A

APPENDIX A

Public Participation Materials

Lake Metonga Association Newsletter

Spring 2007

CLEAN BOATS – CLEAN WATERS This is a volunteer program that involves citizens in water-craft inspections at boat launches. Volunteers will serve to inform and educate the public about how people can help prevent the spread of invasives by inspecting their watercraft and removing aquatic plants and animals from their boats and equipment before entering and leaving launch sites.

The Mole Lake Sokaogon can direct a portion of its annual payment to the State to any local government entity. The Tribe, in partnership with the City of Crandon, has designated $5,000 to employ two youth to assist boaters at the launches to check for aquatic plants, zebra mussels and other invasive species. We thank the Tribe for their involvement in this program.

Also, any person who launches their boat in Lake Metonga waters should do this inspection and observe the procedures listed on the signs at the boat launches. Let's prevent other invasives from entering the Lake.

LAKE MANAGEMENT PLANNING GRANT

On February 1, 2007, our lake consultant, Onterra, LLC, filed a Lake Management Planning Grant for Lake Metonga Association ("LMA"). The purpose of the grant project is to address managing the Lake from a total ecosystem perspective which includes an assessment of the Lake aquatic plants, watershed, water quality and Lake fishery. The assessment of all these components and communication with the WDNR specialists would allow for the creation of a long-term plan which LMA can implement.

The total project cost is $12,994.50. This is a 75/25% cost-share grant with the State funding $9,745.88 and LMA furnishing $3,248.62. The grant was received on 4/25/07.

LMA's participation is a very important element in this grant planning exercise. The Association needs to understand the value of a natural ecosystem and the means to protect and/or enhance it. At the start of the project, an informational meeting will be held with the consultant to inform LMA about the project, past efforts, and the goals and components of this proposal. The date will be arranged with consultant.

LMA needs eight members to step forward and serve on a planning committee to review the technical aspects of the project and prioritize goals for the Lake. Please call Les Schramm (715) 478-5197 to participate on this committee.

The tentative project schedule is as follows:

Task	2007								
	A	M	J	J	A	S	O	N	D
Informational Meeting									
Disburse Survey									
Data Analysis									
Planning Comm. Meeting									
Report – First Draft									
Report – Final Draft									
Final Report Meeting									

This is a tremendous opportunity for our Assocation to gain a thorough understanding of the Lake's ecosystem and to establish a long-term plan for the protection of Lake Metonga. The progress of the project will be presented at the annual meeting and the June newsletter.

Presentation Outline

- Introduction to Aquatic Plants
- EWM – Historic Management
- Current Planning Project
  - Goals
  - Components
  - Process

Onterra LLC
Lake Management Planning
2

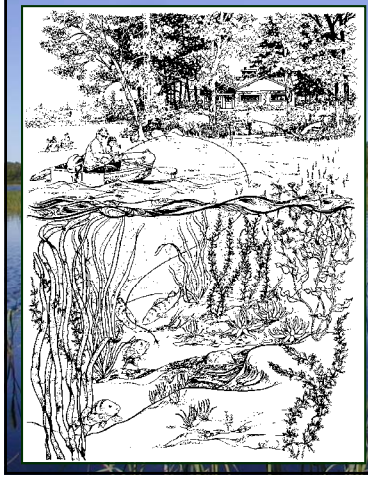
Intro to Aquatic Plants

Aquatic Plants (macrophytes)

- *Native Plants*
- *Exotic Plants (non-native)*

3

Native Aquatic Plants



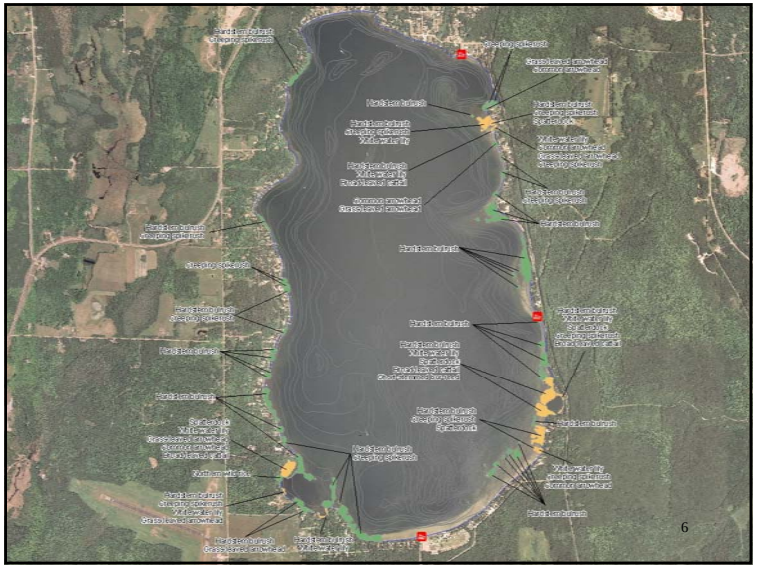
- Base of the Food Web
- Cover (not only fish)
- Nursery
- Sediment Stabilization

Intro to Aquatic Plants

Comprehensive Plant Survey

- Accurately Map Communities
  - Floating-leaf
  - Emergent
- Point-Intercept Survey

5



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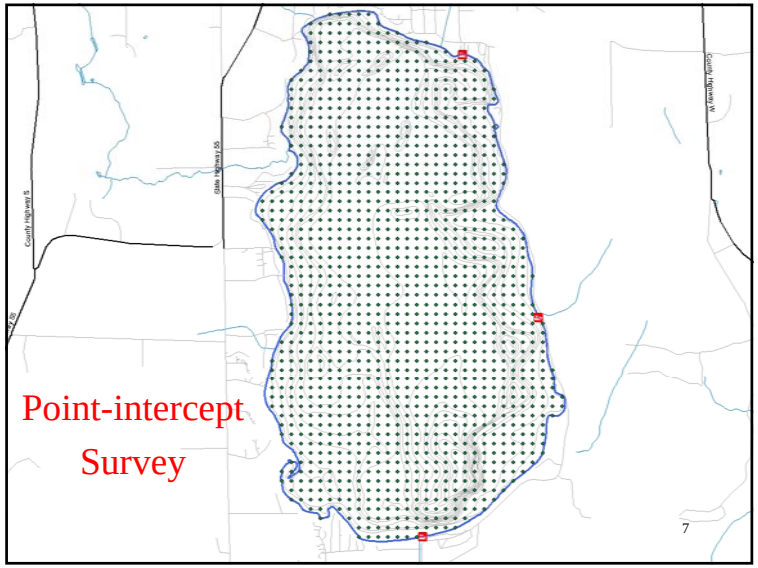


7

Intro to Aquatic Plants

Aquatic Plants

Point-intercept Survey (2005)

- 30 Native Species
- 1 Non-native Species
  - Eurasian Water Milfoil

Lake Metonga

Life Form	Scientific Name	Common Name
Emergent	*Carex comosa*	Bristly sedge
	Eleocharis palustris	Creeping spike-rush
	Equisetum fluviatile	Water horsetail
	Juncus pelocarpus	Brown-fruited rush
	Sagittaria latifolia	Common arrowhead
	Schoenoplectus acutus	Hardstem bulrush
	Schoenoplectus tabernaemontani	Softstem bulrush
	Typha latifolia	Broad-leaved cattail
	Zizania palustrus	Northern wild rice
FF	*Lemna minor*	Lesser duckweed
	Lemna trisulca	Forked duckweed
FL	*Nuphar variegata*	Spatterdock
	Nymphaea odorata	White water lily
FLE	*Sparganium emersum*	Short-stemmed bur-reed
Submergent	*Ceratophyllum demersum*	Coontail
	Chara sp.	Muskgrasses
	Elodea canadensis	Common waterweed
	Heteranthera dubia	Water stargrass
	Isoetes lacustris	Lake quillwort
	Megalodonta beckii	Water marigold
	Myriophyllum sibiricum	Northern water milfoil
	Myriophyllum spicatum	Eurasian water milfoil
	Najas flexilis	Slender naiad
	Nitella sp.	Stoneworts
	Potamogeton gramineus	Variable pondweed
	Potamogeton illinoensis	Illinois pondweed
	Potamogeton praelongus	White-stem pondweed
	Potamogeton pusillus	Small pondweed
	Potamogeton zosteriformis	Flat-stem pondweed
	Ranunculus flammula	Creeping spearwort
	Stuckenia pectinata	Sago pondweed
	Utricularia vulgaris	Common bladderwort
	Vallisneria americana	Wild celery
S/E	*Sagittaria graminea*	Grass-leaved arrowhead

Onterra LLC Lake Management Planning

8

Intro to Aquatic Plants

Non-native Aquatic Plants

Curly-leaf Pondweed

9

Intro to Aquatic Plants

Non-native Aquatic Plants

Eurasian Water Milfoil

10

Intro to Aquatic Plants

Consequences of Exotics

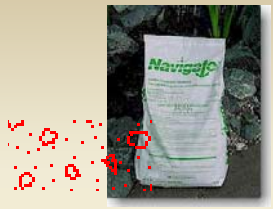
- Competition with Natives → Decreased Ecological Value
  - Monotypic Community
- Decreased Recreational Value
- Decreased Property Value

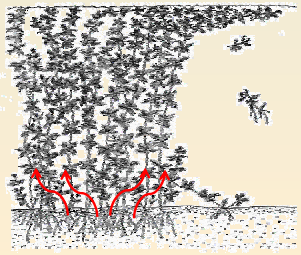
11

Intro to Aquatic Plants

Herbicide: 2,4-D

- *Systemic Herbicide*
- *Uptake by Plant*
  - *Roots & Foliage*
- *Clay Carrier*
- ***Dose:100-200 lbs/acre***
  - *Mostly Clay*





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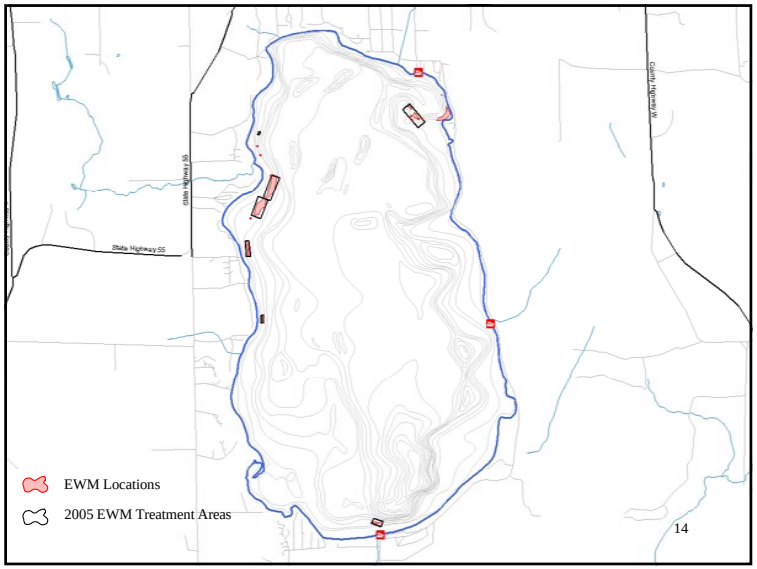
EWM - Timeline

LMA Receives WDNR AIS Grant
LMA Contracts Onterra
Pre-treat Survey May 9, 2005

2005 2006 2007

13



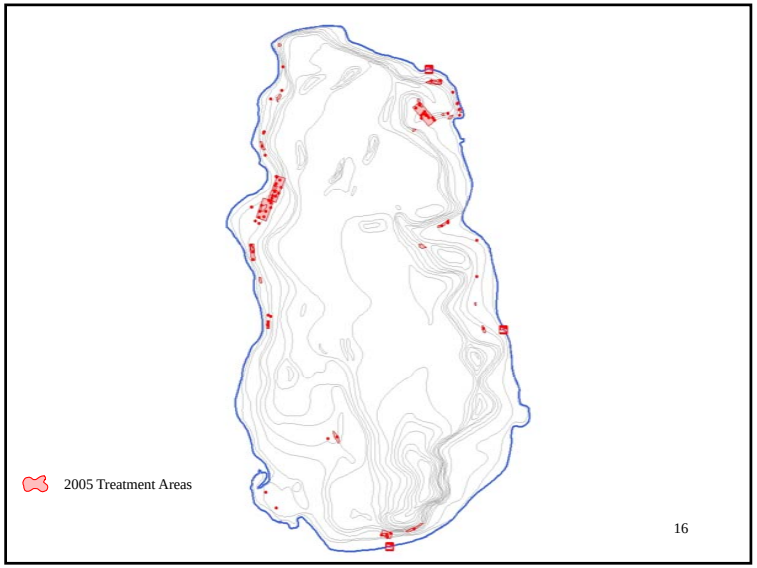
14

EWM - Timeline

LMA Receives WDNR AIS Grant
LMA Contracts Onterra
Pre-treat Survey May 9, 2005
May Chemical Treatment – 14.9 Acres
Post Treat Survey June 23, 2005 CLP Survey
Post Treat Survey August 11-12, 2005 Comprehensive Survey

2005 2006 2007

15



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EWM – Historic Management

2005 Results

- EWM Treatments Largely Ineffective
  - Dosage Worked in the Past ? ?
    - ~~EWM Becoming Resistant~~
- 2006 Conditional Permit for 14.9 acres & Additional 12.9 acres at Same Dose

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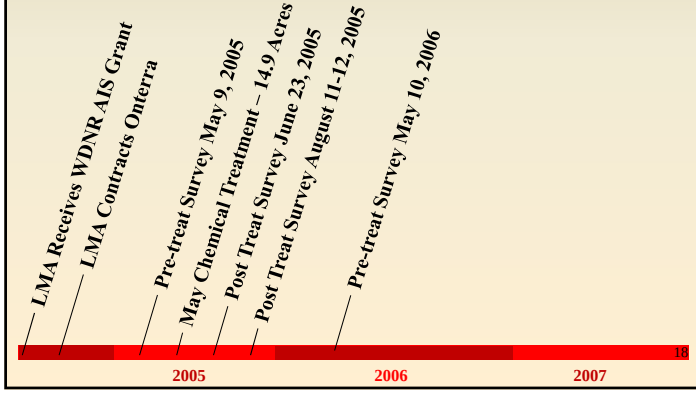
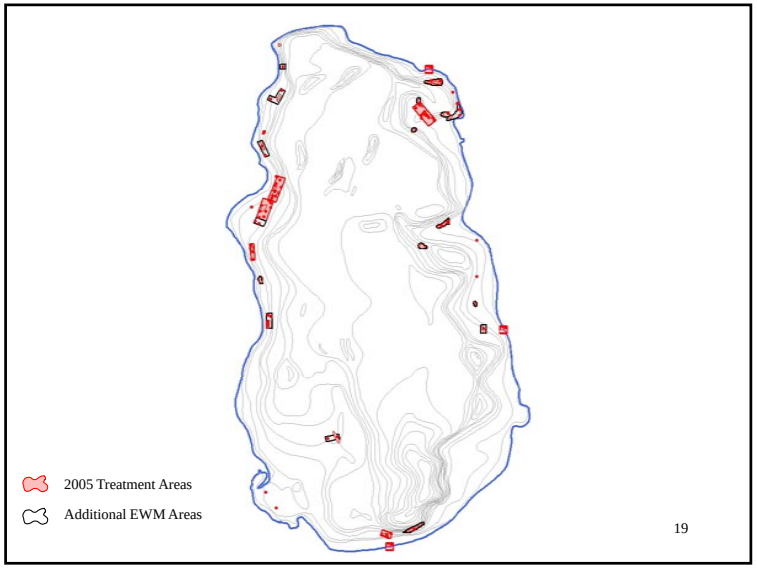
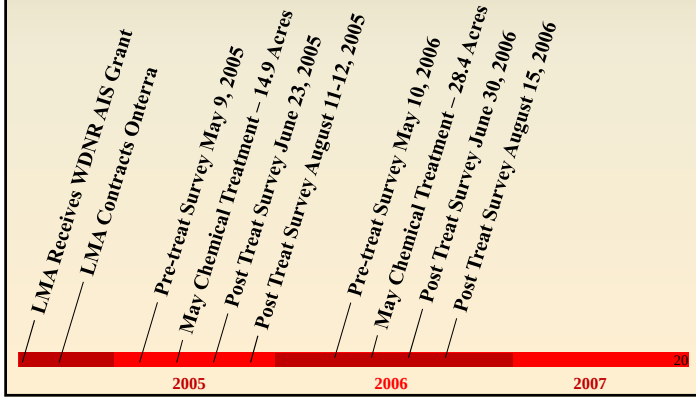
17

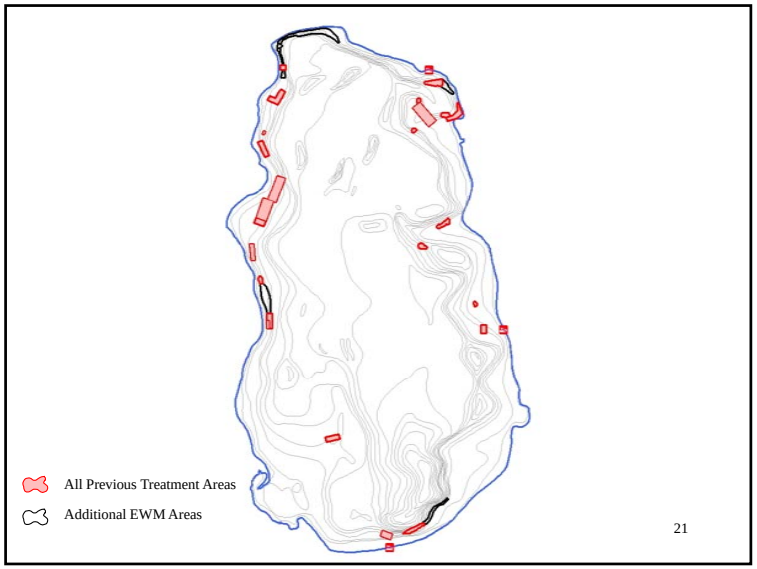
EWM - Timeline





EWM - Timeline





EWM – Historic Management

2006 Results

- EWM Treatments Yielded Mixed Results
  - 72% Showed 'Good' Results
  - Is 'Good' – Good Enough?
- Conditional Permit for 44.0 Acres
  - Pre-treat Survey to Decrease Acreage

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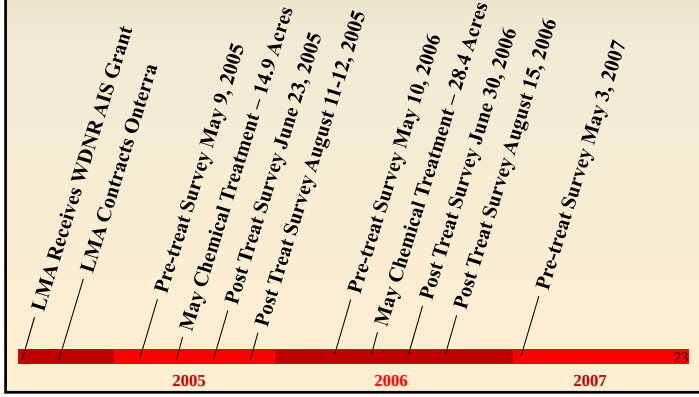
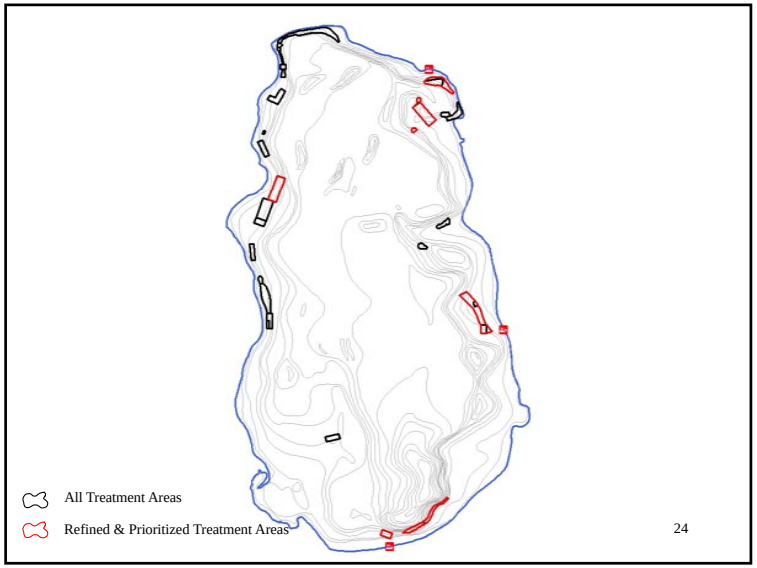
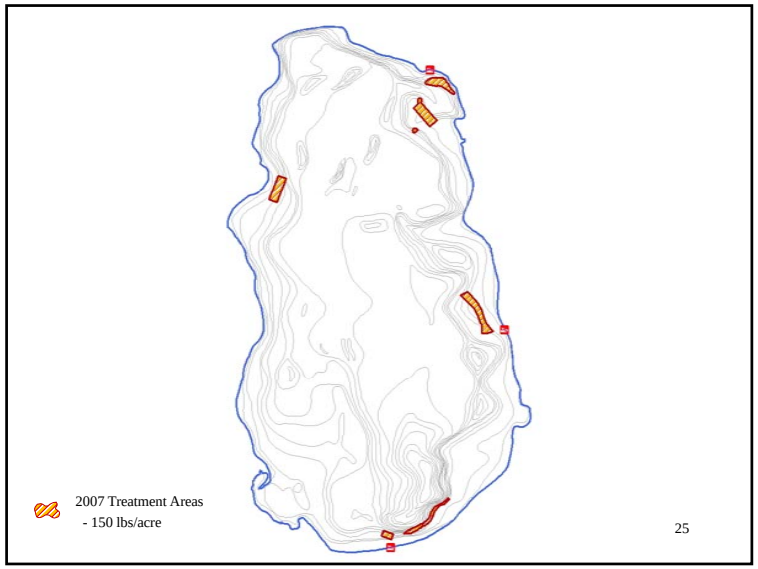
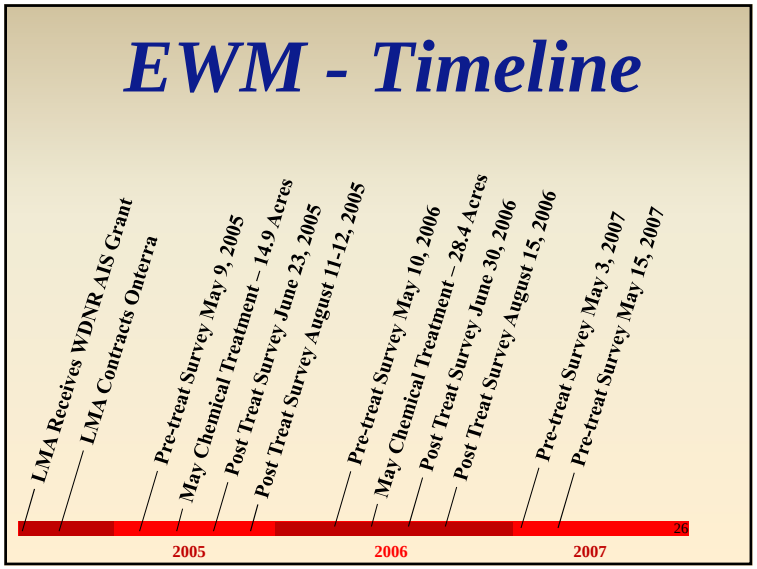
22

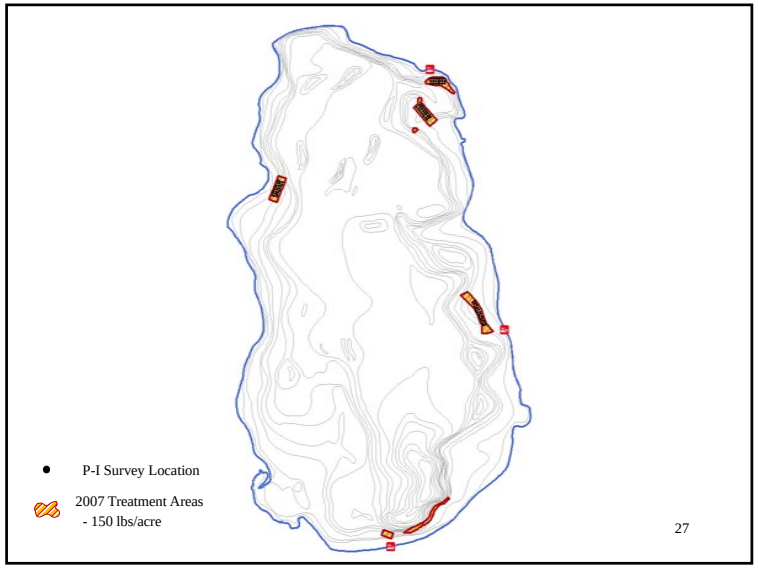
EWM - Timeline

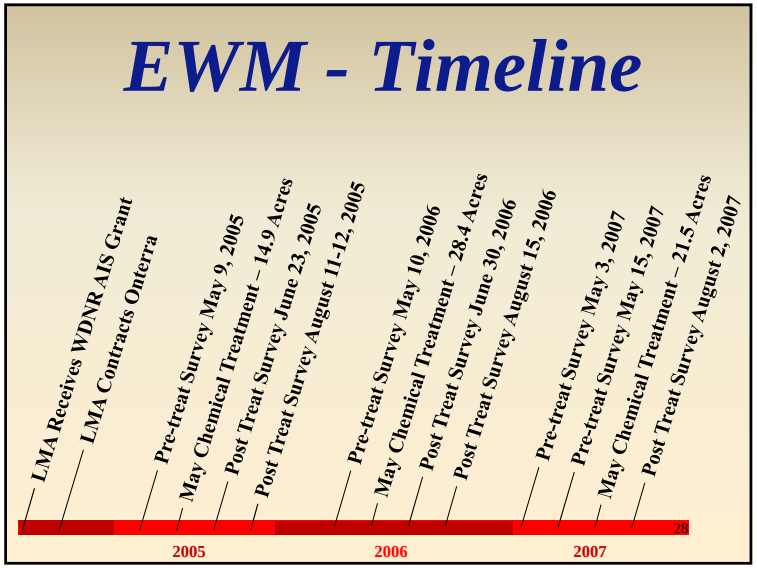





2007 Treatment Areas
- 150 lbs/acre
25


EWM - Timeline
LMA Receives WDNR AIS Grant
LMA Contracts Onterra
Pre-treat Survey May 9, 2005
May Chemical Treatment – 14.9 Acres
Post Treat Survey June 23, 2005
Post Treat Survey August 11-12, 2005
Pre-treat Survey May 10, 2006
May Chemical Treatment – 28.4 Acres
Post Treat Survey June 30, 2006
Post Treat Survey August 15, 2006
Pre-treat Survey May 3, 2007
Pre-treat Survey May 15, 2007
26
2005
2006
2007


P-I Survey Location
2007 Treatment Areas
- 150 lbs/acre
27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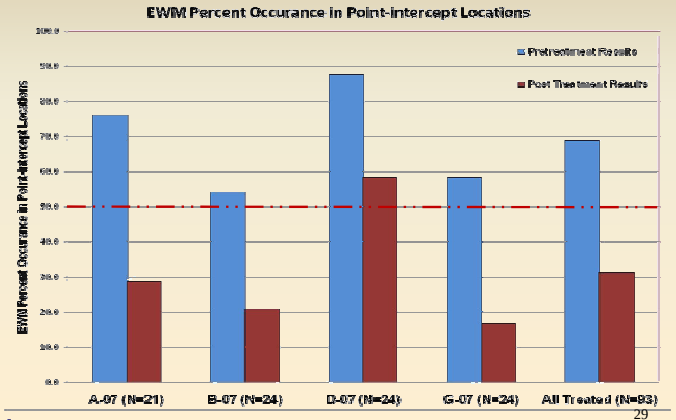
Pre-treat Survey May 10, 2006
May Chemical Treatment – 28.4 Acres
Post Treat Survey June 30, 2006
Post Treat Survey August 15, 2006
Pre-treat Survey May 3, 2007
Pre-treat Survey May 15, 2007
May Chemical Treatment – 21.5 Acres
Post Treat Survey August 2, 2007
28
2005
2006
2007

EWM – Historic Management

2007 Point-intercept Results



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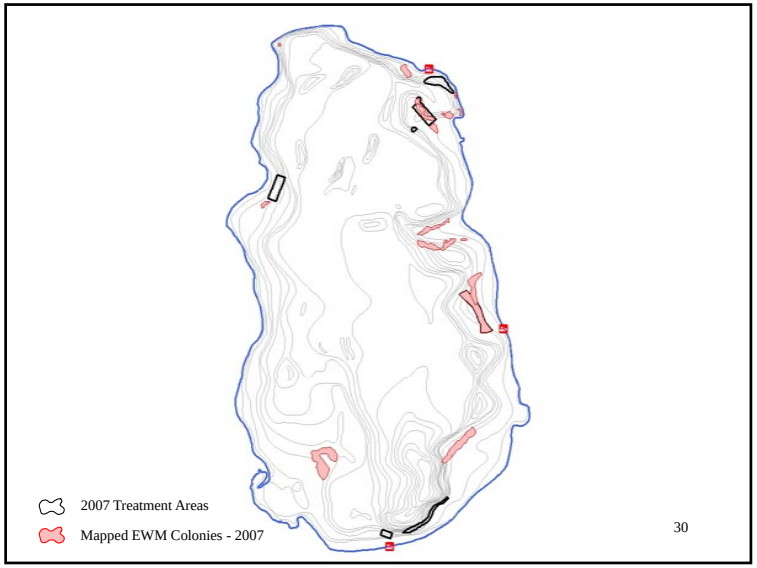
29



30

EWM – Historic Management

2007 Results

- EWM Treatments Yielded Great Results
  - Site D Showed 'Mixed' Results
  - Site B Showed 'Good' Results
- Future Treatment Strategy?

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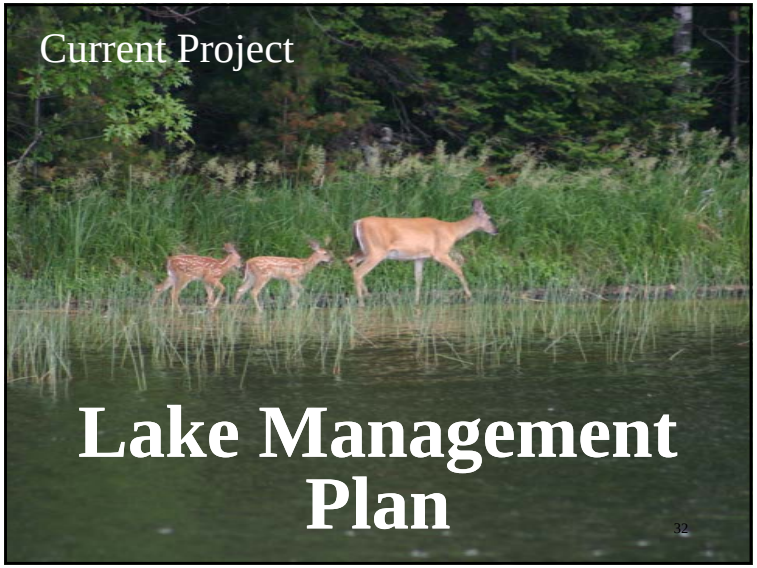
31



32

Current Project

Study and Plan Goals

- Collect & Analyze Data
- Construct Long-Term & Useable Plan

A goal without a plan is just a wish.

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33

Current Project

Study Components

- Public Participation — *Stakeholder Survey*
- Watershed Modeling
- Water Quality — *Citizens Lake Monitoring Network*
- Aquatic Vegetation
- Fisheries Data Integration — *Aid from Sokaogon Biologist*
  - Curly-leaf Survey — *Completed*
  - Comprehensive Survey — *Completed*
  - Treatment Monitoring — *Pre- & Post Treatment*
- Plan Development

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34

Current Project

Planning Process

Planning Committee Meetings

- Study Results (Including Stakeholder Survey)
- Conclusions & Initial Recommendations
- Management Goals
- Management Actions
  - Timeframe
  - Facilitator(s)

↓

Implementation Plan

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35

Thank You

Eddie J. Heath **eheath@onterra-eco.com**

Many of the graphics used in this presentation were supplied by:

Wisconsin Lakes Partnership

UWEX Extension

Wisconsin Dept. of Natural Resources

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36

Lake Metonga Association Newsletter

Fall 2007

Lake Management Planning Grant A Membership Informational Meeting was held on October 6, 2007, in the Crandon School auditorium with Lake Metonga Association's consultant, Eddie Heath of Onterra, LLC. Thirty-three members were present at this management planning project kick-off meeting. The presentation included an introduction to aquatic plants including desirable native plants and exotic non-native species. A comprehensive plant survey was previously performed by the consultant. This point intercept survey identified thirty native species and one non-native specie which is Eurasian Water Milfoil. It was shown that the exotics compete with and restrict the growth of the desirable native plants, interfere with recreational activities and decrease property values.

A system herbicide 2, 4-D is used to chemically treat the EWM. The clay coated granular particles are spread over the weed bed, settle to the bottom, where they attack the root structure and entire plant foliage causing the plant to die. Typical dosage rates vary from 100 to 200 pounds per acre. The 21.5 acres treated on May 18, 2007, were treated at 150 pounds per acre. Lake charts showing the location of EWM beds and a progressive timeline of pre and post treatment from May 2005 to August of 2007 were presented. The treatment results were summarized. The next step is for the consultant to collect and analyze data about the watershed, the aquatic vegetation and treatment monitoring. The Association is to provide water quality and fishery data. Mike Preul will provide data which will be integrated into this study. Once the data is collected and analyzed, a long-term plan with management goals and actions with specific time tables can be formulated.

Planning Grant Survey On October 16, 2007 a Management Planning Grant Survey was mailed to lake-front property owners and to off-water property owners who are members of the Lake Metonga Association with a requested return date of October 31, 2007. A total of 268 surveys were mailed and 159 were completed and returned. Many of them contained additional comments and concerns. This represents 58 percent response which is excellent. Thank you to all those who responded. All of the responses have been documented and forwarded to the consultant.

Once these are analyzed, the Planning Committee will meet with the consultant to integrate the results into the long-range plan. We will keep everyone informed as this process progresses.

Lake Metonga Association

Lake Metonga Aquatic Plant Management Planning Project Planning Meeting I

November 14, 2007

Tim Hoyman
Eddie J. Heath
Onterra LLC
Lake Management Planning

1

Presentation Outline

- Current Lake Project Overview
- Planning Process
- Planning Project Study Results
  - 2007 EWM Treatment
  - 2008 Proposed EWM Treatment
- Preliminary Conclusions
- Discussion
- Management Goals

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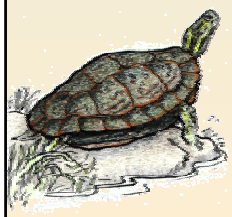
2

Current Project

Study and Plan Goals

- Collect & Analyze Data
- Construct Long-Term & Useable Plan



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3

Current Project

Study Components

- Public Participation
- Watershed Modeling
- Water Quality — *Citizens Lake Monitoring Network*
- Aquatic Vegetation
  - Curly-leaf Survey — *Completed 2005 - None Found*
  - Comprehensive Survey — *Completed 2005 - Onterra*
  - Treatment Monitoring — *Pre & Post Completed*
- Plan Development

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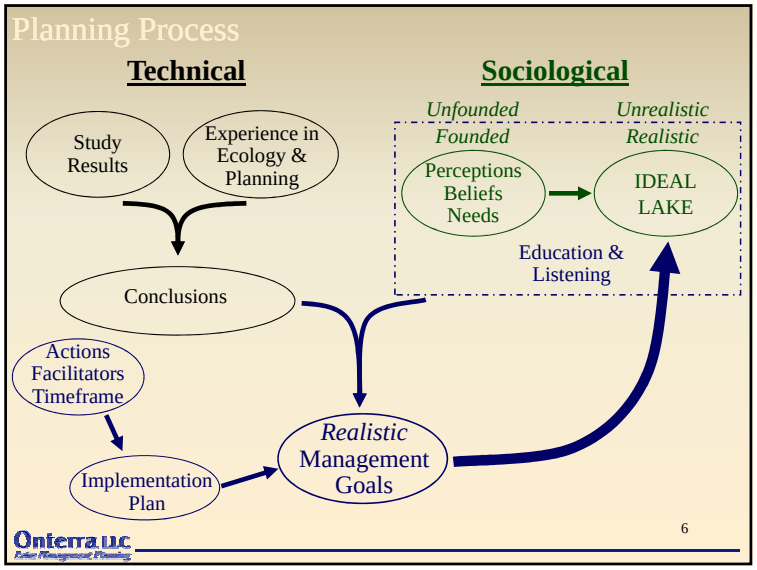
4


The Planning Process
…it's not as easy as you may think.


Planning Process
Technical
Sociological
Study Results
Experience in Ecology & Planning
Unfounded
Founded
Unrealistic
Realistic
Perceptions Beliefs Needs
IDEAL LAKE
Education & Listening
Conclusions
Actions Facilitators Timeframe
Realistic Management Goals
Implementation Plan
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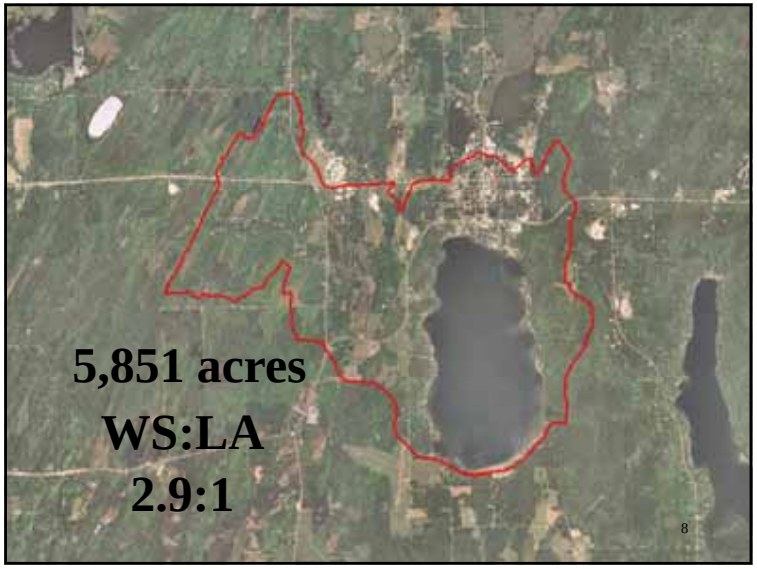
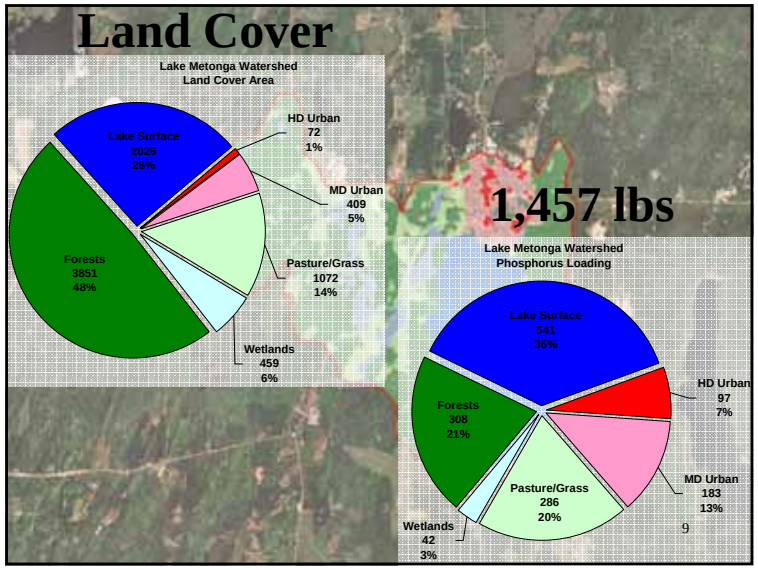
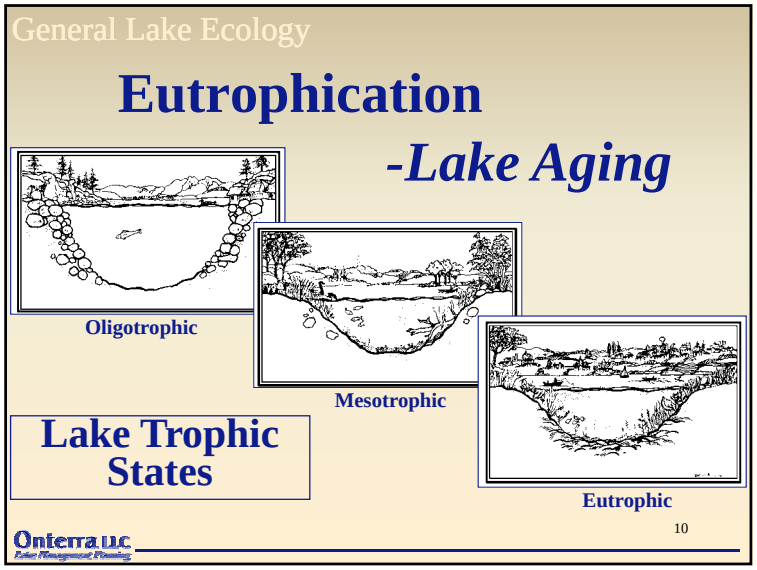
6


Lake Metonga Watershed
7


5,851 acres
WS:LA
2.9:1
8


Land Cover
Lake Metonga Watershed
Land Cover Area
Lake Surface
2026
26%
HD Urban
72
1%
MD Urban
409
5%
Pasture/Grass
1072
14%
Wetlands
459
6%
Forests
3851
48%
1,457 lbs
Lake Metonga Watershed
Phosphorus Loading
Lake Surface
541
36%
HD Urban
97
7%
MD Urban
183
13%
Pasture/Grass
286
20%
Wetlands
42
3%
Forests
308
21%
9


General Lake Ecology
Eutrophication
-Lake Aging
Oligotrophic
Mesotrophic
Eutrophic
Lake Trophic States
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10


General Lake Ecology
Cultural Eutrophication
Accelerated eutrophication caused by human activity.
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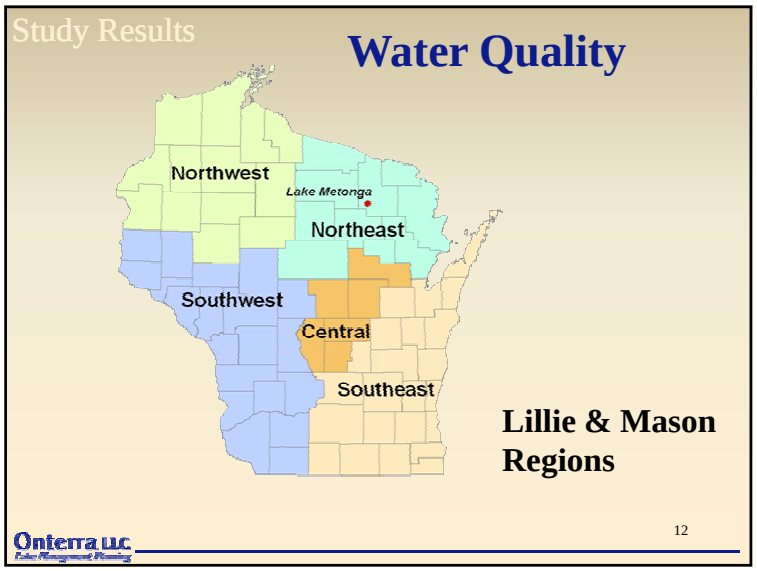
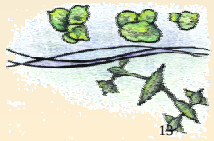
11


Study Results
Water Quality
Northwest
Lake Metonga
Northeast
Southwest
Central
Southeast
Lillie & Mason Regions
Onterra LLC
12

Study Results

Water Quality

- Phosphorus (Limiting Plant Nutrient)
- Chlorophyll-*a* (Algal Abundance)
- Water Clarity (Secchi Disk)



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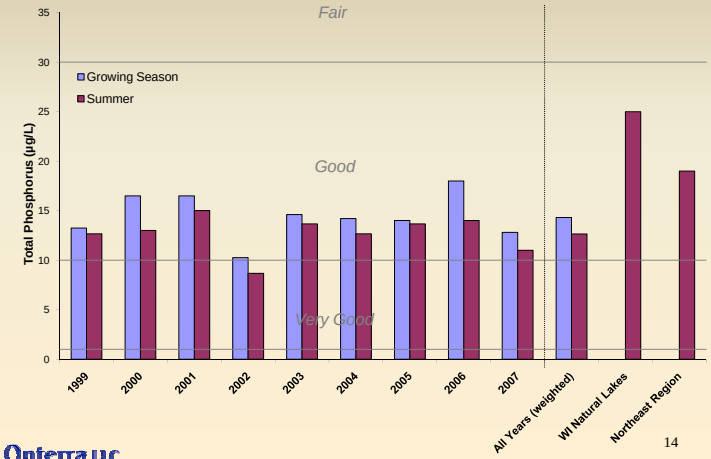
15

Phosphorus



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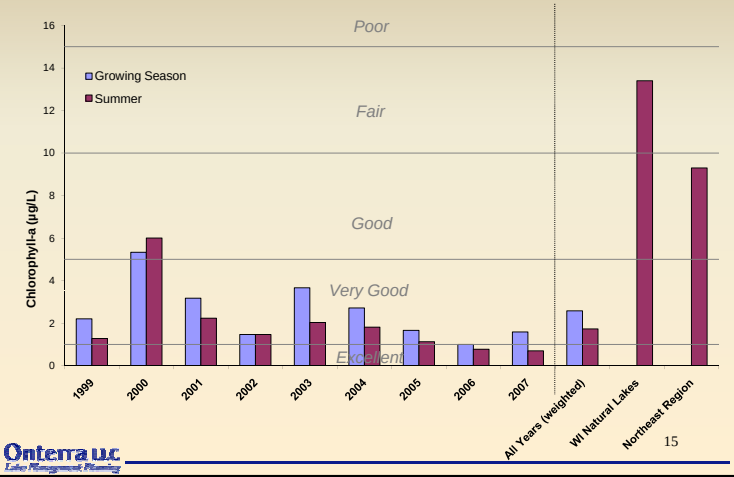
14

Chlorophyll *a*



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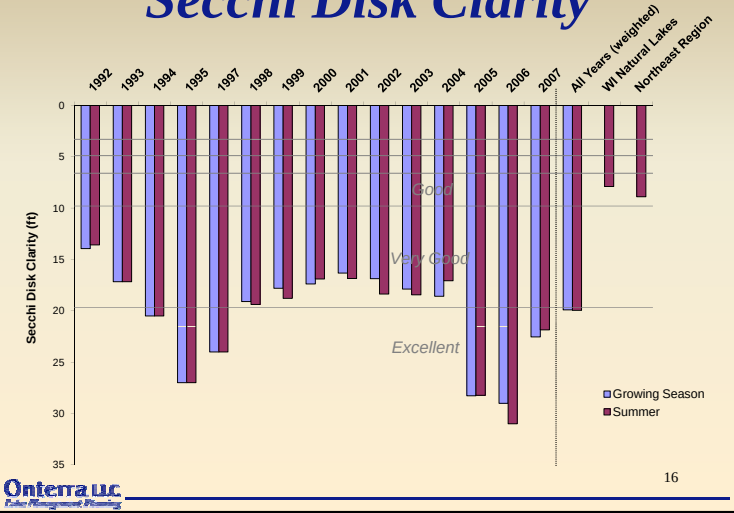
15

Secchi Disk Clarity



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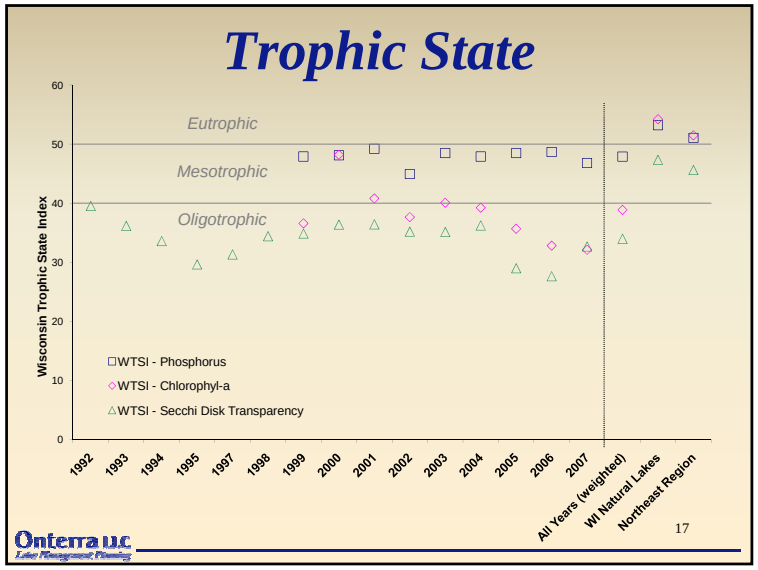
16


Trophic State
Eutrophic
Mesotrophic
Oligotrophic
Wisconsin Trophic State Index
WTSI - Phosphorus
WTSI - Chlorophyl-a
WTSI - Secchi Disk Transparency
1992
1993
1994
1995
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
All Years (weighted)
WI Natural Lakes
Northeast Region
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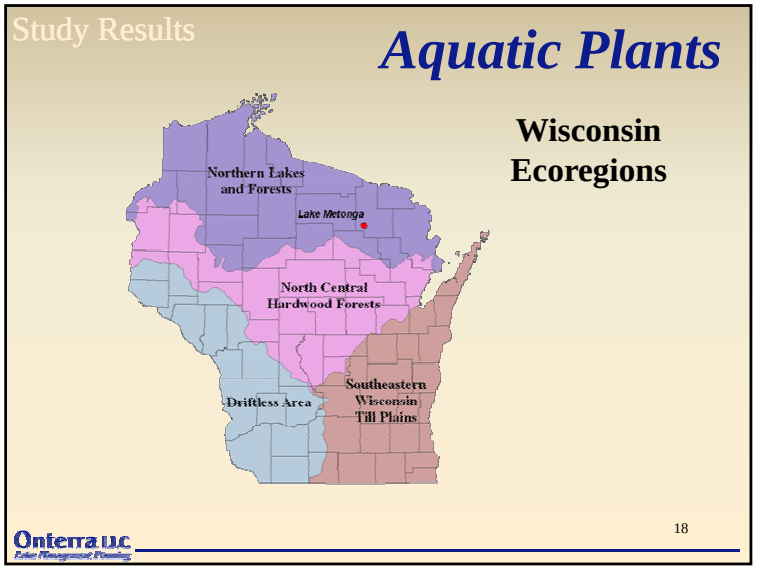
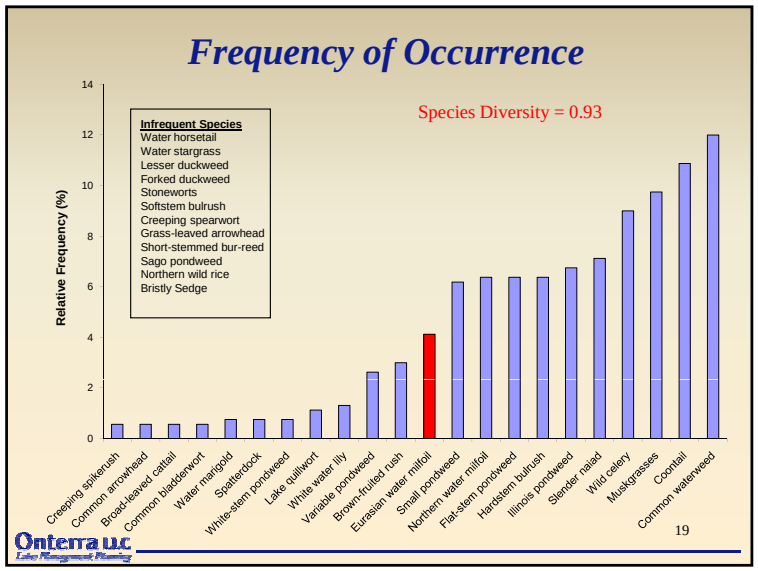
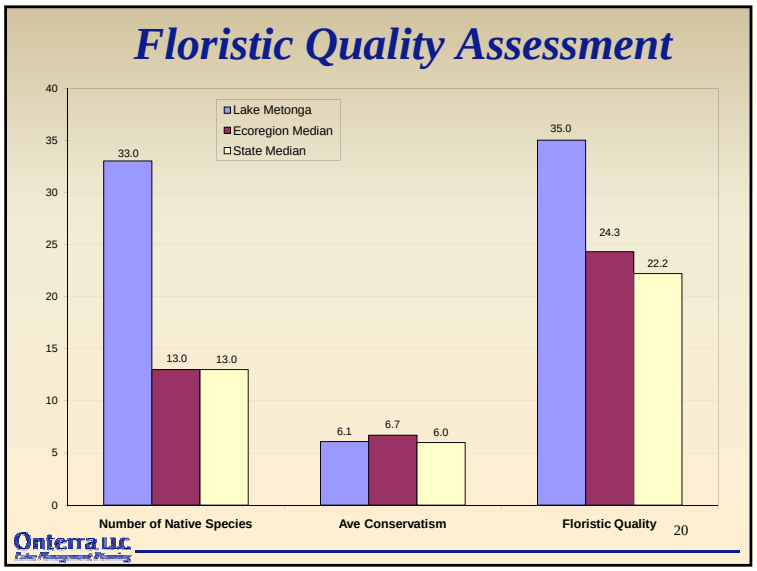
17


Study Results
Aquatic Plants
Wisconsin Ecoregions
Northern Lakes and Forests
Lake Metonga
North Central Hardwood Forests
Driftless Area
Southeastern Wisconsin Till Plains
Onterra LLC
18


Frequency of Occurrence
Species Diversity = 0.93
Infrequent Species
Water horsetail
Water stargrass
Lesser duckweed
Forked duckweed
Stoneworts
Softstem bulrush
Creeping spearwort
Grass-leaved arrowhead
Short-stemmed bur-reed
Sago pondweed
Northern wild rice
Bristly Sedge
Relative Frequency (%)
Creeping spikerush
Common arrowhead
Broad-leaved cattail
Common bladderwort
Water marigold
Spatterdock
White-stem pondweed
Lake quillwort
White water lily
Variable pondweed
Brown-fruited rush
Eurasian water milfoil
Small pondweed
Northern water milfoil
Flat-stem pondweed
Hardstem bulrush
Illinois pondweed
Slender naiad
Wild celery
Muskgrasses
Coontail
Common waterweed
Onterra LLC
19


Floristic Quality Assessment
Lake Metonga
Ecoregion Median
State Median
33.0
13.0
13.0
6.1
6.7
6.0
35.0
24.3
22.2
Number of Native Species
Ave Conservatism
Floristic Quality
Onterra LLC
20

Project Objectives

- Monitor EWM Treatments
  - Pre-treatment
  - Post treatment
- Use Information in Plan Development
- Provide Information

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21

2007 Pretreatment Survey

All Previous Treatment Areas

Refined & Prioritized Treatment Areas

22

EWM Treatment

Chemical Treatment May 17, 2007

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23

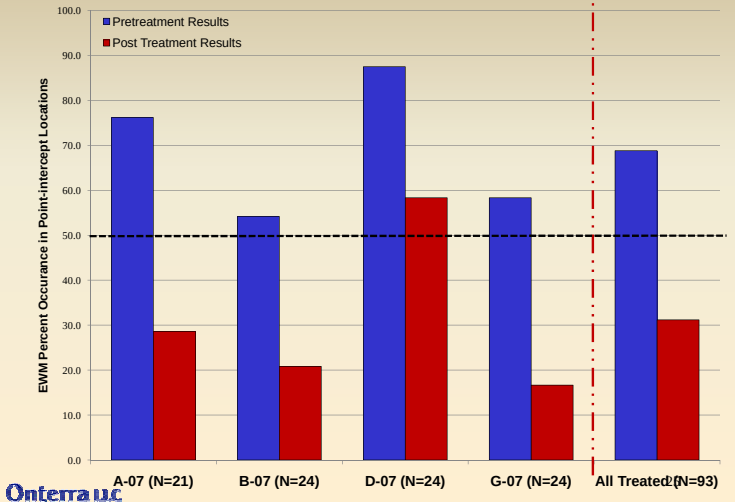
2007 Post Treatment Survey

P-I Survey Location

2007 Treatment Areas

24

EWM Treatment – Quantitative Results



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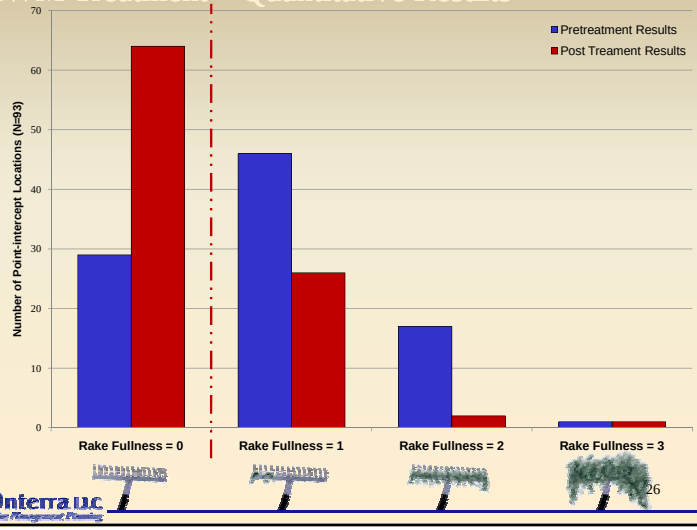
25

EWM Treatment – Quantitative Results



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26

EWM – Historic Management

2007 Results

- EWM Treatments Yielded Great Results
  - Site D Showed ‘Mixed’ Results
  - Site B Showed ‘Good’ Results
- New EWM Colonies Mapped

Future Treatment Strategy

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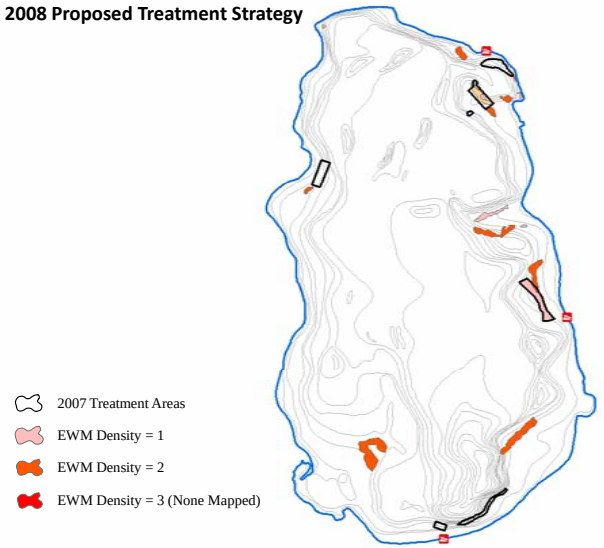
27

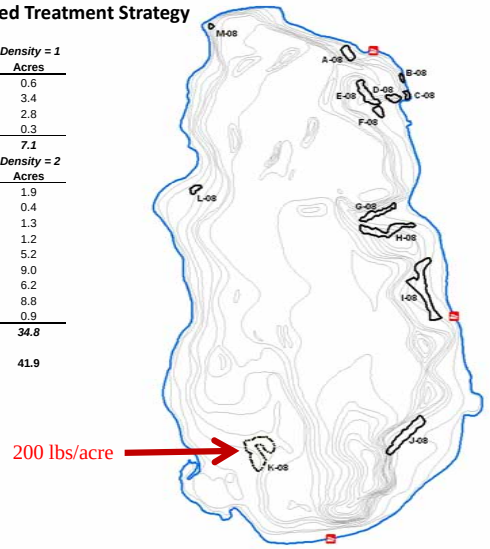
2008 Proposed Treatment Strategy



28

2008 Proposed Treatment Strategy

Treatment Areas - Density = 1	
Site	Acres
C-08	0.6
E-08	3.4
G-08	2.8
M-08	0.3
Sub Total	*7.1*
Treatment Areas - Density = 2	
Site	Acres
A-08	1.9
B-08	0.4
D-08	1.3
F-08	1.2
H-08	5.2
I-08	9.0
J-08	6.2
K-08	8.8
L-08	0.9
Sub Total	*34.8*
Grand Total	41.9



29

Conclusions

- Lake Metonga's watershed is small compared with size of the lake (especially in terms of water volume)
  - Impact of City of Crandon
  - Internal nutrient loading

  May warrant future studies
- Water quality is very good and relatively stable
  - May change with time so monitoring is important

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30

Conclusions

- Aquatic plant community is exceptional
  - Provides excellent habitat
  - Likely competes heavily against EWM in some areas
- EWM occurrence is relatively high
  - Impact to native habitat is a concern
  - Nuisance levels occur in some portions of the lake
    - Not in terms of navigation, but other forms of recreation
  - Higher dosage of herbicide is required for success
    - Not because of hybrid EWM, but due to depth of water that EWM is found in and density of these plants

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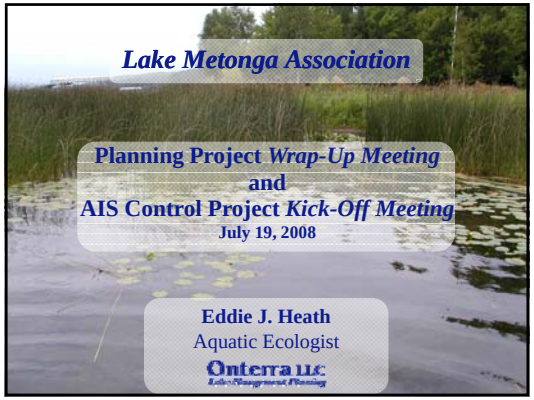
31



Presentation Outline

- Lake Management Planning Project Overview
- Study Results
  - Watershed
  - Water Quality
  - Aquatic Plants
  - Stakeholder Survey
- Conclusions
- Implementation Plan
- AIS Control Project Overview
- 2007 and 2008 EWM Treatments
- Volunteer Opportunities

Current Project

Study and Plan Goals

- Collect & Analyze Data
- Construct Long-Term & Useable Plan

A goal without a plan is just a wish.

Current Project

Study Components

- Public Participation — *Stakeholder Survey*
- Watershed Modeling
- Water Quality — *Citizens Lake Monitoring Network*
- Aquatic Vegetation
- Fisheries Data Integration — *Aid from Sokaogon Biologist*
  - Curly-leaf Survey — *Completed*
  - Comprehensive Survey — *Completed*
  - Treatment Monitoring — *Pre- & Post Treatment*
- Plan Development

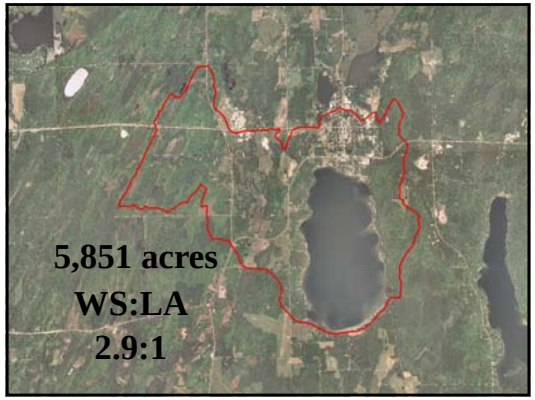
Planning Project

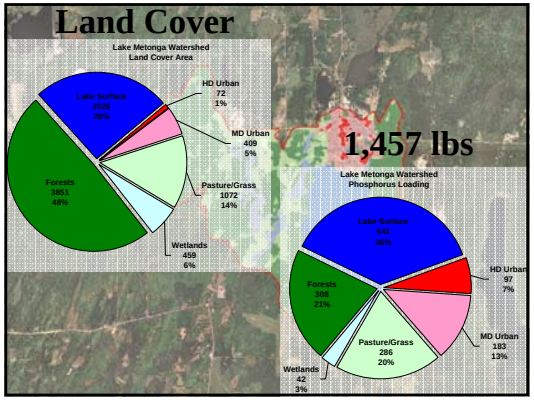
Planning Process

Planning Committee Meetings

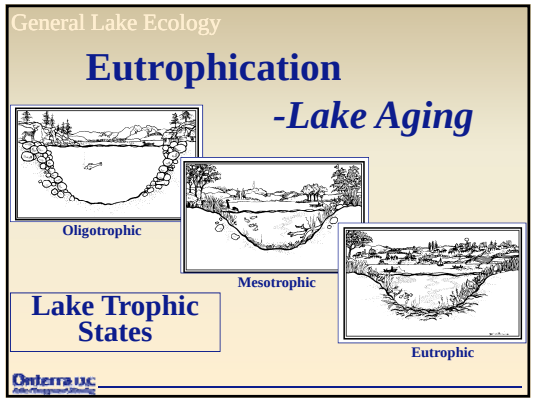
- Study Results (including a stakeholder survey)
- Conclusions & Initial Recommendations
- Management Goals
- Management Actions
  - Timeframe
  - Facilitator(s)

Implementation Plan

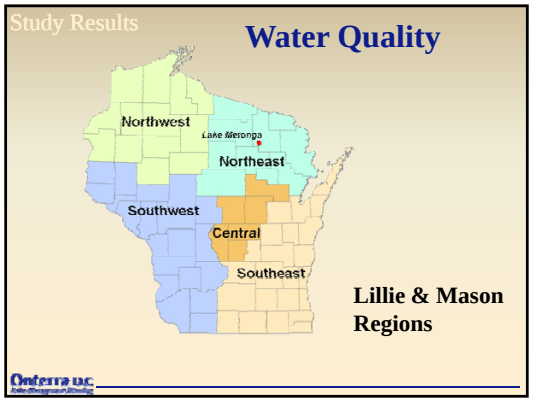

5,851 acres
WS:LA
2.9:1

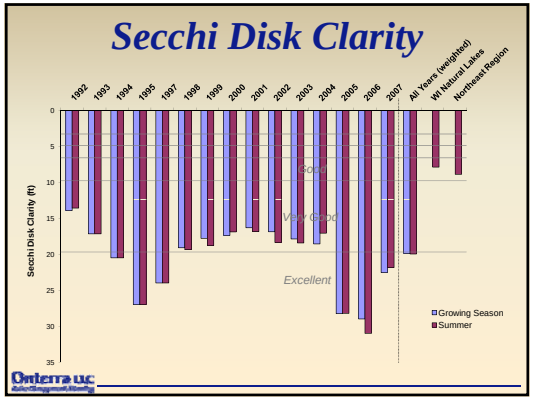

Land Cover
Lake Metonga Watershed
Land Cover Area
Lake Surface
2029
35%
HD Urban
72
1%
MD Urban
409
7%
Pasture/Grass
1072
18%
Wetlands
459
8%
Forests
1851
31%
1,457 lbs
Lake Metonga Watershed
Phosphorus Loading
Lake Surface
541
36%
HD Urban
97
7%
MD Urban
183
13%
Pasture/Grass
286
20%
Wetlands
42
3%
Forests
308
21%

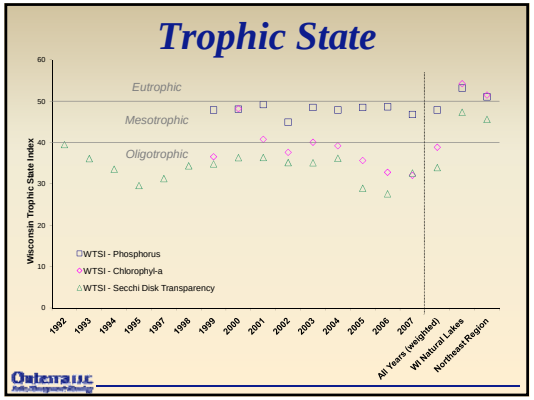

Water Quality


General Lake Ecology
Eutrophication
-Lake Aging
Oligotrophic
Mesotrophic
Eutrophic
Lake Trophic States


Study Results
Water Quality
Phosphorus (Limiting Plant Nutrient)
Chlorophyll-a (Algal Abundance)
Water Clarity (Secchi Disk)

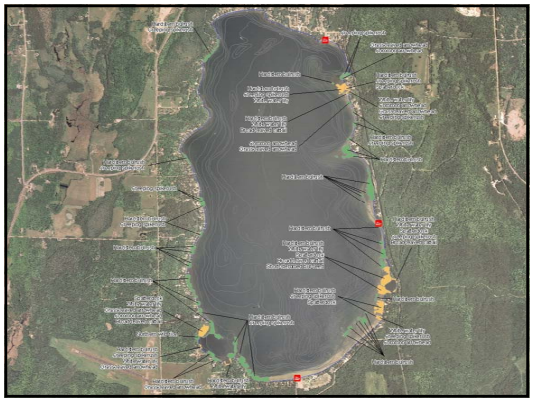

Study Results
Water Quality
Northwest
Lake Metonga
Northeast
Southwest
Central
Southeast
Lillie & Mason Regions

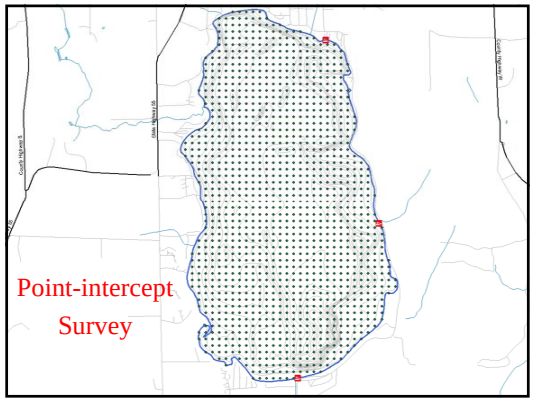




Comprehensive Plant Survey

- Accurately Map Communities
  - Floating-leaf
  - Emergent
- Point-Intercept Survey





Intro to Aquatic Plants

Aquatic Plants

Point-intercept Survey (2005)

- 30 Native Species
- 1 Non-native Species
  - Eurasian Water Milfoil

Lake Metonga

Life Form	Scientific Name	Common Name
Emergent	*Carex comosa*	Bristly sedge
	Eleocharis palustris	Creeping spike-rush
	Equisetum fluviatile	Water horsetail
	Juncus pelocarpus	Brown-fruited rush
	Sagittaria latifolia	Common arrowhead
	Schoenoplectus acutus	Hardstem bulrush
	Schoenoplectus tabernaemontani	Softstem bulrush
	Typha latifolia	Broad-leaved cattail
	Zizania palustrus	Northern wild rice
FF	*Lemna minor*	Lesser duckweed
	Lemna trisulca	Forked duckweed
FL	*Nuphar variegata*	Spatterdock
	Nymphaea odorata	White water lily
FLAT	*Sparganium emersum*	Short-stemmed bur-reed
Submergent	*Ceratophyllum demersum*	Coontail
	Chara sp.	Muskgrasses
	Elodea canadensis	Common waterweed
	Heteranthera dubia	Water stargrass
	Isoetes lacustris	Lake quillwort
	Megabdonta beckii	Water marigold
	Myriophyllum sibiricum	Northern water milfoil
	Myriophyllum spicatum	Eurasian water milfoil
	Najas flexilis	Slender naiad
	Nitella sp.	Stoneworts
	Potamogeton gramineus	Variable pondweed
	Potamogeton illinoensis	Illinois pondweed
	Potamogeton praelongus	White-stem pondweed
	Potamogeton pusillus	Small pondweed
	Potamogeton zosteriformis	Flat-stem pondweed
	Ranunculus flammula	Creeping spearwort
	Stuckenia pectinata	Sago pondweed
	Utricularia vulgaris	Common bladderwort
	Vallisneria americana	Wild celery
S/E	*Sagittaria graminea*	Grass-leaved arrowhead

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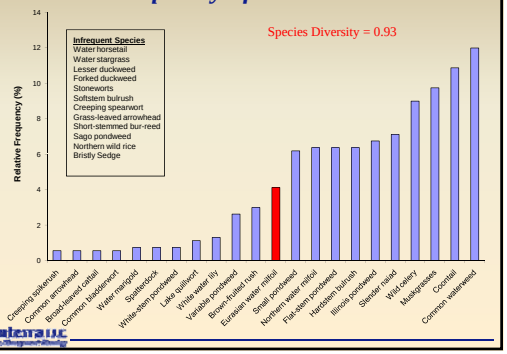
Frequency of Occurrence



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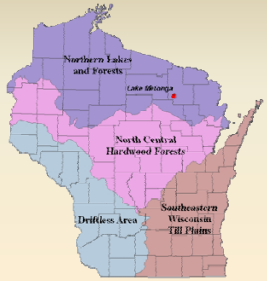
Study Results

Aquatic Plants

Wisconsin Ecoregions



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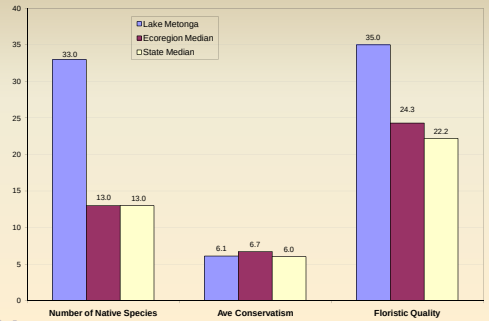
Floristic Quality Assessment



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Treatment Monitoring Project

Ontera LLC

Project Objectives

- Monitor EWM Treatments
  - Pre-treatment
  - Post treatment
- Use Information in Plan Development
- Provide Information

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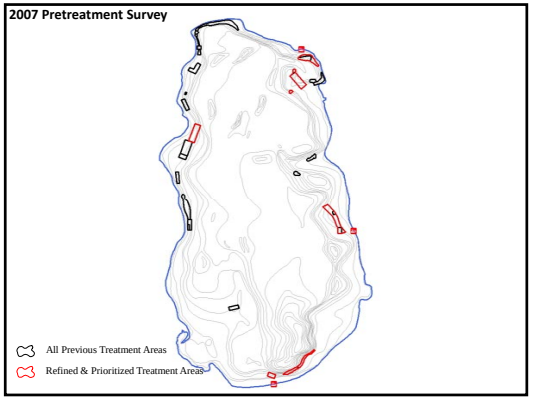
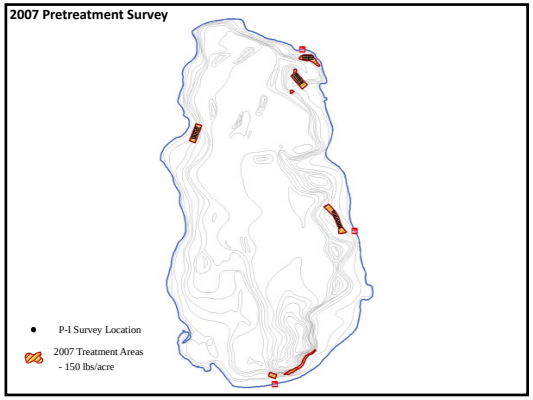
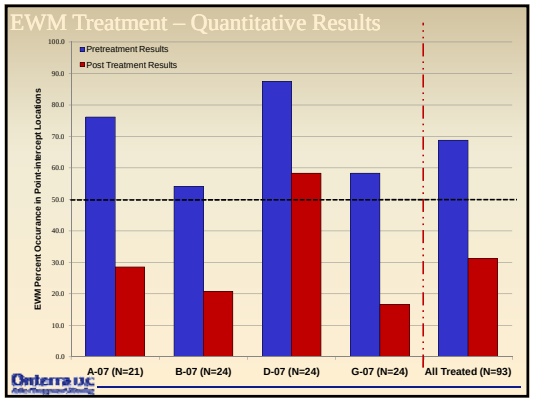
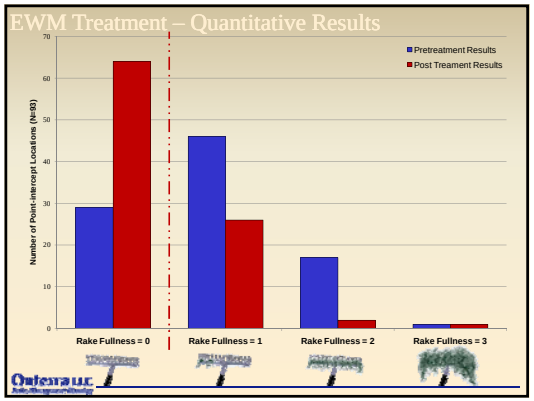
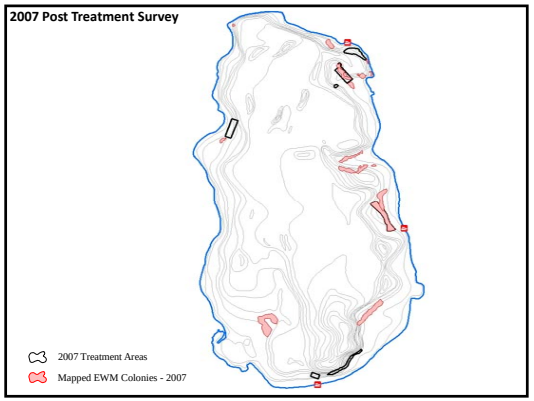

2007 Pretreatment Survey
All Previous Treatment Areas
Refined & Prioritized Treatment Areas


2007 Pretreatment Survey
P-I Survey Location
2007 Treatment Areas
- 150 lbs/acre


EWM Treatment
Chemical Treatment
May 17, 2007


EWM Treatment – Quantitative Results
Pretreatment Results
Post Treatment Results
EWM Percent Occurance in Point-intercept Locations
A-07 (N=21)
B-07 (N=24)
D-07 (N=24)
G-07 (N=24)
All Treated (N=93)


EWM Treatment – Quantitative Results
Pretreatment Results
Post Treament Results
Number of Point-intercept Locations (N=93)
Rake Fullness = 0
Rake Fullness = 1
Rake Fullness = 2
Rake Fullness = 3


2007 Post Treatment Survey
2007 Treatment Areas
Mapped EWM Colonies - 2007

EWM – Historic Management

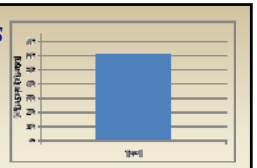
2007 Results

- EWM Treatments Yielded Great Results
  - Site D Showed 'Mixed' Results
  - Site B Showed 'Good' Results
- New EWM Colonies Mapped

Stakeholder Survey

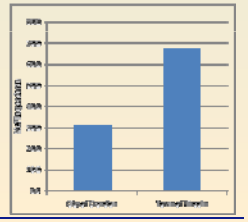
Stakeholder Surveys

268 surveys sent out,
162 respondents



Q1

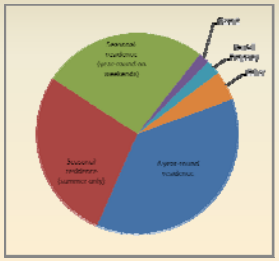
In which municipality is your Lake Metonga property located?



Stakeholder Surveys

Q2

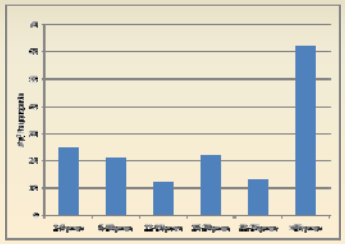
What type of property do you own on Lake Metonga?



Stakeholder Surveys

Q4

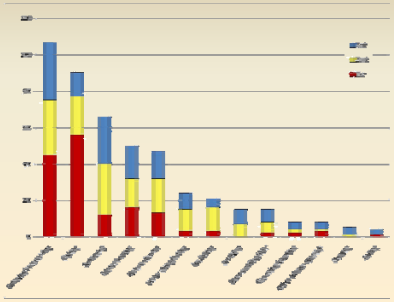
How many years have you owned property on Lake Metonga?



Stakeholder Surveys

Q7

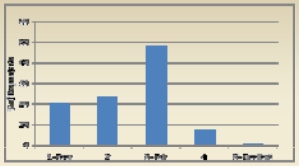
Please rank the activities below that are the most enjoyable to you on Lake Metonga?



Stakeholder Surveys

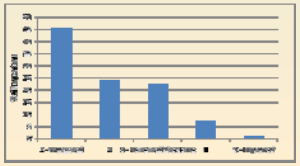
Q9

How would you describe the current quality of fishing on Lake Metonga?



Q10

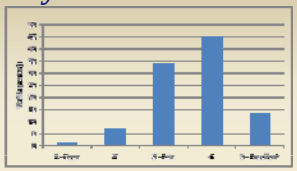
How has the quality of fishing changed on Lake Metonga since you obtained your property?



Stakeholder Surveys

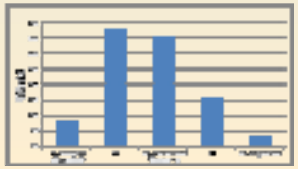
Q11

How would you describe the current water quality of Lake Metonga?



Q12

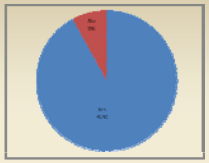
How has the water quality changed in Lake Metonga since you obtained your property?



Stakeholder Surveys

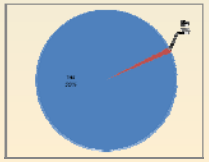
Q13

Before reading the statement above, had you ever heard of aquatic invasive species?



Q14

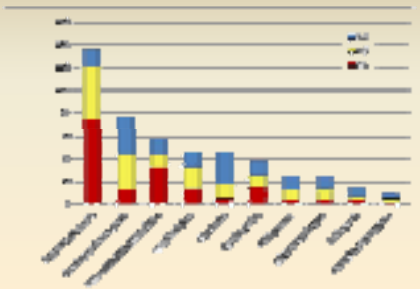
Are you aware of aquatic invasive species on Lake Metonga?



Stakeholder Surveys

Q15

From the list below, please rank your top three concerns regarding Lake Metonga?

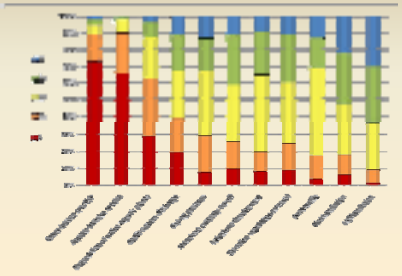


Stakeholder Surveys

Q16

To what level do you believe each the following factors are negatively impacting Lake Metonga?

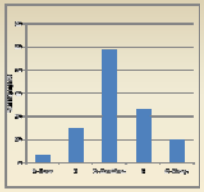
1 – No Impact
3 – Moderate Impact
5 – Great Impact



Stakeholder Surveys

Q17

How often does aquatic plant growth negatively impact your recreational use of Lake Metonga?



Q18

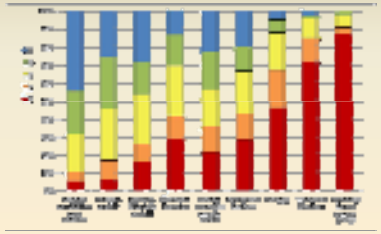
Considering your answer to the question above, do you believe aquatic plant control is needed on Lake Metonga?

Stakeholder Surveys

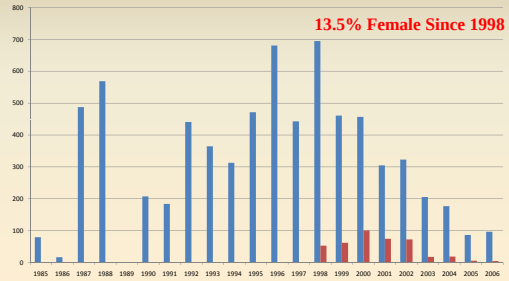
Q19

What is your level of support for the responsible use of the following techniques on Lake Metonga?

5 – Highly Supportive
3 – Moderately Supportive
1 – Not Supportive



Spear Harvest Data



Conclusions

- Lake Metonga's watershed is small compared with size of the lake (especially in terms of water volume)
  - Impact of City of Crandon
  - Internal nutrient loading

  May warrant future studies
- Water quality is very good and relatively stable
  - May change with time so monitoring is important

Conclusions

- Aquatic plant community is exceptional
  - Provides excellent habitat
  - Likely competes heavily against EWM in some areas
- EWM occurrence is relatively high
  - Impact to native habitat is a concern
  - Nuisance levels occur in some portions of the lake
    - Not in terms of navigation, but other forms of recreation
  - Higher dosage of herbicide is required for success
    - Not because of hybrid EWM, but due to depth of water that EWM is found in and density of these plants

Planning Project

Goal 1: Control Eurasian Water Milfoil, Reduce its Spread, and Prevent Other Infestations

Management Actions

1. Enhance Clean Boats Clean Waters watercraft inspections to include all Lake Metonga Public Boat Landings.
2. Coordinate annual volunteer monitoring of Aquatic Invasive Species.
3. Control Eurasian water milfoil infestation on Lake Metonga using herbicide applications.
4. Control Eurasian water milfoil infestation on Lake Metonga using experimental hand-removal techniques.
5. Monitor native and non-native aquatic plants on a lake wide basis in Lake Metonga.

Planning Project

Goal 2: Creation of an updated lake management plan for Lake Metonga.

Management Actions

1. Creation of an updated lake management plan for Lake Metonga.

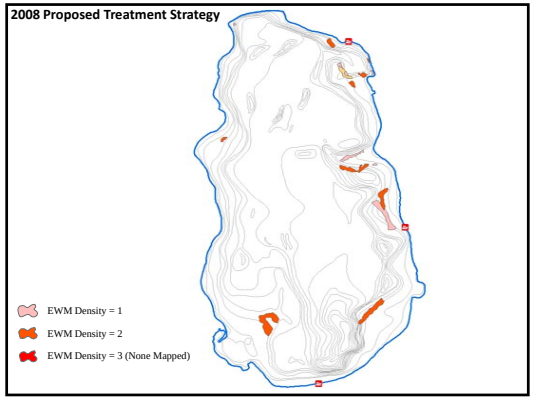
Lake Metonga AIS Control Project

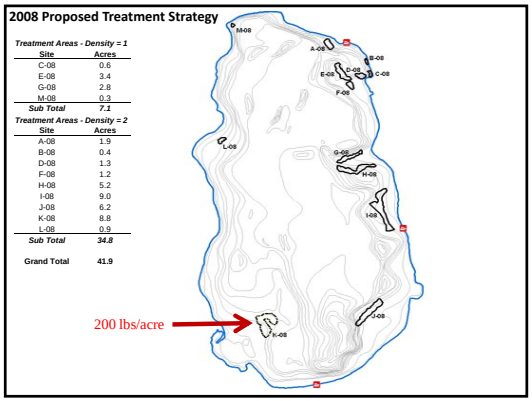
AIS Control Project

AIS Project Overview

- Four-year, $140,000 project
  - $97,000 in herbicide
- WDNR AIS Established Infestation Grant received
  - Provides 75% of project costs or $106,000
- Reduce EWM densities to more easily controlled levels
  - Four years of intense treatments and monitoring
- Prevent further infestations of EWM and other AIS
- Train a core group of volunteers to monitor EWM and set up treatments

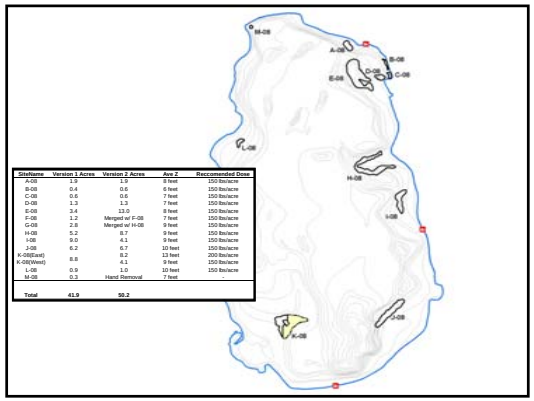
Onterra LLC





2008 Survey Results

Onterra LLC



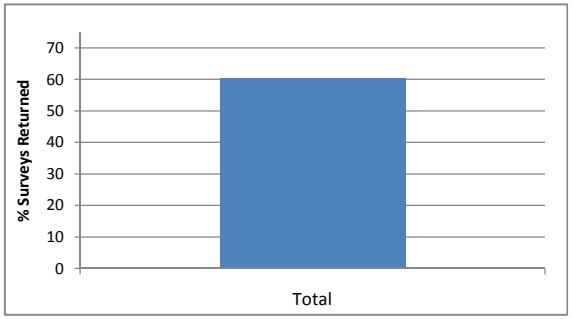
SiteName	Version 1 Acres	Version 2 Acres	Ave Z	Reccomended Dose
A-08	1.9	1.9	8 feet	150 lbs/acre
B-08	0.4	0.6	6 feet	150 lbs/acre
C-08	0.6	0.6	7 feet	150 lbs/acre
D-08	1.3	1.3	7 feet	150 lbs/acre
E-08	3.4	13.0	8 feet	150 lbs/acre
F-08	1.2	Merged w/ F-08	7 feet	150 lbs/acre
G-08	2.8	Merged w/ H-08	9 feet	150 lbs/acre
H-08	5.2	8.7	9 feet	150 lbs/acre
I-08	9.0	4.1	9 feet	150 lbs/acre
J-08	6.2	6.7	10 feet	150 lbs/acre
K-08(East)	8.8	8.2	13 feet	200 lbs/acre
K-08(West)		4.1	9 feet	150 lbs/acre
L-08	0.9	1.0	10 feet	150 lbs/acre
M-08	0.3	Hand Removal	7 feet	-
Total	41.9	50.2		

B

APPENDIX B

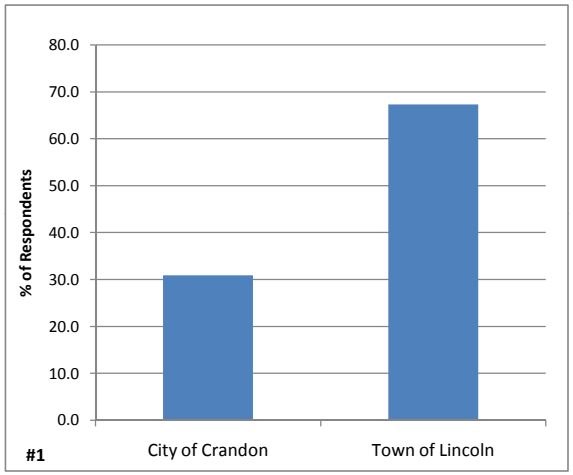
Stakeholder Survey Response Charts and Comments

Returned Surveys	Sent	% Returned
Total	*268*	60.4

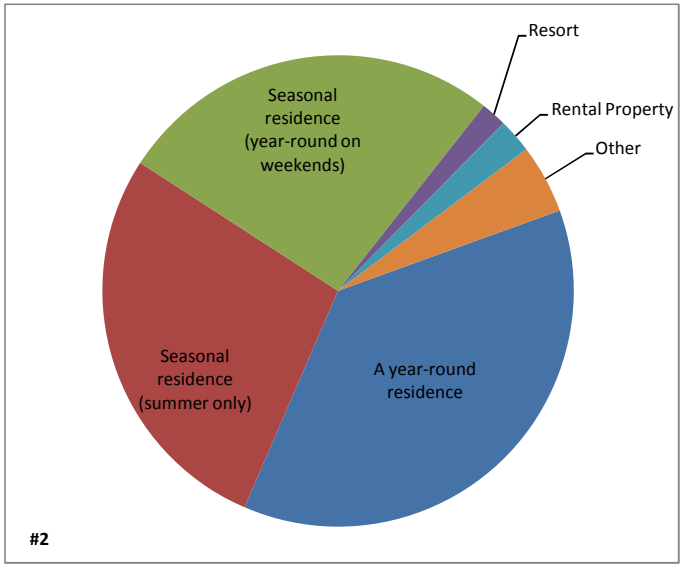


#1 In which municipality is your Lake Metonga property located?

		Percent
City of Crandon	50	30.9
Town of Lincoln	109	67.3
Didn't Answer	3	1.9
	162	



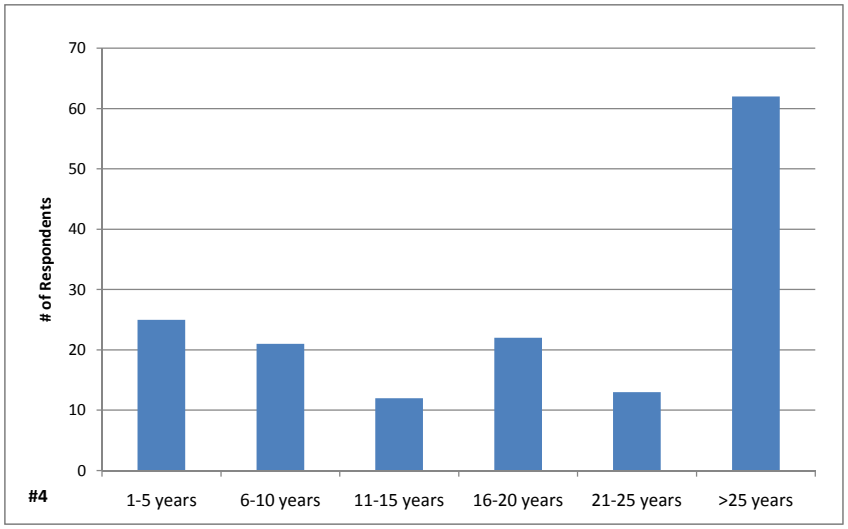
#2	What type of property do you own on Lake Metonga?		%
	A year-round residence	63	36.4
	Seasonal residence (summer only)	47	27.2
	Seasonal residence (year-round on weekends)	45	26.0
	Resort	3	1.7
	Rental Property	4	2.3
	Undeveloped	8	4.6
	Other (please specify)	3	1.7
		173	



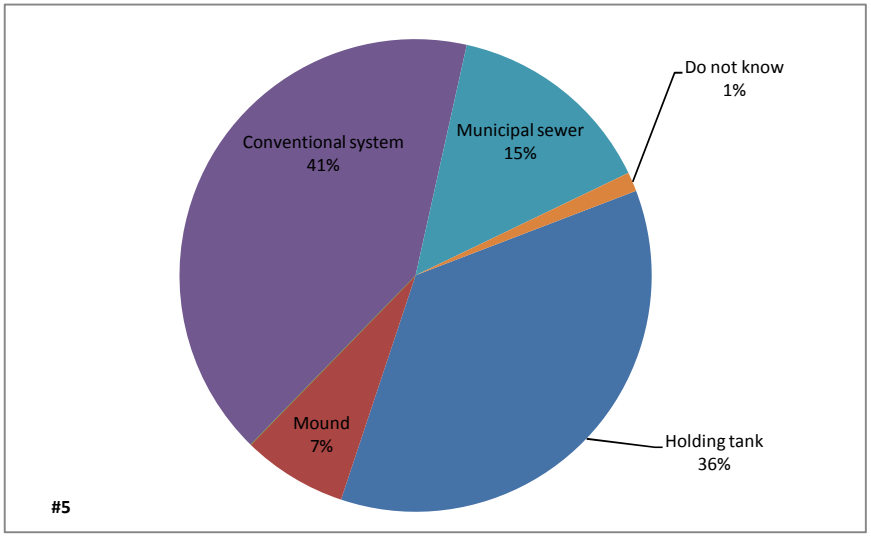
#3	If you are not a year-round resident, how many days each year is your property used by you or others?	
	Answered Question	97
	Average	98.9
	Standard Deviation	61.7

#4	How many years have you owned property on Lake Metonga?	
	Answered Question	155
	Average	22.9
	Standard Deviation	16.4

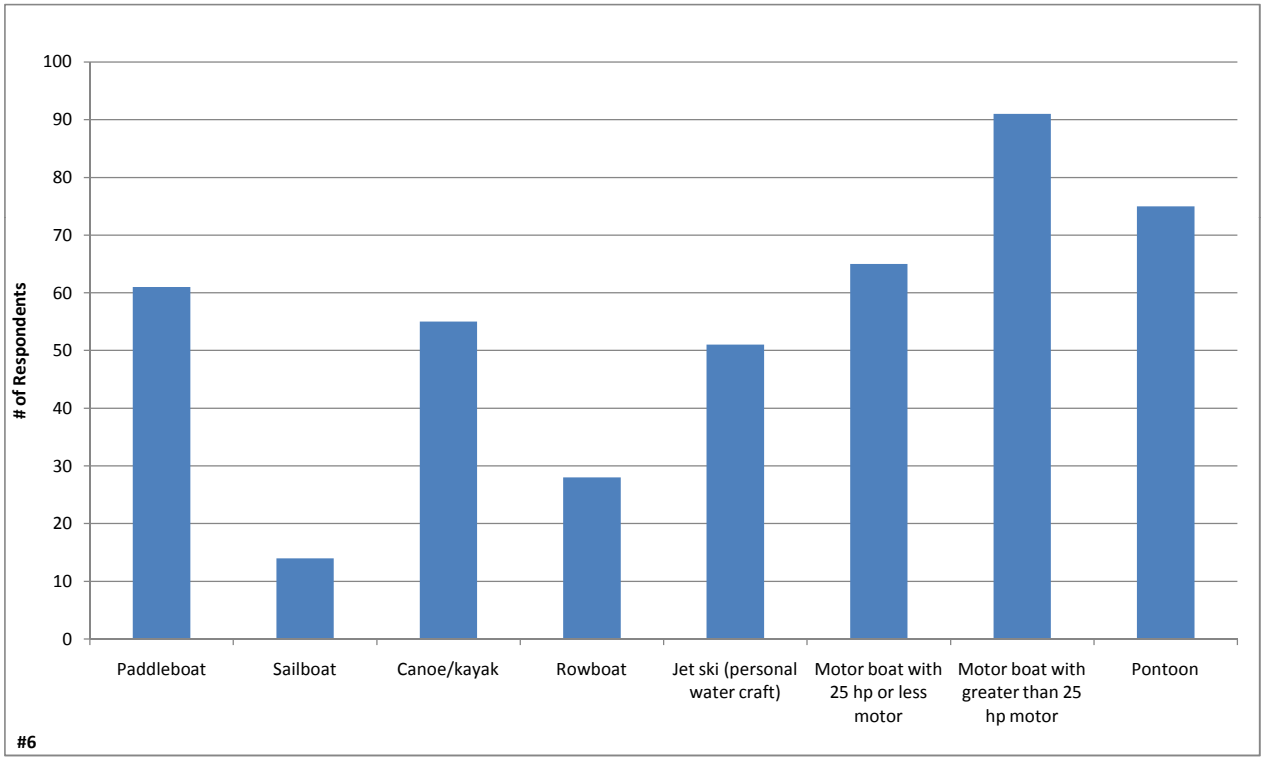
#4	How many years have you owned property on Lake Metonga?	
	Answered Question	155
	1-5 years	25
	6-10 years	21
	11-15 years	12
	16-20 years	22
	21-25 years	13
	>25 years	62



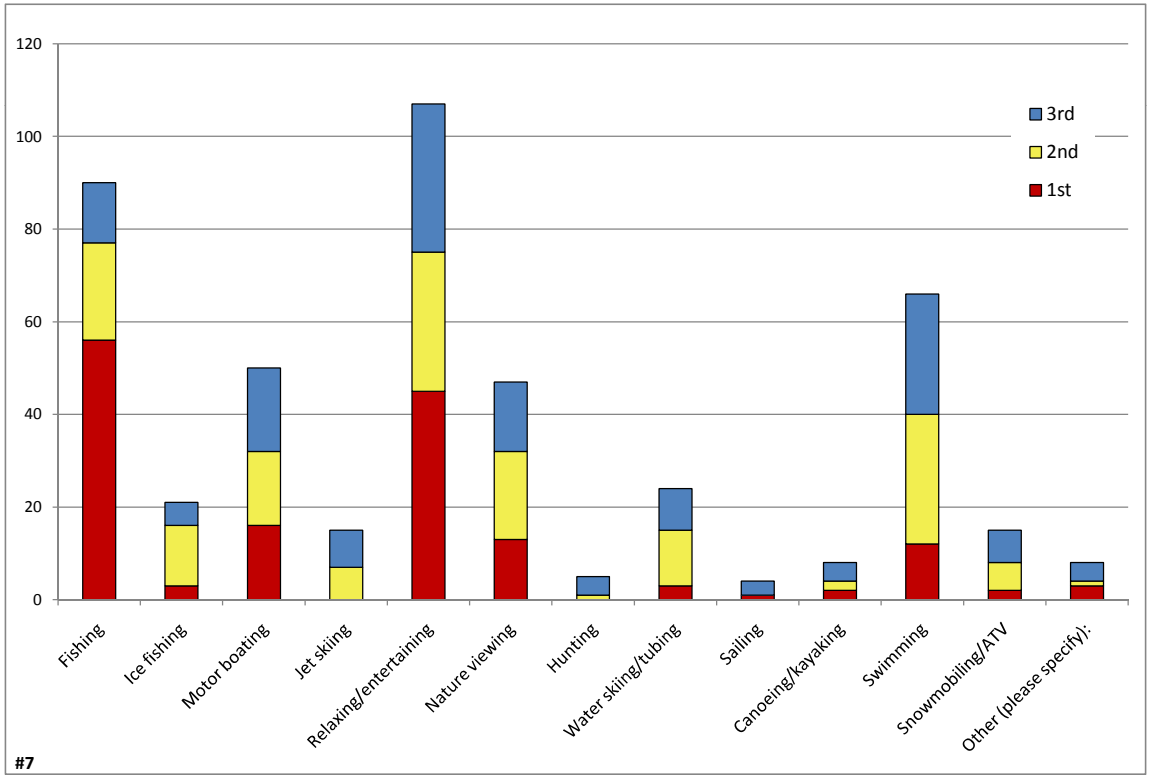
#5	What type of septic system does your property utilize?	
	Holding tank	55
	Mound	11
	Advanced treatment system	0
	Conventional system	63
	Municipal sewer	22
	Do not know	2
		153



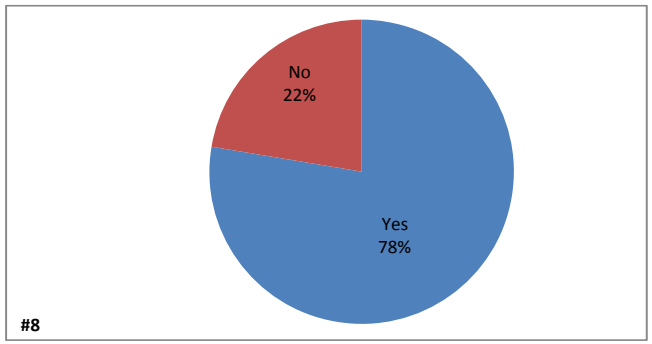
#6	What types of watercraft do you or others currently use on Lake Metonga?		% of Total
	Paddleboat	61	13.9
	Sailboat	14	3.2
	Canoe/kayak	55	12.5
	Rowboat	28	6.4
	Jet ski (personal water craft)	51	11.6
	Motor boat with 25 hp or less motor	65	14.8
	Motor boat with greater than 25 hp motor	91	20.7
	Pontoon	75	17.0
		440	



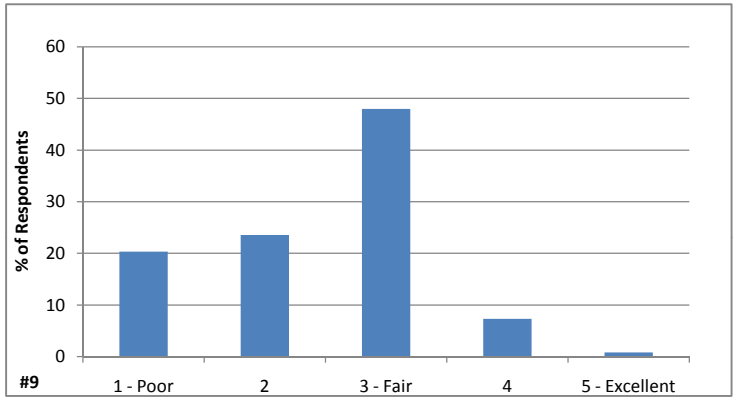
#7	Please rank the activities below that are the most enjoyable to you on Lake Metonga?	1st	2nd	3rd
	Fishing	56	21	13
	Ice fishing	3	13	5
	Motor boating	16	16	18
	Jet skiing	0	7	8
	Relaxing/entertaining	45	30	32
	Nature viewing	13	19	15
	Hunting	0	1	4
	Water skiing/tubing	3	12	9
	Sailing	1	0	3
	Canoeing/kayaking	2	2	4
	Swimming	12	28	26
	Snowmobiling/ATV	2	6	7
	Other (please specify):	3	1	4
		153	155	144



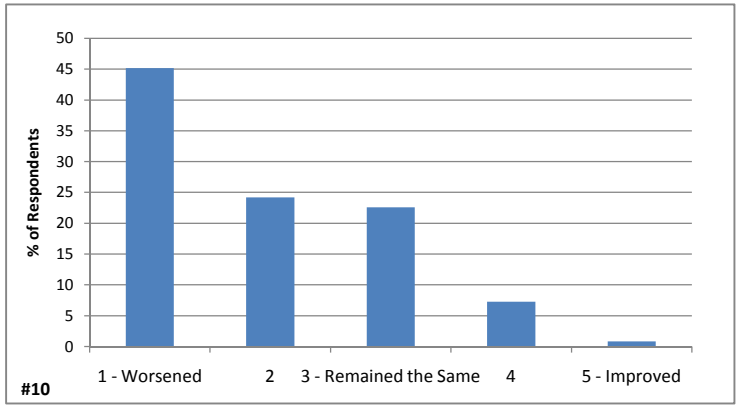
#8	Have you fished on Lake Metonga in the past 3 years?	
	Yes	125
	No	36
		161



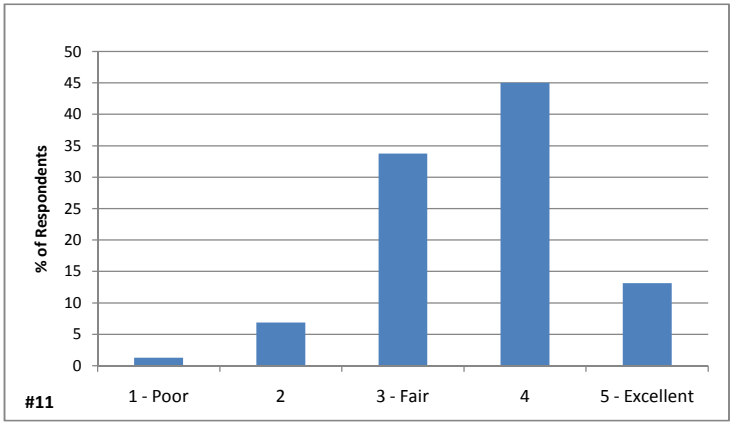
#9	How would you describe the current quality of fishing on Lake Metonga?		%
	1 - Poor	25	20.3
	2	29	23.6
	3 - Fair	59	48.0
	4	9	7.3
	5 - Excellent	1	0.8
		123	



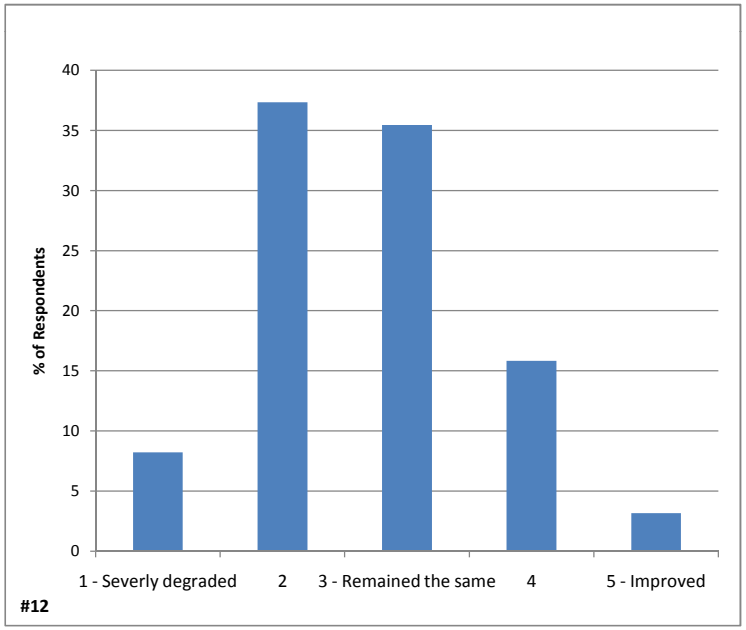
#10	How has the quality of fishing changed on Lake Metonga since you obtained your property?		%
	1 - Worsened	56	45.2
	2	30	24.2
	3 - Remained the Same	28	22.6
	4	9	7.3
	5 - Improved	1	0.8
		124	



#11	How would you describe the current water quality of Lake Metonga?		%
	1 - Poor	2	1.3
	2	11	6.9
	3 - Fair	54	33.8
	4	72	45.0
	5 - Excellent	21	13.1
		160	

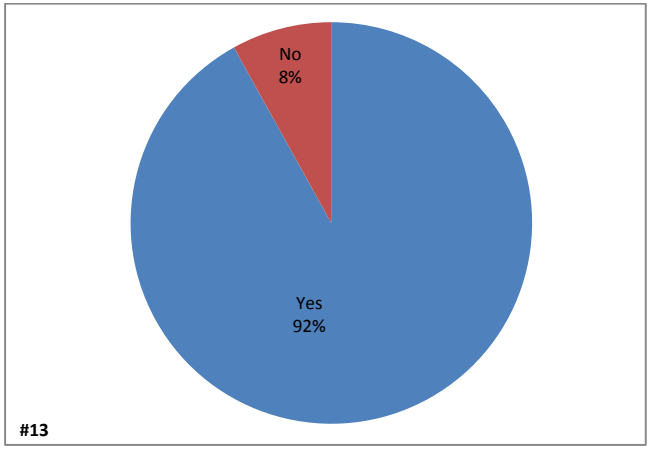


#12	How has the water quality changed in Lake Metonga since you obtained your property?		%
	1 - Severly degraded	13	8.2
	2	59	37.3
	3 - Remained the same	56	35.4
	4	25	15.8
	5 - Improved	5	3.2
		158	



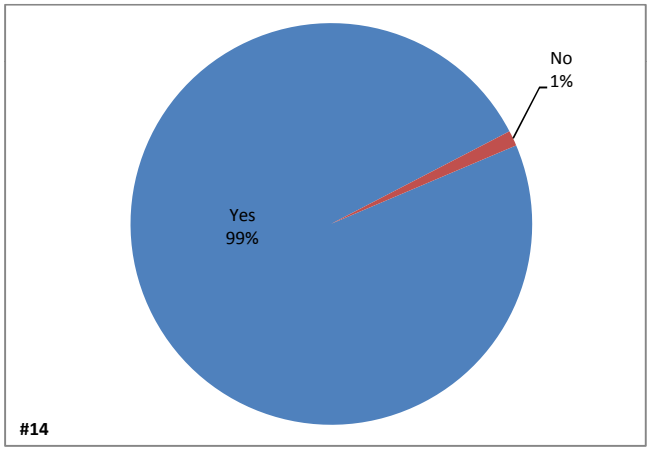
#13 Before reading the statement above, had you ever heard of aquatic invasive species?

Yes	148
No	13
	161

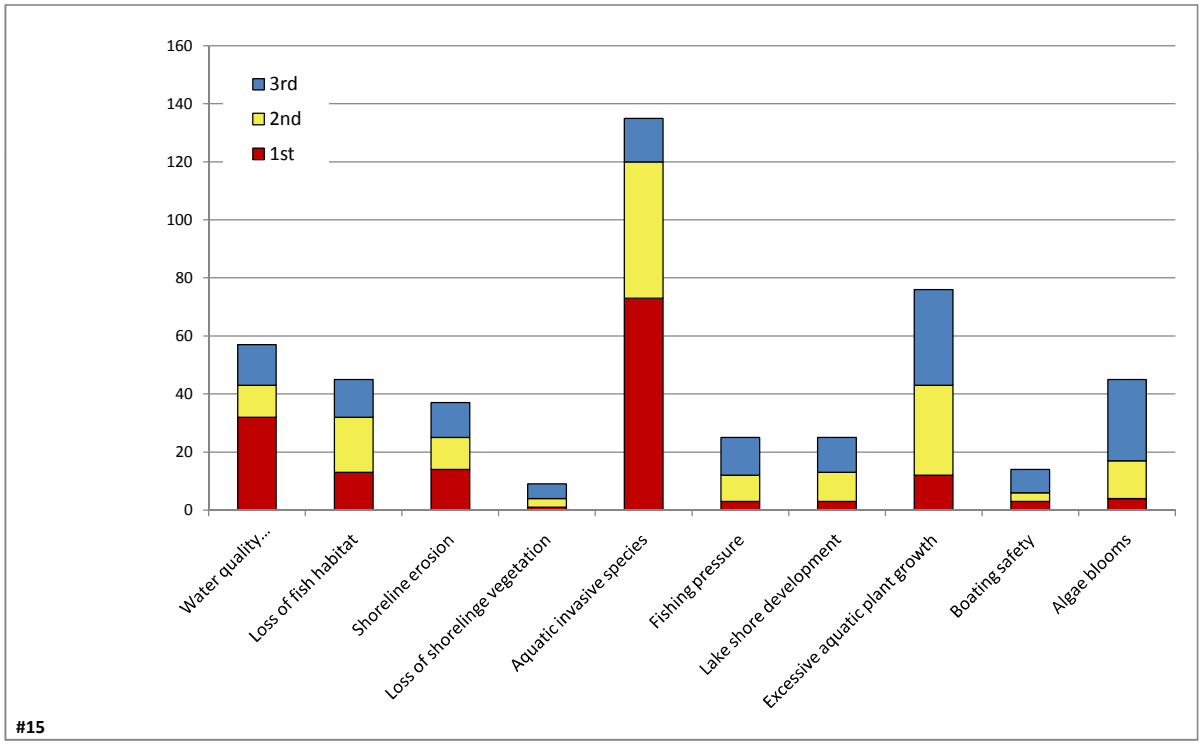


#14 Are you aware of aquatic invasive species on Lake Metonga?

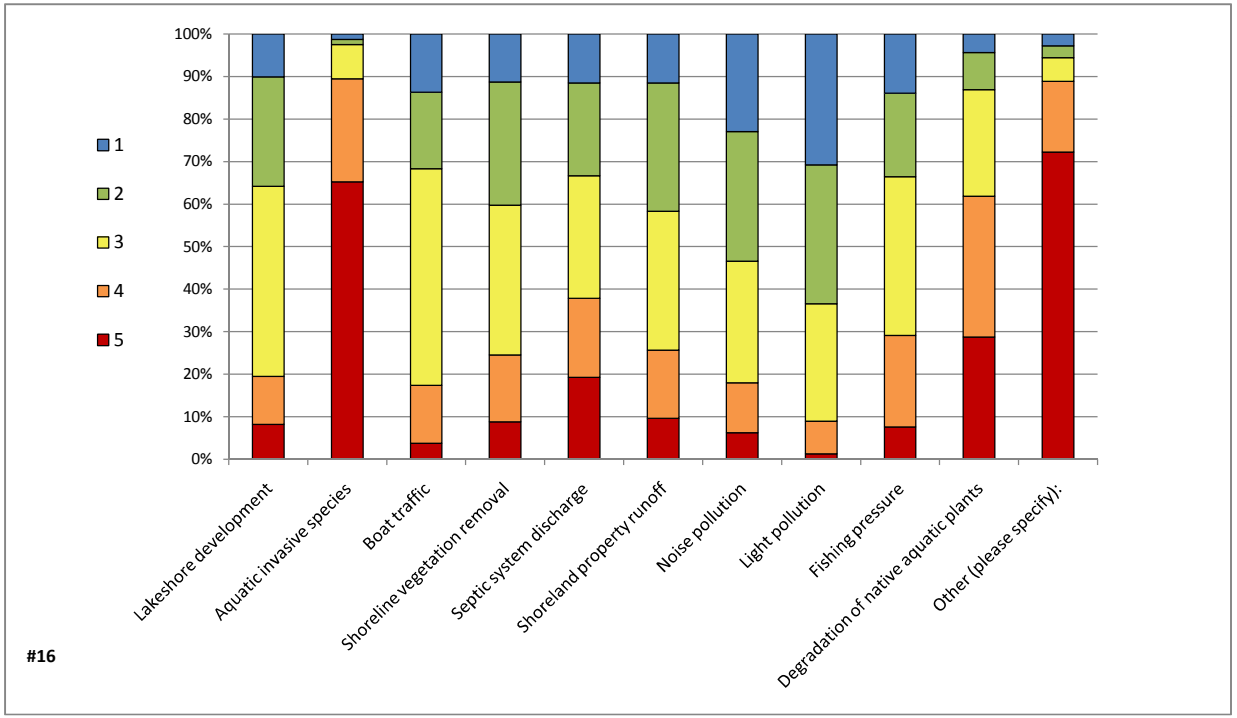
Yes	158
No	2
	160



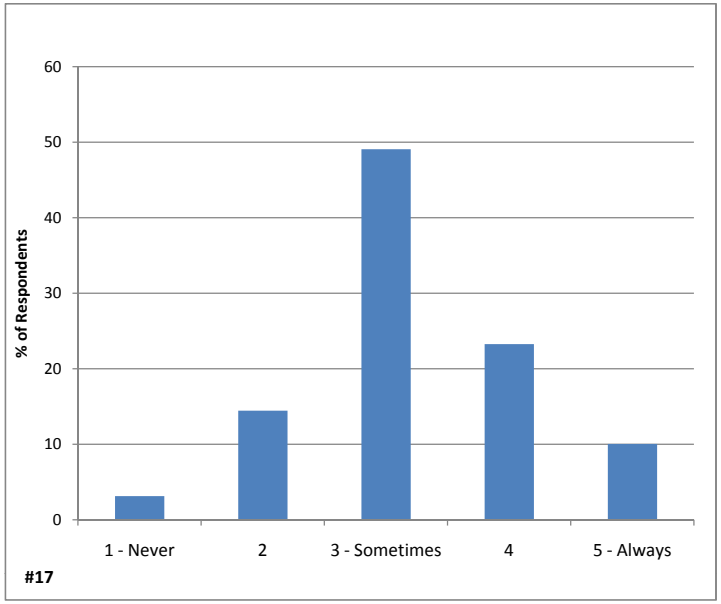
#15	From the list below, please rank your top three concerns regarding Lake Metonga?	1st	2nd	3rd
	Water quality degradation/pollution	32	11	14
	Loss of fish habitat	13	19	13
	Shoreline erosion	14	11	12
	Loss of shorelinge vegetation	1	3	5
	Aquatic invasive species	73	47	15
	Fishing pressure	3	9	13
	Lake shore development	3	10	12
	Excessive aquatic plant growth	12	31	33
	Boating safety	3	3	8
	Algae blooms	4	13	28
		158	**157**	**153**



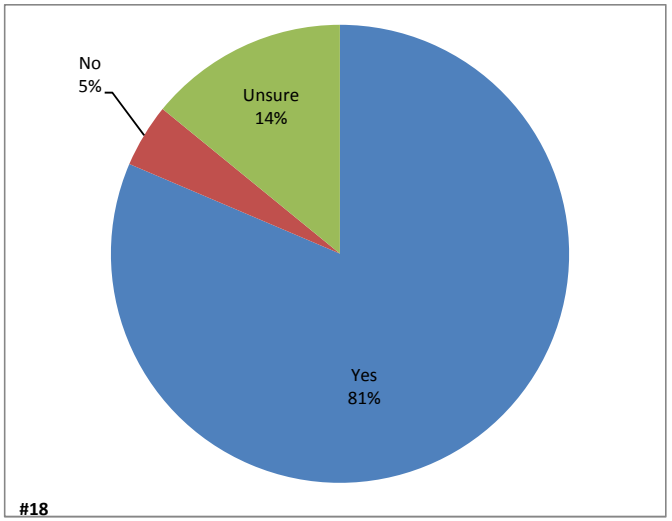
#16	To what level do you believe each the following factors are negatively impacting Lake Metonga?	1 No Impact	2	3 Moderate Impact	4	5 Great Impact	Answered
	Lakeshore development	16	41	71	18	13	**159**
	Aquatic invasive species	2	2	13	39	105	**161**
	Boat traffic	22	29	82	22	6	**161**
	Shoreline vegetation removal	18	46	56	25	14	**159**
	Septic system discharge	18	34	45	29	30	**156**
	Shoreland property runoff	18	47	51	25	15	**156**
	Noise pollution	37	49	46	19	10	**161**
	Light pollution	48	51	43	12	2	**156**
	Fishing pressure	22	31	59	34	12	**158**
	Degradation of native aquatic plants	7	14	40	53	46	**160**
	Other (please specify):	1	1	2	6	26	**36**



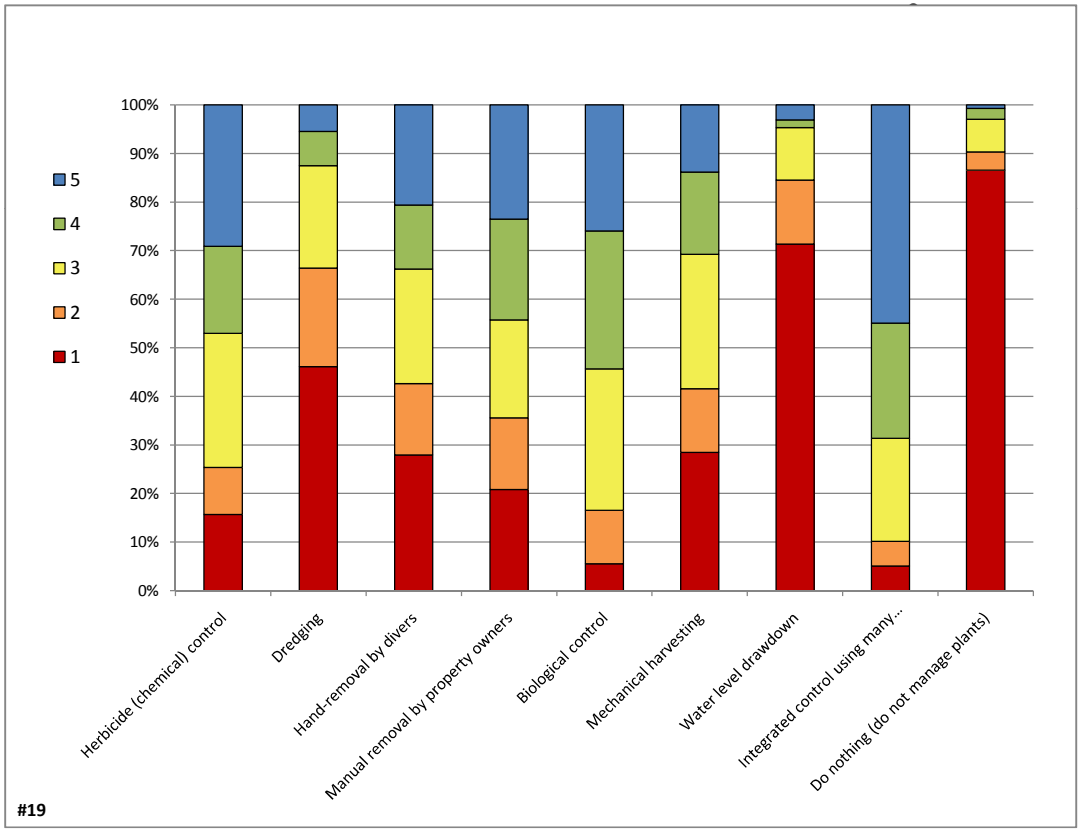
#17	How often does aquatic plant growth negatively impact your recreational use of Lake Metonga?		%
	1 - Never	5	3.1
	2	23	14.5
	3 - Sometimes	78	49.1
	4	37	23.3
	5 - Always	16	10.1
		159	



#18	Considering your answer to the question above, do you believe aquatic plant control is needed on Lake Metonga?	
	Yes	127
	No	7
	Unsure	22
		156

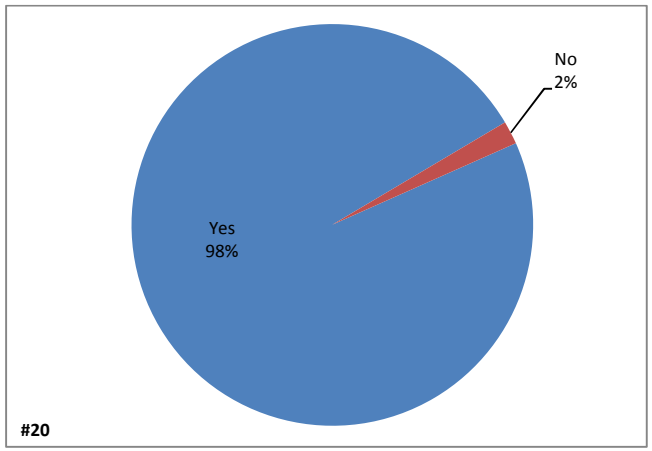


#19	What is your level of support for the responsible use of the following techniques on Lake Metonga?	1 Not Supportive	2	3 Moderately Supportive	4	5 Highly Supportive	Answered
	Herbicide (chemical) control	21	13	37	24	39	**134**
	Dredging	59	26	27	9	7	**128**
	Hand-removal by divers	38	20	32	18	28	**136**
	Manual removal by property owners	31	22	30	31	35	**149**
	Biological control	7	14	37	36	33	**127**
	Mechanical harvesting	37	17	36	22	18	**130**
	Water level drawdown	92	17	14	2	4	**129**
	Integrated control using many methods	6	6	25	28	53	**118**
	Do nothing (do not manage plants)	116	5	9	3	1	**134**



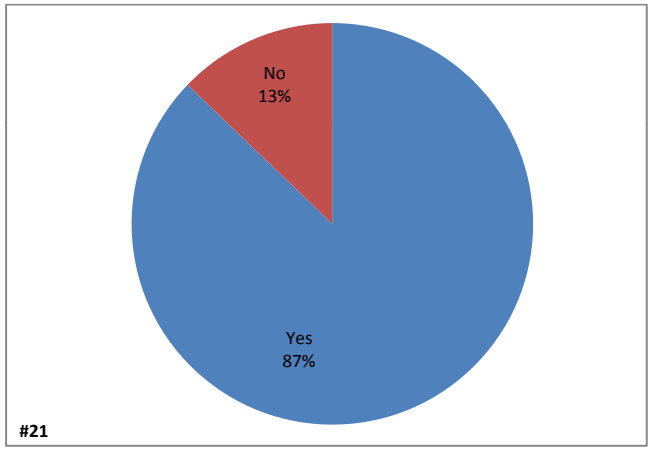
#20 Before receiving this mailing, have you ever heard of the Lake Metonga Association

Yes	158
No	3
	161

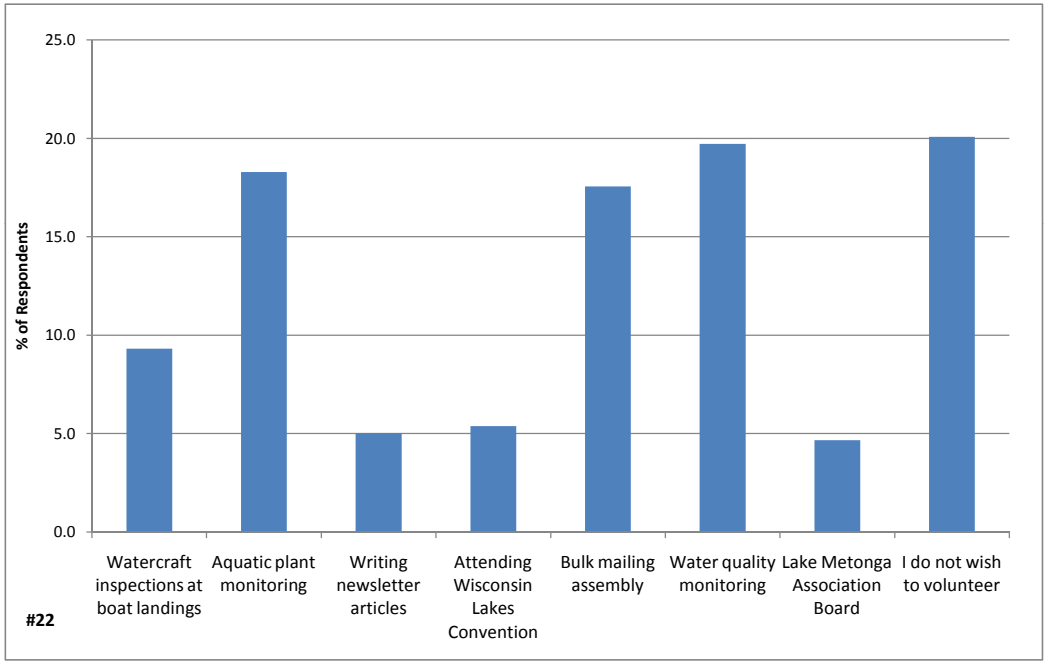


#21 Are you currently a member of the Lake Metonga Association?

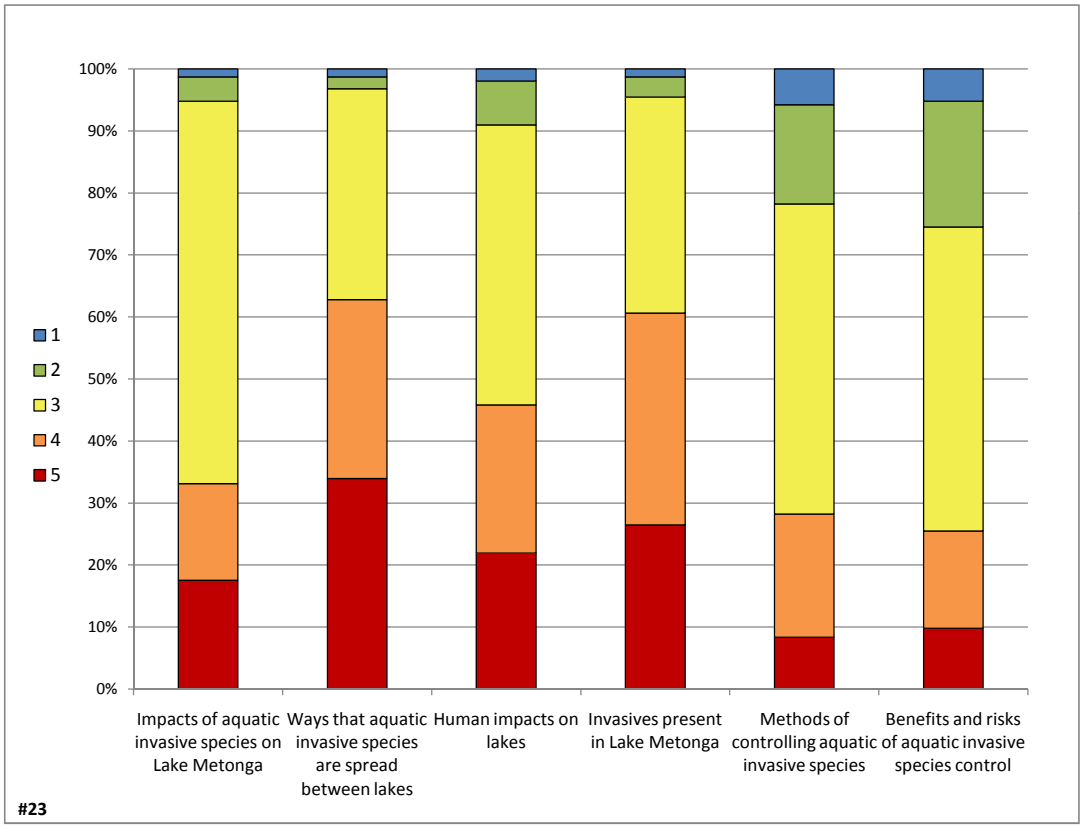
Yes	136
No	20
	156



#22	Please circle the activities you would be willing to participate in if called upon.		%
	Watercraft inspections at boat landings	26	9.3
	Aquatic plant monitoring	51	18.3
	Writing newsletter articles	14	5.0
	Attending Wisconsin Lakes Convention	15	5.4
	Bulk mailing assembly	49	17.6
	Water quality monitoring	55	19.7
	Lake Metonga Association Board	13	4.7
	I do not wish to volunteer	56	20.1
		279	



#23	Please describe your level of understanding of each of the following lake management issues.	1 No Understanding	2	3 Basic Understanding	4	5 Full Understanding	Answered
	Impacts of aquatic invasive species on Lake Metonga	2	6	95	24	27	**154**
	Ways that aquatic invasive species are spread between lakes	2	3	53	45	53	**156**
	Human impacts on lakes	3	11	70	37	34	**155**
	Invasives present in Lake Metonga	2	5	54	53	41	**155**
	Methods of controlling aquatic invasive species	9	25	78	31	13	**156**
	Benefits and risks of aquatic invasive species control	8	31	75	24	15	**153**



COMMENTS ON LAKE METONGA MANAGEMENT PLANNING PROJECT
STAKEHOLDER SURVEY - 2007

1. There appears to be a lack of involvement by the law enforcement branch of the DNR. People are abusing bag limits on fish. There appears to be a lack of awareness of rules by some people on PWC's. Ice fishermen need to remove items that are left behind and contribute to Lake pollution. Because the walleye population is dangerously low, should the Indians continue to spear and should night fishing be allowed when fish are most vulnerable? Do bass tournaments contribute anything positive to Lake Metonga?

4. Questions 9 and 10 are poor questions. No. 9 – (1) Poor Walleye Fishing; (3) Fair perch fishing and a (4) fair Bass Fishing. No. 10 – Cyclical depending on species. No. 12 – Water has become clearer. No. 15 – 3rd – Loss of Sandy Beaches for swimming as result of sharp zebras. Comments: My son, Aarron, found one of the first zebra mussels. Our family loves to snorkel and have seen the Lake change tremendously. Your questions regarding fishery need to be changed. I could help with weed monitoring as a fisherman and a snorkeler. We are members of this association that are concerned, but don't own property on the Lake.

6. We feel that there have been more weeds and algae on our shoreline this past summer and fall than any other year we have lived on Lake Metonga. We feel we must do something to prevent this from happening in the future. We feel that the aquatic invasive species have increased so much, especially Eurasian Water Milfoil, that we fear they will overtake our Lake and make it difficult to enjoy.

8. The concern for aquatic invasive is super. But, what is the overall vision for the Lake taking into account everything mentioned in No. 7. Metonga is a hell of a resource/asset. It needs to be managed in its totality. Today this is not the case.

9. Present Officers are doing an excellent job.

12. Let's be honest. Spearing has hurt the Lake. Changing dam control has hurt the Lake. Jet ski times should be controlled. Lower Taxes!

13. Lake Metonga is within a few years of being one of the best fishing and recreational lakes in Wisconsin, if not the best! LMA has overcome rusty crayfish, the milfoil is close to being in check. We have very clean-clear water, loons and eagles nesting and feeding on the Lake and many species of weeds growing in the Lake again. People are catching perch that never caught perch on Lake Metonga and I believe within a couple years with the walleye stocking they will be able to catch legal walleye! The only thing I believe missing on Lake Metonga is the DNR patrolling the Lake for perch limits and walleye size limits. Thumbs up to Les and Donna Schramm, if not for people like them, this Lake would not be what it is today!

14. Walleye fund raiser a great idea. Put the 9" walleyes in. Mallards "Ain't got no chicken" so lets have a bullhead banquet next year.

17. Dumpsters around the Lake for cleaning up waterfront beaches.

18. Enforce native shoreline habitat. Restrict shoreline alteration to prevent lake deterioration and support wildlife.

21. I very much appreciate your commitment to the Association. I feel that Lake Metonga property will soon start to escalate as Wisconsin/Illinois will discover this jewel. We need long range planning to control growth of condos and other multi-family properties. Thanks again.

22. Question #5 – Deeded Access. Our property is 800' from Lake.

27. Question #4 - # years at this residence. Owned property on Lake for many years in 80's and 90's. Comments: The Eagle River lake associations bulk mail and ask for financial donations to support these efforts in fighting invasive species, most particularly milfoil treatment. I think the Lake Metonga Association should also do that. The lake property owners have a vested interest and should be able to make annual donations.

28. Lakeshore property (within the city limits) has been owned by my deceased husband's family since the early 1900's and by me since my husband's death in 1988. My family will own it after my death.

30. Great survey – Thanks!

36. Long time property owners lived through the rusty crayfish problem, but the invasive aquatic and zebra mussel has changed our enjoyment of the Lake. Help!!

37. We need to have more members belong and pay dues for the Lake Association. I believe we should take out an ad in the Forest Republic or Pioneer to get more members and dues. A lot of people I talked to had no idea about Asian milfoil and how it is spread. More education lake owners have, the more that can be done to save our lake!! Thank you for this survey.

39. Our family has enjoyed Lake Metonga for many years and we hope the future for this very special lake will hold positive changes in the future. Sorry we cannot offer to volunteer at this time, but we are beginning the process of putting our property up for sale. We just don't have the time we would like to spend there.

44. Jet skies coming too close to shore at high rate of speed and no concern for swimmers. Have never seen a DNR warden do anything about this. A dangerous situation.

52. Put a removable barrier at the dam when the Lake gets to a certain low level. Sometimes it is not needed. This year we could have used one. Maybe 2" to 4" is all we need. At freeze up take it out. Our shorelines are getting lots of weed and algae buildup causing an awful odor.

54. A shooting adjacent to campground on lake in a year round neighbor hood.

55. We have a motor home. No septic at this time. I am concerned about the problems with milfoil, zebra mussels and the walleye population. I appreciate the efforts of the Lake Association on resolving these problems.

57. Question 22 – comment – No Time Yet.

58. Thanks for asking.

60. I don't know if it is true or not, but I have been told by certain individuals in the City of Crandon that City storm sewers empty into Lake Metonga. If this is so than that along with shoreline property owners using fertilizer is probably responsible for the degradation of the Lake's water quality. I would like to have the Association check into this. Thank you.

61. Question 5 – comment – No septic perc test done or for the future.

66. I think the Association has a very knowledgeable group managing the Association affairs. Very strong work ethic and capable of doing the best possible for the Association.

67. I would like to thank all active participants of the Association, especially Les Schramm for all that you do and have done in trying to control and rid our beautiful lake of these numerous invasive species present in Lake Metonga. THANK YOU!!!

69. I'm not sure where we stand with the potential to run sewer around the Lake. I know our system is effective and our neighbor's is no better. Removal of all natural vegetation at the water's edge should also be banned or current regulations enforced. Thanks Les for all your efforts.

73. Swimmers Itch?

75. Question #4 – 75 years (same family) Dr. G.W. Ison – 55 tears and about 20 years Barbara Ison Haakenson. Question #17 – (3) Sometimes – Especially this past summer. Comments: Thank you for your hard work.

76. In the end, I am in favor of any type of method to control and improve the quality of the Lake. Lake Metonga is still a beautiful lake, but there are issues that need addressing. It will be a lot easier to deal with them now than waiting until the lake quality has been severely degraded.

77. Question 22 – (h) Health prohibits at this time.

79. When I first considered buying property on Lake Metonga, I was concerned about the crayfish destroying weed beds. Then small mouth bass were introduced and seem to be taking care of crayfish. Now the zebra mussels are taking over the Lake. Cure? I also am concerned about vacant lots being sold and new owners using as sort of a public campground. This should be reviewed. Most of these new buyers that do not develop housing, use outdoor facilities for restrooms and tend to have 3 to 4 boats on the shore, makes neighbors property less valuable and less enjoyable.

82. I feel that we need to get a new dam that the water can stay high in summer and let water out in fall so people on the east side of the Lake can use their boat lifts. The water gets so low that we have to push the boats on the lifts. It would be nice to lower the Lake in fall so we would not have to pull the lifts out or the piers out. There are lakes that do this and it works.

83. I am very concerned about the high end development on Lake Metonga, especially the condo development. This is going to bring in large capacity docks with excessive pleasure boats to the quiet NW corner of the Lake. Also, the trash left on the Lake during the ice fishing season is terrible. The DNR should try to identify those responsible. Also, water ski/jet ski should be limited to 10 a.m.-6 p.m. operation. The wardens should police this Lake and issue citations to pleasure boat violations.

84. We have lake property but cannot always use our lake frontage because of low water conditions, we feel this can be better improved by controlling the levels of the water by the dam.

85. I think the effort you have put forth to keep our Lake clean for us is most commendable. Thank you!

86. Present workers of the Association are doing an excellent job of pursuing the lake infiltration.

87. We feel the Association and Board Members are doing their best to make our Lake an excellent place for sport, entertainment and relaxation. We support your efforts and encourage your efforts on our behalf. Thank you.

88. I do not own property on the Lake, but I am supportive of efforts to preserve the resource for community benefits. I grew up in Crandon and as a youth enjoyed swimming in Metonga and watching the walleye spawning. My response to questions reflects my comparison of the water quality as a youth – prior to the shore-line development – and the conditions of today. Win Abney

89. Need time period for water skiing, jet ski use – 10:00 a.m. to 6:00 p.m. – who monitors? Is it "fine" enforceable? How do you get funds for paid monitors that will patrol the Lake? Investigate controlling the Lake level by raising the weir on the dam.

90. Question 4 – Personally 20 years – family 45 years.

91. Over harvesting of perch by spearing. Operating personal watercraft too close to shore and swimmers.

93. Question 4 – Bought by parents in 1939. I was a child then. Comments: Lake water is much cleaner now than it was at times 50-60 years ago. By mid-August microscopic plant life would cause the water to look like pea soup.

94. How come so many new buildings are going up on the Lake and they are getting higher and higher and no respect for neighbor's rights?

100. Question 15 – 1st – Water level gets low in summer. No. 24. Water level gets very low in summer and fall. Comments: The dam by the landing should be closed.

102. Limit jet ski hours.

103. I am very familiar with the Lake since a child and have seen so many changes. Eroding shorelines, weeds now beautiful sandy bottoms were great for swimming. Fish of all kinds plentiful, now though getting back to that point. The algae bloom is disgusting, the constant weeds washing ashore, the growth and infestation of zebra mussels. The rusty crabs were bad at one time, but to me no longer a problem. The over abundance of small mouth bass and bullheads is not needed and the quantity of walleye is few. The south park and ice fishing people need somehow to be regulated with their garbage. Our north shore is nothing but a dumping ground. It's just disgusting what people dump in the lake.

105. Question 12 (2) In regard to invasive species only – great for swimming and other water activities.
Question 16 (e) Septic system discharge – Don't know how many are conventional - percentage?
Question 22 ((f) Water quality monitoring – I don't know if we would be available often enough to do these things.
Comments: I would be interested in attending a Wisconsin Lakes Convention, but I don't think I would be able to contribute much other than opinions. I feel our Lake Association would be better served by persons more knowledgeable and involved in our Lake. If the board feels that attending the Wisconsin Lakes Convention is worthwhile, our Association should send representation at our expense. I would be willing to contribute for such if necessary.

106. Question 4 - The family has owned the property for 90 plus years. Current owner an Arizona resident. Question 6 – watercraft used until the past several years. Question 7 – a, b, c, f, h, k and l

all equally enjoyable. Question 12 – unsure of water quality change. Question 21 – I believe our parents were before Dad died. Question 22 – Our property is up for sale at this time – as of 9/2007. Comments: Even though our family property is on the market, please, please pay attention to this beautiful Lake – in the years growing up there, swimming, water skiing, fishing, scuba diving, you could clearly see 12 to 15 feet on a calm day. We love this Lake and regret having to sell our parents' property because of health reasons. It is one of the best!! Thank you for all you will do to help preserve this wonderful Lake.

108. Have pulled in numerous amounts of zebra mussels attached to weeds. Don't remember any in 1998.

109. Questions 8, 9 & 10 – Don't fish often. Question 12 – Growing amounts of weeds and algae. Question 22 – Would be willing to volunteer, but are not at the Lake regularly.

110. Question 15 – Also specified a fourth concern – (b) Loss of fish habitat.

111. The recent presentation by the firm from De Pere was excellent and would suggest those type of public forums continue – education helps.

112. Les, you are doing a great job. I love Lake Metonga – been there for 32 years at my summer place. It is my home in heaven! I hope heaven is as nice!

113. Question 16 (e) Septic System Discharge – If doing illegally.
Comments: We would like the Association to consider taking some action on banning the use of jet skis for a period of time each day to give relief to those people who would like a calmer atmosphere to fish in - sometime during the early morning or early evening hours. I believe that not regulating the hours of jet skiing on Metonga is a problem to those people who dedicate, time, concern and money to the Lake Association. I believe local fisherman have been ignored on this subject.

114. Question 6- Not applicable. Comments: I lived next to Lake Metonga from 1949 – 1955 and my parents continued there until their death in 1973. I know that many of the things that affect the Lake are cyclical, but am concerned about the aspects of lake management. Since having ownership of my parent's cottage since 1973, I have not lived in Crandon, but my heart is there – on the Lake! Thanks! You do a great job. Wish I lived up there again so I could be more active in the Association.

116. I have enjoyed this Lake for over 40 years and I have never seen so much green slime algae growth. When we purchased our property the septic system was bubbling up and over. We put in a new system which was very costly but worth it to protect our Lake. All septic systems should be monitored closely.

118. Continue planting walleye that are 7 – 9" in length. Increase the bag limit on small mouth bass or other means that would reduce their numbers in the Lake. Reduce the number of bullheads in the Lake, also suckers.

119. Question 6 – None

123.Perch fishing has greatly improved this summer. Please try to keep balance so walleye don't over power this. Would it be possible to update an ownership map of waterfront properties again or phone number/contact name directory. That we can communicate better. Good job! Thanks!

126. Les, thanks, nice job.

127. Question 12 – Zebra Mussels and Milfoil.

129. My visiting family and friends tell me what beautiful lake. I like the view across the Lake also. Not having fished for a few years, we cannot comment on how the fish are biting. Crayfish used to be very plentiful, but John was always very busy getting rid of them and he was a great fisherman, passing many on to us. I still miss them. Have not noticed any milfoil recently. Sorry we have no knowledge of control on invasive species. Sorry, I can't be more helpful.

130. It is so sad to see the deterioration of our vacation home beach – mucky and smelly. We are losing the visits of our children and grandchildren because of the condition. Hope we can find some answers. This past summer was so bad. Thanks for your concerns and all you do for the Lake.

131. Question 12 – Zebra Mussels, Milfoil. Question 22 – We are not there enough. Question 19 – Need more information was circled on all questions in addition to other choices. Comments: Could help for short projects. Used to be a better fishing lake. Stop the spearing of fish (especially spawning) Weeds are getting thick – where do you dispose of the shoreline wash-up? Like the idea of power washing at boat landings. Need to dredge campground boat landing – too shallow!! We appreciate all the work you do!!

134. Question 16 – e, f, i, there was also a comment – "don't know". Comments: One of the greatest assets of Lake Metonga is that it is not over-developed. We have been on the Lake since 1975 and it has retained its charm. However, we are concerned about the following: 1) Jet skis – They are noisy and often driven recklessly; 2) Invasive species – especially zebra mussels and their effects; 3) Algae blooms; 4) Light pollution. This is a good survey and we appreciate your efforts. Thank you.

136. Question 12 – Haven't lived there long enough to really judge. Question 15 – These all seem important. Question 19 – I would say to consult an expert, not me. Comments: Sorry we were unable to attend your information meeting. I would have been able to answer these better if I had.

137.We would like some limitations on the use of jet skis on the Lake. We would also welcome any advice and guidance on resources for learning more about managing aquatic plants.

138. Question 6 – Seaplane.

139. I feel the water level of the lake if lowered in the fall could stop some of the shoreline damage that is done by the ice pushing the shore back every winter.

140. Without the Lake Metonga Association watching over the water quality, etc. I think the Lake would be in an unbalanced state and not the very productive direction that it's going to be.

142. We are concerned about the zebra mussels because we don't understand what they do to the Lake. Walleye fishing is not what it should be.

146. Question 1 – Not sure (Town of Lincoln was circled). Question 2 – A year-round residence was circled, but Question 3 - listed 4-5 months use by owner or others. Question 5 – following (f) Do not know it states – "but think it is holding. Definitely not the best system. Needs to be drained each year". Question 14 – Yes, from a previous newsletter. Question 16 (a) – Circled four – "If you mean Buildings"; (d) Circled 5 – "Need some vegetation – removing all is "Great Impact"; (1) "Do not understand meaning of this." Question 18 – b is circled with comment " I would pull with rake on what is not good. Check around lake and ask owners to remove if vegetation is harmful.

146. (Cont'd.) Question 19 – (a) – Circled 1 – comment "Absolutely NOT. Question 22 – Comment "I do not live in Wisconsin, but plan to do so in a few years."

148. Question 4 – Our family has owned a seasonal cabin somewhere on Lake Metonga for over 50 years. Question 7 – Also selected a, e & h with a comment following k "Not now with the zebras." Question 9 – Comment "Poor compared to 45 years ago – great compared to the rusty crayfish era." Question 10 – "All above." Question 16 (e) – not aware of this as a seasonal. Question 22 – "We would certainly do all of these if we were at the Lake more that 1 week per year. Our parents (in their 80's visit more often)." Thanks Les, for all the work you and the other residents do!

149. Question 10 – Don't know.

150. Historically the Lake has gone through changes brought upon by human traffic. The onslaught of the crayfish and presently zebra mussels and invasive plants. Greater control of the boating transfer traffic should be the focus of any efforts due to the greater impact on the Lake's biosphere in past years. Although water quality is not nearly as it was 30 years ago, it is improving and is much better than many other lakes through this state. Plant life seems to be a staging a comeback due to improving conditions.

151. Question 4 – 6 years + 43 years family. Question 19 – In addition to recorded answers (a) (b) (c) (e) also had #6 circled. Question 22 – See comments. Our time at the Lake is very limited and sporadic. As events occur, we have been more than willing to "jump in" and help wherever needed. However, because we have older parents who like to attend Association functions when we are at the Lake, this limits our time to be available to commit for any specific events or activities. We do, however, support the Association and all the work the volunteers do, along with making the area aware of aquatic life, boat safety and keeping the Lake healthy. Thank you!

152. Questions 17, 18, 19, 21, 22, 23, and 24 are unanswered with the comment, " I can't answer there questions – I don't know enough about these questions.

153. You would not have to plant walleye if the Indians did not spear the spawners.

154. All of the homes or cottages in the City limits should be connected to the City sewer system. Les, I think you are doing an excellent job.

155. Question 22 (d) Maybe. Comments: I am not a fan of chemicals no matter how safe people "claim" they are. Studies change. I believe natural treating w/o chemicals is best when possible. The fishing is staggeringly different from the 1970's which is when I first came to Lake Metonga. I believe the lake should be allowed to rest a year. Ice fishing should be monitored more closely for the fish and pollution. Spearing is a joke. There is <u>no</u> reason for it. People water skiing 50' off a pier is a problem as well.

158. Question 5, wrote in (g) Outhouse Privy. Comments: I feel Lake Metonga has 3 current negative circumstances: (In order of impact) – 1. zebra mussels; 2. Eurasion Milfoil; 3. Lack of fish, particularly walleyes.

163. Question 6 (g & h) Very little use. Question 7 – (h) Very little. Question 22 – (h) Too old.

C

APPENDIX C

Water Quality Data

Wisconsin Trophic State Index (WTSI)			
Year	TP	Chla	SD
1992			39.51
1993			36.14
1994			33.58
1995			29.61
1997			31.31
1998			34.39
1999	47.90	36.58	34.84
2000	48.10	48.20	36.36
2001	49.21	40.79	36.40
2002	44.94	37.64	35.17
2003	48.49	40.08	35.11
2004	47.90	39.22	36.22
2005	48.49	35.66	28.97
2006	48.68	32.81	27.62
2007	46.80	32.09	32.66
All Years (weighted)	47.89	38.87	33.97
WI Natural Lakes	53.19	54.23	47.33
Northeast Region	51.05	51.49	45.61

Morphological / Geographical Data

Parameter	Value
Acreage	1,991
Volume (acre-feet)	54,547
Perimeter (miles)	7.9
Shoreland Development	1.26
Maximum Depth (feet)	79
County	Forest
WBIC	394400
Lillie Mason Region(1983)	Northeast Region
Nichols Ecoregion(1999)	NLFL

Watershed Data

WiLMS Class	Acreage	kg/yr	lbs/yr
HD Urban	72	44	97
MD Urban	409	83	183
Pasture/Grass	1,072	130	286
Wetlands	459	19	42
Forests	3,851	140	308
Lake Surface	2,026	246	541
Total	**5,791**	**662**	**1,457**

Watershed to Lake Area 2.9:1

	Secchi (feet)				Chlorophyll a (µg/L)				Phosphorus (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer	
Year	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1992	4	13.9	3	13.6								
1993	3	17.2	3	17.2								
1994	2	20.5	2	20.5								
1995	1	27.0	1	27.0								
1997	1	24.0	1	24.0								
1998	5	19.1	4	19.4								
1999	10	17.8	7	18.8	4	2.2	3	1.3	4	13.3	3	12.7
2000	9	17.4	5	16.9	3	5.3	1	6.0	4	16.5	2	13.0
2001	11	16.3	7	16.9	4	3.2	3	2.2	4	16.5	3	15.0
2002	14	16.9	9	18.4	3	1.5	3	1.5	4	10.3	3	8.7
2003	13	17.9	8	18.4	4	3.7	3	2.0	5	14.6	3	13.7
2004	13	18.6	7	17.1	4	2.7	3	1.8	5	14.2	3	12.7
2005	15	28.3	9	28.2	4	1.7	3	1.1	5	14.0	3	13.7
2006	4	29.0	2	31.0	2	1.0	1	0.8	3	18.0	1	14.0
2007	12	22.5	7	21.9	4	1.6	2	0.7	5	12.8	2	11.0
All Years (weighted)		19.9		20.0		2.6		1.7		14.3		12.7
WI Natural Lakes				7.9				13.4				25.0
Northeast Region				8.9				9.3				19.0

D

APPENDIX D

Watershed Analysis WiLMS Results

Date: 11/12/2007 Scenario: Metonga Current

Lake Id: Metonga
Watershed Id: Metonga Watershed Current

Hydrologic and Morphometric Data

Tributary Drainage Area: 5863.0 acre
Total Unit Runoff: 13.1 in.
Annual Runoff Volume: 6400.4 acre-ft
Lake Surface Area <As>: 2026 acre
Lake Volume <V>: 54547 acre-ft
Lake Mean Depth <z>: 26.9 ft
Precipitation - Evaporation: 5.3 in.
Hydraulic Loading: 7295.3 acre-ft/year
Areal Water Load <qs>: 3.6 ft/year
Lake Flushing Rate <p>: 0.13 1/year
Water Residence Time: 7.48 year
Observed spring overturn total phosphorus (SPO): 0.0 mg/m^3
Observed growing season mean phosphorus (GSM): 0.0 mg/m^3
% NPS Change: 0%
% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre	Low	Most Likely	High	Loading %	Low	Most Likely	High
	(ac)	Loading (kg/ha-year)				Loading (kg/year)		
Row Crop AG	0.0	0.50	1.00	3.00	0.0	0	0	0
Mixed AG	0.0	0.30	0.80	1.40	0.0	0	0	0
Pasture/Grass	1072	0.10	0.30	0.50	19.7	43	130	217
HD Urban (1/8 Ac)	72	1.00	1.50	2.00	6.6	29	44	58
MD Urban (1/4 Ac)	409	0.30	0.50	0.80	12.5	50	83	132
Rural Res (>1 Ac)	0.0	0.05	0.10	0.25	0.0	0	0	0
Wetlands	459	0.10	0.10	0.10	2.8	19	19	19
Forest	3851	0.05	0.09	0.18	21.2	78	140	281
Lake Surface	2026.0	0.10	0.30	1.00	37.2	82	246	820

POINT SOURCE DATA

Point Sources	Water Load (m^3/year)	Low (kg/year)	Most Likely (kg/year)	High (kg/year)	Loading %

SEPTIC TANK DATA

Description		Low	Most Likely	High	Loading %
Septic Tank Output (kg/capita-year)		0.3	0.5	0.8	
# capita-years	0.0				
% Phosphorus Retained by Soil		98	90	80	
Septic Tank Loading (kg/year)		0.00	0.00	0.00	0.0

TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	662.9	1458.2	3365.6	100.0
Total Loading (kg)	300.7	661.4	1526.6	100.0
Areal Loading (lb/ac-year)	0.33	0.72	1.66	0.0
Areal Loading (mg/m^2-year)	36.67	80.67	186.20	0.0
Total PS Loading (lb)	0.0	0.0	0.0	0.0
Total PS Loading (kg)	0.0	0.0	0.0	0.0
Total NPS Loading (lb)	482.1	915.9	1558.0	100.0
Total NPS Loading (kg)	218.7	415.5	706.7	100.0

Phosphorus Prediction and Uncertainty Analysis Module

Date: 11/14/2007 Scenario: 1
Observed spring overturn total phosphorus (SPO): 12.8 mg/m^3
Observed growing season mean phosphorus (GSM): 14.5 mg/m^3
Back calculation for SPO total phosphorus: 0.0 mg/m^3
Back calculation GSM phosphorus: 0.0 mg/m^3
% Confidence Range: 70%
Nurenberg Model Input - Est. Gross Int. Loading: 0 kg

Lake Phosphorus Model	Low Total P (mg/m^3)	Most Likely Total P (mg/m^3)	High Total P (mg/m^3)	Predicted -Observed (mg/m^3)	% Dif.
Walker, 1987 Reservoir	10	23	53	9	62
Canfield-Bachmann, 1981 Natural Lake	10	17	28	3	21
Canfield-Bachmann, 1981 Artificial Lake	11	17	27	3	21
Rechow, 1979 General	3	6	14	-9	-62
Rechow, 1977 Anoxic	14	31	71	17	117
Rechow, 1977 water load<50m/year	4	9	20	-6	-41
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	11	24	56	11	86
Vollenweider, 1982 Combined OECD	9	18	35	4	29
Dillon-Rigler-Kirchner	8	18	41	5	39
Vollenweider, 1982 Shallow Lake/Res.	7	14	29	0	0
Larsen-Mercier, 1976	9	20	45	7	55
Nurnberg, 1984 Oxic	7	16	36	2	14

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	13	43	Tw	0	GSM
Canfield-Bachmann, 1981 Natural Lake	5	49	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	5	49	FIT	1	GSM
Rechow, 1979 General	3	11	FIT	0	GSM
Rechow, 1977 Anoxic	18	57	FIT	0	GSM
Rechow, 1977 water load<50m/year	5	17	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	12	48	FIT	0	SPO
Vollenweider, 1982 Combined OECD	8	34	FIT	0	ANN
Dillon-Rigler-Kirchner	10	33	P L qs p	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	7	27	FIT	0	ANN
Larsen-Mercier, 1976	12	36	P Pin	0	SPO
Nurnberg, 1984 Oxic	8	31	FIT	0	ANN

E

APPENDIX E

2005 Aquatic Plant Survey Data

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
1	-88.91876267	45.54648413	2	S	P							1																								
2	-88.91874887	45.54720409	3	S	P					1								1																		
3	-88.91873506	45.54792404	4	S	P				1				1																							
4	-88.91801427	45.53207528	3	S	P								1																			1	1			
5	-88.91800047	45.53279524	3	S	V							1																								
6	-88.91798666	45.53351520	3	R	V																															
7	-88.91797285	45.53423516	3	R	P																															
8	-88.91795904	45.53495511	2	R	V																						1									
9	-88.91794523	45.53567507	2	S	V							1															1									
10	-88.91775185	45.54575447	4	S	P							1	1																							
11	-88.91773803	45.54647443	6	S	P																															
12	-88.91772422	45.54719438	6	S	P																															
13	-88.91771040	45.54791434	8	S	P					1	1														1						1					
14	-88.91769658	45.54863429	6	S	P				1			1	1					1																		
15	-88.91710044	45.52630591																																		
16	-88.91708662	45.52702587																																		
17	-88.91703136	45.52990570																																		
18	-88.91701754	45.53062566																																		
19	-88.91700372	45.53134562																																		
20	-88.91698990	45.53206557																																		
21	-88.91697608	45.53278553																																		
22	-88.91696226	45.53350549																																		
23	-88.91694844	45.53422545																																		
24	-88.91693462	45.53494540																																		
25	-88.91692079	45.53566536																																		
26	-88.91690697	45.53638532																																		
27	-88.91689315	45.53710528																																		
28	-88.91676871	45.54358489	4	S	P				1															1												
29	-88.91675489	45.54430484	8	S	P										1									1												
30	-88.91674106	45.54502480	10	S	R					1	1						1																			
31	-88.91672723	45.54574476	11	S	R												1							1												
32	-88.91671340	45.54646471	11	S	R																															
33	-88.91669957	45.54718467	9	S	P	1				1					1																					
34	-88.91668574	45.54790463	9	S	P																															
35	-88.91667191	45.54862458	8	S	P	3			1						1																					
36	-88.91665807	45.54934454	4	S	P																															
37	-88.91657507	45.55366427	2	S	P																															
38	-88.91610383	45.52485627	2	S	V							1	1														1									
39	-88.91609000	45.52557623	5	S	P				1	1		1	1		1			1												1						
40	-88.91607617	45.52629619	5	S	P				1						1															1						
41	-88.91606234	45.52701615	2	M	V		1		1	1					1								1						1	1						
42	-88.91604851	45.52773611	2	M	P		1	1	1					1	1								1						1							1
43	-88.91602085	45.52917602	3	S	P							1																								
44	-88.91600702	45.52989598	8	S	P								1																							
45	-88.91599319	45.53061594	9	S	P								1				1							1												
46	-88.91597936	45.53133590	11	R	R																			1												
47	-88.91596552	45.53205586	14	S	R					1																										
48	-88.91595169	45.53277581	14	S	R																															
49	-88.91593786	45.53349577	17	S	R					1																										
50	-88.91592402	45.53421573	2	R	R																															
51	-88.91591019	45.53493569	18	R	R																															
52	-88.91589635	45.53565564	11	R	R																															
53	-88.91588252	45.53637560	8	R	P																															
54	-88.91586868	45.53709556	10	R	P																															

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
55	-88.91585484	45.53781551	5	S	P							1	1																							
56	-88.91584101	45.53853547	1	R	V																															
57	-88.91582717	45.53925543	1	S	V							1																								
58	-88.91581333	45.53997538	2	S	V							1																								
59	-88.91579949	45.54069534	3	R	P								1																							
60	-88.91578565	45.54141530	6	S	P					1			1											1												
61	-88.91577181	45.54213525	8	S	P				1	1								1						1												
62	-88.91575797	45.54285521	7	S	P	3			1	1																										
63	-88.91574413	45.54357517	16	S	R					1							1																			
64	-88.91573029	45.54429512	16	S	R						1						1																			
65	-88.91571645	45.54501508	15	S	R												1																			
66	-88.91570261	45.54573503	18	S	R																															
67	-88.91568876	45.54645499	19	S	R																															
68	-88.91567492	45.54717495	16	S	R																															
69	-88.91566107	45.54789490	11	S	R	1					1																									
70	-88.91564723	45.54861486	7	S	P	3				1																										
71	-88.91563338	45.54933481	6	S	P																															
72	-88.91561954	45.55005477	1	R	V																															
73	-88.91557800	45.55221463	1	S	P				1										1																	
74	-88.91556415	45.55293459	4	S	P				1																											
75	-88.91555030	45.55365454	6	S	P	1			1	1	1				1								1								1	1				
76	-88.91553645	45.55437450	7	S	P				1															1												
77	-88.91552260	45.55509445	7	S	P							1	1				1																			
78	-88.91550875	45.55581441	2	S	P								1																							
79	-88.91549490	45.55653436	2	S	P				1		1		1						1																	
80	-88.91548105	45.55725432	2	S	V																				1		1						1			
81	-88.91507958	45.52484655	4	S	P							1	1					1									1									
82	-88.91506574	45.52556651	7	S	P				1	1	1				1									1												
83	-88.91505190	45.52628647	5	S	P					1					1															1						
84	-88.91503806	45.52700642	3	S	V				1																		1									
85	-88.91502422	45.52772638	2	S	V																						1						1			
86	-88.91501037	45.52844634	4	R	P																															
87	-88.91499653	45.52916630	5	R	P								1																							
88	-88.91498269	45.52988626	10	S	P	2					1				1																					
89	-88.91496884	45.53060621	10	S	P	1				1	1																									
90	-88.91495500	45.53132617	14	S	R						1						1																			
91	-88.91494115	45.53204613	19	S	R																															
92	-88.91492730	45.53276609	22	S	R																															
93	-88.91491346	45.53348604	23																																	
94	-88.91489961	45.53420600	24																																	
95	-88.91488576	45.53492596	23																																	
96	-88.91487191	45.53564591	24																																	
97	-88.91485807	45.53636587	23																																	
98	-88.91484422	45.53708583	21	S	R																															
99	-88.91483037	45.53780579	17	S	R																															
100	-88.91481652	45.53852574	16	S	R																															
101	-88.91480266	45.53924570	15	S	R					1							1																			
102	-88.91478881	45.53996566	15	S	R												1																			
103	-88.91477496	45.54068561	2	S	R												1																			
104	-88.91476111	45.54140557	15	S	R																															
105	-88.91474726	45.54212552	14	S	R												1																			
106	-88.91473340	45.54284548	18	S	R																															
107	-88.91471955	45.54356544	27																																	
108	-88.91470569	45.54428539	21																																	

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109	-88.91469184	45.54500535	25																																		
110	-88.91467798	45.54572530	30																																		
111	-88.91466413	45.54644526	33																																		
112	-88.91465027	45.54716521	27																																		
113	-88.91463641	45.54788517	18	S	R																																
114	-88.91462256	45.54860513	6	S	P					1	1						1																				
115	-88.91460870	45.54932508	12	S	R																																
116	-88.91459484	45.55004504	6	R	P							1																									
117	-88.91458098	45.55076499	4	S	P				1				1																								
118	-88.91456712	45.55148495	4	S	P																																
119	-88.91455326	45.55220490	12	S	R					1	1				1																						
120	-88.91453940	45.55292486	22																																		
121	-88.91452554	45.55364481	28																																		
122	-88.91451167	45.55436476	25																																		
123	-88.91449781	45.55508472	13	S	R						1						1																				
124	-88.91448395	45.55580467	10	S	R					1	1						1							1													
125	-88.91447009	45.55652463	11	S	R						1																										
126	-88.91445622	45.55724458	8	S	P													1																			
127	-88.91444236	45.55796454	2	S	P																						1							1			
128	-88.91406919	45.52411686	3	S	P																						1										
129	-88.91405534	45.52483682	5	M	P					1							1																				
130	-88.91404149	45.52555677	5	M	P	1				1														1													
131	-88.91402763	45.52627673	2	S	P													1									1										
132	-88.91401378	45.52699669	4	S	P							1	1					1																			
133	-88.91399992	45.52771665	6	S	P								1																								
134	-88.91398606	45.52843661	6	S	P							1																									
135	-88.91397221	45.52915656	8	S	P																																
136	-88.91395835	45.52987652	10	S	P												1																				
137	-88.91394449	45.53059648	14	S	P					1							1																				
138	-88.91393064	45.53131644	17	S	R	1				1	1																										
139	-88.91391678	45.53203639	19	S	R																																
140	-88.91390292	45.53275635	22																																		
141	-88.91388906	45.53347631																																			
142	-88.91387520	45.53419626																																			
143	-88.91386134	45.53491622																																			
144	-88.91384748	45.53563618																																			
145	-88.91383361	45.53635613																																			
146	-88.91381975	45.53707609																																			
147	-88.91380589	45.53779605																																			
148	-88.91379202	45.53851600																																			
149	-88.91377816	45.53923596																																			
150	-88.91376430	45.53995592	25																																		
151	-88.91375043	45.54067587	26																																		
152	-88.91373657	45.54139583	24																																		
153	-88.91372270	45.54211578	25																																		
154	-88.91370883	45.54283574	23	S	R																																
155	-88.91369497	45.54355570																																			
156	-88.91368110	45.54427565																																			
157	-88.91366723	45.54499561																																			
158	-88.91365336	45.54571556																																			
159	-88.91363949	45.54643552																																			
160	-88.91362562	45.54715547																																			
161	-88.91361175	45.54787543	22																																		
162	-88.91359788	45.54859538	24																																		

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163	-88.91358401	45.54931534	19	S	R																															
164	-88.91357014	45.55003529	13	R	R	1				1														1												
165	-88.91355627	45.55075525	16	S	P																												1		1		
166	-88.91354239	45.55147520	27																																	
167	-88.91352852	45.55219516																																		
168	-88.91351465	45.55291511																																		
169	-88.91350077	45.55363507																																		
170	-88.91348690	45.55435502																																		
171	-88.91347302	45.55507498	30																																	
172	-88.91345914	45.55579493	14	S	R																															
173	-88.91344527	45.55651488	16	S	R						1																									
174	-88.91343139	45.55723484	12	S	R	1				1							1	1						1												
175	-88.91341751	45.55795479	8	S	P				1															1												
176	-88.91340363	45.55867475	2	S	V																1						1									
177	-88.91338976	45.55939470	3	S	P							1																								
178	-88.91337588	45.56011465	8	S	P	1									1									1												
179	-88.91336200	45.56083461	16	M	R					1	1																									
180	-88.91334812	45.56155456	2	S	P	1			1		1																									
181	-88.91305883	45.52338716	2	M	V			1																												
182	-88.91304496	45.52410712	3	S	V						1																									
183	-88.91303110	45.52482707	4	S	P													1																		
184	-88.91301723	45.52554703	5	S	P								1																							
185	-88.91300336	45.52626699	4	S	P																															
186	-88.91298950	45.52698695	6	S	P													1						1												
187	-88.91297563	45.52770690	8	S	P													1																		
188	-88.91296176	45.52842686	8	S	P								1																							
189	-88.91294789	45.52914682	8	S	P								1				1	1																		
190	-88.91293402	45.52986678	11	S	R	1				1	1				1		1																			
191	-88.91292015	45.53058673	12	S	R					1	1				1																					
192	-88.91290628	45.53130669	15	S	R																															
193	-88.91289240	45.53202665	22																																	
194	-88.91287853	45.53274660																																		
195	-88.91286466	45.53346656																																		
196	-88.91285079	45.53418652																																		
197	-88.91283691	45.53490647																																		
198	-88.91282304	45.53562643	24																																	
199	-88.91280916	45.53634639																																		
200	-88.91279529	45.53706634																																		
201	-88.91278141	45.53778630																																		
202	-88.91276753	45.53850626																																		
203	-88.91275366	45.53922621																																		
204	-88.91273978	45.53994617																																		
205	-88.91272590	45.54066612																																		
206	-88.91271202	45.54138608																																		
207	-88.91269814	45.54210604																																		
208	-88.91268426	45.54282599	26																																	
209	-88.91267038	45.54354595																																		
210	-88.91265650	45.54426590																																		
211	-88.91264262	45.54498586																																		
212	-88.91262874	45.54570581																																		
213	-88.91261486	45.54642577																																		
214	-88.91260097	45.54714572																																		
215	-88.91258709	45.54786568																																		
216	-88.91257321	45.54858563																																		

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217	-88.91255932	45.54930559	26																																	
218	-88.91254544	45.55002554	23																																	
219	-88.91253155	45.55074550	30																																	
220	-88.91251767	45.55146545																																		
221	-88.91250378	45.55218541																																		
222	-88.91248989	45.55290536																																		
223	-88.91247601	45.55362531																																		
224	-88.91246212	45.55434527																																		
225	-88.91244823	45.55506522																																		
226	-88.91243434	45.55578518	28																																	
227	-88.91242045	45.55650513	30																																	
228	-88.91240656	45.55722508	27																																	
229	-88.91239267	45.55794504	28																																	
230	-88.91237878	45.55866499	25																																	
231	-88.91236489	45.55938494	28																																	
232	-88.91235099	45.56010490	28																																	
233	-88.91233710	45.56082485	25																																	
234	-88.91232321	45.56154480	28																																	
235	-88.91200686	45.52481732	4	S	P																															
236	-88.91199298	45.52553728	4	S	P							1																								
237	-88.91197910	45.52625724	4	S	V																															
238	-88.91196521	45.52697719	4	R	P																															
239	-88.91195133	45.52769715	5	R	P																															
240	-88.91193745	45.52841711	6	R	P																															
241	-88.91192357	45.52913707	9	S	P												1																			
242	-88.91190968	45.52985702	14	S	R					1	1																									
243	-88.91189580	45.53057698	16	S	R					1	1				1		1																			
244	-88.91188192	45.53129694	20	S	R																															
245	-88.91186803	45.53201689	23																																	
246	-88.91185415	45.53273685																																		
247	-88.91184026	45.53345681																																		
248	-88.91182637	45.53417676																																		
249	-88.91181249	45.53489672																																		
250	-88.91179860	45.53561668																																		
251	-88.91178471	45.53633663																																		
252	-88.91177082	45.53705659																																		
253	-88.91175693	45.53777654																																		
254	-88.91174304	45.53849650																																		
255	-88.91172915	45.53921646																																		
256	-88.91171526	45.53993641																																		
257	-88.91170137	45.54065637																																		
258	-88.91168748	45.54137632																																		
259	-88.91167359	45.54209628																																		
260	-88.91165970	45.54281623																																		
261	-88.91164580	45.54353619																																		
262	-88.91163191	45.54425614																																		
263	-88.91161801	45.54497610																																		
264	-88.91160412	45.54569605																																		
265	-88.91159022	45.54641601																																		
266	-88.91157633	45.54713596																																		
267	-88.91156243	45.54785592																																		
268	-88.91154853	45.54857587																																		
269	-88.91153464	45.54929583																																		
270	-88.91152074	45.55001578																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
271	-88.91150684	45.55073574																																		
272	-88.91149294	45.55145569																																		
273	-88.91147904	45.55217565																																		
274	-88.91146514	45.55289560																																		
275	-88.91145124	45.55361555																																		
276	-88.91143734	45.55433551																																		
277	-88.91142344	45.55505546																																		
278	-88.91140954	45.55577541																																		
279	-88.91139563	45.55649537																																		
280	-88.91138173	45.55721532																																		
281	-88.91136783	45.55793527																																		
282	-88.91135392	45.55865523																																		
283	-88.91134002	45.55937518																																		
284	-88.91132611	45.56009513																																		
285	-88.91131221	45.56081509																																		
286	-88.91129830	45.56153504	26																																	
287	-88.91128439	45.56225499	2	S	P				1																											
288	-88.91099651	45.52408760	3	R	V																															
289	-88.91098261	45.52480756	3	R	V																															
290	-88.91096872	45.52552752	4	S	P																															
291	-88.91095483	45.52624748	3	S	P																															
292	-88.91094093	45.52696743	3	S	P																															
293	-88.91092704	45.52768739	4	S	P																															
294	-88.91091314	45.52840735	4	S	P																															
295	-88.91089925	45.52912730	5	S	P																															
296	-88.91088535	45.52984726	14	S	R										1																					
297	-88.91087145	45.53056722	16	S	R					1	1																									
298	-88.91085756	45.53128717	19	S	R																															
299	-88.91084366	45.53200713	22																																	
300	-88.91082976	45.53272709																																		
301	-88.91081586	45.53344704																																		
302	-88.91080196	45.53416700																																		
303	-88.91078806	45.53488696																																		
304	-88.91077416	45.53560691																																		
305	-88.91076026	45.53632687																																		
306	-88.91074636	45.53704682																																		
307	-88.91073246	45.53776678																																		
308	-88.91071855	45.53848673																																		
309	-88.91070465	45.53920669																																		
310	-88.91069075	45.53992665																																		
311	-88.91067684	45.54064660																																		
312	-88.91066294	45.54136656																																		
313	-88.91064903	45.54208651																																		
314	-88.91063513	45.54280647																																		
315	-88.91062122	45.54352642																																		
316	-88.91060731	45.54424638																																		
317	-88.91059341	45.54496633																																		
318	-88.91057950	45.54568629																																		
319	-88.91056559	45.54640624																																		
320	-88.91055168	45.54712620																																		
321	-88.91053777	45.54784615																																		
322	-88.91052386	45.54856610																																		
323	-88.91050995	45.54928606																																		
324	-88.91049604	45.55000601																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
325	-88.91048213	45.55072597																																		
326	-88.91046822	45.55144592																																		
327	-88.91045430	45.55216587																																		
328	-88.91044039	45.55288583																																		
329	-88.91042648	45.55360578																																		
330	-88.91041256	45.55432574																																		
331	-88.91039865	45.55504569																																		
332	-88.91038473	45.55576564																																		
333	-88.91037082	45.55648560																																		
334	-88.91035690	45.55720555																																		
335	-88.91034298	45.55792550																																		
336	-88.91032907	45.55864546																																		
337	-88.91031515	45.55936541																																		
338	-88.91030123	45.56008536																																		
339	-88.91028731	45.56080531																																		
340	-88.91027339	45.56152527	30																																	
341	-88.91025947	45.56224522	2	S	P				1																											
342	-88.90998618	45.52335788	3	S	V																						1									
343	-88.90997228	45.52407783	4	S	P							1	1																							
344	-88.90995837	45.52479779	6	S	P													1																		
345	-88.90994447	45.52551775	6	S	P													1																		
346	-88.90993056	45.52623770	7	S	P								1																							
347	-88.90991665	45.52695766	7	S	P								1																							
348	-88.90990275	45.52767762	8	S	P																															
349	-88.90988884	45.52839758	8	S	P												1																			
350	-88.90987493	45.52911753	10	S	P																															
351	-88.90986102	45.52983749	14	S	R							1																								
352	-88.90984711	45.53055744	15	S	R					1	1				1																					
353	-88.90983320	45.53127740	17	S	R																															
354	-88.90981929	45.53199736	20	S	R																															
355	-88.90980538	45.53271731																																		
356	-88.90979146	45.53343727																																		
357	-88.90977755	45.53415723																																		
358	-88.90976364	45.53487718																																		
359	-88.90974973	45.53559714																																		
360	-88.90973581	45.53631709																																		
361	-88.90972190	45.53703705																																		
362	-88.90970798	45.53775700																																		
363	-88.90969407	45.53847696																																		
364	-88.90968015	45.53919692																																		
365	-88.90966623	45.53991687																																		
366	-88.90965231	45.54063683																																		
367	-88.90963840	45.54135678																																		
368	-88.90962448	45.54207674																																		
369	-88.90961056	45.54279669																																		
370	-88.90959664	45.54351665																																		
371	-88.90958272	45.54423660																																		
372	-88.90956880	45.54495655																																		
373	-88.90955488	45.54567651																																		
374	-88.90954096	45.54639646																																		
375	-88.90952704	45.54711642																																		
376	-88.90951311	45.54783637																																		
377	-88.90949919	45.54855633																																		
378	-88.90948527	45.54927628																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
379	-88.90947134	45.54999623																																		
380	-88.90945742	45.55071619																																		
381	-88.90944349	45.55143614																																		
382	-88.90942957	45.55215610																																		
383	-88.90941564	45.55287605																																		
384	-88.90940171	45.55359600																																		
385	-88.90938779	45.55431596																																		
386	-88.90937386	45.55503591																																		
387	-88.90935993	45.55575586																																		
388	-88.90934600	45.55647582																																		
389	-88.90933207	45.55719577																																		
390	-88.90931814	45.55791572																																		
391	-88.90930421	45.55863567																																		
392	-88.90929028	45.55935563																																		
393	-88.90927635	45.56007558																																		
394	-88.90926242	45.56079553																																		
395	-88.90924848	45.56151548	30																																	
396	-88.90923455	45.56223544	3	S	P				1				1					1																			
397	-88.90898981	45.52190818	2	S	V													1																			
398	-88.90897589	45.52262814	4	S	V						1																1									
399	-88.90896197	45.52334810	4	S	P																															
400	-88.90894805	45.52406805	11	S	P										1																					
401	-88.90893413	45.52478801	15	S	R					1	1				1	1		1																		
402	-88.90892021	45.52550797	15	S	R					1	1				1																					
403	-88.90890629	45.52622792	15	S	R					1	1					1																				
404	-88.90889237	45.52694788	15	S	R										1	1								1												
405	-88.90887845	45.52766784	12	S	R																			1												
406	-88.90886453	45.52838779	9	S	R																															
407	-88.90885061	45.52910775	12	S	R																															
408	-88.90883669	45.52982771	11	R	R																															
409	-88.90882276	45.53054766	10	R	R	3																														
410	-88.90880884	45.53126762	10	R	R	2				1	1																									
411	-88.90879492	45.53198758	16	R	R						1																									
412	-88.90878099	45.53270753	17	R	R					1	1																									
413	-88.90876707	45.53342749	17	R	R																															
414	-88.90875314	45.53414744	20	R	R																															
415	-88.90873922	45.53486740	24																																	
416	-88.90872529	45.53558735																																		
417	-88.90871136	45.53630731																																		
418	-88.90869743	45.53702727																																		
419	-88.90868351	45.53774722																																		
420	-88.90866958	45.53846718																																		
421	-88.90865565	45.53918713																																		
422	-88.90864172	45.53990709																																		
423	-88.90862779	45.54062704																																		
424	-88.90861386	45.54134700																																		
425	-88.90859992	45.54206695																																		
426	-88.90858599	45.54278691																																		
427	-88.90857206	45.54350686																																		
428	-88.90855813	45.54422681																																		
429	-88.90854419	45.54494677																																		
430	-88.90853026	45.54566672																																		
431	-88.90851633	45.54638668																																		
432	-88.90850239	45.54710663																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
433	-88.90848845	45.54782658																																			
434	-88.90847452	45.54854654																																			
435	-88.90846058	45.54926649																																			
436	-88.90844664	45.54998645																																			
437	-88.90843271	45.55070640																																			
438	-88.90841877	45.55142635																																			
439	-88.90840483	45.55214631																																			
440	-88.90839089	45.55286626																																			
441	-88.90837695	45.55358621																																			
442	-88.90836301	45.55430617																																			
443	-88.90834907	45.55502612																																			
444	-88.90833513	45.55574607																																			
445	-88.90832119	45.55646603																																			
446	-88.90830724	45.55718598																																			
447	-88.90829330	45.55790593																																			
448	-88.90827936	45.55862588																																			
449	-88.90826541	45.55934584																																			
450	-88.90825147	45.56006579																																			
451	-88.90823752	45.56078574	33																																		
452	-88.90822358	45.56150569	24																																		
453	-88.90820963	45.56222564	4	S	P				1									1																			
454	-88.90796562	45.52189839	4	S	V																																
455	-88.90795169	45.52261835	6	R	P																															1	
456	-88.90793776	45.52333831	16	M	R					1	1													1													
457	-88.90792383	45.52405827	21																																		
458	-88.90790989	45.52477822	23																																		
459	-88.90789596	45.52549818	22																																		
460	-88.90788203	45.52621814	23																																		
461	-88.90786810	45.52693809	22																																		
462	-88.90785416	45.52765805	18	S	R						1																										
463	-88.90784023	45.52837800	16	S	R																																
464	-88.90782629	45.52909796	10	S	R					1	1																										
465	-88.90781236	45.52981792	12	S	R																																
466	-88.90779842	45.53053787	12	S	R					1	1				1		1																				
467	-88.90778448	45.53125783	12	S	R					1	1						1																				
468	-88.90777055	45.53197778	12	S	R					1	1																										
469	-88.90775661	45.53269774	16	S	R																																
470	-88.90774267	45.53341770	8	S	R					1																											
471	-88.90772873	45.53413765	19	S	R																																
472	-88.90771479	45.53485761	22																																		
473	-88.90770085	45.53557756																																			
474	-88.90768691	45.53629752																																			
475	-88.90767297	45.53701747																																			
476	-88.90765903	45.53773743																																			
477	-88.90764509	45.53845738																																			
478	-88.90763115	45.53917734																																			
479	-88.90761720	45.53989729																																			
480	-88.90760326	45.54061725																																			
481	-88.90758932	45.54133720																																			
482	-88.90757537	45.54205716																																			
483	-88.90756143	45.54277711																																			
484	-88.90754748	45.54349706																																			
485	-88.90753353	45.54421702																																			
486	-88.90751959	45.54493697																																			

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
487	-88.90750564	45.54565693																																		
488	-88.90749169	45.54637688																																		
489	-88.90747775	45.54709683																																		
490	-88.90746380	45.54781679																																		
491	-88.90744985	45.54853674																																		
492	-88.90743590	45.54925670																																		
493	-88.90742195	45.54997665																																		
494	-88.90740800	45.55069660	2	S	V																						1						1			
495	-88.90739405	45.55141656																																		
496	-88.90738009	45.55213651																																		
497	-88.90736614	45.55285646																																		
498	-88.90735219	45.55357642																																		
499	-88.90733823	45.55429637																																		
500	-88.90732428	45.55501632																																		
501	-88.90731033	45.55573627																																		
502	-88.90729637	45.55645623																																		
503	-88.90728242	45.55717618																																		
504	-88.90726846	45.55789613																																		
505	-88.90725450	45.55861608																																		
506	-88.90724055	45.55933604																																		
507	-88.90722659	45.56005599																																		
508	-88.90721263	45.56077594	29																																	
509	-88.90719867	45.56149589	9	S	P																			1													
510	-88.90718471	45.56221584	2	R	V				1									1																			
511	-88.90694143	45.52188860																																		
512	-88.90692749	45.52260855	4	S	P							1	1																							
513	-88.90691354	45.52332851	18	S	R						1																									
514	-88.90689960	45.52404847	21																																	
515	-88.90688565	45.52476842	22																																	
516	-88.90687171	45.52548838	23																																	
517	-88.90685776	45.52620834	22																																	
518	-88.90684382	45.52692829	21																																	
519	-88.90682987	45.52764825	18	S	R																															
520	-88.90681592	45.52836821	17	S	R						1																									
521	-88.90680197	45.52908816	14	S	R																															
522	-88.90678803	45.52980812	12	S	R	3					1																									
523	-88.90677408	45.53052807	14	S	R					1	1				1																					
524	-88.90676013	45.53124803	14	S	R						1																									
525	-88.90674618	45.53196798	16	S	R					1							1																			
526	-88.90673223	45.53268794	18	S	R																															
527	-88.90671827	45.53340790	25																																	
528	-88.90670432	45.53412785																																		
529	-88.90669037	45.53484781																																		
530	-88.90667642	45.53556776																																		
531	-88.90666246	45.53628772																																		
532	-88.90664851	45.53700767																																		
533	-88.90663456	45.53772763																																		
534	-88.90662060	45.53844758																																		
535	-88.90660665	45.53916754																																		
536	-88.90659269	45.53988749																																		
537	-88.90657873	45.54060744																																		
538	-88.90656478	45.54132740																																		
539	-88.90655082	45.54204735																																		
540	-88.90653686	45.54276731																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
541	-88.90652290	45.54348726																																		
542	-88.90650894	45.54420721																																		
543	-88.90649498	45.54492717																																		
544	-88.90648102	45.54564712																																		
545	-88.90646706	45.54636708																																		
546	-88.90645310	45.54708703																																		
547	-88.90643914	45.54780698																																		
548	-88.90642518	45.54852694																																		
549	-88.90641121	45.54924689																																		
550	-88.90639725	45.54996684																																		
551	-88.90638329	45.55068680																																		
552	-88.90636932	45.55140675																																		
553	-88.90635536	45.55212670																																		
554	-88.90634139	45.55284665																																		
555	-88.90632743	45.55356661																																		
556	-88.90631346	45.55428656																																		
557	-88.90629949	45.55500651																																		
558	-88.90628552	45.55572647																																		
559	-88.90627156	45.55644642																																		
560	-88.90625759	45.55716637																																		
561	-88.90624362	45.55788632																																		
562	-88.90622965	45.55860627	35																																	
563	-88.90621568	45.55932623	37																																	
564	-88.90620171	45.56004618	33																																	
565	-88.90618774	45.56076613	14	S	R																															
566	-88.90617376	45.56148608	2	R	P												1																			
567	-88.90591724	45.52187879	3	S	V																															
568	-88.90590329	45.52259875	7	S	P													1																		
569	-88.90588933	45.52331871	10	R	P																															
570	-88.90587537	45.52403866	18	S	R																															
571	-88.90586142	45.52475862	21																																	
572	-88.90584746	45.52547857																																		
573	-88.90583350	45.52619853																																		
574	-88.90581954	45.52691849	21	S	R																															
575	-88.90580558	45.52763844	18	S	R																															
576	-88.90579162	45.52835840	15	S	R																				1											
577	-88.90577766	45.52907835	14	S	R	1				1	1																									
578	-88.90576370	45.52979831	17	S	R																															
579	-88.90574973	45.53051826	16	S	R																															
580	-88.90573577	45.53123822	17	S	R																															
581	-88.90572181	45.53195818	28																																	
582	-88.90570784	45.53267813	36																																	
583	-88.90569388	45.53339809	36																																	
584	-88.90567991	45.53411804																																		
585	-88.90566595	45.53483800																																		
586	-88.90565198	45.53555795																																		
587	-88.90563802	45.53627791																																		
588	-88.90562405	45.53699786																																		
589	-88.90561008	45.53771781																																		
590	-88.90559611	45.53843777																																		
591	-88.90558215	45.53915772																																		
592	-88.90556818	45.53987768																																		
593	-88.90555421	45.54059763																																		
594	-88.90554024	45.54131759																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
595	-88.90552627	45.54203754																																		
596	-88.90551230	45.54275749																																		
597	-88.90549832	45.54347745																																		
598	-88.90548435	45.54419740																																		
599	-88.90547038	45.54491735																																		
600	-88.90545641	45.54563731																																		
601	-88.90544243	45.54635726																																		
602	-88.90542846	45.54707722																																		
603	-88.90541448	45.54779717																																		
604	-88.90540051	45.54851712																																		
605	-88.90538653	45.54923707																																		
606	-88.90537255	45.54995703																																		
607	-88.90535858	45.55067698																																		
608	-88.90534460	45.55139693																																		
609	-88.90533062	45.55211689																																		
610	-88.90531664	45.55283684																																		
611	-88.90530266	45.55355679																																		
612	-88.90528868	45.55427674																																		
613	-88.90527470	45.55499670																																		
614	-88.90526072	45.55571665																																		
615	-88.90524674	45.55643660																																		
616	-88.90523276	45.55715655																																		
617	-88.90521878	45.55787650																																		
618	-88.90520480	45.55859646	38																																	
619	-88.90519081	45.55931641	38																																	
620	-88.90517683	45.56003636	36																																	
621	-88.90516284	45.56075631	4	R	P																															
622	-88.90489306	45.52186898	2	S	V																															
623	-88.90487909	45.52258893	7	S	P										1		1	1						1												
624	-88.90486512	45.52330889	8	S	P																															
625	-88.90485115	45.52402885	16	S	R																															
626	-88.90483718	45.52474880	21																																	
627	-88.90482321	45.52546876																																		
628	-88.90480923	45.52618871																																		
629	-88.90479526	45.52690867	24																																	
630	-88.90478129	45.52762862	25																																	
631	-88.90476732	45.52834858	24																																	
632	-88.90475334	45.52906854	21																																	
633	-88.90473937	45.52978849	29																																	
634	-88.90472539	45.53050845	30																																	
635	-88.90471142	45.53122840	31																																	
636	-88.90469744	45.53194836	39																																	
637	-88.90468346	45.53266831																																		
638	-88.90466948	45.53338827																																		
639	-88.90465551	45.53410822																																		
640	-88.90464153	45.53482818																																		
641	-88.90462755	45.53554813																																		
642	-88.90461357	45.53626809																																		
643	-88.90459959	45.53698804																																		
644	-88.90458561	45.53770799																																		
645	-88.90457163	45.53842795																																		
646	-88.90455765	45.53914790																																		
647	-88.90454366	45.53986786																																		
648	-88.90452968	45.54058781																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
649	-88.90451570	45.54130776																																		
650	-88.90450171	45.54202772																																		
651	-88.90448773	45.54274767																																		
652	-88.90447375	45.54346762																																		
653	-88.90445976	45.54418758																																		
654	-88.90444577	45.54490753																																		
655	-88.90443179	45.54562749																																		
656	-88.90441780	45.54634744																																		
657	-88.90440381	45.54706739																																		
658	-88.90438983	45.54778734																																		
659	-88.90437584	45.54850730																																		
660	-88.90436185	45.54922725																																		
661	-88.90434786	45.54994720																																		
662	-88.90433387	45.55066716																																		
663	-88.90431988	45.55138711																																		
664	-88.90430589	45.55210706																																		
665	-88.90429190	45.55282701																																		
666	-88.90427790	45.55354696																																		
667	-88.90426391	45.55426692																																		
668	-88.90424992	45.55498687																																		
669	-88.90423592	45.55570682																																		
670	-88.90422193	45.55642677																																		
671	-88.90420793	45.55714672																																		
672	-88.90419394	45.55786668																																		
673	-88.90417994	45.55858663																																		
674	-88.90416595	45.55930658	41																																	
675	-88.90415195	45.56002653	25																																	
676	-88.90413795	45.56074648	3	R	P																															
677	-88.90386887	45.52185915	2	S	V																															
678	-88.90385489	45.52257911	6	S	P																															
679	-88.90384091	45.52329906	8	R	P					1							1							1												
680	-88.90382692	45.52401902	16	R	R																															
681	-88.90381294	45.52473898	29																																	
682	-88.90379896	45.52545893																																		
683	-88.90378497	45.52617889																																		
684	-88.90377099	45.52689884																																		
685	-88.90375700	45.52761880																																		
686	-88.90374301	45.52833875																																		
687	-88.90372902	45.52905871																																		
688	-88.90371504	45.52977866																																		
689	-88.90370105	45.53049862																																		
690	-88.90368706	45.53121857																																		
691	-88.90367307	45.53193853																																		
692	-88.90365908	45.53265848																																		
693	-88.90364509	45.53337844																																		
694	-88.90363110	45.53409839																																		
695	-88.90361711	45.53481835																																		
696	-88.90360312	45.53553830																																		
697	-88.90358912	45.53625826																																		
698	-88.90357513	45.53697821																																		
699	-88.90356114	45.53769816																																		
700	-88.90354714	45.53841812																																		
701	-88.90353315	45.53913807																																		
702	-88.90351915	45.53985803																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
703	-88.90350516	45.54057798																																		
704	-88.90349116	45.54129793																																		
705	-88.90347716	45.54201789																																		
706	-88.90346317	45.54273784																																		
707	-88.90344917	45.54345779																																		
708	-88.90343517	45.54417775																																		
709	-88.90342117	45.54489770																																		
710	-88.90340717	45.54561765																																		
711	-88.90339317	45.54633761																																		
712	-88.90337917	45.54705756																																		
713	-88.90336517	45.54777751																																		
714	-88.90335117	45.54849746																																		
715	-88.90333717	45.54921742																																		
716	-88.90332316	45.54993737																																		
717	-88.90330916	45.55065732																																		
718	-88.90329516	45.55137727																																		
719	-88.90328115	45.55209723																																		
720	-88.90326715	45.55281718																																		
721	-88.90325314	45.55353713																																		
722	-88.90323914	45.55425708																																		
723	-88.90322513	45.55497703																																		
724	-88.90321112	45.55569699																																		
725	-88.90319712	45.55641694																																		
726	-88.90318311	45.55713689																																		
727	-88.90316910	45.55785684																																		
728	-88.90315509	45.55857679																																		
729	-88.90314108	45.55929674	36																																	
730	-88.90312707	45.56001669	4	S	P																															
731	-88.90284469	45.52184932																																		
732	-88.90283069	45.52256928	4	S	V																															
733	-88.90281670	45.52328923	24																																	
734	-88.90280270	45.52400919	38																																	
735	-88.90278870	45.52472914	45																																	
736	-88.90277471	45.52544910																																		
737	-88.90276071	45.52616905																																		
738	-88.90274671	45.52688901																																		
739	-88.90273271	45.52760896																																		
740	-88.90271871	45.52832892																																		
741	-88.90270471	45.52904887																																		
742	-88.90269071	45.52976883																																		
743	-88.90267671	45.53048878																																		
744	-88.90266271	45.53120874																																		
745	-88.90264870	45.53192869																																		
746	-88.90263470	45.53264865																																		
747	-88.90262070	45.53336860																																		
748	-88.90260669	45.53408856																																		
749	-88.90259269	45.53480851																																		
750	-88.90257868	45.53552846																																		
751	-88.90256468	45.53624842																																		
752	-88.90255067	45.53696837																																		
753	-88.90253666	45.53768833																																		
754	-88.90252266	45.53840828																																		
755	-88.90250865	45.53912823																																		
756	-88.90249464	45.53984819																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
757	-88.90248063	45.54056814																																		
758	-88.90246662	45.54128809																																		
759	-88.90245261	45.54200805																																		
760	-88.90243860	45.54272800																																		
761	-88.90242459	45.54344795																																		
762	-88.90241058	45.54416791																																		
763	-88.90239657	45.54488786																																		
764	-88.90238256	45.54560781																																		
765	-88.90236854	45.54632776																																		
766	-88.90235453	45.54704772																																		
767	-88.90234052	45.54776767																																		
768	-88.90232650	45.54848762																																		
769	-88.90231249	45.54920757																																		
770	-88.90229847	45.54992753																																		
771	-88.90228445	45.55064748																																		
772	-88.90227044	45.55136743																																		
773	-88.90225642	45.55208738																																		
774	-88.90224240	45.55280733																																		
775	-88.90222838	45.55352729																																		
776	-88.90221436	45.55424724																																		
777	-88.90220034	45.55496719																																		
778	-88.90218632	45.55568714																																		
779	-88.90217230	45.55640709																																		
780	-88.90215828	45.55712704																																		
781	-88.90214426	45.55784699																																		
782	-88.90213024	45.55856695																																		
783	-88.90211622	45.55928690	34																																	
784	-88.90210219	45.56000685	7	R	P																															
785	-88.90180650	45.52255943	2	S	V																															
786	-88.90179249	45.52327939	18																																	
787	-88.90177848	45.52399934																																		
788	-88.90176447	45.52471930																																		
789	-88.90175046	45.52543925																																		
790	-88.90173644	45.52615921																																		
791	-88.90172243	45.52687916																																		
792	-88.90170842	45.52759912																																		
793	-88.90169441	45.52831907																																		
794	-88.90168039	45.52903903																																		
795	-88.90166638	45.52975898																																		
796	-88.90165237	45.53047894																																		
797	-88.90163835	45.53119889																																		
798	-88.90162434	45.53191885																																		
799	-88.90161032	45.53263880																																		
800	-88.90159630	45.53335875																																		
801	-88.90158229	45.53407871																																		
802	-88.90156827	45.53479866																																		
803	-88.90155425	45.53551862																																		
804	-88.90154023	45.53623857																																		
805	-88.90152621	45.53695852																																		
806	-88.90151219	45.53767848																																		
807	-88.90149817	45.53839843																																		
808	-88.90148415	45.53911838																																		
809	-88.90147013	45.53983834																																		
810	-88.90145611	45.54055829																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
811	-88.90144209	45.54127824																																		
812	-88.90142806	45.54199820																																		
813	-88.90141404	45.54271815																																		
814	-88.90140002	45.54343810																																		
815	-88.90138599	45.54415806																																		
816	-88.90137197	45.54487801																																		
817	-88.90135794	45.54559796																																		
818	-88.90134391	45.54631791	38																																	
819	-88.90132989	45.54703787	30																																	
820	-88.90131586	45.54775782																																		
821	-88.90130183	45.54847777																																		
822	-88.90128780	45.54919772																																		
823	-88.90127378	45.54991767																																		
824	-88.90125975	45.55063763																																		
825	-88.90124572	45.55135758																																		
826	-88.90123169	45.55207753																																		
827	-88.90121766	45.55279748																																		
828	-88.90120362	45.55351743																																		
829	-88.90118959	45.55423738	26																																	
830	-88.90117556	45.55495733	33																																	
831	-88.90116153	45.55567729	30																																	
832	-88.90114749	45.55639724	34																																	
833	-88.90113346	45.55711719	35																																	
834	-88.90111942	45.55783714	34																																	
835	-88.90110539	45.55855709	40																																	
836	-88.90109135	45.55927704	18	S	R																															
837	-88.90107732	45.55999699	2	R	P				1																											
838	-88.90078230	45.52254958	2	S	V																															
839	-88.90076828	45.52326954	38																																	
840	-88.90075425	45.52398949																																		
841	-88.90074023	45.52470945																																		
842	-88.90072621	45.52542940																																		
843	-88.90071218	45.52614936																																		
844	-88.90069816	45.52686931																																		
845	-88.90068413	45.52758926																																		
846	-88.90067011	45.52830922																																		
847	-88.90065608	45.52902917																																		
848	-88.90064205	45.52974913																																		
849	-88.90062803	45.53046908																																		
850	-88.90061400	45.53118904																																		
851	-88.90059997	45.53190899																																		
852	-88.90058594	45.53262894																																		
853	-88.90057191	45.53334890																																		
854	-88.90055788	45.53406885																																		
855	-88.90054385	45.53478881																																		
856	-88.90052982	45.53550876																																		
857	-88.90051579	45.53622871																																		
858	-88.90050175	45.53694867																																		
859	-88.90048772	45.53766862																																		
860	-88.90047369	45.53838857																																		
861	-88.90045965	45.53910853																																		
862	-88.90044562	45.53982848																																		
863	-88.90043158	45.54054843																																		
864	-88.90041755	45.54126839	33																																	

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
865	-88.90040351	45.54198834																																		
866	-88.90038948	45.54270829																																		
867	-88.90037544	45.54342824																																		
868	-88.90036140	45.54414820																																		
869	-88.90034736	45.54486815																																		
870	-88.90033333	45.54558810	27																																	
871	-88.90031929	45.54630805	28																																	
872	-88.90030525	45.54702800	35																																	
873	-88.90029121	45.54774796																																		
874	-88.90027717	45.54846791																																		
875	-88.90026312	45.54918786																																		
876	-88.90024908	45.54990781																																		
877	-88.90023504	45.55062776																																		
878	-88.90022100	45.55134772																																		
879	-88.90020695	45.55206767																																		
880	-88.90019291	45.55278762	41																																	
881	-88.90017886	45.55350757	23																																	
882	-88.90016482	45.55422752	16	S	R																															
883	-88.90015077	45.55494747	23																																	
884	-88.90013673	45.55566742	14	S	R																															
885	-88.90012268	45.55638737	14	S	R																															
886	-88.90010863	45.55710732	16	S	R																															
887	-88.90009459	45.55782727	33																																	
888	-88.90008054	45.55854723	12	S	R	1						1																								
889	-88.90006649	45.55926718	6	S	P							1																								
890	-88.89975810	45.52253972	2	S	V																															
891	-88.89974407	45.52325967	10	S	P														1																	
892	-88.89973003	45.52397963	35																																	
893	-88.89971600	45.52469958																																		
894	-88.89970196	45.52541954																																		
895	-88.89968792	45.52613949																																		
896	-88.89967388	45.52685945																																		
897	-88.89965984	45.52757940																																		
898	-88.89964581	45.52829936																																		
899	-88.89963177	45.52901931																																		
900	-88.89961773	45.52973926																																		
901	-88.89960369	45.53045922																																		
902	-88.89958964	45.53117917																																		
903	-88.89957560	45.53189913																																		
904	-88.89956156	45.53261908																																		
905	-88.89954752	45.53333903																																		
906	-88.89953347	45.53405899																																		
907	-88.89951943	45.53477894																																		
908	-88.89950539	45.53549889																																		
909	-88.89949134	45.53621885																																		
910	-88.89947730	45.53693880																																		
911	-88.89946325	45.53765875																																		
912	-88.89944920	45.53837871																																		
913	-88.89943516	45.53909866																																		
914	-88.89942111	45.53981861																																		
915	-88.89940706	45.54053856																																		
916	-88.89939301	45.54125852																																		
917	-88.89937896	45.54197847																																		
918	-88.89936491	45.54269842																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
919	-88.89935086	45.54341837																																		
920	-88.89933681	45.54413833																																		
921	-88.89932276	45.54485828	28																																	
922	-88.89930871	45.54557823	12	S	R																															
923	-88.89929466	45.54629818	15	S	R																			1												
924	-88.89928061	45.54701814	38																																	
925	-88.89926655	45.54773809																																		
926	-88.89925250	45.54845804																																		
927	-88.89923844	45.54917799																																		
928	-88.89922439	45.54989794																																		
929	-88.89921033	45.55061789																																		
930	-88.89919628	45.55133784																																		
931	-88.89918222	45.55205780																																		
932	-88.89916816	45.55277775	39																																	
933	-88.89915411	45.55349770	13	R	R					1																										
934	-88.89914005	45.55421765	9	R	P																															
935	-88.89912599	45.55493760	6	S	P																															
936	-88.89911193	45.55565755	6	R	P																															
937	-88.89909787	45.55637750	5	E	P																															
938	-88.89908381	45.55709745	5	S	P																															
939	-88.89906975	45.55781740	32																																	
940	-88.89905569	45.55853735	6	R	P																															
941	-88.89904163	45.55925730	4	R	V																															
942	-88.89873391	45.52252985																																		
943	-88.89871986	45.52324980	4	S	V																															
944	-88.89870581	45.52396976	18	S	R				1	1	1													1												
945	-88.89869176	45.52468971																																		
946	-88.89867771	45.52540967																																		
947	-88.89866366	45.52612962																																		
948	-88.89864961	45.52684958																																		
949	-88.89863556	45.52756953																																		
950	-88.89862151	45.52828948																																		
951	-88.89860745	45.52900944																																		
952	-88.89859340	45.52972939																																		
953	-88.89857935	45.53044935																																		
954	-88.89856529	45.53116930																																		
955	-88.89855124	45.53188925																																		
956	-88.89853718	45.53260921																																		
957	-88.89852313	45.53332916																																		
958	-88.89850907	45.53404911																																		
959	-88.89849501	45.53476907																																		
960	-88.89848096	45.53548902																																		
961	-88.89846690	45.53620897																																		
962	-88.89845284	45.53692893																																		
963	-88.89843878	45.53764888																																		
964	-88.89842472	45.53836883																																		
965	-88.89841066	45.53908878																																		
966	-88.89839660	45.53980874																																		
967	-88.89838254	45.54052869																																		
968	-88.89836848	45.54124864																																		
969	-88.89835442	45.54196859																																		
970	-88.89834035	45.54268855																																		
971	-88.89832629	45.54340850																																		
972	-88.89831223	45.54412845																																		

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
973	-88.89829816	45.54484840	21																																	
974	-88.89828410	45.54556835	7	S	P																															
975	-88.89827003	45.54628830	10	S	R																															
976	-88.89825597	45.54700826	29																																	
977	-88.89824190	45.54772821																																		
978	-88.89822783	45.54844816																																		
979	-88.89821376	45.54916811																																		
980	-88.89819970	45.54988806																																		
981	-88.89818563	45.55060801																																		
982	-88.89817156	45.55132796																																		
983	-88.89815749	45.55204791																																		
984	-88.89814342	45.55276787	34																																	
985	-88.89812935	45.55348782	21	S	R																															
986	-88.89811528	45.55420777	5	S	P																															
987	-88.89810121	45.55492772	10	S	P																															
988	-88.89808713	45.55564767	9	S	P																															
989	-88.89807306	45.55636762	25																																	
990	-88.89805899	45.55708757	16	S	R																															
991	-88.89804491	45.55780752	18	S	R																															
992	-88.89803084	45.55852747	3	R	V																															
993	-88.89769565	45.52323992	2	S	V																															
994	-88.89768159	45.52395988	5	S	P																															
995	-88.89766753	45.52467983	9	S	P				1																											
996	-88.89765346	45.52539979	21																																	
997	-88.89763940	45.52611974																																		
998	-88.89762534	45.52683969																																		
999	-88.89761127	45.52755965																																		
1000	-88.89759721	45.52827960																																		
1001	-88.89758314	45.52899956																																		
1002	-88.89756907	45.52971951																																		
1003	-88.89755501	45.53043946																																		
1004	-88.89754094	45.53115942																																		
1005	-88.89752687	45.53187937																																		
1006	-88.89751280	45.53259932																																		
1007	-88.89749874	45.53331928																																		
1008	-88.89748467	45.53403923																																		
1009	-88.89747060	45.53475918																																		
1010	-88.89745653	45.53547914																																		
1011	-88.89744245	45.53619909																																		
1012	-88.89742838	45.53691904																																		
1013	-88.89741431	45.53763899																																		
1014	-88.89740024	45.53835895																																		
1015	-88.89738617	45.53907890																																		
1016	-88.89737209	45.53979885																																		
1017	-88.89735802	45.54051880																																		
1018	-88.89734394	45.54123875																																		
1019	-88.89732987	45.54195871																																		
1020	-88.89731579	45.54267866																																		
1021	-88.89730172	45.54339861																																		
1022	-88.89728764	45.54411856																																		
1023	-88.89727356	45.54483851	23																																	
1024	-88.89725948	45.54555847	4	S	P																															
1025	-88.89724541	45.54627842	5	S	P																															
1026	-88.89723133	45.54699837	15	S	R																															

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
1027	-88.89721725	45.54771832	37																																	
1028	-88.89720317	45.54843827																																		
1029	-88.89718909	45.54915822																																		
1030	-88.89717501	45.54987817	38																																	
1031	-88.89716092	45.55059812	27																																	
1032	-88.89714684	45.55131807																																		
1033	-88.89713276	45.55203803	39																																	
1034	-88.89711868	45.55275798	25																																	
1035	-88.89710459	45.55347793	9	S	P																															
1036	-88.89709051	45.55419788	5	R	P							1																								
1037	-88.89707642	45.55491783	4	S	P						1	1	1					1																		
1038	-88.89706234	45.55563778	23																																	
1039	-88.89704825	45.55635773	25																																	
1040	-88.89703416	45.55707768	27																																	
1041	-88.89702008	45.55779763	2	S	P																															
1042	-88.89700599	45.55851758	6	S	P																															
1043	-88.89665737	45.52394999	3	S	P																															
1044	-88.89664329	45.52466994	4	S	P				1																											
1045	-88.89662922	45.52538990	5	S	P								1																							
1046	-88.89661514	45.52610985	5	S	P						1																									
1047	-88.89660106	45.52682980	5	S	P																															
1048	-88.89658698	45.52754976	5	S	P																															
1049	-88.89657291	45.52826971	10	S	P																															
1050	-88.89655883	45.52898966	21																																	
1051	-88.89654475	45.52970962	45																																	
1052	-88.89653067	45.53042957																																		
1053	-88.89651659	45.53114952																																		
1054	-88.89650251	45.53186948																																		
1055	-88.89648843	45.53258943																																		
1056	-88.89647434	45.53330938																																		
1057	-88.89646026	45.53402934																																		
1058	-88.89644618	45.53474929																																		
1059	-88.89643210	45.53546924																																		
1060	-88.89641801	45.53618919																																		
1061	-88.89640393	45.53690915																																		
1062	-88.89638984	45.53762910																																		
1063	-88.89637576	45.53834905																																		
1064	-88.89636167	45.53906900																																		
1065	-88.89634758	45.53978896																																		
1066	-88.89633350	45.54050891	22																																	
1067	-88.89631941	45.54122886	24																																	
1068	-88.89630532	45.54194881																																		
1069	-88.89629123	45.54266876																																		
1070	-88.89627714	45.54338871																																		
1071	-88.89626305	45.54410867	47																																	
1072	-88.89624896	45.54482862	13	S	R																															
1073	-88.89623487	45.54554857	5	S	P							1																								
1074	-88.89622078	45.54626852	4	S	P							1																								
1075	-88.89620669	45.54698847	10	S	P													1						1												
1076	-88.89619259	45.54770842	36																																	
1077	-88.89617850	45.54842837																																		
1078	-88.89616441	45.54914832																																		
1079	-88.89615031	45.54986827	35																																	
1080	-88.89613622	45.55058823	18	S	R																															

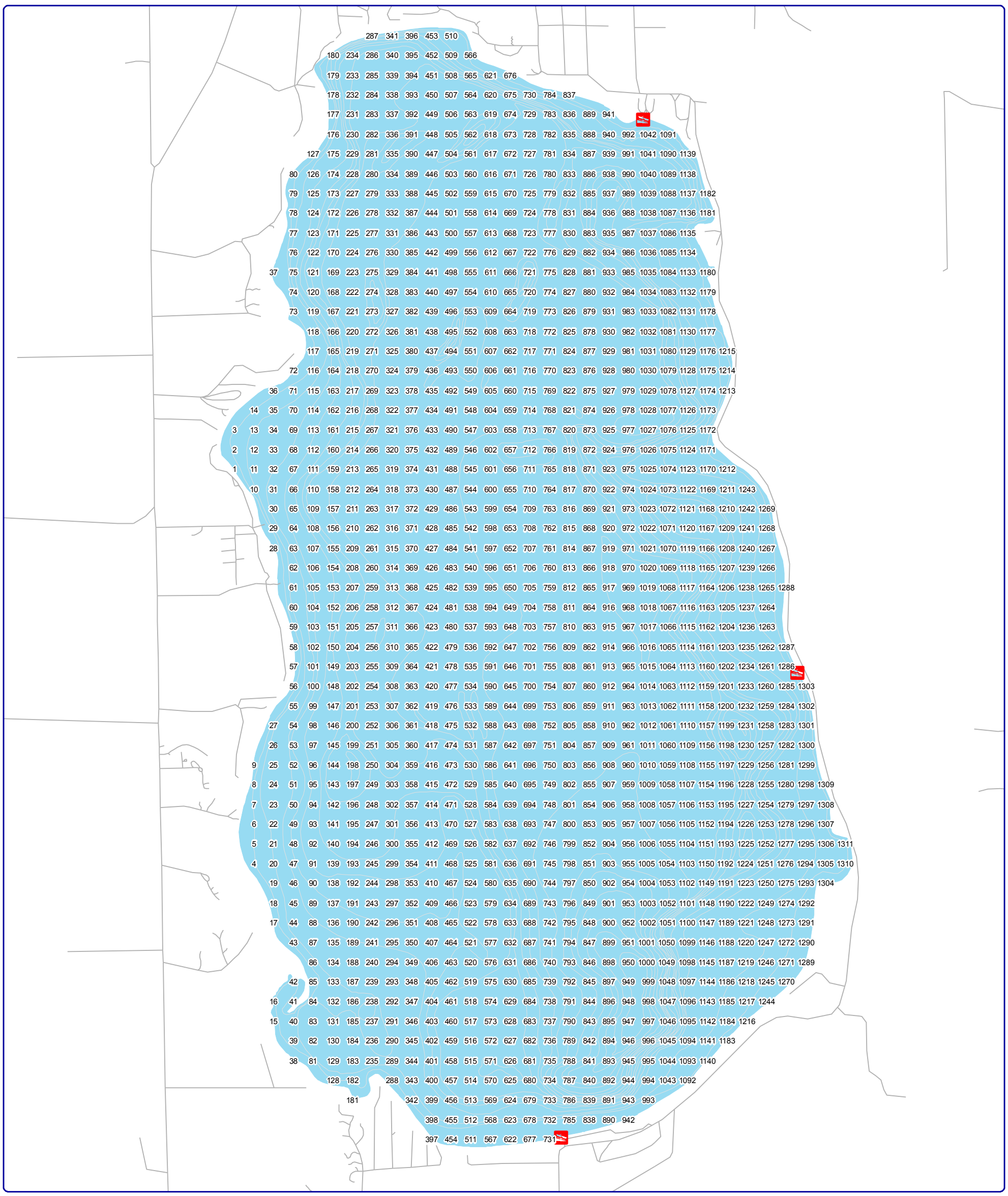
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
1081	-88.89612212	45.55130818	29																																	
1082	-88.89610803	45.55202813	33																																	
1083	-88.89609393	45.55274808	16	S	R																															
1084	-88.89607984	45.55346803	5	S	P																															
1085	-88.89606574	45.55418798	3	S	P																															
1086	-88.89605164	45.55490793	1	R	V																															
1087	-88.89603754	45.55562788	12	S	R					1	1																									
1088	-88.89602344	45.55634783	26																																	
1089	-88.89600934	45.55706778	26																																	
1090	-88.89599524	45.55778773	17	S	R																															
1091	-88.89598114	45.55850768																																		
1092	-88.89563315	45.52394009																																		
1093	-88.89561906	45.52466004	2	S	V																															
1094	-88.89560497	45.52538000	3	S	P								1																							
1095	-88.89559088	45.52609995	3	S	P							1	1																						1	
1096	-88.89557679	45.52681990	5	S	P																															
1097	-88.89556270	45.52753986	6	S	P																															
1098	-88.89554861	45.52825981	6	S	P																															
1099	-88.89553452	45.52897976	7	S	P				1				1																							
1100	-88.89552042	45.52969972	16	S	R																															
1101	-88.89550633	45.53041967	22																																	
1102	-88.89549224	45.53113962	39																																	
1103	-88.89547814	45.53185958	45																																	
1104	-88.89546405	45.53257953																																		
1105	-88.89544995	45.53329948																																		
1106	-88.89543586	45.53401943																																		
1107	-88.89542176	45.53473939																																		
1108	-88.89540767	45.53545934																																		
1109	-88.89539357	45.53617929																																		
1110	-88.89537947	45.53689924																																		
1111	-88.89536537	45.53761920																																		
1112	-88.89535127	45.53833915																																		
1113	-88.89533718	45.53905910																																		
1114	-88.89532308	45.53977905																																		
1115	-88.89530898	45.54049900	22																																	
1116	-88.89529487	45.54121896	18	S	R																															
1117	-88.89528077	45.54193891	26																																	
1118	-88.89526667	45.54265886	40																																	
1119	-88.89525257	45.54337881	39																																	
1120	-88.89523847	45.54409876	38																																	
1121	-88.89522436	45.54481871	27																																	
1122	-88.89521026	45.54553866	6	S	P																			1												
1123	-88.89519615	45.54625861	3	S	P																															
1124	-88.89518205	45.54697856	3	S	P																															
1125	-88.89516794	45.54769852	22																																	
1126	-88.89515384	45.54841847	29																																	
1127	-88.89513973	45.54913842	34																																	
1128	-88.89512562	45.54985837	26																																	
1129	-88.89511152	45.55057832	13	S	R																															
1130	-88.89509741	45.55129827	10	S	R					1		1																								
1131	-88.89508330	45.55201822	9	S	P																															
1132	-88.89506919	45.55273817	3	S	P	1						1																								
1133	-88.89505508	45.55345812	2	S	V																						1									
1134	-88.89504097	45.55417807	2	S	P	1			1			1																								

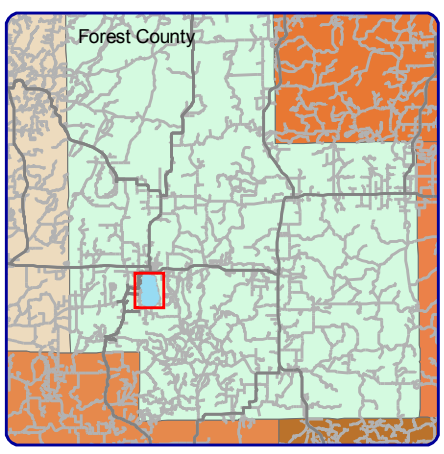
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
1135	-88.89502686	45.55489802	1	R	V																															
1136	-88.89501275	45.55561797	14	S	R							1																								
1137	-88.89499863	45.55633792	24																																	
1138	-88.89498452	45.55705787	18	S	R						1																									
1139	-88.89497041	45.55777782	5	S	P																															
1140	-88.89459483	45.52465014	2	S	P																															
1141	-88.89458072	45.52537009	2	S	V																															
1142	-88.89456662	45.52609004	3	S	P																															
1143	-88.89455252	45.52681000	4	S	P								1					1									1									
1144	-88.89453841	45.52752995	4	S	P								1																							
1145	-88.89452431	45.52824990	5	S	P																															
1146	-88.89451021	45.52896986	5	S	P																															
1147	-88.89449610	45.52968981	5	S	P												1																			
1148	-88.89448199	45.53040976	12	S	P																															
1149	-88.89446789	45.53112971	23																																	
1150	-88.89445378	45.53184967	31																																	
1151	-88.89443967	45.53256962	37																																	
1152	-88.89442556	45.53328957																																		
1153	-88.89441146	45.53400952																																		
1154	-88.89439735	45.53472948																																		
1155	-88.89438324	45.53544943																																		
1156	-88.89436913	45.53616938																																		
1157	-88.89435502	45.53688933	46																																	
1158	-88.89434091	45.53760928	30																																	
1159	-88.89432679	45.53832924	40																																	
1160	-88.89431268	45.53904919	41																																	
1161	-88.89429857	45.53976914	37																																	
1162	-88.89428446	45.54048909	17	S	R					1																										
1163	-88.89427034	45.54120904	11	S	R					1														1												
1164	-88.89425623	45.54192899	11	S	R																															
1165	-88.89424211	45.54264894	36																																	
1166	-88.89422800	45.54336890	38																																	
1167	-88.89421388	45.54408885	41																																	
1168	-88.89419976	45.54480880	39																																	
1169	-88.89418565	45.54552875	19	S	R																															
1170	-88.89417153	45.54624870	3	S	V																						1									
1171	-88.89415741	45.54696865	2	S	V					1			1						1								1						1			
1172	-88.89414329	45.54768860	2	S	V																						1						1			
1173	-88.89412917	45.54840855	4	S	P				1									1																		
1174	-88.89411505	45.54912850	11	S	R					1	1						1							1												
1175	-88.89410093	45.54984845	8	S	P													1																		
1176	-88.89408681	45.55056840	8	S	P						1				1			1																		
1177	-88.89407269	45.55128835	5	S	P				1																											
1178	-88.89405857	45.55200830	2	S	P				1										1																	
1179	-88.89404445	45.55272825	1	S	V														1																	
1180	-88.89403032	45.55344820	1	S	V	1									1						1	1														
1181	-88.89398795	45.55560805	7	M	P						1				1									1												
1182	-88.89397383	45.55632800	5	R	P																															
1183	-88.89355648	45.52536017	0.5	S	V																															
1184	-88.89354236	45.52608013	2	S	P																															
1185	-88.89352825	45.52680008	3	S	P								1																							
1186	-88.89351413	45.52752003	3	R	P								1																							
1187	-88.89350001	45.52823998	4	R	P																															
1188	-88.89348589	45.52895994	6	S	P								1																							

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
1189	-88.89347178	45.52967989	6	S	P																																
1190	-88.89345766	45.53039984	8	S	P																																
1191	-88.89344354	45.53111979	15	S	R											1																					
1192	-88.89342942	45.53183975	18	S	R																																
1193	-88.89341530	45.53255970	19	S	R																																
1194	-88.89340118	45.53327965	24																																		
1195	-88.89338705	45.53399960	43																																		
1196	-88.89337293	45.53471956	39																																		
1197	-88.89335881	45.53543951	34																																		
1198	-88.89334469	45.53615946	48																																		
1199	-88.89333056	45.53687941	43																																		
1200	-88.89331644	45.53759936	18	S	R					1																											
1201	-88.89330231	45.53831931	18	S	R																																
1202	-88.89328819	45.53903927	35																																		
1203	-88.89327406	45.53975922	27																																		
1204	-88.89325994	45.54047917	11	S	P										1									1													
1205	-88.89324581	45.54119912	6	S	P																																
1206	-88.89323168	45.54191907	6	S	P																																
1207	-88.89321755	45.54263902	9	S	R					1														1													
1208	-88.89320342	45.54335897	32																																		
1209	-88.89318930	45.54407892	36																																		
1210	-88.89317517	45.54479887	38																																		
1211	-88.89316104	45.54551882	13	S	R																																
1212	-88.89314690	45.54623877	3	S	V																						1										
1213	-88.89309038	45.54911857	2	S	V																																
1214	-88.89307624	45.54983852	2	S	V				1		1								1																		
1215	-88.89306211	45.55055847	3	S	V																																
1216	-88.89251810	45.52607020	0.5	S	V																																
1217	-88.89250398	45.52679015	2	S	V																																
1218	-88.89248985	45.52751010	2	S	P						1																										
1219	-88.89247572	45.52823006	3	S	V																						1							1			
1220	-88.89246158	45.52895001	4	S	P																																
1221	-88.89244745	45.52966996	5	S	P																																
1222	-88.89243332	45.53038991	6	S	P																																
1223	-88.89241919	45.53110987	8	S	P																																
1224	-88.89240506	45.53182982	14	S	R										1																						
1225	-88.89239092	45.53254977	24																																		
1226	-88.89237679	45.53326972	25																																		
1227	-88.89236265	45.53398967	25																																		
1228	-88.89234852	45.53470963	27																																		
1229	-88.89233438	45.53542958	15	S	R																																
1230	-88.89232025	45.53614953	32																																		
1231	-88.89230611	45.53686948	36																																		
1232	-88.89229197	45.53758943	20																																		
1233	-88.89227783	45.53830938	10	S	R				1						1																						
1234	-88.89226369	45.53902933	11	S	R				1																												
1235	-88.89224956	45.53974928	7	S	P							1																									
1236	-88.89223542	45.54046924	5	S	P								1																								
1237	-88.89222128	45.54118919	5	S	P				1	1		1	1																								
1238	-88.89220714	45.54190914	2	S	V				1			1						1									1										
1239	-88.89219299	45.54262909	4	S	P																																
1240	-88.89217885	45.54334904	9	S	R				1									1																			
1241	-88.89216471	45.54406899	18	S	R																																
1242	-88.89215057	45.54478894	18	S	R																																

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Myriophyllum spicatum	Nymphaea odorata	Nuphar variegata	Vallisneria americana	Elodea canadensis	Ceratophyllum demersum	Najas flexilis	Chara sp.	Stuckenia pectinata	Potamogeton zosteriformis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton illinoensis	Potamogeton gramineus	Sparganium chlorocarpum	Eleocharis palustris	Utricularia vulgaris	Heteranthera dubia	Myriophyllum sibiricum	Sagittaria latifolia	Sagittaria graminea	Scirpus acutus	Scirpus validus	Typha latifolia	Megalodonta beckii	Nitella sp.	Ranunculus flammula	Juncus pelocarpus	Equisetum fluviatile	Isoetes lacustris	Lemna trisulca	Lemna minor
1243	-88.89213642	45.54550889	6	S	R													1																			
1244	-88.89147971	45.52678021	2	S	V				1				1						1																		
1245	-88.89146556	45.52750017	3	S	V																																
1246	-88.89145142	45.52822012	2	S	V																																
1247	-88.89143727	45.52894007	3	R	P								1																								
1248	-88.89142313	45.52966002	3	R	P																																
1249	-88.89140899	45.53037998	6	S	P				1				1																								
1250	-88.89139484	45.53109993	6	S	P								1																								
1251	-88.89138069	45.53181988	9	R	P																																
1252	-88.89136655	45.53253983	21																																		
1253	-88.89135240	45.53325978	16	S	R																																
1254	-88.89133825	45.53397973	8	R	P																																
1255	-88.89132410	45.53469969	6	S	P																																
1256	-88.89130995	45.53541964	8	R	P																																
1257	-88.89129581	45.53613959	10	S	T																																
1258	-88.89128166	45.53685954	26																																		
1259	-88.89126750	45.53757949	33																																		
1260	-88.89125335	45.53829944	21																																		
1261	-88.89123920	45.53901939	6	S	R								1																								
1262	-88.89122505	45.53973934	4	S	V																																
1263	-88.89121090	45.54045929	2	S	P								1																								
1264	-88.89119674	45.54117925	2	S	V				1																												
1265	-88.89118259	45.54189920	2	S	V																																
1266	-88.89116844	45.54261915	2	S	V				1																			1					1		1		
1267	-88.89115428	45.54333910	2	S	V																												1		1		
1268	-88.89114013	45.54405905	5	S	R				1																												
1269	-88.89112597	45.54477900	3	S	V																												1				
1270	-88.89044128	45.52749022	1	S	V																																
1271	-88.89042712	45.52821017	2	S	V																																
1272	-88.89041297	45.52893013	3	S	P																							1									
1273	-88.89039881	45.52965008	2	S	V																							1					1				
1274	-88.89038465	45.53037003	3	S	V																							1									
1275	-88.89037049	45.53108998	5	S	P								1																								
1276	-88.89035633	45.53180993	6	S	P																																
1277	-88.89034217	45.53252988	5	S	P								1																								
1278	-88.89032801	45.53324984	5	S	P																																
1279	-88.89031385	45.53396979	5	S	P																																
1280	-88.89029969	45.53468974	5	S	P																																
1281	-88.89028553	45.53540969	5	S	P																																
1282	-88.89027137	45.53612964	5	S	P																																
1283	-88.89025720	45.53684959	215																																		
1284	-88.89024304	45.53756954	27																																		
1285	-88.89022887	45.53828949	13	S	R					1							1																				
1286	-88.89021471	45.53900944	2	S	V																																
1287	-88.89020055	45.53972939	2	S	V																																
1288	-88.89015805	45.54188925	2	M	V		1											1		1		1			1		1	1								
1289	-88.88940283	45.52820022	1	S	V							1							1																		
1290	-88.88938866	45.52892017	1	S	V			1		1		1		1					1																		
1291	-88.88937449	45.52964012	1	S	V								1																						1		1		
1292	-88.88936032	45.53036007	1	S	V														1																1				
1293	-88.88934614	45.53108003	1	S	V														1									1									
1294	-88.88933197	45.53179998	2	S	V																1							1									
1295	-88.88931780	45.53251993	3	S	V													1										1									
1296	-88.88930363	45.53323988	2	R	V																																

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Nymphaea odorata*	*Nuphar variegata*	*Vallisneria americana*	*Elodea canadensis*	*Ceratophyllum demersum*	*Najas flexilis*	*Chara sp.*	*Stuckenia pectinata*	*Potamogeton zosteriformis*	*Potamogeton praelongus*	*Potamogeton pusillus*	*Potamogeton illinoensis*	*Potamogeton gramineus*	*Sparganium chlorocarpum*	*Eleocharis palustris*	*Utricularia vulgaris*	*Heteranthera dubia*	*Myriophyllum sibiricum*	*Sagittaria latifolia*	*Sagittaria graminea*	*Scirpus acutus*	*Scirpus validus*	*Typha latifolia*	*Megalodonta beckii*	*Nitella sp.*	*Ranunculus flammula*	*Juncus pelocarpus*	*Equisetum fluviatile*	*Isoetes lacustris*	*Lemna trisulca*	*Lemna minor*
1297	-88.88928945	45.53395983	5	R	V																															
1298	-88.88927528	45.53467978	3	S	V																						1									
1299	-88.88926110	45.53539973	4	S	P					1			1																							
1300	-88.88924693	45.53611968	3	S	V																															
1301	-88.88923275	45.53683963	3	S	V				1																											
1302	-88.88921857	45.53755958	3	S	P				1				1																							
1303	-88.88920440	45.53827953	2	S	V																															
1304	-88.88832180	45.53107006	0.5	S	V		1	1																	1	1			1							
1305	-88.88830761	45.53179001	7	M	P						1				1			1																		
1306	-88.88829343	45.53250996	1	S	V		1		1									1									1									
1307	-88.88827924	45.53322991	1	S	V													1	1								1									
1308	-88.88826505	45.53394986	1	S	V							1	1						1								1									
1309	-88.88825086	45.53466981																																		
1310	-88.88728325	45.53178004	6	M	P						1				1																					
1311	-88.88726905	45.53249999	2	M	V		1			1	1				1									1												





Extent of large map shown in red.

Sources:
Roads & Hydro: WDNR
Aquatic Plant Survey Locations: Onterra, 2005
Map date: October 10, 2006

Legend

\# Point-intercept Location

Boat Landing

Appendix E

Lake Metonga

Forest County, Wisconsin

2005 Point-Intercept Sample Locations

1,300
Feet

N
W E
S

Onterra, LLC
Lake Management Planning
135 South Broadway Suite C
De Pere, WI 54115
920.338.8860
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F

APPENDIX F

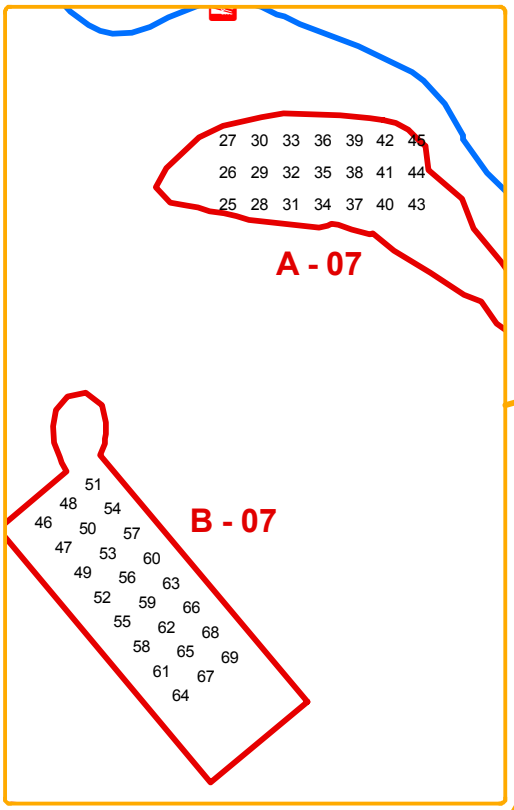
2007 Treatment Monitoring Data

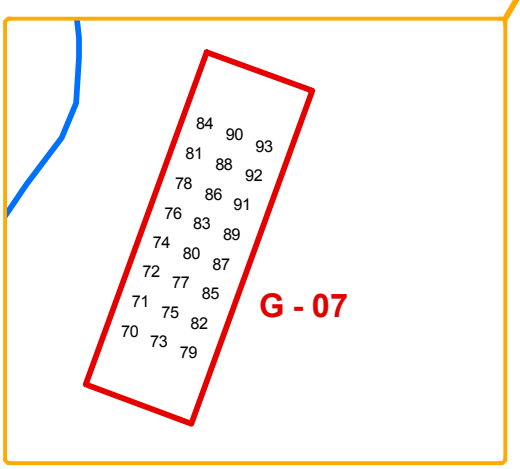
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Ceratophyllum demersum*	*Elodea canadensis*	*Myriophyllum sibericum*	*Potamogeton zosteriformis*	*Nitella sp.*
1	-88.893053	45.540864	6	S	P						
2	-88.892948	45.540700	7	S	P	1					
3	-88.892843	45.540536	7	S	P						
4	-88.892819	45.540938	6	S	P	1					
5	-88.892738	45.540372	8	S	P						
6	-88.892714	45.540774	6	S	P	1					
7	-88.892634	45.540207	9	-	R	1					
8	-88.892609	45.540610	7	S	P	1					
9	-88.892529	45.540043	8	-	R	2					
10	-88.892505	45.540445	7	S	P	1					
11	-88.892424	45.539879	9	-	R	2					
12	-88.892400	45.540281	6	S	P	2					
13	-88.892319	45.539715	9	-	R	1					
14	-88.892295	45.540117	6	S	P	3					
15	-88.892214	45.539550	8	-	R	1					
16	-88.892190	45.539952	7	S	P	2					
17	-88.892110	45.539386	9	-	R	2			1		
18	-88.892085	45.539788	7	S	P	1					
19	-88.892005	45.539222	8	-	R	1			1		
20	-88.891981	45.539624	7	S	P	1					
21	-88.891900	45.539058	8	-	R	1					
22	-88.891876	45.539460	6	S	P	2					
23	-88.891771	45.539295	7	S	P	2					
24	-88.891666	45.539131	7	S	P	1					
25	-88.897242	45.557901	14	-	R	1	2				
26	-88.897239	45.558081	10	-	R	1	1	1			
27	-88.897235	45.558261	6	S	P	1			1		
28	-88.896986	45.557898	17	-	R		1				
29	-88.896982	45.558078	10	-	R	2					
30	-88.896979	45.558258	7	S	P	1	1				
31	-88.896730	45.557896	14	-	R	1					
32	-88.896726	45.558076	10	-	R	1		1			
33	-88.896723	45.558256	8	S	P	1	1				
34	-88.896474	45.557893	12	-	R	1					
35	-88.896470	45.558073	10	-	R	1					
36	-88.896467	45.558253	7	S	P	1		1			
37	-88.896217	45.557891	13	-	R	2					
38	-88.896214	45.558071	10	S	P	1		1			1
39	-88.896210	45.558251	6	S	P			1			
40	-88.895961	45.557888	12	-	R	1					
41	-88.895958	45.558068	8	S	P	1		1	1		
42	-88.895954	45.558248	5	S	P						
43	-88.895705	45.557886	9	S	P	1					
44	-88.895701	45.558066	5	S	P		1	1	1		
45	-88.895698	45.558246	2	S	P						
46	-88.898778	45.556090	5	S	P						
47	-88.898621	45.555947	5	S	P	1					
48	-88.898575	45.556200	5	S	P	1					
49	-88.898465	45.555805	5	S	P						
50	-88.898418	45.556057	4	S	P	1					

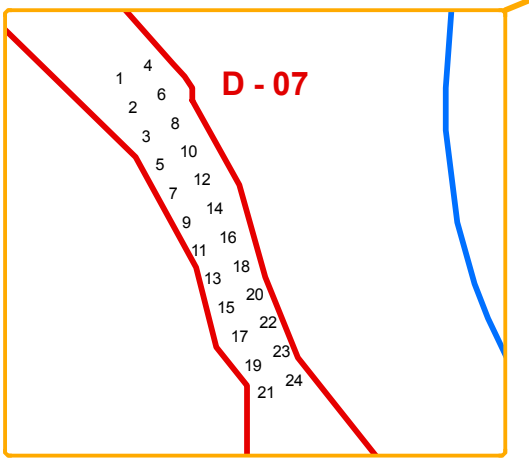
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Ceratophyllum demersum*	*Elodea canadensis*	*Myriophyllum sibericum*	*Potamogeton zosteriformis*	*Nitella sp.*
51	-88.898372	45.556310	7	S	P	2					
52	-88.898309	45.555662	5	S	P	1					
53	-88.898262	45.555915	5	S	P						
54	-88.898215	45.556167	14	-	R	1		1			
55	-88.898152	45.555520	5	S	P						
56	-88.898106	45.555772	6	S	P						
57	-88.898059	45.556025	12	-	R	2					
58	-88.897996	45.555377	6	S	P						
59	-88.897949	45.555629	5	S	P						
60	-88.897903	45.555882	8	-	R	1					
61	-88.897840	45.555234	6	S	P						
62	-88.897793	45.555487	6	S	P	2		1			
63	-88.897746	45.555739	13	-	R	1					
64	-88.897683	45.555092	5	S	P						
65	-88.897637	45.555344	5	S	P	2					
66	-88.897590	45.555597	12	-	R		1				
67	-88.897480	45.555202	5	S	P						
68	-88.897434	45.555454	13	-	R	1		1			
69	-88.897277	45.555312	8	-	R	2					
70	-88.914554	45.549356	11	-	R			1			
71	-88.914463	45.549524	10	-	R						
72	-88.914372	45.549692	10	-	R	1		2	1		
73	-88.914315	45.549292	14	-	R	1	2				
74	-88.914281	45.549861	10	-	R			1	1		
75	-88.914224	45.549460	13	-	R	1	1	1			
76	-88.914190	45.550029	9	-	R	2			1		
77	-88.914133	45.549628	12	-	R	1	2	1			
78	-88.914099	45.550197	9	-	R			1	1		
79	-88.914075	45.549228	15	-	R		2				
80	-88.914041	45.549797	12	-	R	1	2				
81	-88.914008	45.550365	10	-	R	1	1				
82	-88.913984	45.549396	14	-	R	1	2				
83	-88.913950	45.549965	12	-	R	2	1				
84	-88.913916	45.550534	9	-	R	1		1	1		
85	-88.913893	45.549564	14	-	R		2				
86	-88.913859	45.550133	12	-	R	2	1				
87	-88.913802	45.549733	14	-	R	1	3				
88	-88.913768	45.550301	12	-	R		3			1	
89	-88.913711	45.549901	14	-	R	1	2				
90	-88.913677	45.550470	14	-	R	1	3				
91	-88.913620	45.550069	14	-	R		2	1			
92	-88.913529	45.550237	15	-	R		1	1			
93	-88.913438	45.550406	16	-	R						

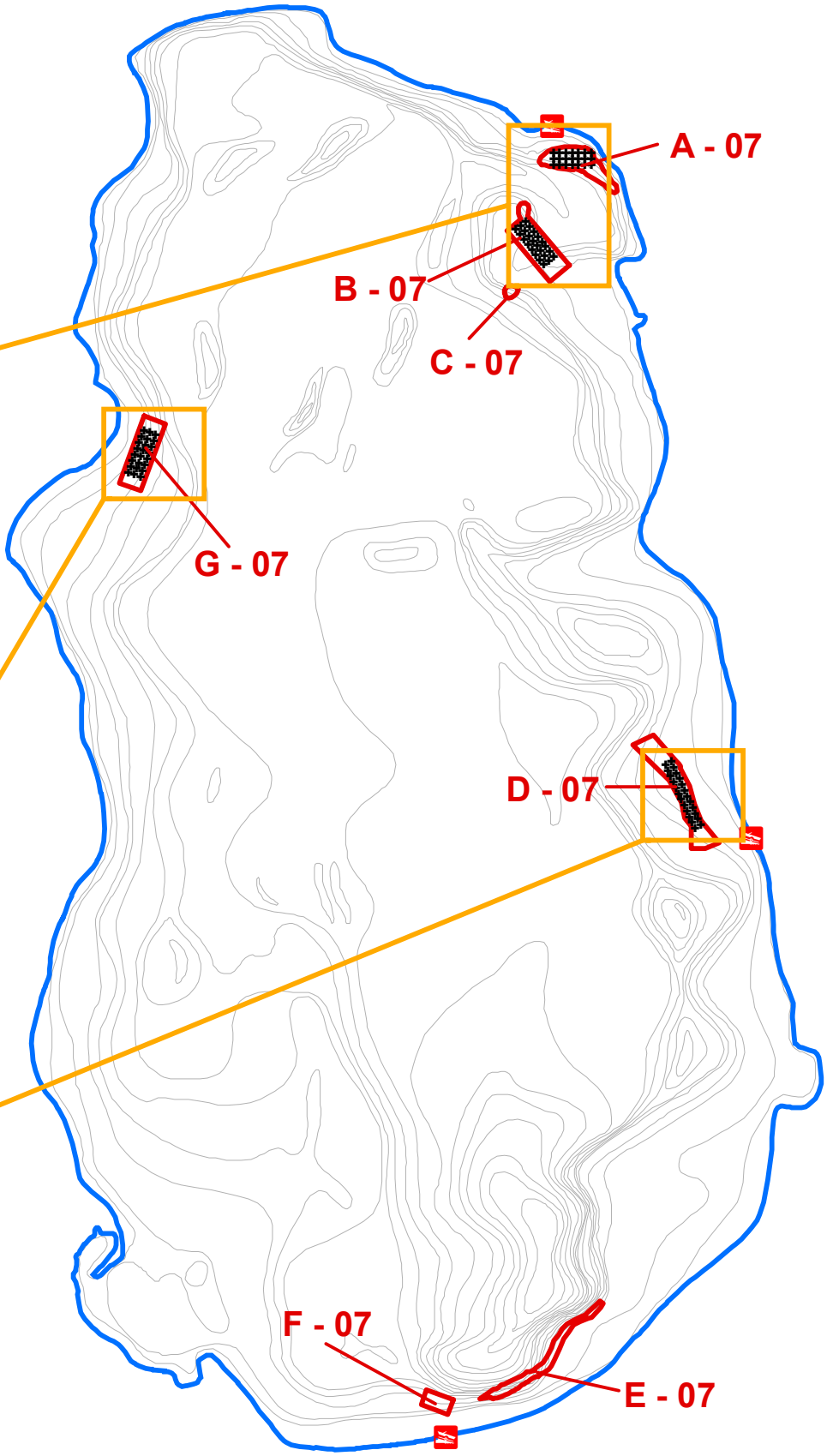
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type	Rope (R); Pole (P); Visual (V)	Myriophyllum spicatum	Ceratophyllum demersum	Elodea canadensis	Myriophyllum sibericum	Vallisneria americana	Potamogeton illinoensis	Potamogeton zosteriformis	Potamogeton pusillus	Najas flexilis	Nitella sp.	Chara sp.	Potamogeton strictifolius	Potamogeton gramineus
1	-88.893053	45.540864	6	-	R	1								1				
2	-88.892948	45.540700	5	-	R													
3	-88.892843	45.540536	7	-	R	1			1									
4	-88.892819	45.540938	6	-	R	1												
5	-88.892738	45.540372	6	-	R	1												
6	-88.892714	45.540774	6	-	R					1								
7	-88.892634	45.540207	8	-	R													
8	-88.892609	45.540610	6	-	R													
9	-88.892529	45.540043	8	-	R	1												
10	-88.892505	45.540445	6	-	R	1												
11	-88.892424	45.539879	5	-	R	2												
12	-88.892400	45.540281	6	-	R	1			1	1								
13	-88.892319	45.539715	8	-	R					1								
14	-88.892295	45.540117	6	-	R	2				1								
15	-88.892214	45.539550	9	-	R			1										
16	-88.892190	45.539952	6	-	R	1			1									
17	-88.892110	45.539386	10	-	R	1		1										
18	-88.892085	45.539788	7	-	R	1												
19	-88.892005	45.539222	8	-	R	1		1	1								1	
20	-88.891981	45.539624	6	-	R		1	1										
21	-88.891900	45.539058	8	-	R		1			1								
22	-88.891876	45.539460	6	-	R	1			1									
23	-88.891771	45.539295	8	-	R			1			1							
24	-88.891666	45.539131	6	-	R				1		1							
25	-88.897242	45.557901	13	-	R													
26	-88.897239	45.558081	10	-	R		1					1						
27	-88.897235	45.558261	7	-	R	1												
28	-88.896986	45.557898	14	-	R	1												
29	-88.896982	45.558078	10	-	R	1												
30	-88.896979	45.558258	6	-	R	1								1				
31	-88.896730	45.557896	12	-	R	1												
32	-88.896726	45.558076	10	-	R		1	1										
33	-88.896723	45.558256	7	-	R		1	1			1							
34	-88.896474	45.557893	14	-	R													
35	-88.896470	45.558073	9	-	R			1										
36	-88.896467	45.558253	7	-	R													
37	-88.896217	45.557891	12	-	R		1											
38	-88.896214	45.558071	10	-	R			1							1			
39	-88.896210	45.558251	6	-	R													
40	-88.895961	45.557888	11	-	R													
41	-88.895958	45.558068	8	-	R		1	1										
42	-88.895954	45.558248	4	-	R													
43	-88.895705	45.557886	9	-	R													
44	-88.895701	45.558066	6	-	R	1	1											
45	-88.895698	45.558246	3	-	R													
46	-88.898778	45.556090	5	-	R													
47	-88.898621	45.555947	5	-	R													
48	-88.898575	45.556200	5	-	R													
49	-88.898465	45.555805	5	-	R													
50	-88.898418	45.556057	5	-	R													
51	-88.898372	45.556310	10	-	R													

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type	Rope (R); Pole (P); Visual (V)	*Myriophyllum spicatum*	*Ceratophyllum demersum*	*Elodea canadensis*	*Myriophyllum sibericum*	*Vallisneria americana*	*Potamogeton illinoensis*	*Potamogeton zosteriformis*	*Potamogeton pusillus*	*Najas flexilis*	*Nitella sp.*	*Chara sp.*	*Potamogeton strictifolius*	*Potamogeton gramineus*
52	-88.898309	45.555662	6	-	R													
53	-88.898262	45.555915	5	-	R													
54	-88.898215	45.556167	12	-	R	1												
55	-88.898152	45.555520	6	-	R						1							
56	-88.898106	45.555772	5	-	R													
57	-88.898059	45.556025	14	-	R	1												
58	-88.897996	45.555377	6	-	R													
59	-88.897949	45.555629	6	-	R													
60	-88.897903	45.555882	7	-	R													
61	-88.897840	45.555234	6	-	R													
62	-88.897793	45.555487	5	-	R	3												
63	-88.897746	45.555739	13	-	R													
64	-88.897683	45.555092	5	-	R													
65	-88.897637	45.555344	5	-	R													
66	-88.897590	45.555597	16	-	R	1		1										
67	-88.897480	45.555202	6	-	R	1												
68	-88.897434	45.555454	15	-	R													
69	-88.897277	45.555312	12	-	R		1											
70	-88.914554	45.549356	11	-	R													
71	-88.914463	45.549524	8	-	R													
72	-88.914372	45.549692	9	-	R													
73	-88.914315	45.549292	14	-	R		2											
74	-88.914281	45.549861	9	-	R											1		
75	-88.914224	45.549460	12	-	R		2											
76	-88.914190	45.550029	8	-	R		1	1										1
77	-88.914133	45.549628	12	-	R			1										
78	-88.914099	45.550197	8	-	R			1		1	1				1			
79	-88.914075	45.549228	14	-	R		1					2						
80	-88.914041	45.549797	12	-	R		1											
81	-88.914008	45.550365	9	-	R			1										
82	-88.913984	45.549396	14	-	R		1	1	1				1					
83	-88.913950	45.549965	12	-	R	1	1	1					1					
84	-88.913916	45.550534	10	-	R		1	1	1			1						
85	-88.913893	45.549564	13	-	R		1											
86	-88.913859	45.550133	11	-	R		2	1										
87	-88.913802	45.549733	12	-	R		1											
88	-88.913768	45.550301	12	-	R	1	1					1						
89	-88.913711	45.549901	131	-	R	1	2											
90	-88.913677	45.550470	16	-	R		2											
91	-88.913620	45.550069	13	-	R	1	1	1										
92	-88.913529	45.550237	14	-	R													
93	-88.913438	45.550406	15	-	R			1					1					





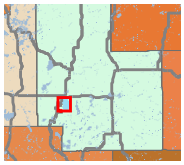




1,600
Feet

Onterra LLC
Lake Management Planning
135 South Broadway Suite C
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

Sources:
Hydro: WDNR
Treatment Areas: Onterra 2007
Bathymetry: WDNR - Digitized by Onterra
Map date: November 30, 2007


Extent of large map shown in red.

Legend

- 2007 Treatment Monitoring Point-intercpet Sample Location
- 2007 Chemical Treament Area

Appendix F
Lake Metonga
Forest County, Wisconsin
2007 Treatment Point-intercept Locations

G

APPENDIX G

2007 Lake Metonga Adult Fish Survey Preliminary Report written by Michael Preul, Sokaogon Chippewa Community Fisheries Biologist

Sokaogon Chippewa Community

2007 Lake Metonga Adult Fish Survey

Preliminary Report

December 20, 2007

Lake Metonga is a 1,991-acre, moderately deep (82 ft), mesotrophic drainage lake located near Crandon, WI. Outlet Creek, the outlet of Lake Metonga, flows into Swamp Creek which eventually passes through the Sokaogon Chippewa Community Indian Reservation. Lake Metonga is clear, highly transparent, moderately-hard, and alkaline. Bottom substrate consists of sand (45%), gravel (45%), rock (5%), and muck (10%). Because of its high water clarity, aquatic plants grow in water depths up to 15 ft.

The fish community is dominated by walleye, smallmouth bass, northern pike, rock bass and yellow perch. The walleye population is self-sustaining but requires supplemental stocking to maintain population levels. Lake Metonga receives high recreational and fishing use with many fishing tournaments held each year. In addition, the Sokaogon Chippewa Community (SCC) exercises treaty rights by harvesting adult walleye from Lake Metonga in the spring. Because of intense tribal and angling harvest, the walleye population has been well studied by fish and game agencies. Walleye surveys to estimate adult population abundance have been performed every 3 – 5 years since 1989; juvenile walleye surveys have been conducted annually (except 1995) since 1985. Other species have been studied but not as intensively.

The Sokaogon Chippewa Community conducted a fisheries survey of Lake Metonga, Forest County, from April 19th through June 13, 2007. The goal of this survey was to obtain detailed information on all gamefish species present, specifically walleye, northern pike, and largemouth and smallmouth bass. Information was collected on other species captured during our sampling efforts, but this information should not be viewed as comprehensive.

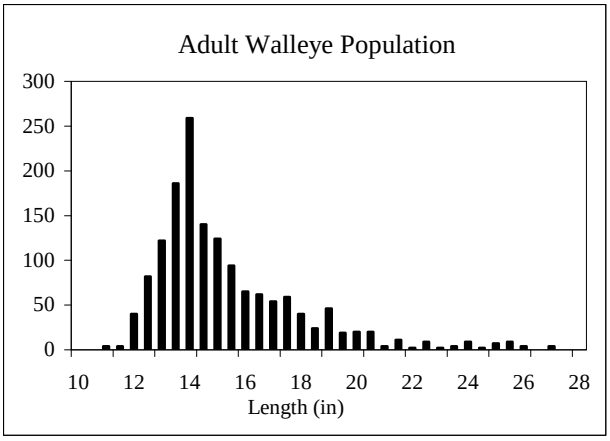
This report provides a brief summary of the adult population survey; however, there will be a more-detailed report available later this winter. This report will include additional results from the adult population survey such as age and growth data, fish condition, etc., but also results from other surveys including the summer panfish survey, the late-summer young-of-year fish survey, the fall baseline fish surveys, and possibly the 2007 Lake Metonga angler creel survey performed by the Wisconsin Department of Natural Resources.

Walleye

The SCC conducted a mark-recapture survey of the Lake Metonga adult walleye population, April 19 to April 27. Adult walleye were defined as all sexable walleye regardless of length and only those of unknown sex > 15 inches long. During six days of fyke netting and three nights of boat electrofishing, 511 adult walleye were captured and marked (fin clipped). On April 27, the lake was resampled using boat electrofishing gear, and 45 adult walleye were captured, of which 13 were clipped from marking efforts.

Based on those results, it is estimated that Lake Metonga contained about 1,532 adult walleye (0.8/acre). This number is slightly higher than the population estimate conducted in 2004 (0.6/acre), but still indicates a population level well-below management goals of 2/acre. Approximately 45% (695) of adult walleye were 15 inches long or longer. The largest walleye captured was a 27.3 inch long female.

Angler and tribal harvest, lack of natural reproduction, and effects of invasive species are all possible reasons for the continued low population levels. Walleye captured during the survey appeared very healthy visually and by taking weights, indicating the Lake Metonga fish community could possibly support more walleye. On November 2, the SCC and the Lake Metonga Association partnered in the stocking of 5000, 6-9 inch fingerling walleye.

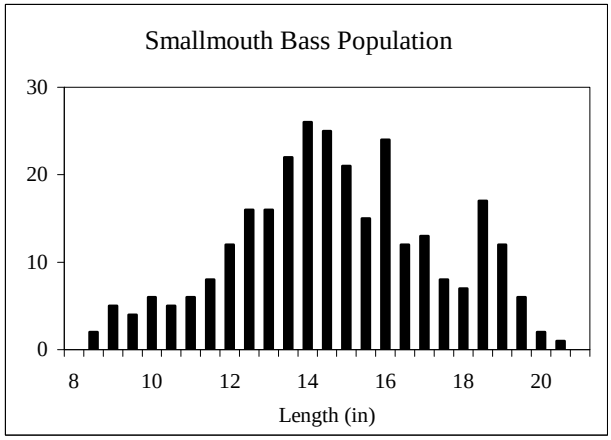


Smallmouth Bass

A mark-recapture survey of the Lake Metonga smallmouth bass population was conducted from April 19 to June 13. During six days of fyke netting and five nights of boat electrofishing, 151 smallmouth bass were captured and marked (fin clipped). On June 13, the lake was resampled using boat electrofishing gear, and 170 smallmouth bass were capture, of which 15 were clipped from marking efforts.

Based on those results, it is estimated that Lake Metonga contained about 1,311 smallmouth bass eight inches or longer (0.7/acre). Of these, 709 (54%) were 14 inches long or larger and 164 (12.5%) were over 18 inches. The largest smallmouth bass we captured was 20.6 inches long.

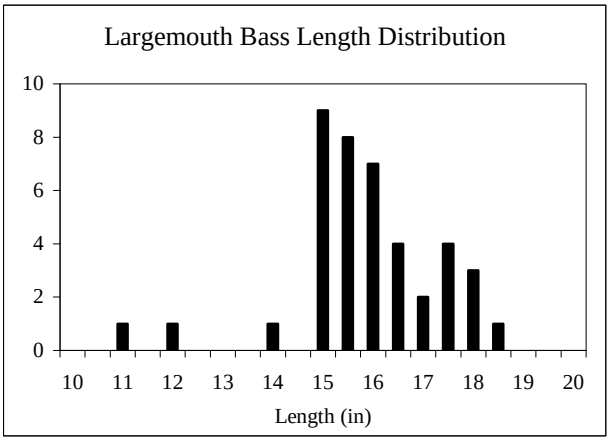
The smallmouth bass fishery appears to be healthy and has remained at about the same density as the last survey in 2004 (0.8/acre). The population consists of many year classes with a nice overall size structure. However, there are some changes to the size structure from 2004 worth noting. In 2004 there were only 15 fish estimated greater than 18 inches, whereas in 2007 there were 164. These differences are less likely due to recruitment to this size but more likely from differences in sampling gear efficiency from survey to survey. In general, smallmouth bass are difficult to sample in Lake Metonga with fyke nets or boat electrofishing due to the depth of smallmouth bass staging and spawning habitat.



Largemouth Bass

A total of 41 largemouth bass were captured during all sampling efforts in the spring,

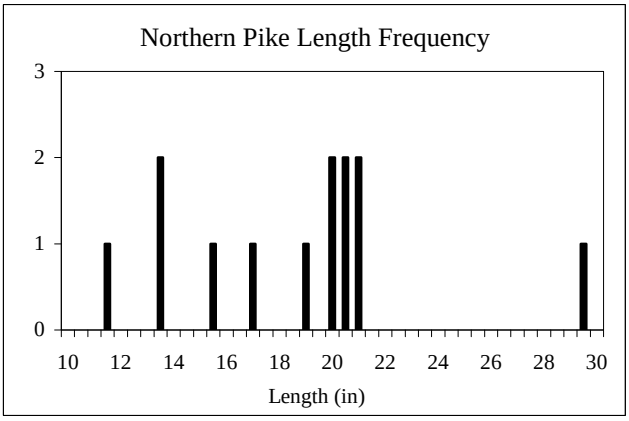
resulting in not enough fish to perform a mark-recapture survey. Of these, 39 fish (95%) were 14 inches long or larger and 4 (10%) were over 18 inches in length. The largest largemouth bass we captured was 18.6 inches long. These numbers are similar to those found in the 2004 survey.
The largemouth bass population has remained at low levels most likely due to the lack of preferred habitat and competition from other species.



Northern Pike

A total of 13 adult northern pike were captured during all sampling efforts in the spring, resulting in not enough fish to perform a mark-recapture survey. Nearly 92% (12) of these fish were less than 26 inches long. The largest northern pike captures was 29.9 inch female.

The northern pike population has declined greatly in abundance since the 2004 survey (137 fish captured). Angler harvest, loss of habitat, competition from other fish species, and effects of invasive species are all possible reasons for the decline.



Other Fish Species

During sampling efforts, six additional species of fish were captured. Low numbers of the following species were present: yellow perch, bluegill, rock bass, white sucker, black bullhead, and black crappie.

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