



Minnesota Department of Natural Resources
 Fisheries Management
LAKE SURVEY REPORT



DRAFT VERSION - PRELIMINARY DATA (AS OF 07/01/2015)

Lake Name: Buffalo
 DOW Number: 51-0018-00

Survey Type: Standard Survey
 Survey ID Date: 06/29/2015

Lake Identification

Alternate Lake Name: N/A
 Primary Lake Class ID: 43
 DNR Sounding Map Number: N/A
 Alternate Lake Class ID: N/A

Lake Location

Primary County: Murray
 Nearest Town: Dovray

Legal Descriptions

Lake Center: Township - 107N Range - 39W Section - 18
 PLS Section Lake Center: 10703918

All Legal Descriptions:

Murray County: Township - 107N Range - 39W Sections - 7, 18
 Township - 107N Range - 40W Section - 13

Area Office

Area Name: Windom
 Region Name: Southern
 ORG Code: F418
 Region Number: 4

Lake Access

(Information based on Initial Survey dated 06/28/1993)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	T107N; 40W; S13. Access was purchased by Trails and Waterways in 1992. Located on Southwest side of the lake.

Lake Characteristics

Lake Area (planimetered acres): 124.00
 GIS Lake Area (acres): 126.90
 DOW Lake Area (acres): 124.00
 Littoral Area (acres): 126.90
 Area in MN (acres): 126.90
 Maximum Depth (feet): 8.5
 Mean Depth (feet): N/A
 GIS Shoreline Length (miles): 1.63
 Maximum Fetch (miles): 0.58
 Fetch Orientation (degrees): 90
 USGS Quad Map Number: V07d
 USGS Quad 24K GIS Index: 4314

Watershed Characteristics

Major Watershed	Minor Watershed
Name: Des Moines-Headwaters	Name: unknown DNR Minor Wshd
Watershed Number: 51	Watershed Number: 80
Watershed size (acres): 798,595	Watershed size (acres): 9,204

Surveys and Investigations

Initial Survey: 06/28/1993.
Re-Survey: 06/30/2003.
Population Assessment: 06/29/2009, 06/22/1998.
Winter Kill Assessment: 04/20/2010.
Dissolved Oxygen Check: 02/18/2015, 12/31/2013, 01/02/2013, 01/11/2012, 12/28/2010, 01/04/2010.
Standard Survey: 06/29/2015.
Targeted Survey: 06/29/2015.

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	07/01/2009	High	N/A	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	N/A	N/A	N/A	N/A	N/A	N/A	Above or below Benchmark (0)

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	06/29/2015	7.1	Surface	75.2	8.1
			2.0	75.2	8.0
			4.0	75.2	8.0
			6.0	75.0	7.9
			7.0	74.7	7.4

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	06/29/2015	Surface	1.0	8.40	187	Brown Grn	Algae

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 2
 First Set Date: 06/29/2015
 Last Lift Date: 07/01/2015
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 43*		
				25%	50%	75%
BLB	Black Bullhead	263	131.50	30.34	75.58	150.62
BLC	Black Crappie	3	1.50	1.41	3.71	13.75
NOP	Northern Pike	11	5.50	1.08	3.00	8.00
WAE	Walleye	2	1.00	2.28	6.83	18.06
YEP	Yellow Perch	38	19.00	2.65	8.00	25.00
Total Fish/Set:			158.50	* 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 43*		
					25%	50%	75%
BLB	Black Bullhead	43.45	21.73	0.17	0.17	0.26	0.39
BLC	Black Crappie	0.24	0.12	0.08	0.16	0.25	0.35
NOP	Northern Pike	31.02	15.51	2.82	1.82	2.50	3.35
WAE	Walleye	8.60	4.30	4.30	1.01	1.53	2.30
YEP	Yellow Perch	4.86	2.43	0.13	0.13	0.21	0.31
Total Pounds Fish/Set:			44.09	* Quartiles for Mean Weight			

Net Catch Summary by Numbers for TN

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

Number of Sets: 8
 First Set Date: 06/29/2015
 Last Lift Date: 07/01/2015
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 43*		
				25%	50%	75%
BLB	Black Bullhead	974	121.75	11.50	42.00	132.61
BLC	Black Crappie	10	1.25	1.17	4.88	20.50
NOP	Northern Pike	9	1.13	N/A	N/A	N/A
YEP	Yellow Perch	5	0.63	0.33	1.37	3.76
Total Fish/Set:			124.75	* 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 43*		
					25%	50%	75%
BLB	Black Bullhead	267.82	33.48	0.27	0.18	0.28	0.40
BLC	Black Crappie	8.36	1.05	0.84	0.22	0.34	0.50
NOP	Northern Pike	29.48	3.68	3.28	N/A	N/A	N/A
YEP	Yellow Perch	0.79	0.10	0.16	0.11	0.18	0.30
Total Pounds Fish/Set:			38.31	* Quartiles for Mean Weight			

Length Frequency Distribution for GN

Standard gill net sets

(Field work conducted between 06/29/2015 and 07/01/2015)

	<u>BLB</u>	<u>BLC</u>	<u>NOP</u>	<u>WAE</u>	<u>YEP</u>
< 3.00	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-
4.50 - 4.99	3	1	-	-	-
5.00 - 5.49	3	1	-	-	2
5.50 - 5.99	22	1	-	-	16
6.00 - 6.49	10	-	-	-	10
6.50 - 6.99	109	-	-	-	4
7.00 - 7.49	109	-	-	-	2
7.50 - 7.99	3	-	-	-	-
8.00 - 8.49	1	-	-	-	3
8.50 - 8.99	1	-	-	-	1
9.00 - 9.49	2	-	-	-	-
9.50 - 9.99	-	-	-	-	-
10.00 - 10.49	-	-	-	-	-
10.50 - 10.99	-	-	-	-	-
11.00 - 11.49	-	-	-	-	-
11.50 - 11.99	-	-	-	-	-
12.00 - 12.99	-	-	-	-	-
13.00 - 13.99	-	-	-	-	-
14.00 - 14.99	-	-	-	-	-
15.00 - 15.99	-	-	-	-	-
16.00 - 16.99	-	-	1	-	-
17.00 - 17.99	-	-	1	-	-
18.00 - 18.99	-	-	-	-	-
19.00 - 19.99	-	-	2	-	-
20.00 - 20.99	-	-	-	-	-
21.00 - 21.99	-	-	-	2	-
22.00 - 22.99	-	-	1	-	-
23.00 - 23.99	-	-	2	-	-
24.00 - 24.99	-	-	-	-	-
25.00 - 25.99	-	-	4	-	-
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	-	-	-	-	-
	<u>BLB</u>	<u>BLC</u>	<u>NOP</u>	<u>WAE</u>	<u>YEP</u>
Total	263	3	11	2	38
Min. Length	4.53	4.57	16.50	21.02	5.28
Max. Length	9.37	5.75	25.43	21.73	8.50
Mean Length	6.79	5.17	22.21	21.38	6.31
# Measured	118	3	11	2	38
No Lengths for	145	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

Length Frequency Distribution for TN

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

(Field work conducted between 06/29/2015 and 07/01/2015)

	<u>BLB</u>	<u>BLC</u>	<u>NOP</u>	<u>YEP</u>
< 3.00	-	-	-	-
3.00 - 3.49	-	-	-	-
3.50 - 3.99	9	-	-	-
4.00 - 4.49	8	-	-	-
4.50 - 4.99	2	-	-	-
5.00 - 5.49	2	-	-	-
5.50 - 5.99	8	-	-	1
6.00 - 6.49	3	-	-	-
6.50 - 6.99	78	-	-	-
7.00 - 7.49	307	-	-	1
7.50 - 7.99	195	1	-	2
8.00 - 8.49	142	1	-	-
8.50 - 8.99	128	5	-	-
9.00 - 9.49	44	-	-	-
9.50 - 9.99	26	-	-	-
10.00 - 10.49	16	-	-	-
10.50 - 10.99	-	-	-	-
11.00 - 11.49	-	-	-	-
11.50 - 11.99	-	-	-	-
12.00 - 12.99	3	1	-	-
13.00 - 13.99	5	-	-	-
14.00 - 14.99	-	2	-	-
15.00 - 15.99	-	-	-	-
16.00 - 16.99	-	-	1	-
17.00 - 17.99	-	-	1	-
18.00 - 18.99	-	-	2	-
19.00 - 19.99	-	-	-	-
20.00 - 20.99	-	-	-	-
21.00 - 21.99	-	-	-	-
22.00 - 22.99	-	-	-	-
23.00 - 23.99	-	-	1	-
24.00 - 24.99	-	-	-	-
25.00 - 25.99	-	-	-	-
26.00 - 26.99	-	-	1	-
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>BLC</u>	<u>NOP</u>	<u>YEP</u>
Total	976	10	9	4
Min. Length	3.70	7.83	16.65	5.94
Max. Length	13.27	14.53	30.20	7.83
Mean Length	7.72	10.08	23.23	7.19
# Measured	189	10	9	4
No Lengths for	785	0	0	1

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	12	0	N/A	0	N/A
	Snapping Turtle	1	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 Lake Survey Report contains preliminary data (as of 07/01/2015), 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.

Lake Survey Report revision: 20150625-RJE. Data Date: 07/01/2015 at 1:26 pm .

REPORT OVERVIEW - FOR OFFICE USE ONLY

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

Lake Name: Buffalo
DOW Number: 51-0018-00

Survey Type: Standard Survey
Survey ID Date: 06/29/2015

Survey Status: Active

The following 21 (of 32) report components are not included in this Lake Survey Report:

1. Current Water Level
2. Benchmark And Gauge Descriptions / Locations
3. Water Level History¹
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 Observations²
10. Resorts And Campgrounds
11. Fish Spawning Conditions
12. Erosion And Pollution
13. Fish Diseases And Parasites
14. Aquatic Vegetation And Shoalwater Substrates
15. Laboratory Analysis Of Water Chemistry
16. Length At Capture With Last Incremental Length*
17. Back-Calculated Lengths
18. Age Class Frequency Distributions
19. Status Of Fishery And Field Notes
20. Water Quality (Winter Observations) (added to revision 01/21/2010)
21. 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 07/01/2015 may not be reflected in the Distribution tables until 07/02/2015.

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