



Minnesota Department of Natural Resources

Fisheries Management

LAKE SURVEY REPORT



DRAFT VERSION - PRELIMINARY DATA (AS OF 06/20/2016)

Lake Name: String

Survey Type: Standard Survey

DOW Number: 17-0024-00

Survey ID Date: 06/08/2016

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID: 42

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

Lake Location

Primary County: Cottonwood

Nearest Town: Wilder

Legal Descriptions

Lake Center: Township - 105N Range - 36W Section - 31
PLS Section Lake Center: 10503631

All Legal Descriptions:

Township - Range - Section -

Area Office

Area Name: Windom
Region Name: Southern

ORG Code: F418
Region Number: 4

Lake Characteristics

Lake Area (planimetered acres): N/A
GIS Lake Area (acres): 336.23
DOW Lake Area (acres): 402.00
Littoral Area (acres): 0.00
Area in MN (acres): 336.23
Maximum Depth (feet): N/A
Mean Depth (feet): N/A

GIS Shoreline Length (miles): 6.95
Maximum Fetch (miles): N/A
Fetch Orientation (degrees): N/A
USGS Quad Map Number: W09c
USGS Quad 24K GIS Index: 4517

Watershed Characteristics

Major Watershed

Name: Des Moines-Headwaters
Watershed Number: 51
Watershed size (acres): 798,595

Minor Watershed

Name: String L Outlet
Watershed Number: 14
Watershed size (acres): 5,917

Surveys and Investigations

Standard Survey: 06/08/2016.

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 | 06/09/2016 | 6.2 | Surface | 70.2 | 9.9 |
| | | | 1.0 | 70.0 | 9.9 |
| | | | 2.0 | 70.0 | 9.8 |
| | | | 3.0 | 69.6 | 9.5 |
| | | | 4.0 | 69.3 | 8.5 |
| | | | 5.0 | 68.7 | 7.8 |
| | | | 6.0 | 68.5 | 7.6 |

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 | 06/09/2016 | Surface | 0.0 | 8.50 | 171 | Brown Grn | Sediment |

Net Catch Summary by Numbers for TN

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

Number of Sets: 8
First Set Date: 06/08/2016
Last Lift Date: 06/10/2016
Target Species: N/A

| Abbr | Species | Total Fish | Number Per Set | Quartiles for Lake Class 42* | | |
|-----------------|-----------------------|------------|----------------|--------------------------------|-------|-------|
| | | | | 25% | 50% | 75% |
| BIB | Bigmouth Buffalo | 14 | 1.75 | N/A | 0.30 | N/A |
| BLB | Black Bullhead | 170 | 21.25 | 2.20 | 17.30 | 60.46 |
| BLC | Black Crappie | 43 | 5.38 | 2.36 | 5.60 | 15.10 |
| CCF | Channel Catfish | 8 | 1.00 | N/A | N/A | N/A |
| CAP | Common Carp | 18 | 2.25 | 1.00 | 2.06 | 3.56 |
| GSF | Green Sunfish | 3 | 0.38 | 0.20 | 0.40 | 2.00 |
| NOP | Northern Pike | 1 | 0.13 | N/A | N/A | N/A |
| OSS | Orangespotted Sunfish | 6 | 0.75 | N/A | N/A | N/A |
| WTS | White Sucker | 6 | 0.75 | 0.28 | 0.67 | 2.20 |
| YEP | Yellow Perch | 110 | 13.75 | 0.48 | 1.29 | 3.45 |
| Total Fish/Set: | | | 47.38 | * 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 42* | | |
|------------------------|-----------------------|-----------------------|----------------|-----------------------------|------------------------------|------|------|
| | | | | | 25% | 50% | 75% |
| BIB | Bigmouth Buffalo | 77.71 | 9.71 | 5.55 | N/A | 3.83 | N/A |
| BLB | Black Bullhead | 75.76 | 9.47 | 0.45 | 0.19 | 0.30 | 0.50 |
| BLC | Black Crappie | 5.72 | 0.72 | 0.13 | 0.17 | 0.25 | 0.36 |
| CCF | Channel Catfish | 31.20 | 3.90 | 3.90 | N/A | N/A | N/A |
| CAP | Common Carp | 91.14 | 11.39 | 5.06 | 2.10 | 3.55 | 5.29 |
| GSF | Green Sunfish | 0.44 | 0.05 | 0.15 | 0.09 | 0.10 | 0.19 |
| NOP | Northern Pike | 6.84 | 0.85 | 6.84 | N/A | N/A | N/A |
| OSS | Orangespotted Sunfish | 0.24 | 0.03 | 0.04 | N/A | N/A | N/A |
| WTS | White Sucker | 5.41 | 0.68 | 0.90 | 1.14 | 1.79 | 2.50 |
| YEP | Yellow Perch | 19.57 | 2.45 | 0.18 | 0.10 | 0.17 | 0.27 |
| Total Pounds Fish/Set: | | | 39.25 | * Quartiles for Mean Weight | | | |

Length Frequency Distribution for TN

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

(Field work conducted between 06/08/2016 and 06/10/2016)

| | <u>BIB</u> | <u>BLB</u> | <u>BLC</u> | <u>CAP</u> | <u>CCF</u> | <u>GSF</u> | <u>NOP</u> | <u>OSS</u> | <u>WTS</u> | <u>YEP</u> |
|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| < 3.00 | - | - | - | - | - | - | - | - | - | - |
| 3.00 - 3.49 | - | - | - | - | - | - | - | 1 | - | - |
| 3.50 - 3.99 | - | - | - | - | - | - | - | 5 | - | - |
| 4.00 - 4.49 | - | - | 3 | - | - | - | - | - | - | - |
| 4.50 - 4.99 | - | - | 8 | - | - | - | - | - | - | - |
| 5.00 - 5.49 | - | - | 16 | - | - | 2 | - | - | - | 1 |
| 5.50 - 5.99 | - | 2 | 6 | - | - | 1 | - | - | - | 24 |
| 6.00 - 6.49 | - | - | - | - | - | - | - | - | - | 9 |
| 6.50 - 6.99 | - | 1 | - | - | - | - | - | - | - | 8 |
| 7.00 - 7.49 | - | 9 | - | - | - | - | - | - | - | 9 |
| 7.50 - 7.99 | - | 15 | 2 | - | - | - | - | - | - | 9 |
| 8.00 - 8.49 | - | 24 | 5 | - | - | - | - | - | - | 18 |
| 8.50 - 8.99 | - | 14 | 2 | - | - | - | - | - | - | 19 |
| 9.00 - 9.49 | - | 28 | - | - | - | - | - | - | 1 | 9 |
| 9.50 - 9.99 | - | 20 | - | - | - | - | - | - | - | 2 |
| 10.00 - 10.49 | - | 22 | 1 | - | - | - | - | - | - | 1 |
| 10.50 - 10.99 | - | 15 | - | - | - | - | - | - | - | - |
| 11.00 - 11.49 | 1 | 14 | - | - | - | - | - | - | - | - |
| 11.50 - 11.99 | - | 4 | - | - | - | - | - | - | - | - |
| 12.00 - 12.99 | - | 1 | - | - | - | - | - | - | 2 | - |
| 13.00 - 13.99 | 1 | - | - | - | - | - | - | - | 2 | - |
| 14.00 - 14.99 | - | 1 | - | 1 | - | - | - | - | 1 | - |
| 15.00 - 15.99 | - | - | - | - | - | - | - | - | - | - |
| 16.00 - 16.99 | - | - | - | - | 1 | - | - | - | - | - |
| 17.00 - 17.99 | 2 | - | - | 3 | 1 | - | - | - | - | - |
| 18.00 - 18.99 | 3 | - | - | 1 | 1 | - | - | - | - | - |
| 19.00 - 19.99 | - | - | - | - | - | - | - | - | - | - |
| 20.00 - 20.99 | 1 | - | - | 1 | - | - | - | - | - | - |
| 21.00 - 21.99 | 2 | - | - | 2 | 3 | - | - | - | - | - |
| 22.00 - 22.99 | 1 | - | - | 2 | 1 | - | - | - | - | - |
| 23.00 - 23.99 | 2 | - | - | 2 | - | - | - | - | - | - |
| 24.00 - 24.99 | - | - | - | 2 | 1 | - | - | - | - | - |
| 25.00 - 25.99 | - | - | - | 2 | - | - | - | - | - | - |
| 26.00 - 26.99 | - | - | - | 1 | - | - | - | - | - | - |
| 27.00 - 27.99 | - | - | - | 1 | - | - | - | - | - | - |
| 28.00 - 28.99 | 1 | - | - | - | - | - | - | - | - | - |
| 29.00 - 29.99 | - | - | - | - | - | - | - | - | - | - |
| 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>BIB</u> | <u>BLB</u> | <u>BLC</u> | <u>CAP</u> | <u>CCF</u> | <u>GSF</u> | <u>NOP</u> | <u>OSS</u> | <u>WTS</u> | <u>YEP</u> |
|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Total | 14 | 170 | 43 | 18 | 8 | 3 | 1 | 6 | 6 | 109 |
| Min. Length | 11.02 | 5.71 | 4.29 | 14.37 | 16.57 | 5.20 | 30.51 | 3.27 | 9.49 | 5.20 |
| Max. Length | 28.78 | 14.17 | 10.12 | 27.17 | 24.49 | 5.94 | 30.51 | 3.94 | 14.80 | 10.16 |
| Mean Length | 19.92 | 9.43 | 5.89 | 22.04 | 20.55 | 5.50 | 30.51 | 3.65 | 12.76 | 7.48 |
| # Measured | 14 | 134 | 43 | 18 | 8 | 3 | 1 | 6 | 6 | 92 |
| No Lengths for | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |

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 | 29 | 1 | 0.08 | 0 | N/A |
| | Snapping Turtle | 17 | 17 | 11.22 - 14.33 - 17.09 | 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 06/20/2016), 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: 20160309-RJE. Data Date: 06/20/2016 at 1:05 pm .

REPORT OVERVIEW - FOR OFFICE USE ONLY

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

Lake Name: String

Survey Type: Standard Survey

DOW Number: 17-0024-00

Survey ID Date: 06/08/2016

Survey Status: Field Work Complete

The following 24 (of 32) report components are not included in this Lake Survey Report:

1. Lake Access
2. Current Water Level
3. Benchmark And Gauge Descriptions / Locations
4. Water Level History¹
5. Water Level History - Readings*
6. Water Level History - Station Summary*
7. Lake Inlets
8. Additional Inlet Information
9. Lake Outlets
10. Additional Outlet Information
11. Water Control Structure (Dam)
12. Surrounding Watershed Characteristics, Shoreline Characteristics, and Riparian Landscape Observations²
13. Resorts And Campgrounds
14. Fish Spawning Conditions
15. Erosion And Pollution
16. Fish Diseases And Parasites
17. Aquatic Vegetation And Shoalwater Substrates
18. Laboratory Analysis Of Water Chemistry
19. Length At Capture With Last Incremental Length*
20. Back-Calculated Lengths
21. Age Class Frequency Distributions
22. Status Of Fishery And Field Notes
23. Water Quality (Winter Observations) (added to revision 01/21/2010)
24. 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 06/20/2016 may not be reflected in the Distribution tables until 06/21/2016.

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