



# Minnesota Department of Natural Resources

## Fisheries Management

### LAKE SURVEY REPORT



**DRAFT VERSION - PRELIMINARY DATA (AS OF 06/09/2016)**

Lake Name: Summit

Survey Type: Standard Survey

DOW Number: 51-0068-00

Survey ID Date: 06/06/2016

#### Lake Identification

Alternate Lake Name: N/A  
Primary Lake Class ID: 40

DNR Sounding Map Number: C0475  
Alternate Lake Class ID: N/A

#### Lake Location

Primary County: Murray

Nearest Town: Hadley

#### Legal Descriptions

Lake Center: Township - 106N Range - 42W Section - 11  
PLS Section Lake Center: 10604211

##### All Legal Descriptions:

Murray County: Township - 106N Range - 42W Section - 11

#### Area Office

Area Name: Windom  
Region Name: Southern

ORG Code: F418  
Region Number: 4

#### Lake Access

(Information based on Re-Survey dated 06/02/2008)

Station ID	Ownership	Public Use	Type	Location / Comments
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(Data excludes records where public use is not designated or is designated "No Public Use")

#### Lake Characteristics

Lake Area (planimetered acres): 77.00  
GIS Lake Area (acres): 78.30  
DOW Lake Area (acres): 80.00  
Littoral Area (acres): 76.86  
Area in MN (acres): 78.30  
Maximum Depth (feet): 7.0  
Mean Depth (feet): N/A

GIS Shoreline Length (miles): 1.47  
Maximum Fetch (miles): 0.50  
Fetch Orientation (degrees): 292  
USGS Quad Map Number: W06a  
USGS Quad 24K GIS Index: 4412

#### Watershed Characteristics

##### Major Watershed

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

##### Minor Watershed

Name: unknown DNR Minor Wshd  
Watershed Number: 70  
Watershed size (acres): 7,061

**Surveys and Investigations**

**Re-Survey:** 06/02/2008, 06/10/1996.  
**Population Assessment:** 06/04/2012, 05/24/2004, 05/30/2000, 06/09/1992, 08/11/1987.  
**Special Assessment:** 04/23/2001.  
**Standard Survey:** 06/06/2016.

**Current Water Level**

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	06/06/2016	Normal	-0.50	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	06/06/2016	Normal	-0.50	Above or below Benchmark
	06/07/2012	N/A	-0.60	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	-0.60	06/07/2012	-0.50	06/06/2016	0.10	-0.55	Above or below Benchmark (2)

**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	06/06/2016	6.4	Surface	65.7	9.0
			1.0	65.7	9.1
			2.0	65.3	9.1
			3.0	65.1	9.6
			4.0	64.6	10.7
			5.0	64.6	11.8
			6.0	64.4	12.2

**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	06/06/2016	Surface	5.5	9.88	68	Clear	N/A

### Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 1  
First Set Date: 06/06/2016  
Last Lift Date: 06/07/2016  
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 40*		
				25%	50%	75%
BLB	Black Bullhead	18	18.00	8.00	34.00	90.00
NOP	Northern Pike	1	1.00	1.50	3.00	9.00
WAE	Walleye	7	7.00	2.25	5.50	17.75
YEP	Yellow Perch	46	46.00	2.50	11.50	25.75
Total Fish/Set:			72.00	* Quartiles for Number Per Set		

### Net Catch Summary by Weight for GN

Standard gill net sets

Abbr	Species	Total Weight	Pounds	Mean	Quartiles for Lake Class 40*		
		(Pounds)	Per Set	Weight	25%	50%	75%
BLB	Black Bullhead	1.28	1.28	0.07	0.14	0.21	0.37
NOP	Northern Pike	3.64	3.64	3.64	1.75	2.42	3.66
WAE	Walleye	2.76	2.76	0.39	0.74	1.64	2.12
YEP	Yellow Perch	7.49	7.49	0.16	0.10	0.15	0.20
Total Pounds Fish/Set:			15.16	* 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: 06/06/2016  
Last Lift Date: 06/08/2016  
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 40*		
				25%	50%	75%
BLB	Black Bullhead	608	76.00	2.50	8.30	70.20
BLC	Black Crappie	3	0.38	1.25	4.50	27.68
NOP	Northern Pike	4	0.50	N/A	N/A	N/A
OSS	Orangespotted Sunfish	17	2.13	N/A	N/A	N/A
WAE	Walleye	8	1.00	0.29	0.75	1.33
WHC	White Crappie	4	0.50	0.25	1.25	8.20
YEP	Yellow Perch	422	52.75	0.35	1.00	3.49
Total Fish/Set:			133.25	* 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 40*		
					25%	50%	75%
BLB	Black Bullhead	93.37	11.67	0.15	0.14	0.24	0.47
BLC	Black Crappie	2.94	0.37	0.98	0.14	0.22	0.35
NOP	Northern Pike	22.58	2.82	5.64	N/A	N/A	N/A
OSS	Orangespotted Sunfish	0.89	0.11	0.05	N/A	N/A	N/A
WAE	Walleye	9.74	1.22	1.22	0.71	1.07	2.20
WHC	White Crappie	0.97	0.12	0.24	0.13	0.27	0.54
YEP	Yellow Perch	46.27	5.78	0.11	0.10	0.15	0.24
Total Pounds Fish/Set:			22.09	* Quartiles for Mean Weight			

### Length Frequency Distribution for GN

#### Standard gill net sets

(Field work conducted between 06/06/2016 and 06/07/2016)

	<u>BLB</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	-	-	-	-
5.00 - 5.49	17	-	-	-
5.50 - 5.99	1	-	-	9
6.00 - 6.49	-	-	-	7
6.50 - 6.99	-	-	-	9
7.00 - 7.49	-	-	-	1
7.50 - 7.99	-	-	-	1
8.00 - 8.49	-	-	-	13
8.50 - 8.99	-	-	1	4
9.00 - 9.49	-	-	-	2
9.50 - 9.99	-	-	-	-
10.00 - 10.49	-	-	2	-
10.50 - 10.99	-	-	1	-
11.00 - 11.49	-	-	2	-
11.50 - 11.99	-	-	-	-
12.00 - 12.99	-	-	1	-
13.00 - 13.99	-	-	-	-
14.00 - 14.99	-	-	-	-
15.00 - 15.99	-	-	-	-
16.00 - 16.99	-	-	-	-
17.00 - 17.99	-	-	-	-
18.00 - 18.99	-	-	-	-
19.00 - 19.99	-	-	-	-
20.00 - 20.99	-	-	-	-
21.00 - 21.99	-	-	-	-
22.00 - 22.99	-	-	-	-
23.00 - 23.99	-	-	-	-
24.00 - 24.99	-	-	-	-
25.00 - 25.99	-	-	-	-
26.00 - 26.99	-	1	-	-
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>NOP</u>	<u>WAE</u>	<u>YEP</u>
Total	18	1	7	46
Min. Length	5.08	26.93	8.90	5.51
Max. Length	5.55	26.93	12.09	9.13
Mean Length	5.24	26.93	10.65	7.19
# Measured	18	1	7	46
No Lengths for	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 06/06/2016 and 06/08/2016)

	<u>BLB</u>	<u>BLC</u>	<u>NOP</u>	<u>OSS</u>	<u>WAE</u>	<u>WHC</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	1	-	-	-
3.50 - 3.99	-	-	-	11	-	-	-
4.00 - 4.49	-	-	-	5	-	-	-
4.50 - 4.99	59	-	-	-	-	-	7
5.00 - 5.49	244	-	-	-	-	-	72
5.50 - 5.99	50	-	-	-	-	-	101
6.00 - 6.49	16	1	-	-	-	2	90
6.50 - 6.99	-	-	-	-	-	-	60
7.00 - 7.49	18	-	-	-	-	-	41
7.50 - 7.99	89	-	-	-	-	-	28
8.00 - 8.49	114	-	-	-	-	-	18
8.50 - 8.99	7	-	-	-	-	1	3
9.00 - 9.49	9	1	-	-	1	-	-
9.50 - 9.99	-	-	-	-	-	1	-
10.00 - 10.49	-	-	-	-	-	-	2
10.50 - 10.99	3	-	-	-	3	-	-
11.00 - 11.49	-	-	-	-	2	-	-
11.50 - 11.99	-	-	-	-	-	-	-
12.00 - 12.99	-	-	-	-	-	-	-
13.00 - 13.99	-	-	-	-	-	-	-
14.00 - 14.99	-	-	-	-	-	-	-
15.00 - 15.99	-	1	-	-	-	-	-
16.00 - 16.99	-	-	-	-	-	-	-
17.00 - 17.99	-	-	-	-	-	-	-
18.00 - 18.99	-	-	-	-	-	-	-
19.00 - 19.99	-	-	-	-	-	-	-
20.00 - 20.99	-	-	-	-	-	-	-
21.00 - 21.99	-	-	-	-	1	-	-
22.00 - 22.99	-	-	-	-	1	-	-
23.00 - 23.99	-	-	-	-	-	-	-
24.00 - 24.99	-	-	-	-	-	-	-
25.00 - 25.99	-	-	-	-	-	-	-
26.00 - 26.99	-	-	1	-	-	-	-
27.00 - 27.99	-	-	1	-	-	-	-
28.00 - 28.99	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-	-
30.00 - 30.99	-	-	1	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-
33.00 - 33.99	-	-	1	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-

	<u>BLB</u>	<u>BLC</u>	<u>NOP</u>	<u>OSS</u>	<u>WAE</u>	<u>WHC</u>	<u>YEP</u>
Total	609	3	4	17	8	4	422
Min. Length	4.72	6.06	26.61	3.15	9.25	6.10	4.76
Max. Length	10.55	15.75	33.74	4.17	22.99	9.65	10.31
Mean Length	6.34	10.29	29.57	3.83	13.48	7.75	6.31
# Measured	158	3	4	17	8	4	187
No Lengths for	450	0	0	0	0	0	235

**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

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**Other Species**

<b>Gear Type (1)</b>	<b>Other Species (Gender) (2)</b>	<b>Total Num</b>	<b>Number Measured</b>	<b>Length (inches) Min - Mean - Max</b>	<b>Number Weighed</b>	<b>Weight (pounds) Min - Mean - Max</b>
TN	Painted Turtle	2	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.

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**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 06/09/2016), 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.

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Lake Survey Report revision: 20160309-RJE. Data Date: 06/09/2016 at 2:13 pm .



## REPORT OVERVIEW - FOR OFFICE USE ONLY

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

**Lake Name: Summit**

**Survey Type: Standard Survey**

**DOW Number: 51-0068-00**

**Survey ID Date: 06/06/2016**

**Survey Status:** Field Work Complete

The following 19 (of 32) report components are not included in this Lake Survey Report:

1. Water Level History<sup>1</sup>
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 Observations<sup>2</sup>
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)
19. Survey Attachments (added to revision 20150622)

<sup>1</sup> 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.

<sup>2</sup> 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 06/09/2016 may not be reflected in the Distribution tables until 06/10/2016.**

The following survey component was flagged to be specifically excluded from this report: TN - 3

**FOR OFFICE USE ONLY:** As of revision 20150622, this page is automatically suppressed on signed versions of this report (area supervisor, region manager, research biologist, research supervisor, program staff, or program manager signed).