	7.36	6.50
Mean Length	7.57	4.09	4.01	21.00	17.40	6.24	5.96
# Measured	24	1	6	7	6	64	3
No Lengths for	0	0	0	1	0	6	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

Other Species

Gear Type (1)	Other Species (Gender) (2)	Total Num	Number Measured	Length (inches) Min - Mean - Max	Number Weighed	Weight (pounds) Min - Mean - Max
TN	Painted Turtle	25	0	N/A	0	N/A

(1) Key to sampling gear abbreviations:

TN = Standard 3/4-in mesh, double frame trap net sets

(2) Gender: If identified and reported.

Approval Dates And Notices

Date Approved By Windom Area Fisheries Supervisor: _____

Date Approved By Southern Region Fisheries Manager: _____

This DRAFT VERSION of the Standard Lake Survey Report contains preliminary data (as of 08/01/2014), and is therefore subject to change at any time.



Minnesota Department of Natural Resources

By accepting the data in this report, the user agrees the data will be used for personal benefit and not for profit. Any other uses or publication of the data needs the consent of the Department. The Minnesota Department of Natural Resources assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on the data.

Standard Lake Survey Report revision: 03/25/2014-RJE. Data Date: 08/01/2014 at 10:31 am .

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REPORT OVERVIEW - FOR OFFICE USE ONLY

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

Lake Name: Shaokotan

Survey Type: Population Assessment

DOW Number: 41-0089-00

Survey ID Date: 07/28/2014

Survey Status: Active

The following 18 (of 31) report components are not included in this report:

1. Water Level History¹
2. Lake Inlets
3. Additional Inlet Information
4. Lake Outlets
5. Additional Outlet Information
6. Water Control Structure (Dam)
7. Surrounding Watershed Characteristics, Shoreline Characteristics, and Riparian Landscape Observations²
8. Resorts And Campgrounds
9. Fish Spawning Conditions
10. Erosion And Pollution
11. Fish Diseases And Parasites
12. Aquatic Vegetation And Shoalwater Substrates
13. Laboratory Analysis Of Water Chemistry
14. Length At Capture With Last Incremental Length*
15. Back-Calculated Lengths
16. Age Class Frequency Distributions
17. Status Of Fishery And Field Notes
18. Water Quality (Winter Observations) (added to revision 01/21/2010)

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 Standard 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 before noon on 08/01/2014 may not be reflected in the Distribution tables until after 12:30 pm on 08/01/2014.