



Minnesota Department of Natural Resources
 Fisheries Management
LAKE SURVEY REPORT



DRAFT VERSION - PRELIMINARY DATA (AS OF 09/04/2015)

Lake Name: Fox

Survey Type: Standard Survey

DOW Number: 46-0109-00

Survey ID Date: 08/31/2015

Lake Identification

Alternate Lake Name: N/A
 Primary Lake Class ID: 24

DNR Sounding Map Number: D0266
 Alternate Lake Class ID: N/A

Lake Location

Primary County: Martin

Nearest Town: Sherburn

Legal Descriptions

Lake Center: Township - 103N Range - 32W Section - 32
 PLS Section Lake Center: 10303232

All Legal Descriptions:

Martin County: Township - 102N Range - 32W Sections - 4, 5, 6
 Township - 103N Range - 32W Sections - 31, 32, 33, 34

Area Office

Area Name: Windom
 Region Name: Southern

ORG Code: F418
 Region Number: 4

Lake Access

(Information based on Population Assessment dated 09/07/1993)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	State access on the NE end of lake. 103N 32W S34. State access on the NE end of lake. 103N; 32W; S34.
AC - 2	Private Property	Client Use Only	Concrete	Fox Lake Club access on east end of lake. 103N 32W S34. Fox Lake Club access on east end of lake. 103N; 32W; S34.

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

Lake Characteristics

Lake Area (planimetered acres): 1,041.00	GIS Shoreline Length (miles): 11.31
GIS Lake Area (acres): 951.02	Maximum Fetch (miles): 3.40
DOW Lake Area (acres): 967.00	Fetch Orientation (degrees): 90
Littoral Area (acres): 780.00	USGS Quad Map Number: X11b
Area in MN (acres): 951.02	USGS Quad 24K GIS Index: 4621
Maximum Depth (feet): 20.0	
Mean Depth (feet): N/A	

Watershed Characteristics**Major Watershed**

Name: Blue Earth River
Watershed Number: 30
Watershed size (acres): 777,240

Minor Watershed

Name: Fox L
Watershed Number: 77
Watershed size (acres): 4,023

Surveys and Investigations

Re-Survey: 09/07/2010, 09/11/2006, 09/11/2000, 09/04/1991, 09/23/1986, 09/16/1985.

Population Assessment: 09/02/2014, 09/03/2013, 09/04/2012, 09/06/2011, 09/08/2009, 09/02/2008, 09/10/2007, 09/12/2005, 09/07/2004, 09/08/2003, 09/09/2002, 09/10/2001, 08/30/1999, 08/31/1998, 09/02/1997, 09/03/1996, 09/05/1995, 09/06/1994, 09/07/1993, 09/01/1992, 09/13/1988, 09/08/1987, 10/05/1981.

Special Assessment: 04/29/2013, 03/20/2012, 04/25/2011, 07/28/2010, 05/20/2010, 04/21/2009, 05/01/2008, 05/10/2007, 04/16/2007, 09/25/2000, 09/08/1999, 10/21/1997.

Dissolved Oxygen Check: 02/24/2015, 01/03/2014, 01/08/2013, 12/28/2012, 02/16/2012, 02/24/2010.

Standard Survey: 08/31/2015.

Targeted Survey: 04/27/2015.

Current Water Level

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	09/01/2015	Normal	-2.40	Above or below Benchmark

Benchmark and Gauge Descriptions / Locations

Station ID	Location Description
BM - 1	Top of concrete abutment at dam outlet.

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	09/01/2015	Normal	-2.40	Above or below Benchmark
	09/03/2014	Normal	-2.10	Above or below Benchmark
	09/06/2013	Low	-2.80	Above or below Benchmark
	09/04/2012	Low	-2.70	Above or below Benchmark
	09/07/2011	Low	-2.60	Above or below Benchmark
	09/10/2010	Normal	-1.80	Above or below Benchmark
	09/05/2009	N/A	N/A	Above or below Benchmark
	09/05/2008	N/A	-2.20	Above or below Benchmark
	09/10/2007	Normal	-0.90	Above or below Benchmark
	09/12/2006	Normal	-2.10	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	-2.80	09/06/2013	-0.90	09/10/2007	1.90	-2.18	Above or below Benchmark (9)

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	08/31/2015	17.5	Surface	69.1	8.5
			3.0	68.9	8.3
			6.0	68.9	8.3
			9.0	68.9	8.1
			12.0	68.7	8.6
			15.0	67.8	5.1
			17.0	67.8	4.0

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	08/31/2015	Surface	1.8	8.70	187	Brown Grn	Algae

Laboratory Analysis of Water Chemistry

Station ID	Sampling Date	Analysis Date	Sample Depth (ft)	Chemical Parameter	Chemical Value
WQ - 1	08/31/2015	06/12/2015	Surface	Sulphate ion	18.9 ppm
				Total phosphorus	0.044 ppm
				Total alkalinity	176 ppm
				Total dissolved solids	346 ppm
				Chlorophyll-a trichromatic method calculation	10.7 ppb
				Conductivity	460 :S/cm
				pH	8.48 pH
				Chlorophyll-a corrected for pheophytin	9.16 ppb

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 6
 First Set Date: 08/31/2015
 Last Lift Date: 09/01/2016
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 24*		
				25%	50%	75%
BIB	Bigmouth Buffalo	437	72.83	0.25	0.55	1.69
BLC	Black Crappie	49	8.17	2.50	6.91	16.50
CCF	Channel Catfish	15	2.50	N/A	N/A	N/A
FRD	Freshwater Drum	342	57.00	4.00	11.75	32.25
WAE	Walleye	34	5.67	1.17	2.82	6.33
YEP	Yellow Perch	166	27.67	2.00	10.50	27.94
Total Fish/Set:			173.83	* 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 24*		
					25%	50%	75%
BIB	Bigmouth Buffalo	229.98	38.33	0.53	N/A	N/A	N/A
BLC	Black Crappie	11.34	1.89	0.23	0.15	0.20	0.26
CCF	Channel Catfish	86.42	14.40	5.76	N/A	N/A	N/A
FRD	Freshwater Drum	203.50	33.92	0.60	0.25	0.50	1.13
WAE	Walleye	41.52	6.92	1.22	1.20	1.81	2.69
YEP	Yellow Perch	43.92	7.32	0.26	0.10	0.13	0.18
Total Pounds Fish/Set:			102.78	* 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: 08/31/2015
 Last Lift Date: 09/03/2015
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 24*		
				25%	50%	75%
BIB	Bigmouth Buffalo	19	1.58	0.20	0.25	0.75
BLC	Black Crappie	317	26.42	1.83	6.50	21.16
BLG	Bluegill	32	2.67	7.54	23.13	62.50
CCF	Channel Catfish	4	0.33	N/A	N/A	N/A
CAP	Common Carp	14	1.17	0.38	0.74	2.00
FRD	Freshwater Drum	356	29.67	0.50	1.17	4.19
GOS	Golden Shiner	2	0.17	0.17	0.30	0.83
LMB	Largemouth Bass	2	0.17	0.20	0.33	0.67
WAE	Walleye	23	1.92	0.27	0.60	1.24
WHC	White Crappie	2	0.17	0.50	1.50	6.55
YEP	Yellow Perch	26	2.17	0.25	0.60	1.67
Total Fish/Set:			66.42	* 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 24*		
					25%	50%	75%
BIB	Bigmouth Buffalo	9.13	0.76	0.48	2.50	4.13	5.65
BLC	Black Crappie	76.99	6.42	0.24	0.18	0.24	0.33
BLG	Bluegill	4.81	0.40	0.15	0.13	0.18	0.25
CCF	Channel Catfish	15.95	1.33	3.99	N/A	N/A	N/A
CAP	Common Carp	120.89	10.07	8.63	2.58	4.07	6.02
FRD	Freshwater Drum	448.10	37.34	1.26	0.43	0.79	1.21
GOS	Golden Shiner	0.13	0.01	0.07	0.07	0.10	0.13
LMB	Largemouth Bass	5.49	0.46	2.75	0.15	0.31	0.91
WAE	Walleye	59.61	4.97	2.59	0.80	1.50	2.78
WHC	White Crappie	0.53	0.04	0.27	0.23	0.30	0.40
YEP	Yellow Perch	6.68	0.56	0.26	0.10	0.13	0.20
Total Pounds Fish/Set:			62.36	* Quartiles for Mean Weight			

Length Frequency Distribution for GN

Standard gill net sets

(Field work conducted between 08/31/2015 and 09/01/2016)

	<u>BIB</u>	<u>BLC</u>	<u>CCF</u>	<u>FRD</u>	<u>WAE</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-
3.00 - 3.49	-	1	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-
4.00 - 4.49	-	2	-	-	-	-
4.50 - 4.99	-	-	-	-	-	-
5.00 - 5.49	-	-	-	-	-	-
5.50 - 5.99	-	-	-	-	-	-
6.00 - 6.49	-	5	-	-	-	3
6.50 - 6.99	-	25	-	-	-	31
7.00 - 7.49	-	12	-	-	-	35
7.50 - 7.99	6	1	-	17	-	14
8.00 - 8.49	29	-	-	100	-	12
8.50 - 8.99	107	-	-	69	-	28
9.00 - 9.49	133	-	-	-	1	31
9.50 - 9.99	66	-	-	1	3	11
10.00 - 10.49	56	1	-	14	1	-
10.50 - 10.99	24	-	-	6	-	-
11.00 - 11.49	11	1	-	1	-	-
11.50 - 11.99	3	-	-	-	-	-
12.00 - 12.99	1	1	1	12	4	-
13.00 - 13.99	-	-	-	61	11	-
14.00 - 14.99	-	-	-	38	5	-
15.00 - 15.99	-	-	-	16	1	-
16.00 - 16.99	-	-	-	7	1	-
17.00 - 17.99	-	-	-	-	-	-
18.00 - 18.99	-	-	-	-	2	-
19.00 - 19.99	-	-	-	-	-	-
20.00 - 20.99	-	-	-	-	2	-
21.00 - 21.99	-	-	-	-	1	-
22.00 - 22.99	-	-	1	-	1	-
23.00 - 23.99	-	-	-	-	-	-
24.00 - 24.99	-	-	2	-	-	-
25.00 - 25.99	-	-	6	-	1	-
26.00 - 26.99	1	-	2	-	-	-
27.00 - 27.99	-	-	2	-	-	-
28.00 - 28.99	-	-	1	-	-	-
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	-	-	-	-	-	-

	<u>BIB</u>	<u>BLC</u>	<u>CCF</u>	<u>FRD</u>	<u>WAE</u>	<u>YEP</u>
Total	437	49	15	342	34	165
Min. Length	7.56	3.11	12.01	7.72	9.45	6.10
Max. Length	26.77	12.64	28.94	16.18	25.24	9.88
Mean Length	9.45	6.94	24.93	10.78	14.66	8.07
# Measured	117	46	15	198	34	163
No Lengths for	320	3	0	144	0	3

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 08/31/2015 and 09/03/2015)

	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>CAP</u>	<u>CCF</u>	<u>FRD</u>	<u>GOS</u>	<u>LMB</u>	<u>WAE</u>	<u>WHC</u>	<u>YEP</u>
< 3.00	-	1	1	-	-	-	-	-	-	-	-
3.00 - 3.49	-	1	-	-	-	-	-	-	-	-	-
3.50 - 3.99	-	3	5	-	-	-	-	-	-	-	-
4.00 - 4.49	-	-	8	-	-	-	-	-	-	-	-
4.50 - 4.99	-	-	3	-	-	-	-	-	-	-	-
5.00 - 5.49	-	-	4	-	-	-	-	-	-	-	-
5.50 - 5.99	-	-	1	-	-	-	1	-	-	-	-
6.00 - 6.49	-	31	2	-	-	-	-	-	-	-	-
6.50 - 6.99	-	120	2	-	-	-	-	-	-	-	6
7.00 - 7.49	-	82	4	-	-	-	-	-	-	-	5
7.50 - 7.99	1	17	1	-	-	18	-	-	-	1	4
8.00 - 8.49	1	3	-	-	-	26	-	-	1	-	-
8.50 - 8.99	4	30	1	-	-	4	-	-	-	-	2
9.00 - 9.49	3	19	-	-	-	1	-	-	-	1	6
9.50 - 9.99	5	-	-	-	-	-	-	-	5	-	3
10.00 - 10.49	4	-	-	-	-	2	-	-	3	-	-
10.50 - 10.99	1	1	-	-	-	1	-	-	-	-	-
11.00 - 11.49	-	4	-	-	-	-	-	-	-	-	-
11.50 - 11.99	-	-	-	-	-	-	-	-	-	-	-
12.00 - 12.99	-	2	-	-	-	2	-	-	1	-	-
13.00 - 13.99	-	2	-	-	-	9	-	1	-	-	-
14.00 - 14.99	-	1	-	-	-	70	-	-	-	-	-
15.00 - 15.99	-	-	-	-	-	113	-	-	1	-	-
16.00 - 16.99	-	-	-	-	-	83	-	1	-	-	-
17.00 - 17.99	-	-	-	-	-	16	-	-	2	-	-
18.00 - 18.99	-	-	-	-	-	9	-	-	-	-	-
19.00 - 19.99	-	-	-	-	-	-	-	-	-	-	-
20.00 - 20.99	-	-	-	-	1	-	-	-	2	-	-
21.00 - 21.99	-	-	-	1	-	-	-	-	-	-	-
22.00 - 22.99	-	-	-	-	1	-	-	-	2	-	-
23.00 - 23.99	-	-	-	3	1	-	-	-	1	-	-
24.00 - 24.99	-	-	-	1	1	-	-	-	3	-	-
25.00 - 25.99	-	-	-	2	-	-	-	-	2	-	-
26.00 - 26.99	-	-	-	1	-	-	-	-	-	-	-
27.00 - 27.99	-	-	-	2	-	-	-	-	-	-	-
28.00 - 28.99	-	-	-	2	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	2	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-
	<u>BIB</u>	<u>BLC</u>	<u>BLG</u>	<u>CAP</u>	<u>CCF</u>	<u>FRD</u>	<u>GOS</u>	<u>LMB</u>	<u>WAE</u>	<u>WHC</u>	<u>YEP</u>
Total	19	317	32	14	4	354	1	2	23	2	26
Min. Length	7.91	2.91	2.99	21.89	20.08	7.52	5.87	13.90	8.39	7.95	6.65
Max. Length	10.98	14.21	8.50	29.57	24.09	18.54	5.87	16.97	25.67	9.09	9.69
Mean Length	9.45	7.38	5.23	26.02	22.57	14.50	5.87	15.43	16.73	8.52	8.08
# Measured	19	211	32	14	4	222	1	2	23	2	26
No Lengths for	0	106	0	0	0	134	1	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

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	13	0	N/A	0	N/A
	Snapping Turtle	1	1	11.46	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 Lake Survey Report contains preliminary data (as of 09/04/2015), 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.

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REPORT OVERVIEW - FOR OFFICE USE ONLY

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

Lake Name: Fox

Survey Type: Standard Survey

DOW Number: 46-0109-00

Survey ID Date: 08/31/2015

Survey Status: Field Work Complete

The following 18 (of 32) report components are not included in this Lake Survey 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. Length At Capture With Last Incremental Length*
14. Back-Calculated Lengths
15. Age Class Frequency Distributions
16. Status Of Fishery And Field Notes
17. Water Quality (Winter Observations) (added to revision 01/21/2010)
18. 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 before noon on 09/04/2015 may not be reflected in the Distribution tables until after 12:30 pm on 09/04/2015.

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