



Minnesota Department of Natural Resources
Fisheries Management
STANDARD LAKE SURVEY REPORT



Lake Name: Locke
DOW Number: 86-0168-00

Survey Type: Re-Survey
Survey ID Date: 06/16/2008

Lake Identification

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

DNR Sounding Map Number: D0244
Alternate Lake Class ID: 24

Lake Location

Primary County: Wright

Nearest Town: Clearwater

Legal Descriptions

Lake Center: Township - 122N Range - 26W Section - 21
PLS Section Lake Center: 12202621

All Legal Descriptions:

Wright County: Township - 122N Range - 26W Sections - 21, 22

Area Office

Area Name: Montrose
Region Name: Central

ORG Code: F315
Region Number: 3

Lake Access

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	DNR	Open to Public use	Concrete	State owned access on the north end of lake accessible from 143rd ST NW.

Lake Characteristics

Lake Area (planimetered acres): 156.00
GIS Lake Area (acres): 133.37
DOW Lake Area (acres): 152.00
Littoral Area (acres): 67.00
Area in MN (acres): 133.37
Maximum Depth (feet): 49.0
Mean Depth (feet): 18.1

GIS Shoreline Length (miles): 2.55
Maximum Fetch (miles): 0.80
Fetch Orientation (degrees): 45
USGS Quad Map Number: Q14c
USGS Quad 24K GIS Index: 3327

Watershed Characteristics

Major Watershed

Name: Mississippi River-St. Cloud
Watershed Number: 17
Watershed size (acres): 717,770

Minor Watershed

Name: Silver Creek
Watershed Number: 4
Watershed size (acres): 24,037

Surveys And Investigations

Re-Survey: 06/16/2008, 06/29/1998, 06/23/1980.
Population Assessment: 06/29/1992, 06/30/1986.

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Surveys And Investigations (Continued)

Special Assessment: 10/08/2007, 10/11/2005, 09/29/2003, 09/25/2002, 10/04/2000, 09/29/1999.

Current Water Level

<u>Station ID</u>	<u>Date</u>	<u>Level</u>	<u>Reading (feet)</u>	<u>Reading Type</u>
BM - 1	06/16/2008	Normal	959.84	Above Mean Sea Level

Benchmark and Gauge Descriptions / Locations

<u>Station ID</u>	<u>Location Description</u>
BM - 1	Brass disk on upstream headwall of twin barrel box culvert.

Water Level History - Readings

<u>Station ID</u>	<u>Date</u>	<u>Level</u>	<u>Reading (feet)</u>	<u>Reading Type</u>
BM - 1	06/16/2008	Normal	959.84	Above Mean Sea Level

Water Level History - Station Summary

<u>Station ID</u>	<u>Minimum Level</u>		<u>Maximum Level</u>		<u>Range (feet)</u>	<u>Average Level (feet)</u>	<u>Reading Type (and number of readings)</u>
	<u>Feet</u>	<u>Date</u>	<u>Feet</u>	<u>Date</u>			
BM - 1	959.84	06/16/2008	959.84	06/16/2008	0.00	959.84	Above Mean Sea Level (1)

Lake Inlets

(Field work conducted on 06/16/2008)

<u>Station ID</u>	<u>Name</u>	<u>Kittle Number</u>	<u>Origin and Cover Type (Primary and Secondary)</u>	<u>Surface Temp (°F)</u>
IN - 1	Silver Creek	M-69	Marsh Marshland (P) and Mixed forest (S)	64.0

Additional Inlet Information

<u>Station ID</u>	<u>Mean Width (feet)</u>	<u>Mean Depth (feet)</u>	<u>Discharge (CFS)</u>	<u>Mean Velocity (FPS)</u>	<u>Barriers to Fish Movement</u>	<u>Known Fish Spawning Runs</u>
IN - 1	30.00	1.70	5.1	0.10	No	WAE, NOP

Lake Outlets

(Field work conducted on 06/16/2008)

<u>Station ID</u>	<u>Name</u>	<u>Kittle Number</u>	<u>Tributary To</u>
OUT - 1	Silver Creek	M-69	Mississippi River

Additional Outlet Information

<u>Station ID</u>	<u>Mean Width (feet)</u>	<u>Mean Depth (feet)</u>	<u>Flow (CFS)</u>	<u>Mean Velocity (FPS)</u>	<u>Barriers to Fish Movement</u>	<u>Water Control Structure</u>
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Additional Outlet Information (Continued)

Station ID	Mean Width (feet)	Mean Depth (feet)	Flow (CFS)	Mean Velocity (FPS)	Barriers to Fish Movement	Water Control Structure
OUT - 1	20.00	2.00	4.28	1.1	No, but fish barrier exist downstream.	Culvert

Water Control Structure (Dam)

Station ID	Head (feet)	Water Height Sill (feet)	Gauge Reading (feet)	Type	Owner
DAM - 1	N/A	N/A	N/A	Concrete with fixed sill	DNR

Surrounding Watershed Characteristics

Use / Coverage	% Use	Relief	Location / Comments
Agricultural	40	Rolling	Locke Lake watershed; 2001 NLCD data.
Forested	19	Rolling	Locke Lake watershed; 2001 NLCD data.
Marsh	16	Flat	Locke Lake watershed; 2001 NLCD data, includes open water.
Pasture	14	Gradual	Locke Lake watershed; 2001 NLCD data.
Residential	6	Gradual	Locke Lake watershed; 2001 NLCD data.
Grassland	5	Flat	Locke Lake watershed; 2001 NLCD data.

Soil Types (Primary and Secondary): Sand (P), Loam (S)

Soil Comments: Cummings Grigal Soils of MN.

Shoreline Characteristics

Use / Coverage	% Use	Relief	Location / Comments
Forested	51	Flat	Locke Lake watershed; 200 foot buffer around lake.
Pasture	19	Flat	Locke Lake watershed; 200 foot buffer around lake.
Residential	15	Flat	Locke Lake watershed; 200 foot buffer around lake.
Grassland	9	Flat	Locke Lake watershed; 200 foot buffer around lake.
Marsh	6	Flat	Locke Lake watershed; 200 foot buffer around lake.

Number of Homes/Cabins: 94

Comments About Shoreline Development: N/A

Fish Spawning Conditions

Station ID	Species Name	Rating	Location / Comments
SP - 1	black crappie	Good	Suitable firm gravel or coarse sandy substrates that are protected from heavy wave action are present.

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Fish Spawning Conditions (Continued)

Station ID	Species Name	Rating	Location / Comments
SP - 1 (Cont.)	bluegill	Excellent	Suitable firm gravel or coarse sandy substrates that are protected from heavy wave action are present.
	largemouth bass	Excellent	Suitable firm gravel or coarse sandy substrates that are protected from heavy wave action are present.
	northern pike	Good	Shallow marshy areas with dense aquatic vegetation are present for northern pike to use for spawning.
	smallmouth bass	Good	Smallmouth bass have direct access to spawning sites in Silver Creek.
	walleye	Poor	Lack of wind swept shoals and coarse cobble substrate.
	yellow perch	Good	Submerged aquatic vegetation, submerged brush or fallen trees are present for yellow perch to spawn over.

Aquatic Vegetation And Shoalwater Substrates

Abundance Of Aquatic Plants (In Transects)

Number of Transects: 20

Maximum Depth of Aquatic Vegetation Sample (Feet): 6.5

Date(s) of Field Work: 07/21/2008

Common Name	Type	Frequency of Occurrence (%)	Abundance Rating	Mean Abundance (%)
Blue Vervain	Terrestrial	5	Rare	0.8
Canada Waterweed	Submergent	25	Rare	10.8
Cattail Group	Emergent	10	Rare	1.7
Coontail / Common hornwort	Submergent	60	Rare	20.0
Curly-leaf Pondweed	Submergent	85	Rare	27.5
Filamentous algae	-	35	Rare	5.8
Giant Burreed	Emergent	5	Rare	0.8
Horsetail Group	Emergent	5	Rare	0.8
Jewelweed	Terrestrial	35	Rare	5.8
Leafy Bulrush	Emergent	30	Rare	5.0
Lesser Duckweed	Free-Floating	35	Rare	7.5
Reed Canary Grass	Terrestrial	80	Rare	13.3
Sago Pondweed	Submergent	60	Rare	15.0
Smartweed Group	Floating-leaf, Terrestrial	15	Rare	2.5
Spikerush Group	Emergent	5	Rare	0.8
Straight-leaf Pondweed	Submergent	90	Rare	21.7
Swamp Milkweed	Terrestrial	25	Rare	4.2
White Waterlily Group	Floating-leaf	30	Rare	6.7

(Floating-Leaf and wetland species may be tallied with emergent species)

Shoalwater Substrates (In Transects)

Common Name	Frequency of Occurrence (%)	Abundance Rating	Mean Abundance (%)
Boulder	5	Rare	4.2
Gravel	60	Rare	23.3
Rubble	45	Rare	15.8
Sand	70	Common	45.0
Silt	20	Rare	15.0

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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	06/16/2008	49.2	1.0	66.6	12.1
			5.0	66.7	12.1
			10.0	66.4	12.4
			15.0	66.6	12.1
			16.0	61.9	4.9
			17.0	60.1	3.1
			18.0	58.8	2.2
			19.0	58.3	1.4
			20.0	56.5	0.5
			25.0	50.4	0.0
			30.0	47.8	0.0
			35.0	45.9	0.0
			40.0	45.3	0.0
			45.0	45.1	0.0

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	06/16/2008	Surface	5.5	9.20	221	Brown Green	Algae

Laboratory Analysis Of Water Chemistry

(Analysis Date: 10/15/2008)

Station ID	Sampling Date	Sample Depth (Feet)	Chemical Parameter	Chemical Value
WQ - 1	06/16/2008	Surface	Total phosphorus	0.047 ppm
			Chlorophyll-a trichromatic method calculation	28.0 ppb

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Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 6
First Set Date: 06/16/2008
Last Lift Date: 06/19/2008
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 24*		
				25%	50%	75%
BLB	Black Bullhead	964	160.67	2.50	10.46	44.95
BLC	Black Crappie	1	0.17	2.50	6.91	16.50
NOP	Northern Pike	9	1.50	1.50	3.75	7.29
WAE	Walleye	6	1.00	1.17	2.82	6.33
WTS	White Sucker	3	0.50	0.40	1.00	2.17
YEP	Yellow Perch	4	0.67	2.00	10.50	27.94
Total Fish/Set:			164.50	* 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 24*		
					25%	50%	75%
BLB	Black Bullhead	181.62	30.27	0.19	0.29	0.44	0.66
BLC	Black Crappie	0.10	0.02	0.10	0.15	0.20	0.26
NOP	Northern Pike	41.06	6.84	4.56	2.02	2.68	3.50
WAE	Walleye	10.84	1.81	1.81	1.20	1.81	2.69
WTS	White Sucker	7.17	1.19	2.39	1.55	2.00	2.38
YEP	Yellow Perch	1.09	0.18	0.27	0.10	0.13	0.18
Total Pounds Fish/Set:			40.31	* Quartiles for Mean Weight			

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RE-SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Net Catch Summary by Numbers for TN

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

Number of Sets: 8
First Set Date: 06/16/2008
Last Lift Date: 06/19/2008
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 24*		
				25%	50%	75%
BIB	Bigmouth Buffalo	6	0.75	0.20	0.25	0.75
BLB	Black Bullhead	863	107.88	0.71	3.75	25.65
BLC	Black Crappie	86	10.75	1.83	6.50	21.16
BLG	Bluegill	217	27.13	7.54	23.13	62.50
CAP	Common Carp	3	0.38	0.38	0.74	2.00
HSF	Hybrid Sunfish	2	0.25	N/A	N/A	N/A
LMB	Largemouth Bass	2	0.25	0.20	0.33	0.67
Total Fish/Set:			147.38	* 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 24*		
					25%	50%	75%
BIB	Bigmouth Buffalo	38.48	4.81	6.41	2.50	4.13	5.65
BLB	Black Bullhead	187.66	23.46	0.22	0.28	0.43	0.62
BLC	Black Crappie	17.69	2.21	0.21	0.18	0.24	0.33
BLG	Bluegill	43.57	5.45	0.20	0.13	0.18	0.25
CAP	Common Carp	26.68	3.34	8.89	2.58	4.07	6.02
HSF	Hybrid Sunfish	0.63	0.08	0.32	N/A	N/A	N/A
LMB	Largemouth Bass	4.51	0.56	2.25	0.15	0.31	0.91
Total Pounds Fish/Set:			39.90	* Quartiles for Mean Weight			

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Electrofishing Catch Summary for EF

Standard electrofishing

Total run-time for all stations: 01:21:00

Total on-time for all stations: 00:45:00

First Sampling Date: 05/14/2008

Last Sampling Date: 05/14/2008

Daylight Sampling: No

Target Species: All ages largemouth bass

Abbr	Species	Summary By Numbers			Summary By Weight (pounds)			
		Total Number	Number per Hour Run-Time	On-Time	Total Weight	Lbs per Hour Run-Time	On-Time	Mean Weight
LMB	Largemouth Bass	6	4.44	8.00	10.09	7.47	13.45	1.68
SMB	Smallmouth Bass	25	18.52	33.33	49.72	36.83	66.30	1.99
WAE	Walleye	11	8.15	14.67	18.59	13.77	24.79	1.69

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Natural Reproduction Catch Summary for SE

Standard shoreline seining

Number of Hauls: 3
First Haul Date: 09/04/2008
Last Haul Date: 09/04/2008
Target Species: N/A

Abbr	Species	Age	Total Number	Number Measured	Mean Length (inches)	Length Range (inches)		CPUE (num/ haul)
						Minimum	Maximum	
BLG	Bluegill	All	3	3	4.33	3.07	6.69	1.00
BKS	Brook Silverside	All	24	24	2.33	1.65	2.64	8.00
GSF	Green Sunfish	All	46	42	3.03	2.24	5.24	15.33
HSF	Hybrid Sunfish	All	6	6	3.43	2.68	6.06	2.00
LMB	Largemouth Bass	YOY	4	4	3.65	3.23	4.09	1.33
LMB	Largemouth Bass	≥ 1	3	3	3.46	3.15	3.82	1.00
SMB	Smallmouth Bass	YOY	44	41	3.30	2.52	4.49	14.67

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Length Frequency Distribution For GN

Standard gill net sets

(Field work conducted between 06/16/2008 and 06/19/2008)

	<u>BLB</u>	<u>BLC</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	-	-	-	-	-	-
5.00 - 5.49	1	-	-	-	-	-
5.50 - 5.99	9	-	-	-	-	-
6.00 - 6.49	187	1	-	-	-	-
6.50 - 6.99	362	-	-	-	-	1
7.00 - 7.49	207	-	-	-	-	-
7.50 - 7.99	161	-	-	-	-	-
8.00 - 8.49	26	-	-	-	-	1
8.50 - 8.99	8	-	-	-	-	1
9.00 - 9.49	1	-	-	-	-	1
9.50 - 9.99	1	-	-	-	-	-
10.00 - 10.49	1	-	-	-	-	-
10.50 - 10.99	-	-	-	-	-	-
11.00 - 11.49	-	-	-	-	-	-
11.50 - 11.99	-	-	-	-	-	-
12.00 - 12.99	-	-	-	2	-	-
13.00 - 13.99	-	-	-	2	-	-
14.00 - 14.99	-	-	-	-	-	-
15.00 - 15.99	-	-	-	-	-	-
16.00 - 16.99	-	-	-	-	1	-
17.00 - 17.99	-	-	1	-	2	-
18.00 - 18.99	-	-	-	-	-	-
19.00 - 19.99	-	-	-	-	-	-
20.00 - 20.99	-	-	-	1	-	-
21.00 - 21.99	-	-	-	-	-	-
22.00 - 22.99	-	-	2	-	-	-
23.00 - 23.99	-	-	-	-	-	-
24.00 - 24.99	-	-	-	-	-	-
25.00 - 25.99	-	-	1	1	-	-
26.00 - 26.99	-	-	1	-	-	-
27.00 - 27.99	-	-	1	-	-	-
28.00 - 28.99	-	-	-	-	-	-
29.00 - 29.99	-	-	1	-	-	-
30.00 - 30.99	-	-	-	-	-	-
31.00 - 31.99	-	-	1	-	-	-
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>WAE</u>	<u>WTS</u>	<u>YEP</u>
Total	964	1	9	6	3	4
Min. Length	5.16	6.14	17.40	12.83	16.50	6.50
Max. Length	10.28	6.14	33.07	25.35	17.83	9.25
Mean Length	6.99	6.14	26.14	16.36	17.31	8.14
# Measured	736	1	9	6	3	4
No Lengths for	228	0	0	0	0	0

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Length Frequency Distribution For TN

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

(Field work conducted between 06/16/2008 and 06/19/2008)

	<u>BIB</u>	<u>BLB</u>	<u>BLC</u>	<u>BLG</u>	<u>CAP</u>	<u>HSF</u>	<u>LMB</u>
< 3.00	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-	-	-
4.50 - 4.99	-	-	-	-	-	-	-
5.00 - 5.49	-	-	-	4	-	-	-
5.50 - 5.99	-	5	-	70	-	1	-
6.00 - 6.49	-	70	3	94	-	-	-
6.50 - 6.99	-	153	12	23	-	-	-
7.00 - 7.49	-	267	30	9	-	-	-
7.50 - 7.99	-	253	36	15	-	-	-
8.00 - 8.49	-	104	3	2	-	1	-
8.50 - 8.99	-	12	2	-	-	-	-
9.00 - 9.49	-	-	-	-	-	-	-
9.50 - 9.99	-	-	-	-	-	-	-
10.00 - 10.49	-	-	-	-	-	-	1
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	-	-	-	-	-	-	-
17.00 - 17.99	-	-	-	-	-	-	-
18.00 - 18.99	-	-	-	-	-	-	-
19.00 - 19.99	-	-	-	-	-	-	1
20.00 - 20.99	2	-	-	-	1	-	-
21.00 - 21.99	1	-	-	-	-	-	-
22.00 - 22.99	1	-	-	-	-	-	-
23.00 - 23.99	1	-	-	-	-	-	-
24.00 - 24.99	-	-	-	-	-	-	-
25.00 - 25.99	1	-	-	-	-	-	-
26.00 - 26.99	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-

	<u>BIB</u>	<u>BLB</u>	<u>BLC</u>	<u>BLG</u>	<u>CAP</u>	<u>HSF</u>	<u>LMB</u>
Total	6	864	86	217	3	2	2
Min. Length	20.63	5.75	6.22	5.39	20.16	5.91	10.08
Max. Length	25.51	8.94	8.62	8.15	30.24	8.15	19.06
Mean Length	22.47	7.31	7.45	6.28	26.06	7.03	14.57
# Measured	6	271	86	217	3	2	2
No Lengths for	0	592	0	0	0	0	0

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Length Frequency Distribution For EF

Standard electrofishing

(Field work conducted on 05/14/2008)

	<u>LMB</u>	<u>SMB</u>	<u>WAE</u>
< 3.00	-	-	-
3.00 - 3.49	-	-	-
3.50 - 3.99	-	-	-
4.00 - 4.49	-	-	-
4.50 - 4.99	-	-	-
5.00 - 5.49	-	-	-
5.50 - 5.99	-	-	-
6.00 - 6.49	-	-	-
6.50 - 6.99	-	-	-
7.00 - 7.49	-	-	1
7.50 - 7.99	-	-	1
8.00 - 8.49	-	-	-
8.50 - 8.99	1	-	-
9.00 - 9.49	1	3	-
9.50 - 9.99	1	1	-
10.00 - 10.49	-	1	-
10.50 - 10.99	-	3	-
11.00 - 11.49	-	1	-
11.50 - 11.99	-	2	-
12.00 - 12.99	1	-	4
13.00 - 13.99	-	1	-
14.00 - 14.99	-	-	1
15.00 - 15.99	-	1	-
16.00 - 16.99	-	1	-
17.00 - 17.99	-	4	-
18.00 - 18.99	1	2	-
19.00 - 19.99	1	5	1
20.00 - 20.99	-	-	1
21.00 - 21.99	-	-	-
22.00 - 22.99	-	-	1
23.00 - 23.99	-	-	-
24.00 - 24.99	-	-	-
25.00 - 25.99	-	-	1
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>LMB</u>	<u>SMB</u>	<u>WAE</u>
Total	6	25	11
Min. Length	8.70	9.02	7.20
Max. Length	19.29	19.80	25.16
Mean Length	13.06	14.59	15.11
# Measured	6	25	11
No Lengths for	0	0	0

STANDARD LAKE SURVEY REPORT
RE-SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Length Frequency Distribution For SE

Standard shoreline seining

(Field work conducted on 09/04/2008)

	<u>BKS</u>	<u>BLG</u>	<u>GSF</u>	<u>HSF</u>	<u>LMB</u>	<u>YLMB</u>	<u>YSMB</u>
< 0.50	-	-	-	-	-	-	-
0.50 - 0.99	-	-	-	-	-	-	-
1.00 - 1.49	-	-	-	-	-	-	-
1.50 - 1.99	1	-	-	-	-	-	-
2.00 - 2.49	19	-	7	-	-	-	-
2.50 - 2.99	4	-	17	3	-	-	12
3.00 - 3.49	-	2	14	2	2	2	19
3.50 - 3.99	-	-	2	-	1	-	8
4.00 - 4.49	-	-	4	-	-	2	5
4.50 - 4.99	-	-	-	-	-	-	-
5.00 - 5.49	-	-	1	-	-	-	-
5.50 - 5.99	-	-	-	-	-	-	-
6.00 - 6.49	-	-	-	1	-	-	-
6.50 - 6.99	-	1	-	-	-	-	-
7.00 - 7.49	-	-	-	-	-	-	-
7.50 - 7.99	-	-	-	-	-	-	-
8.00 - 8.49	-	-	-	-	-	-	-
8.50 - 8.99	-	-	-	-	-	-	-
9.00 - 9.49	-	-	-	-	-	-	-
9.50 - 9.99	-	-	-	-	-	-	-
10.00 - 10.49	-	-	-	-	-	-	-
10.50 - 10.99	-	-	-	-	-	-	-
11.00 - 11.49	-	-	-	-	-	-	-
11.50 - 11.99	-	-	-	-	-	-	-
12.00 - 12.49	-	-	-	-	-	-	-
12.50 - 12.99	-	-	-	-	-	-	-
13.00 - 13.49	-	-	-	-	-	-	-
13.50 - 13.99	-	-	-	-	-	-	-
14.00 - 14.49	-	-	-	-	-	-	-
14.50 - 14.99	-	-	-	-	-	-	-
15.00 - 15.49	-	-	-	-	-	-	-
15.50 - 15.99	-	-	-	-	-	-	-
= > 16.00	-	-	-	-	-	-	-

	<u>BKS</u>	<u>BLG</u>	<u>GSF</u>	<u>HSF</u>	<u>LMB</u>	<u>YLMB</u>	<u>YSMB</u>
Total	24	3	45	6	3	4	44
Min. Length	1.65	3.07	2.24	2.68	3.15	3.23	2.52
Max. Length	2.64	6.69	5.24	6.06	3.82	4.09	4.49
Mean Length	2.33	4.33	3.03	3.43	3.46	3.65	3.30
# Measured	24	3	42	6	3	4	41
No Lengths for	0	0	4	0	0	0	3

STANDARD LAKE SURVEY REPORT
FULL SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Length At Capture With Last Incremental Length

Species: Black Crappie
Body-Scale Constant: N/A
Total Sample Size: 33

Length at Capture in 2008 For Each Age Class

Year Class	Age	Sample Size	Length At Capture (inches)			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	3	29	7.28	8.31	6.14	0.63		
2004	4							
2003	5							
2002	6	1	8.90	8.90	8.90	N/A		
2001	7	3	8.49	8.62	8.27	0.19		

Species: Bluegill
Body-Scale Constant: N/A
Total Sample Size: 38

Length at Capture in 2008 For Each Age Class

Year Class	Age	Sample Size	Length At Capture (inches)			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	3	20	5.97	6.69	5.39	0.42		
2004	4	4	6.76	7.01	6.61	0.17		
2003	5	1	6.85	6.85	6.85	N/A		
2002	6	1	7.32	7.32	7.32	N/A		
2001	7	8	7.84	8.66	7.48	0.37		
2000	8	4	7.94	8.35	7.24	0.48		

Species: Northern Pike
Body-Scale Constant: N/A
Total Sample Size: 8

Length at Capture in 2008 For Each Age Class

Year Class	Age	Sample Size	Length At Capture (inches)			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	3	1	17.40	17.40	17.40	N/A		
2004	4							
2003	5	2	24.45	26.42	22.56	2.73		
2002	6	2	23.76	25.51	22.01	2.48		
2001	7	1	29.25	29.25	29.25	N/A		
2000	8	2	30.51	33.07	27.95	3.62		

STANDARD LAKE SURVEY REPORT
FULL SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Length At Capture With Last Incremental Length

Species: Smallmouth Bass
Body-Scale Constant: N/A
Total Sample Size: 24

Length at Capture in 2008 For Each Age Class

Year Class	Age	Sample Size	Length At Capture (inches)			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	3	9	9.84	11.14	9.02	0.72		
2004	4	5	11.67	13.39	10.37	1.08		
2003	5	1	15.12	15.12	15.12	N/A		
2002	6							
2001	7	4	17.34	17.91	16.30	0.74		
2000	8	1	15.12	15.12	15.12	N/A		
1999	9							
1998	10							
1997	11	3	19.57	19.65	19.19	0.08		
1996	12							
1995	13	1	19.80	19.80	19.80	N/A		

Species: Walleye–female
Body-Scale Constant: N/A
Total Sample Size: 6

Length at Capture in 2008 For Each Age Class

Year Class	Age	Sample Size	Length At Capture (inches)			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2005	3	4	13.16	13.70	12.83	0.38		
2004	4							
2003	5							
2002	6							
2001	7	1	25.35	25.35	25.35	N/A		
2000	8							
1999	9							
1998	10							
1997	11							
1996	12	1	20.16	20.16	20.16	N/A		

STANDARD LAKE SURVEY REPORT
RE-SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Age Class Frequency Distribution

Species and Gear ⁽¹⁾	Number of Fish in Year Class ('yy) and Age Class																		
	Number of Fish ⁽²⁾			'08	'07	'06	'05	'04	'03	'02	'01	'00	'99	'98	'97	'96	'95	'94	<'94
	Aged	Keyed	Unaged	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
Black Crappie																			
GN	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TN	30	56	0	0	0	0	83	0	0	0	3	0	0	0	0	0	0	0	0
Totals:	31	56	0	0	0	0	84	0	0	0	3	0	0	0	0	0	0	0	0
Bluegill																			
TN	36	180	1	0	0	0	178	12	3	2	17	4	0	0	0	0	0	0	0
Largemouth Bass																			
EF	2	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Northern Pike																			
GN	8	0	1	0	0	0	1	0	2	2	1	2	0	0	0	0	0	0	0
Smallmouth Bass																			
EF	22	3	0	0	0	0	7	5	1	0	5	2	0	0	4	0	1	0	0
Walleye																			
GN	6	0	0	0	0	0	4	0	0	0	1	0	0	0	0	1	0	0	0

(1) Key to sampling gear abbreviations:

GN = Standard gill net sets
 TN = Standard 3/4-in mesh, double frame trap net sets
 EF = Standard electrofishing

(2) Notes:

Number of Fish Aged: Fish that were aged from bony parts.
 Number of Fish Keyed: Fish assigned an age with an age-length key or by expansion of mesh or station age distributions.
 Number of Fish Unaged: Fish that were not aged and were not assigned an age.

STANDARD LAKE SURVEY REPORT
RE-SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Survey Crew Notes

94 year-round residential dwellings.

Ski Boats= 14, Pontoons=23, Jet Skis=2, Canoes=8 , Fishing Boats=13, Paddle Boats=21, Dive Rafts=10, Sail Boats=1

Discussion

Locke Lake is a 156-acre general development lake located one mile southeast of Hasty in northern Wright County. The lake is deep, 49 feet, but water quality is poor. It receives inflow from a 25,000- acre agricultural watershed. A downstream barrier on Silver Creek isolates Locke Lake from the Mississippi River. In mid-June, secchi depth was 5.5 feet and dissolved oxygen measured 3.1 ppm at 17 feet. Aquatic plants were sparse. Only five submersed species were present. The exotic, curly leaf pondweed, was found on approximately one quarter of an acre at the time of peak abundance.

Locke Lake has a long history of fish stocking and removal. Recent management has consisted of alternate year walleye fry stocking which began in 1998. This was the first full fisheries survey since 1998.

Catch rates for northern pike, walleye and yellow perch were all below the first quartile.

The gill net catch for northern pike, 1.5/gill net, decreased significantly from 5.80/lift in 1998. Northern pike ranged from 17.4 to 33.1 inches and averaged 26.2 inches and 4.6 pounds. Northern pike growth was within statewide averages, but only eight fish were aged.

The gill net catch for walleye (1.0/lift) was nearly equal to that of 1998 (1.20/lift). Eleven walleye were also sampled by electrofishing (14.7/hour on-time). Walleye from both gear ranged from 7.2 to 25.4 inches and averaged 15.6 inches. Fingerlings have been collected after fry stockings at rates of 5-87 fingerlings/hour. However, gill net catches remained low, so it appears that fry stocking has not been as successful as hoped. Still, stocking Locke Lake with walleye fry remains a less expensive option with results similar to stocking fingerlings.

Only four yellow perch were collected in 2008, all by gill nets. The catch rate decreased significantly from 9.80/lift in 1998 to 0.67/lift. Fish ranged from 6.5 to 8.7 inches and averaged 8.1 inches.

Bass were sampled by night electrofishing May 14, 2008. A total of six largemouth bass and 25 smallmouth bass were collected at rates of 8.0/hour and 33.3/hour, respectively. Adult largemouth bass in this survey ranged from 8.7 to 19.3 inches, and averaged 13.4 inches and 1.8 pounds. Smallmouth bass ranged from 9.0 to 19.8 inches, and averaged 14.6 inches and 2.0 pounds. Growth for smallmouth bass was within statewide averages. Smallmouth reached 12 inches between ages four and five. Smallmouth bass PSD was 56, and RSD-15 was 52.

The trap net catch for bluegill (27.1) was less than half of the 1998 rate of 74.8/ net, but still between the second and third quartiles for lake class 24. Fish ranged from 5.4 to 8.7 and averaged 6.3 inches. Growth of bluegill was above the lake class average. Bluegill reached six inches in three years.

The trap net catch for black crappie (10.75/lift) was similar to 1998 (7.8/lift) and between the second and third quartiles for lake class 24. Fish ranged from 6.4 to 8.9 inches and averaged 7.4 inches. Growth of black crappie was within the lake class averages and reached 7.3 inches by age three.

Nongame fish collected in 2008 were white sucker, bigmouth buffalo, hybrid and green sunfish, carp, and brook silverside. The black bullhead trap net catch rate, 107.9/ net, was much higher than the 1998 rate of 2.0/net.

STANDARD LAKE SURVEY REPORT
RE-SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Status Of The Fishery

Locke Lake is a 156 acre general development lake located one mile southeast of Hasty in northern Wright County. The lake is at the lower end of a 25,000 acre agricultural watershed. A downstream barrier on Silver Creek isolates Locke Lake from the Mississippi River. Water quality is poor. In mid-June dissolved oxygen is adequate for fish life only to 17 feet. Aquatic plants were sparse. The exotic, curly leaf pondweed, was found growing at or near the surface on one quarter of an acre of the lake at the time of peak abundance.

Locke Lake has a long history of fish stocking and removal. Recent management has consisted of alternate year walleye fry stocking which began in 1998. This was the first full fisheries survey since 1998.

Catch rates for northern pike, walleye and yellow perch were all below the expected range.

The gill net catch for northern pike, 1.5/gill net, decreased significantly from 1998. Northern pike ranged from 17 to 33 inches and averaged 26 inches and five pounds. Northern pike growth was within statewide averages, but only eight fish were examined.

The gill net catch for walleye, 1.0/lift was about the same as 1998. Eleven walleye were also sampled by electrofishing. Walleye from both sampling gears ranged from seven to 25 inches and averaged 16 inches. Fingerlings have been collected after fry stockings at rates of 5-87 fingerlings/hour. However, gill net catches remained low, so it appears that fry stocking has not been as successful as hoped. Based on gill net catch data, stocking Locke Lake with walleye fry remains a less expensive option with results similar to stocking fingerlings.

Bass were sampled by electrofishing at night on May 14, 2008. Locke Lake is one of the few lakes in the area where anglers have a better chance to catch a smallmouth rather than largemouth. Smallmouth were more prevalent because of the lakes' former connection to the Mississippi River. Smallmouth bass up to 19 inches were captured in this survey. Fish averaged 15 inches and two pounds. Smallmouth grew to 12 inches between ages four and five.

Anglers can expect reasonable fishing for bluegill and black crappie. The trap net catch for bluegill was within the expected range for similar lakes. Bluegill up to 8.5 inches were captured in this survey. Growth of bluegill was above average as fish reached six inches in three years.

The trap net catch for black crappie was similar to 1998 and within the expected range for lake class 24. Crappie averaged seven inches but some nine inchers were noted. Growth of black crappie was within statewide averages as fish reached seven inches by age three.

Nongame fish collected in 2008 were white sucker, bigmouth buffalo, hybrid and green sunfish, carp, and brook silverside. Black bullhead were numerous. Catch rates were much higher than 1998 and up to four times higher than the expected values.

STANDARD LAKE SURVEY REPORT
RE-SURVEY DATED 06/16/2008 FOR DOW NUMBER 86-0168-00

Approval Dates And Notices

Date Approved By Montrose Area Fisheries Supervisor: _____

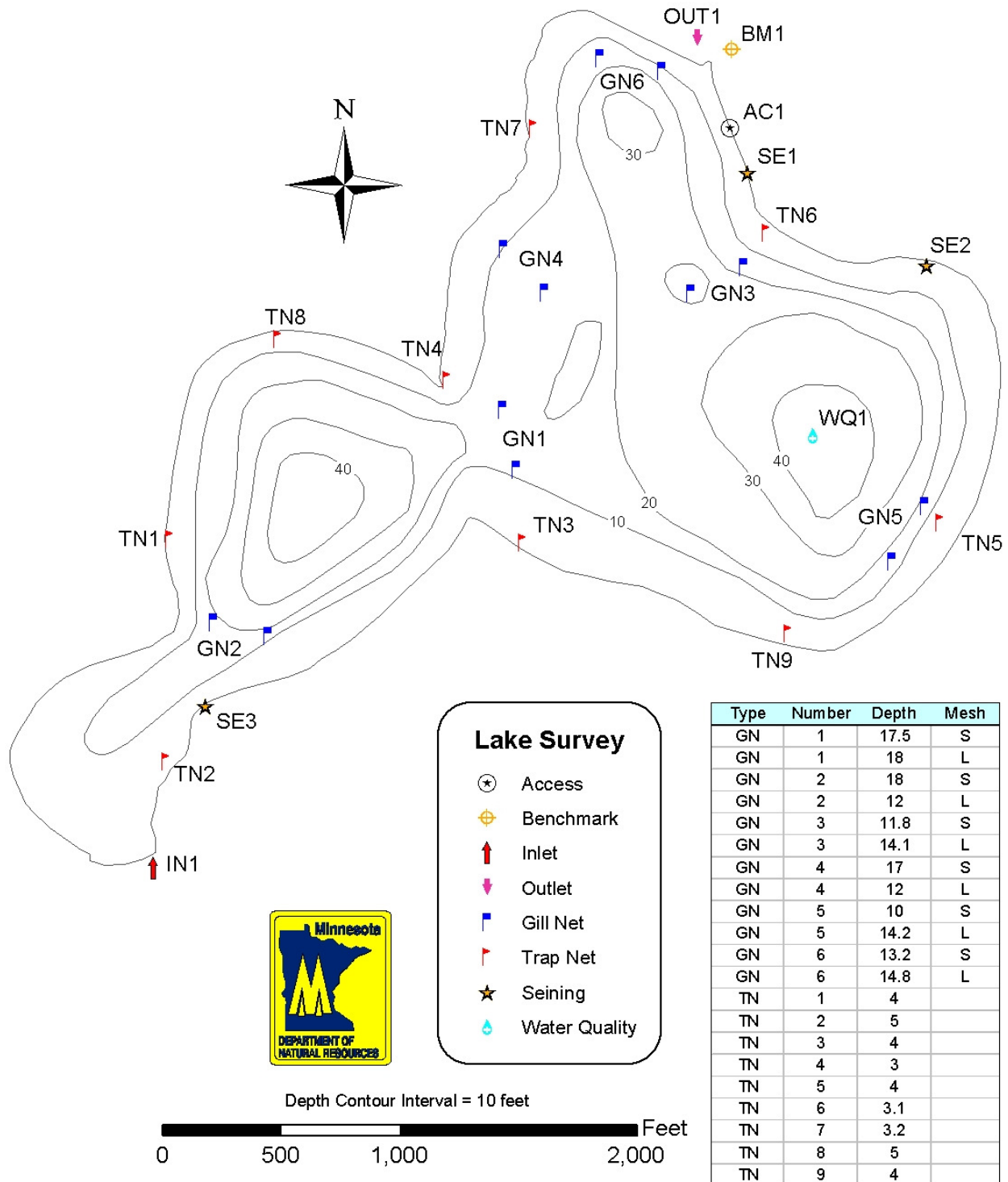
Date Approved By Central Region Fisheries Manager: _____



Minnesota Department of Natural Resources

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Locke Lake (86-168) 2008 Lake Survey



2001 Land Use

Land Cover Class

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Emergent Herbaceous Wetlands

Locke Lake (86-168) Watershed Land Use

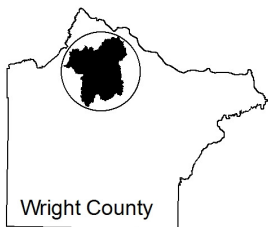
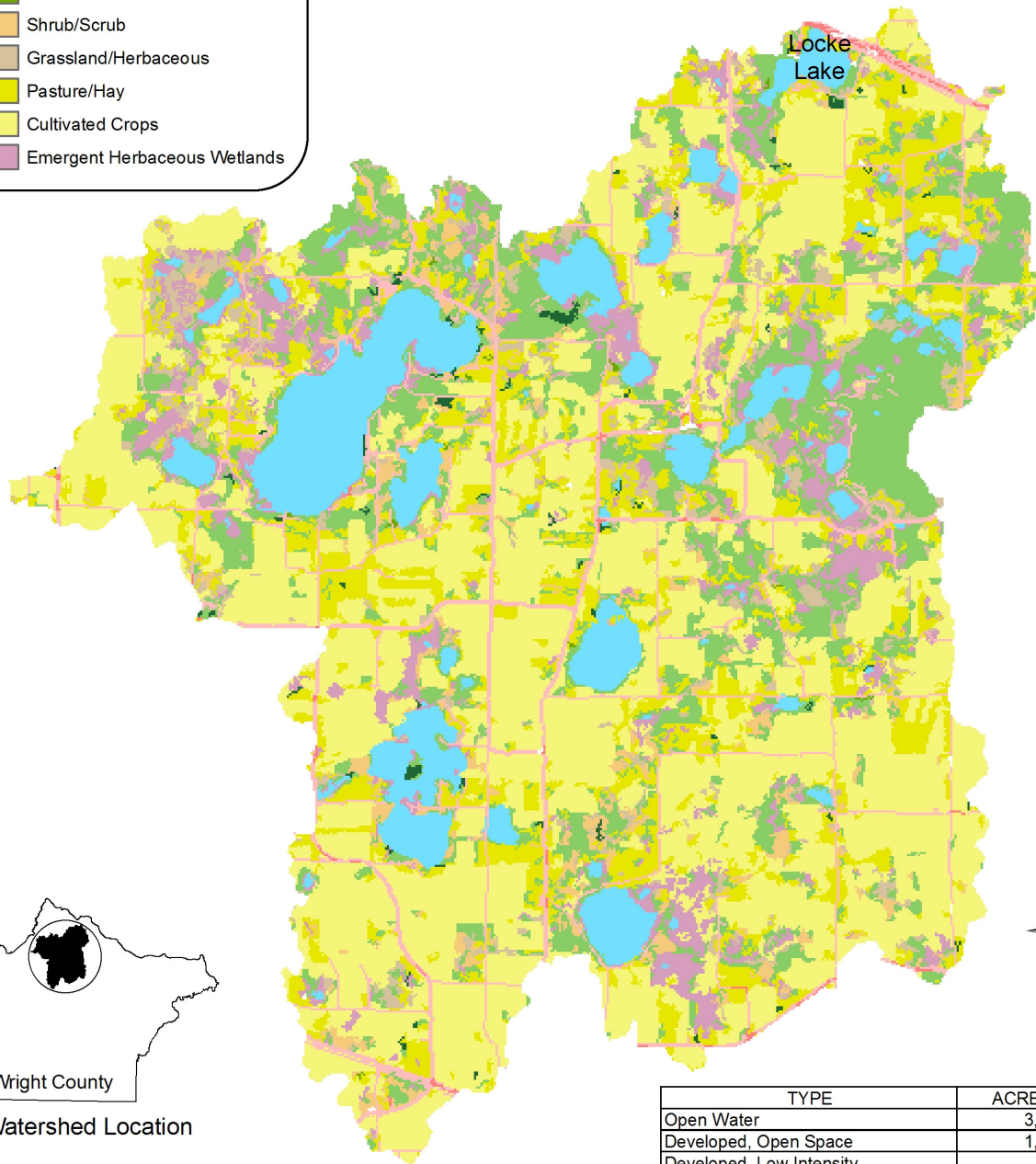
Watershed = 32,369.3 acres

Locke Lake = 156.0 acres

Watershed/ Lake Ratio = 207.5

Land use based on 2001

National Land Cover Data



Watershed Location

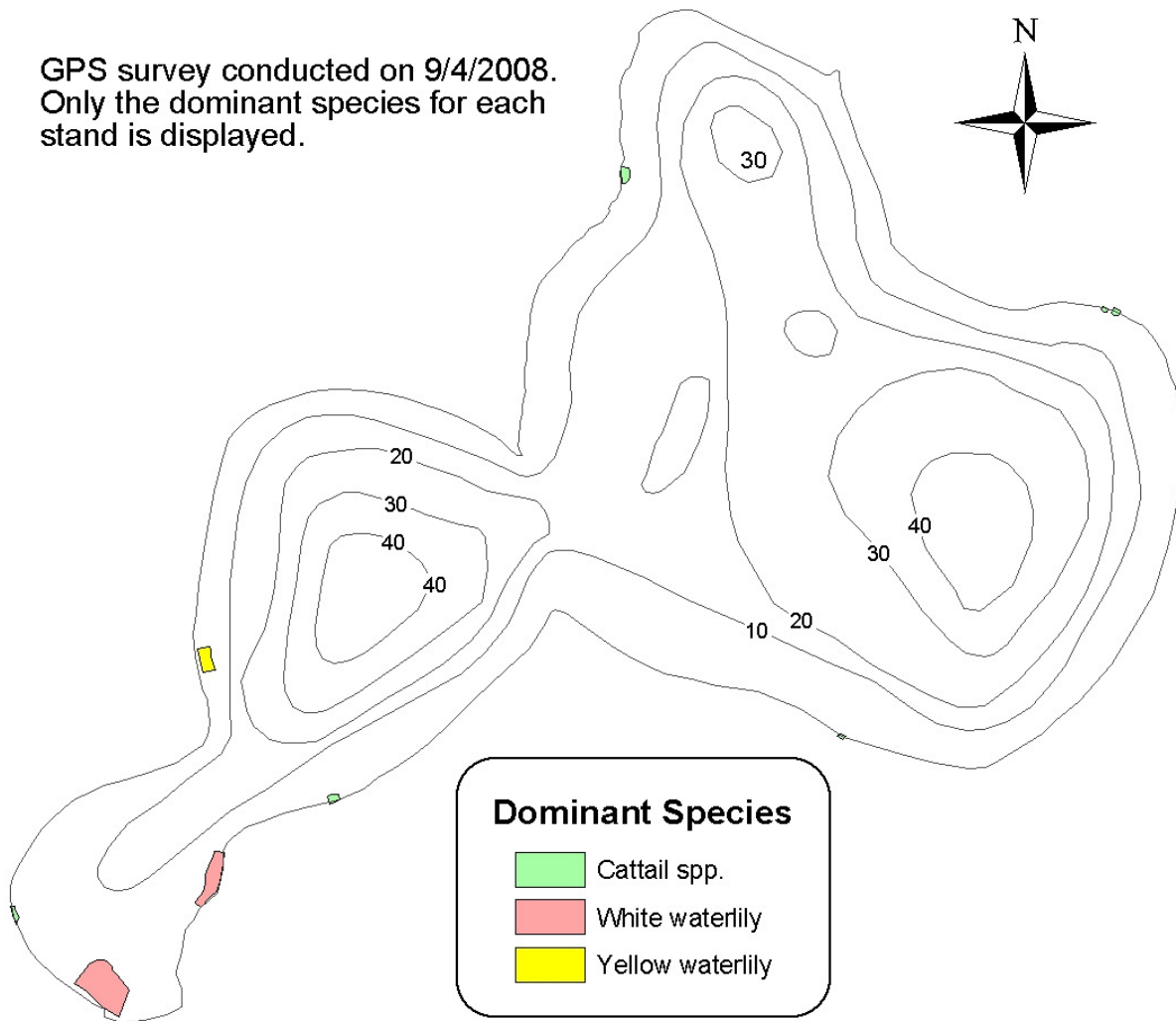


0 0.5 1 2 3 Miles

TYPE	ACRES	PERCENT
Open Water	3,068.4	9.5
Developed, Open Space	1,847.1	5.7
Developed, Low Intensity	82.5	0.3
Deciduous Forest	5,093.3	15.7
Evergreen Forest	126.7	0.4
Mixed Forest	19.3	0.1
Shrub/Scrub	835.0	2.6
Grassland/Herbaceous	1,692.8	5.2
Pasture/Hay	4,497.8	13.9
Cultivated Crops	13,021.7	40.2
Emergent Herbaceous Wetlands	2,057.4	6.4
Totals	32,369.3	100.0

Locke Lake (86-168) 2008 Emergent & Floatingleaf Vegetation

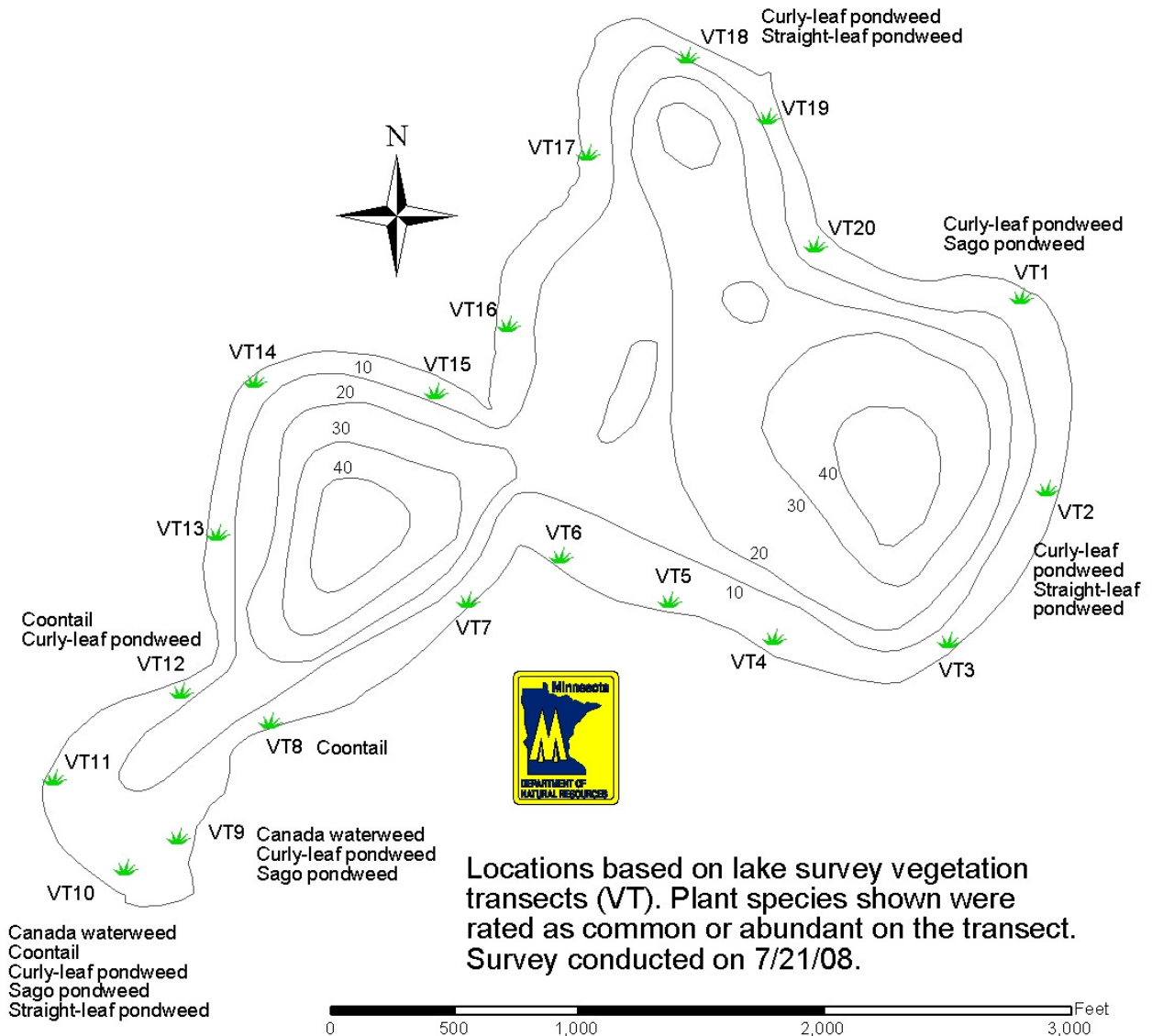
GPS survey conducted on 9/4/2008.
Only the dominant species for each
stand is displayed.



Species	Acres	Lake Area %	Shoreline ft	Shoreline %
Cattail spp.	0.2	0.1	250	1.8
White waterlily	0.7	0.5	441	3.2
Yellow waterlily	0.1	0.1	85	0.6
Total	0.9	0.7	776	5.6



Locke Lake (86-168) 2008 Submergent Vegetation



Locke Lake (86-168) 2008 Curled Pondweed

Areas shaded green represent curled pondweed growing at or near the surface. GPS survey conducted on 6/20/08.

Total area = 0.2 acres
Lake area = 138 acres
Curled pondweed = 0.2% of lake area

